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University of Illinois

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., FEBRUARY 17, 1899. NUMBER 1

Amos Keyes & Co., ESTABLISHED IN 1848. Commission Dealers In Butter, Cheese, Eggs, Poultry, Etc., 26 Blackstone St., BOSTON MASS.
Consignments Solicited. REFERENCE: Faneuil Hall Nat'l Bank.

W. I. Young & Co., Wholesale Dealers in Fine Butter, Cheese and Eggs.
Liberal Advances Made on Consignments. Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese,
REFERENCES:—Irving Nat'l Bank, Bradstreet; R. G. Dun & Co.,; Mercantile Agencies. 151 Reade St., NEW YORK.

JOHN JAMISON, —ESTABLISHED 50 YEARS.— Butter, Cheese, Eggs, Poultry.
Water and Market Streets, - - PHILADELPHIA, PA.
I reach every outlet and have a constantly increasing trade. REFERENCES: Dun and Bradstreets; Merchants' National Bank, Philadelphia.

C. J. ILSENG & CO., GENERAL COMMISSION MERCHANTS.
SPECIALTIES:—EGGS, BUTTER, POULTRY. 236 South Water Street,
REFERENCES:—State Bank of Chicago; C. Jevne & Co., Chicago, CHICAGO.

David W. Lewis & Co.
177 Chambers St., NEW YORK,
Respectfully solicit the AGENCY OF Creameries in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

WE SELL DIRECT TO THE FARMER.
Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.
Sulky Plows, $25, Riding Gang Plows, $35. 2-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.


Hard Steel CastorCoulter with Plow, $1.50 extra.
HAPGOOD PLOW CO., Box 196, Alton, Ill.
Only Plow factory in the United States selling direct to farmer.

CHR. HANSEN'S Columbian Butter Color
Guaranteed the Purest, Cheapest and Best in the Market.
100 FIRST CLASS PRIZES awarded CHR. HANSEN'S LABORATORY
Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**
Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"The Kind That Keep New."

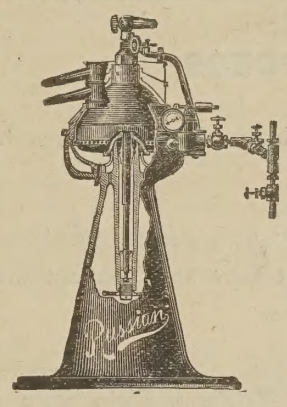
The following unsolicited letter from one of our largest customers is very gratifying to us. Burnap & Burnap, of Toledo, Ohio is one of the greatest, most reliable and oldest firms in the creamery constructing business and have always bought the highest class goods, wherever made, regardless of first costs.

"Toledo, Ohio, Jan. 16th, 1899.
HANEY-CAMPBELL CO.,
Dubuque, Iowa.
Gentlemen:—The plant we built at Hammersley Fork was supplied with your new natural wood finish Vats. Our builder, Mr. Kite, states without solicitation that they are the finest vats he has ever looked at. Yours truly,
BURNAP & BURNAP."

THE BEST costs but little more than the poorest, but lasts many times as long. When buying **Vats, Churns, Workers,** or other dairy or creamery goods, always specify goods from
HANEY - CAMPBELL CO.

PRINT BUTTER SHOULD BE WRAPPED IN **GOOD PARCHMENT.** (Not the Cheap Kind.)
YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to
DEPARTMENT H,
Paterson Parchment Paper Co., Passaic, N. J.

Your Neighboring Creamery



May use a Sharples Separator. If it does, it possesses certain very positive advantages over you. In the first place the Sharples separators require no expensive power plant to run them. You are saved the great expense of buying and maintaining an expensive engine, as the

Sharples Russian Separator

is run by a single jet of steam direct from a very cheap and simple boiler. Then they are so simple in construction and contain so few parts that there is practically no breakage, which brings the ordinarily expensive list of repairs down to almost nothing. By their construction they require but little oil, which is another item of saving. All these features bring the cost of manufacturing butter to the minimum and leave a consequent larger margin of profit. The Sharples Separators are the only smooth skimmers.—That means that they produce cream of remarkable smoothness, absolutely free from bitter froth, and leave the butter globules unbroken and in the best form for exhaustive churning. Think over these points. They save many dollars within the year. Other information and circulars free.

BRANCHES:— Toledo, Ohio. Elgin, Ill. Dubuque, Ia. Omaha, Neb. St. Paul, Minn. San Francisco, Cal.

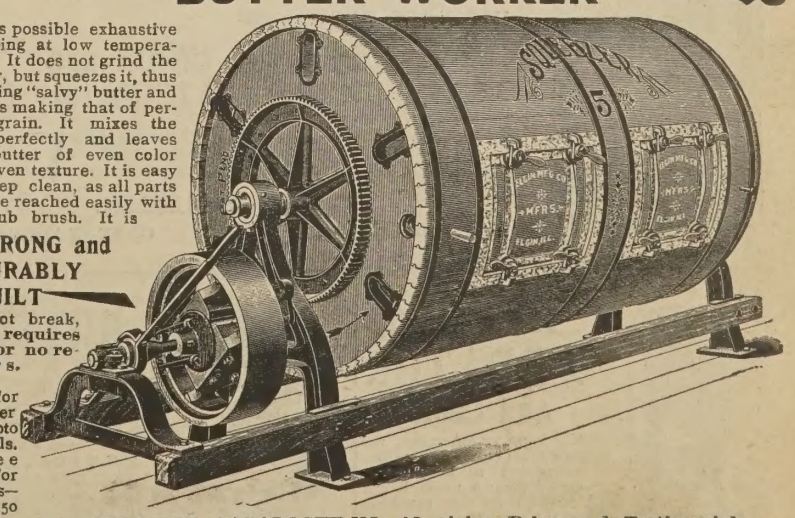
P. M. SHARPLES, West Chester, Pa.

The "SQUEEZER"
COMBINED CHURN and BUTTER WORKER

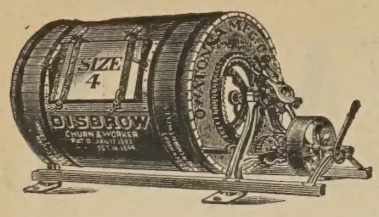
Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.
ELGIN MANUFACTURING CO., - - Elgin, Ill.



SUCCESS

This is the magic word that marks the limit of every man's aspiration. Men who have and men who will achieve success are those who take advantage of every faculty which the world affords in their particular line.

...The DISBROW

COMBINED CHURN and BUTTER WORKER.

IS ITSELF A SUCCESS,

And will promote the success of every man or institution which uses it.

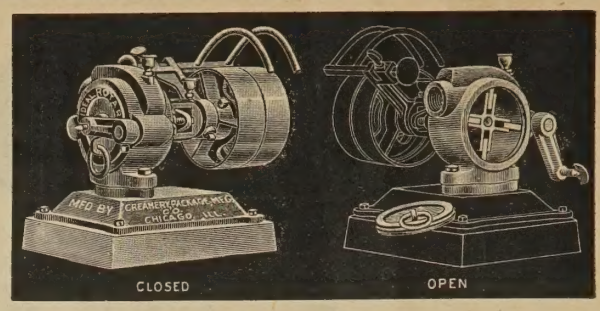
It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

We have made some . . .

IMPROVEMENTS

in our

IDEAL



ROTARY MILK PUMP

Which was thought to be already perfect by large numbers of our customers.

We have simplified the construction without changing the general lines. It now has only one thumb screw to loosen to take off the cylinder head.

It has large capacity. Is very durable. No trouble to clean. Made in three sizes.



"Ideal" Jar Cup Finish.

In Our MILK DEALERS' SUPPLY DEPARTMENT

Can be found everything necessary for the Dairy or Milk Depot. Try our "IDEAL" Milk Jars and Caps. We know our Jars are stronger, of better shape and color, than any other. Write for our special Milk Dealers' Price Current. Also our little booklet, "Suggestions to the Milk Dealer," FREE.



Printed Pulp Cap.

Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

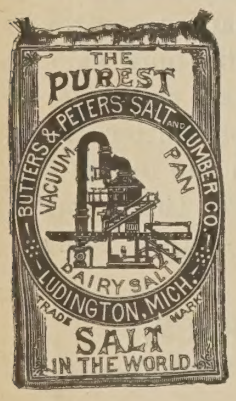
CREAMERY PACKAGE MFG. CO.,

1, 3 and 5 W. Washington St.,

CHICAGO, ILL.

BRANCH HOUSES
KANSAS CITY, MO. MINNEAPOLIS, MINN.
WATERLOO, IOWA. OMAHA, NEB.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



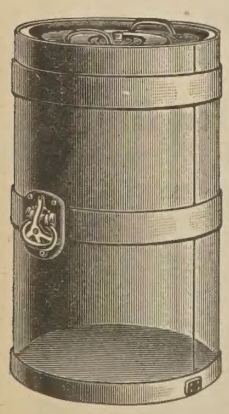
Premium Butter

More than half of the Wisconsin Butter at the World's Fair **THAT SCORED 100 POINTS** was salted with VACUUM PAN SALT. More than three-fourths of all Premium Butter at Wisconsin State Fairs during the last five years was

Salted with

VACUUM PAN SALT.

BUTTERS & PETERS SALT & LUMBER CO.,
LUDINGTON, MICH.



A Great Mystery Solved.

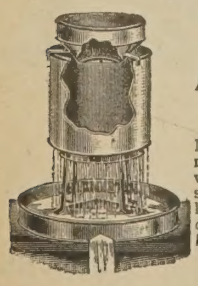
The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,
Sole Manufacturers, - - - CATTARAUGUS, N. Y



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,
W. H. YOUNG,
Box 135, Aurora, Ill.

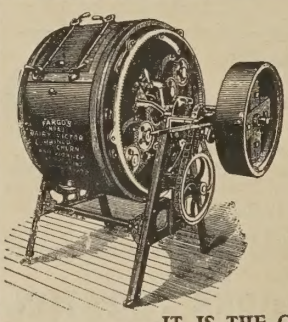
WINTER BUTTER



may be just as good as that from June grass if you know how to treat the milk.

The **PERFECTION** MILK COOLER AND AERATOR will take out all the bad odors and flavors resulting from winter stabling and feeding. They cost but little but are invaluable in the dairy. Write for FREE Circulars.

L. R. LEWIS, Cortland, N. Y.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

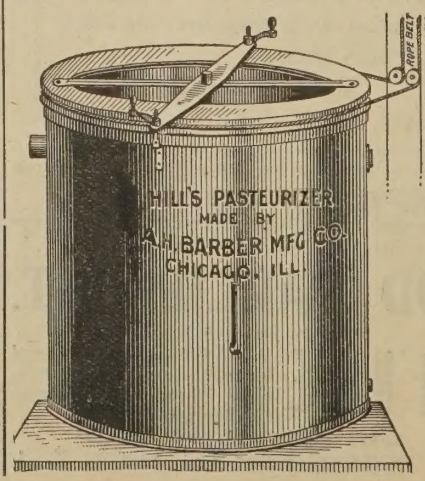
ELLIOT'S PARCHMENT BUTTER PAPERS

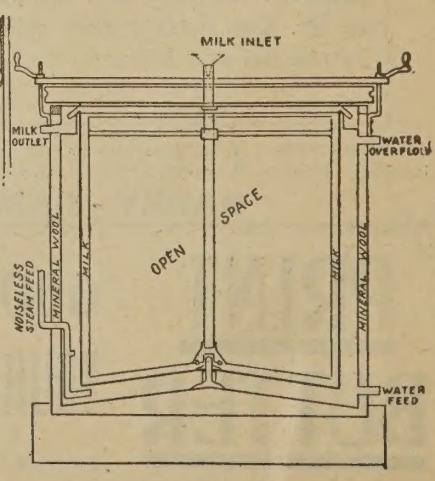
One-Half Ream, 8x11, FREE.

To Dairymen and others who will send 30c to pay postage

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A. G ELLIOT & CO., Paper Mfrs.,
Printing at Moderate Prices. PHILADELPHIA, PA.





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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Secretary Coburn states that the average Kansas cow returns her owner in cash $9.65, while the more intelligently fed cows of Kansas creamery patrons average $20 per head. The college scrub herd yielded $32 per head and the best one paid $60.

The above figures furnish their own lesson. It remains to be seen if the Kansas dairy farmer will profit by it.

We can never prophesy what strange combinations we may be forced to buy as butter. It has been found that glucose acts as preventive of decomposition when added to butter in the proportion of about ten per cent. As glucose is worth but three to four cents per pound, and butter fifteen to twenty-three cents, the addition of ten per cent of glucose is well adapted to increase the profit as well as the keeping qualities of the article.

The above is certainly better and more healthy than boracic or salicylic acids; but somehow if additions must be made to butter, either as adulterants or preservatives, we prefer to buy them separately and do the mixing ourselves.

THE RIGHT WAY OF POOLING MILK OR CREAM.

We notice that the patrons of the Amherst, Mass., creamery are seriously discussing the propriety of adopting the Babcock test in place of the space system, which now prevails among them. The report says that the space system will be continued with those patrons who prefer it. Why they should prefer it, is incomprehensible to those who have studied the better and more truthful way of the Babcock method. The Dairyman would suggest that the space patrons be kept by themselves. In a short time we believe the distinction which is bound to show itself will teach them the unreliability of their present method of pooling results.

When the Hoard creameries of this city introduced the Babcock system, in 1891, the same opposition was shown, but it came principally from those patrons whose cows gave milk of a low per cent of fat

To accommodate the situation to their notions the following compromise was made: All those whose milk tested above 4 per cent fat, would receive by the Babcock test; those whose milk tested under that per cent were accordingly allowed to pool their milk in another vat by weight.

It was somewhat amusing to note the result. The patrons furnishing rich milk were well satisfied. The others soon tired of each others company, for there was nothing to be gained in such association, and it was not long before they were willing to come into the general whole on the Babcock plan. In six months the average fat content of all the milk was raised from 3.97 per cent, for five years previous, to 4 31 per cent. Where this extra butter fat came from has not yet been clearly explained. Some of it, no doubt, was due to the elimination of the "moral hazard," but in the main, we believe it was due to the fact that the Babcock placed every man on his own responsibility, face to face with himself, and gave him full credit for all the fat he brought to the general pool. That fact caused him to dispose of the cows that gave "thin" milk, made him feed and care for his cows in a better manner, and put creamery and patrons both on an upward grade.

A New Holstein-Friesian Record.

Milk Tests 6.3 Per Cent Fat.

Ed. Hoard's Dairyman:—The heading will doubtless bring forth an incredulous smile on the face of many a reader of your paper. A perfectly preposterous claim, they will say. And still it is so. Not that I think that there is a Holstein cow that will test regularly 6.3 per cent; it would be difficult to find a cow of any breed testing normally as high as that when in full flow of milk. But the particular cow I am talking about tested on the morning of January 3rd, this year, 6.3 per cent, and gave a large mess of milk at that, viz.: 18 lbs. At noon the same day she gave 15.5 lbs. of milk testing 5.2 per cent, and in the evening 17.2 lbs. testing 5.6 per cent. Pretty rich milk for a Holstein, isn't it? Yield for the day, 50.7 lbs. of milk and 2.90 lbs. of fat, average per cent of fat in full day's milk, 5.73 per cent.

The name of the cow is Duchess Ormsby, H. F. H. B. 16004, owned by W. H. Jones, of Hustisford, Wis. She was entered for competition in the "Officially Authenticated Butter Tests", of the Holstein-Friesian Association, and was tested during a seven day period, Jan. 3-9 inclusive, by Mr. Chas. A. Nicholas, as representative of this Experiment Station. As I believe the test has more than ordinary interest, I have obtained permission to publish it in detail at this time, and give the yields of milk and of fat from the record subscribed and sworn to by Mr. Nicholas.

It will be noticed that the cow gave 19.418 lbs. of butter fat during the seven days the test lasted, and that the average test for the whole period was 5.44 per cent. On the first morning of the test, the milk of the cow contained 6 3 per cent of fat; the noon milking of January 8 tested 6.2 per cent, while the noon milking January 7 and the morning milking Jan. 9 tested 6.0 per cent. Four times during the test therefore this cow did what nobody would suspect a Holstein cow of doing—when in full flow of milk she gave a mess of milk that tested six to six and three-tenths per cent of fat.

I suppose that Superintendent Hoxie, in charge of the Holstein butter tests, on receiving the results of this test, had a premonition that doubting Thomases would arise who would refuse to accept the test as correct. At any rate, he evidently desired to make assurance doubly certain, for shortly after the close of the test, Director Henry received a letter from him asking that he send "some one on whom he (H.) can absolutely rely," to test a few milkings of the cow. As I could better the work in hand so as to leave for a day or two, it was decided that I should go to Hustiford, and Mr. Jones was informed that I would be at his place a couple of days afterwards (Jan. 19). It was not expected that the cow should give as much milk as during the test, but it seemed reasonable to assume that her milk would show nearly, if not quite, the same average per cent of fat as before.

I spent a part of January 19th and 20th at Mr. Jones' farm, two miles southeast of the village of Hustisford, in Dodge Co.; saw the cow milked three times and sampled each milking with the greatest care; locked up the samples in my grip as soon as taken, and only took them out of it when the test could be proceeded with. While it probably was not agreeable for the owner to see all these precautions being taken and to have his every movement while near the cow closely watched, I took it that that was what I was there for, and acted accordingly. The test of these three milkings, with yields of milk and of butter fat produced are shown below:

	Milk, lbs.	*Test.*	*Fat produced, lbs.*
Jan. 19, 8 p. m.	15.0	4.7 p ct	.705
Jan. 20, 6 a. m.	21.0	3.9 p ct	.819
Jan. 20, 1 p m.	17.0	5.2 p ct	.884
Total.....	53.0	...	2.408

Average test, 4 54 per cent.

Contrary to expectations, the cow gave more milk than during the 7 day test, and the fat content was one to two per cent lower. The total production of butter fat was, as a result, decreased by about a third of a pound. A bit of information which leaked out, throws light on the low test of the morning milking of January 20. The grain feed had been changed the preceding morning from slop to dry feed (bran and oats, half and half), presumably because it was thought that the cow would do better when fed as she had been during the seven day test. The amount of grain fed was not increased, I was told. The nervous theory of *ye Editor* could not, it would seem, be more nicely illustrated than by this little incident. The supposition that the change in the system of feeding brought about the drop in test—beyond what would be expected as a result of the larger milk yield—is backed up by the gradual return to higher tests on the following days, when the cow had again become accustomed to the dry grain; her test for the morning of January 21 was 5.2 per cent, (milk yield 25.0 lbs.), and for the same milking Jan. 22, 5.4 per cent, (25.0 lbs. of milk).

The following evidence is of value in forming an opinion of the correctness of the 7-day test. The composite sample taken during the test by Mr. Nicholas was forwarded to Madison and found by Mr. Decker to contain 5.45 per cent of fat; average fat content, according to single tests made at the farm, 5.44 per cent (see above). Furthermore, Mr. Jones took composite samples of Duchess' milk the week following the test, which contained 5.2 per cent fat. The cow, during this week, on reduced feed, produced 402 lbs. of milk, and consequently 20 904 lbs. of butter fat. Of course, these figures are not officially subscribed and sworn to, but I have every reason to believe that they are substantially correct. The cow, therefore, produced more milk, and as much, if not more, butter fat the week following the test than during this week.

The following extract from my letter to Superintendent Hoxie, dated Jan. 21, is self-explanatory:

"From the results obtained in this brief test of mine, and from a most thorough investigation of the conditions under which the results of the seven-day test were obtained, as well as from my knowledge of the care with which Mr. Nicolas worked, I have no hesitation in stating that I believe the cow did all her test shows her to have done, and that her milk did repeatedly contain six per cent of fat or more, during the test."

This test is, in my opinion, of great importance to the dairy public at large. It not only shows that Mr. Jones has a wonderful cow, one that is second to few in productive capacity, and perhaps second to none as regards economic production, but it shows that we can look for cows producing a large quantity of rich milk in the Holstein breed, as well as among the breeds that are justly famed in this respect. While Duchess of Ormsby did not reach the highest official record for butter fat in seven days, this being held by Netherland Hengerveld (H. F. Reg. 13,106) viz: 21.333 pounds, she gave milk during the test, the average fat content of which exceeded that of any previous official Holstein test, by over one-half per cent, and exceeded the average test of all cows entered in any one year, by more than two per cent. Her highest test, 6.3 per cent, is also one-tenth of one per cent higher than the maximum test of previous years, and over one-half per cent higher than the highest single test generally runs. The tendency during late years has undoubtedly been toward raising cows producing rich milk, and I believe the test of Duchess Ormsby will have a wholesome effect in drawing the attention of breeders to the necessity of breeding along this line.

Only a few words about Duchess of Ormsby. She was bred by Mr. J. Rust, of Greenfield, Wis., her sire being Uncle Hicks 6th (6154), and dam, Piebe 2nd (7402). She was dropped Feb. 12, 1889, and is therefore now nearly 10 years old. She calved Dec. 26, 1898; at the beginning of the test she had, therefore, only been 8 days in milk. She is a strikingly fine cow in appearance, of pronounced dairy type, with an enormous udder, which showed but poorly in the photograph I saw of her.) She is a large cow, weighing, perhaps, not far from 1500 pounds. When in milk, I was told, she cannot be fattened, and that is why she is a dairy cow.

F. W. Woll.

Wisconsin Experiment Station.



DUCHESS OF ORMSBY, H F. H B. 16004.

Property of W. H. Jones, Hustisford, Wis.

TEST OF DUCHESS ORMSBY, JAN. 3-9, 1899.

	5 A. M.			1 P. M.			9 P. M.			TOTAL.	
	Milk lbs.	*Test per cent.*	*Fat lbs.*	*Milk lbs.*	*Test per cent.*	*Fat lbs.*	*Milk lbs.*	*Test per cent*	*Fat lbs.*	*Milk lbs.*	*Fat lbs.*
Tuesday, Jan. 3....	18.0	6.3	1.134	15 5	5.2	.806	17.2	5.6	.963	50.7	2.903
Wednesday, Jan 4	18.2	5.2	.946	16.0	5.4	.864	15.2	5.65	.859	49.4	2 669
Thursday, Jan. 5..	17.1	5.1	.872	17.2	5.4	.927	17.1	5 05	.864	51.4	2 655
Friday, Jan. 6....	19.7	4.65	.916	17.0	5.2	.884	16.9	5.0	.845	53.6	2 615
Saturday, Jan 7...	18.4	5.65	1 040	16.2	6.0	.972	16.9	5.3	.896	51.5	2.908
Sunday, Jan. 8....	16.5	5.8	.957	16.3	6.2	1.011	16.5	5.5	.908	49.3	2.876
Monday, Jan. 9....	16.7	6.0	1.002	17.0	5.0	850	17.3	5.2	.900	51.0	2.752
										356 9	19.418

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TO THE MEN WHO DON'T TAKE HOARD'S DAIRYMAN.

Mr. J. Moldenhawer, of Washington, D. C., is a highly skilled dairyman. He is engaged in producing the finest of milk for the highest paying demand. Mr. J. C. Jurgensen, of Brooklyn, N. Y., in writing to us in the issue of Sept. 23, concerning a visit he paid Mr. Moldenhawer, says:

"Mr. Moldenhawer is himself picking out Hoard's Dairyman before any other of the many farm papers he keeps, and he frankly says that your great paper is of high value to him. When a man with his reputation says so, how can the farmers who expect to make money by keeping cows for dairying, get along without the Dairyman. Still it is a very trying job to try to convince farmers how much it would help them to keep an extra good dairy paper."

What is the lesson that the above teaches? This: That no man who is keeping cows for profit can afford NOT to have such a friend and adviser as Hoard's Dairyman at his elbow every day in the year. Simply put a dollar bill in a letter with your name, post office, county and state plainly written on a piece of paper, and mail it to us, and secure the paper to Jan. 1, 1900.

Coming Events.

American Tamworth Swine Record Association Flint, Mich., Feb. 20th, 1899

HUMAN milk differs considerably from bovine milk in its action in digestion. This is seen in the effect of rennet upon both. When rennet is added to human milk, the casein coagulates in fine flakes, making it divisible and easily acted upon by the digestive ferments in the stomach of the infant. In cow's milk the coagulation takes place in a more solid form, and the casein sinks to the bottom in the whey. The milk of stripper cows, over three months in gestation, should not be fed to young children, as the gestative process takes from the milk the finer flavoring oils which seem to have a peculiar function in the growth of the brain and nervous system.

A SECOND DISSATISFIED INQUIRER.

A subscriber, at Belvidere, Ill., writes us that a young man near there tried one of our ration formulas, and his cows fell off two cans of milk daily and is now "down on the editors, the paper, and its teachings."

All we have to say in reply to this is that the young man referred to is to be pitied, as he is only advertising his own folly. If it were an established fact that the formula referred to was defective and of itself caused the shrinkage,—which we by no means concede—it would not follow that all the other matters published were valueless.

Oftentimes the feeder is as much at fault as the feed. It cannot be expected of us to repeat with each formula submitted detailed instructions as to the manner of feeding, and the folly of making abrupt changes. Neither is it to be expected that we are so unlike other men that we can always avoid errors either in judgment or expression. If the direction we have so frequently repeated, about giving the cow all the hay or other roughage she will eat, is adhered to, there is no sufficient reason why any formula we have ever published should result in a decreased yield, that does not at the same time show an increased net profit.

NEW JERSEY AUXILIARY DAIRY UNION.

At the recent meeting of the New Jersey Board of Agriculture, a State Dairy Union was organized as an Auxiliary to the National Dairy Union with the following officers: President, J. A. McBride; Vice-President, J. P. Mattook, Treasurer, Chas. Howell Cook; Secretary, G. L. Gillingham.

We beg to acknowledge, with thanks, the receipt from Secretary Cook, of Trenton, the sum of $46 as the first contribution of the new Auxiliary to the funds of the parent Union. The friends of pure butter have a long bitter fight ahead of them in Congress in support of the measure to tax all substitutes of butter 10 cents a pound, that are made to resemble butter in color.

It is a fight of the honest consumers against fraud, dishonesty, and wholesale swindling. This fight cannot be conducted by the individual farmer on his farm and he knows it. But he can do two things, so simple and easy, that we fear he overlooks them. That is, he can send a dollar to HOARD'S DAIRYMAN as a membership in the National Dairy Union, which is organized to push National and State legislation against this great fraud. Second, he can sit down and write a letter or postal card to his member of Congress, and the two senators from his state, telling them what he thinks they ought to do in the matter. Every such letter adds a stone to the heap. Let no man despise his gifts.

There are thousands upon thousands of people to-day paying a butter price for a fraud called oleomargarine. The whole of this business is conceived in fraud, and depends on fraud and deception for its success. It can only be fought by organized effort. Every farmer owes it as a patriotic and personal duty to help the National Dairy Union fight this common enemy of both the producer and consumer. It should be remembered that the officers of the National Dairy Union serve the cause without a dollar of salary. Besides, they have expended hundreds of dollars of their own money in visiting Washington and state legislatures and in correspondence to help along the cause.

It is not fair nor manly for the dairymen of the country to stay back in indifference and let a few men fight forty millions of Stock Yard capital, in their defense. Every dollar contributed is honestly and wisely expended, mostly in arousing the dairyman in different states to exercise their own influence with their law makers in behalf of good laws.

TAXING OLEOMARGARINE.

All dairymen and all consumers of dairy products have reason to be profoundly grateful to representative Davidson for introducing his bill to so increase the Federal tax on oleomargarine that resembles yellow butter that its further sale to the ultimate consumer for what it is not will be an impossibility. The recent arrest of several hotel proprietors at Superior in this state furnishes an unanswerable argument for the speedy enactment of this bill into a law. There are very few people, in fact none, who would take oleomargarine from choice, and especially at the full price of butter, and yet at least nine-tenths of all the oleomargarine sold goes into consumption upon the theory and supposition that it is butter.

This is a most stupendous fraud upon the consumer and fully justifies the exercise of any legitimate power conferred upon Congress to put a stop to it. The most effective and the cheapest way to accomplish this is to tax it out of existence.

It is probably too late to obtain final action upon the bill at this session of Congress, but Mr. Davidson has been re-elected, and when the next Congress convenes he will reintroduce the measure and should have the active support of all classes of people,—except those who seek to grow rich by being accessory before the fact to the perpetration of deceit and fraud.

A SILO DISCUSSION.

At a farm institute in Wisconsin, the following discussion on ensilage and other things was had.

C. P. Goodrich—Economical feeding is what we are after. It is true the corn crop will produce more cow feed than any other crop per acre, and I don't believe it pays a man to husk and grind corn for cows, but I know it pays to cut it up and put it in the silo, because we have it in succulent form, which stimulates the production of milk, and we get the feed very cheap. It costs me three days' work to the acre, to harvest a crop of corn and put it in the silo, grain, fodder and all. It can be fed without any waste, and the cows never held out in the flow of milk through the winter so well, as they have since I have had a silo.

Question—Mr. Goodrich, has your corn any more nourishment in it after it comes out of the silo, than before it goes in?

Mr. Goodrich—I don't think it has.

Question—Has it as much?

Mr. Goodrich—I think it has.

Question—What is the per cent of loss?

Mr. Goodrich—About eight per cent when the conditions are the very best.

Mr. Convey—What is the per cent of loss in corn fodder?

Mr. Goodrich—As farmers usually do it there is a loss of fully one-half.

Mr. Convey—Suppose this corn is cut at the same time that you cut it for the silo, bound, properly cured and stacked or housed, and then cut the same as you cut it for the silo; is it equal to ensilage?

Mr. Goodrich—No, not for milk cows, for we all know that succulent feed is good to stimulate the flow of milk. There is nothing in the world so good as fresh succulent grass. We cut that grass and dry it ever so carefully, and it will not produce milk nearly so well as grass. You may say, nothing has gone out of it but water, but all the water in creation will not make it grass again—the natural juice of the grass has gone out of it. It is just so with corn fodder. If we have preserved that, we have preserved something that cannot be preserved in dry corn fodder.

Prof. Henry—We have experimented at Madison upon the point, with reference to the loss in curing corn fodder. We find that the loss reaches twenty-five per cent easliy in well cured, shocked corn. We have taken shocks of corn, carefully carried them to the barn, and put them in the barn, standing there as shocks, and found that they lose a great deal there; just why is a mystery. It is probably a slow fermentation that goes on in that shocked corn, by which the corn loses more than in the silo.

Troubles Which Confront the Georgia Dairyman.

ED. HOARD'S DAIRYMAN:—I enclose you a check for DAIRYMAN for one year.

The low price of cotton has about broken all us cotton planters, so necessity compels us to adopt new methods. Some are in the ruts and will starve before they will raise their supplies and raise other things instead of cotton.

Some, however, are changing about, doing with less labor, planting small grain, fruit-trees, and paying more attention to stock and dairying.

I have had, for some years, a herd of Jerseys but, with the exception of a few years, did not give them the attention necessary for the reason that I was interested in other matters. Now necessity compels me to look to the dairy and my fruit for the source of profit from the farm. To succeed, I must have the DAIRYMAN to consult regularly, as I need all the help possible.

We labor under some difficulties now, but that will be overcome later on. We have few dairymen who understand their business as those we get from north or northwest are generally men that cannot get employment where they come from.

The other difficulty is the want of feed just now. Cotton absorbed all the land and attention up to this date, but within a few months we can have feed in abundance.

I wish to ask you some questions as to what is best to grow for winter feed.

We can grow oats cheap, can make some 30 to 100 bushels per acre, then plant the same land, after harvest, in corn for ensilage, and the cow pea for the same purpose or for the peas for ground feed. I should think the pea vine gathered just before the peas ripen, mixed with corn, would make a fine ensilage. What do you think of it?

Would ground oats fed with such silage make a balanced ration?

Here in middle Georgia we can raise all the clovers, vetch, cattail millet and all the other millets to perfection. Rye grows well all winter. My patches stand six inches high now and I have been grazing them every dry spell since November. J. T. D.

Meda, Ga

It would be a difficult matter to make a first class ration with corn and cow pea silage and oats, notwithstanding the corn and cow peas make excellent silage. In the first place, cows need some dry fodder with the silage. Oat straw would furnish this fairly well, but it would leave the protein too low. Clover hay is the ideal complement to silage. for roughage, but as that cannot be had for next winter, there should be some pea vine hay. This and oat straw would do very nicely. Then there is the cotton seed meal, not quite worth its weight in gold, or even in silver, but extra valuable both for feeding and for enriching the manure, the latter by no means an inconsiderable item, especially with people who propose to raise two crops per year from the same piece of land. The soil must be fed or it becomes practically barren after a few years of cropping.

Our ideal ration for next winter would be a daily allowance of about 30 lbs. of silage, 6 to 10 lbs. cow pea hay, oat straw *ad libitum*, 2 lbs. cotton seed meal and 4 to 6 lbs. ground oats. When there is grazing, less silage and hay will be required.

A Remedy for Bloat.

ED. HOARD'S DAIRYMAN:—Reading the article from W. R., Hebo, Oregon, on page 993 in regards to bloating, I thought perhaps a remedy I used might be of use. One evening my cow bloated, I took down my Special Report on Diseases of Cattle and Cattle Feeding that I received of the Agricultural Department and found a prescription that would have taken me one hour to get filled and instructions how to use a surgical instrument, called a trocar. I had no trocar, and I might have been two hours getting a veterinarian, so, I went to a neighbor that I knew had lots of experience with horses, and he said, let us try a rubber tube. I asked what he meant, and was told that my friend had used a ½ inch rubber tube on horses and he could not see why it would not work on a cow.

We had no ½ inch hose so we got about 3 feet of ¾ inch garden hose, greased it well and pushed it in the cow's rectum about 16 inches. Then we pressed her sides and you could see the gas come out every time we presses her sides. Inside of an hour she was quite loose, i. e., her skin was loose. When we began she was tight as a drum.

I think the bloat was caused by feeding too much middlings and corn meal. I was feeding about 9 lbs. middlings and 3 lbs. corn meal. Before going to bed I gave the cow ½ lb. of Epson salts in a beer bottle full of warm water. It worked all right and have had no trouble since.

I have since learned that a half pound of bi-carb soda will relieve a cow with bloat caused by stoppage of the bowels, inside ½ hour. Hope I don't have to try it.

FRANK M. WARNER.

Los Angeles Co., Cal.

The Wisest and Best Dairy Farmers

— IN AMERICA —

Read HOARD'S DAIRYMAN.

They all agree the paper is worth to them many times its subscription price.

How did they become wise and prosperous in dairying? By making themselves intelligent on this dairy question.

There is the same chance for every man who would make a profit from cows.

Subscribe for HOARD'S DAIRYMAN. Only $1 a year. Fill out the subscription blank, enclose One Dollar, and try your fortune.

How does the illustration on the preceding page conform to the record reported by Prof. Woll? The "dairy form" is not every thing, but it is something like charity, in that, without it other virtues do not amount to very much. How much more testimony must be given before even the most stubborn adherents of "square-endedness" will concede that the so called "Wisconsin Idea" is not a chimera or will-o'-the-wisp. It is not simple coincidence that the best cows conform to this "idea," but the relation is what Prof. Russell would call "causal."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

THREE PENNSYLVANIA QUERIES.

1. Is it true that twin calves are barren in case the twins are a pair?

2. Did ever a case come to your notice of a bull tearing his nose with his ring when tied or led by the ring? Is it possible for him to "slit" his nose out?

3. Kindly give me the address of a good reliable breeder of roan Durham cattle, preferably in this state, or in an adjoining state. D. L. M.

Meyersdale, Pa.

To the first question, we answer, No; to the second, Yes; and to the third, that we have no information on the subject. We should suppose that parties having such cattle for sale would advertise them. But as they do not do it, possibly D. L. M. might get into correspondence with them by inserting a "Want Ad." in this paper.

A PENNSYLVANIA RATION.

Will ask for a ration from corn and cob meal, wheat bran, and oat chop for grain feed, and ensilage, well eared, but cut a little old, mixed hay and corn fodder for roughage.

The man who buys a large cow because of size is like the man who buys a large stove simply to get more out of it as old iron, after its days of usefulness.

I thank you for your past interest in us, and hope your paper may still continue an enlightener on the dairy question.

Chester Co., Pa. T. M. B.

When limited to the feeds named, we can do no better than suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs hay	8.58	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. oats	1.78	.18	.95	.08
2 lbs. corn	1.78	.16	1.33	.09
Totals	25.82	1.91	13.80	.77

A better ration, and probably costing less, would be had by substituting 3 lbs. gluten feed, or 2 lbs. cotton seed meal for the 4 lbs. corn and oat chop. In either case, some of the corn stover may be substituted for a part of the silage or hay or both, and always give all the roughage the cows will eat, be it more or less.

A CONNECTICUT RATION.

Do you consider the following ration a good one for milch cows; would it be too strong feed? Daily ration: 2 lbs. wheat bran, 2 lbs. wheat middlings, 2 lbs. corn and cob, 1⅔ lbs. gluten feed (Buffalo), one and one-fifth lbs. ground oats, and all the hay they will eat. W. W. B.

Bridgeport, Conn.

Assuming that these cows will eat 20 lbs. of timothy hay in addition to the grain mentioned, we have the following figures:

	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. timothy hay	17.36	.56	8.68	.28
2 lbs. bran	1.76	.25	.77	.06
2 lbs. middlings	1.76	.26	1.06	.07
2 lbs. corn and cob meal	1.78	.13	1.26	.07
1⅔ lbs. gluten feed	1.54	.34	.81	.05
1 1-5 lbs. oats	1.07	.11	.57	.05
Totals	25.27	1.65	13.15	.58

Here the protein is much too low. If the hay happens to be clover, or even mixed clover and timothy, this deficiency would not exist and we might call it a very good ration.

It certainly is none too much for a cow that has not passed into the stripper class. With timothy hay, the gluten feed should be at least doubled.

WHICH BREED AGAIN?

What breed of dairy cattle has given the best results in Wisconsin, when product is sold by the Babcock test?

This is a question a great many of us are interested in, and if you could give us an answer, we would appreciate it very much.

Liberty, Ind. T. C. B.

This is practically the old question, but put in a different way. We could say, very truthfully, that there is absolutely no data to be had upon which to base an answer, and there are as many opinions as there are breeds. It stands to reason that the owners of Guernseys and Jerseys and their grades are more anxious than others to have their milk paid for by the test, and as the Jerseys greatly outnumber the Guernseys, it is but reasonable to expect that we hear more about them.

But when it comes to individual herds and individual cows, candor compels us to say, that sometimes one breed leads, and sometimes another breed will be in advance. There are not only good cows in every breed, but very often superior cows. The present writer's choice happens to fall upon Jerseys. They please his eye; they please his boys; one of the results is that they receive considerate attention and good care. A near neighbor on the north can see neither comliness nor merit in anything but Holsteins, while one less than a mile south has a decided preference for Guernseys. No one knows which is the most profitable herd, as a whole If perchance there is one cow in the writer's herd that surpasses all others in the three herds (which is by no means certain) it is certain that there are individual cows in the neighboring herds that are more profitable than the average cow in his herd.

The question does not admit of an answer, except to say that one can get good, even excellent, animals out of any breed, and the proper course for each man to pursue is to select the breed which suits him best, and from that breed select the best. These are not always those for which the most money is demanded. Study the dairy form and have an educated intelligence to guide in making selections.

RATION FOR AN ILLINOIS MILKMAN.

I am shipping milk to Chicago, and want to know how to produce a large quantity of good pure milk as economically as possible. Will you kindly formulate a ration for my cows from the following feeds (they are mostly general-purpose animals with a few grade Holsteins; weight about 1100 lbs.): corn stover, timothy hay $8 per ton; wheat bran $14, gluten $15, corn 32 cents, oats 28 cents, oil meal $1.50 per 100 lbs., wet brewers' feed (fresh) $4 per ton. The wet feed is fresh when I get it, but it does ferment before I get it all used up. I hesitate about feeding it, although my customers do not find fault.

Mine is the only copy of your paper in this vicinity, but I hope to have one or two subscribers for you soon. W. C. O.

Mokena, Ill.

There are the following amounts of digestible nutrients in the food stuffs named:

100 LBS. OF	Protein.	Carbohydrates.	Fat.
	lbs.	lbs.	lbs.
Corn stover	1.7	32.4	0.7
Timothy hay	2.8	43.4	1.4
Wheat bran	12.6	38.6	3.0
Gluten feed	20.4	48.4	3.0
Corn	7.9	66.7	4.3
Oats	9.2	47.3	4.2
Oil meal	29.3	32.7	7.0
Brewers' grains (wet)	3.9	9.3	1.4

Tables like the above enable us to determine the relative feeding value of the articles named. In this particular case, they prove that there is no economy in buying the wet brewers' grains at $4, when gluten feed can be had at $15; and but little when compared with bran or oil meal, not to mention the risk and danger incident to fermentation. Timothy hay at $8 is pretty dear feed, but we are inclined to use some of it in connection with the corn stover as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. corn stover	11.90	.34	6.48	.14
5 lbs. timothy hay	4.29	.14	2.17	.07
5 lbs. gluten feed	4.61	1.02	2.42	15
5 lbs. bran	4.41	.63	1.93	.15
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	26.99	2.29	14.33	.60

A NORTH DAKOTA RATION.

Please give a ration to feed with prairie hay of fair quality. Wheat bran $8, shorts $10, ground barley $13, corn meal $17, flax seed about $1 per bushel, oil meal about $30. Also ration to use when no corn meal is to be had. R. M. C.

North Dakota.

Neither shorts, barley, corn nor flax seed can profitably be fed at the prices named. Try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
15 lbs. prairie hay	13.13	.53	6.27	.21
10 lbs. bran	8.81	1.26	3.86	.30
2 lbs. oil meal	1.82	.59	.65	.14
Totals	23.76	2.38	10.78	65

Probably most of the cows will eat more hay. Give them all they will eat.

A MISSOURI RATION.

From 225 Pounds to 308 Pounds.

You will please furnish a ration from the following feeds: Brewers' grains (wet) five cents per bushel; wheat bran, $11.00 per ton; corn bran, $10.00 per ton; millet hay, $7.00 per ton; well cured corn fodder in plenty.

I would like to say right here, that any man that runs a dairy for the profits he gets on his butter, can't afford to do without the DAIRYMAN, for I believe that without its help I would have been in the drag very bad. As it is, have brought out my cows from 225 pounds to 308 pounds per year, and the product is of that quality, that it received a score of 96 82-100 at the Missouri State Dairy convention, and for which I receive 22½ cents per pound the year round from one firm in this city. I find in circulating around on behalf of your paper, that you have a good many friends here, but got a few more interested, and sent you a small club, and will endeavor to get a few more.

Hannibal, Mo. S. C. T.

It is a good deal like "carrying coals to New Castle" to offer advice, for feeding, to a man whose cows bring him 308 pounds of butter per year, that sells at 22½ cents per pound.

If these cows are receiving now, say, about 10 pounds corn fodder, 10 pounds millet hay, 25 pounds wet grains and 6 pounds wheat bran, we do not know how the ration could be materially improved or cheapened, unless it could be done by some corn chop for a part of the bran or wet grains. If the latter, we would let two pounds of the chop take the place of five pounds of grains. But it is hazardous to do much changing when cows are doing well, as witness Prof. Woll's report on the test of the cow, Duchess of Ormsby, in another column.

IS A CENT WORTH SAVING?

We have plenty of clover hay, corn and oats on the farm.

My tenant thinks $10.00 bran is too expensive. How shall these be fed to make a good balance? B.

Indiana.

It appears to read very plainly in our friend's communication, "$70 bran", but we assume it was meant to be $10, and we undertake to say that at this price bran is a much more economical feed for cows than oats. To prove this we give two formulas as follows:

I.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
5 lbs. corn	4.45	.48	3.34	.22
5 lbs. oats	4.45	.46	2.37	.21
Totals	25.84	2.22	12.87	.77

II.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
Hay and corn as above	21.39	1.76	10.50	.56
5 lbs. bran	4.40	.63	1.93	.15
Totals	25.79	2.39	12.43	.71

Either of these rations will do very well, but the last is, if anything, the better, and by as much as 5 lbs. of bran can be had for less than 5 lbs. of oats, it is also the cheaper. This will not amount to very much per day for one cow, probably only about 1¼ cents, but for 20 cows it would be 25 cents, nearly $2.00 per week, and an item only a farmer can afford (?) to ignore.

Show a banker or a merchant how they can add that much net gain to their profits in a week and they will at once take measures necessary to secure it. But the farmer, and especially the tenant farmer, has been brought up to despise these small economies, with the result that he borrows money of the banker to pay his debts to the merchants.

ROOTS IN ARKANSAS.

I would like to have some information on growing root crops as I have no silo. I have rich branch land of black sandy soil old, or new, upland.

I like the carrot very well but would like something that I can plant later, in order to destroy more weeds before planting. Can I grow mangles this far south, planted in July?

Springdale, Ark. L. J. R.

The true practice in all cases of this kind is for one to experiment for himself We know of no reason why these crops will not grow to perfection in Aakansas. Possibly some of our readers in that state have tried the experiment and can answer from their own knowledge. If so, we should be pleased to have them do so.

We may add, however, that the reason assigned for wanting to grow root crops is not sufficient. A silo can be built at no great expense, and will easily pay for itself the first year, in economy and convenience.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, V.

GLOSSARY.

Epizootic is to animals what epidemic is to man. It means a contagious disease which occurs simultaneously among a number of animals.

Immune—An animal is immune, i. e., refractory to a given disease germ, when the organism in question is unable to grow in the animal but possesses the power to grow in other individuals or somewhat closely related species Immunity may be natural, i. e., possessed at birth, or it may be acquired, either by virtue of an attack of the disease, or by the artificial introduction of immunity producing substances into the animal.

Anti-toxic as applied to a serum, means a liquid that will prevent a toxin or poison from exerting its poisonous effect on the system of animal or man.

HOG CHOLERA AND SWINE PLAGUE.

The loss which is incurred in this country, more particularly in the great corn belt, from these two diseases, much exceeds that produced by any other single cause.

In the corn states these diseases are practically present all of the time, while it sweeps over various other sections at irregular intervals. The state of Iowa alone loses millions of dollars annually through this scourge, and yet, both of these maladies belong to a class that are known as preventable diseases, because they *can* be prevented if proper precautions are taken.

For the purpose of this paper, hog cholera and swine plague may be considered as one disease, as not infrequently the two affections are found simultaneously in the same herds.

It should, however, be borne in mind that they are not absolutely identical. Although both are specifically germ diseases, they are produced by different, but closely related, species of bacteria.

SYMPTOMS.

The general symptoms of the two diseases so closely resemble each other that frequently they cannot be differentiated, until a post mortem examination is made.

Often both run a very rapid course, in which case a fatal termination may be expected; again, they may assume a more chronic phase. This usually occurs in the later stages of an outbreak. In both diseases the skin on the under parts frequently takes on a purplish hue, and the animal shows signs of dullness. In swine plague a cough is usually present, constipation followed by diarrhoea frequently occurs.

In hog cholera the intestinal tract is the primary seat of the affection, although later, other tissues may become involved. In swine plague the most prominent lesions occur in the lungs. A pneumonia is generally produced, the air cells becoming solidified, in which condition they often appear like a section of the liver. A characteristic condition in hog cholera, especially in the more chronic cases, is the appearance of the peculiar raised ulcers or "buttons" in the large intestine. It is sometimes a difficult matter to properly diagnose these diseases as the symptons may vary materially in different herds.

CAUSE OF, AND CONDITIONS AFFECTING THE DISEASE.

These diseases are only produced when certain specific kinds of bacteria find their way into the animal. The organisms causing them are quite closely related to each other, but they are as much entitled to be classed as distinct germs as a raspberry and a blackberry are classed as different fruits. While the introduction of the specific germ is a necessary factor in the production of the disease, it must be evident that external conditions may modify the course and extent of the outbreak. It is quite generally believed that green or "new" corn is a cause of the disease. While this in itself cannot be a *cause*, it may be a strong predisposing factor. It is an established fact that hogs fed upon an exclusive corn ration do not attain to that degree of development that characterizes an animal raised upon a mixed diet, and that the power of resistance in various animals to the disease is largely diminished, if they are fed (exclusively) upon any single kind of food. These diseases of swine are generally intestinal troubles, and any disturbance of the digestive organs would therefore increase the susceptibility of the animal to the disease, a condition easily occurring when the animal is allowed to gorge itself upon any green or immature feed. Great care should be observed in changing the diet, especially if the change is to a highly palatable food, or one that is greedily devoured by the animal.

VARIATION IN VIRULENCE.

Under ordinary conditions much variation is to be noted in the virulence of different outbreaks of these diseases. This fact has often led to an erroneous diagnosis, the milder, and more chronic types not being recognized as especially dangerous. There are two sets of factors constantly at work to render this variation possible. One is the inherent tendency to vary in the germ which causes the disease; the other, the modifying effect upon the host of such external factors as climate, food, etc. Bacteriologists have for a number of years been able to study the germs of these diseases in a large number of epidemics, and they have demonstrated that not only do the two organisms of swine plague and hog cholera differ materially in their ability to cause disease, but that each species (especially hog cholera organism) does not possess the same degree of virulence in different outbreaks. Prof. Theobald Smith finds six different types of the cholera germ that vary materially in their ability to produce the disease. These differences constitute varieties, just as a Baldwin or a Greening apple is a distinct variety of the general species. Even though the external conditions are apparently similar (which never absolutely happens) outbreaks produced by the different varieties of the germ would differ in degree of virulence.

The variation normally observed in any section of the country is not, however, attributable to this cause, for the same type of germ is generally disseminated locally from farm to farm.

Epizootics or outbreaks generally bear in intensity a close relation to external factors. The general health of any given herd is in part dependent upon the way it is cared for, although it not infrequently happens that those animals that receive the most careful attention readily acquire the disease. They do so, however, not because they have been better cared for, but because they have had greater opportunities to receive the disease germ into their systems. Climate conditions, as temperature and moisture, undoubtedly exert some effect on the course of the disease. The usual unsanitary conditions that surround swine are such as to favor the distribution of the disease germs when once introduced. Hogs are naturally somewhat insusceptible to both of these maladies, as is evidenced by the fact that they resist inoculation with the pure cultures of the germs of both these diseases to a considerable extent. When the organism is introduced into the blood the disease is quickly produced. It is, therefore, evident that their normal insusceptibility is materially lowered as in the great majority of epidemics they fall an easy victim.

HOW SPREAD.

The recognition of the sources from which these disease germs spread is of the greatest importance, for a knowledge of these facts will often enable one to prevent the scourge from gaining access to a herd. As previously stated, hog cholera is primarily an intestinal disease, although the organism producing the same may be found in the blood and various organs of the body.

The virus of the disease is, therefore, discharged in the fecal matter and it is this excreta that is so dangerous.

If the disease once breaks out in a herd from any cause, its continued propagation is greatly facilitated by the natural habits of the animal. As soon as any animal shows the slightest signs of sickness, it should be immediately separated from the balance of the herd to prevent any further dissemination of the disease. These germs are able to live in filth and foulness for a considerable period of time. The germ of hog cholera is considerably more resistant than that of swine plague. The effect of natural surroundings (drying, sunlight, and competition with other decomposition bacteria) usually destroys the virus of swine plague in a few weeks or so, but that of hog cholera will resist the same exposure for a number of months.

It is therefore necessary to destroy the seeds of the disease contained in this material, before it is safe to use infected quarters again. This can only be done by a thorough disinfection of the pens and yards. The detailed methods to be employed will be given in a subsequent article which will treat the subject from a general standpoint.

The disease germ may be inadvertantly introduced into a herd in a variety of ways. Indirect contamination from affected animals may be carried by a person. A farmer in a community has an outbreak of the disease. Immediately his neighbors become desirous of seeing how the malady works, and in these visits of inspection, the infectious virus may be transmitted by adherence to their boots. During cholera epidemics, no quarantine regulations can be too rigid.

Stock buyers especially should be forbidden access to the hog quarters. The enforcement of such measures will greatly diminish the danger through human agencies. It is also possible for dogs and other animals, crows and other flesh eating birds to function as disseminators of the disease. Frequently the disease is spread from farm to farm by water courses, the drainage from an infected herd polluting the water for no inconsiderable distance. If greater precautions were taken in regard to a pure water supply for the stock, especially if hog cholera is in the vicinity, one element of contagion would be materially lessened. As surface waters are liable to be polluted from a variety of sources, the use of water from deep wells would shut out contagion from the water supply. The disease is frequently introduced by the purchase of animals from infected herds, or by animals being brought in contact with contaminated quarters in transit. Railroad cars, stock yards, etc., are often infected, and thus animals may be exposed to the germ sufficiently long to acquire the disease. The exhibition of swine at fairs affords an excellent opportunity for direct transmission of the infectious organisms.

A few years ago the statistics collected in Indiana, showed that one-third of the loss of that year in the state could be traced to infection derived at fairs, by the purchase and in changing of animals for breeding purpores. These sources of contagion could be easily prevented. It seems strange that no greater headway has been made against the restriction of the disease, when we recognize the fact that the causal organism has been known for a decade and has been carefully studied.

If the farming interests would thoroughly acquaint themselves with the various ways by which these unseen foes gain an entrance to their herds, they might be able to frequently check the spread of these diseases. But indifference and carelessness voice themselves with "sufficient unto the day is the evil thereof", ever blind to the old adage that "an ounce of prevention is worth a pound of cure".

TREATMENT.

Very little success has yet been made in the treatment of these diseases, except in the milder and more chronic cases, where laxatives are of material value. Their character is such, and their course so rapid that drugs and medicines in the ordinary sense are of little avail. It is perhaps on this account that so many reputed "cures" for cholera are foisted upon the public. Every season brings out a new crop quite as regularly as sure cures for consumption. While as yet no satisfactory treatment has been devised that will meet all the varying conditions of the disease, there is a strong hope that scientific experiments, now being made on an entirely new line, may be successful. This new method of treatment is what is known as the serum treatment, and consists in inoculating the animal with an anti-toxic serum that enables them to resist the poisonous effect of the disease in a manner similar to that of human diphtheria.

The preliminary tests made during the past season show that a large per centage of animals were saved by this treatment. The serum is now being made by the United

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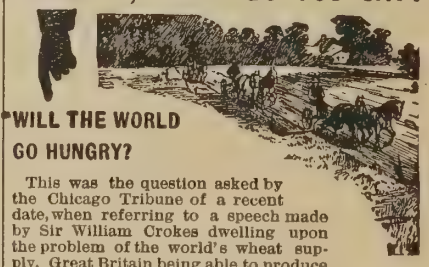
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This was the question asked by the Chicago Tribune of a recent date, when referring to a speech made by Sir William Crokes dwelling upon the problem of the world's wheat supply, Great Britain being able to produce only a small percentage of what she consumed.

REPLY:

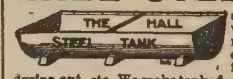
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States Department of Agriculture, in larger quantities for further testing. This cure differs from all others in the fact that it follows the method by which nature heals the body from the effect of disease.

Animals are first rendered artificially immune, i. e., susceptible animals are made resistant by the introduction of the products of the organism causing the disease, then the blood serum of these animals so protected is used for treatment in the affected herd. If future investigations should demonstrate the permanent value of this method, much of the loss, amounting annually to from $15,000,000 to $25,000,000, which the United States now sustains, might be avoided.

Various North Carolina Queries.

ED. HOARD'S DAYIRMAN:—I enclose $1—please send me the DAIRYMAN one year. I expect soon to engage in the dairy business, on a small scale, and cannot afford to commence without your valuable paper to guide me.

The questions that will follow are doubtless very old to you, but they are new as well as valuable to a beginner, and I will not commence dairying until I see them answered in your columns:

1. Pea vines, cotton seed hulls, cotton seed meal, wheat bran, corn meal and oats are available; what will be a balanced ration for cows that will weigh 800 to 1000 pounds?

2. I expect to try to test some of the cows; how soon after calving should I commence a test for best results? Should a cow have any especial preparation before feeding for a test?

3. At what temperature should the cream be kept, and how soon should I churn after running the cream through a separator?

4. How may I know when the cream is in proper condition to churn for best results?

5. If it does not ripen as it should, what shall I use to accomplish the desired results?

6 I have a fine Jersey bull, 19 months old—how many cows can he serve each week without injury to himself, at his present age, and in what ratio can the service be increased as he grows older?

7. How and with what should he be fed to secure best development as a dairy sire?

8. Should he be allowed to run with cows or be kept alone?

Your early attention will greatly oblige a beginner. J. L. H.

Scotland Neck, N. C.

It can hardly be expected that all these questions can be answered in one issue of a paper. In fact, if all the available space for reading matter should be given up to these queries, it would require several issues to cover the ground even passably well.

1. For a regular ration, try 15 pounds pea vines, 4 pounds bran, 2 pounds corn meal and 2 pounds cotton seed meal, and what hulls, in addition, the appetite of any cow may demand.

2. No special preparation is required. A cow is usually at her best in the second month after freshening. Increase feed gradually after the calf is 5 days old, being very careful not to give more than the cow will eat with good relish. As soon as she stops eating, remove all feed left in the manger. Keep grain in above proportions, but when on high feed, include 2 to 4 pounds oats. Give a large teaspoonful of salt with each feed.

3. Keep cream at as low a temperature as possible, unless you can churn every day. Perfectly sweet cream may be sufficiently ripened in 18 to 24 hours if kept at about 70 degrees.

4 Cream when properly ripened, has a peculiar, even, silky gloss. When a paddle is dipped into it and taken out, the cream runs off smooth and not in streaks. An educated smell and taste are aids.

5. Some buttermilk saved from the previous churning, if the butter had the desired flavor. It would be a most excellent investment to get Prof. Wing's book, Milk and Its Products, or Gurler's American Dairying.

6. Three to five, and later on increasing to double that number.

7. Pea vine hay, good pasture and but little grain, and that, bran or oats or both, exclusively—but not so much as to cause him to become fat.

8. Should not run with cows. Have a ring in nose and never lead without a staff attached to ring. Never attempt to drive, or get him into a corner, or otherwise put it in his power to know that he can have his own way.

Dairying on the Farm.

Ripening Cream-Engine and Separator.—Oleomargarine.

ED. HOARD'S DAIRYMAN:—I see inquiries about ripening cream. We *used* to think after we had strained our milk in a cold place, like the milk house or cellar, let it set a few days, that it was absolutely necessary to carry it into the kitchen and let it set there until the milk clabbered, when it was ready to skim. Then as we only had a small amount of cream, had to save it until we got enough to churn—perhaps a week. But thanks to good dairy papers, I began to read and study everything pertaining to "good buttermaking", "home dairying", "dairying for profit", etc., improving wherever I could. The more I read the more anxious I was to get to the top. I soon learned that to make good sweet butter we must do away with crocks, pans, etc., and get a creamer, which we did. Purchased a Stoddard creamer with five cans, (5 gallons each). We could skim all the cream off after it had been standing 24 hours, and sometimes with ice in 12 hours. Set the cream in cold water or refrigerator, and kept it sweet until we had enough to churn. Mixed it all thoroughly, ripen by warming to 75° or 80° if the weather is cold, and when it cools and clabbers, churn at 62°. Use a thermometer. Never let cream stand after it clabbers, as it will injure the sweet quick flavor. After we had used a creamer 8 years, we were still *reading* and progressing And to make the sweetest and best butter, the dairy papers claimed a separator was the machine we needed. So we purchased a U. S. separator, run it by hand power about a year, when the boys concluded we needed an engine to run the separator. So step by step we have been going on until dairying is not the drudgery it used to be, as the little Geiser engine turns the separator, churns the butter, besides so many other things it can do on a farm. It grinds sausage meat, saws all the wood we use, cuts fodder, and is just play to run it. Our boys are all engineers. We use a barrel churn, butter worker (turns with a crank). A pound printer with our initials, F. J. P. on, stamps every pound nicely. Then we wrap each pound in parchment paper and ship.

We used to get 25 cts. per pound the year around, but cannot do it now, not on account of the butter being of poorer quality, but on account of oleomargarine flooding the market. It's made and sold here in our own city. I beg all who read this to earnestly appeal to the Senator, from their district, the importance of supporting and striving for the enactment of House Bill, number 11,604, introduced by Hon. J. H. Davidson, of Wisconsin, taxing oleomargarine 10 cents per pound, as a measure of protection to the dairyman from fraudulent competition. If we do not ask for protection from Congress, we will soon be run out by oleomargarine, as we cannot afford to produce a pure, sweet butter at oleomargarine prices.

Sisters in the cause, shoulder arms, and if you are not taking HOARD'S DAIRYMAN, Ohio Farmer, and other good dairy reading, enlist at once, and let us produce good, better, best butter on the market, and fight the butterine company with the best butter made, while our husbands implore Congress to protect us by passing Mr. Davidson's bill.

Mr. Editor, I did not intend writing such a lengthy article, and you are at liberty to stop with it wherever you wish, providing you don't stop before you get to the Davidson bill. But when I get started on this subject, it is hard to find a stopping place.

There is one thing more I want to tell you: last but not least, we keep eleven fine Jersey cows, well stabled and cared for.

St. Paul, O. (MRS) F. J. PETERS.

It Hangs On

If it was only health, we might let it cling.

But it is a cough. One cold no sooner passes off before another comes. But it's the same old cough all the time.

And it's the same old story, too. There is first the cold, then the cough, then pneumonia or consumption with the long sickness, and life trembling in the balance.

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loosens the grasp of your cough. The congestion of the throat and lungs is removed; all inflammation is subdued; the parts are put perfectly at rest and the cough drops away. It has no diseased tissues on which to hang.

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Remember we have a Medical Department. If you have any complaint whatever and desire the best medical advice you can possibly obtain, write the doctor freely. You will receive a prompt reply, without cost.

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Peas and Oats.

ED. HOARD'S DAIRYMAN:—I have become interested in your doctrine of raising protein for the dairy on the farm by the use of peas with oats, and would like to catechise you a little. You advise, I understand, 2 bushels of peas and 1½ bushels of oats per acre, the peas plowed in 4 inches deep, and the oats sowed one week after.

This replowing the land in the spring in addition to fitting it, is an item of considerable expense for a large dairy. Would it not do to fit the land with seeder, put the mixed grain in the ground 2½ to 3 in.? If not why?

Will the oats as above hold the peas upright, or will the crop lodge, if we have heavy winds? If the peas are needed for grain, can they be harvested with reaper and binder? If not, how is the crop to be secured?

Gov. Hoard recommends White Schoenen oats which are unknown here—White Russian being the popular oat. What variety of Canada peas is advised by you as most suitable? Henderson advises Large Marrowfat Canada peas. How many bushels per acre of peas and oats, sown as above, on heavy, rich bottom land, can be expected as a yield? Any information along this line you can give will be a source of instruction and profit to many interested dairymen in this section.

Gouverneur, N. Y. F. M. B

Peas that are not covered about 4 inches deep are quite apt to suffer from the dry weather. Hence they should be plowed under as suggested. Oats covered as deeply would be very likely not to grow, or, if they did, lacking the necessary warmth about the young roots, they would not do well. What is worth doing at all is worth doing well. The White Schoenen oats are recommended because they grow a strong, stiff straw. Possibly the White Russian would serve much the same purpose. As a rule, the oats hold the peas up fairly well, but sometimes they will go down, and then we cut them with a "mower" as we would lodged clover.

This crop is not raised primarily for the grain, but more particularly for hay and forage. When allowed to ripen, the yield of grain should be from 30 to 40 bushels per acre.

The Canada small field pea is preferred in this section, and elsewhere, so far as we know.

Cow Peas and Kafir Corn.

Pennsylvania Experience.

ED. HOARD'S DAIRYMAN:—I noticed on page 1013 of the DAIRYMAN (Jan. 27th) C. A. H., of Lebanon Co., Pa., inquires about "cow peas and oats," and in reply the writer thinks Pennsylvania is too far north for the cow pea. This surely is a misapprehension, as I must testify from experience and observation that cow peas are a Godsend for any Pennsylvania farmer who has soil that needs renovation, or who wants to make summer dairying pay. We cannot grow cow peas on every soil, as they will not thrive on very heavy, clayey, wet, cold, undrained soils, but only a small per cent is of that nature, as most of our soil is light, sandy, shaly, slaty or loamy. The cow pea, like the corn, is a warm climate plant, and must not be planted until all danger of frost is past. If we want the cow pea as a soil improver, where the soil is thin, worn out or neglected, we prepare very carefully a quite shallow seed bed, say three or four inches, so as not to turn up too much of the uncongenial subsoil. We use about 200 lbs. of dissolved S. C. rock to furnish phosphoric acid, and possibly a little potash. We need not apply any nitrogen, as the cow pea can take free nitrogen from the air, the same as the clover. Some varieties are heartier in the north, and make their growth in a much shorter season, and if we wish to ripen the seed, we had better sow the quick growing kinds; but if we dont care for seeds, but just wish a large mass of vegetable matter to plow under for forage, we use the long season grower, as that grows much the largest vines and roots and hence is preferable.

The roots will penetrate the subsoil, and when those decay, the soil will be in a better condition to absorb water or nourish roots of other plants that are more delicate growers. The mass of vines turned under will fill the surface soil with humus, thus putting it in a condition to hold moisture and warmth, the first two essentials of a good soil. I sowed cow peas on soil that was so poor from neglect and hard cropping that it would yield absolutely nothing, and was abandoned. By the application of a small quantity of mineral plant food, to start the peas, I started the soil on a course of usefulness, so it produces good normal crops annually, almost equal to the rich limestone valley land.

As a forage crop nothing else will take its place. The Canada field peas are very good for an early crop but being a native of a cool moist climate, they will not grow in our midsummer hot and dry weather, but will scorch and dry up rapidly. The cow peas have just the opposite nature, and will grow best in the hottest weather, and withstand the drought remarkably well.

Let me assure C. A. H. that there is nothing more pleasant for the humane dairyman, than to go out daily and cut a lot of splendid green feed for his cows, when all else, soiling crops, and pastures are dry, hard, woody, seared and brown. The cows will show their appreciation also by their contented looks and their filling the pail liberally. I generally sow with the cow peas 8 or 10 pounds of kafir corn to the acre. Oats or any other grain, except sorghum, will be smothered and disappear, but the kafir corn will force its way up through the mass of plants and tend to litt the vines up, thus letting the sun shine down through the heavy mass of foliage and thus make a better feed. At the same time, it is much easier to cut when well up from the ground. If not needed for green forage, I put them in the silo, or dry it and it makes excellent hay, if properly cured. Both horses and cows like it and do well on it.

If the pea or bean, as it is a bean in fact, is allowed to ripen, the grain makes an excellent feed for poultry and hogs, and if ground is very good for cattle.

Taking off a soiling crop of cow peas puts the land in a splendid condition to seed down with winter grain, and unless you apply some mineral plant food, you may be surprised to see your wheat lodge as far as the cow pea patch extends, because of the large quantity of nitrogen stored in the soil by the roots. Sometimes we can use the cow peas very profitably as a catch crop. For example, as soon as the strawberries are picked I plow down the vines and seed to cow peas, and in a short time I have a mass of plants cover the soil, thus we can not only conserve fertility, but add to our soil with almost no expense.

The seed can be purchased from any reliable seedsman. Price varies from $1.25 to $1.75 per bushel; some new varieties are of course higher in price as are all novelties.

Adams Co., Pa. L. W. LIGHTY.

Buff Jersey on Feeds.

(Extracts from paper read by BUFF JERSEY at the Missouri Dairymen's meeting, held at Brookfield, on Jan. 17, 18 and 19, 1899.)

With the present high prices ruling for the grains grown on the farm, it stands the dairyman in hand to study the situation, and lower cost of production, if possible. In order to do this, he must seek some feed or feeds at a lower cost than his own grown feeds; and with a knowledge of the nutritive content of some of the feeds offered by our cereal product factories, he can get a bill of fare for his cows that is very palatable and, at the same time, better adapted to the wants of his cows, than his farm grown grains, and at a lower cost. Let us compare some of the by-products with the standard feed on the farm, corn meal. With the present price of corn, a ton of corn meal costs the feeder $18, and contains 156 pounds of protein.

One ton of oat dust as feed, from the oat meal mill costs $6, and contains 178 pounds of protein, is nearly a rich in carbohydrates and 1% richer in fat than whole oats, and like oats, will give better results than our chemists show by analysis.

Dried brewer's grains are a very valuable

BROWN'S BRONCHIAL TROCHES of Boston
Clear the voice, Relieve the throat, Cure coughs and colds.
1850—In boxes only—1898

All The Prize Winners at Sioux Falls Used "The Kind That Has No Mud."

FIRST PIRZE—A. W. McCall, Creston, Iowa, score, 97
SECOND PRIZE—O. P. JENSEN, Wells, Minn., score, 96½

Prize Winners Always Use WELLS, RICHARDSON & CO.'S Improved Butter Color.

GLUTEN FEED ANALYSIS.

Water,	9.50
Ash,	3.21
DIGESTIBLE PROTEIN,	27.33
Fiber,	7.27
Extract Matter, (starchy),	49.73
Fat,	2.96
	100.00

A Properly Balanced Ration can be made cheaply by mixing GLUTEN FEED with your coarse carbonaceous feeds, such as hay, straw, silage, roots, etc. The cow fed on a BALANCED RATION will always give a larger flow of rich milk than the cow fed on coarse feeds only. Be wise and give GLUTEN FEED a trial. It will certainly help you lessen the cost of milk production, and increase your DAIRY PROFITS. ☞ Sample Free.

THE GLUCOSE SUGAR REFINING CO.,
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Old Established. Thoroughly Reliable. Strong Financially.

If You Want Intelligent Activity In Your Behalf, Ship Your

BUTTER and EGGS TO STEPHEN UNDERHILL,

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A Customer Writes: "I was much gratified a few days ago when renewing the floor slats in the stalls of my stable, to find that the planking underneath, which has been coated with your P. & B. Paint, prior to the placing of the slats, nearly five years ago, was in perfect condition. It is the most successful coating of this kind I have ever used."

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Heel Plate For Walking or Riding Plows. Makes share last longer, makes it self-sharpening and prevents plow from swinging either way. It will make plow run same in light and heavy soils, or with 2 or 3 horses. It is a wonder worker. If you use a plow at all it will be worth $5 to you to investigate this simple device. It weighs 8 oz. and a postal will bring you full description and a beautiful catalog (with hand made half-tone pictures) of up-to-date implements. MORRISON MFG. CO., Ft. Madison, Iowa.

A Handbook for Farmers and Dairymen By... Professor F. W. WOLL, with the assistance of WELL-KNOWN SPECIALISTS. With Illustrations, 389 pages. 12 mo. Cloth. $1.50.

Modern Dairy Practice By... GOSTA GROTENFELT, President Mustiala Agricultural College, Finland. Authorized American Edition by Professor F. W. WOLL, with Illustrations. Second Edition. 291 pages. 12 mo. Cloth. $2.00.

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SEEDS THE ALBERT DICKINSON CO.
Timothy, Clover, Flax, Hungarian, Millet, Red Top, Blue Grass, Lawn Grass, Orchard Grass, Bird Seeds, Ensilage Corn, Pop Corn, Buckwheat, Field Peas, Etc.
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feed in the dairy barn; the cost is $11 per ton, and the protein content is 314 pounds, or 158 pounds more than corn meal, at a cost of $7 less than the meal, per ton.

In gluten feed we have a protein content usually of 500 pounds per ton, or 344 pounds more than in corn meal, at a cost of $5 less per ton.

Germ meal is practically the same as corn meal, and the price is from $5 to $6 less than the meal.

In cotton seed meal we have not only 740 pounds of protein, but we also have a property that is very valuable to the dairyman. During warm months when butter is so hard to handle, it has the property of raising the melting point 5 or more degrees, enabling the dairyman to put his butter on the market in better shape, and the merchant has less trouble in keeping it in an attractive condition.

With a knowledge of his business, the dairyman can, at all times, take advantage of his surroundings, and not only lower the cost of production, but at the same time increase the product of his cows by knowing just what to do and when to do it.

BUFF JERSEY.

A Canada Cheese Factory Report.

Dual-Purpose Cows at a Discount.—Various Inquiries.

ED. HOARD'S DAIRYMAN:—I inclose my renewal, and three new subscribers. I am in the center of an old dairy section. It is quite evident that the farmers here don't know how to do anything but keep cows (and a lot of us not more than half how to do that).

Leeds county is the banner county of Canada for cheese, and our township the banner township of the county. Our township is 10 miles square, and we have nine cheese factories. I will give you a report of our factory from May 1st to Nov. 12th, 1898, at which time the butter factory starts and continues until the cheese factory opens in the spring.

Total pounds milk	1,551,779
Total pounds cheese	143,396
Total cash	$11,546.48
Manufacturing	$1,612 30
Net cash	$9,934.18
Average per ton	$12.80
Lbs. milk for one lb. cheese	10.82
Average price for cheese	8.05 c.

I think the average for the nine factories would be a little larger than our factory.

I have watched with interest the discussions on the dual-purpose cows. I think they are as scarce as Clydesdale trotting horses. I think we have the right kind of cows here, but what we want pounded into us is *care* and *feed*. We hear no one talking dual purpose here. A Short-horn would be as great a curiosity here as an elephant or a giraffe.

I would like to ask some of your correspondents for plans of the best cow stalls for comfort and cleanliness.

The bacon hog is receiving considerable attention here now. As John Bull appears to have a tooth for Canada bacon as well as cheese, why not have at the top of one page in the DAIRYMAN in big letters H O G, and invite some of your big guns to tell us how to make bacon hogs. I could ask a lot of questions, and could give my successes and failures. Z. L. C.

Chantry, Ont.

Is Sure Abortion is Contagious.

ED. HOARD'S DAIRYMAN:—I notice in DAIRYMAN for January 13th, an inquiry and your answer in regard to abortion. We are having it here. P. P. Squires and myself have lost nearly every calf for over two years. We know it does not come from the bulls, for a number of bulls have been used and the calves from all suffered the same fate. Mr. Squires keeps from 25 to 40 cows and heifers, and the loss to him has been very severe as he is only getting about one-fourth as much milk as they did before abortion got into their dairy. Twenty cows have failed to breed and have been sold for beef. You say you doubt its being contagious. If you were here you would not doubt any longer. It is one of the most contagious diseases I ever saw. From my experience I am satisfied that an aborting cow in the stable will expose every cow in the barn long before she has dropped her calf. The man from whom I bought the Jersey heifer that brought abortion into my dairy, had never had a case of abortion until they came in contact with the heifer referred to above, and she did not abort until after she had been in my dairy two months, yet his cows began to abort about the same time mine did. G. A. W.

Glenwood, Pa.

Facts like the foregoing are pretty stubborn things, and when compared with our own experience, and of others with whom we are well acquainted, seem to prove beyond successful contradiction, that there is at least more than one species of this malady.

DAIRY MARKETS.

ELGIN, Ill., Feb. 13.—Butter—Offerings 50 tubs. Sales 41 tubs at 23c, 9 withdrawn on that offer. Official market active at 22c.

CHICAGO, Ill., Feb. 13—Butter—Creamery, extra, 21½@22c; firsts, creamery, 19@20c; seconds, 14@15c; dairies, selected, 18c; No. 1, 15@16c; No. 2, 13c; extra ladles, 14c.

Eggs—At mark, cases included, 22@23c; seconds, $2.50@3 per case; frozen, 10c per dozen.

Cheese—Full cream, Twins, good to choice, 10@10¼c; Cheddars, 9¾@10¼c; Young Americas, 11c; Swiss, 10@12c; Limburger, 8@10¼c; Bricks, 8½@10½c.

Cattle—A good demand prevailed and prices ruled strong to 10c higher; the best beef cattle, and desirable cows and heifers showing the most strength Receipts were comparatively small and the quality poorer than usual. One load of 1,459-lb steers sold at $6.10, with $5.90 the next highest for 1,393 lbs. average. Steers averaging 858@1,600 lbs sold at $4 15@5 80, bulk, $4 70@5 50; corn fed Westerns sold at $4.40@5.65; Missouri Texas, $4@5 10; distillery fed steers, 1,079 lbs. $5.10 Two loads of fancy 1,331-lb. Western heifers sold at $5.15. Native butcher stock sold at $2@4 60; calves, $4@7 and feeding cattle at $3.50@4.70.

MILWAUKEE, Feb. 13.—Butter—Creamery, extras, per lb., 20c; firsts 18@19c; seconds, 16@17c; imitations, 15@17c; fresh dairy good to choice selections 15@17c.

Cheese—Full cream Twins, per lb, new, 10½@11c; Brick 10@10½c; Limburger, 9½@10c; Swiss 11@12c.

Eggs—Fresh, per doz., 22@23c. Market higher and unsettled; very scarce; wanted.

CINCINNATI, O., Feb. 13.—Butter—Firm.

Eggs Strong; higher; 22c.

Cheese—Firm; good to prime Ohio Flats, 11@11½c.

BALTIMORE, Md., Feb. 13—Cheese—Steady; fancy New York large, 11@11¼c; medium, 11¼@11½c; small, 11½@11¾c.

Butter—Steady; fancy creamery, 21@22c; ladle, 15c; good ladle, 13@14c; store packed, 11@12; rolls, 12@13c.

Eggs—Firm; fresh, 20@21c per doz.

KANSAS CITY, Mo., Feb. 13.—Butter—About steady; creamery, 16@20c; dairy, 15c.

Eggs Supply barely equal to the demand, which is fair; fresh candled Missouri and Kansas stock, 21c; 21c in new whitewood cases, cases included.

BALTIMORE MARKET.

BALTIMORE, Feb. 9—Butter—The power that moves the prices of butter up and down must be the jackass power mentioned by Benj. F. Butler during one of his speeches in Congress, for the rising and falling generally are against rhyme and reason, and the butter interests. Can it be that the stock yards dictate the course of prices to the butter men? The market was quiet, transactions slow and small, when, to accelerate movements, so it was presumed, prices were lowered; still foreign trade was not attracted to the fresh creameries, so prices have suddenly been moved up nearly to the limit. It is obvious that one, or both, of these movements was wrong; foreign competitors are not so erratic;—prices are steadier in Canada, Holland and Australia than in the United States, and the trade we want to interest in our creamery products would prefer dealing in markets less mercurial than the markets of this country. Receipts of fresh goods have been light and the demand has about kept pace with them. Junes are having some attention. Rolls in light receipt and good demand. Regular business in blocks and prints—no accumulations.

Creamery Separator, extras, 21@21½c; firsts, 19@20c, seconds, 17@18c; Creamery Ohio Separator, extras; 19@20c, firsts, 18c; seconds, 15@16c; Creamery Gathered Cream, extras, 17@18c, firsts, 16@16½c, seconds, 15@15½c; Roll, extras, 13c, firsts, 12c, seconds 11c; W. Va. Roll, firsts, 12c, seconds, 11c; Western Storepacked, firsts, 11c, seconds, 10c; Creamery Blocks, (2 lb), extras, 22@23c, firsts, 20@21c, seconds, 18@19c; Creamery Prints, (½ lb) extras, 22@23c, firsts, 20@21c, seconds, 18@19c; Md. Va & Prints 18@19c; firsts, 16@17c, seconds, 14@15c.

Eggs—So far this week the receipts have been rather light, and had it not been for the very liberal supply left over from last week, the receipts of this week would have been inadaquate to the demand. We write the market in good shape, and the general tone is firmer, and an advance is looked for in the near future. Duck eggs are in light receipt; there is a good demand for all choice stock at 19½ 20c: small and dirty eggs are excepted.

Cheese—Our cheese market is in good shape and firm with moderate offerings, and a good demand for desirable grades. N. Y. State—Cheddars, fine, 11@11¼c, choice, 10¼@10½c, fair, 7@8c; Flats, fine, 11¼@11½c, choice, 10½@10¾c, fair, 7½@8¼c; Small, fine, 11⅝@11¾c, choice, 10¾@11c, fair, 8½@9c. Ohio—Flats, fine, 10@10½c, choice, 9@9½c, fair, 8@8¼c; Ohio Picnic, fine, 10⅛@10¾c, choice, 9⅛@10c, fair, 8⅛@8¾c; Swiss Cheese, fine, 11@12c, choice, 9@10c, fair 8@8½. G. M. LAMB & BROS.

301 Exchange Place.

FOREIGN MARKETS.

BOSTON, Feb. 11—Cable advices of this date, from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as quiet Arrivals of Australian, American and Canadian are large, which causes accumulations, with buyers pressing their advantage with more or less success. The weather has again turned mild, which causes holders to be anxious, who are forced to make concessions, to move their receipts at all freely. Finest Danish 22½@23½c; finest Australial, 21@22c, with very good quality to be obtained at 18½@19½c. Finest Canadians in boxes are selling about the same as finest Australian. American creameries in tubs have arrived more freely, the very finest of which has sold at 19½@20c, with grades under finest ranging, all the way from 19c down to 16½c; the latter are difficult of sale as margarine and margarine mixtures are preferred by buyers. Some very fancy fresh imitations have sold at 16@17c; ladles have gone dead slow of late and are not selling at all freely at 15c downwards.

Cheese markets are very firm although holders cannot as yet obtain any advance in price as buyers take only for immediate wants. Finest Septembers are held at 10½@11c, with Canadians held for more money. Grades just under finest are in light supply and active request at 10c downwards.

National Champion Buttermakers

EVERY ONE AN

"ALPHA-DE LAVAL" USER.

The honor scoring record of "Alpha" disc made butter the past five years has been a marvelous one the world over, "Alpha" and "Baby" separator butter having made a practically clean sweep of all higher competitive averages and awards in every general contest—National and International, State and District—in America and all other countries.

There have now been seven Annual Conventions and Grand competitive Butter Contests of the National Buttermakers' Association,—1892, 1893, (none in 1894), 1895, 1896, 1897, 1898 and 1899. The following is the list of years, places of convention, names and addresses of sweepstakes Gold Medal winners, and the highest scores. Every other higher prize winning exhibit likewise has been "Alpha-De Laval" made:

1892,	Madison, Wis., Louis Brahe Washington, Iowa..... score,	98
1893,	Dubuque, Iowa, C. W. Smith, Colvin's Park, Ill..... "	97
1895,	Rockford, Ill., F. C. Oltrogge, Tripoli, Iowa..... "	98
1896,	Cedar Rapids, Iowa, Thos. Milton, St. Paul, Minn..... "	97.82
1897,	Owatonna, Minn., H. N. Miller, Randall, Iowa..... "	98.5
1898,	Topeka, Kas., Sam'l Haugdahl, New Sweden, Minn..... "	98
1899,	Sioux Falls, S. D., A. W. McCall, Creston, Iowa..... "	97

Every experienced separator buttermaker understands that while the separator does not of course make the butter, that the "Alpha" disc separation process does contribute largely to the superior excellence of the butter produced with its help—in the lower temperature at which a thorough separation can be accomplished than is approachable by any other separator; in the more complete removal of dirt, fibrous and casein matters than is possible with any other separator, and in the "smoother" and more even'y churnable quality of cream than can be produced with any other machine, due to the much lower relative speed and diameter of bowl and the perfectly proportioned adjustment of inlets and outlets which the "Alpha" disc principle alone makes possible

These advantages have a bearing upon the grain, texture, solidity, flavor, and keeping qualities of the butter, which in combination with equal conditions of milk and equal care and skill upon the part of the buttermaker invariable give to "Alpha" disc made butter its manifest superior excellence.

The De Laval catalogues touch upon these subjects in greater detail and may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.

GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.

BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Position in dairy as forman, by neat, industrious man. Can make butter, very successful in the care of cattle, an expert in the care and handling of hogs. Can handle any kind of separator. Can give No. 1 references. Will guarantee satisfaction. Address "F," care Hoard's Dairyman. 1-tf

Wanted—Immediately or by April 1st, position as manager of retail milk route by young, single man, who has proven his ability as a salesman by having had years experience where competition is very strong. Thoroughly understands the use of all modern facilities for handling milk; also the care and feeding of dairy stock. References exchanged. Address DILLIGENT, care of HOARD'S DAIRYMAN.

Wanted—Position as dairyman by single man, (Swedish descent) in plain dairy. First-class butter maker. J. C., Hoard's Dairyman.

Wanted—Married man for farm. Good milker. Must understand care of stock and have experience in all lines farm work. Permanent position. State wages. References. F. H. EAMES, Springfield, Wis.

A Complete creamery outfit for sale cheap that has been used but very little. Address HABIGHORST BROS., Sheboygan Falls, Wis. 1tf

For Sale or Rent—The Highland creamery with a first-class outfit. For particulars address GEORGE REKLAN, Sec'y, Theresa, Wis.

Iowa Farms For Sale—$2 per acre cash, balance ½ crop until paid. J. MULHALL, Sioux City, Ia. 1-3

For Sale—A suburban home and farm of 600 acres, fine soil well watered. Very hea thy climate. Home fronts Georgia R. R., two story dwelling, barns, orchard. Price $7,000, Apply to Dr. J. S. WILSON, Greensboro, Georgia.

Wanted—A man with two sons competent to manage farm and dairy. J. W. CRON, Bloomington, Ind.

If you want to receive any one dollar book or a year's subscription to any one dollar magazine for 25 cents, address ELTON G. RICE & CO., Berwyn, Ill.

Wanted—Position by competent buttermaker. Managed milk pasturizing plant one year. Address H. C. GROELER, Watertown, Wis.

Wanted—A position in a Separator Creamery. Eight years experience in butter making and running all kinds creamery and ice-making machinery. Good references. Address BOX 492. Sharon, Wis.

Wanted—Position by reliable, first-class butter or cheese maker; four years' experience; high-grade goods; best of references, wages reasonable. J. H. WINES, Ames, Iowa. 1-2

Wanted—A position by a Cheddar and skim cheese maker. Have had three years experience. Best of references. BENJAMIN EWART, South Richland, N. Y.

Wanted—At Meramec Highlands Dairy—near here, experienced and expert dairy milkers. Married men preferred. Wages $30.00 and free rent. Also one such for foreman, wages $35 00 whose family will board the dairymen Address or reply, MERAMEC HIGHLANDS CO., 4th and Washington Ave., St. Louis, Mo. 52-2

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—A single man to work on dairy farm. must be a good milker, steady and of good habits. State wages wanted and give references W. H. RUSSELL, Luana, Iowa. 52-2

Wanted—Creamery for house and lot in Chicago, Ill. Address R. J., Hoard's Dairyman, 52-2

For Sale—One first-class creamery and skimming station. DOWNING MFG. CO., Downing, Wis. 35-tf

Hermanville Tamworths, Yorkshires, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

For Sale—Fifteen h. p. tubular boiler and 10 h. p. (10x7 cylinder) upright engine, latest pattern, veriable cut-off. As good as new. Also 7 h. p. oscilating engine. Will sell cheap. GEO. WOODRUFF, Administrator Janesville, Wis. 50-4

Situation—is wanted by a first-class and experienced butter and cheese maker. Can make Swiss or American cheese. Guarantee good work. GODFRIED KELLERHALS, Kenton, Ohio. 50-4

For Sale or Rent—A dairy farm of 220 acres 30 high bred Jersey cows, 13 yearling heifers, a good dairy building with a No. 3 U. S. separator, tread power, all necessary appliances, with the trade of private customers, consisting of 50 private families; every thing complete for a live, up-to-date dairyman. Will sell the stock and dairy appliances and rent the farm for a term of years, or sell the entire outfit. The last four years the cows have averaged 300 pounds of butter. 160 acres plow land, 3 barns, including a cow barn 30x54, a horse barn 24x36, a hay barn 24x30, 100 feet of shed room, attached. 3 miles directly west of Cherokee; good roads to town. D. LAYTON, Cherokee, Iowa. 50-4

Position Wanted—As butter-maker in good separator creamery by reliable and temperate man. Good references as to ability and habits. State wages. Address J., Box 64, Portland, Ia. 50-4

BUTTER FAT AND CHEESE.

On page 952 of the last volume was printed the following question and answer.

Which would make the most cheese, "a cow testing 6 per cent and giving 6 quarts of milk, or a cow testing 3 per cent and giving 12 quarts of milk." Again, it is reported here that (by fat test) the 6 per cent test draws as much again money per hundred pounds of milk as a 3 per cent test. Is that true? If so, how do you "reconcile" the fact that 100 pounds of 6 per cent milk will place as much cheese on the market as 200 pounds of 3 per cent? Please answer and oblige a reader.
Birch Run, Mich. C. W. D.

According to investigations by Dr. Babcock on the yield of cheese, 100 pounds of 3 per cent milk will make 9 pounds of green cheese, while 100 pounds of 6 per cent milk will make a little over 12 pounds. At this ratio, the cow giving 12 quarts (25.8 lbs.) of 3 per cent milk would make 2.32 pounds of cheese, and the cow giving 6 quarts (12.9 lbs) of 6 per cent milk would make 1.54 pounds of cheese. In the same way, 100 pounds of 6 per cent milk will make 12 pounds, and 200 pounds of 3 per cent milk 18 pounds of cheese.

But something more than the weight of cheese made enters into the question of the value of milk. Experiment has shown that a milk containing 4 per cent of fat will make the best quality of cheese, and one that will bring the highest price on the open market.

Consequently, as a large per cent of the milk brought to the factories is below 4 per cent fat, the 5 and 6 per cent milk is well worth the extra price paid for it, to bring the poorer milk up to the necessary standard of 4 per cent.

A correspondent comments on this as follows and asks for a more extended discussion.

ED. HOARD'S DAIRYMAN:—Your idea of bringing up poor milk would do, providing that idea would hold together. However, when we come to take into consideration the whey tank and the difference in the amount of fat rising on top thereof when the six per cent cream goes in, and the amount of fat on top when it doesn't go in, it makes one smile. But let that be as you quote it, in the above article of Jan. 6th, and then there is an obstacle in our way to see, and that is, that all cheese sells on the market at the same price, and by law to-day a three per cent fat cheese is a full cream cheese. However, Mr. Editor, the dollars come back from the sales of both grades of cheese exactly the same. If both grades were made separate, and sold on their merits, then the advantage would be in favor of the three per cent milk, as it would make more pounds of cheese than the six per cent milk, in proportion to the present test system of paying on the basis of one-half difference between three per cent milk and six per cent milk, and in my mind there is a difference between the two grades of milk. But after taking into consideration all those truthful points, with me, and according to your own estimates in last week's article, the difference between six per cent milk and three per cent milk would compare nearer to one-fourth difference than one-half difference, as a basis to pay upon, after considering the way both grades are handled. Both placed in the vat together, made into cheese, and then sold on the market as one cheese, and the dividend received therefrom paid over to the patrons as one grade of cheese, there can't be any more difference between the two grades than the amount of cheese the difference thereof will make, as per your own figures in last week's issue, is nearer one-fourth than one-half difference between a six per cent milk and a three per cent milk.

Now then, Mr. Editor, I hope you will reprint this article of Jan. 6th and my query herein attached, together with a good, clear and truthful reply, as this point which I raise here is very frequently agitated among the patrons of our factory, and I dare say of many more throughout the country, and I do believe if you give it a fair and clear decision, it will help to harmonize the feelings of the patrons thereof, as to that one fact in their minds.

Saginaw Co, Mich. CHAS. P. DOUGLASS.

If the DAIRYMAN should give only an opinion on the subject, our correspondent would probably reply with a corresponding opinion and we might go on indefinitely without coming to any positive agreement.

Instead, therefore, of an opinion, we will give facts and figures which have been obtained in regular factory work and let them speak for themselves. But before doing so we will give not an opinion but a statement which is the result of a long series of careful work in factories in which the milk from 15,000 cows has been handled. The work was done under the careful supervision of Prof. VanSlyke, probably the best authority on Cheddar cheese making in the country.

The statement is as follows: "The facts all go to show that it is really more economical, so far as the loss of fat is concerned, to make cheese from normal milk rich in fat than from normal milk poor in fat. The loss of fat in cheese making is quite independent of the amount of fat in the milk.

The variations that occur in loss of fat are due either to the condition of the milk or to some special conditions employed in the manufacture or to both. When a cheesemaker says that he cannot make cheese from milk containing over 3.5 or 4 per cent of fat without having extra large losses of fat, he brands himself as a thoroughly incompetent maker."

The fact that Ohio makers of part skims obtain their cheese grease as John Gould said not long ago, from the whey vats of eastern makers of full creams is no argument as to the relative value of fat for cheese making. It merely shows that a maker who loses such large amounts of fat should be engaged in some other line of work than cheese making; nor can we see anything to laugh at in the fact that a valuable food product is wasted by incompetent and careless workmen.

The following table shows the per cent of fat lost in the whey from milk of different richness:

Pounds of fat in 100 lbs. milk.	*Pounds of fat lost in whey for 100 lbs. milk.*	*Per cent of fat in milk lost in whey.*
3 to 3.5	0.32	9 55
3.5 to 4	0.33	8.33
4 to 4.5	0 32	7.70
4.5 to 5.0	0.28	5 90
5 to 5 25	0.31	6.00

The figures show that a good cheese maker will have no more actual loss from 5.25% milk than from 3% milk, and that the percentage loss of fat is 3.55% less on the rich milk than the poor article. Consequently the loss of fat in the whey vat cannot enter into the question of the value of the fat. The next question is relation of fat in the milk to the yield of cheese.

The following table shows some points to which we wish to call attention:

Per cent of fat in milk.	*Pounds of green cheese made from 100 pounds milk.*	*Pounds of green cheese made from one pound of fat in milk.*
3 0 to 3 5	9.14	2.73
3 5 to 4.0	10 04	2.70
4.0 to 4.5	11.34	2.73
4.5 to 5.0	12.85	2.71
5.0 to 5.25	13.62	2.66

The table shows that each pound of fat, whether in poor or rich milk, makes very close to 2.7 pounds of green cheese and that the amount of cheese increases very nearly in proportion to the increase in the richness of the milk.

The following table shows why this increase takes place.

	Pounds in 100 lbs. of milk.	*Pounds lost in whey for 100 lbs. of milk.*	*Pounds covered in cheese for 100 lbs. of milk.*	*Yield of green cheese from 100 lbs. of milk.*	*Pounds of green cheese for one lb. of fat in milk.*
Fat	3.00	0 28	2.72	....	....
Casein	2.00	0.10	1.90	....	....
Water and salt	....	....	3 63	8.25	2.75
Fat	4.00	0 30	3.70	....	...
Casein	2.67	0.10	2.57	....	....
Water and Sal	....	....	4.73	11.00	2.75
Fat	5.00	0 32	4.68	....	....
Casein	3.15	0.10	3.05	....	....
Water and Salt	....	....	5.65	13.38	2.67

I is seen that 3% milk contains 2% of casein, whereas the 5% milk contains 3 15% of casein.

In both these cases a certain amount of water and ash go to assist the casein and fat in making up the cheese and it is evident that the larger amount of fat and casein in the richer milk will also retain more water than in the case of the poorer milk. Thus where 3% milk makes use of 3.63 pounds of water, the 5% milk puts two pounds more or 5.65 pounds of water in the cheese. As a final result, therefore every additional pound of fat in the milk means approximately one pound of water and 9½ ounces of casein or 2.70 pounds of green cheese.

Now making comparison between 100 pounds of 3% and 100 pounds of 6% milk, we find that in factory work the yield of cheese was as follows: 100 pounds 3% milk made 9.25 pounds of cheese, 100 pounds 6% milk made 13.30 pounds cheese.

The market price for extra cheese this week is 11½ cents per pound, which would make the 3% milk worth 106.37 cents, and the 6% milk 152.9 cents per hundred pounds; or within 6 cents of being 50% more valuable than the poorer milk in weight of cheese made, alone.

As regards markets, of course there always will be difference of opinion on the relation of the factory to the cheese buyers. It is the old question of the producer, the middleman and the consumer. So long as the consumer cannot and the producer will not seek each other out, it is probable that the middleman will flourish at the expense of both parties. But this is no reason why the producer should sacrifice part of his profit for the accommodation of another, as he seems to do at the present time. Our correspondent says that all cheese brings the same price regardless of quality. It may, under the conditions under which he sells his product; but there is a very decided change in price, as soon as the article is put on the general market.

We would call his attention to the following prices as given in this week's DAIRYMAN:

Full cream, extras, 11½ cents per pound; medium, 10½ cents per pound; poor, 6 to 8 cents per pound.

Part skim, extras, 8½ cents per pound; medium, 7 to 7½ cents per pound; poor, 4 to 6 cents per pound.

There is a difference of 5½ cents a pound, according to the quality of full creams, and 7½ cents between a poor skim and an extra full cream. Now, how much of this 7½ cents is due to poor making, and how much to a lack of fat is an interesting question. Taking into consideration the fact recently given in the DAIRYMAN, that a manufacturer of full cream cheese in New York was selling his total output for 15 cents per pound, and was enlarging his factory to meet the demand, we are inclined to think that the difference is caused by the lack of fat more than poor making.

It certainly seems that the price of cheese is regulated by the per cent of fat more than our correspondent is inclined to believe possible.

Milk Pails and Clean Milk.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of Jan 30th, 1899, page 996, H. S. Hopkins of Ames, Ia., recommends a milk pail for keeping milk clean, which I suppose is similar to the one used at the Kansas Agricultural College, described in the same issue by D. H. Otis, page 1006. After using my covered pail, for three months, as described and illustrated on page 882 of No.

A lamp does not burn very well, and eats its head off in chimneys, unless you use the chimney made for it.
Index tells.
Write Macbeth Pittsburgh Pa

Mentioning this paper.
EVERGREENS
100, 6 to 8 in. $1; 12 to 18 in. $2.50. 100, 2 ft. $10 prepaid. 100, 4 to 6 ft. 25 varieties, $15. 45 choice Fruit trees, 20 varieties, $10. Ornamental & Fruit Trees. Catalogue and prices of 50 great bargain lots SENT FREE. Good Local Agents Wanted.
D. HILL, Evergreen Specialist, Dundee, Ill.

STRAWBERRIES
$1.75 a 1000 for standard kinds. Only New Beds. Best Plants you ever saw. Raspberries, $5. a 1000
Other fruits at like rates. Lists SENT FREE.
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were famous years ago—their fame grows every year—as the seeds most to be relied on—as always the best. For sale by leading dealers everywhere. Five cents per paper and always worth it. Insist on having them. Run no risk—buy Ferry's. 1899 Seed Annual is free.
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1899 Vick's GARDEN and FLORAL GUIDE
The Golden Wedding Edition to celebrate our 50th year in business is a work of art. 24 pages lithographed in colors. 4 pages souvenir; nearly 100 pages filled with fine half-tone illustrations of Flowers, Vegetables, Plants, Fruits, etc. It is too expensive to give away indiscriminately, but we want everyone interested in a good garden to have a copy, therefore we will send a copy of the Guide with a Due Bill for 25 cents' worth of seed for only 15 cts. We have a new plan of selling vegetable seeds, giving more for your money than any seedsman, and also a scheme giving credit for the full amount of your purchase to buy other goods. Don't fail to get our catalogue, it will pay you.
Vick's Little Gem Catalogue, free.
Vick's Magazine, enlarged, improved, and up to date on all subjects relating to gardening; 50c. a year. Special 1899 offer—the Magazine 1 year, and the Guide for 25c.
JAMES VICKS SONS, ROCHESTER N.Y.

CHOICE FRUIT
is the only kind that pays for the cost of growing and marketing. The best are *Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant,* Immense stock. Warranted true to name. My Catalogue is FREE but it is worth dollars to you.
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Good and Cheap
BEST in the world from 1 cent per packet up. Celebrated for strong and rapid growth. Postage paid. Large lot of extra packages free in every order. Oldest reliable seedsman in the west. Send yours and neighbors address for prettiest large catalog ever printed.
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Our Garden and Farm Manual is full of interest to everyone who loves a garden or flower bed. Its Photographic Illustrations of choice novelties in Vegetables and Flowers place it in a distinct class among seed catalogues. *Sent free to seed buyers.*
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FARM SEEDS
Salzer's Seeds are Warranted to Produce.
Mahlon Luther, E. Troy, Pa., astonished the world by growing 250 bushels Big Four Oats; J. Breider, Mishicott, Wis., 173 bush. barley, and H. Lovejoy, Red Wing, Minn., by growing 320 bush. Salzer's corn per acre. If you doubt, write them. We wish to gain 200,000 new customers, hence will send on trial
10 DOLLARS WORTH FOR 10c.
10 pkgs of rare farm seeds, Salt Bush, Rape for Sheep, the $5000 Corn, "Big Four Oats," Beardless Barley, Bromus Inermis—yielding 7 tons hay per acre on dry soils, etc., "40c. Wheat," including our mammoth Seed Catalogue, telling all about our Farm seeds, etc., all mailed you upon receipt of but 10c. postage, positively worth $10, to get a start. 100,000 bbls. Seed Potatoes at $1.20 and up a bbl.
35 pkgs earliest vegetable seeds, $1.00
Please send this adv. along.
JOHN A. SALZER SEED CO. LACROSSE WIS.
Catalog alone, 5c. No. 140

43, of the DAIRYMAN, I can say that I like it much better than I did at first.

The Editor pointed out some objections to the pail described by Mr. Hopkins, but the main objection to it and the same or similar one, used by the Kansas Agricultural College, is that there is too large an opening in the top to milk into. True, this opening is covered by a cloth or wire strainer but the dirt that falls upon it is forced through it by the pelting of the streams of milk under the hands of a vigorous milker.

The essential point in keeping milk clean is never to let dirt (filth) get into it. The tubes in the milk cover I use are one inch and a half in diameter. These small openings are fully protected from any falling dirt by the hands of the milker. I can now milk a gentle cow in the dark using this cover. As the lower part of the palms of my hands almost encircle the tops of the tubes, I know to a certainty that the milk is going into the pail and that nothing else is going in with it.

It requires some practice to hold the pail in just the proper position between the knees, so as to avoid missing the openings but in milking a fidgety heifer, very little is wasted. As Mr. Otis truly says: "In spite of the best precautions, the top of the pail will be covered with numerous hairs and dust particles, enough to spoil the digestion of any man if he only knew what he was swallowing, when he drinks the milk out of an open pail." Then why leave a six-inch opening in the top of the cover to gather a large portion of this filth? This morning, after milking five cows into my covered pail, I drew a circle six inches in diameter, including the tubes in the circle, and I found that almost all of the dust, hair, dandruff, etc., that had fallen on the cover was inside this circle.

The cows' udders were apparently clean but the top of that cover inside of the six inch circle did not have a very appetizing look. Remember too that this cover is convex and quite a good deal of the dirt falling upon it slides off the smooth tin surface or is knocked off when the cover is removed to empty the milk three times, as was done in the milking referred to. Would not all the dirt that falls upon the strainer in the "sanitary pail" adhere to it, making necessary a change of cloths or a washing of the wire strainer at every filling of the bucket? Even then the most of this filth will be dissolved or forced by the streams of milk through the strainer.

As I suggested in my first letter describing the cover, I should prefer to have new pails made so that the flange of the cover would fit on the outside of the rim of the pail. If a wire hoop is used to fasten the strainer that goes over the top of the pail before the cover is put on, it will be found more convenient when removing the cover to empty the milk. But if the covers are made of heavy tinned plate and fit tight there is hardly any need of the strainer under the cover. Even without the strainer, if care is taken to protect the openings in the cover from dirt, when carrying the milk away to be strained, there will be no sediment when it is emptied into the strainer, and no odor but that which is natural to clean milk.

I wish that every person who owns a cow would give this matter more attention. I know of good people, unthinking people, who will feed little babies and delicate children with milk so foul that the sediment will blacken the bottom of a tea cup, while the child is eating its meal. How many thousands of children are thus poisoned we will never know, but it is surely time that more attention was paid to it. Boards of health in the cities may do much to check the evil there, but in the little towns and even in the farmer's home the slaughter of the innocent babes goes on unceasingly. Is it not worth while to "do our best" to keep the milk clean? SAMUEL GRAY.

Vermillion Co., Ill.

Watering Cows.

ED. HOARD'S DAIRYMAN:—I am going to build two silos this year of 150 tons each. I can get a good flow of milk from my cows without silage but as I believe the oil mills have formed a trust, and keep O P. oil cake meal so high ($23 on cars at mills, Piqua, Ohio,) that the farmers will have to resort to something cheaper.

I have sixty cows and deliver milk and cream in town. I also have fourteen full blood A. J. C. C. heifers, all daughters of King Cotton. They are all bred to Edgardo 50703, a bull I purchased from C. Dixon, of Gillespieville, Ohio.

I want to tell you how I water my cows in winter. You know they want warm water. I have a large tank in a shed adjoining my cow barn and one in a small lot outside. This trough holds about twelve barrels. They are filled from a spring at the dairy room and I have steam pipes from dairy boiler run in a box along side of water pipe. I used 6 in. plank for top and bottom of box and shingle lath for sides. The steam pipe will let live steam in the trough and the water will heat in running along side of it also. In fact, the steam heats up the pipes so that we find warm water running quite a while after we turn the steam off.

Sometimes the water did not run fast enough to suit me and I got a small injector ($5.00) and connected it to steam pipe in bottling room by a three-eighth inch pipe and to a 20 bbl. tank in loft above. Connected this tank to main pipe for conveying water to barn. The injector threw a three-fourth inch stream of warm water.

Now if the weather is warm I don't need it but when a frosty morning comes I can send nice, fresh, warm water to the trough over two hundred feet away.

I let my cows out, about fifteen at a time, at about eight o'clock in the morning. While out, the men clean out and bed down and put in a little cut hay or stover. One would be surprised to see how the cows take hold of the water when pumped this way. I can pump five hundred gallons per hour with forty pounds of steam. My cows are only let out to water and put back right away. We give them a chance to drink both morning and evening.

I think it a very easy matter for anyone having a boiler to give their cows warm water and I find it much cheaper to pump it with steam than to heat it afterward.

You will excuse me for writing so much, but as you say milk is about 87 per cent water I do not care about my Jerseys using all the feed I give them, heating up the water they drink. JACOB E. WHITE.

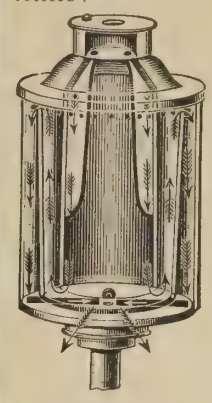
Highland Co., Ohio.

Save Money and Labor by Buying

THE IMPROVED U. S.

TRIPLE CURRENT SEPARATOR

Users say it is **unequalled** for **clean skimming,** durability and ease of operation. They surely ought to know. Read a few of their letters :



The More Used the Better Liked.

RIDGEWAY, WIS., Jan. 9, 1899.
The more we use the Improved U. S. Separator the better we like it. It is as **reliable as a good clock,** and it seems to me that it will be **as durable.** It runs light, does good work, is easy to take care of, and made to last.
THOS. CONVEY, Conductor of Farmer's Institutes.

Takes Out Every Particle of Cream.

SILVINA, WASH., Jan. 2, 1899.
The No. 5 Improved U. S. Separator is all right. It is easy to turn, easy to clean, and takes out every particle of cream. We make considerable more butter and receive 2½ cents per pound more for it. It is the best machine a farmer ever bought. MAX BARTL.

Greatest Labor-Saving Machine.

TURIN, N. Y., Jan. 11, 1899.
The No. 5 Improved U. S. Separator works finely. It is the greatest labor-saving machine for making butter that was ever made. **We could not do without it.** Every farmer should have one. J. BIBBINS.

Remember that in order to have the best, the **TRIPLE CURRENT SEPARATOR,** you must buy the **IMPROVED UNITED STATES.**

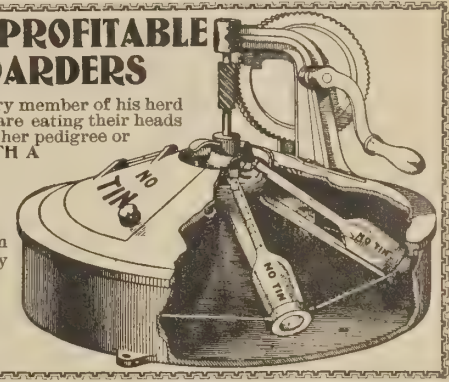
Illustrated circulars free on application.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

DON'T KEEP UNPROFITABLE BOARDERS

Unless the dairy farmer has had every member of his herd tested he unquestionably has some that are eating their heads off. He can't tell by the shape of the cow, her pedigree or the color of her milk. HE CAN TELL WITH A

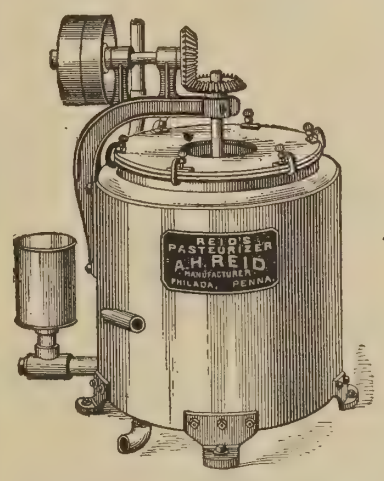
NO-TIN BABCOCK TESTER.



This will solve the problem for him in an hour. He should test each cow frequently to see whether she is paying her board.

Send for Catalogue No. 85.

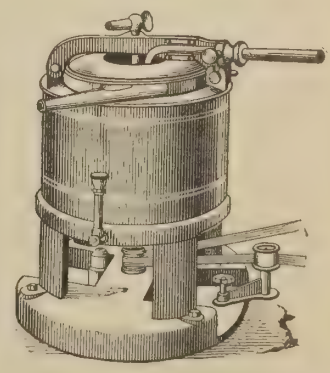
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Pasteurization is a question that you can't overlook or ignore. Many creameries practically and satisfactorily solved this question in 1898, many more will demonstrate the advantages and profitableness of hot skimming during 1899. Every creameryman and every buttermaker owes it to himself to study this important question in all its bearings. Begin your investigation to-day by sending for information and facts regarding Pasteurization and a full description of the

REID PASTEURIZER



When you write, ask for the book about the REID Latest Improved 1899 Separator—the best machine for hot skimming ever built.

A. H. REID, 30th and Market Sts., PHILADELPHIA, and CEDAR RAPIDS, Iowa.

The REID Latest Improved 1899 Separator.

The Dairy Form and Constitution.

ED. HOARD'S DAIRYMAN:—There is no one point in the dairy cow that has perplexed me more than to harmonize my ideas of constitution with those of my colleagues in agricultural institutions, or with the way in which the points denoting constitution have been treated in books on live stock.

What information I have acquired on dairy stock has not been gleaned from books, but mostly from long experience in handling stock and by observation in inspecting noted herds and animals of especial note, either as dairy animals or as progenitors of famous dairy animals.

The peculiar make up or conformation of dairy cows that live to a great age and at the same time have performed an enormous amount of work, I first noticed in 1882 when I was commissioned by the University of Wisconsin to visit some of the best dairy herds in the east with a view of selecting some dairy stock for that institution.

During the ten years from 1877 to 1887 I collected and read nearly every catalogue issued by breeders of dairy stock and read all articles in the agricultural press relating to it. I knew the records that nearly every dairy cow had made during that time and prior thereto. I knew, therefore, where to go to see the best dairy cows in the country at that time. I was in quest of information and missed no opportunity to see a great cow or a great sire, and to my astonishment, none of them possessed the points that are generally cited as indications of good constituuion. The herd that gave me the most material for study was that owned by J. H. Walker, of Worcester, Mass., now chairman of the finance committee in the lower house of Congress.

His herds at that time were scattered over several farms in Massachusetts and New Hampshire. They included representatives of nearly all the famous families of those years but his specialty was descendants of the Motley importation in 1850, in which were the cows Countess, Flora, Twilight and Duchess, and the bulls Colonel and Czar 273. These were inbred for many years and produced many famous cows, the most noted being Jersey Belle of Scituate, that made 705 pounds of butter in a year on just ordinary good feed.

Many of the cows in Mr. Walker's herds were identical in breeding to Jersey Belle and some were so nearly like her in form and appearance that it was difficult to distinguish between them. Nearly all had been collected by the single standard of pedigree, and I was informed by Mr. Walker that in all the selections that were made, not a single cow proved to be simply an ordinary good dairy cow. They were as uniformly great producers as they were uniform in build and breeding.

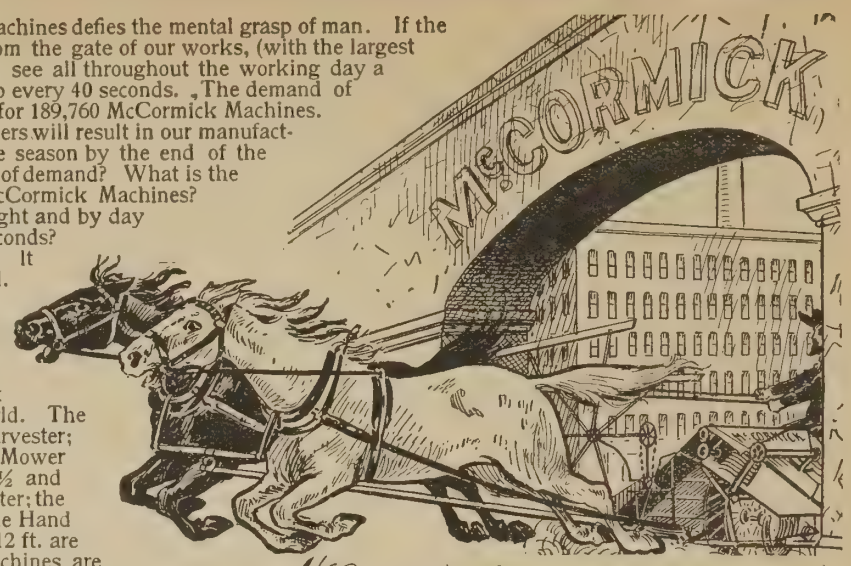
On a farm near New Hampton, New Hampshire, I remember seeing Countess of Lakeside, Rosa of Lakeside and Beauty of Lakeside, three cows some sixteen years old, almost exact duplicates of Jersey Belle, and upon inquiry was informed that they were not only by the same sire but full sisters in blood to her.

In the herd there were a great many very old cows still in their full vigor and doing excellent work in the dairy. Since then, when I have found a cow that had great dairy qualities and had the ability to do much dairy work during a long life, I have found the cow to have a large middle piece, to be spare and angular, sharp withers, light in neck and head, full and expressive eye, a clean, well developed spinal column and rump, clean and rather narrow through the fore quarter, sharp hook points, thin incurving thigh and well developed udder. The udder not always specially large, but always covered with a coat of fine hair and soft and elastic, showing that the circulation in the organ is active. We hear and read much of depth of chest and good lung and heart capacity, but we do not see that these points are specially prominent in the typical dairy cow. We hear much of the theoretical danger line, and yet the cows that actually demonstrate their ability to perform much work in the dairy for a long time, are the very ones that are so near this imaginary danger line that they would be classed as having weak constitutions were they judged by these rules.

An eminent veterinarian, in a bulletin issued some years ago, describes the kind of animal that has a tendency to tuberculosis, and in doing so describes the typical dairy cow. He cites no authority for his statement and it is fair to assume that it was simply an opinion, not backed by any statistics. The greater ability of this spare, sharp withered, ewe necked, cat hammed, pot bellied cow to ward off disease, was clearly demonstrated at the Minnesota station.

At the time when the tuberculin test was first applied to the beef and dairy herds, all but one of the former responded, and only one of the dairy cows was found diseased. Neither Dora, Pride, Bettie, Biddle, Sweet Briar, or old Marjoram ever took the disease,

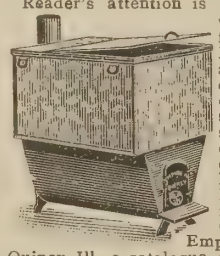
The enormous output of McCormick Machines defies the mental grasp of man. If the machines we manufacture were to issue from the gate of our works, (with the largest output in the world) the spectator would see all throughout the working day a McCormick Machine emerging at full gallop every 40 seconds. The demand of the farmers in the past season of 1898 was for 189,760 McCormick Machines. This continuing tremendous call of the farmers will result in our manufacturing and selling still larger numbers in one season by the end of the century. What is the cause of this unheard of demand? What is the reason of the everlasting popularity of McCormick Machines? Why are we forced to run our Works by night and by day up to the output of a machine every 40 seconds? The cause is plain. The answer is simple. It is The Building of the Best in the World. Almost seventy seasons of success have elapsed since Cyrus H. McCormick invented the Reaper in 1831. In all that time the McCormick has been The Best Built Machine in the World. The McCormick Machines for 1899 are The Best in the World. The McCormick Right Hand Self-binding Harvester; the New 4 Mower 4½ and 5 ft. cut; the Big 4 Mower 6 ft. and 7 ft. cut; the One Horse Mower, 3½ and 4 ft. cut; the Folding Daisy; the Corn Harvester; the Corn Husker and Fodder Shredder and the Hand and Self-dump Hay Rakes 8 ft., 10 ft. and 12 ft. are The Best in the World. All these eight machines are McCormick End of the Century machines; built with a brilliance of invention and honor in construction that sets a noble standard to all other agricultural machines on earth.



McCormick Harvesting Machine Co.
CHICAGO.

Farmer's Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12.50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill, a catalogue giving full description, may be obtained. They are made in all sizes.



Hood Farm Jerseys

Yearling Bull.—Two year's test of dam, 23,141 lbs. 10 oz. milk, 1,211 lbs. 10 oz. butter. Solid color, black tongue and switch of excellent dairy form. Sire, Chromo, of World's Fair fame, sire of 8 tested daughters, by Diploma, sire of 42 in the 14-lb. list, including Merry Maiden. Dam, Oneida, test, 16 lbs. 13 oz., 50 lbs. 5 oz. milk in one day, 12,734 lbs. 11 oz. in 1 year, testing 648 lbs. 12 oz. butter. Write for price to HOOD FARM, Lowell, Mass.

FOR SALE!

DOUBLE GRANDSON OF

Exile of St. Lambert

13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days.

P. J. COGSWELL,
Rochester, N. Y.

Miller & Sibley's Jerseys

223 First prizes and Sweepstakes won by this herd at 22 State or greater fairs. Bulls now 223

heading the herd:

IDA'S RIOTER OF ST. L. 30th, 47704—Pure St. Lambert bull. Grandson and great grandson of Ida of St. Lambert; great grandson of Stoke Pogis 5th. Dropped Oct. 23, 1896. Sire, Ida's Rioter of St. L., sire of 26 cows averaging 20 lbs. 2 oz. of butter apiece per week; dam Flower of Meridale, record 26 lbs. 11½ oz., milk record 53¾ lbs. per day; 2d dam's test, 23 lbs. 14¾ oz.

IDA'S RIOTER OF PROSPECT, 45285—Sir Ida's Rioter of St. L., dam, Bess Pogis of Prospect, record 29 lbs. 1¾ oz. of butter in seven days, 64 lbs. of milk a day. Average butter test of dam and sire's dam, 29 lbs. 10⅛ oz.; average daily milk record of same 65⅛ lbs.

TWO HUNDRED PER CENT, 33592—First prize and sweepstakes bull wherever shown. No outcross from the blood of Stoke Pogis 3d and Stoke Pogis 5th. Dam's test 15 lbs. 3 oz. from half the udder; other half spoiled from being gored through; dam of three testing 22 lbs. 12¾ oz., 16 lbs. 11 oz., and 16 lbs. 5 oz. For superior Jerseys, male or female, apply to

MILLER & SIBLEY, Franklin, Venango Co., Pa. No Catalogue. Special Literature sent if this paper is mentioned.

No animals sold delivered for less than $100. Inferior ones we knock in the head.

FANCY'S HARRY TORMENTOR BULL,

10 MOS. OLD. Solid color, well grown and nice. Sire has 16 daughters in the list; dam, both grandams and its four great-grandams all tested. Send for pedigree.
Price, $65.00. J. P. BRADBURY, Pomeroy, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

ESTABLISHED 1890—500 Acres—Incorporated 1897. THE LINDEN LAWN FARMING CO., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys.
C. S. MACE, Mgr.

DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records, **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In propor tion of tested daughters he out ranks his sire **Combination**, which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." The prepotent blood of **Combination** breeds on and on. Service bulls, **Recorder 29239**, son of **Brown Bessie**, Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374**, full brother in blood to **Merry Maiden**. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

FILSTON FARM

Jersey Herd

(OVER 300 HEAD.)

If You Want A JERSEY BULL CALF of fashionable blood and handsome color, bred to beget heavy milkers, or large ENGLISH BERKSHIRE PIGS at reasonable prices, write to the **FILSTON FARM**,
Satisfaction Guaranteed. Glencoe, Md.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

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out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

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Locust Lane Stock Farm

. . . Service Bull . . .

BROWN BESSIE'S GRANDSON No. 34891.

State What You Want.

G. E. COLEMAN, Perry Center, N. Y.

To Reduce Stock FOR WINTER WE OFFER

At lower prices than ever before, A. J. C. C. Bulls and Cows, Yearling Heifers, Bull and Heifer Calves.

All are deep in the blood of either Naiad's St. Lambert King, 30645, (son of Naiad of St. Lambert, test 22.02 ¼—full sister to Mary Anne of St. Lambert, 36.12 ¼ in 7 days—867.14¾ in 340 days, by son of Allie of St. Lambert, 26.12—62 lbs. milk in 1 day, 414 lbs. in 7 days) or Exile of St. Lambert, 13957 and most of those offered combine the blood of both. Here is a rare opportunity to acquire the best St. Lambert breeding, A sale list, giving short pedigrees, will be mailed on application.

WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

15

A. J. C. C. **Heifers** $50 to $65 each.
15 A. J. C. C. **Heifer Calves** $30 each.
10 A. J. C. C. **Bulls** ready for service, $50 to $125,
Also lot of Grades.
J. C. IRONS, Camden, N. J.

GREEN PLAIN HERD

POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th**, the champion **CATONO KHEDIVE**, the champion **CZAR COOMASSIE**, and **IMP. GOLDEN BAR**, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

Large Milking

JERSEYS

FOR SALE.

Large milkers mean large butter makers. Cows in this herd have milked as high as 13,000 lbs. a year and produced a calf. One year (1893) the herd (90 head) averaged 7,300 lbs. and produced a calf, heifers counted a full cow.

This herd is well known for its heavy milkers and butter makers, as well as in the show ring never was beaten. For 15 years won First Prize, Sweepstake Prize (bull and cow), Herd Prize, etc., at the St. Louis Fair, when this fair had the best live stock shows ever in this country, 1875 to 1893. Can give you the blood of **Coomassie, Victor Hugo, Combination, Paddy,** and others. No Catalogue. State in full what is wanted.

DOUGLASS JERSEY CATTLE CO.,
PEVELY, MO.

St. Lambert Jerseys, all ages, both sexes. Some from **tested** cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

FOR SALE.

Four Choice Young Jersey Bulls

9, 10, 11, 12, months old. Prices reasonable.
CLEARVIEW STOCK FARM, Butler, Pa.

and those that did finally respond, did so after one or more years additional exposure If constitution has anything to do with giving an animal the ability to ward off disease, then the dairy type cow has demonstrated that she has a good constitution. There were three Polled Angus in the herd at the time of the test referred to, each was specially strong in depth and breadth of chest, and had what is generally termed good lung and heart capacity. They were fat and sleek, and yet they proved to be badly diseased.

Taking all the testimony accumulated at this station during the past five years, we would be warranted in assuming that the liability to contract disease depends upon the amount of tissue in a body. So, other things being equal, the sparer the cow, the less the liability to become infected.

T. L. HAECKER.

Minnesota Experiment Station.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—There was a very small offering of butter on Monday's Elgin Board of Trade, but 3,000 pounds being placed. Bidding opened at 22¾ cents and advanced to 23 cents; 540 pounds were withdrawn from sale with 23 cents bid, and 2,460 pounds were sold at that figure. The Quotation Committee did not consider the sale price as representing the true condition of the market, and declare the market active at 22 cents, with the following sales reported:

Factory.	*Pounds.*	*Price.*
Red Clover	1,800	23cts.
McConell	660	23cts.
Total	2,460	

The markets for the corresponding week of the three preceding years were as follows:

Feb. 14, '98, 6 480 lbs. of butter sold at 19cts.
Feb. 15,'97, 28,500 lbs. of butter sold at 20⅛@21cts.
Feb. 17, '96, 33,120 lbs. of butter sold at 19 cts.

No New York quotations received, Monday.

H. C. B

Elgin, Ill, Feb. 13, 1899

CONCERNING OUR ADVERTISERS.

WHAT EVERY FARMER WANTS.

There are some things a progressive farmer ought to have, for example: a large garden, a bearing orchard, a sharp plowshare, a milk test, a sprayer, a horse the women can drive, a flock of sheep, a nice hen house, a roof that never leaks, gates that never sway, a sweet cellar, a kind heart, a sound stomach, a half dozen sons and daughters, and a stiff upper lip; and there are some things he *must* have—three or four live farm papers, a good wife, a clear conscience, and an Acme harrow.

To the lover of good Jerseys, no greater treat could well be offered at present than a visit to P. J. Cogswell's "Exile Herd," at Brighton Place, near Rochester, N. Y. The barns erected a short time since, to replace those destroyed by fire, are models of simplicity and convenience, and furnish sanitary conditions, leaving little to be desired. The ventilation is especially good.

There are at present about one hundred cows in this herd, of which about forty are daughters of "Old Exile," and nearly all the balance are grand daughters, showing a large percentage of his blood. I doubt if there is to be found anywhere so large a herd showing so much of the blood of one sire, and such universal excellence. Among others, Exile's sixty-sixth tested daughter —Exile's Euphorbia, a beautiful young cow, carrying a large, finely shaped udder. She has recently made a test of over sixteen pounds.

Another excellent cow was Exile's St. Lambert's Queen. She has made twenty-one pounds seven and one-fourth ounces of butter in seven days. She is a typical dairy cow, and shows great capacity.

Perhaps the most showy cow in the herd is Exile's Claribel 107,507. She is a magnificent large cow, not in any way coarse, but showing marked dairy tendencies. Her color is a very light silvery fawn, and she carries an enormous udder. She has a test of fourteen pounds and five ounces. She is a daughter of Exile of St. Lambert by Rioter's Grace 61993.

A large number of notable animals might be mentioned, but among such general excellence it is hard to specify individuals. There are undoubtedly herds showing a large number of show cows, but doubtful if there is anywhere one showing a greater number of excellent cows, the de scendants of one sire, and raised by one breeder.

SAVES WAGONS AND HORSE FLESH.

A lubricant that is both slippery and durable is mica, and the axle grease made from mica, and named Mica Axle Grease, has been found to work better and wear longer than any other axle grease on the market. It does not run in hot weather nor gum in cold weather, and being a mineral substance of peculiar toughness it is extremely durable. The use of axle grease should never be neglected, partly to save wear and tear on the wagon, but principally to save horse flesh, and in buying it it pays to buy the best

J. R. Brabazon, Jr., & Co., of Delavan, Wis., whose advertisement appears on another page of this issue, notify us that they have been obliged to treble the capacity of their plant to meet their growing trade.

This they did by building one of the largest and most completely equipped poultry houses in the West. They have given particular attention to the breeding pens which are secure, large and roomy and well calculated to produce best results.

Mr. Brabazon, the head of the firm, has spent a life time in the poultry business and is well equipped for his chosen calling. They have just issued the second edition of their 1899 catalogue. It is a splendid work, printed in colors and containing much of value to everybody interested in poultry. Send ten cents in stamps and procure a copy. It is worth many times this small cost.

ED. HOARD'S DAIRYMAN:—I wish to report a weekly test of Loa, No. 107279, a four-year-old. She gave for the week ending Jan. 31st, 254.7 lbs. of milk which made 16 lbs and 1 oz. butter, her largest days' milk was 37.3 lbs. She was not crowded for a record but is being fed for business the year round, her daily ration consists of bran 10 lbs., gluten meal 4 lbs., ensilage 35 lbs., and a small feed of dry corn stalks with what clover hay she will eat. Her sire is Prince Noble, No. 22198, and her dam is Ediths Faith, No. 19724, with a butter record of 19 lbs. in 7 days.

F. H. SCRIBNER.

816 bushels, 21 pounds oats from 7 bushels seed, or an average of 116 bushels of seed sown has been reported from the Lincoln oats and even in unfavorable seasons these grand oats yielded from 20 to 45 bushels more per acre than other kinds of oats sown side by side.

The Farmer Seed Company, Fairbault, Minn., makes a specialty of growing the best varieties of seed grain, grown on their farms on clean land and free from any foul seeds and any of our readers looking for improved varieties of seed grain or those interested in more grass and better and permanent pastures and meadows should write for their new catalogue or book on permanent pastures and meadows, which is sent free to all farmers.

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheeler; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear



hounds are made from the best angle steel, which is neater, stronger and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

HILLSIDE HERD

French Canadian Cattle

A few choice young bulls for sale.
C. E. COLBURN, - - Portlandville, N. Y.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein - Friesians.

Our offering today is **Thirteen Young Bulls** now ready for service; **Ten two-year-old Heifers** coming fresh in spring, and **Four Yearling Heifers.** In rich, fashionable breeding and high-class individuality, we doubt whether the equal of this lot of both bulls and heifers can be found in America. All are recorded. Prices will be found low for quality. Inspection and correspondence invited. **KARLEN & CO.,**
"VALLEY MEAD." **Monticello, Wis.**

Ten Choice Yearling

Holstein - Friesian Bulls FOR SALE!

Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.



HOLSTEIN-FRIESIAN

CATTLE. Choice registered yearling Bulls, Heifers and Calves, sired by my Grand Bulls, Princess Aagie 5th, Netherland, No. 21736, and Pauline Paul's DeKol of Portage, No. 21704, grandson of Pauline Paul, the greatest butter cow that ever lived, and grandson of Princess of Wayne, the greatest milk producer that ever lived; we have the blood of the best families of the breed. Oxford Down and Cotswold Sheep, and Poland China Hogs. Come and see our stock or write, stating what you want.
WM. O. JACKSON & SON, South Bend, Ind.

GUERNSEYS

TUBERCULIN Tested. BABCOCK Tested.
4 Yearling Beauties, Registered. True Types.
$200.00
Other stock, different ages. Say what you want.
ELLIOTT WARREN, Winston, N. C.

GUERNSEYS AND POLAND-CHINAS.

Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS

and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Holstein-Friesian Cattle.

Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

HOLSTEIN-FRIESIAN BULL CALVES

From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

For Sale

Two Holstein-Friesian Bull calves 3 and 4 months old. Sired by Johanna Aaggie's, Paul De Kol. For prices and descriptions of these excellent calves, write
M. S. CAMPBELL, Genoa, Ill.

Pioneer Herd HOLSTEIN-FRIESIANS,

Foundation herds of merit a specialty, for sale; also Plymouth Rock fowls and eggs.
S. N. WRIGHT, Elgin, Ill.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.



Poultrymen AND Farmers Remember

that we will send you free of expense samples and full particulars of

Neponset Water Proof Red Rope Fabric

You cannot afford to let your stock suffer during the cold winter months. Perhaps you cannot afford to shingle and clapboard your barns and outbuildings, although you know they need it. But you *can* afford to cover and sheath them with NEPONSET. It costs only one-third the price of shingles, and will wear for years and years. NEPONSET is absolutely waterproof, frost-proof, air-tight, and vermin proof. You really cannot afford to be without it. You can protect your hen-houses, green-houses, hot-beds, and stables with NEPONSET for very little money, and in doing so you make money. Write us about it anyway. A postal card will do.

F. W. BIRD & SON, EAST WALPOLE, MASS., Sole Manufacturers.



HOLSTEIN CATTLE!

The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U. S. A.**

M. D. Cunningham,

KANSASVILLE, WISCONSIN.
Has for sale two excellent Registered Guernsey Calves.

GUERNSEYS FOR SALE.

The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

ROSENDALE GUERNSEY HERD.

TUBERCULIN TESTED.
1st Prize Herd Wis. State Fair 1894 to '98. 1st Prize Herd at Minn. State Fair and at the Trans-Mississippi. Exposition 1898.
Come and see the herd, We keep only 400 lb. cows. **GEO C. HILL & SON., Rosendale, Wis.**

Riverside Guernseys.

CHAMPION HERD

AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.

I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.

J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.

225 Pure Bred Guernseys,

Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM

Guernseys!

Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES

Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

ALTAMONT FARM

Ayrshires For Sale!

Young stock of both sexes Royally bred from heavy milking strains. Herd headed by the grand bull Carlton Omega winner of nine first and two second prizes in the western circuit in 1896-7. Herd tested 4.22% butter fat, 7 day test, by Pennsylvania Experiment Station. Address
J. J. TSCHUDY, Mgr., Monaca, Pa.

IT PAYS TO BE CONVINCED.

Some men are terribly afraid that they will be convinced of their wrong practice. Others do not want to carry an error another minute if they can find a better way. Mr. T. T. H., of McKeesport, Pa., writes:

"I have been selling milk in McKeesport for eleven years. Recently I saw a copy of your paper, then subscribed. Have read five numbers and am surprised at what I don't know about dairying."

What was it that gave him that important information? Reading the DAIRYMAN. Are there not many others who need the same knowledge?

ONLY $1 FOR 52 ISSUES WILL BRING IT. TRY IT!

Silo Building and the Ensiloing of Cow Pea Vines in Georgia.

ED. HOARD'S DAIRYMAN:—In your issue of the DAIRYMAN giving me a balanced ration for my herd of Jersey cows, you take occasion to say that the successful ensiloing of cow pea vines by me was a matter of national importance to the dairy interests in the south. Inasmuch as you have seen proper to speak so highly of my venture in the ensiloing of cow pea vines, I deem it proper that I should give for publication in your valuable and widely read journal the plan I adopted for building a silo, my method of raising cow pea vines, my experience in the ensiloing of the same and the feeding of the silage to dairy cows.

SILO.

I have an all-wood round silo, 27 feet high and 20 feet in diameter inside. I built my silo to the plan given on page 16, Bulletin No. 59, issued by the Wisconsin Agricultural Experiment Station. The sills are of post-oak, size 4 x 6" cut in two foot lengths of the circle of the silo, the sections of the sills being "toe-nailed" together, making a circle 20 feet in diameter, which is then bedded in cement mortar and levelled. The timbers for the plates are cut in like manner, except from yellow pine, size 2 x 4," and in lengths of two feet. The studding is of yellow pine, size 4 x 4," cut in lengths of 27 feet, "toe-nailed to the sills every 12 inches from center to center. The sections of the plates are spiked directly upon the tops of the studding, doubling them, and thus making the plates when completed 4 x 4". In framing my silo I put a round post 12 feet long and 8 inches is diameter in the center of the silo, about two feet in the ground; and as each stud was "toe-nailed" to the sill it was made plumb and was secured by nailing a board to the stud and to the center post. The lining is made of kiln-dried cypress boards, one half inch thick and five inches wide, dressed on both sides and edges to a uniform width and thickness. This lining is nailed on the inside of the studding with 8 d. wire nails, horizontally, close together. A layer of 3 ply Giant P. and B. paper is tacked on horizontally to the first layer of cypress lining; then a second layer of cypress boards is nailed on horizontally, with the same kind of nails as before, breaking the joints of the first layer. A second layer of paper, similar to the first, is tacked on the second layer of cypress boards. Then a third layer of cypress boards is nailed on horizontally, with 10d. wire nails, breaking the joints of the second layer. I have three feeding doors, size 2' 6"x3" with a dormer-window of the same size, for filling the silo. It is weather-boarded on the outside with the same material as the lining. The roof is of tin and of a conical shape.

I think I have as complete and as nearly perfect and well built silo as there is in the south. When all three of the feeding doors are closed my silo is absolutely air tight, and will hold water equal to a barrel.

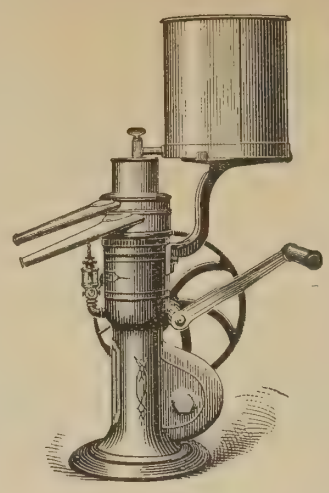
COW PEA VINE SILAGE.

I sow cow peas early in June on my wheat and oat stubble, broadcast; about one and one-half bushels to the acre. I have them turned under with a one-horse turning plow, then drag the land with an iron tooth "Thomas Harrow." Nothing more is necessary until the vines are ready for the silo. The time to harvest the cow pea vines for silage is when one-half or more of the peas on the vines are ripe. Care should be taken not to harvest the vines before they are fully matured, as when green they are very succulent. If cow pea vines are put into the silo when too green, or when they contain too much moisture, the pressure in the process of settling is liable to express the juices from the tissue and cause it to filter away, thereby entailing great loss.

I use a McCormick mower to cut the vines. I then pile them at once in wind-rows with a two-horse steel rake, and haul them immediately to my silo, where they are cut with a feed cutter made by the Silver Manufacturing Co., at Salem, Ohio, and called by them "Ohio No. 16." It has a carrier feed and also an elevator. The vines, after being cut in lengths of from one-half an inch up to three inches, are dropped into the elevator and carried to a dormer-window some thirty feet from the ground and emptied into the silo. I keep two stout, able-bodied men in the silo all the while it is being filled, one man with a pitchfork to level and evenly distribute the vines as they are put in, and the other to tramp them down while the filling is going on. After the silo is filled and while the settling is going on, I have two men to tramp the silage down thoroughly a few hours every day for about ten days. I then run green marsh grass through my cutter until I get a layer on top of the silage six inches or more in depth for a cover. This cover I wet quite liberally, using one pail full or more of water to the square foot of surface, which soon develops a thin, well-rotted top layer, making an almost air-tight cover for the silage. I then leave it alone and trust to Providence.

I closed my silo containing about 125 tons of cow pea vine silage the latter part of September, 1898. A thick mold soon came over the entire surface and remained intact until I opened my silo early in January of this year. I found the silage in a perfect state of preservation, with only about 15 inches on top, including the covering, unfit for use. As I feed downward, I find the silage perfectly sound on the sides and next to the walls of the silo.

My cows soon learned to eat cow pea vine silage. They now take it with great relish, and are as fond of it as a child is of candy. It is a most excellent feed in every particular, and there is nothing better as a butter producer. I consider its feeding value equal to, if not superior to anything that can be produced on the farm. The richness of cow pea vine silage in a large measure depends upon the quantity of cow peas on the vines at the time they are harvested. The cow pea vines I ensiloed the past season were very full of peas. I generally sow two varieties, the Clay pea and the Unknown pea. Any kind of cow pea, however, will answer for silage that will produce long vines and a heavy crop of peas. In order to have a luxuriant growth of vines and an abundant crop of peas, I would advise (for Georgia) that the peas be sowed as early in June as possible. The cow pea is a wonderful land improver. I only came in possession of my present plantation three years ago. I found it greatly impoverished, and I am now building it up quite rapidly by sowing it down in wheat in October and in cow peas the June following. If my land continues to improve hereafter as rapidly as it has during the past two years, in less than five years it will almost, if not quite double its yield. I never turn under cow pea vines. They are too valuable for silage. I only turn under the cow pea vine stubble and roots at the time I prepare my land for oats and wheat in the fall. In filling a silo with cow pea vines I would not advise letting it stand too long between intervals of filling. Long



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
Perfection of Skimming .	The NATIONAL is the Bes
Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



THE

AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**

At The ST. LOUIS FAIR, as the

BEST CREAM SEPARATOR
For FARM USE. . . .

Send for Descriptive Catalogue.

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S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y

THE NEW BOOK
Feeds and Feeding

By Prof. W. A. HENRY.
Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

or

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and Practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with pratice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Send as above, or will be forwarded, carriage paid, on receipt of price $2.0

standing allows molding to start, which tend to produce a waste, even after the next layer is put on. I consider it best to fill gradually, as well as continuously, after the filling begins.

I cannot close without publicly thanking through these columns Prof. F. H. King, of the Wisconsin Agricultural Experiment Station, for the valuable information he gave me in regard to the planning and construction of my silo; also for the excellent advice he gave me on the making of silage from cow pea vines and filling the silo. I would be very glad indeed to have Prof. King to come down and pay me a visit. He would see much that would interest him; and would, no doubt, enjoy a trip to Georgia.

THOS. C. CRENSHAW, JR.
Carversville, Ga.

A Young Farmer and His Ration Criticised.

ED. HOARD'S DAIRYMAN:—I am a young farmer and would like to know if the following ration is a good one. If not, please correct it. I am feeding ten cows, grade Jersey and Holsteins of good size, 20 pounds of good clover hay, 10 pounds of corn stover, 24 pounds roots (carrots, sugar beets and mangels, equal parts) and 6 pounds of grain, which is half bran and half corn and oats ground. Hay is worth from $4 to $5 a ton; bran, $15; oats, 28c and corn, 35c, shelled. Can get oil cake meal at $1 to $1.25 a cwt.

JOHN G. BLANK.

Every young farmer ought to put himself in the way of being able to answer these questions for himself. They are not difficult or intricate. Take the table published on page 789 and see there what per cent of digestible nutrients are contained in the various feed stuffs. For example, take timothy hay: In every 100 pounds of average timothy hay, as it comes out of the mow or stack, there are 86.8 pounds of dry matter, (the balance, 13.2 pounds, being water), and in this dry matter there are 2.8 pounds of digestible protein 43.4 pounds of digestible carbohydrates and 1.4 pounds of digestible fat (ether extract) or in all, 47.6 pounds of digestible nutrients, and the balance of the dry matter, amounting to 39.2 pounds, is undigestible woody fibre, etc., which passes off in the solid excrement.

If one feeds 20 pounds of timothy hay, or 15 pounds, or more or less, it is not a difficult problem to ascertain the total amount of dry matter and the amounts of the different digestible nutrients contained in this dry matter.

If it becomes necessary to increase the amount of protein in a ration, we must select feeds relatively high in protein, like the clovers in hay, and like bran, glutens, cotton seed meal, oil meal, oats, etc., in grain, and all the time seek to get what we need at the least cost.

This particular young farmer, who signs his name Blank and omits to give his residence, thus preserving an impenetrable incognito, is feeding as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
10 lbs. corn stover	5.95	.17	3.24	.07
8 lbs. carrots	.91	.06	.62	.02
8 lbs. sugar beets	1.08	.09	.82	.01
8 lbs. mangels	.73	.09	.42	.01
3 lbs. bran	2.64	.38	1.16	.09
1½ lbs. corn	1.34	.12	1.00	.07
1½ lbs. oats	1.34	.14	.71	.06
Totals	30.93	2.41	15.15	.67

The first thing that attracts attention here is the great surplus of dry matter, which indicates that the cows do not eat all that is placed before them, and consequently there is waste. If there is one thing, more than any other, that handicaps the farmer, and particularly the dairy farmer, it is this omnipresent demon of waste, in its endless variety of forms. We undertake to say that the avoidable wastes on every nine out of ten farms, is sufficient to pay all the taxes, direct or indirect, that are levied upon the owner and leave him a sufficient margin to take a two weeks' vacation and travel two thousand miles.

It is simply impossible to catalogue all these wastes, and it is no part of our present purpose to treat of any not indicated above, but there are very few of our readers who cannot indict and convict themselves, sometimes of being penny-wise and pound-foolish and sometimes of deliberate and utter disregard of the plainest dictates of reasonable prudence. If a fireman on a locomotive engine should habitually use 40 pounds of coal (costing about 4 cents) per day more than was necessary, he would secure a prompt discharge. If the head sawyer in a lumber mill does not watch each log and see that it is cut so as to yield the largest proportion of the highest priced lumber, the business will be ruined.

So on the farm, if the herdsman, be he owner or hired man, feeds every day more than the cattle can eat, or uses high-priced feed where something costing less would answer an equally good purpose, or the butter maker turns out an article that must sell below the highest market price, there is waste.

Twenty-six pounds of dry matter per day is about the maximum that the stomach of the 1,000-pound cow can take care of. If this is given to her in the form of 30 pounds of marsh hay, it will just about suffice for her bodily maintenance, and 20 pounds of first-class timothy hay will answer the same purpose, because of its greater per cent of nutriment. Our young farmer is therefore feeding from 5 to 6 pounds more dry matter than his cows can use. Moreover, he is feeding oats, which when ground, practically cost him $20 per ton, when he could get more value for less money from the glutens or oil meal or cotton seed meal. So long as the roots last he does not particularly need the oil meal, and we would use, say, cotton seed meal, and our formula would be something as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay	12.71	1.02	5.36	.26
Stover, roots, bran and corn as above	12.65	.91	7.26	.27
1 lb. cotton seed meal	.92	.37	.17	.12
Totals	26.28	2 30	12 79	.65

TWO MISTAKES.

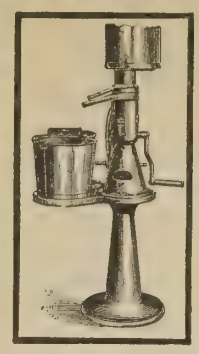


There are two mistakes that people with weak lungs are liable to make; and both are about equally bad: One is to not give attention quickly enough to the little coughs and bronchial troubles which so rapidly undermine the delicate lung tissue and plunge you into consumption almost before you are aware of it; the other is when the trouble is at last discovered and fully realized to give up hope too soon.

Begin with these bronchial and throat ailments the instant they appear; never wait till to-morrow. The right remedy taken now may save months of severe illness. On the other hand if the illness has already come upon you; and you find yourself weakened, wasted and discouraged, do not lose hope. There is a medicine that will certainly restore you to health and strength.

"My boy was in a very bad way when I commenced to give him Dr. Pierce's Golden Medical Discovery," writes J. W. Price, Esq., of Ozark, Monroe Co., Ohio, in a recent letter to Dr. R. V. Pierce of Buffalo, N. Y. "The doctors claimed he had consumption and we doctored with them until he was past walking. After using five bottles of the 'Discovery' he is now all right. It has been ten months since he stopped taking your medicine and he is still in good health. We are very thankful to you for saving our son."

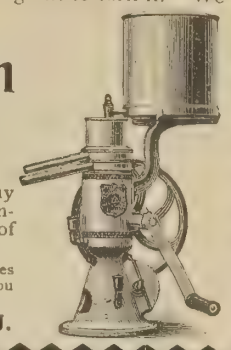
Hundreds of similar cases are described in one chapter of Dr. Pierce's great thousand-page illustrated book The People's Common Sense Medical Adviser which will be sent free for the bare cost of mailing, 21 one-cent stamps. It is a veritable family library in one volume;—the fruit of Dr. Pierce's life-long experience with the severest types of obstinate chronic diseases. Any one may write to him for advice; which will be sent in a plain sealed envelope, free of charge.



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than any other of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Put Your Mark

on the butter you sell. The handsomest prints are made on the Rapp Automatic Butter Printer. The very best machine ever made for the purpose. Handiest, most rapid working, easiest adjusted printer ever made. Write for large illustrated catalog, containing full description of the

RAPP AUTOMATIC Butter Printer



and of a hundred and one things needed in every dairy—cream separators, milk strainers and coolers, automatic milk scales and butter tools. Mailed free.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia.

Wise Man No. 1:

M. F. MEYERS, Huron, S. D.—"When I make butter for exhibition, and want to score high, I always use WORCESTER SALT."

Wise Man No. 2:

"At the Michigan State Fair, Grand Rapids, my butter scored highest—97. Used WORCESTER SALT—the only salt I like to use for butter."



Wise Man No. 3

FRANK G. HILDRETH, Herkimer, N. Y.—"Am awarded sweepstakes on butter—used the justly famous WORCESTER SALT. Never found any other brand that was 'in it' when it came to a test."

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.



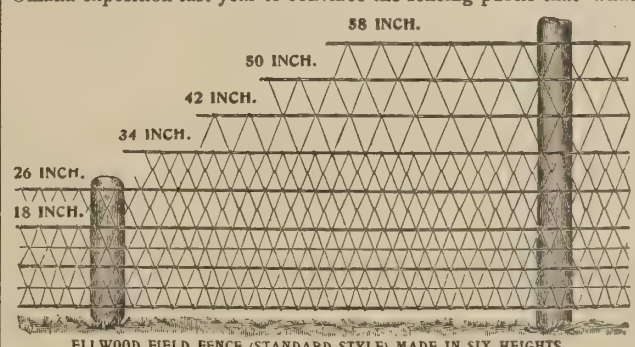
BE HUMANE and remove the horns of your herd and that of your neighbor's herd BY USING THE KEYSTONE DEHORNING KNIFE

Cuts clean on all sides, does not crush. One clip and the horns are off.

Fully Warranted. Descriptive circulars FREE. A. C. BROSIUS, Cochranville, Pa.

ILLUSTRATION.

The name of Ellwood has been a name to conjure with, in the sale of farm fencing, for, lo, these many years. It needed not the award of a gold medal first prize at the Omaha exposition last year to convince the fencing public that whatever fencing bore the name of Ellwood stood at the very top of its class, but the gold medal was awarded nevertheless on the very broad and comprehensive claim of, the best steel woven wire fencing for farm, ranch, railroad and general use.



ELLWOOD FIELD FENCE (STANDARD STYLE) MADE IN SIX HEIGHTS.

This award was made to the American Steel & Wire Co., which is now manufacturing all the wire products for which Ellwood and the DeKalb Mills have become so justly famous.

The illustration herewith, shows the Standard Style of Ellwood Woven Wire Fencing, which is made in any of the six heights shown in the cut, each height, either by itself or by the addition of a cable or two of the Ellwood famous Glidden Barb Wire at the top, a perfect fence for every practical purpose. This is a cattle fence, a horse fence and a perfect hog and pig tight fence. The wires are all best hard Bessemer steel, the horizontal cables being twisted and coiled to provide for the expansion and contraction, and are most thoroughly galvanized, being practically rustproof and assured of the longest possible life.

It is the purpose of the manufacturers to have an agent for the sale of Ellwood fences in every city, town and village, and agencies are being located as fast as possible. Should none be as yet established in your town all information necessary to securing the Ellwood fence in any quantity, can be had for the asking of the American Steel & Wire Co., Chicago, Ill.

In replying to A. M. W., of Michigan, we took the opportunity to discuss the feelings of publishers in regard to non-renewing subscribers, and had something to say about the steadfastness of those who continue on year after year, and the reasons for their doing so. At that writing we did not know that there was lying on our table confirmatory proof of what we were saying, but after working down the pile several numbers, we came to C. D. A's. inquiry, wherein he states that he has been a constant reader for five years, and finds that the more he knows, the more he wants to know, and, hence, cannot carry on a dairy without the DAIRYMAN.

We hope the advice may be too late for practical use this winter, but the unprecedented cold of the last two weeks (this is February 11th,) admonishes us to say that the colder the weather, the more feed does it require to maintain the body temperature. In times like this an extra pound or two of corn meal would not be amiss.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

RETENTION OF PLACENTA. EXTRA TEAT.

1. Four-year-old Jersey cow gave birth to calf seven days ago, but did not pass the afterbirth. Had a man who claimed to know how to take it away, in about thirty-six hours after she gave birth to calf. Now, occasionally, she passes some dirty, riley looking water that smells terrible, yet she will pass water sometimes, that looks natural and all right. Since I noticed this discharge, have flushed her with carbolic acid and water.

2. Have Guernsey heifer ten months old; has small teat about one-half inch long on the side of its natural teat. Can this be taken off without injury? R. W.

Janesville, N. Y.

ANSWER.

Decomposed animal matter—afterbirth—which is rotting away. One of the most delicate operations of common occurence, in my practice, was to carefully remove all the afterbirth. When portions of the afterbirth are left inside, the rotting matter must find an outlet somewhere, and that is at the vagina, of course, hence, the matter you refer to. No, I never use so-called carbolic acid. Tilden's Bromo Chloralum, one to eight of water is, in all respects, much better, and is perfectly safe to use.

2. No, let the exrta teat alone.

SWELLING OF BRISKET.

Please give the directions for the treatment of a cow affected in the following manner: Hard swelling of brisket, without fever, appetite good, gives usual amount of milk, in fact seem to have no visible effect, excep the swelling. A. B. D.

Alexandria, Va.

ANSWER.

Rub three times a day with Gombault's caustic balsam, when the parts become sore; cover with hog's lard until the scabs are all off, then repeat until not needed. Keep from rubbing. If she becomes feverish, give the full dose of physic as per head of this column.

BLOODY MILK.

What is the cause of blood in milk from our cows. We feed as follows: About one-half oats to one-half barley. This is ground together. To a ton of this feed we put in about 300 pounds bran and 100 pounds oil cake. Of this mixture, we feed 60 pounds per day to twelve cows. They get all the millet hay they will eat up clean and artesian well water. P. J. B.

Buxtor, N. D.

ANSWER.

Immediate full dose of physic and repeat in five days, and repeat in seven days if needed. Each morning give two teaspoonfuls of nitre for ten to thirty days, as the case seems to demand. The causes are multifarious. Commonly a cold draft direct upon the udder. In fact, anything that in anyway interfers with a normal condition, especially if local.

TOO MUCH WATER.

I have a two-year-old part Jersey steer that I have been stall feeding. That is, I gave him all the Alsike clover he could eat, and two ears of corn twice a day, and water three times a day, and was let out in yard to exercise on warm days. He suddenly refused to eat or drink, and passed nothing, but was perfectly lively. I gave him a neighbor's remedy,—that is, I forced all the



YOUR WAGON WHEELS

may need new rings, new spokes or new tires. These repairs have to be made every little while with wooden wheels. Stop all this expense for all time by buying a set of our

ELECTRIC Steel Wheels

They are made with direct or staggered oval spokes, broad tires, any height, and to fit any wagon. They can't rot, go to spokes and need no tire setting—last indefinitely. There is only one thing better, and that is an

ELECTRIC HANDY WAGON.

Our free illustrated catalogue tells all about both and gives prices. Send for it.

ELECTRIC WHEEL CO. Box 130, Quincy, Ill.

THE FAMILY DOCTOR.

Thousands of Families Have One in the House at All Times.

THE SAME EXCEPTIONAL OPPORTUNITY OFFERED HERE TO ALL READERS OF THIS PAPER.

A prominent citizen remarked recently: "It may seem surprising to you, but in my house we have a family doctor there all the time. Nor am I the only one who has this great blessing." said he. "I know of many families who have this same doctor always on hand, always within reach."

"Do I mean a man, a physician, in flesh and blood?" he asked. "No, not exactly that; the family doctor that I refer to is Dr. Kilmer's Swamp-Root, the great Kidney, Liver and Bladder Remedy. We have not had to call a doctor to our house since we have used it."

This is the teitimony of thousands who know Swamp-Root for what it is. This famous medicine is the absolute conqueror of kidney and bladder diseases, and many a man and woman who walk the streets today in the complete possession of health owe their lives to the power of this great discovery over kidney and bladder ills and uric acid disturbances. In diseases of the blood, no matter from what source they arise, Swamp-Root goes right to the source of the trouble, and cures by first removing the cause, and sends the blood leaping and bounding away in quest of bright eyes and rosy cheeks.

Constipation and liver troubles, urinal weaknesses and the torture that goes with them, rheumatism, stiff joints, in fact, diseases arising from any wrong condition of the blood, liver, bladder or kidneys are promptly overcome by Dr. Kilmer's famous discovery, Swamp-Root.

None but those who have made a study of the subject realize what an immense amount of work the kidneys perform every day. They are the sewer of the system, and once they become clogged up, poison runs riot and disease has full sway. Just as a choked sewer breeds pestilence in a city, so do weak and unhea'thy kidneys breed disease in the human body.

Swamp Root clears out all the impurities, helps the kidneys to perform their work properly, drives the poison out of the blood and system, invigorates and regenerates you and adds tenfold to the pleasures and comforts of life.

Swamp-Root has been tested in so many ways, in hospital work, in private practice, among the helpless too poor to purchase relief, and has proved so successful that a special arrangement has been made by which all readers of the DAIRYMAN, who have not already tried it may have a free sample bottle of Swamp Root and thus test for themselves its wonderful curative properties.

If you will send your name and full address to Dr. Kilmer & Co., Binghamton, N. Y., a sample bottle will be sent absolutely free by mail, post-paid, also a book telling more about Swamp-Root and containing some of the thousands upon thousands of testimonial letters received from men and women who owe their good health, in fact their very lives, to the wonderful curative properties ot Swamp-Root.

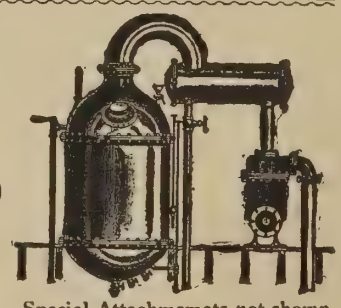
This great remedy is for sa'e at most drug stores in fifty-cent and one-dollar sizes. Don't make any mistake, but make a note of the name, Swamp-Root, Dr. Kilmer's Swamp-Root and remember that it is prepared only by Dr. Kilmer & Co., Binghamton, N. Y.

If you take advantage of this generous offer and write for a free sample bottle be sure and mention the HOARD'S DAIRYMAN when sending your address to Dr. Kilmer & Co., Binghamton, N. Y.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Condensed... Milk Factories



Built Complete By

Special Attachmemets not shown.

C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

The Tooth Test

Let us tell you why the tooth test—the test of flexibility—is the supreme test in a weeder; tell you why the flat, flexible tooth has accomplished what other weeders have failed to do; why

Hallock's Success Anti-Clog Weeder AND CULTIVATOR

does as much work as three ordinary cultivators, better, cleaner, quicker work than twenty men and twenty hoes; why it is the only really practical weeder and cultivator on the market to-day. Benefit by the experience of others. Read what hundreds of farmers accomplished last year in the saving of time and money, increased crops, cleaner fields, by the use of this great implement. Send for circulars to-day.

A SPECIAL PRICE on the first order from every district where we have no agency.

D. Y. HALLOCK & SONS, Box 812 YORK, PA.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL Disinfectant That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.



Seeds that Make Money for the Farmer....

You can make money with little trouble on a second crop, after you harvest oats or early potatoes. True Dwarf Essex Rape matures a full crop of fodder in six to eight weeks after sowing. Furnishes feed unsurpassed as a fattener for sheep and hogs. Superior to clover.

At the Michigan Experiment Station 128 lambs pastured for eight weeks on five acres of rape, showed a gain of 2,890 pounds or three pounds a week, at total cost of $6.00.

May be sown up to August 1st. Enough seed for an acre sowing for 30 cents. For prices of larger quantities, see our catalogue, which will be mailed free on receipt of request.

CURRIE BROS., Milwaukee, Wis.

water I could into him, about four pails (eight quarts each) a day for four days. During this time I gave him four doses of flax seed tea, one pint of flax seed cooked in eight quarts of water. He passes water and has had some soft passages, but he refuses to eat. He is in pain after I give him the water, but is perfectly lively. I lost a steer with the same symptoms a month ago.

Lena, Wis J. L.

ANSWER.

You seem to have ignored your privilege of the advice at the head of this column as to the best physic for a cow. Poor steer, how could you so torture him by half drowning him? How would you feel under similar conditions? Well may the poor creature be in pain. It is a poor opportunity for me to help the case at this stage. I know of nothing so good as elimination by judicious physicking. Then, after, give half ounce doses of golden seal in four ounces of water, and half a dram of nux vomica, up to five doses, two days between, after the physic.

INDIGESTION.

1. My cow stood at her bunk eating hay when suddenly she began to back and went backward for fifteen or twenty feet. I spoke to her and she went back to her place. This was after milking and she gave her full mess. In the morning when I went out to feed, her head was turned to the left and she was licking her side and turning round in a circle and would sometimes fall down At night she gave as much milk as usual and now seems all right.

Gave her, in the morning, one quart of linseed oil and through the day, four quarts of hop tea. About two years ago she had a similar attack.

Feed consists of coarsely ground corn meal with cob, about twelve quarts per day, and four quarts of ground oats. She was not bloated and did not have any fever that I know of.

2. Yesterday morning while feeding, I noticed another cow that did not come up to her feed as usual; so I drove her into the stanchion and fastened her up until I was taking the feed out of her bunk. She tried to get hold of me with her mouth, twice. I got the feed out and then she threw her head up, gasped for breath and tried to get loose. I let her out of the stanchion and then she held her head up as high as she could get it and swinging it from side to side and then laid down and throw her head back as far as she could get it for a few minutes and then get up again.

No fever and no bloat as I could see.

Both cows give about four gallons of milk per day and get the same care. Gave last cow about the same treatment as first one.

Maynesville, O. C. P. S.

ANSWER.

No. 1. Why did you give oil? Why not read the physic at the head of this column and give as directed there? I believe the unground, indigestible, particles of the cob were responsible for the condition you name. Stop the cob feeding.

No. 2. I think the same cause was to blame for your symptoms. Stop it. Hops are tonic and slightly narcotic. It is a good quieter of nerves, excitement, sleeplessness, etc.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid**, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

L. A. BAKER,

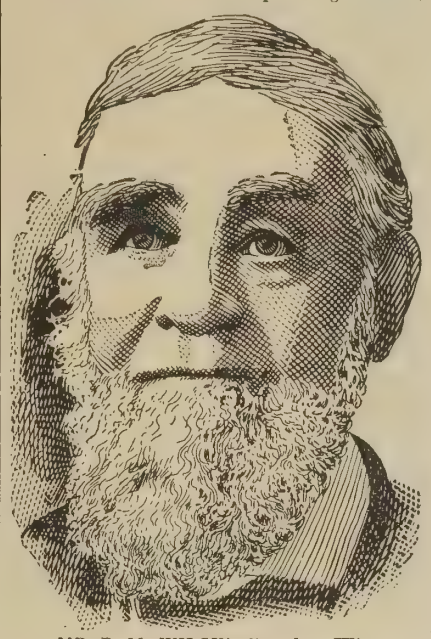
Care of Manufacturers Bank, New Richmond, Wis.

Ruptured 20 Years

Wonderful Cure of a Well Known Citizen of Wisconsin.

R. M. Wilsie's Good Fortune in Overcoming His Affliction.

It is a piece of good fortune to relate the fact that there is a sure cure for rupture. Some people contend that only a surgeon with a knife and a needle can bind the broken place together. but



MR. R M. WILSIE, Brandon, Wis.

the experience of R. M. Wilsie, of Brandon, Wis., completely upsets this theory.

There is a doctor in Adams, N. Y., who has discovered a marvelous system of treatment that not only retains any kind of a rupture but also causes the muscles to grow together. Mr. Wilsie heard of it and gave it a test. The results were astonishing.

Although 61 years of age and badly ruptured for more than 20 years, Mr. Wilsie began to mend at once and was perfectly cured in a remarkably short time. Today he is hale and hearty, a fine looking gentleman and completely restored from the slightest trace of rupture. He naturally recommends the system highly. His cure excited considerable interest among his neighbors many of whom were also ruptured and who have since been cured.

The system of cure is the discovery of Dr. W. S. Rice, one of the best known rupture specialists in the country. He has recently issued an illustrated book on the subject of rupture and sends it free to every one; his object being to disabuse the public mind that rupture cannot be cured. The beauty of his system is the absence of all pain; absolute immunity from danger; no operation of any kind, and not the loss of a minute's time from work. This is a subject well worth inquiring into. Thousands of people have friends who are ruptured and they will do them a lifelong service to tell them of this new and marvelous home cure. Send for the book. It is free to all. It fully explains the system of cure and is immensely valuable to all who are ruptured. Write at once to Dr. W. S. Rice, 353 L. Main St., Adams, N. Y.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for **FREE $2** trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs, $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

True Dairy Supply Co.,

Contractors and Builders of

BUTTER and CHEESE FACTORIES

And Manufacturers of Machinery, Apparatus and Supplies for Cheese and Butter Factories, Creameries and Dairies.

303, 305, 307 and 309 Lock St., Correspondence Solicited SYRACUSE, N. Y.

THE Wisconsin Curd Test.

It shows the quality of every patron's milk and points unerringly to the milk that causes **Bad Flavor and Gass Cheese.** For full particulars address

A. J. DECKER, Fond du Lac, Wis.

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan.

LINDEN LAWN FARMING CO,, Lock Box 354, Olney, Ill

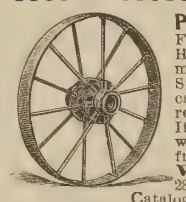
Mammoth Bronze Turkeys from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write **H. P. West,** Fayetteville, Wis.

WANTED—Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

FREE Our handsome **Seed Catalogue,** or for a 2c. stamp, seed catalogue and **A PACKET of the Large German PANSY SEED**

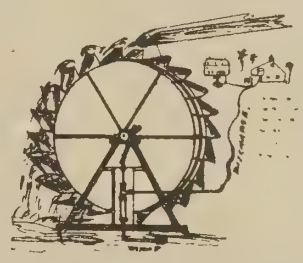
Address, COLE'S SEED STORE, PELLA, IOWA.

Artichokes! **MAMMOTH WHITE FRENCH.** A sure preventive of **Hog Cholera.** Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.



Pressed Steel Wheels. For Farm Wagons and Trucks Have all the latest improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the best metal wheels on the market, buy them from **The Arnold Metal Wheel Company** Lock Box 28 New London, Ohio.

Catalogue and prices on application.



$18.00 Buys 4-foot Steel **Water Wheel** and **PUMP Complete.** Beats every known power. Continual Fresh Water. Runs with ¼ inch stream up. For irrigation etc.

D. H. BAUSMAN, Bausman, Lanc. Co. Pa.

Circulars Free, Galv. Vats, Troughs, Stacks

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

Trade Mark



LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Prevent Abortion

in cows and scours in calves. The only sure and safe cure and preventive is ANTIABORSIN. This is the verdict of thousands of breeders and dairymen. Cures by inhaling fumes, which destroy the germs of disease One gallon enough to treat 20 cows 3 months. Specific No. 1, sure preventive and cure for hog cholera. Specific No. 2 prevents and cures roup in fowls and gapp in chickens. All remedies prepared by DR. L. HAGADORN, V. S., Oneonta, N. Y. Send for free booklet and testimonials to

ANIMAL GERMICIDE CO., 319 Washington St., New York.

FARMERS' HANDY WAGON CO., OF SAGINAW, MICH.



Will supply you with the best metal wheels for your old farm wagons.

A postal card will bring you Catalogue and prices.

In seeking an engine of any kind, either SEMI-PORTABLE, PORTABLE or Traction, buy the

RUMELY ENGINES

They are **simple or compound** and represent unusual value. For sawmills, well drilling, threshing—anything. Also Threshers, Horse Powers, Sawmills, etc. Catalogue FREE. M. RUMELY CO., La Porte, Ind.

THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our 1, 2, 3 and 4-horse **TREAD POWERS** because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

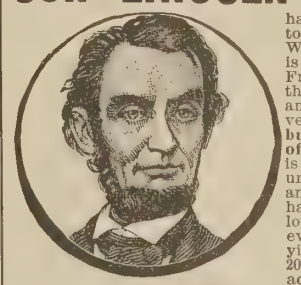
ST. ALBANS FOUNDRY CO., St. Albans, Vt.



MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non corroding, easily read... **ALUMINUM "STAY THERE" EAR MARKERS**

Can't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog etc. WILCOX & HARVEY MFG. CO. 196 Lake St. CHICAGO, ILL

OUR LINCOLN OATS



has proven itself to be the best White Oats that is now grown. From 7 bu. of seed there were 717 bu. and 21 lbs. harvested, or **116 bu. from 1 bu. of seed sown.** It is not a new and untried variety any more, but has been grown long enough in every state and yielded more by 20 to 45 bu. per acre than other Oats. Here are a few of the many hundreds reporting their results:

MR. P. HEITRITTER, Sioux Co., Ia.—From 5 bu., sown, threshed 320 bu. machine measure, but 400 bu. by weight.

MR. D. KELLEN, Nobles Co., Mich.—Sowed one sack (2½ bu.) and threshed 160 bu. machine measure. but 200 bu. by weight.

MR. T. DALEY, Walsh Co., N. D.—Had a yield of 118 bu. from one sack (2½ bu.) of seed.

Mr. L. ALBERS, Will Co., Ill.—Sowed one sack (2½ bu.) on one acre and had a yield of 70 bu. machine measure, which weighed out 93 bu.

MR. J. BOSSEN, Clinton Co., Ia.—Says that he threshed 20 bu. more per acre from our Lincoln Oats than from all other kinds.

D. NERO, Ozaukee Co., Wis.—Threshed 1230 bu. from 30 bu. of our Lincoln Oats, which weighed 40 lbs. per measured bu.

So write many hundreds of our brother farmers who had crops like these even in unfavorable seasons. Our Lincoln Oats will do as well with you and if you can average 25 bu. more per acre than from other kinds of oats it will pay well to sow nothing but our Lincoln Oats. Our prices this year are very reasonable. 1 bu., **75c.**; sack of 2½ bu., **$1.70**; 5 bu., **$3.25**; 10 bu., **$6.00**; 20 bu., **$11.60**; sacks included.

We are farmers and grow our seed and can therefore make reasonable prices to our brother farmers. Our catalogue will interest you, we send it free to all farmers; write for it. Seed Grain and Grass Seeds are our specialties and before you buy your grass seed you should see our catalogue or book on Permanent Pastures or Meadows.

FARMER SEED CO.

Farmers & Seed Growers, FARIBAULT, MINN.

$5 to $30 3000 BICYCLES

Everyone a Bargain.

NEW AND SECOND HAND.



2d Hand—good as any for service. $5 to $12. **New '99 Models $12.50 to $30.** None higher. We guarantee to save you money. Largest variety to select from. Lowest prices ever quoted. Every customer satisfied. Shipped subject to examination and approval. No money in advance. A few good AGENTS WANTED. For price list and particulars address the old reliable cycle house.

BROWN-LEWIS CO., (EK) 293 Wabash Av., Chicago.

[The above Co. is reliable and every wheel a bargain—Editor.]

A Silo Question for Mr. Meroney.

ED. HOARD'S DAIRYMAN:—I would like to ask J N. Meroney, of Maury Co., Tenn., a few questions in regard to his stave silo. I have been corresponding with a silo manufacturing company, and they ask me $90.30 for a 14×22 ft. silo, and it seems to me that that price is too large, and from what Mr. Meroney says I judge he has built his own silos. What material did he use? Was it matched or beveled? Are his staves spliced and how? How long has he used his silos? Do you consider them just as reliable as a more expensive one? If staves are beveled or put up with square edges, how are they kept in place when they shrink, during the summer? E. S. M.

Lapeer Co., Mich.

When made in the proper manner, experience has proved that the stave silo is thoroughly practical and reliable. The staves can be prevented from falling in when empty and dry by tightening up the hoop nuts, or perhaps, a be ter way, as suggested by John Gould, make the hoops from a section of woven wire fencing which will have sufficient spring in it to hold the staves tight when the silo is dry and empty, and give when the staves swell again.

Building a Stave Silo.

ED. HOARD'S DAIRYMAN:—I'd be tempted to hit a man that offered me a square silo for any other purpose than an ice-house. But I won't argue the case as I am entirely satisfied with my stave one, and will build another before next fall. Here's the bill of articles needed for one, 12×24:

76 staves, 2×6×24 feet at $11 per M	$18.24
7 hoops, 2½×½×38 feet	5.00
7 gripes	3.50
1 bbl Buffalo cement	1.00
Mason, laying cement	75
Carpenter to help put up	2.00
Total	$30.49

The staves were hemlock and can be furnished by any mill-man who has a planer to plane one side and bevel edges.

The iron hoops and gripes or tank fastenings are those used in oil tanks, and both can be had of any hardware company, dealing in oil well supplies.

Here's how to build it complete: Mark out circle two feet larger than you wish silo. Dig down eighteen inches, or one foot anyway, and fill with stone. It takes ten loads for a 14 ft. circle. Sledge them in with stone hammer. Put on two loads gravel to fill all crevices. Mix cement one part, sand and gravel four parts. Spread while thin for a filler. Then mix cement one to two, or if Portland, one to four. Spread not less than an inch thick.

It is better to have a mason lay cement. He will do it so much quicker and nicer.

When cement is dry, draw a circle on it, the size you wish the silo. Then take a stave, and four feet from one end saw it half in two on a two inch bevel, then thirty inches farther saw in again; so on to the end of stave. This is done so you can start your saw in to saw out four thirty-inch doors, four feet apart, when silo is up. Stand up stave, plumb it and stay-lath in place, then stand up another; toe nail top to first stave, tack on a thin board horizontally about two feet up on inside of staves, so on around, toe-nailing top and tacking the board at bottom, until complete.

While putting on hoops, have a man in and outside of silo, driving staves even, with a mallet. Draw hoops up until so tight you can't move them by pulling down on the gripe. Then saw out doors, plane off one-sixteenth of an inch on each edge of door, tack on a strip of bagging all the way round, to make the door air tight, and your silo is complete.

Any person handy with tools can build this style of silo at one-third to one-half the price asked by tank companies.

Will tell in my next how to build the best possible drop, for stable, at the least possible cost. W. H. PRITTIE.

Chaut. Co., N. Y.

Scores and Prizes at Sioux Falls.

ED. HOARD'S DAIRYMAN:—Below I hand you a list of those who participated in the pro rata at Sioux Falls. If you will kindly publish this list, it will show the boys that the money was paid out and who got it. I expected to send out the diplomas this week, but it will be impossible, so I hope the boys will have a little patience and I will try to have them all mailed by the 15th.

632. A. W. McCall, Creston, Ia., score 97. Gold medal and $100.

540. C. P. Jensen, Wells, Minn., score 96½. Silver medal and $50.

Participants for pro rata as follows:

71.	James Van Duser, Hebron, Wis.	95	$89.82
77	J. J. Ross, Zearing, Iowa	95	59.88
84	Allen Gulbranson, Northwood, Iowa	95	59.88
100	A. G. Armstrong, Collins, Ia	95	59.88
162	O. A. Seyfried, Dakota, Ill	96	119.76
231	Hans Hermanson, Scandivavia, Wis	95	59.88
233	Theo. Thoreson, Fallow, Ia	95	59.88
325	Geo. Wick, Story City, Ia	95	59.88
349	Frank O'Donnell, Albert Lea, Minn	96¼	134.73
387	W. H. Clarkson, Arlington, Neb.	95	59.88
399	W. F. Stewart, Fontanelle, Ia	95½	89.82
404	F. Heilman, Hamlin, Ia	96	119.76
415	A. J. Andrews, Holden, Ia	95	59.88
423	W. J. Noyes, Moland, Minn	95	59.88
429	Louis Schack, Walnut, Ia	95½	89.82
458	W. A. Hayes, Somonauk, Ill	95	59.88
464	E. G. Grunewald, Berlin, Minn.	95	59.88
496	F. A. Viergutz, Nicholson, Wis.	95	59 88
501	C. Gerland, Sleepy Eye, Minn.	95	59.88
517	W. J. Elliott, Albert Lea, Minn.	95	59.88
534	C. W. Stockwell, Clarks Grove, Minn	95	59.88
543	C. J. Bang, Blue Earth City, Minn	95	59.88
552	J. C. Higbe, Dodge Center, Minn	95	59.88
566	Jno. Fridner, Strout, Minn	95½	89.82
572	Fred R. Steinke, Sleepy Eye, Minn	95	59.88
575	C. H. Cleveland, St. Grorge, Minn	95	59.88
589	F. C. Johnson, Sacred Heart, Minn	95½	89.82
656	R. T. McColl, Cromwell, Iowa	95½	89.82
683	L. C. Ibsen, Irene, S. D	95½	89.82
687	C. B. Schack, Danielson, Minn.	95	59.88
688	B. D. White, Albert Lea, Minn	96	119.76
692	H. J. Evans, Ames, Ia	95½	89.82
710	D. H. Randall, Kingston, Minn.	95½	89.82
			$2,499.99

The National Creamery Buttermakers' Association will publish a full report of the meeting just held, in book form, which will be sent to members in good standing only.

Buttermakers and creamerymen, who desire to have this report, and who are not members in good standing, should send in their name with annual dues, $1.00, at once, as only a limited number will be published.

Elgin, Ill. E. SUDENDORF, Sec.

AN ABLE AND EFFICIENT OFFICER.

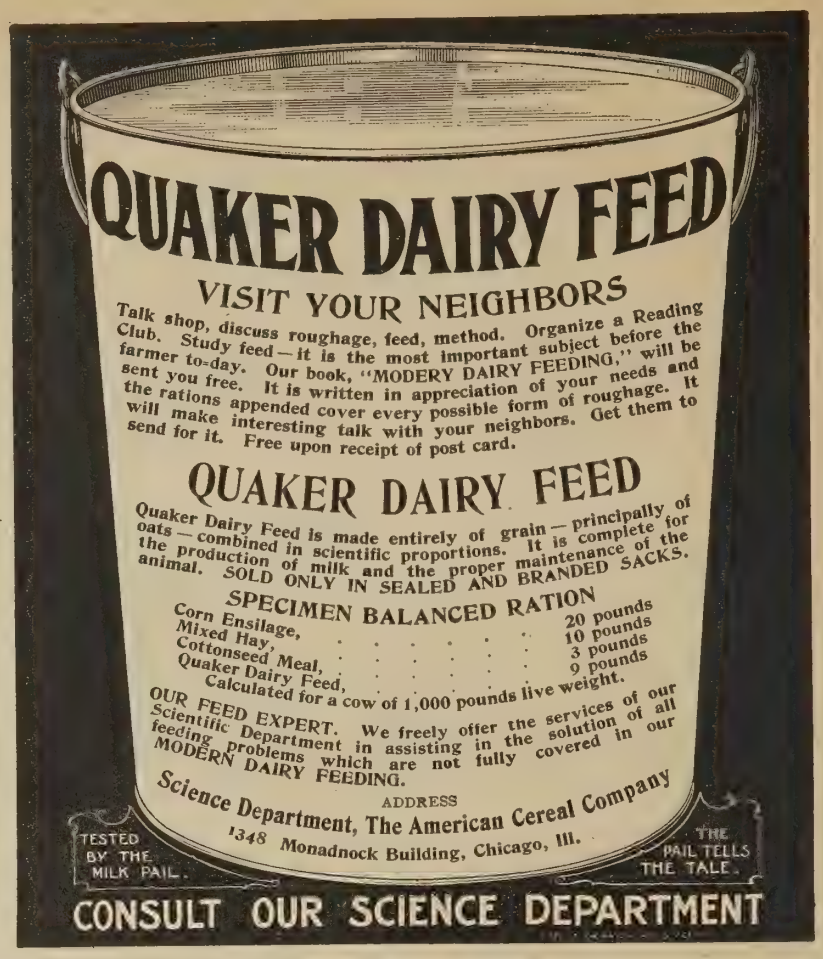
Concerning the work of enforcing the laws against food adulteration in New York, the *Country Gentleman* has the following to say concerning Mr. Wieting, commissioner of Agriculture of that state:

By the strict enforcement of the agricultural laws, Mr. Wieting has no doubt incurred the animosity of the manufacturers of oleo, of dishonest milkmen, and all other violators; but for the same reason he has won for himself the respect, confidence and support of every conscientious and intelligent farmer.

When he entered upon the duties of his office he found everything in a "topsy-turvy" condition, and at once set about to systematize the work of the department, and place it on a business foundation. By a system of indexing, any information concerning the workings of the department since its creation, official documents, etc., may be had at a moment's notice. It is needless to add, this greatly facilitates the work of the department.

Another wise move on Commissioner Wieting's part was to surround himself with men of recognized ability in their respective lines—men practical in their work—and he has been rewarded in having the agricultural laws enforced as they never were before, and in gaining for the department the name of being second to no other in the United States.

HOARD'S DAIRYMAN congratulates Mr. Wieting on the able administration of his office and the endorsement he receives. The people need a host of just such faithful public servants.



DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

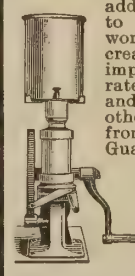
See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY

46 Cedar Street, NEW YORK.

The Kneeland Omega Cream Separator



adds at least $10 a year profit to each cow, makes dairy work a source of profit. Increases yield of butter and improves the quality. Separates perfectly, at slow speed, and with **half the power** of others. Simple, durable, free from repairs, easiest to clean. Guaranteed to satisfy, or no sale. Send for special catalogue and our free book "Good Butter, and How to Make It." **Agents wanted** in localities where we have none. Address,

The Kneeland Crystal Creamery Co., 40 Concord St., Lansing, Mich.

300 Acre Farm FOR RENT!

35 miles northwest of Chicago, close to two R'y stations. Well improved, plenty water. Splendidly adapted to dairy or stock feeding. Always farmed by owner. Low cash rent.

R. DADY, Waukegan, Ill.

100 Feeds of Wilbur's Stock Food Cost $1.00 or 1 cent Each.

Twenty-five feeds per month, mixed with grain, is sufficient for one animal. This investment of one cent a day saves $1.00 per month in grain and adds an incalculable number of dollars when stock is sold.

Our booklet, "Pasture in Packages," puts the feeding of Wilbur's Food on a basis of strict money-making to the stock owner. Send for it—it is free.

Fifty cents willl bring 40 feeds of the Food aod a sample of White Rock Hoof Packing along with the booklet.

Wilbur Stock Food Co.

179 2d St., Milwaukee, Wis.

Sugar River Stock Farm

HAS FOR SALE

75 recorded Poland-China brood sows; 150 Shropshire ewes, bred to Royal rams; 150 Mammoth Bronze turkeys; large strain; 300 Barred and White Plymouth Rocks, Hawkins' strain.

Write for circulars, description and low prices

D. S. & F. SMITH, Belleville, Dane Co., Wis.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, St. Louis, Boston. Agents for GLUTEN FEED. This feed is one of the best milk producers known, contains 27% digestible protein, keeps cows in healthy condition. Worth your attention in feeding economical rations. Sold in car lots, price based on its milk-producing value. Ask your grain dealer for price. Write our nearest office for full information.

Parted In A Dream—A love song founded on a strange incident of the late war—words and music by HALBERT L. HOARD, Fort Atkinson, Wis. (A 50 ct. song.) Sent post-paid for 25 cts.



"PLANET JR." CHAPTERS.—No. 7.

Head of the Procession.

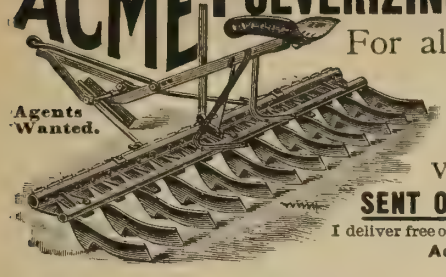
You must keep yourself moving if you are going to keep up with the "PLANET JR." Farm and Garden Tools. Every year they do more and better work than the year before. Take the new Two-Row Pivot Wheel Cultivator, that does double work at one passage, saving one man and team; or the wonderful Four-Row Beet Cultivator, one of the greatest labor-savers ever invented. All the "PLANET JR." tools—one-horse, two-horse, and hand—keep you pushing ahead, and making money.

Write for the new 1899 Catalogue, with splendid photographic views of farm scenes all over the world, with the "PLANET JR." Tools at work. It's the most interesting and inspiring implement catalogue ever published. Inquiries for it pile higher and higher daily. Another edition published if necessary. Sent FREE.

Look up previous advertisements about "The Mortgage Lifters," "A Farmer's Art Gallery," "A Pair of Manitoba Girls," etc.

S. L. ALLEN & CO., Box 1107 D, Philadelphia.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

PLEASE MENTION THIS PAPER.



$15.99

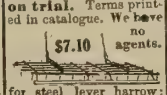
This Disc Harrow cuts 6¼ ft, has 12 16-in. discs; price $15.99.

BALL BEARING All steel harrow is made with 16 and 20-in. discs in 8 sizes. Guaranteed lightestrunning and best made. **Prices reduced.**



$6.25

buys a 2-horse plow, turns furrow 14 in. **Shipped on trial.** Terms printed in catalogue. We have no agents.



$7.10

for steel lever harrow; cuts 10 ft; 60 teeth, 2 sections; also 3 & 4 sections.



$16.25 BUYS

this 8-ft. steel mill; guaranteed easiest running & strongest made; pumping and power mills, 8 to 16-ft.; also tanks, pumps, pipe & all pumping supplies. We furnish complet outfits. **Prices all reduced.** *Catalog free.* Don't fail to send for it.



$10.95 Buys

this 2-horse Cultivator; made of best material; steel wheels; all complete. A riding cultivator, **$16.99.** 5-shovel 1-h. cultivator, spreads to 35 in., all steel; retailed at $4; our price **$2.85.**

SEEDERS, ALL KINDS.



$17.50

for this **team harness,** cut from select oak-tanned leather, traces 6 ft long, 1½ in. wide, with cockeye, 18-ft lines; Hook & Territ pads, pole strap 1½ in.; collar strap ⅞ in. **Big Bargain.**

Send for Our FREE 320-Page Spring Agricultural Catalog, Marvin Smith Co., 55-57-59 N. Jefferson St., T 18 , Chicago.



YOU going to buy a **HARROW** **Want Best** for least **Cash** **WE** make that kind, **PAY FREIGHT.** Cat. free. Write for price. **G. H. POUNDER.** No. 3 Ft. Atkinson, Wis.

I NO YOU



$17

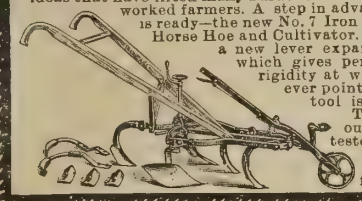
You Send No Money

Until Goods Arrive, Disc Harrows, Lever Harrows, 11-foot Seeders, Cultivators, Wagons. Write for delivery prices and catalogue.

EMPIRE MFG. CO.

60 River Street, **Sterling, Ills,**

Since 1875 Iron Age implements have been steadily perfected—working out mechanical ideas that have lifted many burdens from overworked farmers. A step in advance is ready—the new No. 7 Iron Age Horse Hoe and Cultivator. Has a new lever expander which gives perfect rigidity at whatever point the tool is set. Thoroughly tested in shop and field.



Iron Age Ideas

Send for the **Iron Age Book** for 1899 (*sent free*) and read the full description of the No. 7 Horse Hoe. Combines all the good features of lever-expander and old-style clamp expander. Blades quickly and finely adjusted. Send your name on a postal. Distributing points conveniently located.

BATEMAN MFG. CO., Box 152, Grenloch, N. J.

WELLS

If you want the best machinery for making wells, to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

F. C. AUSTIN MFG. CO., Harvey, Ill. (Chicago Suburb)

THE BEST FARM MILL



is a **French Buhr Stone Mill.** Lasts a life time. Large capacity. Less power. Grinds any kind of grain for feed, also table corn meal, buckwheat, rye and graham flour. Easiest kept in order and no expense. It pays to own one.

Send for new book on Mills and sample meal.

NORDYKE & MARMON CO., Flour Mill Builders, 25 Day St., Indianapolis, Ind.



Turn the Fodder into Food.



Live stock waste fully one-half the corn fodder when it is fed to them without previous preparation.

THE CYCLONE CORN HUSKER

husks, cuts and shreds the corn, green or dry. **Runs with 8-horse tread or any other power** that will equal or give more. Circulars free.

ROSENTHAL CORN HUSKING MACHINE CO, 31st and Walnut Sts. MILWAUKEE, WIS.

THE FOUR BURR MILL



Two mills in one with two sets of burrs, the largest ever made, 25 to 30 in. in diameter (four burrs) all grinding at once, having double the grinding surface, and double the grinding capacity of other mills, also double the durability. We manufacture the largest and best line of sweep mills sold, including the famous Iowa Mill No. 2 for $13.00. Get our catalogue before paying two prices for an inferior mill. Agents wanted. Manufactured and sold by the **IOWA GRINDER & STEAMER WORKS, Waterloo, Iowa.**

AUGHN FLEXIBLE HARROW, Pat'd



No Bolts to get Loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists.

J. C. VAUGHN MFG. CO., JEFFERSON, WIS. Best on Earth



Absolutely perfect. Water always fresh.
Soon pays the cost. No disease where used
Cheapest because best. Send for catalogue.



THE "BADGER"

A SPRING HOE SEEDER

which automatically adjusts itself to rough and uneven ground. The same "BADGER" which has commanded the trade for over 25 years, except that

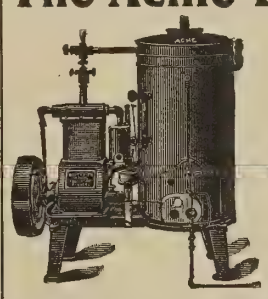
IT IS VASTLY IMPROVED.

Continuous steel frame and steel bars. Every advantage found in every other seeder and some exclusively its own. **The proof of its strength, durability and effective utility** is the fact that many are **in use to-day that we sold 20 years ago.** We make a 11-ft. Force Feed Seeder without bars also. Catalogue and circulars **FREE.**

Appleton Manfg. Co. 35 Fargo St., Batavia, Ills.

ON THE MARKET TEN YEARS.

The Acme Engine

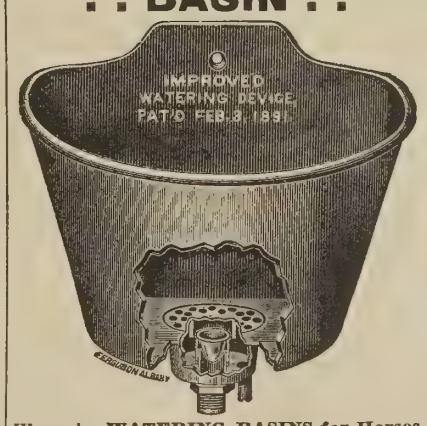


Still LEADS

1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

No. 9, Center St., Rochester, New York.

Buckley's Improved . . BASIN . .



We make **WATERING BASINS for Horses and Cattle,** with styles adapted to every kind o fastening, at prices from 75 cents to $1.50.

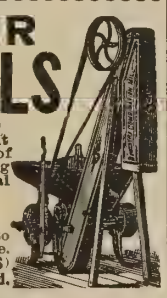
Write for Catalogue.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

BOWSHER FEED MILLS

(Sold with or without elevator.)

CRUSH ear corn (with or without shucks) and **GRIND** any kind of small grain **at same time,** mixing in any proportion desired. **Conical chape grinders.**

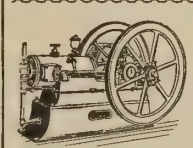


LIGHTEST RUNNING

Handy to operate. 6 sizes—2 to 25 h. p. One size for windwheel use.

(ALSO MAKE SWEEP FEED GRINDERS)

N. P. D. BOWSHER CO. So. Bend, Ind.



FARMERS, FEEDERS, Dairy Creamery And all other MEN

are appreciating the

CHARTER GASOLINE ENGINE,

STATIONARIES, PORTABLES, ENGINES AND PUMPS.

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DO YOUR OWN... GRINDING

With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

KELLY & TANEYHILL, Waterloo, Ia.

SILOS

How to build. Going to build, How to fill.

ASK WILLIAMS MFG. CO., Kalamazoo, Mich.

Hoops furnished rolled to circle with threads, nuts and lugs.

POWER FOR THE FARM.

Nowhere on Earth can so much Power be obtained for so little money.

We make all kinds of **Sweep Horse Powers for 1, 2, 3, 4, 6 and 8 horses.** Prices ranging from $35. to $100. **Tread Powers, 1, 2 and 3 horse. Farm Engines, 2, 4 and 6 horse power.** Send for free circulars and prices.

Smalley Manfg. Co. Sole Makers, Box 16, Manitowoc, Wis.

"YANKEE" SILO SENSE.

Our "99" booklet now ready, contains *Ex-Gov. Hoard's* views. Every *up-to-date* Farmer *should read it.* Mailed free if you name this paper. Also Cat. of **Silo Machinery,** *BADGER ROUND SILOS,* **50, 75, 100** tons. *Farm Powers, Feed Mills, Root Cutters, Corn Shellers, one and two hole.*

SMALLEY MFG. CO., Sole Makers. Manitowoc, Wis.

Pressure between burrs in grinding is carried on chilled roller bearings.

Large inside burr revolves twice to sweep's one. Ordinary length sweep

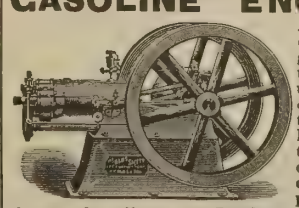


Sold under an absolute guarantee to do double the amount of work of any other mill of same size or money refunded. Write for circulars and prices.

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The OLDS GASOLINE ENGINES.

Simple and Economical



Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc, Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**

2,000 BICYCLES,



$12.50 TO $17.50, MODELS 1899.

High Grade Gents or Ladies, all made to sell at $50, guaranteed. We ship on approval.

Free Wheel to Agents. We want one in every town. Send for circular of our new Bicycle wonder, "The Peerles" **Bicycle Watch** can attach and detach from handle bars. Remember a written guarantee goes with each and every Bicycle we ship.

CAPITAL WATCH & BICYCLE CO., St. Paul, Minn

AN ACRE OF CORN

and its possibilities under the Silage system—being the theme of

"A BOOK ON SILAGE"

By Prof. F. W. WOLL,

of the University of Wisconsin, neatly bound into a volume of 195 pages and now being sent out by the **SILVER MFG. CO.** SALEM, O., is unquestionably the best book yet introduced on the subject. It includes:

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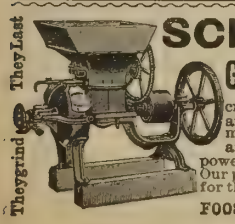
and many valuable tables and compounded rations for feeding stock. They are going rapidly.

It Is FREE. Write for a copy to-day—to-morrow may be too late

SILVER MFG. CO. Salem, Ohio.

They Last They grind

SCIENTIFIC GRINDING MILLS



crush the corn husk, cob and all, and grind it into meal. Saves time, labor and money. For steam power; other styles for horses. Our prices will suit you. Write for them and free catalogue.

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THE ONLY LOW-DOWN

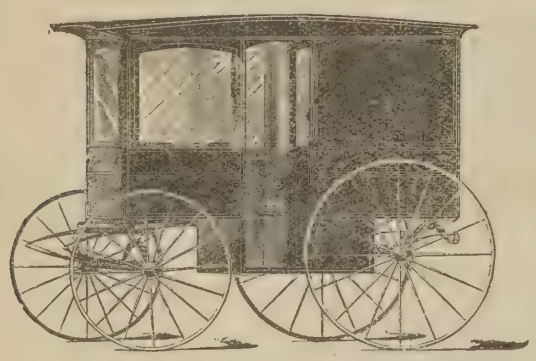
Short Turn
Straight Bottom
Short Coupled
Light Draft Wagon
on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

SHIPMAN, BRADT & CO.,
Sole Manufacturers,
DE KALB, ILL.

A Perfect Milk Wagon



On a Perfect . . .
Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order, and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



This Double Buggy Harness, $20, as good as sells for $30.

WE HAVE NO AGENTS,
but have sold to the user direct at factory prices for the past twenty-six years. We ship anywhere for examination. **Everything Fully Warranted.** We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. Our line consists of Rockaways, Surreys, Traps, Phaetons, Stanhopes, Driving Wagons, Top Buggies, Open and Top Road Wagons, Spring Wagons, Delivery Wagons, Milk Wagons. Wagonettes and all styles of Harness.

Send for Large Free Catalogue.

ELKHART
Carriage and Harness Manfg. Co.,
W. B. PRATT, Secy. ELKHART, INDIANA.

This Extension-Top Surrey with double fenders, complete with side curtains, aprons, lamps, and pole or shafts, for $72.
Just as good as retails for $110.



Don't Pay Three Profits



No. 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

THE COLUMBUS CARRIAGE & HARNESS COMPANY, COLUMBUS, O.

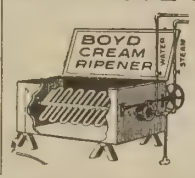
CHEAPER AND BETTER
HARNESS



can be bought direct from our factory at wholesale prices than in any other way. We save you all the dealer's profits. **100 styles to select from.** Each made from the best oak tanned leather. Send 4c in stamps for 148-page book which tells you all about the goods. We are sure to save you money.

KING HARNESS CO., 118 Church St., Owego, N. Y.

For the Dairy BOYD For the Creamery
CREAM RIPENERS



Send for particulars about this wonderful machine. It means reputation and money to you.

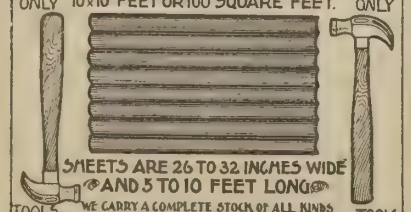
Makers and Sellers of MODERN DAIRY APPLIANCES
Milk Dealers' Supplies

Write for THE QUOTATION

Cornish & Company Machinery ST. PAUL, MINN

IRON ROOFING.
BRAND NEW

THESE ARE THE ONLY
$1.50 PER SQUARE. OF 10×10 FEET OR 100 SQUARE FEET.
THESE ARE THE ONLY



SHEETS ARE 26 TO 32 INCHES WIDE AND 5 TO 10 FEET LONG

WE CARRY A COMPLETE STOCK OF ALL KINDS OF MERCHANDISE AND MATERIAL BOUGHT AT SHERIFFS' RECEIVERS' AND TRUSTEES' SALES.

TOOLS YOU NEED — WRITE FOR FREE CATALOGUE. — TOOLS YOU NEED

OUR PRICES ARE ½ OF OTHERS.

CHICAGO HOUSE WRECKING CO., WEST 35TH & IRON STS., CHICAGO.



IT WON'T

jump the track nor bind when door is warped or wall is crooked. **T RAIL TRACK** pivotally hung to Brackets. **Hangers on both sides of doors.**

Nothing Like It, Rapidly replacing all others. **Gold Medal** at Omaha. Write for circular also catalogue of up to date Hay Tools.

Louden Machinery Co., Fairfield, Iowa.

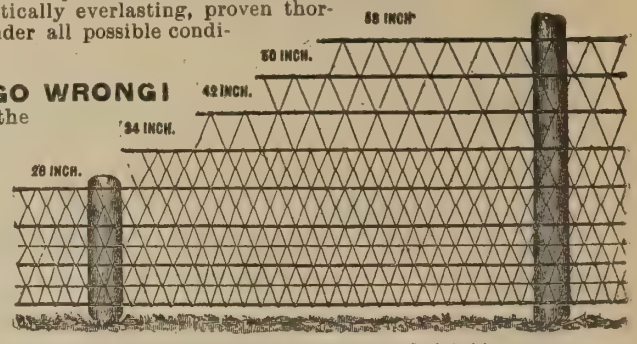
IF YOUR PASTURES AND FIELDS ARE INCLOSED WITH THE

ELLWOOD ALL STEEL WOVEN WIRE FENCE

you have secured absolute efficiency at least expense, in a practical fence that will positively turn cattle, horses, hogs and pigs. A fence that is strong, practically everlasting, proven thoroughly efficient under all possible conditions.

YOU CAN'T GO WRONG!
in selecting the
ELLWOOD WOVEN FENCE.

Sold by our agents in every town. If you can't get it in your town, write us direct, and we will see that you are supplied.



ELLWOOD FIELD FENCE (Standard Style)

AMERICAN STEEL & WIRE CO. General Offices: CHICAGO, ILL.

THE MIDDLEMAN'S MONEY



makes the fence no better. Then why pay him a lot of extra money? Why not save that amount by buying from us at wholesale prices? We do not impair the quality to make our fence cheap. In fact, we depend upon the quality to hold your trade. We could not sell the

Advance Fence

as cheaply as we do if we had to sell it through the dealer. When you buy from us you only pay one profit, when you buy from the dealer you pay two profits. Send postal card for circulars and prices.

THE ADVANCE FENCE CO., 4002 OLD ST., PEORIA, ILL.

M. M. S. POULTRY FENCING

is thoroughly interwoven but has long horizontal wires, which classes it as

A FENCE, NOT A NETTING.

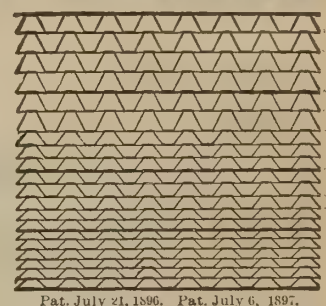
Like a fence, it can be properly stretched and erected with few posts and without top and bottom rails. Has cable selvage and a cable running through the fence every foot.
Each roll contains the famous M. M. S. trade mark.
None other genuine.

We are manufacturers also of the following famous fences:

CABLED FIELD AND HOG FENCE
with or without lower cable barbed. All horizontal lines are cables.

STEEL WEB PICKET FENCE ideal fence for lawns, parks, cemeteries, etc. Steel gates, posts, etc. Everything the best of its kind.

DE KALB FENCE CO., 22 High St., DE KALB, ILL.



Pat. July 21, 1896. Pat. July 6, 1897.

OUR INCUBATORS EQUAL THE BEST..

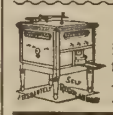
They have all the latest improvements and are sold at very low prices and **GUARANTEED** to please every customer. Send 6c. for our 148 page catalogue which contains full descriptions of our extensive line and tells how to raise poultry successfully. Send for it at once.



DES MOINES INC'B CO.
Box 424 Des Moines, Iowa.



THE IMPROVED VICTOR Incubator
Hatches Chickens by Steam. **Absolutely self-regulating.** The simplest, most reliable, and cheapest first-class Hatcher in the market. **Circulars FREE.**
Catalogue 4 cts.
GEO. ERTEL CO., QUINCY, ILL.



Incubators and Brooders, Self-Regulating Special low price for first in any locality. Agents wanted everywhere. Eggs for hatching, by the hundred cheap. B. P. Rocks a specialty. Catalogue free. Address Geo. S. Singer, Cardington, O.



SHOEMAKER'S POULTRY BOOK on and Almanac for 1899. 160 pages, 100 illustrations of Fowls, Incubators, Brooders, Poultry Houses, etc. How to raise Chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about Incubators, Brooders and thoroughbred Fowls, with lowest prices. Price only 15 cents.
C. C. SHOEMAKER, Box 857, Freeport, Ill.



BRABAZON'S POULTRY CATALOGUE FREE! It's a beauty; over 50 colored plates. Illustrates and describes fine Turkeys, Geese, Ducks and chickens; gives prices of fowls & eggs. Finest Buyer's Guide published. Inclose 10c. for postage, etc
J. R. Brabazon, Jr. & Co., Box 58, Delavan, Wis

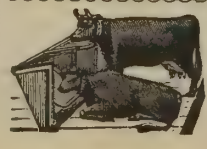


HOOK ON—CUT OFF

The easiest-working, closest-cutting, simplest, strongest and handiest dehorner is the latest

IMPROVED CONVEX DEHORNER

Never crushes the horn nor pulls it apart. Made on an entirely new principle. Catalogue free.
WEBSTER & DICKINSON, Box 67 Christiana, Pa.
Western trade supplied from Chicago salesroom.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

Built for **SERVICE and DURABILITY.**

Made from the Best Quality Galvanized **HARD STEEL WIRE** in large sizes.



Put together on **RIGHT PRINCIPLES** and furnished at a **RIGHT PRICE.**

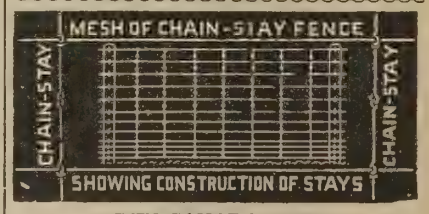
Write the **LAMB FENCE CO.** Adrian, Mich.

Factory-Made. Complete in the Roll.



A SINGLE SHOT

never won a battle. Steady bombardment with big guns, little guns and rapid fire pieces counts. We have all sorts of ammunition. Write for it.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



THE CANADA LINK

Is said to "whip its weight in anything that goes on four legs." There is one even better fighter—**the American Links—Our Links—the Chain-Stay.** See ad. next week. **CHAIN-STAY FENCE CO.,** 20 Miller St., Sterling, Ill.

THEY HATCH MILLIONS

of **Chickens, Ducks, Turkeys** and **other fowls** in every state and territory in the Union and in many foreign countries—

THE PRAIRIE STATE INCUBATORS.



Used by the largest poultry breeders, duck and broiler farms everywhere. Have taken **over 200 first prizes** in all kinds of competition. The easiest to handle, cheapest to operate, **surest in results** and most handsome and durable in construction. 168 p. catalog and supplement **FREE.** **Prairie State Incubator Co., Homer City, Pa.**

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., FEBRUARY 24, 1899. NUMBER 2

Amos Keyes & Co., ESTABLISHED IN 1848.
Consignments Solicited.
REFERENCE: Faneuil Hall Nat'l Bank. **Commission Dealers in Butter, Cheese, Eggs, Poultry, Etc.,** 26 Blackstone St., BOSTON MASS.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.
REFERENCES:—Irving Nat'l Bank. Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
151 Reade St., NEW YORK.

David W. Lewis & Co.
177 Chambers St., NEW YORK,
Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

WE SELL DIRECT TO THE FARMER.
Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.
Sulky Plows, $25.
Riding Gang Plows, $35.
2-in. Wagon, $39.
1000 other articles.
Big catalogue free.
Write now and get ready for spring work.



Hard Steel CastorCoulter with Plow, $1.50 extra.
HAPGOOD PLOW CO., Box 196, Alton, Ill.
Only Plow factory in the United States selling direct to farmer.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES AWARDED CHR. HANSEN'S LABORATORY
Guaranteed the Purest, Cheapest and Best in the Market.
Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**
Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"The Kind That Keep New."

The following unsolicited letter from one of our largest customers is very gratifying to us. Burnap & Burnap, of Toledo, Ohio is one of the greatest, most reliable and oldest firms in the creamery constructing business and have always bought the highest class goods, wherever made, regardless of first costs.

"Toledo, Ohio, Jan. 16th, 1899.

HANEY-CAMPBELL CO.,
Dubuque, Iowa.

Gentlemen:—The plant we built at Hammersley Fork was supplied with your new natural wood finish Vats. Our builder, Mr. Kite, states without solicitation that they are the finest vats he has ever looked at. Yours truly,
BURNAP & BURNAP."

THE BEST costs but little more than the poorest, but lasts many times as long. When buying Vats, Churns, Workers, or other dairy or creamery goods, always specify goods from

HANEY - CAMPBELL CO.

PRINT BUTTER SHOULD BE WRAPPED IN **GOOD PARCHMENT.**
(Not the Cheap Kind.)
YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to
DEPARTMENT H,
Paterson Parchment Paper Co., Passaic, N. J.

ELLIOT'S PARCHMENT One-Half Ream, 8x11, FREE.
To Dairymen and others who will send 30c to pay postage
USE THE BEST WRAPPER **BUTTER** BEWARE OF IMITATIONS
A. G. ELLIOT & CO., Paper Mfrs., PHILADELPHIA, PA, **PAPERS**
Printing at Moderate Prices.

THE SHARPLES TUBULAR CREAM SEPARATOR.



The bowl alone revolves.
It spins on air.
It is a hollow bowl.
It is a simple bowl.
It weighs but 30 pounds.
It skims two tons per hour from .05 to nothing.

This is the first Tubular ever sold and has been running over one year and not a cent for repairs.

FRANKVILLE, ONT.
P. M. SHARPLES,
West Chester, Pa.

Dear Sir:—"Your Tubular Separator, which we are using in our factory, is skimming over 4,000 lbs. of milk per hour, and today we skimmed 6,000 lbs. of milk in eighty-five minutes, and did not leave a trace of fat in the skim milk. The cream produced is the smoothest and finest in quality we have ever seen from any separator. When the separation is completed the bowl can be washed in a few minutes, and it is simply a hollow bowl with no corners or tubes. No other separator compares with it in efficiency, and our large experience leads us to believe it will never have an equal. JONES & RABB."

BRANCHES:—
Toledo, Ohio, Omaha, Neb.
Elgin, Ill. St. Paul, Minn.
Dubuque, Ia. San Francisco, Cal.

P. M. SHARPLES,
West Chester, Pa.

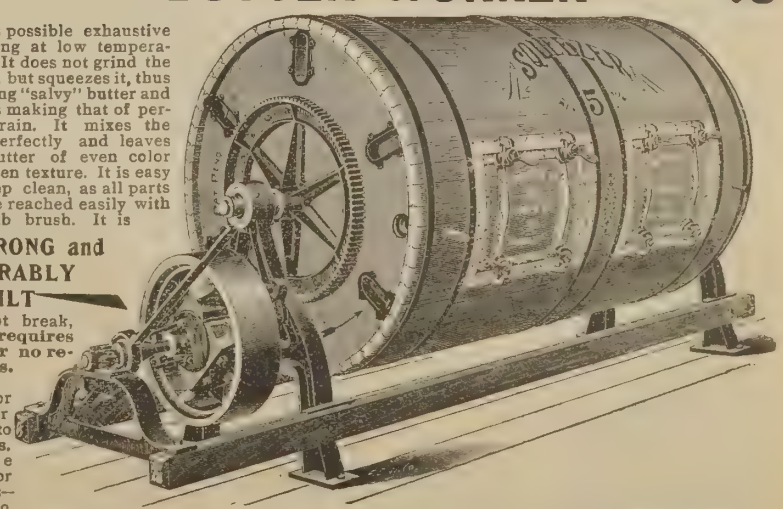
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.
ELGIN MANUFACTURING CO., - - Elgin Ill.

University of Ill



SUCCESS

This is the magic word that marks the limit of every man's aspiration. Men who have and men who will achieve success are those who take advantage of every faculty which the world affords in their particular line.

...The DISBROW

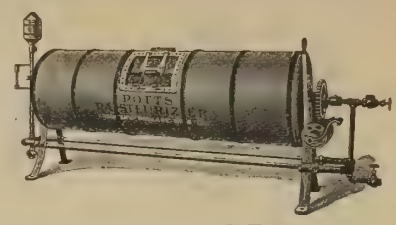
COMBINED CHURN and BUTTER WORKER.

IS ITSELF A SUCCESS,

And will promote the success of every man or institution which uses it.

It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

There is a growing interest in the subject of pasteurization. We will not attempt to predict how general this process will become. We do know that our . . .



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Salted with VACUUM PAN SALT.

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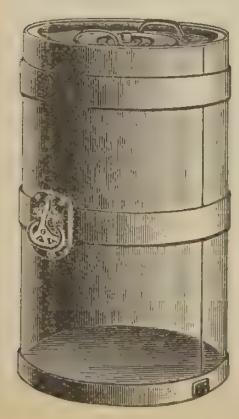
$22.40 for 15 cts.

The additional cost of using Diamond Crystal Salt in the making of a ton of butter is 15 cts. Wiggin & Upham, the produce commission merchants of Boston, says: "Tests prove that butter made with

DIAMOND CRYSTAL SALT

is found to be worth a cent a pound more than butter salted with any other salt." It's not can you afford to use Diamond Crystal Salt, but can you afford not to use it? Send for our book "*The Salt that's all Salt.*"

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.



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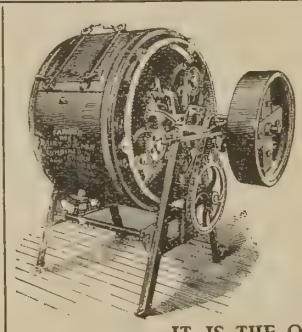
The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

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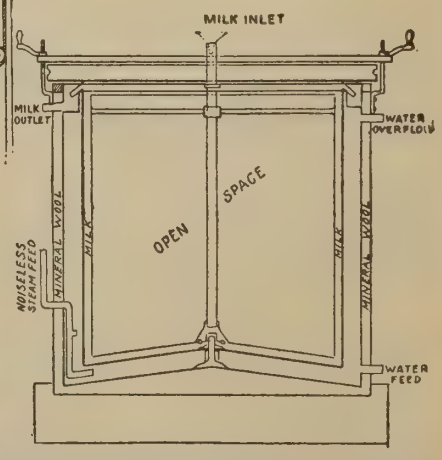
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

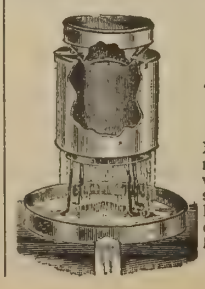
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Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

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Box 135, Aurora, Ill.

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so noticeable in all milk and butter in the winter time can be removed entirely by the use of the

PERFECTION MILK COOLER AND AERATOR.

It takes out all stable odors and all odors arising from feeding turnips, cabbage, roots, ensilage, &c. It quickly pays for itself in the improved quality of the product of the dairy. Send for FREE circulars and prices to

L. R. LEWIS, Cortland, N. Y.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

Near Menominee, Mich., in what was a dense wilderness a few years ago Hon. S. M. Stephenson has established one of the most promising dairy farms in the land. One hundred and twenty-five cows are milked and the buildings are all of a strictly first-class character. The central barn is a mammoth affair with cement floors, pure running water for every animal, electric lights and an immense silo.

TIRED OF IT.

The Denver, Colorado, *Times* well says:

"The people are tired of being imposed upon with bogus butter. They are tired of the principle that permits its sale in the towns and cities of the state."

That is a sentiment from the consumer's side of the question.

It is truly sickening to consider the fraud and adulteration there is in food; the corruption and wholesale debauchery there is in politics, and the low state of morals among the people that will excuse either, if it brings them a momentary advantage.

WASTE.

Edward Atkinson makes a very sharp, keen remark when, in writing about the fearful waste of both skim milk and corn stalks, he says in effect that he does not know much about farming, but when he sees this waste going on all because of the ignorance of men, he has a right to conclude that the average farmer himself really knows but little of farming. Little as Mr. Atkinson knows, he knows enough to see this big waste, whereas he talks with lots of farmers who don't know it, nor can they see it. Pope says something about familiarity breeding contempt. Is that not the secret of this matter? So many farmers have for so long a time been accustomed to this wasteful way of handling corn stalks and skim milk, that they really cannot see the wastefullness of it. But, Mr. Atkinson is right, clear away right, when he speaks of this fearful waste. Let it be remembered always that 40 per cent of the combined value of the corn plant is in the stalk.

Let every farmer take that fact as his guide and then so shape his farm methods, feeding methods and all methods, so as to save all of that waste possible.

Let him also remember that 40% has been once earned by his own expenditure for labor, and he must pay for the growing of it. If he wastes 40% of what he earns the responsibility rests on him and not on Providence.

A full study and consideration of that fact will be enough to lead any man out into better and more saving methods if he will but follow its teachings.

We present this week two typical examples of the dairy form. The *Breeders' Gazette*, which poses as an authority on both beef and butter and consequently frequently mixes the two, would call them "screw ended" and refuse them a place in the prize ring, because they do not conform to a set of antiquated rules.

It is fortunate, however, that owners judge their animals more by their performance than by rules, and consequently we find prize animals breaking rules in all directions. The *Gazette* would have Countess Matilda's back straight where there is a hump; her thigh "blocky" where it is incurving; and beef where she is thin. But she goes on her bovine way, breaking rules and holding a record of 19 pounds, 10 ounces of butter per week. Wherefore her picture is given in the Dairyman this week.

King Exile of Allendale belongs to the same dairy type. The points which the Dairyman has so often pointed out, we find here well represented.

Experience with Abortion.

Ed. Hoard's Dairyman:—I notice in the Dairyman of December 9th, that O. H. L., of North Calais, Vermont, writes about some after effects of abortion. I had the disease in my herd for nearly two years, and had four cows that had the same lameness that he speaks of; I wrote to the Dairyman about it, and you said that the cause of it was about my own place somewhere, but I could not find it.

I have a brother-in-law who is a veterinary surgeon, and one day when he was at my place, we went to the barn to try and locate the trouble, (because he said the same thing that you did about it); after looking all over the place and finding nothing, he said to me: "Is there any hollow place under your barn where the water could lie?" I said, "I think there is a hollow place, but the land is so light and porous that the water would not lie there", but he said that the liquid manure would make the soil so close and hard that it would hold the water just like a basin.

The next day I tore up my stable floor and found a pool of water about six feet across, and from one to six inches deep; it was as black as molasses and almost as thick; I at once laid a four inch tile drain from that low place clear across the yard, so that any water that may run under the barn must run away at once, and I have never had a lame cow since, or one with a bunch on her leg.

My cows were affected just as his are; that was fifteen months ago; the cows that were affected stood over the water or near it.

I do not want your readers to think that I let the liquid manure run through the stable floor and then run off and waste; I have read the Dairyman too long to do that now. About four years ago I built an addition to my barn, and the hollow place was where there had been a manure heap at the end of the old barn.

The first cow that I had that was affected with that lameness, lost the use of all her legs and finally died; (the only animal of the cattle kind that I have lost since I commence farming,) which was 26 years ago. Only one of the cows that was affected with the lameness ever got entirely over it; the others were lame so long that I fattened them and sold them.

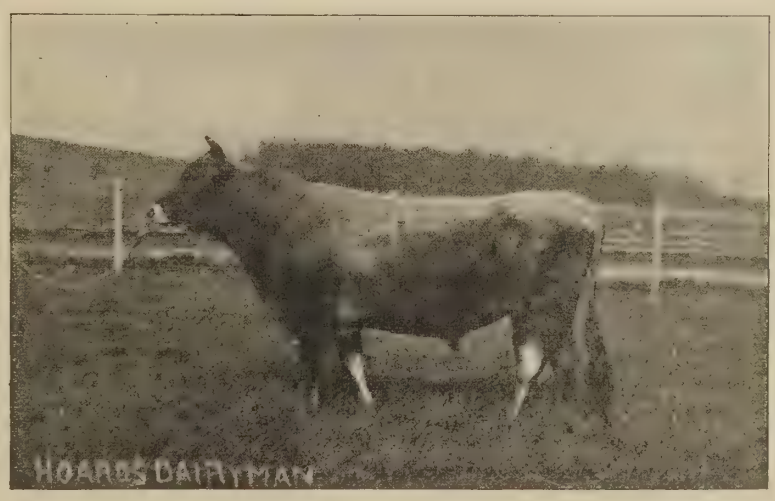
I had abortion in my herd for two and one-half years, and all the cows that were lame had aborted, except one; I have not had any cases of abortion within the last six months. I will tell you about my fight with that disease later. R. McF.

Quebec.



COUNTESS MATILDA A. J. C. C. 74928.

Property of Henry S. Redfield, Ithica, N. Y.



KING EXILE OF ALLENDALE A. J. C. C. 44942.

Property of F. B. Allen, Honeoye, N. Y.

LOW, UNPROFITABLE STANDARDS.

The Nebraska *Farmer* scores the patrons of creameries in that state who are so contented to sit down with a poor, unfit cow, and try to do a dairy business with her. The creameries, it says, are trying to work out their part of the problem nobly, but the farmers wallow in the mud of poor results, and don't seem to want any better cow than they now have. The *Farmer* takes the Schuyler creamery as an example. The facts analyze as follows:

"The various stations furnishing milk for the Schuyler creamery have a total of 89 patrons. Each patron receives on an average $12.52 for his milk product for a month, on the same basis $148.24 for the year. Assuming that each patron made one trip per day to the station, he received the beggarly sum of 42 cents per trip, and has been at the trouble of patronizing a creamery, and all the detail of keeping milch cows for a miserable product of 64 pounds of milk per day—a product which ought to be turned out by not to exceed three cows!"

In commenting on this low state of dairy knowledge and dairy results, a writer well says:

"This analysis of the dairy conditions under which the Schuyler creamery is working shows that with all but possibly an exceptional person, here and there, the dairy gospel has not been promulgated in the vicinity of Schuyler. Doubtless, one could find ten farmers in that community, working with all their energy to produce hog fat, worth 2¾ cents per pound, instead of butter fat, worth 17 cents per pound—forgetting that the surest way to get the hog fat is to run the pig industry as an accessory to a first-class dairy.

"A man with dairy sense, living in the neighborhood of the Schuyler creamery, on a 160-acre farm, can keep 30 cows in milk the year through. Each cow will produce 6,000 pounds of average milk. At the average butter fat content of 3¾% each cow should produce 225 pounds of butter fat. This, at an average of 13 cents per pound for the year (not 17 cents the September price) would be worth $29.25 per cow. The by-product of such dairy farm in pigs and calves would amount to $400 per year, making a total of $1,277.50.

"This estimate of the income from a dairy farm, accessible to a well managed creamery, is a commonplace yield that any farmer can reach. There are plenty of dairy farmers who are good managers, who would make an increased butter yield and extensive side products nearly double the estimated income given here. But this proposition in any form involves making dairying a business. The man or woman who will "go through the motions" of patronizing a creamery, or any kind of dairying, with a product worth only 42 cents per day, must have a small estimate of the opportunities a farm affords for business enterprise."

The reason these Schuyler patrons and thousands more like them are where they are is that they will not read up and grade up their own minds on this dairy question. Men cannot put ignorance in place of intelligence in the dairy business, and get profit out of it. As well think of sowing thistles and reaping wheat. It is simply a lack of dairy intelligence. Lack of dairy intelligence produces just such results down east in New York, or out in Nebraska, or here in Wisconsin. No matter where you see that kind of a man, or take a look at his cows, his farm or his milk receipts at the creamery, one can tell where he belongs, and just what ails him.

Forty restaurant and boarding-house keepers in Manchester, N. H., have been indicted for violation of oleomargarine laws.

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TO THE MEN WHO DON'T TAKE HOARD'S DAIRYMAN.

Mr. J. Moldenhawer, of Washington, D. C., is a highly skilled dairyman. He is engaged in producing the finest of milk for the highest paying demand. Mr. J. C. Jurgensen, of Brooklyn, N. Y., in writing to us in the issue of Sept. 23, concerning a visit he paid Mr. Moldenhawer, says:

"Mr. Moldenhawer is himself picking out Hoard's Dairyman before any other of the many farm papers he keeps, and he frankly says that your great paper is of high value to him. When a man with his reputation says so, how can the farmers who expect to make money by keeping cows for dairying, get along without the Dairyman. Still it is a very trying job to try to convince farmers how much it would help them to keep an extra good dairy paper."

What is the lesson that the above teaches? This: That no man who is keeping cows for profit can afford NOT to have such a friend and adviser as Hoard's Dairyman at his elbow every day in the year. Simply put a dollar bill in a letter with your name, post office, county and state plainly written on a piece of paper, and mail it to us, and secure the paper to Jan. 1, 1900.

THE oleo men never tire of telling how the people want their compound in preference to butter and a lot of Metropolitan newspapers echo the cry. All this talk is but a part of the general fraud and deceit which characterizes the oleo trade.

Here is an incident in Connecticut which illustrates the oleomargarine trade all over the country.

The other day, Dairy Commissioner Noble and Deputy Eaton went fishing after an oleo seller in Waterbury. In front of the grocery store stood a load of what appeared to be butter.

Mr. Noble stood outside to watch the team while Mr. Eaton went inside. A clerk stood by a tub of butter turned down in the usual way and was in the act of selling a pound of the stuff, at 25 cents a pound, to a woman who was in the store. As soon as the clerk saw Mr. Eaton he grabbed the tub of oleo and ran from the store, closely pursued by Mr. Eaton. He ran down an alleyway and into a livery stable, where the groceryman, whose name was McEvoy, kept his team and tried to have the keeper shut the door on the deputy. Mr. Noble had followed in the chase, Mr. McEvoy was found and all went back to the store. Here, McEvoy got counsel, pleaded guilty and without any formal trial paid $100 and costs, the maximum fine. The United States label had been torn from the tub and the store was selling the oleo as butter.

THE WISCONSIN CONVENTION.

THE Wisconsin Dairymen's Association held its 27th annual convention at Green Bay last week. The attendance was very good indeed, although not as large as was expected. This was due, in a large part, at least, if not wholly, to the excessive cold weather of the previous week which compelled a practical suspension of all work except the care of stock, and left an accumulation of other matters requiring attention.

Every indication prior to the first day of February was for one of the largest conventions in the history of the society and there can be little doubt that only the unseasonable weather, as above indicated, is responsible for the moderate attendance. As it was, every session was so well attended that neither the officers nor the speakers could complain for want of an appreciative audience. Every paper and address on the long program, including even the only half-promised address by Mr. H. E. Cook, of New York, (except one of the general addresses for Wednesday evening) was presented and called forth spirited discussion and there was occassional regret that there was not more time for these questions and answers.

The interest increased from start to finish so that, notwithstanding the meeting continued for three days, the unanimous verdict was that in point of attendance as well as interest, Friday afternoon's session was equal to any that preceded it. The intimate personal relations of the editors of the DAIRYMAN with the management and conduct of the convention forbid that extended comment which would otherwise be appropriate, and they consequently leave for others to apportion commendation or adverse criticism.

The secretary under instructions from the executive board and with their active co-operation, endeavored to present a program which should deal largely with the foundation principles of successful dairying. The technical details of creamery and cheese factory management were almost wholly relegated to the younger associations of butter makers and cheese makers and the dairy schools. Farm butter making, soil fertility, the necessity and utility of keeping records of each cow's product, the claims of the cow as a mother and foster mother, a silo census and resume of silo experience in a community where they have been used for several years, the value of skim milk, a review of the cheese industry in Wisconsin for the past year, barn building, sub-earth duct construction, the Wisconsin curd test, (for detecting impure and tainted milk), dairy observations covering the country from the lakes to the gulf and from ocean to ocean, women in the creamery, the relations of patron and cheese maker (Mr. Cook's address), and lessons learned from thirty years' experience making butter on the farm, were the subjects brought forward.

It goes without saying that practically every paper contained some reference to the specific, special purpose *dairy* cow, her feed and care, and the best means for increasing her efficiency as a producer of milk, butter and cheese, and it is confidently expected that the published report will prove of unusual interest and value. An effort will be made to get this report printed and distributed earlier than usual, but as this is a matter resting in the convenience of the state printer, specific promises in this respect cannot be given.

Following are the resolutions adopted:

Resolved, That this Association tenders its sincere thanks to the citizens of Green Bay for the gracious hospitality with which we have been greeted and supported in this most interesting convention.

Resolved, That the thanks of this Association are due and are hereby tendered to the several railroads of the state for the considerate tender of reduction of fare to all persons attending this annual convention.

Resolved, That we are much gratified that the new State Board of Agriculture of Wisconsin has recognized the dairy industry of the state with becoming liberality in premiums and intelligent comprehension of its importance.

Resolved, That we take pleasure in placing upon record our grateful appreciation of the courtesy of the Secretary of Agriculture of the United States, Hon. James Wilson, of Iowa, and his efficient chief of the Dairy Division, Major H. E. Alvord, in sending several packages of foreign made butter to be exhibited at this convention, so that comparisons could be instituted with that made in our own creameries and dairies. The exhibit was a constant center of attraction.

Resolved, Further, that we commend, without reserve, the continued intelligent effort put forth by the Secretary and the Dairy Division to bring the attention of the consumers of dairy products in Europe to the unquestionable merit of the better classes of butter and cheese made in this country, and especially do we approve his recommendation to Congress to provide for an official inspection and certification of exported dairy products.

Resolved, That the bill introduced by Hon. J. H. Davidson, of this state, and now pending in Congress, which provides for placing an internal revenue tax of 10 cents per pound upon oleomargarine or other similar compounds which are made in imitation of yellow butter should have the active support of all persons interested in the production or consumption of legitimate dairy products. The members of this association, individually and collectively, pledge their active and most vigorous support to the Davidson bill, until that measure shall become a law.

Resolved, That we commend the Dairy and Food Commissioner of Wisconsin for his efficient and faithful services in the execution of the laws of this state relative to the manufacture and sale of adultered and spurious food products. We fully indorse the commendations made in this behalf by the President of this Association in his annual address. It is not alone the dairymen, but every other citizen of the state as well is vitally interested in pure food legislation and its enforcement When an officer charged with such duties as devolve upon a Dairy and Food Commissioner has proven himself both efficient and faithful, we insist that every consideration of common prudence and sound public policy demands his retention in office.

Resolved, That we endorse and urge the passage of the bill now pending in the Wisconsin Legislature providing for an appropriation to the Wisconsin Cheese Makers' Association, and also for the printing of their annual report.

Resolved, That we urge the legislature now assembled at Madison to provide liberally for the Wisconsin Dairy school, so that it may accommodate more pupils and give instruction in additional lines of dairying.

Resolved, That renovated butter (which is old rancid and decaying butter that has been melted, churned over, resalted and recolored in semblance of fresh butter) is a product deceptive in character, inferior in quality and is of such a nature that its sale is dependent on deception. It is the emphatic judgment of this Association that the legislature now in session should pass a law providing that the manufacture and sale of renovated butter shall be regulated in such a manner as to advise the purchaser of its real character.

Resolved, That the Wisconsin Dairymen's Association most earnestly endorses the work which has been and is now being done by the National Dairy Union in its efforts to promote just laws in the National Congress and the several states for the protection of consumers and producers of honest dairy products. We therefore most heartily recommend the Union to the generous support of the dairymen of the state.

THE EXHIBITS AND SCORES AT THE GREEN BAY CONVENTION.

The Executive Board decided to withhold the butter scores made at the late dairymen's convention. The total number of exhibits was less than expected and the average score several points lower than usual, although from three to five points better than that obtained in other states, this winter. Daniel Bleuer, of Omro, won the sweekstakes with a score of 96 points and was closely followed by Messrs. Wiggington, of Hustler, and Hermanson, of Scandinavia.

The reasons for this lower average are not far to seek. Nearly all the butter exhibited was made during the preceding cold week, making it necessary to keep the cows constantly confined in the stables, very few of which are provided with any means of ventilation whatever; the delivery of milk to the creameries, for the same reason, was exceptionally irregular, and the detection of off-flavored milk doubly difficult; few, if any, creameries or dairies are provided with means for maintaining a uniform or proper temperature with the mercury ranging continuously from zero to thirty degrees below, for a week or more.

The judging was of the highest and most exacting quality, as it always should be, for these exhibits are as much for instruction as for winning prize money. The judge, on this occasion, Mr. S. Edward Davis, is the official scorer for the Chicago Butter Board and there can be no question as to his integrity or ability. Score cards will be sent to every exhibitor and these will disclose to each one exactly where the sample of butter exhibited was found deficient. If accepted for what they are, as candid and discriminating criticisms, they will be instructive in the highest degree.

The cheese exhibited proved to be of excellent quality, as the following scores show:

EXHIBITOR.	Flavor.	Texture and sock.	Color.	Finish.	Total.
	45	30	15	10	100
L. Havers, Tonet	45	29	15	9	98
F. Witting, Fontenoy	44	28	15	10	97
Wm. Zwicky, Vandyne	45	28	14	10	97
H. S. Beyer, Denmark	44	29	15	9	97
John Gallagher, Manitowoc	44	29	15	7	95
Cleveland Cr'y Co, Cleveland	44	27	15	9	95
P. H. Kasper, Nicholson	44	27	15	9	95
Hugh Nisbet, Woodstock	44	27	15	9	95
W. Nisbet, Hub City	44	27	14	10	95
A. Schoenman, Plain	43	28	14	9	94
C. Hahn & Co, Cicero	45	28	13	7	93
Peter Tonne, Appleton	43	27	14	9	93
H. F. Meyer, Greenleaf	42	27	14	7	90
H. F. Meyer, New Holstein	39	29	14	6	88
Average					93.9

Permanent Pastures.—Feed and Volume of Cream.

ED. HOARD'S DAIRYMAN:—I differ with you on your advice to the lady from Topeka, Kansas, on making permanent pasture. My experience and that of my neighbors is that when we sow oats with clover and alfalfa and let the oats get ripe, it robs the young grass or clover seedlings of so much moisture that they usually perish after the grain is cut. It may not be the case with you in Wisconsin, but our light, western soils are very dry just after harvest and seldom have enough rain at that time of the year to do any good, and I suppose Kansas is in about the same fix.

Last spring I put in ten acres of alfalfa and sowed one bushel of oats to the acre. I cut it with a mower, just when it was in the dough state, for hay. Had a light rain after it was cut, but still half of my alfalfa plants are dead. Two acres I sowed at the same time in calf pasture, with one bushel of oats and one of rye per acre; turned in eight calves after oats were one foot high; left them there all summer and now have a fine stand of clover and alfalfa. So after this, I will pasture my new seedings in place of raising a nurse crop for hay or grain.

Last spring, when pasturing on winter rye, my cows gave several gallons more milk per day than they had been giving on dry feed, and my cream came out of the separator one-third or more on this green feed than I had been getting on dry feed. Oil test at creamery ran down to 7 to 10 where it had been testing 12 to 13 on dry feed. After rye was all gone, I fed some hay and grain, as my pasture did not furnish quite enough green feed, then I got less cream in proportion to milk, but my test went up to 11 and 12 again. Now I have had the same thing happen a week or so ago. I had been feeding oat hay, all the cows would eat; four pounds cob meal and six pounds bran per day, and oat straw and corn stalks in field during the day. I changed off to early cut millet hay in place of the oat hay and I was surprised to see my separator get a spell again. Now I feed three pounds bran and seven to eight pounds corn and cob meal, and my cream is all right again, three gallons milk to make one inch cream; has the corn meal offset the slushy hay and made a change in the milk, or what can be the trouble? If you can answer this you will greatly oblige me.

On millet I got 11 pounds cream out of 40 pounds milk at one of my milkings, when I weighed before and after separating. I use a safety hand machine.

Wash. Co., Neb. H. G.

Yours is merely another illustration of the readiness of a cow to respond to changes in surroundings and feed. On changing from dry to green feed, cows will frequently show an increased yield of milk and a variation in the amount of cream. Slight physical changes in the milk (an increase or decrease in the viscosity) will frequently show marked changes in the quantity and quality of the cream layer; and of course as the volume of

A GRAND INCREASE.

We know as well as can be known, that HOARD'S DAIRYMAN is a most valuable friend and counsellor to any man who has to do with the Dairy Business.

We know thousands upon thousands of men have made money by following its advice in hundreds of ways.

We are having a "Grand Increase" this year, mainly through old and valued subscribers, who urge their neighbors to subscribe.

This paper is intensely practical. It is after practical results. It strives to lead men up out of costly, wasteful ways of dairying. The old subscriber realizes its value.

The man who is out of the fold ought to be benfietted as well.

SEND $1.00 AND TRY IT FOR ONE YEAR.

cream varies, the per cent of fat in the cream will undergo a corresponding change.

Brine Salting of Butter.

ED. HOARD'S DAIRYMAN:—I would like to hear from buttermakers who practice brine salting. How much salt they use, how they get it thoroughly incorporated with the butter, what temperature they work butter at, and everything that would interest a buttermaker? Also why is it that the overrun by Babcock test is less in winter than summer, when separator is skimming equally clean? Would like to hear this discussed fully.

Grove City, Pa. B. H A.

A Pennsylvania Herd Record.

Three Hundred and Fifty Pounds of Butter per Cow.

ED. HOARD'S DAIRYMAN:—During the year ending December 31, 1898, our herd of Jerseys averaged five thousand, eight hundred and eighty-four and thirty-six one hundreds pounds of milk, from which we made an average of three hundred and fifty and three-fourths pounds of butter. No account was kept of the new milk fed to calves and used in the family. AUSTIN LEONARD.

Bradford Co., Pa.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

RECLAIMING LOW CLAY LAND.

I have a lease upon a piece of ground that is a heavy clay and lays very level, no chance to drain the same. The water lies so long upon it in the spring that when it dries up it cracks open. I would like to know if anything can be done so I could grow something for the cows to eat. If you do not know, perhaps some of your subscribers do.

Payson, Utah. R. L. C.

We have known sink holes of this description, covering sometimes an acre or more of ground, reclaimed by sinking a well or pipe down through the clay to the porous soil beneath. Whether such a plan would work with our correspondent, or if it would, whether as a lessee he could afford the expense are problems we cannot solve. Possibly some of our readers can give further information.

DELIVERING MILK AND CREAM.

We have a creamery in our locality; most of the patrons deliver milk; we also have a few that deliver separator cream.

What per cent more would you allow the patrons that deliver cream, or in other words, what per cent is lost in skimming? What is the per cent of churn increase over the Babcock test? Please explain fully as we want to give each patron his just dues. E. S.

Millpoint, N. Y.

In receiving either milk or cream at a factory, credit should be given for exactly the amount of butter fat delivered by each patron; whether in the form of milk or cream.

You need not bother with the loss in skimming if you will use the Babcock test on the cream. There is no trouble in doing this if you will supply the creamery with the right apparatus, and then see that the testing is performed in a proper manner.

The *average* per cent of over run is 15 per cent, but it may vary a per cent or so either way from the average; as we have frequently stated in the DAIRYMAN, the most equitable method of pro rating is to weigh the butter and divide the proceeds according to the amount of fat delivered by each patron. In this way all calculations as to the over run or loss in churn and separator are obviated; although it does not prevent the necessity of care in preventing such openings for waste.

COWS, FEED AND SEPARATORS.

I thought I would write you about my cows and see what you think about it for a beginnning, or if you think I had better stop. We will start with two cows, No. 1 and 2, that were fresh some time in the fall of '97. No. 1 milked on until the middle of September '98; No. 2 milked until the middle of Nov. '98. No. 1 was seven years old and No. 2 was four years old.

The next that came in was a fourteen months old heifer, the middle of February, and gave about two gallons of milk per day most of the time up till fall and we quit milking her the first of December.

Next was a two-year-old heifer No. 4, that came in first of March and milked until the 15th of December. No. 5 came in first of May and we milked her till first of December.

I have sold, from January 1, 1898, to December 31, 1898, from these five cows, 1182 lbs. of butter, at 18 cents per pound, besides what my family have used, and there are six of us in the family, and have raised four nice heifer calves with the skimmed milk.

One of the calves will be fresh in April. What no you think about their being fresh at fourteen months old?

My feed is corn and cob meal at $18 per ton, and wheat bran at $18 per ton, mixed in equal parts, add pea vine hay and corn stover. Could you better the feed out of the above?

Do you think a separator would pay me? Will have eight cows to milk this year. Have been reading the DAIRYMAN for the last year. My cows are all high grade Jerseys. J. M. POWELL.

N. C.

You are evidently on the right road; careful feeding and testing, with a sharp eye for the sort of feeds used, will carry a man far on the road to success in the dairy.

Corn and cob meal and bran at $18 per ton, each, are too expensive to make up the entire grain ration when cotton seed meal can be had at much cheaper rate proportionally for the digestible nutrients.

Feed not to exceed three pounds of cotton seed meal per day and reduce the bran and corn and cob meal proportionally.

Fourteen months is much too early for a heifer to freshen. Twenty months would be much better and if you want your animals to have strong and vigorous calves, twenty-four months is better still. If you wish to obtain all there is in the milk, get a separator; certainly you will soon make up the price on the amount of fat saved, besides less labor and a better quality of skim milk for feeding.

WHAT IS MIXED FEED, ETC.?

Will you give me a balanced ration from the following? I feed in the morning early cut hay, clover mixed, at noon corn stover, and at night meadow or low land hay. I now feed 4 quarts mixed feed, 2 quarts cob meal, and 1½ quarts gluten (cream).

Mixed feed is selling for $16.50, cream gluten for $22, and can buy cotton seed meal for $23. My cows are small cows, grade Guernseys and Jerseys, with one grade Ayrshire. A. W.

Mass.

Why may not we sometimes turn interrogator? What is mixed feed? What is meant above by cob meal? What is early cut hay clover mixed? And what is low land hay?

We have not asked these questions with any purpose to reflect upon A. W., but simply to illustrate how difficult it is to write so that others may fully understand you. We quite often find ourselves skipping along too hurriedly. The thought is explicit enough to us, because we have all the conditions and exceptions before us; but the reader finds fatal gaps and omissions. May we not claim charity for these short comings on the plea that they result from a weakness to which all of us are more or less subject.

While we cannot predicate a formula on the information given above, we suggest to A. W. that the grain part of the ration seems to us about right as to weight. For cows fresh, or nearly so, the grain should not be less than one pound for each 100 lbs. of live weight in the animal, and the 7½ quarts, above specified, will probably weigh not far from 8 pounds. If under this feeding the cows are not gaining in weight, he may be sure he is not feeding too much, because no part of the feed is being turned into an unprofitable channel. Under these conditions, it would be well to increase the amount, a little at a time, and note the result. The extra feed will make itself apparent very soon, either in an increased yield of milk, or in an increase of live weight. If the former, it will probably be economical to continue the increased allowance; if the latter, no profit will ensue, unless the cows are now too low in flesh.

We consider that the cream gluten is now up to the maximum; hence the increase should be in the mixed feed or the corn and cob meal, or by adding some cotton seed meal. We should favor trying the latter; at first by adding say, one-half a pound to the daily allowance. If this proves encouraging after a few days, add a second half pound, and so on, as long as the increased flow of milk pays for the increase in cost of feed. Let there be a little salt every day.

THREE MISSOURI QUERIES.

Please answer the following through your columns:

1. Is skim milk worth 3 cents per gallon, for pigs?

2. Which is the most economical to be fed with corn and cob meal, bran $12 per ton, malt sprouts $9 per ton, brewers' grains dried, $10 per ton?

What is the most comfortable and cleanly stall for cows? Give directions.

Palmyra, Mo. G. V. S.

1. A gallon of skim milk will weigh approximately nine pounds—certainly not more, and only in very exceptional cases and for special purposes would it be worth the price named. At present prices for pork, it is estimated at about 15 cents per hundred pounds, or say 1½ cents per gallon.

2. The dried grains are somewhat cheaper than bran at the prices named, but they need to be well soaked before feeding, and this entails quite a good deal of extra labor. The malt sprouts, if of good quality, are also cheaper, but there is a limit (three to four pounds per day) to the amount of them that can be profitably used. Probably a combination of the three kinds of feed would give the best satisfaction.

3. There are many diverse opinions on this subject. We have illustrated many forms of stalls, and it is but fair to say that each has some distinctive merit, and possibly none entirely perfect. The "Scott" stall given in this issue, as will be seen, has at least one earnest advocate. Various modifications of this could be suggested, such as extending the partitions back to the gutter, making them either rigid or swinging, and putting a chain or rope across at the rear, and thus dispensing with the necessity for a tie.

LARGE COWS. LARGE YIELDS. LARGE RATION.

I have been a constant reader of your valuable paper for, I think, 5 years, and could not carry on a dairy without it.

Kindly advise me as to change you would suggest in the following ration. Cows fresh, giving 40 to 46 pounds daily, weight about 1,350 to 1,450 pounds.

Corn ensilage not very well eared, bran $14.50, gluten feed $16 per ton; ensilage 35 pounds, bran 7 or 8 pounds, gluten feed 5 pounds. All the clover hay they would eat up clean.

I desire large flow of milk at smallest cost. Sell milk. Would it be safe to feed 6 or 7 pounds gluten feed per day? C. D. A.

Howell, Mich.

We may say, in the first place, that we should not apprehend any danger from increasing the allowance of gluten feed to seven pounds per day, but at the same time we cannot see any necessity for doing so. The ration as now arranged carries an excess of protein, as the following figures show:

	Dry Matter.	Digestible Nutrients Protein.	Carbohydrates	Ether Extract
35 lbs. silage	7.32	.32	3.95	.25
10 lbs. clover hay	8.47	.68	3.58	.17
7 lbs bran	6.17	.88	2.70	.21
5 lbs gluten feed	4.61	1 42	3.39	.15
Totals	26.57	3 30	13.62	.78

Of course, these large cows, giving a liberal quantity of milk, must have a large ration, and we would rather increase than decrease the total amount. To that end we would substitute some corn meal for a part of the bran and gluten—say 2 pounds each—and then feed the grain with the silage. Do not make this radical change all at once, but take several days to bring it about. We are not at all certain that a change of this character will increase the flow of milk, or be otherwise profitable, but it might be tried with a part of the herd, and let the results govern future practice.

A PENNSYLVANIA RATION.

Please make a ration out of the following: Bran, $16 per ton; buckwheat middlings, $16; oil meal, $26, and corn and cob meal worth 20 cents a single bushel; clover and timothy hay mixed, corn stover and wheat straw. Also have some buckwheat, worth 35 cents, which I can get chopped. Would you advise feeding oil meal at price quoted, where neither ensilage nor roots are fed?

Pa J. P.

Corn and cob meal should weigh 44 lbs. to the bushel. If the other feeds produced a condition bordering on constipation, enough oil meal should be fed to overcome it. Otherwise it will not be needed.

FORMULA FOR RATION:	Dry Matter.	Digestible Nutrients Protein.	Carbohydrates	Ether Extract
12 lbs. mixed hay	10.30	.58	4.75	.19
10 lbs stover	5.95	.17	3.24	.07
4 lbs. corn & cob meal	3.56	.26	2.52	.14
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
3 lbs. bran	2.64	.38	1.16	.09
Totals	25.94	2.27	13.01	.71

Straw may be added in such amounts as the cows will eat, or substituted in part for the stover. The buckwheat is worth more to sell than to feed.

CREAMERY AND CHURN TEST.

There has recently been a creamery started here, where whole milk is delivered to creamery, tested and separated, and so much per pound paid for the butter fat obtained. A number of the patrons complain that their

test per cent, of butter fat, is not high enough. One customer, in particular, gets a test of 5% butter fat, while he has churned seven pounds of well worked butter from 100 pounds of milk, from the same cows and since his first test was made. What is the trouble? Are we, or are we not getting a fair test? A. P. R.

Mills Co., Ia.

Your letter contains but little data upon which to form an opinion. We would call attention to the fact that the phrase "well worked butter" is a very elastic term, and that a man who is comparing a churning with the test is sorely tempted, when it comes to the working of the butter. Seven pounds of well worked, marketable butter per hundred pounds of milk, would correspond to nearly 6% milk, which is exceedingly high for a herd, unless most of them are strippers. You do not say how often tests are taken, nor in what way. Samples should be taken every day, and tests made three times a week. Unless the cows are advanced in lactation, we would consider 5% an exceedingly good test.

BEGGAR WEED HAY.

I send you by to-day's mail a sample of hay called 'Giant Beggar weed." It grows well in this section of the county, and can be cut two or three times a year. Both cows and horses are very fond of it, while growing and in hay. Please let me know through the columns of your valuable paper what you think of it as a cow feed. J. H. P.

St. Francisville, La.

Beggar Weed, *Desmodium molle* is a plant belonging to the same family as the pea and clover. Very favorable reports have been received from the Gulf States regarding its use as a forage plant. It has to be seeded annually, will not stand much grazing, is a good fertilizer and not affected by drouth. It is best adapted to light sandy land, makes sweet nutritious hay readily eaten by stock. The analysis shows it to contain 17% of protein, showing it to be of equal value with clover, alfalfa and cow pea. Evidently a very valuable fodder plant for the Gulf States.

MOLDY ENSILAGE.

I did not get my stave silo finished in time and my corn was too ripe. Kept water running on while filling, have fed about half of it with what I have thrown out. It has been a dry mold all around the side and hangs together like fire fanged manure. It gets worse as I go down, extending to the middle. Would it do any good to put water in the silo if it gets much worse?

Townville, Pa. W. N. K.

If the silage is as bad as your letter would indicate it is too late to help matters, as the mischief is done. Besides which, spoilt or molded silage should not be fed, you run a greater chance of loss by sickness in animals so fed than you would gain by using up the spoilt feed.

A MICHIGAN CONDITION.

I have got along without your valuable paper as long as I can. Enclosed you will find $1 for subscription.

We are milking forty cows, mostly Jerseys. Weight about 1,000 pounds and have some Short-horns that weigh from 1,200 to 1,400 pounds.

I would like a balanced ration from the following feeds: Good corn ensilage, corn stover, all cut and in fine shape, cost $1.50 per ton, good clover hay at $5 per ton, Chicago gluten feed at $15 per ton, wheat bran at $14, corn meal $14, wheat middlings $12 50 per ton Ensilage and stover on hand. Balance of feed bought.

Ionia, Mich. A. M. W.

Of course we are very glad to welcome A. M. W. back into good company. It is one of the disheartening things connected with the publication of a paper like the DAIRYMAN to have subscribers fall out when their subscriptions expire. Probably there is as little of that with us as with any of our contemporaries, and hitherto the places thus made vacant have been filled at the rate of about two to one. While we welcome the new comers, it saddens us to part with old friends, and we wonder, as we see the names taken off the list, whether they have found the paper disappointing, and if so, in what particulars. Of course, we cannot expect to please everybody, but we try as much as in us lies to make a paper that everybody can make profitable. It is somewhat singular, but it is a fact amply attested by our subscription books that it is not the prosperous dairymen who fail to renew year after year. We are therefore persuaded that those who do find the DAIRYMAN disappointing are very largely of the class who for one reason or another condemn its teachings without putting them to the only effectual test of a thorough trial. If there are any such who chance to read this item, we beg of them, to put aside prejudice and inherited opinions and give the suggestions we offer, as far as they may be applicable to them, a fair trial.

We suggest to A. M. W. the following for trial:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. stover	5.95	.17	3.24	.07
5 lbs. clover hay	4.23	.34	1.79	.09
3 lbs. bran	2.64	.38	1.16	09
5 lbs. gluten feed	4.61	1.02	2.42	.15
Totals	24.03	2.24	12.11	.58

Add to the above with each cow, more clover hay, up to the limit of her appetite.

MAKING UP MILK IN THE CHEESE FACTORY.

We want a cheese maker. We are a stock company; will have about 400,000 pounds of milk next season. State how you would make by the hundred or by the month. T. B. R.

Roberts, Minn.

You can get a cheesemaker very easily by putting a want ad. in the columns of the DAIRYMAN. We should make neither by the month nor hundred, but by the amount of cheese actually made, and then divide the proceeds according to the amount of butter fat delivered to the factory by each patron.

AN ILLINOIS RATION.

With clover hay $4.00, corn stover, no salable value, ear corn $7.00, oats $15.61, bran and middlings $13.00, how shall I feed my cows for most profit? My milk goes to a condensing factory, and I am prohibited from feeding oil meal and silage.

Illinois. SUBSCRIBER.

Try the following for an average:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay	12.70	1.02	5.37	.26
8 lbs. corn stover	4.40	.14	2.59	.06
6 lbs. bran	5.29	.75	2.32	.18
4 lbs. corn meal	3.52	.32	2.67	.17
Totals	25.91	2.23	12.95	.67

For best results the stover should be run through a cutting box, dampened sufficiently so that when lying in a pile for 24 hours it will warm up very sensibly and soften more or less, and the grain be mixed with it for feeding. Add a little salt with every feed.

FOR A MASSACHUSETTS MILKMAN.

I am engaged in the milk business, in a small way, with the best scrub cows that I can get. We do not keep cows more than two or three years, getting what we can, and then let the butcher have them. I would like to have clean registered Ayrshires, but they cost too much for this market.

Please give me feed ration for my cows. Rowen hay, clover and corn stalks, shorts, meal, brewers' grains, dry.

Also for calves, two one-year-old, two six and eight months. Would you advise to have the year olds come fresh this fall?

Taunton, Mass. W. W. S.

Where cows are kept as above, with the view of getting all the milk possible for a year or two, and then turning them for beef, we know of no better rule for feeding, than to give them first, all the grain they will eat—increasing always only gradually—and then letting them have what roughage they crave. We would make the grain part of the ration, about one-half dry brewers' grains, and the balance equal parts, shorts and meal, all by weight.

Calves and young things should always be fed as they may need. If they can have plenty of the rowen and clover hay, they will need little or no grain. What they do have, may be the same mixture as above. Do not give them so much as to make them fat. The dairy calf is the future cow, and just as sure as she takes on the fattening habit when young, it will follow her all through life to a greater or less degree.

The best age for a heifer to drop her first calf is 24 months.

The Dual-Purpose Cow.

No. 2.

ED. HOARD'S DAIRYMAN:—The first article of my creed as published in the preceding paper makes it as clear as noonday that there is no difference of view between dairymen and myself as to the mission of the straight dairy cow. Why then do many dairymen persist in writing as though I were in an attitude of antagonism to the dairy interest? True charity should lead to the conclusion that those who have criticized me thus in the DAIRYMAN in the past, have done so, I shall not say ignorantly, but from lack of apprehension, and not with any design to misrepresent. But if the same spirit shall appear in future criticisms, after what has been said in this paper, it will not be uncharitable to say that they are made with the deliberate design of injuring, and to look upon them as emanating from their father the prince of all evil.

And in passing, I must say that I do not agree with all dairymen as to the ideal type of the dairy cow. I believe that many of them are carrying the idea of both narrowness and leanness to an extreme, and that some day, not far off, a heavy penalty will be enacted because of the extreme to which both ideas have been carried. But this point is not relevant to the subject that is being discussed.

The extremest type of beef cow is not usually a good breeder, nor is she a good nurse. Those then who breed this cow should, it seems to me, be content with high attainment in beef production, and therefore should not push the extreme beef form to the extent of injuring the powers of reproduction. Now, this cow must practically produce all the beef that is wanted to feed the millions of the Nation, on the assumption that there is no place for the dual-purpose cow. This she cannot do unless she is kept and numerously kept, on arable farms. The best authorities are agreed that the palmiest days of open ranging are a thing of the past. They believe that cattle production is decreasing on the range, and that it will still further decrease, because of the encroachments of the sheep industry. While the view thus expressed is doubtless correct, I do not expect to see cattle production decrease to any great extent in the range country, since the mountain valleys are being made to produce much food for live stock through the aid of irrigation. But it is pretty certain that cattle production cannot be greatly increased on the ranges, because of the influence of rapidly increasing bands of sheep upon the pastures. And it is equally certain that our population is increasing very rapidly. Whence then is the additional beef to come from that is wanted to feed those coming millions? The second source of beef supply is the pastoral farm. But it is fair to infer that pastoral farms, like the ranges, are stocked to their full capacity. The only place, therefore, from which these supplies can come is the arable farm.

This brings up the question: How shall beef be grown on the arable farm? All will concede that it can come from two

Swollen Neck

Also Had Great Difficulty With Her Heart—How Cured.

"My daughter had a swollen neck and also heart trouble. After the least exertion she would breathe so hard she could be heard all over the room. She could not sweep the floor or even move her arms without affecting her heart. Her limbs were badly bloated. Her father insisted that she must take Hood's Sarsaparilla, and we gave her about six bottles, when she was cured, and there has been no return of her ailments." MRS. EMMA THOMAS, North Solon, Ohio.

Hood's Sarsaparilla

Is the best—in fact the One True Blood Purifier. Sold by all druggists. $1; six for $5.

Hood's Pills easy to buy, easy to take easy to operate. 25c.

Gilt-Edge Butter

is the only money-making kind. But to make it, and the most of it, you must use the latest improved machinery. It is just this sort of product that has built up the demand for our

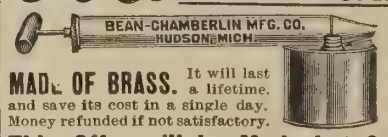


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They get all the cream from the milk and leave it in the best condition for churning. Lightest running and simplest in construction. Our catalogue will tell you why.

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Renters, farmers' sons and farmers burdened with taxes, mortgages, impoverished soil and crop failures may secure **free homesteads** of 160 acres in the Canadian West, the land of No. 1 Hard Wheat, 25 to 35 bushels to the acre. Lowest railroad rates; special advantages to prospectors. The best grain and cattle country in the world. Good water, low taxes, abundant fuel. The Minnesota editors, who recently made the Western Canada trip, speak of it as the home for small farmers. The official report says: "To the small farmer seeking a new home Western Canada offers great inducements. While it seems a long way north the Canadian Pacific Railway line is far south of Edinburgh, the climate is that of Northern Minnesota, and the land raises splendid and sure crops." For maps and full information apply to Supt. Immigration, Ottawa, Canada or to

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sources, that is to say, from the beef cow or the dual-purpose cow. Now to the writer it is evident that it cannot come from the straight beef cow without much relative loss to the farmer. In other words, beef cannot be grown on the arable farm from the straight beef cow that will bring the farmer as high a return as he will get from his dual-purpose cow in meat and milk. The return will not be nearly as much from the straight beef cow as from the dual-purpose cow. The former will, of course, produce but one calf per year.

Now suppose that the calf weighs 750 pounds at the age of one year, which is a good average weight, and that it sells for $4.75 per hundred in the market, which is probably a fair average price for such meat. The entire return from the cow during the year will be $35.63. That is all that the owner gets from feeding that cow and calf for one year. It is clear, therefore, that he makes but little profit. The dual-purpose cow will produce a calf that will weigh, at least, 700 pounds at one year, and that will sell for $4.50 per hundred. The calf then is worth $31.50 in the market. But the cream from the cow will bring in a return of $30 additional. The return for the season, therefore, from the dual-purpose cow is $61.50, as against $35.63 from the straight beef cow. The comparison is, I think, a fair one. Of course, the extra labor is not to be lost sight of.

Now remember, please, that I have been speaking only of good averages. Let no man seize upon those figures as representing my views of the highest possible production from the dual-purpose cow. Are we not therefore shut up to the conclusion, first, that the additional beef wanted to feed the increased millions of the nation must come chiefly from the arable farm; and second, that it must come chiefly from the dual purpose cow on the arable farm? Why then should I be held up to ridicule for advocating the cause of the dual-purpose cow?

Wherein I ask will such advocacy injure dairymen? Push the idea that there is no dual-purpose cow to its utmost limitations. Grant for the time being that every farmer accepted that view, what, in time, would it mean to the dairy interests? It would mean that only straight dairy cattle or straight beef cattle would be reared on the arable farm. Now, the beef grower with his sole return of $35.63 for his cow during the year and the food fed to the calf would be no match for the intelligent dairyman. Dairymen would ultimately possess the arable farms of this country. Could a worse calamity come upon the dairy interest? What would they do with their products? In the light of reason and self interest, from the standpoint of prudence, and in the face of unanswered, and I think unanswerable demonstration, would it not be better for the dairyman manfully to concede that there is a place for the dual-purpose cow upon our farms? And then would it not be wise for them to adopt the motto as they meet the owners of those cattle, "Let there be no strife between thee and me and between my herdmen and thy herdmen, for we are brethren" THOMAS SHAW.

University of Minnesota.

Peas and Oats.

ED. HOARD'S DAIRYMAN—I see inquiries about peas and oats. I raised seven acres in 1898, and will say that I think that there is no hay that equals it. I sowed one bushel of Canada field peas to the acre on plowed, not fitted ground, then fitted the ground and sowed two bushels of oats. I cut in the milk, and cured in the cock. All the fault I have to find is, that the mice like it as well as cows and horses. It has a large per cent of protein, and I think it is a splendid feed to help make a balanced ration of corn fodder. I live forty miles east of Cleveland, Ohio. H. J. C.

Iona, O.

Some More Silo Experience.

A Sack Chute in the Silo.

ED. HOARD'S DAIRYMAN:—In "A Silo Experience," page 1035 of HOARD'S DAIRYMAN, the writer says that in filling his silo, the man that did the tramping "kept the sides one to two feet higher than the center—the spreading being done after cutting one or two loads" He says that "the silage molded wherever the man stood any length of time."

There is a funny side to many things in life. In reading this experience, it seemed a little funny that a man should stand so long in one place that the silage would mold—tend to decay—or his feet were so foul that the germs multiplied so rapidly as to affect the silage. At least we must insist that the man who did the tramping is responsible for the trouble.

We have been putting up silage for five years past and have had no such experience with the men we employ. Much, however, depends upon the spreading and tramping of the cut corn.

We employ two men to spread and tramp. One of the men does the spreading as follows: Two years ago we took large gunny bags, ripped the bottoms open and basted the ends of the bags together with coarse wrapping twine, until we had a bag chute long enough to reach from the end of the carrier to within two or three feet of the bottom of the silo. By fastening one end of the bag chute over the top end of the carrier, the cut corn silage was passed down through the bag chute—the heavy and light—silage mixed well together, and delivered wherever wanted by one of the men, who passed around holding the bag chute so as to deliver evenly over the silo, keeping the surface as near level as possible. The man manipulating the bag chute was all the while moving—tramping the silage. As the silo filled up, a bag was ripped off and thrown out, and so on until the silo was filled to within five or six feet of the top. The other man in the silo gave special attention to tramping the outer edges and corners of the square silo and outer circle of the tub silo. We have found that the keeping of the silage depends largely upon the even mixture of the heavy and light together and the most faithful tramping of it. The use of the sack chute does the mixing so perfectly and so easily, that we are made happy in the use of it. The silage in our tub silo, filled as above described, keeps perfectly to the staves. In our square double walled silo, the ensilage does not keep well in the corners. We are able with the sack chute to pack the silage more evenly and thus add to the better keeping of the silage in the corners, but we have some loss yet. In the use of the two kinds of silos, we have this to say: We can build a tub silo of 100 tons capacity for less than $100, or at almost quite half the cost of a square, double wall silo, and the excellent quality of the silage in the tub silo (in this climate) will be most satisfactory indeed, compared with the ensilage in the square silo. Much of the ensilage in the square silo will be very good, yet that in the corners, and sometimes running along the sides three, four or five inches into the silage in places, is a disappointment. Filling with a bag chute and thorough tramping will save most of the loss, but not all of it.

We have it in mind to put up another tub silo the coming summer as follows: Scrape off the top soil, until the earth is firm, and spread gravel four or five inches deep over firm earth. Pack the gravel and coat over the top with cement 1½ or 2 inches thick and set staves on the cement, coat the outside of the staves a foot or so high with coal tar, then back up with cement against the staves at the bottom outside, two or three inches in thickness, then coat the cement with tar thoroughly to keep the water from running down to the bottom of the staves. The size of the silo will be sixteen feet in diameter and twenty-four feet high.

We use 2×6 inch hard pine lumber center matched and milled so as to make a tight joint when set in the required circle. Lumber required, board measure 2,500 feet; cost, $2.40 per hundred matched, $60 ready to set up. Iron hoops three-fourths rods, estimated cost, $15; foundation, $5; expense of setting up, $10; total cost $90; estimated capacity, 90 tons. We intend to use it without any cover. Why not? A foot or more of the silage on top will spoil at best. Without a roof, we can pack the top silage so much better, that it will save a ton or more of silage. We intend, however, to feed it out first, beginning about the middle of October. A little rain on the top, as we look at it, will not damage it.

J. J. W. BILLINGSLEY.

Indianapolis, Ind.

IS YOUR HAIR TURNING GRAY?

What does your mirror say? Does it tell you of some little streaks of gray? Are you pleased? Do your friends of the same age show this loss of power also?

Just remember that gray hair never becomes darker without help, while dark hair rapidly becomes gray when once the change begins.

Ayer's Hair Vigor

will bring back to your hair the color of youth. It never fails. It is just as sure as that heat melts snow, or that water quenches fire.

It cleanses the scalp also and prevents the formation of dandruff. It feeds and nourishes the bulbs of the hair making them produce a luxuriant growth. It stops the hair from falling out and gives a fine soft finish to the hair as well.

We have a book on the Hair and Scalp which you may obtain free upon request.

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No Bolts to get Loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists.

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ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

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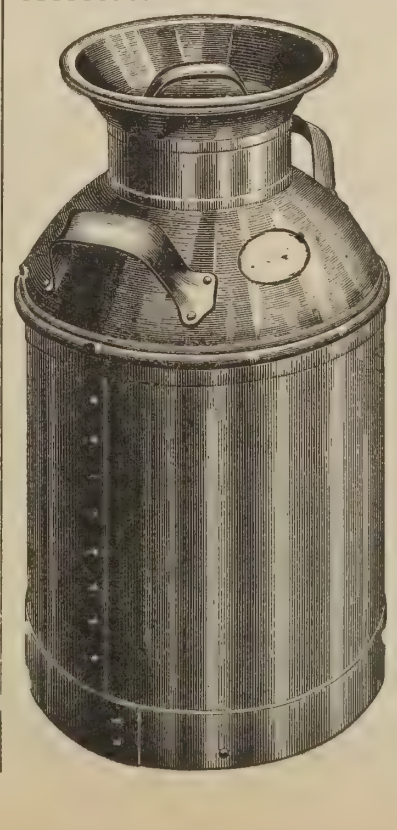


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CORNISH, CURTIS & GREENE MFG. CO.,
FORT ATKINSON, WISCONSIN.

An Ontario Opinion and Query.

ED. HOARD'S DAIRYMAN:—We are behind I believe with our subscription, but I am sure it is very kind of you to continue our paper. You have passed sound judgment on us, knowing we couldn't get along without it. I appreciate its pages very much, and find it indispensible to profitable dairying. I have a herd of A. J. C. C. cows and am making dairying pay, partly due to the practical and sound knowledge I find in the DAIRYMAN. I endeavor to convince my neighbors that they cannot afford to be without it. I miss nothing published in it.

I would like a ration compiled if you please. Corn ensilage, (well eared) clover and timothy hay, mixed and well cured, good oat straw. Have some cotton seed meal on hand, 500 or 600 pounds. Can buy bran at $14.00 per ton and kiln dried feed at $12.00 per ton and gluten meal at $14.00 per ton. These two latter are that which is left after extracting glucose and starch from corn at a starch factory. This kiln dried feed is the wet stuff dried. Is this gluten feed. Cows are A. J. C. C. Jerseys, mostly fresh I want to feed some straw each day. I am feeding ensilage and grain in morning; soon as eaten, some of the mixed hay; at 4 o'clock the cut straw, and on this ensilage and grain, which only means twice a day. Cut all the straw for all purposes.

Winchester Springs, Ont. S. S. & SON.

Although our general rule is to stop the paper about the second week after the subscription expires,—yet there is a constantly growing list of persons, who, in one way or another, have indicated a desire not to have their names removed, and to them the paper is forwarded until notified to the contrary.

We thank the writers of the above communication, for their kind words of appreciation, and commend the opinion they express, to the candid consideration of others who may be seeing a copy of HOARD'S DAIRYMAN for the first time, or have read several numbers without finding satisfactory evidence of its adaptibility to their wants. It may sometimes happen that a reader is as much at fault as the paper.

In reply to the feeding inquiry we have to say, that we suppose the "kiln dried feed" referred to is, in fact, "gluten feed," and we suspect it does not differ, materially from the alleged gluten meal. Gluten meal, of good quality, is not usually sold at $14.00. We have often described the difference between the two, consisting in the presence or absence of the corn bran. There is no other distinction that we know of, and this makes the meal more highly concentrated, and necessitates the use of more bran or some other diluent.

We suggest as a fair general average the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage.....	5.28	.26	2.80	.14
10 lbs. mixed hay....	8.58	.48	3.96	.16
5 lbs. straw.....	4 44	.06	1.93	.04
6 lbs. gluten feed....	5.53	1.22	2.90	.30
3 lbs. bran.....	2.64	.38	1 16	.09
Totals.....	26.47	2.40	12.75	.73

While the cotton seed meal lasts, let two pounds of it take the place of three pounds of the gluten feed, and we should invariably mix the grain and the chopped straw with the silage. The amounts of silage and hay may be increased and decreased interchangably to accommodate the amounts on hand.

Chicago Milk Supply.

ED. HOARD'S DAIRYMAN:—January has passed and with it another settling day for the Chicago milk shipper. A canvass among milk shippers shows the prices paid per eight-gallon can varied from 80 cents to $1. While there were some who only received 80 cents, and some who received a dollar; perhaps it would be closer to the correct figure to say that most of the shippers received 85 to 90 cents. This is about the same as January, 1898, although butter is about one cent less than a year ago.

The December report of the Chicago Department of Health is at hand, and it shows that during the month there were 1,588 analyses made of milk and cream of which 162 were tagged "skimmed milk," and 655 were not tagged, therefore sold for whole milk. Of the latter, ninety-three were below grade. Out of 432 samples of cream, thirty-six were below grade. The per cent of samples of milk and cream below grade was 9.13. Of the 1,588 samples analyzed, 339 were brought to the laboratory by private individuals; the remainder, 1,249 were collected by the Milk Inspectors. We might add that the samples below grade 9.13% is rather high for the winter time and especially so when we remember that the Department has made a showing of less than 4%.

It might be interesting to those who are following the question of tuberculosis, to state that during 1898 there were 22,793 deaths in Chicago and of these, 2,829 died of consumption or other tubercular diseases and 2,856 died of pneumonia and other diseases of the respiratory system. Nearly one-quarter of the deaths which occurred in Chicago during 1898 were from lung troubles.

We do not undertake to say that all these deaths are due to cows having tuberculosis, but the percentage of deaths from this cause is large, and we do say that all who eat the flesh of tuberculous cattle are taking a risk and expose themselves to the disease.

Some time ago we had the pleasure of listening to Mr. H. B. Gurler, of DeKalb, Ill., make an address in his own characteristic style, on the Mistakes on our Dairy Farms. While it would be hard to pick out from that address the most important subject, yet there was one point on which he touched, which gave us some definite information. He spoke of noise in the dairy, and read from "The Dairy", London, England, an article which said that a certain farmer bade his hired men turn the cows into the yard and go in among them with sticks and dogs and drive them around in the yard, as some of his neighbors were in the habit of doing, when putting their cows in the stalls. The result of this experiment was that the flow of milk was diminished so that the quantity received was worth 50 cents less than the previous evening.

This statement brought another from a farmer in the audience, who also kept a record of his dairy and found that a steam fitter working in the barn near the cows, caused a shrinkage in the flow of milk.

Personally we like to treat a cow as we would a well bred horse. And, if, when we try to drive her, the cow kicks up her heels and runs, we do not think it any more strange than if a horse would do the same thing.

A halter is a good and safe thing to have on a cow when you want to take her into any new or strange place. They soon learn to lead, in fact calves should be accustomed to it, and when once broke, one man can take a cow almost any place.

Mr. Gurler further reported that the cow in his herd, which did the best in 1898, had made a yield of about 415 pounds of butter.

Chicago. THE INSPECTOR.

Bone Meal for Abortion.

ED. HOARD'S DAIRYMAN:—Seeing the article in Jan. 13th and Feb. 17th on abortion, I would venture a suggestion in accordance with my own experience. While working in a dairy of over 107 cows, for over five months there wasn't a full time calf born, and over two-thirds of them came fresh during that time. We decided, upon watching the actions of the cows, thinking they lacked some substance, and perhaps it was bone, so we gave them bone meal with immediate and perfect results. Not only that time, but have personally seen it tried three times since—the theory being the cows being fed on high, concentrated food and much stabling, do not get bone substance enough; anyway it did the work. F. C. BAKER.

Caution—The market is full of imitations, represented to be the same as **BROWN'S Bronchial Troches** of Boston

The Genuine has the Fac-Simile Signature of John L. Brown & Son on every box.

Gluten Feed

will increase the flow of milk—improve the quality, and keep your cattle in the best possible condition. Please note following comparative figures:—

Corn Meal contains 9% Protein, or 180 pounds milk producing material per ton.

Wheat Bran contains 15% Protein, or 300 pounds milk producing material per ton.

GLUTEN FEED contains 26% Protein, or 520 pounds milk producing material per ton.

This statement can be verified by your State Agricultural College, and proves conclusively that for the money invested **GLUTEN FEED** is the cheapest feed for you to buy.

Ask your feed dealer for **GLUTEN FEED.** If he does not keep it in stock, write us his name We will communicate with him immediately. At any rate don't fail to give **GLUTEN FEED** trial. It will certainly help you lessen the cost of milk production.

Write us addressing Department E for circular, illustrating the "Value of Butter Fat in Milk," just issued. Yours truly,

THE GLUCOSE SUGAR REFINING CO.,
The Rookery, CHICAGO, ILL.

FINE FRESH GROUND

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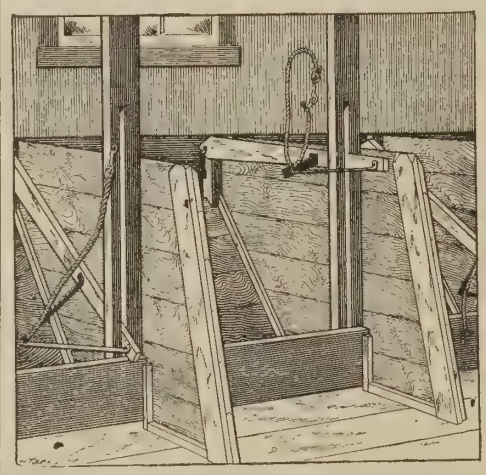
In Bulk	$1.00 per Ton.
In American A Grain Bags	2.45 per Ton.
In Stark A Grain Bags	2.70 per Ton.

Farmers may combine and order together.

Loaded on cars at our Mills at Grand Rapids, Mich.

Fifteen tons the least that can be shipped. Special Freight by Car Ferry to Milwaukee of **Five Cents per 100 lbs.** Our large stock enables us to ship promptly. Cash must accompany order.

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DEVICE for FASTENING COWS, on the market. Send for circular.

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No. 717 Canopy-Top Surrey, with double fenders. Price, complete, with curtains all around, storm apron, sunshade, lamps and pole or shafts, $68; as good as sells for $100.

WHY NOT SAVE IT?

When it comes to buying a vehicle of any kind you may just as well save all the money in the transaction above the manufacturer's price. No need to pay added commissions and expenses of traveling salesmen, middlemen, dealers, agents, etc.

WE HAVE NO AGENTS

but sell direct from our factory at wholesale prices. We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.

IN VEHICLES WE MAKE

Rockaways, Surreys, Traps, Phaetons, Stanhopes, Driving Wagons, Top Buggies, Open and Top Road Wagons, Spring Wagons, Delivery Wagons, Milk Wagons and Wagonettes. In harness we make either single double harness suitable to all the above vehicles and heavy team use.



No. 77—Single Surrey harness $16, good as sells for $25

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We supplied the U. S. Government with all the low wheeled, broad tire, short turning trucks they used in the Cuban war.



We sell direct to farmers. A postal card brings our catalogue telling you all about it.

We can give you wood or metal wheel wagons, or METAL WHEELS FOR YOUR OLD FARM WAGONS.

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Saginaw, Mich.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

HILLSIDE HERD

French Canadian Cattle

A few choice young bulls for sale.
C. E. COLBURN, - - Portlandville, N. Y.

Facts Confirm Opinions.

See Page 1051 Last Volume.

ED. HOARD'S DAIRYMAN:—I was somewhat surprised in seeing the cut of our four Holstein cows, that you had to regret that the records were not to hand, as I sent you under separate cover, some time ago, some particulars. As you are good enough to say the records would be interesting and instructive, I send you the same from which you can take whatever data you may find space for.

The cow in the right center, of which you say "it is practically impossible to find any fault with her in any particular," is the great public test winner, Calamity Jane, winner of sweepstakes in Provincial dairy test 1895, 1896, 1897, and 1898. Record in public test, 85 pounds milk in one day; 166½ pounds milk and 19.31 pounds total solids in two days, which we believe to be the highest record for that sort of race. You will see by enclosed print, she has given 100 pounds of butter, 80% fat, in thirty days—most of this time tested by members of O. A. C. staff.

The white cow is Winnie R., record 17,502 pounds in one year. Next is Daisy Teral 2nd, the heifer that made in the two days' test, 134½ pounds milk testing 3.2% fat, or 4.306 pounds butter fat. Next is Calamity Jane, and on the right outside is Lady Pietertje's Konigen, winner of 2nd in the Provincial test, first prize cow, London 1897.

These four cows made in Provincial test, in two days, 60 pounds total solids. The four best Jerseys made 30 pounds total solids, and four best Ayrshires, 30 pounds. They were not made screw ended for nothing.

Curries Crossing, Ont. A. J. G. RICE.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 7,980 pounds. Two lots amounting to 1,260 pounds remained unsold, and 6,720 pounds were sold at 22 cents. The Quotation Committee declared the market active at 21 cents.

The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Shabbona	2,160	22c.
East Burlington	480	"
Red Clover	1,200	"
Brooklyn	1,680	"
Oregon	600	"
Syene	600	"
Total	6,720	

The Board passed a resolution declaring the bills touching the dairy interests, now before the Illinois House and Senate, to be of the utmost importance to the farmers of the state, some 40,000 of whom are represented in a business way by the Board, and calling upon every Senator and Representative from Northern Illinois to give support to the passage of these measures, preserving them intact in their original provisions, particularly as to appropriation, which is too small, if anything, for the necessities of the state.

The markets for the corresponding week of the three preceding years were as follows:

Feb. 21, 1898, 9,180 lbs. of butter sold at 20c.
Feb. 22, 1897, 48,180 lbs. of butter sold at 18c.
Feb, 24, 1896, 68,160 lbs. of butter sold at 20@21c.

The New York market, Monday, was reported steady at 22 cents. H. C. B.

Illinois, Ill., Feb. 20, 1899.

CONCERNING OUR ADVERTISERS.

TEST OF DAIRY MAID OF ST. LAMBERT 112483.

ED. HOARD'S DAIRYMAN:—Dairy Maid of St. Lambert 112483, dropped February 14, 1895, dropped her last calf—a heifer—September 9th, 1898. For the seven days ending September 16, 1898, she gave 243 pounds, 12 ozs. of milk that churned 16 pounds, 12⅓ ozs. of butter, salted 1 oz. to 1 pound, and worked ready for market, Dairy Maid of St. Lambert 112483 is a model dairy cow. She is sired by Ida's Rioter of St. Lambert 13656, sire of twenty-eight tested daughters. She is out of Ingleside, test 20 pounds, 4⅓ ozs, and she out of Gypsy's Pride 2nd, test 27 pounds, 12 ozs. A. J. KINDBERG, tester.

Lone Tree Stock Farm, Greensburg, Ind.

We should not like to farm without an "Acme" Harrow, Clod Crusher and Leveller. If we could not buy one without borrowing we should borrow, though borrowing goes against the grain. In plain farming the "Acme" is almost indispensable; in gardening and trucking is quite so, It will be sent on trial, to be returned at the manufacturer's expense if not satisfactory.

SAVING MONEY ON CARRIAGES, IMPLEMENTS, ETC.

Fair dealing for nearly thirty-five years entitles a business house to the confidence of any community. The one merit of consistent fair dealing that has belonged to the house of John Dorsch & Sons, of Milwaukee, Wis., for a third of a century, would be enough to explain why they have grown great from small beginnings and why farmers who buy from them once continue the practice year after year The new catalogue for 1899 and 1900 gives further hints as to the causes of the firm's success, because an experienced buyer sees at a glance that the carriages, wagons and farm implements which it illustrates and describes are goods of honest merit, sold for exactly what they are, with the privilege of returning anything that is not exactly as represented, and the prices are low. Messrs. Dorsch & Sons base their low prices on improved business methods, selling goods direct and saving the heavy expense of agents or retail dealers' commissions. Everybody who has need of carriages, wagons or farm implements, should write for a copy of this catalogue of John Dorsch & Sons.

DAIRY MARKETS.

ELGIN, Ill., Feb. 20—Butter—Active; offerings, 133 tubs; sales, 112 tubs, at 22c; official market quotations, 21c; butter last week, 22c; one year ago, 20c.

CHICAGO, Ill., Feb 20—Butter—Creamery, extras, 21@21½c; firsts, creamery, 19@20c; seconds, 14@15c; dairies selected, 18c; No. 1 15@16c; No. 2 13c; extra ladles, 14c.

Eggs—At mark, cases included, 23@23½c and cases returned 22½@23c; seconds 2.50@3.00 per case; frozen 10c per dozen

Cheese—Full cream Twins, good to choice, 10@10¼c; Cheddars, 9¾@10¼c; Young Americas, 11c; Swiss, 10@12c; Limburger, 8@10¼c; Bricks, 8½@10½c.

Cattle—There was a big run of cattle, yet "good" native steers were very scarce. Strictly prime 1,400-lb. steers would bring $6, yet the best cattle offered, 61 head of 1,585-lb. Westerns, sold at 5.65. The top a week ago was 6.10 and a year ago 5.60. Straight Texas steers sold as high as 4.75 against 4.30 a week ago, and 4.35 a year ago. The 4.75 Texas were strictly choice. About 2,300 Texas were received, being the largest run of the year. They sold about 10c lower than last Friday at 3.50@4.75; bulk, 4@4.50. Native steers sold steady to 10c lower at 3 70@5 65, bulk 4.50@5 20; fed Western steers, 4 15@5.45; native cows sold at 1.50@4.25, bulk 2.60@3 50; heifers 2.60@4 50, with two loads of fancy 1,355-lb Westerns at 5.10. Native bulls sold at 2.80@4; stags, 2.75@4.35 and feeding cattle, 3.40@4.65. A load of 1,707-lb distillery fed oxen sold at 4.65.

MILWAUKEE, Wis., Feb. 20 Butter—Creamery, extras, per lb. 20½@21c; firsts, 18@19c; seconds 16@17c; imitations, 16@17c; fresh dairy, good to choice selections, 16@17c. Market lower and quiet; supply fair

Cheese—Full cream Twins, per lb. new, 10½@11c; Brick, 10½; Limburger, 9½@10c; Swiss, 10½@11½c.

Eggs—Fresh per dozen 23@24c. Market again higher and excited.

PHILADELPHIA, Pa , Feb 20—Butter—Solid-packed, separator creamery extras, 23c; creamery firsts, 22c; seconds, 19@20c; imitation creamery, extras, 18c; firsts, 17c; seconds, 15c; ladle-packed, extras, 16c; firsts, 15c; seconds, 14c Print Butter—Creamery extra, 24c; firsts, 23c; seconds, 20@22c.

Eggs—Pennsylvania and near-by, 20c; Western, 20c; Southwestern, 20c.

KANSAS CITY, Mo., Feb. 20—Butter Firm; creamery, 16@21c; dairy 17c.

Eggs—Supplies light, prices advanced 1½c; fresh candled Missouri and Kansas stock, 18½c, cases returned; 19c in new whitewood cases, cases returned.

ST. LOUIS, Mo., Feb. 20—Butter—Steady; creamery, 20@24c; dairy, 14@18c.

Eggs—Higher, 23½c.

CINCINNATI, O., Feb. 20—Butter—Steady.

Eggs—Steady; 18c; Cheese—Firm; good to prime Ohio flat, 11@11½c.

NEW YORK, Feb. 20—Butter—Creamery western, extras, 22c; firsts, 20½@21½; state finest, 21½@22c.

Cheese—State full cream, large, colored or white, fancy, 10½c; choice, 9¾@10c; small fancy, 11@11½c.

Eggs,—Western, fresh-gathered, firsts, 23c.

BALTIMORE, Md., Feb. 20—Butter—Market quiet; creamery separator, extra 25@26c; creamery separator, first, 23@24c; creamery first, 22c; ladle extra, 17@18; Western store packed, 14@15c.

Eggs—Market for strictly fresh stock, 20c.

BALTIMORE MARKET.

BALTIMORE, Feb. 16—Butter—The weather has interfered somewhat with the movements of this article, out as well as in, so that honors were about easy. The advance at the West has had its due influence upon prices, and the realization that the supply of fresh makes is diminishing to a considerable extent, and the stocks of saved goods in the freezers are fast melting away, has further tended to enhance values. There seems to be no excitement at all any where, and no solicitude as to the course of events in the near future; for the good of the producers it is to be hoped that a conservative policy will rule the prices henceforth, and thereby tend to foster the awakening interests manifested of late by foreign buyers. It soon will be Spring, no matter how wintry the weather at present; and with the advent of Spring comes the free flow of new milk and increased supply of butter; we will want a continuance then of existing outlets and perhaps new one, so an open door foreign policy—opening outwards only—is the one to advocate for this business. The shortage in the supply of rolls seems to be noted more than the other shortcomings this week, and a brisk demand is the consequence. Creamery Separator, extras 23@24c; firsts 21@22c; seconds 19@20c; Gathered Cream, extras 19@20c; firsts 18@18½c; seconds 17@17½c; Creamery Ohio, extras 21@22c; firsts 20c; seconds 17@18c; Roll, extras 14@15c; firsts 13c; seconds 12c; W. Va. Roll, extras 13@14c; firsts 12c; seconds 11c; Creamery Blocks (2 lbs.), extras 24@25c; firsts 22@23c; seconds 20@21c; Creamery Prints (½ lb.), extras 24@25c; firsts 22@23c; seconds 20@21c; Md., Va. & Penna Prints, extras 20@21c; firsts 18@19c; seconds 15@16c.

Eggs—Owing to the general snow blockade all over the country there are few, if any, eggs coming in, and our market for the present is quite bare of stock; there is a brisk demand at the big advance in price, so would advise you to ship all you can as we do not expect these prices to hold much longer, but be sure to have them well protected, so as to prevent freezing in course of transit. Prices are firm at 29@30c;

Cheese—Our cheese market is in good shape and firm with moderate offerings, and a good demand for desirable grades. N. Y. State—Cheddars, fine 11@11¼c; choice 10¼@10½c; fair 7@8c; Flats, fine 11¼@11½c; choice 10½@10¾c; fair 7½ 8½c; Small, fine 11¼@11¾c; choice 10¾@11c; fair 8¼@9c; Ohio—Flats, fine 10@10½c; choice 9@9¼c; fair 8@8½; Ohio Picnic, fine 10½@10¾c; choice 9¼@10c; fair 8½@8¾c; Swiss Cheese, fine 11@12c; choice 9@10c; fair 8@8½c.

301 Exchange Place. G. M. LAMB & BROS.

FOREIGN MARKET.

BOSTON Feb. 18—Cable advices of this date, from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as inactive. The mild open weather and heavy rains, coupled with liberal arrivals from America, which more than offset the diminished arrivals of Australian, make buyers press their advantage, and in order to move arrivals at all freely, concessions have to be made. Australian and Canadian in boxes are selling fairly well when holders will accept 21@22c. American butter is in so many hands, and being almost entirely in tubs, causes a wide range of prices, The best is difficult of sale at 19@20c, with some holders offering very good value at 18@19c. Finest fresh imitations are selling the best of any American butter, prices ranging from 16½@18c Ladles are selling slowly at 15c downwards.

Cheese markets are quiet with no speculative buying, and finest Septembers are to be had at 10½@11c. The best demand is in under grades that can be sold from 10c downards.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Canadian Cheesemaker—Wants position. Years experience, good recommends, work guaranteed. Address H., care of HOARD'S DAIRYMAN.

Two Married Men want employment on farms. Small families. Want steady employment as farm hands. Experienced, having always worked on farm. Address SAM OVERWAY or SAM BIRKHOFF, 2597 Union St , Pullman Sta., Chicago, Ill.

Situation Wanted as buttermaker; am competent to take full charge of factory. References furnished. Satisfaction guaranteed. J. E. FORWARD, Wexford, Pa.

For Sale—8 can Champ. cabinet creamery, $15.00; 60 gal. "Ideal" bbl. churn, roller bearings, $6.00; 50 gal. cream vat, copper bottom, metal lined, ice or steam, $ 0.00; Eureka butter worker, $4.00; 20 cases of 5 lb. spruce Bradley butter boxes, 40c. case. J. T. CLARK, Clinton, Mich 2-2

Dairy school graduate wants work in creamery or dairy. Address "HOLT", Andover, Mass. 2-2

A first-class buttermaker desires a position. State New York or New Jersey preferred. Address BOX 52, Harford, Cortland Co., N. Y.

A Complete creamery outfit for sale cheap that has been used but very little. Address HABIGHORST BROS., Sheboygan Falls, Wis. 1tf

Iowa Farms For Sale—$2 per acre cash, balance ⅓ crop until paid. J. MULHALL, Sioux City, Ia. 1-3

Hermanville Tamworths, Yorkshires, etc. J A. MACDONALD, Hermanville Farm, P.E.I., Can 32-52

For Sale—One first-class creamery and skimming station. DOWNING MFG. CO., Downing, Wis. 35-tf

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—Position by reliable, first-class butter or cheese maker; four years' experience; high-grade goods; best of references, wages reasonable. J. H. WINES, Ames, Iowa. 1-2

Wanted—Position in dairy by neat, industrious man. Can make butter, very successful in the care of cattle and hogs. Can handle any kind of separator. Have had experience in all branches of farm work. Can give No. 1 references. Will guarantee satisfaction. Address F., care Hoard's Dairyman. 1tf

Wanted—Position in a separator creamery. Have worked 16 years at the butter and cheese business with best of success. Understand running the latest machinery. Can warrant my butter. Address S., care Hoard's Dairyman.

Wanted—To trade a 43-acre farm, good six room cottage, and barn. Land rolling, and nearly surrounded by oil wells, producing from 10 to 400 bbls. per day, ½ to 3 miles away. Situated 10 miles from Parkersburg, 4 miles from railroad. Will be sold for high grade or full-blood Jerseys or $1,500.00 cash. This is cheap outside of the prospect for oil. Don't write unless you have first-class individuals. Also will sell or trade 416 acres of fine coal land in Kanawha county, 6 miles south of Charleston, Davis' Creek. R R. runs through property. 95% of land underlaid with three seams of coal, one seam, 40 in., is free from any slate and with a bare trace of sulphur. There is no finer bituminous coal in West Va. Will take $5,000.00 worth of full-blood Jerseys and $5,000.00 in notes of one, two and three years. Titles guaranteed, J. F. WOODYARD, Parkersburg, West Virginia. 2-4

Home Seekers' Cheap Excursion—The North-Western Line will sell home seeker's excursion tickets February 21, March 7 and 21, with favorable time limits, to numerous points in the West and South at exceptionally low rates. For tickets and full information apply to agents Chicago & North-Western R'y. 52-3

Lands in Wisconsin Cheap—The Chicago, St. Paul, Minneapolis & Omaha Railway Company has upwards of 400,000 acres for sale in northwestern part of the state at low prices and on long time. These lands are most desirable because of their proximity to the markets of Minneapolis, St. Paul, Ashland, Eau Claire, Duluth and Superior. If you wish to visit these lands homeseekers cheap excursion tickets can be secured at C. & N. W. ticket offices in Chicago, Milwaukee, Janesville, Beloit, Elgin, Aurora, St. Charles and Dixon March 7th and 21st. Maps and information furnished on application to G. W. BELL, Land Commissioner, Hudson, Wis. 2-4

National Champion Buttermakers

EVERY ONE AN

"ALPHA-DE LAVAL" USER.

The honor scoring record of "Alpha" disc made butter the past five years has been a marvelous one the world over, "Alpha" and "Baby" separator butter having made a practically clean sweep of all higher competitive averages and awards in every general contest—National and International, State and District—in America and all other countries.

There have now been seven Annual Conventions and Grand competitive Butter Contests of the National Buttermakers' Association,—1892, 1893, (none in 1894), 1895, 1896, 1837, 1898 and 1899. The following is the list of years, places of convention, names and addresses of sweepstakes Gold Medal winners, and the highest scores. Every other higher prize winning exhibit likewise has been "Alpha-De Laval" made:

1892, Madison, Wis., Louis Brahe Washington, Iowa	score,	98
1893, Dubuque, Iowa, C. W. Smith, Colvin's Park, Ill	"	97
1895, Rockford, Ill., F. C. Oltrogge, Tripoli, Iowa	"	98
1896, Cedar Rapids, Iowa, Thos. Milton, St. Paul, Minn	"	97.82
1897, Owatonna, Minn., H. N. Miller, Randall, Iowa	"	98.5
1898, Topeka, Kas., Sam'l Haugdahl, New Sweden, Minn	"	98
1899, Sioux Falls, S. D., A. W. McCall, Creston, Iowa	"	97

Every experienced separator buttermaker understands that while the separator does not of course make the butter, that the "Alpha" disc separation process does contribute largely to the superior excellence of the butter produced with its help—in the lower temperature at which a thorough separation can be accomplished than is approachable by any other separator; in the more complete removal of dirt, fibrous and casein matters than is possible with any other separator, and in the "smoother" and more even'y churnable quality of cream than can be produced with any other machine, due to the much lower relative speed and diameter of bowl and the perfectly proportioned adjustment of inlets and outlets which the "Alpha" disc principle alone makes possible

These advantages have a bearing upon the grain, texture, solidity, flavor, and keeping qualities of the butter, which in combination with equal conditions of milk and equal care and skill upon the part of the buttermaker invariable give to "Alpha" disc made butter its manifest superior excellence.

The De Laval catalogues touch upon these subjects in greater detail and may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.

GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.

BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

A Model Cow Stall.

In response to numerous inquiries for a good cow stall, we republish the following cuts and description of the Scott cow stall.

In the first place, the stable has enough light in it to take the photograph of it in a quarter of a minute's exposure, which was taken after cows were put on pasture and all bedding removed and stalls swept out, and by the way, are kept so through the entire summer for milking, night and morning.

This stall is not only in common use in this immediate locality, but throughout Ohio and many other states, and dairymen who have put them in find they made no mistake,



Figure 1.

for the reason that they give to the cow so near perfect comfort and absolute cleanliness that their introduction has made the keeping of cows more of a pleasure, than before using them.

While figure 1 gives a perfect rear view, figure 2 will explain more clearly the side section and measurements, etc.

The platform, A, is made of one-inch oak, doubled and joints broken, with a fall of two inches, and is six feet, six inches long for a cow weighing 1,000 pounds, and should be correspondingly longer or shorter as the weight of the cow may require.

This feature may be provided for by placing the fencing, in front of the cow, nearer for the cow to eat hay through, and to keep her standing back to her ditch.

The hay rack at E is eighteen inches wide and three feet deep to F, and is open with a six inch thwart so that grain, ensilage or any cut feed readily falls through into feed box. The ditch is sixteen inches wide and nine inches deep on platform side and seven inches at rear and is made absolutely water tight. The latter feature, along with the broken joints on the platform, always insures good sanitation as with every particle of manure and liquid voiding where absorbents and deodorizers can be applied, puts the stable in shape so that its care taker can keep it pure and sweet, with little effort, and have some place to take callers into when showing his best cows without having to prefix and suffix the visit with an apology.

Any farmer I think, can erect this stall with the use of a good saw, hatchet, jack plane and square, at a trifling cost, and when once completed am positive that it will be a great source of pride to the dairyman who has it in his barn.

After four years of use, and keeping cows confined from four to five months, each winter, day and night, am able to say that it is a perfect stall and not only keeps the cows perfectly clean, but have not seen a stall that gives the cow so much freedom for her head and body.

We tie with ordinary tie chains, and by the

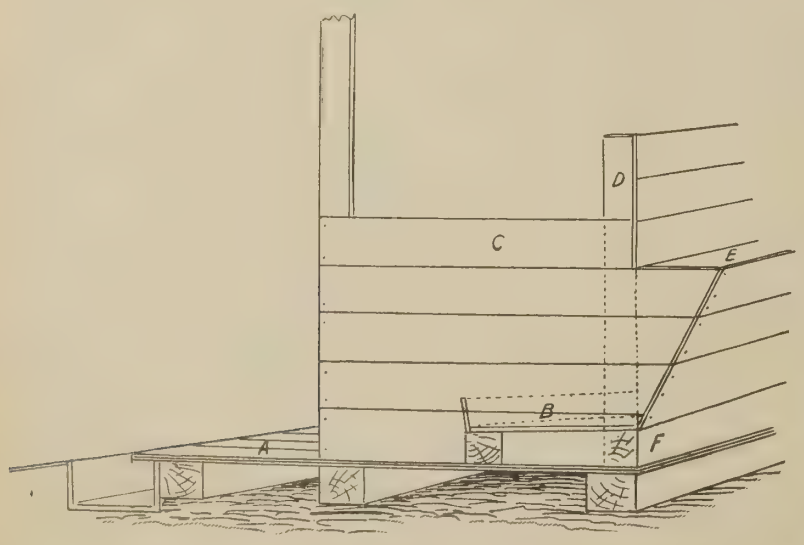


Figure 2.

toward the ditch or further away or sometimes the ditch is run at an angle or an offset at one end, but the former is by all means the most satisfactory.

The feed trough B is raised by running two 2×3 stringers the entire length of the stable making the trough eighteen inches wide and six inches deep in front of cow. The stalls are three feet, three inches wide from centres, and partitions four feet high and three feet six inches long at C. The posts D are five feet high made from 2×3 studding, and toe nailed in the corner of each feed box at F and 1×3 lath nailed to them use of a large ring or a strap around the second bar in front, can be moved from one side of stall to the other.

Ohio. GEO. E. SCOTT.

Milking.

Extract from the Swedish and Danish. By J. Moldenhawer, Washington, D. C.

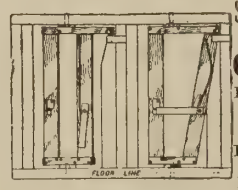
ED. HOARD'S DAIRYMAN:—I am confident that one of the foremost reasons for the slow progress the dairy business in the United States is making, at least when compared to the rapid improvemements which are constantly taking place along almost all other lines of business, is mainly to be found in the difficulty to secure good and reliable men and women to perform the milking. While this difficulty is becoming more general everywhere, even in the most advanced dairy countries, still as long as it over here is comparatively easy to make a fair living in other occupations which are less confining, the task of securing competent milkers at reasonable wages will be a hard one; and yet, no matter how much we now and then may hear about the excellent work of certain milking machines, the fact still really is, that no machine has as yet been found to do the work in such a manner that it under all and any conditions would be able to compete with a first-class milker. The place for which a milking machine is best adapted is, of course, the large estate; where a large number of cows are kept and where everything can be done in clock work order. And nowhere can we find large private dairies, with from 100 to 400 cows, where everything

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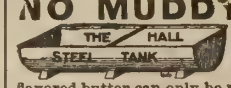

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is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.
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Trouble Cows off feed, couple of cases of caked bag and a cow or so with milk fever! Care and watchfulness are great preventives, but feed is far more important. No such cases follow the use of our feed. Common sense and Quaker Dairy Feed are the watchwords. Enquire about it; you will find we are right.
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An invaluable book containing scientifically proportioned rations, including every form of roughage and every variety of feed. Sent postpaid on request. Address Science Dept.,
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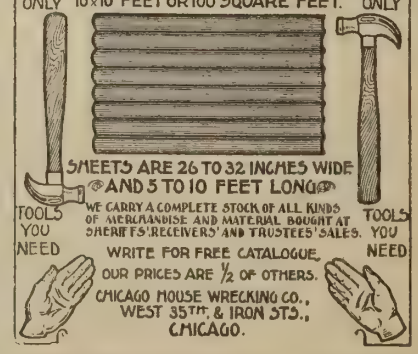
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We wish to gain this year 200,000 new customers, and hence offer

1 Pkg.	13 Day Radish,	10c
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Worth $1.00, for 14 cents, $1.00
Above 10 pkgs. worth $1.00, we will mail you free, together with our great Plant and Seed Catalogue upon receipt of this notice & 14c postage. We invite your trade and know when you once try Salzer's seeds you will never get along without them. Onion Seed 68c. and up a lb. Potatoes at $1.20 a Bbl. Catalog alone 5c. No. 140
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SHEETS ARE 26 TO 32 INCHES WIDE AND 5 TO 10 FEET LONG
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WRITE FOR FREE CATALOGUE.
OUR PRICES ARE ½ OF OTHERS.
CHICAGO HOUSE WRECKING CO., WEST 35TH & IRON STS., CHICAGO.

WANTED—Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

is as near perfection as they are seen in Denmark. The Swedes, who are rapidly progressing along the same lines as the Danes have done, keep their eyes wide open as to what the Danes are doing, and in *Landtmannen* publish an extract from "*Ugeskrift for Landman*" of a proposition made by the well known dairy instructor, Boggild, as to an improved arrangement on the dairy estates of that country for the employment of milkers and laborers for the cow stable. He mentions how it of late years has become almost impossible to secure a sufficient number of good milkers for these large dairies; tenant's wives, laborers, boys and some girls are employed and the result is often that the milking is not as carefully done as it should be, which again causes loss in milk production; even the necessary hands for attending to the feeding and care of the cows are hard to get, and the result is that the overseer is almost afraid to correct them, or to discharge them, because he knows it is almost impossible to find others to take their places. (Is this not often exactly the case with us too?)

But while in Denmark these difficulties are increasing on the large estates, it is a promising sign that on the small farms the opposite is the case. Formerly, milking was looked down upon as the lowest kind of work on the farm, but since the co-operative creamery system has developed so extensively, the peasants have gotten their eyes open for the absolute necessity of having their cows well cared for and especially well milked; thus, now it has become a common occurrence that the wives, daughters and sons of well-to-do "housemen" take part in the milking; but while it is considered perfectly proper that they should do so at home, still these same parents do not wish to let their sons and daughters perform such work on the estates; because they are there often thrown together with undesirable company. And thus while the prospects for having the dairy well attended to on the small farms is becoming better, on the estates things are growing worse, and some remedy should be found if possible, as it will never do, in Denmark at least, to give up dairying.

Mr. Boggild suggests that the large estates learn a lesson from the co-operative creameries, which hardly ever have any difficulty in finding sufficient proper help for all work to be done. In these it is common that the manager or superintendent agrees to have all work in the creamery attended to, and he employs butter-makers, (male or female) engineers and apprentices, who, as a rule, all board with him and eat at his table. Likewise might the owner or renter of an estate engage a young and energetic man to take charge of all work about the cow stable, as milking, feeding and caring for all cattle and hogs at a certain fixed salary, as well as a house and garden to enable him to have his own house keeping and to board all his help—if this were done, it is very probable that the work would be far better done in every direction.

Test milking should be done regularly and an exact account be kept as to the amount as well as the quality of each cow's milk, in order to have the "rats" (the name given the worst specimens of cows in Denmark) removed. Strict account must also be kept as to time of calving, etc. In this manner, the foreman as well as his helpers should be able to secure a fair income, as in most cases really a smaller number of employees will do the work as well or better than the larger number, now often employed in the large estate dairies. Important is it that all hands take part in the milking, regularly, so that this work may be finished in the shortest possible time.

To the above suggestions by Professor Boggild, in Denmark, I shall add a few from Professor Winberg, one of the editors of the Swedish "*Tidsskrift for Landtman.*" He also mentions the great difficulty, even in Sweden, to secure good milkers, which means such persons who not merely milk well, but who will take an interest in their work, and make it their ambition to do it well, always.

Among the means by which we may stir up an interest in milking, he suggests the introduction of regular prize-milkings, such as already have been held very successfully in Denmark, in several communities.. (By the way, we have secured one young Danish milker on our "Sanitary Farm", who took a prize for milking 16 cows well in one hour.) In this manner, Professor Winberg thinks that young men and women might be induced to milk, when they could be made to feel that they were performing a task highly estimated by others, and of which nobody need be ashamed.

Professor Winberg also suggests that practical and theoretical courses be arranged for both young women and men, in care and feeding and milking of cows, and that also prizes should be given those who showed most interest and attention to the work, this being so much more important, as the lack of good herdsmen and feeders is almost as great as that of good milkers.

I have given these suggestions from Denmark and Sweden, because I believe they, in many respects, apply to our country as well. We may do all we please to improve our creameries and our butter-makers (and we certainly should not lessen our efforts in that direction) but as long as we do not succesd in improving our dairy farmers, and our milkers and feeders, as well as our stables and our cows—just so long shall we continue to hear the old cry, and justly so, that "dairying does not pay." And it never will until we can do something by which our farmers can work up from their lethargical indifference, and bestir themselves and begin at the beginning, and get better cows and better care of them in every direction.

Influence of Cold and Storms on Butter Fat.

ED. HOARD'S DAIRYMAN:—The Manhattan Creamery received milk on February 3, which according to the usual calculations would make 227 pounds of butter; but when the cream was separated and churned it yielded only 288 pounds, or over 21 per cent short of the usual run. In looking for the cause it was noted that on February 1, the weather turned cold and it snowed for two days. This goes to show that dairy cows, especially, should be provided with conditions as nearly uniform as possible. Any sudden change in temperature, feed or care, may not permanently affect the per centage of butter fat in milk, but it will cause a temporary change, both in quantity and quality, and may in a large measure account for the fluctuations in the butter fat test experienced at so many of our creameries. D. H. OTIS.

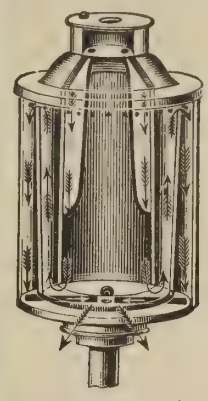
Kansas Experiment Station.

Save Money and Labor by Buying

THE IMPROVED U. S.

TRIPLE CURRENT SEPARATOR

Users say it is **unequalled** for **clean skimming,** durability and ease of operation. They surely ought to know. Read a few of their letters :



The More Used the Better Liked.

RIDGEWAY, WIS., Jan. 9, 1899.
The more we use the Improved U. S. Separator the better we like it. It is as **reliable as a good clock**, and it seems to me that it will be **as durable.** It runs light, does good work, is easy to take care of, and made to last.
THOS. CONVEY, Conductor of Farmer's Institutes.

Takes Out Every Particle of Cream.

SILVINA, WASH., Jan. 2, 1899.
The No. 5 Improved U. S. Separator is all right. It is easy to turn, easy to clean, and takes out every particle of cream. We make considerable more butter and receive 2½ cents per pound more for it. It is the best machine a farmer ever bought. MAX BARTL.

Greatest Labor-Saving Machine.

TURIN, N. Y., Jan. 11, 1899.
The No. 5 Improved U. S. Separator works finely. It is the greatest labor-saving machine for making butter that was ever made. **We could not do without it.** Every farmer should have one. J. BIBBINS.

Remember that in order to have the best, the **TRIPLE CURRENT SEPARATOR,** you must buy the **IMPROVED UNITED STATES.**

Illustrated circulars free on application.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



AN ERA OF

Better Machinery

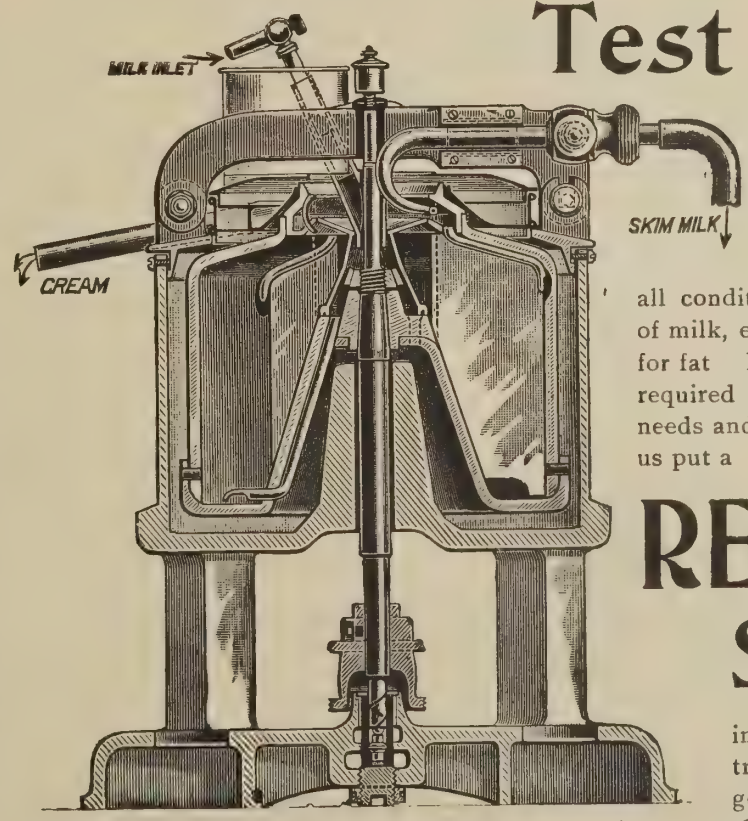
Hard times and rattletrap machinery are of the past. Creamerymen have found out that it is more profitable to own a good

STANDARD BABCOCK TESTER

that will last for twenty years than it is to buy one of the ordinary, noisy kind, that must be replaced every year or two. The Standard has a cast iron frame and cover, a steel spindle and brass bottle holder. **It is well built and is acid proof.** The new book of Farrington and Woll, on Milk Testing goes with the machine.

Send for Catalogue No. 85.

Elgin Manufacturing Co., Elgin, Ills.



Test It Yourself.

Test the Reid Improved Separator in your own creamery under all conditions—power, temperature, quality of milk, etc. Carefully test the skim milk for fat Note the time and amount of power required for the day's run, the attention it needs and the time it takes to clean it. Let us put a

REID Latest Improved 1899 Separator

in your creamery ; give it a thorough trial and if it doesn't do exactly as good work as any other machine of equal cost, and do it more cheaply, we'll take it out and foot all the bills. Catalog and full particulars free.

A. H. REID,

30th and Market Sts., PHILADELPHIA, and CEDAR RAPIDS, IOWA.

Ripening Cream in Winter.

ED. HOARD'S DAIRYMAN:—You ask for a plan for ripening cream in the dairy. Where the old-fashioned pans are used and skimmed when loppered, it is hard to ripen cream, but where the submerged cans or the modern separator is used, I think this plan works very nicely: Keep all the cream sweet until twenty-four hours before wanting to churn it; then warm it up to 62° or 65°, adding to every 10 gallons of cream about one quart of previously secured milk that has been kept from any outside taint. A nice way is, 48 hours before churning take some new milk, warm up to about 90°; place in a tight covered can in a warm place to sour; strain this into your previously warmed cream and stir thoroughly. By doing this you can always get cream into a nice condition for churning, in twenty-four hours. At churning time cool down to 62° if you churn by hand; if with a power, I would cool to 56° or 58°; then with cold water there will be no spotted butter. If I could not afford a Boyd tank, I would make me a box (large enough to hold the cream), of two thicknesses of inch boards, with an inch dead air space between. Then I would take it to the tinner and have it lined with the best heavy tin. I would make a cover to fit on in the same way; put it on legs to keep it from the floor. With such a box one can control the cream temperature more evenly. One of the difficulties with the ordinary tin can or jar, put behind the stove in kitchen or sitting room to sour, is one side of the cream is cooked, the other is cold, and off comes the cover and a stirring to mix the cooked cream with the other. You see, Mr. Editor, I know how it goes, for I have been there myself. But I learned by experience; it is a dear teacher, but sometimes it does knock a little knowledge into our heads. FARMER'S WIFE.

ED. HOARD'S DAIRYMAN:—We never had any trouble since we adopted the following way, which we had from the DAIRYMAN. We keep our cream cool (which is no job these days) till we have enough for a churning, then mix it all and warm it in warm water to 70°; for a starter put two teacupfuls of buttermilk in a five-gallon pail of cream. We do this about nine or ten o'clock in the morning and by keeping it about the same temperature all day, the cream is always thick at night and in the morning it has cooled off enough to churn. Cream from mornings milk is all right to churn next morning in this way, but we always cool it before warming it up. I should think it wrong to set the cream cans in boiling water. Put the boiler on the stove and when the water is warm, lay a stick on the bottom of the boiler, so the bottoms of your pails will not get too hot; set your pails or cans in and stir and it takes but a few minutes when your cream is warm. D. J. DE F.

Sioux, Co., Iowa.

ED. HOARD'S DAIRYMAN:—"How can the maker of dairy butter best ripen his cream in winter?" is a question in your valuable paper of last issue. I give here my method used in 18 years' experience in different countries.

Immediately after skimming, I cool the cream down to 40°, or even lower. This is very important for the quantity as well as quality of the butter. Sixteen hours ahead of churning time I put all cream together in a vessel to ripen. I have for that purpose used vessels of many kinds and material, but found none equal to one made of oak, three-fourths inch thick staves, in keg or barrel shape, galvanized iron hoops and handles, and of a size to correspond with churn. These vessels are non-conducting, and will keep the cream's temperature better than anything else I ever tried.

Having put the cream together, I now change the tactics. Before this time I have endeavored by a low temperature to keep the bacteria dormant. I now call those little friends to my aid and give them opportunity to work, by heating the cream. It is evident that the temperature to which the cream should be heated depends entirely upon temperature of room. As a rule, I heat to a temperature that, added to that of the room, will give 120° F., that is, if the temperature of room is 50° F., I heat cream to 70° F., if 40° F., I heat to 80° F., and so on. This gives a favorable temperature for the bacteria to perform their work, i. e., to form lactic acid, which in its turn precipitates the casein. I heat cream by placing a deep setting can of warm water in the barrel and gently stirring. Next I put in a "culture" or starter. Much has been said and written about starters. I have experimented with sour cream from previous ripening, buttermilk and lactic ferments supplied by the trade, but consider the best starter to be one made daily, by the dairyman. I use for that purpose an earthen vessel and fill it with skimmed milk that has been well cooled.

This milk I heat to 100°, cover with a piece of linen and put it in a warm place, on top of boiler or other suitable place. In 24 hours the milk has soured; the top I skim off and balance goes in cream as starter. Butter milk may be used, but has the objection that if there are any defects with previous ripening or churning, they are transplanted to the next, whereas, by using a fresh starter, I guard against that. The amount of starter to be used differs very much with temperature, but as a rule not over 6% should be used, and preferable to use as little as possible. Now I stir the cream and let it stand uncovered for ½ hour. Before retiring at night, I stir again, take the temperature and test to see that the ripening is progressing right; if too cold I heat again; if too warm I cool by ventilation of room; if no acid has generated, I put in more starter. Next morning when I come around, the cream is well ripened and has the churning temperature. I have successfully used this method in the northern part of Sweden, where the temperature goes to 30° and 40° below zero and the dairy was considerable below freezing point. Scrupulous cleanliness must be observed with the barrels, they must be scrubbed and steamed, and on a clear day have a sun bath.

A properly ripened cream has a thick, but even and smooth appearance, a ladle dipped into it, the cream will drop off without streaks, the casein is precipitated in minute particles, and to the taste it is mildly acid with a certain piquant aroma, which later is imparted to the butter, and which is—especially in the English market—highly appreciated.

To sum it up: Keep the cream sweet up to 16 or 20 hours before churning, never mix one churning with another until cooled to the same temperature; do the heating while cream is sweet. Sour cream does not stand heating without generating butyric acid; such a product to any extent present in butter, is very undesirable and yet so common. Butter churned from such cream has a greasy texture, often a sour taste, and will not "stand up."

In conclusion let me say that the successful cream-ripener is not he who occasionally has his cream right, but the man who, day by day, under great climatic changes, turns out a uniform product, and to do that requires a constant observation of every change in temperature, and a thorough cleanliness of place and utensils. E. O.

Cecilton, Md.

ED. HOARD'S DAIRYMAN:—Having been a constant reader of your valuable paper for years, having been in the dairy business for 25 years, I feel disposed never to give it up, as long as I can get enough to pay the subscription for it.

As I have seen a great many articles of late in regard to ripening cream, will give you my method at this time of the year, for what it is worth. Instead of cooling my cream down as I do in spring, summer and fall, when it comes from the separator, I run it directly into the same receptacle until enough for churning, which at the present time is three skimmings, being thoroughly stirred at each skimming; let it then stand for 24 hours when it is ready for churning, at the what I call the proper stage of ripeness. Churning at a temperature of 64° F. without any trouble; having sampled buttermilk and have failed to find any trace of butter fat remaining.

No doubt some may think, well his butter can not come up to the mark in quality, but will be glad to have it compared any where or by any competent judge with any butter made under different rules of ripening cream. The other three seasons of the year, I follow an entirely different plan.

Nashville, Tenn. W. D. W.

ED. HOARD'S DAIRYMAN:—Most dairy farmers, who patronize a cheese factory, have milk at home only a few weeks at most, and then usually during the most unfavorable time for successful butter making.

The result is that they put as little money as possible into conveniences for the work, and when they read of methods employed—where a separator, cream ripener, and modern churn, with perhaps motive power, other than a pair of hands are used—they fail to see wherein it applies to their particular needs.

To all such, this is humbly submitted.

We send milk to a cheese factory from the first of April to the first or middle of December, sometimes as late as the first of January, and make butter during the rest of the year

---

Parted In A Dream—(New) A love song founded on a strange incident of the late war—words and music by Halbert L. Hoard. (A 50 ct. song.) Sent post-paid for 25 cts. to readers of Hoard's Dairyman.

Darling Lenore—(New) A song of deep sentiment by the same author, published Jan. 25, '99. (A 50ct. song.) Sent post-paid for 25 cents to readers of Hoard's Dairyman.

For 3 cts. I will send words of both songs with with miniature page of music of each.

HALBERT L. HOARD, Fort Atkinson, Wis.

Miller & Sibley's Jerseys.

IDA'S RIOTER OF ST. L.

Leads All Other Sires that Ever Lived in Average Butter Record for 28 Daughters, Being Nearly 20 lbs. Apiece.

All full weekly tests. 5 made with 1st calf; 4 made with 2nd calf. Tested by 8 different owners. One daughter, Ida Marigold, won the lion's share of the honors at the World's Fair. His get have won over 70 first prizes and sweepstakes at state fairs or great expositions. He weighed 1760 lbs. His dam's official butter test, 30 lbs 2½ ozs; milk record, 67 lbs. a day.. His daughters are heavy milkers.

For Sale—Grandsons and granddaughters of Ida's Rioter of St. L., also cows in calf to his sons.

224 **First Prizes and Sweepstakes** won by this herd at 22 State Fairs or great Expositions. Home of many great milk and butter producing cows. Our Adelaide of St. Lambert gave 82¾ lbs. of milk one day; 2005¼ lbs. one month—the world's Jersey record. **224**

No catalogue. Special literature sent if this paper is mentioned.

No animal sold for less than $100. Prices low for quality. Every animal tuberculin tested before sale, if desired.

MILLER & SIBLEY,
Franklin, Ven ngo Co., Penna.

DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records. **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." The prepotent blood of **Combination** breeds on and on. Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.

H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys Ready for servic. Bull dropped Nov. 20, 1897. Solid color, black tongue and switch. Sire, Mint, a 50 per cent Combination bull, by Diploma, the sire of 42 in 14 lb. list. Dam, Brown Bessie's 8th of H. F., by the great Brown Bessie s son; 2d dam, Maquilla, 21 lbs. 1 oz , dam of 2 in 14 lb. list; 3d dam. Maquita, by Top Sawyer; 4th dam, Landseer's Fancy. Write for price to HOOD FARM, Lowell Mass.

— THE —

A. J. C. C. Cows

in our sale list just issued comprise a pure St. Lambert granddaughter of Allie of St. Lambert; three granddaughters of Naiad of St. Lambert; a tested cow, deep in the blood of Noble 901, Imp., whose dam has an excellent test and six tested daughters; a cow deep in the blood elements of that wonderful cow, Mollie Garfield; and others of similar merit. Some are fresh; others longer in milk. Sale List No. 3, giving short pedigrees, sent on application.

WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

ESTABLISHED 1890—500 Acres—Incorporated 1897. THE LINDEN LAWN FARMING CO., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys.

C. S. MACE, Mgr.

FANCY'S HARRY TORMENTOR BULL,

10 MOS. OLD. Solid color, well grown and nice. Sire has 16 daughters in the list; dam, both grandams and its four great-grandams all tested. Send for pedigree.
Price, $65.00. **J. P. BRADBURY, Pomeroy, Ohio.**

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. **W. H. FORBES, Clifton, Ohio.**

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

St. Lambert Jerseys, all ages, both sexes. Some from **tested** cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to **J. E. TYRRELL, Marysville, O.**

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.

Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

FILSTON FARM
Jersey Herd

(OVER 300 HEAD.)

If You Want A JERSEY BULL CALF of fashionable blood and handsome color, bred to beget heavy milkers, or large ENGLISH BERKSHIRE PIGS at reasonable prices, write to the **FILSTON FARM,**
☞Satisfaction Guaranteed. **Glencoe, Md.**

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO F. WESTON, Supt., Biltmore, N. C.

Locust Lane Stock Farm

. . . Service Bull . . .

BROWN BESSIE'S GRANDSON No. 34891.

State What You Want.

G. E. COLEMAN, Perry Center, N. Y.

FOR SALE!

DOUBLE GRANDSON OF

Exile of St. Lambert
13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. **P. J. COGSWELL, Rochester, N. Y.**

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. **N. N. PALMER & SON, Brodhead, Wis.**

(sometimes very little as the cows come fresh in March).

The milk is set in pans, two or three days, according to weather, and kept as cold as possible without freezing—also as free from all kitchen odors.

When enough cream has accumulated for a churning it is heated up to 65° or 70° and stirred constantly while heating, then set where it is cool for 24 hours.

It should then have a smooth, thoroughly mixed appearance, a glossy surface and a *slightly* acid taste, at least.

It is churned at about 62° and usually takes from 20 to 30 minutes.

The "separator" used is tin pans and a tin skimmer.

The "ripener" is a granite pan. The "churn" is an old-fashioned crock, known as a "dasher churn", and the "power" used is one of the family.

The butter made has a fine flavor, and is all around first-class dairy butter.

I might add that the cows are well fed and cared for, but no special work is done along these lines. L. G. J. R.

South Newberg, Ohio.

ED. HOARD'S DAIRYMAN:—Would say in answer to the inquiry in regard to ripening cream, that we formerely were troubled; but now have the matter under control. We think it not to be a good plan to keep cream longer than to gather a churning, and if the number of the cows is small, churn small churnings every day if possible. We warm the sweet cream to 70°, and add to five gallons of cream about two quarts of fresh buttermilk, set the can near the stove in the living room and stir occasionally. The cream will be ripened inside of twenty-four hours.

If for any reason the buttermilk is not good, we make a starter by warming a quart can of sweet skim milk, adding a teaspoonful of lactic acid starter, and when it becomes thick use it for a starter in a warmed churning. This has always been a success, since we learned it two or more years ago.

Kalamazo, Mich. J. K. M.

Questions from a Virginia Dairy.

ED. HOARD'S DAIRYMAN:—I have a herd of 28 cows and am shipping milk to a creamery four miles from my place, for which I receive 60 cents per 100 pounds during May, and months following to October 1st, for which month I get 70 cents, and for five months following to April 1st, I get 90 cents per 100 pounds, and for April, 70 cents.

What amount is it necessary for a cow to give during 12 months to pay at these prices, on following feeds: Clover hay at $6 per ton, corn ensilage $2 per ton, the whole ear left on stalk, making about 8 barrels of corn to the ton, corn meal $17 per ton, and a full supply of fodder is given them.

What I wish to know is, can a properly balanced ration be made from this food, which will produce a flow of milk sufficient to be remunerative at above figures? If the corn meal is not the proper kind of feed, will it pay to sell corn at 30 cents per bushel, and purchase some other food, which you can name to be used in its stead. We can graze for about six months in the year, and consequently have to feed six months.

Now, from the foregoing data, will it be best for cows to calve during grazing or feeding period?

Which will pay best, milk at above prices, cream at 60 cents per gallon, or butter at 15 cents per pound? If you advise cream or butter, I suppose it would be best to buy a hand separator, and if so, what make would you suggest, and which would be about the cost of one best suited to my wants?

I have recently subscribed to your valuable paper, and wish to derive the greatest benefit possible from your knowledge and experience.

It might be well for me to state that labor costs about $10 per month, board and lodging furnished by the employer. What number of cows can an average milker handle properly?

By answering above questions, you will greatly oblige B.

Orange Co., Va.

We estimate that it would require, at the prices named, about 4,000 pounds of milk per cow, to pay for her feed and care, but may say that we consider the price allowed for milk, if it tests 4 per cent fat or more, very low, more especially if the skim milk is not returned. One hundred pounds of 4 per cent milk should make 4½ pounds of butter, and very nearly 2 gallons of cream. Hence cream at 60 cents per gallon would be the most profitable.

With corn at 30 cents per bushel, corn chop, (not to say bolted meal) should not cost to exceed $12.50 per ton. This is relatively cheap, but it would not, by itself, make a satisfactory ration with the silage, clover hay and fodder. We suggest, as an indication of about what these cows should receive, as an average daily allowance, the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. clover hay	8.47	.68	3.58	.17
10 lbs fodder	5.95	.17	3.24	.07
2 lbs. corn chop	1.78	.16	1.33	.09
2 lbs. bran	1.76	.25	.77	.06
2 lbs. cotton seed meal	1.84	.74	.34	.24
Totals	26.40	2.33	12.76	.81

In a herd of 28 cows we should aim to have about two-thirds of them freshen in September and October, and the others at different times throughout the year.

A separator would be a necessity, but we cannot pretend to advise which one of the several makes to purchase. In the circle of our intimate friends there are some four or five kinds in use, and each man is very confident that his particular machine is the best. If the fact was, therefore, that we had a personal preference for one, it would be unfair to the others for us to express that preference. Various tests made at the experiment stations have demonstrated that there is much less difference in separators than the promoters claim. And it may be said further, that while it is quite possible to operate one of these machines by hand, it is much better to have some sort of power. On the writer's farm a dog furnishes this power, and seems to enjoy the job. Write to the various advertisers in this paper for terms, etc.

An average milker should easily "handle" 8 to 10 cows.

A City Milkman's Experience.

ED. HOARD'S DAIRYMAN:—I used to be a constant reader of the DAIRYMAN, and think it a good paper for the dairymen that makes butter or cheese, and, in fact, that produces milk in any way or for any purpose, and the only reason that I dropped it from my list of reading matter was because I did not have any, or, at least, not much correspondence on my particular business—that is, city delivery.

I have furnished my town of 2,500 inhabitants for the past five years in milk, and I am going to give you a history of my business.

In the first place, I had studied a long time, being a farmer, what a man on a farm could do to have a daily income, realizing the fact that there was a gradual outlay or expense every day on the farm, as well as any other business, so I concluded to start a city milk wagon. It had been tried several times by other parties and failed only for one reason, which I will discuss later on. But five years ago, on the 5th of December, I started on my route and there was a good deal of comment one way and another, but we went into the business not knowing the situation and how the town was already supplied so that we have had to contend with the one cow peddlers. The wealthy men of the town, doctors, lawyers, merchants and nearly all professional men, were peddling all but a pint of milk from their cow; but we continued our business, put milk down to a low figure, furnished nothing but first quality and when they found we were here to stay, then the talk was: "Well, you had better not patronize the milk wagon. He will be just like those other fellows, he won't stick to it." But we haven't missed a single day in those past five years—Sundays not excepted—and now these same one cow peddlers will go to the restaurants and hotels and say: "Here, we will trade this milk all out, if you will buy our milk."

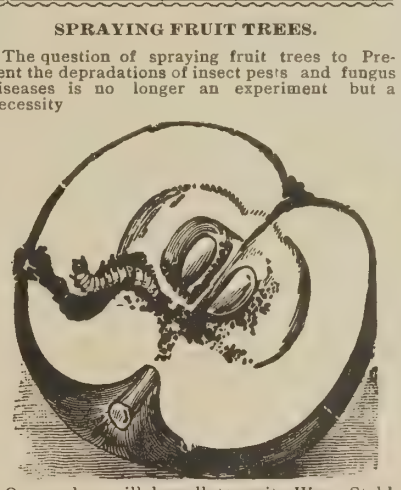
Now, this is the worst thorn in the milkman's side, he has to contend with. I think that we ought to have a license on every cow in the town, or on every cow that the owner sells milk, and then if the lawyers and doctors want to pay a license, let him sell his milk, but I will say that until there is something of this kind, that no man can start a dairy, keep it up to date and compete with those fellows that will trade their milk for luxuries at the restaurants and lunch counters.

To the milkmen of small towns and cities: I know you all have this to contend with and I would like to correspond with all that are interested in this matter along this line of dairying. I have a hired man that is reading the DAIRYMAN, and if I can see better articles on my case and how to handle the milk to give satisfaction the year round, I will be glad to do so. U. A. TOWNS.

Harrison Co., Mo.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to Prevent the depradations of insect pests and fungus diseases is no longer an experiment but a necessity



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treaties on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking

COMMON SENSE MILK BOTTLE.



Consumers of milk in every town and city demand their milk in bottles—the only safe method of milk delivery. **The COMMON SENSE BOTTLE** with the chemically prepared paper cap is the only practical bottle, and has superseded all others. All genuine caps have printed on them in ink, "Pat. Sept. 17, 1889."

THATCHER'S ORANGE BUTTER COLOR

The only purely vegetable and non-poisonous color. M'f'g by

The Thatcher Manuf'g Co., POTSDAM, N. Y.

Send for circulars and other valuable information.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. W. R. GATES, Ripley, Jefferson Co., Wis.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle. Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

Ten Choice Yearling
Holstein-Friesian Bulls FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

For Sale Two Holstein-Friesian Bull calves 3 and 4 months old. Sired by Johanna Aaggie's, Paul De Kol. For prices and descriptions of these excellent calves, write
M. S. CAMPBELL, Genoa, Ill.

Pioneer Herd HOLSTEIN-FRIESIANS.
Foundation herds of merit a specialty, for sale; also Plymouth Rock fowls and eggs.
S. N. WRIGHT, Elgin, Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis.

Holstein-Friesians.
Our offering today is **Thirteen Young Bulls** now ready for service; **Ten two-year-old Heifers** coming fresh in spring, and **Four Yearling Heifers.** In rich, fashionable breeding and high-class individuality, we doubt whether the equal of this lot of both bulls and heifers can be found in America. All are recorded. Prices will be found low for quality. Inspection and correspondence invited. KARLEN & CO.,
"VALLEY MEAD." Monticello, Wis.



HOLSTEIN-FRIESIAN CATTLE. Choice registered yearling Bulls, Heifers and Calves, sired by my Grand Bulls, Princess Aagie 5th, Netherland, No. 21736, and Pauline Paul's DeKol of Portage, No. 21704, grandson of Pauline Paul, the greatest butter cow that ever lived, and grandson of Princess of Wayne, the greatest milk producer that ever lived; we have the blood of the best families of the breed. Oxford Down and Cotswold Sheep, and Poland China Hogs. Come and see our stock or write, stating what you want.
WM. O. JACKSON & SON, South Bend, Ind.

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two excellent Registered Guernsey Calves.

GUERNSEYS AND **POLAND-CHINAS.**
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

ROSENDALE GUERNSEY HERD.
TUBERCULIN TESTED.
1st Prize Herd Wis. State Fair 1894 to '98. 1st Prize Herd at Minn. State Fair and at the Trans-Mississippi. Exposition 1898.
Come and see the herd, We keep only 400 lb. cows. GEO C. HILL & SON., Rosendale, Wis.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., MADISON, N. J.

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass.

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

New York State Dairymen's Association Meeting.

ED. HOARD'S DAIRYMAN:—The 22nd annual meeting of the New York State Dairymen's Association was held at Gouverneur, St. Lawrence County, Wednesday and Thursday, Jan. 25, 26, Mr. A. R. Eastman presiding as President. There were six sessions, and, never before in the history of the venerable association have so many noted speakers trod the boards at its annual meeting, nor the attendance nearly so large. Audiences varying from 500 to 800 in number, faced the speakers at every session; the number at the last one, despite the fact that a howling blizzard was in full swing outside, being fully as large as at any of the former ones; but not a man, woman or child left their seats until the curtain fell on the last act, Major Henry E. Alvord's paper, the reading of which did not conclude till 10 o'clock, Thursday evening.

The program, which, with one exception, was carried out as printed—Prof. I. P. Roberts, of Cornell, who was scheduled for an address at the Wednesday evening session, being changed to the second session—was as follows:

WEDNESDAY MORNING.

Address of welcome, Mr. Edwin Dodge, of Gouverneur. Response, Jared Van Wagenen, Jr., Lawyersville, Schoharie Co. The President next appointed the regular committees, after which he read his annual address, supplemented with a few general thoughts which were very appropriate, coming, as they did, by inspiration caused by the great audience that greeted him as well as by the immense number of exhibits of butter, cheese, and the dairy machinery in the two large halls under the Opera House.

The Committees were as follows: On Resolutions: Dr. L. L. Van Slyke, Geneva; C. M. Lamont, Owego; F. E. Dawley, Fayetteville. On Nominations: W. W. Hall, Gouverneur; H. E. Cook, Denmark; Geo. A. Smith, Frankfort; S. Brown Richardson, Lowville; and Jared Van Wagenen, Jr., Lawyersville.

AFTERNOON SESSION.

Music—Instrumental. Address, "Forage and Fertility',, Prof. I. P. Roberts, Cornell University, Ithaca.

Illustrated address, "Conformation of the Dairy Cow", ex-Governor W. D. Hoard, Fort Atkinson, Wisconsin.

EVENING SESSION.

Address, "Dairy Bacteriology", Prof. H. H. Harding, of the State Experiment Station, Geneva. It had been scheduled for the afternoon session but was changed to accommodate Prof. Roberts, who had an engagement with the Western New York Horticultural Society, Rochester, which was then in session. Dr. Van Slyke read an excellent and instructive paper, having for a text, "Food Adulteration". There was also an entertaining musical favor, consisting of a tenor solo with accompaniment of three violins and cello, artistically played.

WEDNESDAY MORNING.

Menu was as follows: Vocal selection. "The Cheesemakers"; paper, "The Patron's Relation to the Cheesemaker"; H. E. Cook, of the New York Farmer's Institute Force, Denmark; address, "The Construction of Curing Rooms, and the Curing of Cheese", H. H. Dean, of the Dairy Department of the Ontario Agricultural College, Guelph, Ontario, Canada. Discussion.

AFTERNOON SESSION.

Vocal quartette. Address, "The Experiment Station as a Factor in Dairy Progress", Prof. W. H. Jordan, Director of the New York State Experiment Station, Geneva; address, "Reducing the Cost of Production", ex-Governor Hoard.

LAST SESSION.

Vocal music. Address by Major H. E. Alvord, Chief of the Dairy Division of Agriculture, Washington, D. C.

Owing to the length of the various addresses and papers, the question box exercise and very much of the proposed discussion on the program was ommitted. "More discussions and less talk", said an old dairyman to me, "would have suited my purpose better." But, there is always more or less criticism, at such meetings, and, no doubt but some one would have kicked had the Savior been present and preached again his "Sermon on the Mount."

The program so extended, the subjects discussed so varied, the DAIRYMAN'S space and my time so limited, no attempt was made to report or condense any of the proceedings; but I am able, through the courtesy of the secretary, Mr. S. Brown Richardson, and Mr. Ellis Woodworth, superintendent of exhibits, to give you the resolutions adopted, the scores of butter and cheese, and the names of those exhibiting dairy machinery. The latter list was as follows:

Vermont Farm Machine Co, six sizes of separators, from 250 to 3,000 pounds of milk per hour; improved largest size cream vat; large square churn, 300-gallons capacity; latest improved "Ageas" milk tester; butter carriers, butter printers, dairy churns, butter workers, and Babcock testers, and Williams' improved sap evaporators; also dog or sheep tread powers. Mr. R. J. Sanford was the representative.

D. H. Burrell & Co., Little Falls: Five cream separators of the "Empire" model; capacities from 160 to 3,000 pounds. New patent gang cheese press adjusted for hoops from twelve to sixteen inches diameter, with continuous pressure blocks, operated by lever power, "Facil" Babcock testers for hand or steam power, and a full line of Hansen's extracts and colors.

St. Albans Foundry Co., represented by E. W. Hoyt, Stamford, N. Y., Baley Jr. tread powers and one horse tread powers, five lines, from dog to four horses. The firm also manufactures a full line of threshers, and drag and circular saws; also ensilage shredders and cutters. A sample of shredded ensilage sixteen months old, from Mr. Dawley's silo, and in perfect condition, was on exhibition, which was not acid to the taste nor gave off any offensive odor.

Mosely & Stoddard, dog powers, Stoddard pasteurizing vat, and Facil Babcock testers—both hand and steam power. Represented by E. J. Parker and F. E. Benedict.

Diamond Crystal Salt Co., St. Clair, Mich., by H. W. Dewey, Sidney Centre, N. Y.

Sharples Cream Separator Co., four machines, including their new tubular machine, just out; capacities 300 to 2,500 pounds milk. Russian Babcock testers. Elgin Babcock "No Tin" tester, with boiler and engine complete.

Thatcher Manufacturing Co., Potsdam, N. Y., represented by L. L. Barnhart, and G. G. Gilbert, full line of milk dealers' supplies and butter colors; samples of butter exhibited showing the difference in the effects between aniline and vegetable colors, the vegetable being of a light straw color; that colored by aniline having a pinkish color. There were five brands of butter color on exhibition, four of aniline and one of vegetable.

Worcester Salt Co., by E. L. Mills, eight different forms of packages.

Fuller's Curd Mill, Fred B. Fuller, both hand and power mills.

Genesee Salt Co., by E. B. Willey, thirty different forms of packages.

Wells, Richardson & Co., by D. F. Davis.

Indurated Fibre Ware Co., Cooley & Hays, N. Y., by F. W. Bosson, fibre butter packages, in one of which was an exhibition of butter made by A. M. Woodward, of Rodman, N. Y.

The Bennett & Millitt Co., pioneer clover meal, Gouverneur, ground clover for calves and chickens—an attractive and new feature at such exhibitions, and which occupied one-sixth of the floor space in one hall. This poultry food was highly endorsed by a number of chicken men present. Samples will be sent free to any applicant. The exhibit was represented by the members of the firm.

DeLaval Separator Co., N. Y., full line of Alpha and other machines, testers, etc. Represented by J. J. Berrigan.

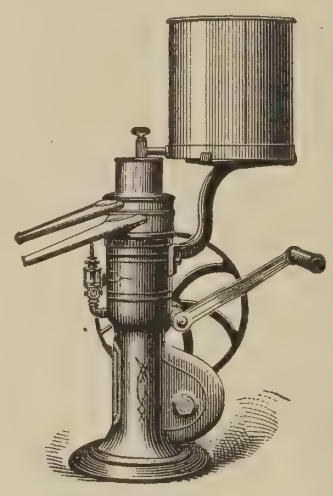
Pohl's Automatic Curd Agitator, by J. Fred Schlappie, manufactured at Vernon, N. Y. only one size, but endorsed by all the expert cheese makers of New York. Gov. Hoard, upon examining the working model, expressed the opinion that it was an excellent device for agitating cheese curd.

Oaks & Burger, Cataraugus, New York, Jacketed cream cans, tinned steel, cheese hoops, etc., by E. G. Dretrect; E. G. Elliot & Co., parchment paper lining for butter packages; Champion Milk Cooler Co.,

All The Prize Winners at Sioux Falls Used "The Kind That Has No Mud."

FIRST PIRZE—A. W. McCall, Creston, Iowa, score, 97
SECOND PRIZE—O. P. JENSEN, Wells, Minn., score, 96½

Prize Winners Always Use WELLS, RICHARDSON & CO.'S Improved Butter Color.



National... Cream Separator.

Ease of Running	The NATIONAL is the Best.
Perfection of Skimming	The NATIONAL is the Bes
Quality of Cream	The NATIONAL is the Best.
Strength and Durability	The NATIONAL is the Best.
Ease of Cleaning	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

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THE AMERICAN Cream Separator

PRICE - - - $65

Still at the Head, Receiving First Premium and Diploma At The ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S M. BARRE, Winnepeg, Man.

American Separator Co., Box 1023, BAINBRIDGE, N. Y

HARVEY'S ANTI-SUCKING BITS For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent post-paid for 50 CENTS. Will send as premium for ONE NEW SUBSCRIBER

WATCH AND CHAIN FOR ONE DAY'S WORK.



Boys and Girls can get a Nickel-Plated Watch, also a Chain and Charm for selling 11-2 dozen Packages of Bluine at 10 cents each. Send your full address by return mail and we will forward the Bluine post-paid, and a large Premium List. No money required.

BLUINE CO. Box 356 Concord Junction, Mass.

Mammoth Bronze Turkeys from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write H. P. West, Fayetteville, Wis.

Cortland, N. Y., two sizes of coolers shown; also Page Woven Wire Fence Co.'s goods. Door mats, fence wire, ornamented work for yards and cemeteries, gates, etc., by C. W. Waterman, Spring Lake, N. Y.; Alderney Butter Color by the Heller and Merz Co., N. Y., a large number of samples.

There were some other exhibits of minor things, but, the men having them in charge, had gone to the "show" leaving them to advertise themselves, and do their own blowing. Hence their omission. But Mr. E. J. Willey, representing the Smith Lee Co., of Canastota, showed a unique cap for milk bottles, which is cheap in price, being made of especially prepared paper. It seals the bottle perfectly, will not break when being taken from the neck of the bottle; may be withdrawn by the thumb and fingers; is easily cleaned and may be used several times before becoming useless.

In one of the exhibition halls was a novel and very beautiful exhibit of butter; being of highly artistic designs. It consisted of a house, its upright or main part being 18x12 inches, with an "L" 6x10 inches, with piazzas, chimneys, pillars, cellar walls, windows, blinds and doors, also door steps. In short, everything was complete, it being a perfect representation in miniature form, of Mr. L. W. Dryer's house, in Cumberland Centre, Maine.

The main portion of the house was of two stories, the "L" or wing part, one and a half stories. Another unique exhibit was a representation of the battle ship Maine, as she appeared with her smoke stacks, funnels, guns, and boats, before she was blown up There was also a bust, about half size, of Mr. Dryer, made from a photograph which stood beside it, that showed great artistic ability on the part of the sculptor, if he may be called a such, as it was as near perfect in form and feature as human hands could fashion it. Even the eyebrows, eyewinkers and mustache were worked out in hair lines to perfection.

A large eagle nearly half size, with a small American flag flying from a pole thrust into his head, stood near the bust, and beside him a mirror lying on the table on which were butter ducks and swans. Their position on the mirror gave a perfect representation of so many birds sitting at rest on some smooth glassy lake.

Another beautiful exhibit was a large group of yellow roses, full size and beautifully arranged, from the Hermitage farm, Providence, R. I. Miss C. E. Williams, of Bowdingham, Maine, was the artist who made the battle ship and roses.

This beautiful exhibit was sent at the request of our association, by the Maine Department of Agriculture, having been first exhibited at the Maine Dairymen's convention at Portland, last December. The color was that of light straw, and, notwithstanding its age and long shipment, there was not a defect in it. But one could see here and there, in the mouldings of the cornice and the door and window casings, a few fine particles of salt. That was all the effect of age to be discerned.

The whole exhibit ought to have been photographed and framed for use by the state association at its regular annual meetings.

In my next, I will send list of scores, together with the resolutions adopted.

Belleville, N. Y. C W. JENNINGS.

Building an Oval Silo.

ED. HOARD'S DAIRYMAN—Your correspondent, J. B. Early, asks respecting a silo he proposes to build, "Are there any such silos in use in the East?" I beg to say that I have built a similar one within a year. It is oval in shape, the extra length being about 24 feet and its width 13 feet; its height is 30 feet. It occupies one of the bays in my hay barn—though it projects outside the barn about 6 or 7 feet. I put in a substantial foundation of stone, on which a sill rests. The studding is 3×4 feet and spliced in places. The sheeting is of spruce ½×5, put on laterally. The sheeting is placed on both sides. After a few feet of sheeting had been nailed, I had three thicknesses of the best tarred paper put on, and then another course of the sheeting. The whole of the inside of the silo was carried up in this way, the joists, of course, being carefully broken in the laying of the second course. The bottom of the silo is of cement. The outside of the silo which projects from the barn, is sheeted in the same way, except that but one thickness of sheeting is used. The only object of this outside sheeting is appearance, and the protection of the studding. The silo is tight enough. without it. In the lower outside sheeting strips, I have occasional holes bored to let air pass up between the sheeting and studding, and so prevent decay. The silo was filled in September, and the ensilage is all I can desire. I do not remember ever to have seen a more satisfactory silo, and I hope Mr. Early will get as good a one, or even better, if that is possible.

C. L. HUTCHINS.

Punkatasset Farm, Middlesex Co., Mass.

Some Alfalfa Questions.

ED. HOARD'S DAIRYMAN: —1. Would you, or some of your readers, who have had experience in handling alfalfa or clover for ensilage purposes, state through the columns of your valued paper, what method of handling, from the standing crop to the ensilage cutter, they have found to work most satisfactory?

2. We sometimes are troubled with cows bloating on alfalfa pasture. Is there any similar trouble when alfalfa is fed as silage?

You may think these questions very trivial, but for one who has had no experience in handling silage, in fact having never seen but one silo, they are as pertinent as any that in my ignorance would seem to interest me most. YOUNG FARMER.

California.

Cupid's work is done when the baby comes. The soft, little, clinging, helpless mite is the crown of love. Its coming marks the completion of Cupid's object. Cupid brings two loving souls together—the baby holds them together.



A woman is never so womanly, so beautiful, so happy as when she is a mother. Yet motherhood is denied to some women and feared by others.

The fear of motherhood is rapidly passing away and nothing has done so much to drive it away as the record of Dr. Pierce's Favorite Prescription.

Dr. Pierce has held that danger and pain at the time of parturition were really unnecessary and unnatural, and that if every woman were healthy and strong as Nature meant her to be this function would be performed painlessly and safely. The abuse of centuries of corsets—of health destroying inactivity—of debilitating artificial life have made it impossible for some women to fully return to the perfect healthfulness of a natural state but every woman may be helped to a large degree. The organs directly involved may be strengthened, purified, invigorated for the time of trial and for this purpose Dr. Pierce's Favorite Prescription has been used with success by hundreds of thousands of women. It is the product of the skill and experience of a regularly graduated physician—a skilled specialist who for over thirty years has successfully treated the diseases of women.



Unlike many modern medicines Dr. Pierce's Favorite Prescription contains no whisky, alcohol, sugar, syrup, opium or narcotic of any kind and its use does not, therefore, create a craving for stimulants.

Mrs. Annie Blacker, of 629 Catherine St., Syracuse, N. Y., writes: "Your medicines have done wonders for me. For years my health was very poor; I had four miscarriages, but since taking Dr. Pierce's Golden Medical Discovery and 'Favorite Prescription' I have much better health, and I now have a fine healthy baby."

Six Tools in One.

Remove one bolt from the "PLANET JR." No. 4 Combined Drill, and in a minute you can have a perfect Wheel-hoe, a Cultivator, a Rake, or a Plow, as you please. The drill drops in hills at any distance apart, or sows perfectly in drills, as desired. SIX TOOLS IN ONE—and each the best tool of its kind made.

This quick adaptation to the work is the great feature of all the "PLANET JR." tools—hand-drills, wheel-hoes, horse-hoes, and two-horse tools. The swiftness and cheapness of their work are the secret of farming success.

The new "PLANET JR." Catalogue for 1899 not only describes all these wonderful tools, but includes also SIXTEEN FULL PAGES of fine photographic views—interesting field scenes in France, New Zealand, etc., showing the different crops and methods of cultivation with the "PLANET JR." tools at work. Write us for a copy; it's sent free.

$500 in Gold for the best gardens in 1899. Write for particulars.

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stand for the highest value known to the incubator art. It takes a book of 228 pages to tell all about them and our large pure-bred poultry plant, poultry supplies, etc. Sent on receipt of 10c in stamps. RELIABLE INCUBATOR and BROODER Co. Box B 51, Quincy, Ill.



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MONEY SAVED IS MONEY EARNED.

If you buy an article of the proper quality you immediately cut off the expense of repair. To save repair saves money. To save money earns money. You stop all expense of repair when you buy a set of

ELECTRIC STEEL WHEELS.

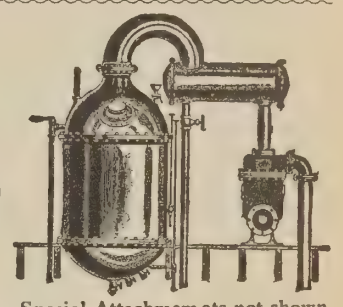
They neither break down, warp, rot, get loose or shed the tire and last indefinitely. Made to fit any skein, any height, any width of tire. Send for free illust'd catalogue of these and our ELECTRIC HANDY WAGON.

ELECTRIC WHEEL CO., Box 130. QUINCY, ILL.



Heel Plate For Walking or Riding Plows. Makes share last longer, makes it self-sharpening and prevents plow from swinging either way. It will make plow run same in light and heavy soils, or with 2 or 3 horses. It is a wonder worker. If you use a plow at all it will be worth $5 to you to investigate this simple device. It weighs 8 oz. and a postal will bring you full description and a beautiful catalog (with hand made half-tone pictures) of up-to-date implements. MORRISON MFG. CO., Ft. Madison, Iowa.

Condensed... Milk Factories



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Built Complete By

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We are the only firm that builds factories complete, put them in operation and guarantee results.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL Disinfectant That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.



ILLUSTRATION.

This picture is a rough sketch taken from one of the full-page photographic views in the new "Planet Jr." catalogue for 1899. It shows how they raise onions by the ship load in Yankeeland; and it rather takes one's breath away to think of one onion grower investing in twenty drills just for sowing the seed.

The "Planet Jr." catalogue for 1899 is full of pictures like these: Farmers and farmer's sons, and farmers' wives, and "their sisters, and their cousins and their aunts," will all want to have a turn at this interesting pamphlet; for it shows views of farm scenes all over the world with the different crops and methods of cultivation, and the oxen and horses, and other kinds of motive power. Of course, it's an advertisement; that's what it's made for; but it's one of the best advertisements that we have ever seen, and one of the most interesting that any farmer is likely to get hold of. You can get a copy free by sending a postal to S. L. Allen & Co., Phi'adelphia.

Comments and Queries from Robinswood Farm.

Paper No. III.

ED. HOARD'S DAIRYMAN:—I observe that if one has patience, his quest for information, as a rule, is answered in HOARD'S DAIRYMAN, in time, without undergoing the trouble of formulating questions. Some one of its readers or the editor seem to know and anticipate one's queries. But in all the matter relating to silo coverings, no one, so far as I know, has brought forward the method we use at Robinswood farm. We cover the ensilage with a single layer of boards, then cover the boards with lapped layers of glazed (pitched) building paper, held down with a little loose hay. The result is that we have, practically, no loss of ensilage. When the ensilage is uncovered for use, the hay is fed out, the building paper is rolled up and saved for the next season, and the boards stored away on the timbers at the top of the silo. I don't know if any one else has used this method, but it seems about perfect. The building paper is not the tar smelling kind, but is impervious to air and moisture. We also use it in between the two layers of boards lining the silo, which is square and built in the barn bay.

We take care to see that the chopped ears, as they fall from the carrier, are shoveled equally over the surface of the ensilage, and that the sides and corners are trodden very firmly. We grow our ensilage corn in hills, planting about nine grains to the hill, and cultivating both ways. Taking everything into consideration we judge that this is the best way. The stalks are heavily eared, and there is probably about the greatest amount of concentrated digestible nutrients grown to the acre in this way. If grown in rows, with stalks about eight inches apart, there would be produced a larger total of food, but it would not be so concentrated; the labor of culture and cutting slightly more, while the extra cultivation shows in the corn and subsequent crops. We have found an early maturing local variety gives the best result. A neighbor evolved it by a process of selection, running back over a period of fifty years. It makes a rich feed, and in connection with clover hay and oat hay, little or no grain need be bought.

When I look at the smallness of the butter-fat checks received, and the bigness of grain bills, there are terrible doubts arise in my mind, and I appeal for light. I don't find it even in that remarkable compendium of information "Feeds and Feeding." The question that is of importance for me, and of vastly greater importance for the farmers who are sending in milk to the Gilmanton creamery, to settle, is as to the nature of the food we shall feed our cows. This is of more pressing importance than the question of the nature of the cows to be kept in the future.

Query 1st. Will it pay the New England farmer to buy, in hard cash, digestible nutrients at prices prevalent, when butter fat returns eighteen cents net per pound on an average?

Query 2nd. Will it pay to buy protein for ration balancing purposes, under the same conditions, and only considering the returns in cash from butter, skim milk products, as pork, veal, etc?

I take it for granted that if the fertilizing value of the nitrogenous foods can be utilized in auxiliary products, such as apples, potatos, beans, hay, etc., such purchases will pay; but how is it otherwise? If a man is turning his labor into cash through the agency of the dairy cow, it behooves him to grow those crops that will, so far as possible, give well balanced rations; but is it going to pay him to spend his money to secure the most perfect balance, and to increase the amounts of digestible nutrients?

Query 3rd. Where is the golden mean in supplying nutrients which can be converted into milk?

Query 4th. How far should the production of milk be pushed in breeding stock for the best good of progeny? It is certain that every ounce of digested nourishment absorbed results in a certain amount of wear and tear on the liver, kidneys, mammary glands and other organs of the cow. Any amount of nourishment absorbed over and above what is needed for the production of the anatomical structure of the cow, and its physiological functions, including respiration, milk production and other glandular work, must result in plethora, undue wear and tear on the organs of excretion, and induce disordered conditions of one or another kind. But we are to understand that it is good economy to supply nourishment in quantity up to the greatest milk production, but stopping short of plethora.

Query 5th. What is the nourishing constituents of the natural upland hay of the New England hill regions? Some redtop grows in moist spots; but the bulk of it is what the local farmers call white top. Is this a variety of redtop? I do not find any mention of whitetop in the books. There is quite a large amount of witch grass in cultivated lands; but this so called whitetop seems to be the natural grass of the region. It will go on growing and bearing moderate crops indefinately on our hill fields. Its elements must be the equivalent of the mineral decomposition of the granite rocks, and the nitrogen and ammonia washed out of the atmosphere by the rain and snow. There are probably not a dozen nitrifying microbes to the square acre of these old grass fields, from which all evidences of artificial manuring has disappeared. At all events the hay from this grass constitutes the bulk of the fodder of the Gilmanton farmer, and it is of importance to know what is needed as an addition to balance it for milk production. When land gets to be of enough value to remove more of the rocks from the soil, clover will take a larger part in the feed for cows in this region, in place of this fodder. Here and there we find examples of those who clear a piece of land of stones near the barn and grow silage corn on it every year.

Query 6th. To what extent ought the advocacy of dairying, as an industry in the United States be carried? What is going to be the outcome of all this creamery establishment and cheap scientific cow feeding? The price of fine butter is very low now. There are parts of the county, like our Gilmanton region, that are fitted for nothing else. But what is to become of such regions if the farmers of the flat, easily cultivated lands of the county, go into dairying? It would seem as if the sandy soils of the lower half of the state of New Jersey could cheaply produce all the corn ensilage and clover to make the butter for the whole world. Electricity and other locomotive power is steadily reducing the demand for horse fodder. Is all of this to go into butter and cheese? Ought not the owner of the more easily tilled soil be induced to adopt systems of culture, producing crops in which the agency of the cow is not to be considered as profitable? The cotton raiser certainly does not need the cow as a means of soil renovation; nor does the grain grower or fruit farmer. Crimson clover plowed under would probably be a cheaper means of bringing up land for many farmers, than corn and ordinary clover fed to cows. Whatever policy the farmer of other parts of the county may adopt, the New Hampshire hill farmer has got to milk cows or go to the wall. J. M. W. KITCHEN, M. D.

New Hampshire.

On page 980, of the last volume of the DAIRYMAN, our correspondent strongly advocated the use of the scrub cow for the scrub farmer and the dual-purpose cow for the man who was more advanced in dairying and claiming that such animals would be found more profitable for such men. Now our correspondent has doubts when he compares the smallness of the butter fat check and the size of the grain bill. The DAIRYMAN would suggest that such ratio will continue so long as the Gilmanton dairymen continue to feed expensive grain to dual or general-purpose animals.

A man will think twice before he will buy a stove that will waste fuel, but he will think nothing of wasting a ton of feed on an animal that can return but a small part of its value, consoling himself with the prospect of a few extra pounds of cow beef at the end of her usefulness as a dairy animal, losing meanwhile many times the value of the added beef in butter fat.

We would suggest to our correspondent to examine his cows first and see if there is not the cause of the adverse ratio between butter fat and feed.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

MANGE.

My cows have a white scab on their neck and sides and shoulders, some as large as a half dollar, and about one-eighth inch in height. Can scratch them off with the hair then the skin looks bloody. It seems to be contagious. A. W.

Minn.

ANSWER.

Tar soap, one ounce, fish oil, one quart, thoroughly mix and gently rub in well three times a day.

It is to all intents contagious, so separate the affected at once, and thoroughly disinfect all and everything possible. Be careful of your hands, they may become infected, and others too.

CHRONIC CONSTIPATION.

I have a sick cow. She is constipated. I have given her salts several times, but in a day or so she is just as bad as ever. Her droppings are hard and coarse, almost like horse manure. She don't chew her cud. She is getting thinner every day. I tried to feed her bran with a little ground flax seed in it, but she would not eat it. Her milk has almost entirely dried up. She has been this way for over three weeks. J. F.

California.

ANSWER.

If large, give the cow six drams of podophyllum each morning and two drams of fluid extract of dandelion in six ounces of water. This is a direct, certain, and powerful hepatic. There is no doubt but the cow is afflicted with a torpid fever. Feed sloppy food continuously for awhile. Give the medicine for three mornings, then rest two days, then repeat two doses, then 4 drams a day until the bowels are free.

SPOTS ON PLACENTA.

I had a two-year-old heifer come fresh on the 12th inst. about eight days after date for calving. Calf came all right, the placenta to, both inside of an hour, but the placenta about one-third of it, the last third, was covered with spots of something like lean meat, soft and livery; some of them were 2in.x4in. in size, some one inch but dotted over with these on outside; placenta seemed extra thick where spots were. J. F.

Amery, Wis.

ANSWER.

I have nothing to explain. I expect the lean meat you speak of was, no doubt, the cotyledons, and the cow being fat they were larger and softer, etc. This is all I can explain.

PARALYSIS OF OPTIC NERVE.

I have a half blood Jersey cow, 8 or 9 years old; dropped calf in October 10th. Gave her usual amount of milk until in December, the first night, I had to stall them. Gave them

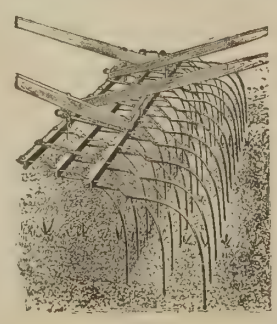


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sorghum cane. (This is my hay). Next morning she had scours and would not eat grain. At noon was blind and has been ever since; in two days she seemed to lose all use of her hind quarters. J. B. W.
Brownwood, Texas.

ANSWER.

Looks to me like paralysis of the optic nerve, but are not quite certain. You need a practical man to doctor the cow. As a faint hope of help, squeeze into the lower lid of the eyes, tincture of arnica and tincture of opium, equal parts. Pull the lid out a little, and gently squeeze a small part of sponge which has been soaked in the mixed tinctures, twice a day, for a while.

CANNOT GET WITH CALF.

I have a young cow that aborted last winter. She can't breed and is a very good cow. I would like to get her cured so I could get her with calf. G. S. W.
Whatcom Co., Wash.

ANSWER.

Read the ads. in the DAIRYMAN and select the best medicine you feel inclined to choose. There are several, all of which are especially prepared for failing to breed. Such is the best, simplest and easiest method to suit your purpose.

REMOVING WARTS.

How can I take the warts off a cow's teats?
McKeesport, Pa. W. J. R.

ANSWER.

Tie a piece of tow, sponge or cotton batten, to the end of a pencil-sized stick, dip this into butter of antimony, and touch each wart twice a day until not needed; alternate this with nitric acid. Be careful not to touch any other portion of the udder. Keep off your hands, clothing, etc., etc.

DIFFICULTY IN CALVING.

I had a grade heifer, 23 months old, due to calve. She was in fine condition and well formed. I saw she was having trouble and made an examination and found the calf completely turned around, with hind legs doubled under and the hocks interfered. I sent for a veterinary and he said he did all he could and it was impossible for him to turn the calf or to draw the hind legs back, and said the only recourse was to cut the calf's legs off, and in all probability the cow would die, and he advised killing her. What I want to know is what to do in future if anything happens like this. I did as surgeon advised and killed her. W. F. D.
Bellfontain, Mo.

AFSWER.

Can't tell you. You need a practical, skillful person always for such difficult operation. None other should make the attempt, as such is always a difficult business, requiring good judgement and experience.

WORMS IN MARE.

My mare has worms, or at least one occasionally passes her bowels. They are from two to four inches long and taper from head to tail. The mare rubs the hair off her rump each side of her tail, and bites the manger, wagon tongue, neckyoke, etc.
Corydon, Pa. R. H. D.

ANSWER.

Your worms are the Ascarides, called pin worms, needle worms, etc. They inhabit the rectum and are out of the reach of medicines by the stomach. Inject the following: Fish oil, one pint, common turpenpine, one oz. only. This is to be violently shaken at each time immediately before using and keep the stuff from spilling upon the outside, or it will cause unpleasant irritation to the horse. Use this one day, then upon the next day, a strong solution of aloes. You will need a long nozzled syringe so as to reach well into the rectum.

STALL FOR COW SERVICE.

In your last issue of the DAIRYMAN I saw in your veterinary columns something in regard to stocks in which to place cows for service. They are not used around here. Will you please give in your paper a description of them? A READER.
Thetford, Vt.

ANSWER.

A good, large crotch of a tree, three feet in the ground, and a ring beyond to tie to, whilst the cow is in the stock. Have two side pieces, five feet long of hard wood, perfectly rounded and smooth, and fixed to two 3½ foot posts at the hind end, to which the side pieces are to be halved, half mortised. I kept two bulls for town service for over twenty years and never allowed either bull to be worried and fatigued by a rampant cow.

FALLING OFF IN MILK.

One of my cows is all out of whack; was fresh four weeks ago and milking better than 40 pounds per day when I bought her, one week after she was fresh. She continued to milk good for one week. The flow reduced to about half in a few days and is since reducing.

I had a competent veterinary prescribe for her, but admits that he don't understand why she don't yield to his treatment. She eats what hay and bran, ground oats and oil meal I give her, but has no thirst to speak of, therefore drinks very little. She has no fever, but looks very empty and has a tired look. Her dung comes in layers; there is a coating on the layers or between, like fine glue. SUBSCRIBER.
Grand Forks, N. Dak.

ANSWER.

If large, 1½ pounds of Epsom salts, 2 ozs. of ginger, 4 pints of boiling water poured upon this, and when at 104° give gradually as one dose. Put half a dram of nux vomica in the physic. Give all the salt she will eat for awhile. In six days give one dose of the same physic with the nux vomica. Don't clog her by forcing food upon her.

ANTHRAX.

I have had some sheep, one year ago I had one calf with them, two sheep were taken sick. I killed the sheep and buried them, then the calf took sick and I sent for a veterinary to come to my place, he told me he thought it was anthrax, and said I should kill the calf and bury deep, which I did. He said it was necessary to vaccinate all my stock, and if any more get sick I should have to call on the state veterinarian. He vaccinated all my stock twice at intervals of ten days or two weeks. Would it be necessary to re-vaccinate again next spring, as I bought one quite valuable bull and several cows last summer? I tore mangers and everything up and burned them, and whitewashed that stable twice since. C. R.
Sheridan, Wis.

ANSWER.

I believe vaccination to be through with. Bad colds will produce almost any form of disease, but your cows had passed the stage, which usually indicates a bad cold only. I don't like to antagonize or find fault with the opinions given. I have little chance for a correct diognosis. I would advise you to get the state veterinary surgeon as your best course.

NOSE BLEED—MANGE.

I bave a full blood Jersey, thin in flesh, that I bought this winter. Took good care of her, but she got off her feed but was all right again and ate well and seemed to be all right. About ten days ago, she bled at the nose and we thought she would bleed to death. She got over it and has not bled since. She ate well and seemed all right otherways. A fine two-year-old cow standing beside her bled at the same time, and several times since, but not as much. She seems all right otherways.

I have a fine lot of young heifers from six months to two years old that have a few sores or ring worms, as I call them, coming around the eyes and nose. I have used sulphur and lard and a small amount of carbolic acid, but they still come. G. F.
Michigan.

ANSWER.

Don't know the cause. There are many for such conditions. A personal examination is really necessary to arrive at a fair, rational diagnosis. I am in fear you have an exciting cause somewhere, else two animals would not be at all likely to be afflicted at the same time, with such an unusual affection.

TORPID LIVER.

I have a grade Jersey three years old in March, and freshened Dec. 1. Was very promising. She is now drying up and getting very poor. Eats all kinds of roughage quite well, but refuses all heavy grain. Is costive. Have given three or four doses of your cow physic; also some of Fowler's solution of arsenic, recommended by a veterinarian as a tonic. She has never had a cough and seemed to do well for a month after freshening. W. I. K.
Wrights Co., N. Y.

ANSWER.

Let arsenic alone. I expect a torpid liver is to blame. Give her four—only—drams of podophyllum—mandrake—in two ounces of old whiskey and four ounces of water, daily up to three—only—doses. Rest two days; then give four drams of golden seal for three days, one dose each day, in the same amount of whiskey and water. Rest four days, then repeat the mandrake for two doses, then the golden seal for two doses. In one week repeat each—only once. Then stop.

CLOSED TEAT.

My cow has had a front teat that has never given a drop of milk for the last two years. Last Sunday she dropped a calf and she had a fine udder, well shaped and all teats looked full even the dry one. Well, I tried the bad teat, squeezed very hard and I got milk and have been milking it ever since but there seems to be a lump inside with a sort of a cord running up into the udder, and when milking this lump will at times stop the flow of milk but after working teat and lump I again succeed in getting milk. Cow is about five years old. F. C.
Principio, Md.

ANSWER.

You need the best, and easiest milk tube to be had, and above all, a good dilating plug. This will be more than likely to open the teat permanently.

SORE FEET.

I have 11 cows. Have good warm barn, good hay, ground feed and nice spring water. Plank floor laid on 2 x 4 imbedded in gravel. But two of my cows have raw sores around top of hoof, and some of the others are sore between the hoof. About six years ago had two cows troubled the same way in summer time. I have been using ⅓ carbolic acid and ⅔ oil of tar. C. H. B.
Tavera, Wis.

ANSWER.

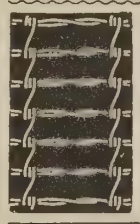
Let so called carbolic acid alone. Wash thoroughly with tar soap and hottish water. Then keep wet with fish oil one quart, oil of tar one ounce, thoroughly mixed; between times apply a cloth saturated with compound tincture of myrrh and aloes. Remove from the hard floor for a while. You have some general exciting cause somewhere, find and remove it.

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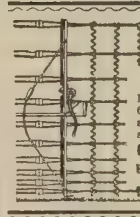


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Dr. WM. HORNE, Janesville, Wis.

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A Cure for Calf Scours.

ED. HOARD'S DAIRYMAN:—Would like to let you know what I have found to prevent calves from getting scours or diarrhœa.

Put about 1 pint of fresh water to about 4 quarts of milk, this is a cheap, simple remedy and have tried it almost a year, and since have not lost one; have made a practice of feeding all our calves with some water in the milk for about two weeks.

Last spring before I commenced using the above I had one calf that had the scours so bad she would not drink any more. My cheesemaker told me to try rennet; that is, take a calf's stomach and prepare it like you would if you would make cheese. I took a spoonful of rennet to about one quart of milk, and gave it to the calf, and by using that I saved the heifer calf. The rennet curdles the milk and keeps it in the stomach. It seems to be quite common among farmers to lose some calves having the scours; more so than it used to be. F. TSCHUDY.

Monroe, Green Co., Wis.

Special and Dual-Purpose Figures.

ED. HOARD'S DAIRYMAN—With the DAIRYMAN for a starter, here is a little example I have figured out, and what is true in New York state, I think will apply most any where.

The special-purpose dairyman gets per cow as follows:

7,000 lbs. milk at 70c per hundred	$49
Calf and milk fed to hogs	12.50
Total	$61.50

The dual-purpose dairyman gets

3,000 lbs. at 70c	$21
Calf, if a good one	12.50
Total	$33.50
Bal. in favor of special-purpose dairyman	28.00

Three years ago I was a dual-purpose dairyman, and had to sell all the crops I could spare to make as much as I do now, from my cows alone.

You probably will ask how I made the change. I came to the conclusion that I couldn't stay in the milk business with the beef cow as a partner. By weeding out my poorest cows, I brought the average of my herd to 5,000 pounds. I traded my Durham calves for Holsteins, bought a full blooded bull, made my stable warmer, built a stave silo and a cement drop, and tried to do everything by new methods. Some of my Holsteins have calved since, and with the addition of ensilage to my ration, I have brought the average of my herd, including heifers to 7,000 pounds.

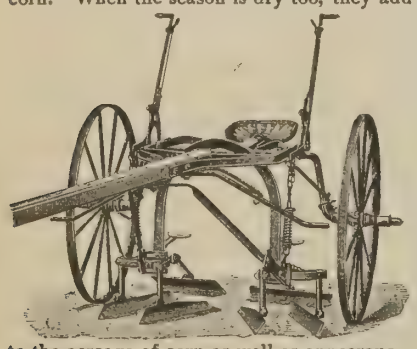
I always have something in the manger for my cows. A high strung animal as a good dairy cow, don't like to wait until after she is milked for her feed, any more than a hungry man likes to wait for his supper. You may say, "this is as a cow has been broken in." I don't think so. At least, it brings them to the stable at milking time, and when I open the door, I don't have to yell like an Apache to get them in. No whistling, singing, yelling or dogs are allowed in my stable.

I have set my standard at 10,000 pounds of 4% milk, and with HOARD'S DAIRYMAN as a partner, I expect to get there.

Chaut. Co., N. Y. W. H. PRITTIS.

ILLUSTRATION.

Tower's Surface Cultivators have been for many years noted for excellence in destroying weeds of all kinds infesting the growing corn. When the season is dry too, they add



to the acreage of corn as well as appearance. For a finish in cultivation all experts are agreed that such shallow tillage is desirable at all times. This, too, is in harmony with the experience of thousands of practical corn growers. An interesting treatise on corn culture will be mailed any one on writing J. D. Tower & Bros., Mendota, Ill. An illustration of the latest improved cultivator may be seen above.

CONSUMPTION

"THE GREAT WHITE PLAGUE."

Because of its striking resemblance in many respects to a heavy, destructive snow storm CONSUMPTION has been aptly called "The GREAT WHITE PLAGUE." It may be said also of CONSUMPTION that, as a rule, it comes on so gently and softly that its step—its earliest symptoms—is rarely heard Indeed, it's first presence or near approach is seldom suspected.

There is, perhaps, a slight cough, but little attention is paid to it. "Oh, it'll soon pass off," says the victim; "it doesn't amount to anything." But it perhaps does amount to a great deal. It may be the first danger signal that has been sounded. There has also been more or less "wasting away," a gradual loss of flesh and strength, that perhaps has attracted little or no attention.

As the disease progresses there may be slight raising of blood from the throat or chest, or a more or less persistent tickling in the throat, or there may be a shortness of breath, with or without pain in the chest; or there may be an increased tendency to "take cold," with a correspondingly diminished power to throw it off.

Or, again, the slow, quiet beginning may be indicated by a gradually increasing pallor or loss of color in the face, excepting, perhaps, a small bright red spot on each cheek, and in the female by diminution or cessation of menstrual discharge.

All of these conditions, especially when they show themselves prior to or during early adult life, are to be viewed with suspicion and regarded as sure indications that the unfortunate victim is nearing death's crater.

And it is at this stage that scientific medical treatment should begin. Cough, expectoration of a more or less thick, opaque substance of varying color, from whitish gray to green, sometimes of blood; increased shortness of breath, dull pains in the chest, advancing emaciation, with corresponding loss of weight and strength, profuse night sweats, feverishness and diarrhoea are prominent symptoms. Of course, not all of these symptoms are necessarily present in any one case, but some of them are, and any one should be a signal to be acted upon at once.

If CONSUMPTION be recognized in its early stages, the difficulty of curing it is greatly lessened, but that it can be cured, even when its victim is on the brink of death's crater, is an indisputable fact. It is a germ disease, and a system of treatment that will destroy these germs and restore such waste as has resulted from their presence will certainly and surely effect a permanent cure.

No ONE medicine combines in itself all the properties requisite for successfully curing consumption.

The Dr. Slocum Treatment embodies in its Four Preparations the most logical, advanced, scientific and successful cure.

When Dr. Slocum first published his theory, about twenty-five years ago, and asserted that CONSUMPTION was a contagious and curable disease, he was laughed at by his fellow-physicians. But he was not discouraged. He went on perfecting his System of Treatment, curing thousands of patients each year, and waiting patiently for the endorsement and approval of the medical world.

And he did not wait in vain. Strange to relate, the first open endorsement came from abroad—across the ocean. Dr. Sir William Broadbent, physician to Royal Family, at a recent meeting held in Marlborough House, presided over by the Prince of Wales, indorsed the principles upon which the Slocum System is founded. Now it is indorsed and approved by progressive, liberal-minded physicians everywhere.

The Dr. Slocum System of treatment embodies the healing powers of medicine, combined with the rebuilding and rejuvenating powers of food. It promptly allays the cough, relieves pain and other distressing symptoms, insures rest and sleep, and suspends or destroys the energies of the disease germs, while its food elements restore the waste tissues, increase the red corpuscles of the blood, steady the nerves and so invigorate and strengthen the whole body of the sufferer that it throws off and eliminates every element of the disease.

Elixirs, bitters, cordials and opium mixtures afford temporary relief in many cases, but they do not cure; they merely mask the symptoms and waste valuable time; they should be avoided studiously.

The Dr. Slocum System of Treatment not only removes the cause in CONSUMPTION, but it also prevents a recurrence of the disease by so enriching and purifying the blood that its powers of resistance become so great that the germs of the disease cannot again enter the lungs or find lodgment in the vital parts of the body. This proves its value as a preventive as well as a cure

Dr. Slocum has devoted more than twenty-five years to the study of Consumption in all its phases. He is familiar with its every stage and symptom. By means of the microscope he has studied its germs until he is perfectly familiar with their shape and form, their habits and the surest method of destroying them. You may therefore readily understand why the Dr. Slocum System of Treatment is an infallible cure for Consumption.

If you or anyone near and dear to you, or in whom you feel an interest, have any of the symptoms here described, do not delay, and thus waste valuable time, but begin the Dr. Slocum System of Treatment NOW. Every day of delay adds to the seriousness of your condition.

Consumption is an aggressive, merciless disease; it never relaxes its hold on its victim. On the contrary, both day and night it fights for the supremacy, and will always win if not checked by proper treatment.

The Dr. Slocum System of Treatment is not an experiment; it has cured thousands of cases, and it will cure you.

The FREE treatment is within the reach of all sufferers.

Write to the Doctor Today.

The Doctor will furnish you his Complete Free System of Treatment (Four Preparations) upon receipt of your request for same.

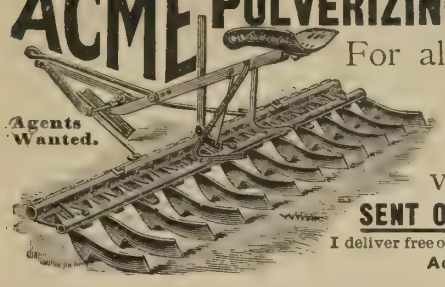
Address Dr. T. A. Slocum, 98 Pine street, New York City.

Consultation free, either in person or by mail.

When writing the doctor please tell him you read this article in THE HOARD'S DAIRYMAN.



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For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points

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Victor Disc Harrow —greatly improved for '99. Oil tubes to the bearings from top of frame—positively exclude all dust or dirt. Steel scrapers, double adjustment levers—easy to place gangs at any angle. Ball bearing—no side pressure and easy draft. Made 4, 5, 6, 7 and 8 ft. wide, with 18 or 20 in. discs. SEEDER ATTACHMENTS are made for 6, 7 and 8 ft. disc harrows.



Keystone Force Feed Broadcast Seeder are made 8½ or 11 ft. wide. Sows broadcast all small grains in any quantity in the best possible manner. Mounted on low steel wheels. Made with or without grass seed attachment. Equipped with CULTIVATOR ATTACHMENT if ordered. Made with end wheels or middle wheels. Has the best force feed we know. Send for special Seed Circulars.



Keystone Rotary Drop Corn Planter —it's a whole hill drop, each hole in seed plate holds enough grain for a hill. It never skips or misses. Equipped with Automatic Wire Reel. Has a drill attachment. Gear throws out automatically at end of row. Always drops at even depth because of the shoe gage on each runner.



Keystone Potato Planter —sprung quickly into popular favor because it is a simple and effective machine for the purpose at a reasonable price. Fits the needs of the man who grows an acre or two of potatoes, but who is not regularly in the business. Plants 10, 14, 17 or 20 inches apart in rows. Send for circulars.



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Grind grain in the mill that does not heat up and damage it.

QUAKER CITY Grinding Mill

Perfect action, avoiding friction, and giving the best meal. Grinds corn and cob, and meal for feed and table. Catalogue free.

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The A. W. Straub Co., 48 S. Canal St., Chicago,
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is made to grind all kinds of grain, cotton seed, corn and cob, shucked or unshucked, into coarse, medium or fine grist. Does it rapidly, cheaply, and with small power. Only mill made with DUPLEX GRINDERS. Don't buy a grinder until you get our free Catalogue, No. 16.

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EVERY DAY IN THE YEAR. MOST MEN



will pay $125 for a twine binder or a corn binder, machines that can only be used a few days in the entire year, and think nothing of it.

The Kemp Manure Spreader

costs much less than that, and can be used successfully every day in the year. It will earn the interest on the money every day it is used. Spreads all kinds of fine and coarse manure, wood ashes, lime, salt, etc. Spreads broadcast or drills in the row. We make a special drilling attachment for this machine, which is of unusual value to tobacco and cotton planters and southern truck farmers. Splendid new catalogue FREE. Tells all about it.

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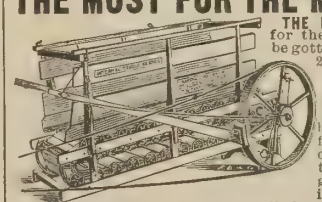
and will work well with either **green or dry corn.** Is easy to feed. It has a capacity of about 30 bushels per hour.

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is the easiest running machine on the market. Runs with 3-horse tread or any power that will equal or give more. Write for circulars, &c., free.

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THE MOST POWER for the money can be gotten from our 1, 2, 3 and 4-horse

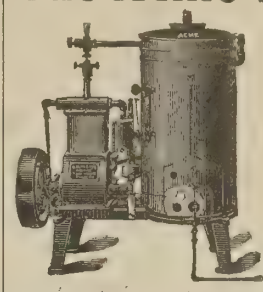
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because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

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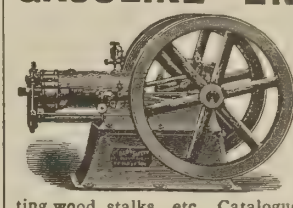
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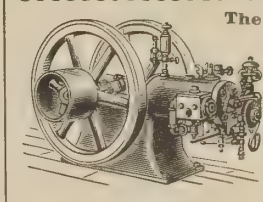


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Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**



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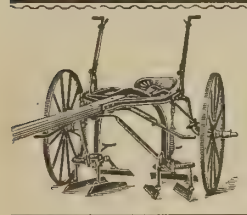
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Both Riding and Walking a Complete Success.

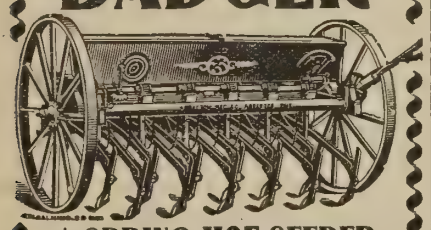


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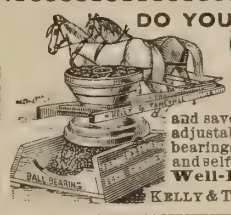
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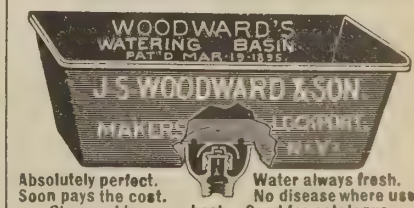
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Water always fresh. No disease where used. Send for catalogue.

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will sow your clover and timothy easily and evenly in any weather or wind; quantity per acre adjustable. Light weight, steel wheel, best made. **Catalogue free,** with prices.



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12 Feet
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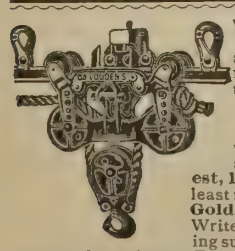
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With the Letz patent burrs, that don't dull when running empty. Grind all grain, damp or dry, as fine as desired, the oats so fine that it can be fed to pigs. Grind with less power than others, as they are made with roller bearing. A boy can operate them. Make no mistake—buy the best. Send for catalogue.

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...ressure between ...burrs in grinding ...s carried on chilled roller bearings.

Large inside burr revolves twice to sweep's one. Ordinary length sweep

Sold under an absolute guarantee to do double the amount of work of any other mill of same size or money refunded. Write for circulars and prices.

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SMALLEY FARM ENGINES



They are the newest and best known to the engine building art. A new LOCK VALVE makes them explosion-proof. Made in three sizes—2 to 6 H. P. It is constructed from our intimate knowledge of the needs of the users of light steam power. Everything — material, design and workmanship are the best. They ARE CHEAP, quality considered. Don't think of buying until you get our FREE CATALOGUE on FARM POWERS.

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IS THE STANDARD

STEAM PUMPS. AIR LIFTS.

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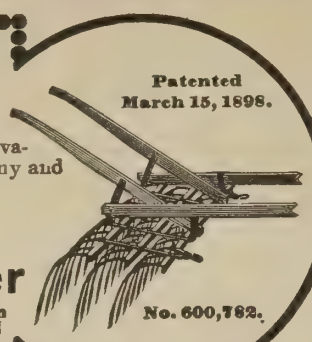
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Fields Without Weeds

Are the rule, not the exception, when the Success Weeder is used. Let us tell you about it; how it does the work of three ordinary cultivators. Saves time, money and labor. Weeds any and every field. Write to-day.

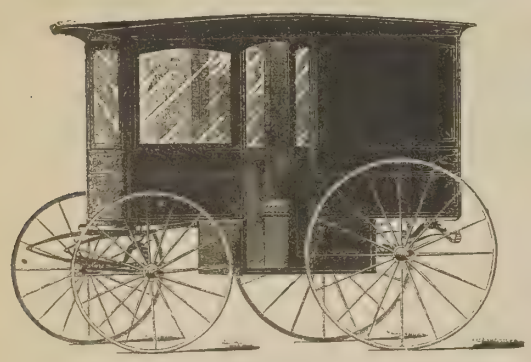


HALLOCK'S
Success Anti-Clog Weeder

Is thoroughly protected by patent. Infringements on the same will be prosecuted. Agents are requested to notify us of persons thus infringing.

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A Perfect Milk Wagon



On a Perfect . . .
Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order, and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

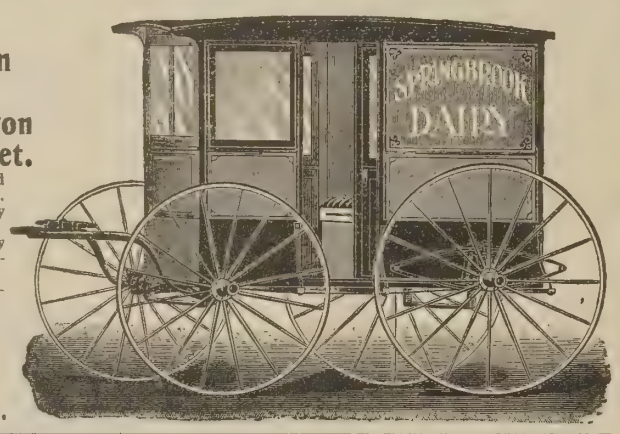
Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.

THE ONLY LOW-DOWN

Short Turn
Straight Bottom
Short Coupled
Light Draft Wagon
on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon Strong construction, nicely finished. ☞Send for catalogue, prices and terms Wagons for carrying bottled milk a specialty.



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No. 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

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Buggies $35 and Up.

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Thoroughly good. Fully guaranteed. No better one retails for $60. Such a price with quality is only possible under our plan of business.

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29 Eighth St. GOSHEN, INDIANA.

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$17.25 Buys this Steel 12-16 in., 2 lever harrow, 3-horse equalizer, with all modern improvements. Is made strong and durable. Sent C.O.D. subject to "Approval" on receipt of $2.00, to be returned at our expense if not positively the best harrow ever sold at the price.

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We manufacture and handle full and complete lines of Carriages, Buggies, Wagons, Farm Implements, Pianos, Organs, Twine, Bone Cutters, Incubators, and many other things at manufacturers' prices. Ask for Catalogue.

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BEST in the world from 1 cent per packet up. Celebrated for strong and rapid growth. Postage paid. Large lot of extra packages **Free** in every order. Oldest reliable seedsman in the west. Send yours and neighbor's address for prettiest large catalog ever printed.

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FREE Our handsome **Seed Catalogue,** or for a 2c. stamp, seed catalogue and **A PACKET of the Large German PANSY SEED**

Address, COLE'S SEED STORE, PELLA, IOWA.

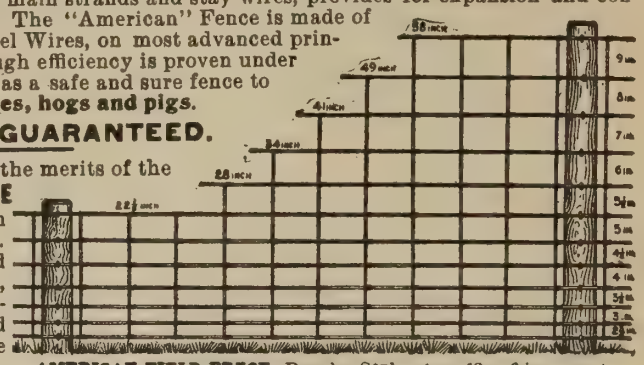
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Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

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AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

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MAMMOTH WHITE FRENCH. A sure preventive of **Hog Cholera.** Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.

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to be successful in these times must start with the best kinds of berries, which are, **Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant.** Catalogue (worth dollars) telling all about small fruit, **FREE.**

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Wholesale Grower. Rochester, N. Y.

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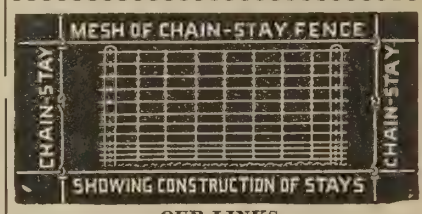
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because we sell you wire fence direct from the factory at wholesale prices.

The dealer does not give you a better fence than we do, but he charges you more for it. You can buy the

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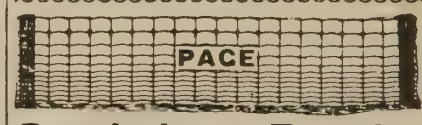
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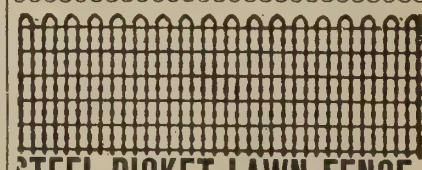
Will fight and defeat your own or your neighbors' unruly stock at every opportunity. But we need good, live, hustling agents to help it get the chance. Ask us about it. **CHAIN-STAY FENCE CO.,** 20 Miller St., Sterling, Ill.



Smokeless Powder

is used to escape notice. For years we've loaded with **black powder.** You've noticed the smoke, —why not promptly return our fire with a letter.

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Field and Hog Fence with or without bottom cable barbed. M. M. S. Poultry Fencing. Lawn and Farm Steel Gates and Posts.

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You cannot get it in a soft lateral wire. Look to the size and quality of the uprights as well.

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ADAM'S PORTABLE CORN CRIBS.



Two styles. Four sizes each, Adam's No. 1 Crib, The best made. Adam's No. 2 Crib for One Cent per bushel. Ask your dealer for them or write

W. J. ADAM,
Cheap and Convenient. **JOLIET, ILLS.**

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MARCH 3, 1899. NUMBER 13

University of Ill

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
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FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—Irving Nat'l Bank. Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
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C. J. ILSENG & CO., GENERAL COMMISSION MERCHANTS.

SPECIALTIES:—EGGS, BUTTER, POULTRY. 236 South Water Street,
REFERENCES:—State Bank of Chicago; C. Jevne & Co., Chicago, CHICAGO.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.



CHR. HANSEN'S Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

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Hundreds of creameries and dairy houses in the "butter belt" will this spring need to renew their Vats, Churns, Tinware, and all the machinery that goes to make up a first-class, high grade establishment. In buying of your local dealer you should specify that the articles shall have been manufactured by

Haney = Campbell Co.,

Of DUBUQUE, IOWA.

Their name is a guarantee of high quality and their goods can be bought at reasonable prices. We are also agents for the

SHARPLES CREAM SEPARATORS

The most easily operated and most generally satisfactory separators in the market. We have these separators in all sizes for both creamery and dairy use. We are manufacturers of creamery supplies. Send for our illustrated catalogue.

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(Not the Cheap Kind.)

YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

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ELLIOT'S PARCHMENT One-Half Ream, 8x11, FREE.

To Dairymen and others who will send 30c to pay postage

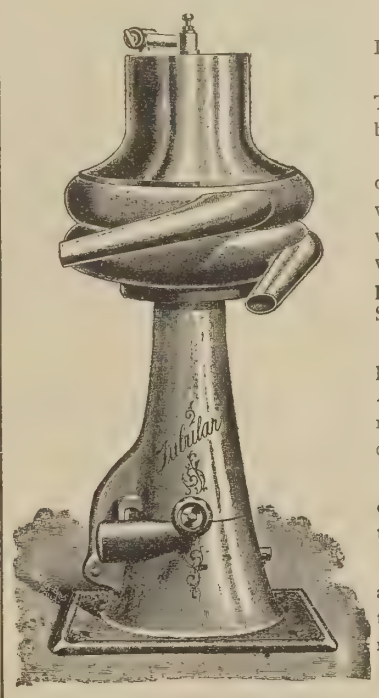
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Printing at Moderate Prices.

HISTORY.

But One Case of Scores of a Similar Character—A Recital of Practical Experience as against the Wild, Irresponsible Promises from a "Trick" Babcock Test Man.



ADAMS CENTER, N. Y., Dec. 27, 1898.

Dear Sir:—

As regards the trial test between the Sharples Tubular and the Alpha separator which we have been running at our factory.

Five thousand pounds of milk was all put into one vat. It was stirred continuously while two weigh cans were filled with milk until they both weighed alike, which was repeated until all the milk was weighed and run into two separate vats in the presence of the agent for the Alpha separator, the Sharples Separator having no representative there.

Each vat contained the same number of pounds. One vat was first separated with the Alpha, then the other with the Sharples Tubular machine. The cream was carefully cared for and churned the following day, each lot separately.

The Sharples "Tubular" cream churned out a little over seven pounds more butter than the Alpha.

Our buttermaker will make affidavit to the above results if it will be of any value to you. I think we must be convinced which is the best machine by this time.

Yours very truly,
HARRISON FULLER.

A Sharples Tubular will not only produce more butter from the same milk, but it will make a better quality of cream and butter than can be secured by any other means.

BRANCHES:—
Toledo, Ohio. Omaha, Neb.
Elgin, Ill. St. Paul, Minn.
Dubuque, Ia. San Francisco, Cal.

P. M. SHARPLES,
West Chester, Pa.

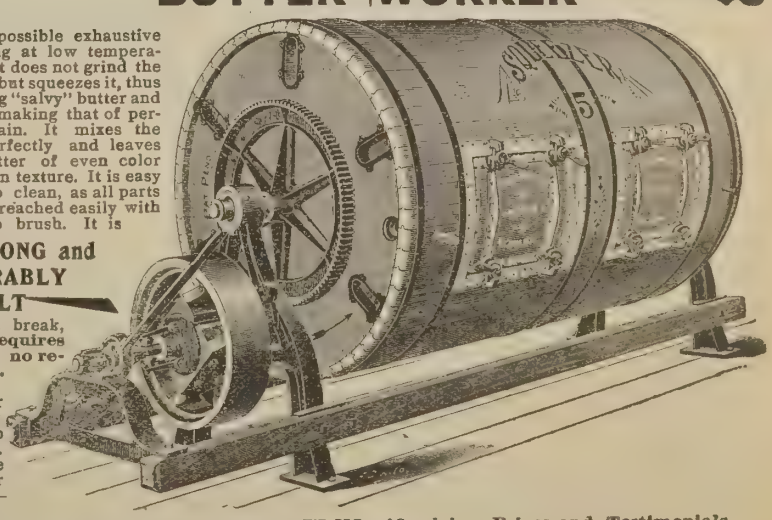
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.

ELGIN MANUFACTURING CO., - - Elgin Ill.



SUCCESS

This is the magic word that marks the limit of every man's aspiration. Men who have and men who will achieve success are those who take advantage of every faculty which the world affords in their particular line.

...The DISBROW

COMBINED CHURN and BUTTER WORKER.

IS ITSELF A SUCCESS,

And will promote the success of every man or institution which uses it.

It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

KNOWLEDGE



Of the aggregate results from your herd ought not to satisfy you. Your aim should be to bring the average up to the best results from your best cow. This is up-to-date dairying. What you want is quality, not quantity. In order to intelligently weed out your herd you should have one of our

IDEAL HAND TESTERS.

You may be surprised to find that some of your cows which have been "filling the pail" have been filling it with water. Knowledge gives confidence. These are things that IT WILL PAY YOU TO KNOW. Our prices on these Testers are reasonable. Write for them.



"Ideal" Jar Cup Finish.

In Our MILK DEALERS' SUPPLY DEPARTMENT

Can be found everything necessary for the Dairy or Milk Depot. Try our "IDEAL" Milk Jars and Caps We know our Jars are stronger, of better shape and color, than any other. Write for our special Milk Dealers' Price Current. Also our little booklet, "Suggestions to the Milk Dealer," FREE.



Printed Pulp Cap.

Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

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BRANCH HOUSES
KANSAS CITY, MO. MINNEAPOLIS, MINN.
WATERLOO, IOWA. OMAHA, NEB.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



Premium Butter

More than half of the Wisconsin Butter at the World's Fair **THAT SCORED 100 POINTS** was salted with VACUUM PAN SALT. More than three-fourths of all Premium Butter at Wisconsin State Fairs during the last five years was

Salted with VACUUM PAN SALT.

BUTTERS & PETERS SALT & LUMBER CO.,
LUDINGTON, MICH.

Wise Man No. 1:

M. F. MEYERS, Huron, S. D.—"When I make butter for exhibition, and want to score high, I always use WORCESTER SALT."

Wise Man No. 2:

"At the Michigan State Fair, Grand Rapids, my butter scored highest—97. Used WORCESTER SALT—the only salt I like to use for butter."

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FRANK G. HILDRETH, Herkimer, N. Y.—"Am awarded sweepstakes on butter—used the justly famous WORCESTER SALT. Never fonnd any other brand that was 'in it' when it came to a test."



WORCESTER SALT CO., No. 168 Duane St., NEW YORK.



The YOUNG
A ERATOR
And Cooler

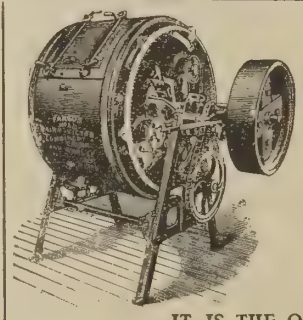
Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,
W. H. YOUNG,
Box 135, Aurora, Ill.

WINTER BUTTER

may be just as good as that from June grass if you know how to treat the milk.



The **PERFECTION**
MILK COOLER
AND AERATOR
will take out all the bad odors and flavors resulting from winter stabling and feeding. They cost but little but are invaluable in the dairy. Write for FREE Circulars.
L. R. LEWIS, Cortland, N. Y.



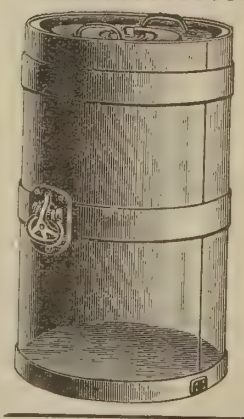
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,
Sole Manufacturers, - - CATTARAUGUS, N. Y

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

THE Wisconsin Cheese Makers Association, at its annual meeting elected the following officers: President, J. A. Carswell, Lone Rock; Vice President, E. L. Aderhold, Neenah; Secretary, U. S. Baer, Madison; Treasurer, H. E. Austin, Homer. Board of Directors: J. K. Powell, N w Lisbon, one year; J. W. Decker, Madison, two years; Thomas Johnson, Boaz, three years.

A Grand Prize Winner.

ED. HOARD'S DAIRYMAN:—I send you a cut of my young bull, Vermont Pogis, 2nd, A. J. C. C. 45316, dropped February 19th, 1896. His sire, Vermont Pogis, was by Stoke Pogis 3rd and Joy of Prospecta, a daughter of Old Pedro. His dam was Pride's Ruth, she by Rioter's Pride, and he by Stoke Pogis 3rd.

This young bull has run the power all summer to separate and churn. He also headed my herd at the Franklin County Fair, that took the grand herd prize.

Enosburg Falls, Vt. E. M. KIMBALL.

Butter Fat and Feed.—Annatto.—Co-operative Creameries.

ED. HOARD'S DAIRYMAN:—As among your late subscribers, I presume we shall ask questions that you have often answered before, but we are anxious to establish the latest and best methods of dairying and butter making here, and many of our people must begin at the beginning.

1. As to butter fat from feeding, etc., Dairy Commissioner, W. W Baker, of this state says in *Oregonian* of January 16th, page 35, 'It is now a settled point that feed, while it improves the animal and increases the volume of milk, does not increase the percentage of butter fat in the milk" Is that an exact statement of the case? It does not seem to accord with experience here. The manager of a creamery at Rainier, Oregon, tells me that in the spring when white clover is very rank, the test of buttter fat sometimes shows but 2½%, while the average for the year is 3.8%, and a farmer near Albany, Oregon, obtains a per cent of five when feeding wheat hay. Some of us think we do not understand the relation of butter fat to feed, especially as you insist so much on good feed and balanced rations. Will you explain the doctrine for beginners?

2. What is annatto, and what are its physiological effects—nutrition, inert, irritating or injurious to the human system?

3 Can you tell me what proportion of creameries in Wisconsin and Minnesota are on the co-operative plan? Of the United States? Of Denmark or any European country? H. S Lyman, Sec.

Clatsop, Co., Oregon.

The statement made by Mr Baker is on the assumption that when a cow is well and properly fed and taken care of, she will give milk of a certain richness. Beyond that, we cannot, by changing the composition or amount of feed, increase the per cent of fat in the milk, although the total amount of fat produced can be largely increased. The statement of your butter maker does not at all disprove this, although he is probably correct in his claim. Young, rank clover sometimes contains not over 10% of dry matter. A cow on such feed would require 160 pounds of green clover to sustain the daily bodily waste, and 240 pounds to make up an average ration of 24 pounds of dry matter per day, not taking into consideration the probable lower feeding value of the solids in such young clover. It is easily seen that on such feed a cow cannot eat enough to support herself, and give rich milk at the same time; consequently, the milk suffers. Most of the uncertainty regarding the effect of food on the composition of milk, comes from the fact that so many herds are improperly or under fed. A return to full feeding will frequently show a marked increase, both in per cent and total amount of fat produced, but when once the cow is brought up to her normal yield, we cannot, by any change in the feed, go beyond this point. Every cow has a point beyond which she will not go. She may fall short of it by improper feeding, but cannot be forced beyond it by any combination of feeds known to the dairyman.

Annatto is a coloring matter obtained from the seeds of the Bixa orellana, a plant found in Brazil. It seems to be an entirely neutral coloring material, without any effect on the human system.

We cannot find any figures on the number of co-operative creameries in Wisconsin. In Minnesota about 65% are co-operative. The other figures we cannot give.

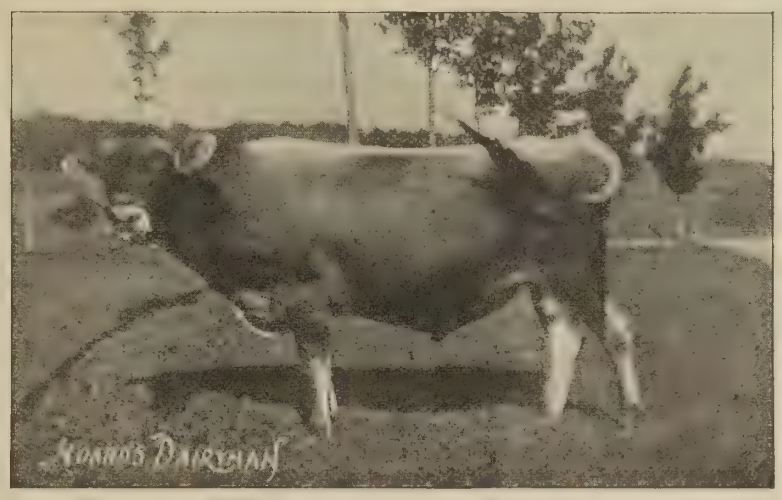
Calf Scours.

ED. HOARD'S DAIRYMAN:—I see a great deal written of how to cure sconrs in calves. I have raised from eight to ten calves every year for the last eighteen years and have never lost one from scours. Now I think an ounce of prevention is worth a pound of cure, so the time to begin to raise the calf is before it is dropped. While the mother is farrow I feed very little grain, but plenty of hay and fodder with free access to salt.

Two weeks before calving I increase the grain so that at parturition she is receiving one third of a ration, feeding bran or other laxative food, and by the judicious use of salts keep her bowels loose and temperature normal. A few days before delivery (and if you are a good student of cowology you can tell) I give her one half to three fourths of a pound of salts. After the calf is dropped I let it have free access to its mother for two days, after which, until it is five days old, it sucks twice a day. For the next few days I feed it twice a day one-half gallon of fresh milk at a feed and then put it gradually on sweet skim milk, warmed, until at two weeks old it is getting three quarts and at four, one gallon with a spoonful of middlings or bran; after which I increase the bran to one pint and induce it to eat a little whole oats or corn and plenty of hay or grass.

I do not increase the milk any until it is several months old, when, if we have plenty of milk, it will stand six quarts at a feed and less grain. If we are short of milk, give more bran—in fact, have raised some fine calves on one gallon of milk per day and lots of bran, and if at any time some one (I can't do it all myself) who is delegated to feed it, feeds too much, or too warm, or too cold, or at irregular times, and the calf gets off its feed, or gets the scours, I soon correct it by giving a gentle physic and then a raw egg at each meal, for a few days; and providing the case is stubborn and won't yield, I use a tea made by steeping blackberry roots in water As my calves are all Jerseys, and raised for cows, knock all bull calves on head immediately at birth, and boil for the chickens. Twenty-five cent butter and Jersey veal don't go together. I endeavor to induce the calf to eat all the bulky feed possible, so in after life it will have that fine taper, from the middle each way; and I might say incidentally, that I have never had a case of milk fever, hollow horn, or wolf in the tail. Mr. Editor, we have a few men and old women who still believe in the latter two ailments.

Venango Co., Pa. O. C. S.



VERMONT POGIS 2nd A. J. C. C. 45316.

Property of E. M. KIMBALL, Enosburg Falls, Vt.



CYPRESENA, A J C. C 135548.

A fall calf at eighteen months old.

Property of J. GRANT MORSE, Poolville, N. Y.

Wisconsin Cheesemakers' Association.

Report of Committee on Resolutions.

Resolved, That we tender our thanks to the mayor and citizens of Madison for their cordial welcome and interest in our deliberations.

Resolved, That we appreciate that the growth of this Association and the success of our meetings are largely due to the persistent and tireless efforts of our capable secretary, and we are glad to record this fact and to express to him our sincere thanks for his unselfish work, which has been given without recompense.

Resolved, That we hereby extend to the Wisconsin Dairymen's Association, which holds its annual meeting at Green Bay, February 16th, fraternal greeting. This Association is organized as a helper and not as a competitor of that Association. The Dairymen's Association has scattered a great wealth of dairy knowledge all over Wisconsin. As a child of that Association we honor our mother and will do the best we can to be an honor to her.

Resolved, That the Davidson Bill now pending in Congress, which places a government tax of ten cents per pound upon oleomargarine or imitation butter, has the hearty approval of this Association. We commend the action of Mr. Davidson in introducing the measure designed for the protection of consumers and producers of dairy products, and promise him our active support in securing the passage.

Resolved, That the thanks of this Association is hereby extended to our Dairy and Food Commissioner and his assistants for the prompt and efficient manner in enforcing the laws designed to suppress the sale of imitation dairy products in this state.

Resolved, That this Association heartily commends the efforts of the Hon. James Wilson, Secretary of Agriculture, to increase the foreign markets for American dairy products, and hopes that Wisconsin cheese will have a place in some of the trial shipments of cheese to England And that the department will send an agent to England who will see the retailers and consumers are made aware that the cheese are made in the United States.

Resolved, That this Association endorses the recommendation of the Secretary of Agriculture in his message to the President that steps be taken to protect the honest producers and shippers of dairy products from competition of fraudulent or imitation dairy products.

Resolved, That our thanks are hereby given to the Secretary of Agriculture for sending to this meeting representatives of the Dairy Division, R. A. Pearson, assistant chief, and Mr. J. H. Monrad, special agent, whose assistance in the meetings is fully appreciated. We believe that a permanent field agent of the Dairy Division in Wisconsin and neighboring states would be a material assistance to the dairy interests of this section.

WHEREAS, The Wisconsin Dairy School has never been able to accommodate all who have applied to take the courses there, and that this year the school is in a very crowded condition, and when we remember that the Swiss, Brick and Limburger industry needs recognition by proper courses of instruction, and that this instruction is not possible till the facilities for instruction are enlarged, be it

Resolved, That we petition our legislature to make such appropriation as the Regents of the University may deem necessary to procure the needed enlargement to the dairy school building, and provide for the increased expenses of the school under the increased instruction.

WHEREAS, The Wisconsin Cheesemakers' Association, now for six years, has shown the value of its work, we confidently hope a bill will be passed appropriating at least $600 to enable us to secure prominent speakers and to publish a stenographic resort of our proceedings, as well as to encourage a large exhibit.

WHEREAS, We highly appreciate the educational value of the assistance given by Mr. J. H. Monrad at all meetings during the past six years, we desire to express our appreciation of his aid, and

WHEREAS, The Hon D M. MacPherson, Lancaster, Ontario, has so kindly assisted us in making this the most successful meeting in the history of this Association, therefore, be it

Resolved, That we extend our most heartfelt thanks to him for the assistance he has so kindly rendered us and be it further

Resolved, That the thanks of this Association be extended to F. A. Tripp and C. A. White for their valuable and timely financial aid in times of need.

Feeding Cotton Seed Hulls—Dairy Babies—Butter milk from Skim milk.

ED. HOARD'S DAIRYMAN:—I am striving to manage my farm so as to make all the coarse feed for my cows, not sharing the general belief here that cotton seed hulls are good cow food.

In beginning anything, I always try to do what some other man did that succeeded, and the man that I imitated in the dairy business is a skilled veterinarian and dairyman, and he condemned cotton seed hulls, and told me to raise cow peas and other forage crops, and let the other fellows have the hulls.

It is needless to say we are both subscribers to HOARD'S DAIRYMAN, and agree with its teachings. We both have babies at our homes, yet I am only a single boy, but the "Babies" (No. 2) are the pride of our dairies and could not get along without them. My neighbors (except the man of whom I am an imitator) say it is a waste of money to pay a big price for said "Baby" when I could go on in the old ruts and lose 20% of my butter, and get 10 cents per pound less for my butter.

I see in this week's paper that our brother in South Carolina is not yet satisfied with his butter milk, as we are the parties at Atlanta of whom he heard, that made good butter milk, from separator skim milk, I will tell him how we do: First we separate at 85°, and as soon as separating is over, we add a starter which is the butter milk from the cream. The milk should not get cold, between 75° and 80° being best; it will clabber in about 12 hours, and will break up fine, and is as good as any butter milk; we furnish the Grady Hospital in Atlanta that is proof that it is all right.

East Atlanta, Ga. R. T. A.

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TO THE MEN WHO DON'T TAKE HOARD'S DAIRYMAN.

Mr. J. Moldenhawer, of Washington, D. C., is a highly skilled dairyman. He is engaged in producing the finest of milk for the highest paying demand. Mr. J. C. Jurgensen, of Brooklyn, N. Y., in writing to us in the issue of Sept. 23, concerning a visit he paid Mr. Moldenhawer, says:

"Mr. Moldenhawer is himself picking out Hoard's Dairyman before any other of the many farm papers he keeps, and he frankly says that your great paper is of high value to him. When a man with his reputation says so, how can the farmers who expect to make money by keeping cows for dairying, get along without the Dairyman. Still it is a very trying job to try to convince farmers how much it would help them to keep an extra good dairy paper."

What is the lesson that the above teaches? This: That no man who is keeping cows for profit can afford NOT to have such a friend and adviser as Hoard's Dairyman at his elbow every day in the year. Simply put a dollar bill in a letter with your name, post office, county and state plainly written on a piece of paper, and mail it to us, and secure the paper to Jan. 1, 1900.

Mr. U. S. Baer, who has for several years past been assistant instructor at the University Dairy School, and traveling cheese instructor for the State Dairymen's Association, has been appointed cheese instructor at the Washington Agricultural College, Pullman, Washington, for the spring term beginning March 13th. As instructor at the dairy school, traveling instructor for the State Dairymen's Association, and secretary of the Wisconsin Cheese Makers' Association, Mr. Baer has always proved a man equal to his task, and he goes to Washington with the kindest wishes of thousands of Wisconsin friends, all of whom join in the hope that he will soon return to Wisconsin to continue his much needed labors in the great cheese-making state.

STARVATION RETURNS.

How things do look sometimes when the light is turned on. A community of farmers start a creamery. One man is about as well posted as another, and none of them have ever made a conscientious effort to know what should be known about dairying. They desire to do well, to make a profit, but do not know what must be done to secure that profit. The season goes by and they find they have made no money and naturally enough they are dissatisfied.

How fortunate if some kind friend comes along, like D. H. Otis in the case of the Meriden creamery in Kansas, and says: "Let us investigate. Let us look into the foundations of this question from the farm end of it, like business men."

Then, when they see the truth—how they have been keeping a lot of cows utterly unfit to do business with, and very likely handling the cows without adequate knowledge of dairy conditions any of the time—they can see just where the fault lies.

Mr. C. C. Macdonald, Dairy Commissioner of the Province of Manitoba, Canada, has been making an investigation of somewhat the same character. He finds plenty of herds of cows where only 90 pounds of butter was the product per cow for the year.

It is time that every creamery and cheese factory in the land instituted an investigation among the patrons to see what are the actual returns per cow. The patrons themselves should call for and aid such an inquiry, and that they should call for its publication to themselves.

Let A see how much B made per cow the past year and it will stir him up to inquire why and how this was done. Every patron should welcome such inquiry as much as he would a lighted lantern in a dark night.

LAND PLASTER IN STABLES.

The *Montreal Journal of Agriculture* of January 15th, contains a statement to the effect that two such dry substances as land plaster and dung in stables, were not likely to exercise much mutual action in arresting the escape of ammonia. The editor further misleads himself, by taking the opinion of a chemist.

In the first place we ask, who ever saw a stable full of cows that was dry? The gutters to the rear of the animals, at all times, are anything but dry. Second, the ammonia that it is desired to save is thrown off almost entirely by the urine. That certainly is not dry. The land plaster is dissolved by the abundant moisture of the stable, and takes up the volatile ammoniacal exhalation, and holds it in chemical union until taken up by the plants. Dry earth or muck is not a substitute for land plaster, because its absorbing power is entirely mechanical.

Why theorize? Why not make a practical experiment by sprinkling a stable with muck one night and land plaster the other? Do this at six o'clock at night and note in the morning if the land plaster does not show a purer atmosphere when the stable is opened. Such, at least, has been our experience.

OHIO STATE DAIRYMEN'S ASSOCIATION.

The Fifth Annual Convention of the Ohio State Dairymen's Association was held in Townshend Hall, Ohio State University, on Tuesday and Wednesday, February 14th and 15th. While the meeting was not credited with as large an attendance as the program merited, it was nevertheless a most successful one. The members who were present were of the most enthusiastic men in the state. They were there to get some good from the meeting and if what they knew would be of benefit to any one, he was sure to get it freely.

During the entire session the Dairy School was open to the inspection of all the visitors. It was a constant source of attraction. Three or four men could be seen standing around some one of the instructors or other person connected with the school and asking for what they came for—information. Everything was gone over and examined with the greatest care and interest, from the creamery and cheesemaking room down to the bottling and pasteurizing room and the boiler and engine room. A great many complimentary remarks concerning the interest the students seemed to take and the neatness and dispatch with which they completed their work, were heard. Everybody seemed glad that he had come to the convention and thought he would try to induce some of his neighbors to come with him next year, as it was decided to hold the meeting at the University again next year. It was felt that too few people know what they have in the University and this might be the means of bringing someone into closer touch with it.

The opening session began shortly after nine o'clock, with an address of welcome by President Canfield, of the University. The president turned things over to the use of the convention during their stay and in a few well chosen words made everyone feel at home.

President J. Fremont Hickman, of the Ohio Agricultural Experiment Station, Wooster, Ohio, responded to the address and then gave his annual address.

Professor Hickman, in the first part of his paper, pointed out some of the ways in which dairymen made their business unprofitable. The average dairyman cannot feed a cow much under thirty dollars and have her do her best. There is room to suspect therefore that some of us are feeding cows without profit. The cow that is compelled to stand in the barnyard with her back bowed up to keep warm, is not the one that pays dividends. The speaker ventured the assertion that two-thirds of the cows in the state did not pay profits and that only one-third could be classed as genuine profit makers. No man or any law compels any one to keep poor cows. It was the opinion of Professor Hickman that the cow power of the state could be increased fifty per cent without increasing the number of cows or adding anything to the expense side of feeding and caring for them.

Mr. Crowner, of Mentor, Ohio, read an excellent paper on "Method of Preparation, Use and Results of Starter." He showed how they could be prepared from cream, milk and buttermilk. He also took up the use of commercial cultures and gave the rules governing their use. Their action depends upon the same agents that the ordinary starters depend upon, that is, bacteria. Mr. Crowner urged the absolute necessity of perfect cleanliness about the creamery and cheese factory.

Major H. E. Alvord was to have presented a paper next on the program, but owing to excessive work was compelled to be absent. At this time the paper by Dr. White, of the College of Veterinary Medicine of the University, which was on the program for the next morning, was given. The subject of this paper was the "Prevention and Treatment of Injury and Diseases of the Udder." The diseases most common to the udder were classed under four heads which were as follows:

Oedema of the udder.

Catarrh of the milk cistern and ducts.

True garget.

Inflammation of the interstitial tissue of the gland.

Dr. White urged the necessity of great care in the prevention of infection. Garget was most often caused by infection. It was shown how great the liability to infection was when a strange cow was brought into the herd. She should be treated with suspicion until it was shown that she was perfectly sound.

The program was continued by a talk by Mr. B. B. Herrick, Wellington, Ohio, on "The Best Kind of Cheese for the Ohio Cheesemaker." Mr. Herrick seemed to have but one wish and desire and that was for the betterment of the cheesemakers of Ohio. He thought that we should have nothing but whole milk cheese. There might be different kinds of full cream cheese. For Ohio he thought he was warranted in saying that if the cheesemakers would stick to the cheddar process it would ultimately be for their advantage.

In a talk similar to Mr. Herrick's on "The Rennet and Curd Test Practically Demonstrated," Professor Noyes, of the Ohio Dairy School, entertained the association for a short time. The rennet test was used to determine the acidity of the cream and by means of it much time and labor was saved. We could know just how ripe our milk was and how long to cook it. By the use of this test you would be able to keep the quality of your cheese pretty even for the season. The curd test is effective in determining taint in the milk. A sample from each patron's milk is saved out and placed in a bottle for the purpose. The rennet is added and when in condition the curd is sampled and if any are found in which there is anything wrong, that patron's milk can be tested for the individual cow and when she is found the trouble can be easily gotten rid of.

The evening session opened with an address by Dr. Bleile, of the Department of Physiology of the University. His talk was on "Bacteria in the Creamery, Dairy and Cheese Factory." He gave an outline of how the students were taught bacteriology. They first found out that bacteria were vegetable organisms instead of "bugs" as many people suppose. A very few species came into prominence in the dairy. We could see their effects in gases in cheese, ropy or slimy milk, bitter milk, etc. The injurious forms are found wherever there is filth. Cleanliness and sunlight will drive them out.

Professor H. A. Weber, of the Department of Agricultural Chemistry of the University, followed Dr. Bleile with a paper on "Food Adulteration." He spoke first of the many ways in which foods were adulterated and then took up the subject of the different products adulterated. Milk was the most common victim for this work. It was pointed out how great the danger was from this source. When poor water was used in this adulteration there was always the menace of disease. Further than this the food supply of children who have to depend on milk for their sustenance was almost cut off in this way. It was the opinion of the professor that a thing which so nearly concerned us all every day as our food ought to be better looked after.

The second day's session was opened by a practical demonstration on judging dairy cattle. The meeting was called to order in the large live stock room in the basement of Townshend hall, after which four grade Holstein cows were brought in and Professor Hunt, of the College of Agriculture of the the University, took up the subject "Scoring Dairy Cattle Practically Demonstrated in Live Stock Lecture Room." He took the score card which is used to teach the students how to judge the cattle and went over it from beginning to end pointing out the most important points to be considered in the dairy cow.

Mr. E. F. Smith of the firm of W. B. Smith & Son, Columbus, Ohio, read a very interesting and practical paper on "Feeding Cows for the Dairy test, State and National." He said that the modern dairy cow was a product of education. To get her ready for the tests she was taken about two months before calving and gotten into the pink of condition by extra care and attention. Great care must be exercised in the feeding. A good feeder is a rare man; he must be a man who knows just when the cow has had enough. The official test is conducted by the Experiment Station which will send you a man for seven days to conduct the test, with no charge except for board and expenses. These tests can be relied upon for they are made by intelligent, honest and interested men.

The discussion of Mr. Smith's paper was opened by a paper by Mr. C. W. Horr of Wellington, Ohio. Mr. Horr showed how easy it was under the present way to discriminate in favor of one breed or another. For example, if the butter is valued at a low price, and hay, grain, etc, consumed, at a high price, then the small breeds would have an advantage, but if the by-products are valued fairly, the butter produced credited at top prices, and the feed charged on the basis of country prices, then the Holsteins certainly have the pole.

The afternoon session was opened by a paper by Mr. George E. Scott, Mount Pleasant, Ohio. His subject was "Dairy Stables." He said that while there were many important things connected with the handling of dairy cows, none were of more importance than good first-class stabling. This stabling should secure five things:

1st. Protection against cold.

2nd. Provide ventilation.

3rd. Construction of stalls that will secure cleanliness and give the animal her rightful share of comfort every hour that she may be confined to her habitation.

4th. A bountiful supply of light is more than essential.

5th. Good sanitation.

Mr. Bentley of Circleville, Ohio, gave a very entertaining paper on "Which is better for Ohio, the Whole Milk or Gathered Cream

The Winooska, Vermont, Journal says:

"The best dairy farm in Vermont is owned and run by Mrs. Carrie Nelson, a widow, who has managed her farm and educated her four children since she was left alone thirteen years ago." She has won first prizes on her butter at the Vermont Dairymen's. Meeting, at the Vermont State Fair, at the World's Food Fair, in Boston, and at the New Hampshire State Fair.

Mrs. Nelson has a dairy of 26 cows and makes them yield over 300 lbs. per cow. She writes: "I cannot afford to get along without HOARD'S DAIRYMAN while I continue to farm."

If others thought as Mrs Nelson does, they might have some of the same success. Dairy success is based on knowledge. It is the cheapest thing out (less than 2c a week) and only a few of the great mass of farmers who keep cows appreciate it.

One of the most successful dairymen in Wisconsin, Mr. Chas. Meyers, of Kewaunee County, in his address at a late Convention on "How to Become a Dairyman," said:

'My advice to the average farmer is to begin by subscribing for HOARD'S DAIRYMAN. Experience is a good teacher, but it is a much cheaper and quicker way to learn from the experience of others."

He has 120 acres, on which he carries a dairy of 20 to 27 cows, from which, in 1896, he sold $2,000 worth of butter, hay, etc,, leaving him, after paying for his grain, feed, etc., $1,600.

Is it not worth a dollar a year to help produce such results?

System." The subject was very ably discussed by Mr. Bentley and while he showed himself to be heartily in favor of the separator, he thought that under present conditions too much expense was involved in making the change and also that the people must come gradually to it, which they were fast doing. His ideal of a system was the farm separator system.

The last paper of the convention was one by Mr. Leon D. Smith, Mantua, Ohio.

The subject was "What can this Association do to Advance the Dairy Interests of Ohio?"

He advocated the general introduction of the Babcock test in the purchase of milk and the doing away with the pooling system. As an addition and extension of this he thought the Association ought to ask the legislature for an appropriation to hire instructors and send them throughout the state to give the cheese makers and creamery men instruction free of charge. This would tend to bring the products nearer to one quality and raise the average, wonderfully. This idea was taken from what is now being successfully carried out in Wisconsin and Quebec.

This closed what was probably the most successful meeting in the history of the Association. The officers selected for the next year were:

President, Mr. D. A. Crowner, Mentor, Ohio; Vice-President, F. M. Wilson, Selma, Ohio, Sec. and Treas, Mr. L. P. Bailey, Tacoma, Ohio.

The board of directors consisted of: Professor Hunt, Columbus, Ohio; Mr. C. W. Horr, Wellington, Ohio; Judge Bradbury, Columbus; J. A. Pringle, Columbus; and Professor J. Fremont Hickman, of the Experiment Station, Wooster, Ohio.

An Experience with Abortion.

ED. HOARD'S DAIRYMAN:—On looking over the DAIRYMAN of to-day, I find that some one has been having trouble with cows aborting.

Fourteen years ago I had twenty-five cows and heifers, mostly full blood Jerseys and Holsteins, both registered. Few were grades. In just eighteen months I had twenty-eight abortions. From sixteen cows two aborted three times, eight twice and six once. It is hardly necessary to tell that I was discouraged. Everybody had a cause, everybody had a remedy. I read everything I could find on the subject but this is what I did for more than twelve months before it stopped; sprinkled slacked lime all through the stables and barnyard and walks. Used carbolic acid freely, washing all the parts that were filthy, also sprinkled the stalls and gutters (used tablespoonful to pail hot water).

I kept the affected cows in different fields, but the last two that aborted were two very promising heifers. They had the most filthy and offensive smell of any before. I had them tied to keep them separate from the balance of the herd but the second day they jumped in with the herd, fourteen of which were in calf. I got mad and said to myself 'I'll let them go, I have done everything that could be done, my herd is ruined.' It is singular to say that I never had another abortion from that day to this and the herd since has been increased to as high as ninety head. J. F. W.

West Virginia.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

A WISCONSIN FEEDING PROBLEM.

We have ten cows, Short-horns. We feed corn stalks and hay that you might call prairie hay. We feed a pan full, six quarts, wheat bran and shorts, equal parts. Will you please give me a balanced ration to go with the above fodder? G. F. E.

Rogersville, Wis.

One could scarcely expect a dairy cow to eat more than about ten pounds of this corn stover, (corn stalks) and say twelve pounds prairie hay. This would furnish, not to exceed, 6-10ths of a pound of digestible protein, and would require fully twelve pounds of the bran and shorts to supply the deficiency. Or better yet, get some gluten feed and substitute about five pounds of it for say six pounds of the bran and shorts. Advertisements of gluten feed will be found in this paper, and on application, prices will be quoted for delivery at your nearest railway station.

COTTON SEED MEAL ADVISED.

Please form me a ration for 1,000 to 1,200 lbs. cows, out of early cut timothy and clover hay, mixed, $5 per ton, cotton seed meal $22, corn and oats $20, bran $15. Have bought a car of mixed feed, bran and middlings $16 per ton. Sell my milk to N. Y. Condensed Milk Co. They require 4% milk the year around. I get $1.26½ per 100 lbs. for six months winter milk, and 92 cents for six months summer. I cannot feed ensilage, wet or dry barley sprouts, brewery or distilled grains, linseed meal, oil cake, or gluten meal.

Cows freshened in August and September, bred in December. I feed hay three times a day; water at spring twice a day, ten rods from warm barn. I am feeding 8 lbs mixed feed, 2 lbs. oats, 2 lbs. corn ground with cob. Average milk per cow, per day 21 lbs. I think I should get more milk from the amount fed.

Those cows averaged 28 lbs. of milk per day, during October, on pasture and four pounds of the mixed feed. Cows take on flesh. Cows are Holsteins and Short-horns.

Chenango Co., N. Y. L. G.

Get some cotton seed meal to mix with the "mixed feed" in place of the corn and oats, and feed 2 lbs. per day—commencing with half that quantity and increasing gradually up to the full amount. One pound of cotton seed meal contains more protein than 4 lbs. of oats and corn.

DEHORNING COWS.

I have not seen anything in reference to dehorning cows in your columns since taking your paper. Have seen what has been said in regard to bulls. I am like some of your subscribers, not a born farmer, but from the city, consequently have to get lots of information through reading your columns.

Gwynnbrook, Md. C. M. S

We doubt whether HOARD'S DAIRYMAN could give an entirely unprejudiced opinion in this matter, because its editors have never resorted to this practice. It believes that time will justify its contention that the dehorning of bulls will prove detrimental; and for reasons similar to those advanced in regard to them, it would not favor dehorning the females in a specific breeding herd. The dairy herd proper presents a proposition of a somewhat different character, and it is undoubtedly true that the weight of evidence at this time is in favor of removing the horns.

RATION FOR AN INDIANA MILK PRODUCER.

Please give me balanced ration of following feeds: corn at 30 cents per bushel, oats at 27 cents, bran at $13 per ton and oil meal at $1.40 per hundred. Will it pay to feed it at that price? For roughage, clover hay and timothy mixed, shredded corn fodder and plenty oat straw. Raise my own grain; add 7 cents for grinding sack of oats and corn, with or without cob. Will it pay to have corn with cob ground, costing just as much as a sack of shelled corn.

Have grade Holsteins, weighing from 1,000 to 1,400 pounds. Ship milk to Chicago. J. S.

Merrillville, Ind.

One thing is certain. No man can afford to feed oats worth 27 cents per bushel, when he can buy bran at $13 and gluten feed at $16 or thereabouts.

We suggest a trial of the following.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients Protein.	Carbohydrates	Ether Extract
15 lbs. hay	12.87	.72	5.94	.24
10 lbs stover	5.95	.17	3.24	.07
3 lbs corn and cob meal	2.67	19	1.89	.11
3 lbs. bran	2.64	.38	1.16	.03
4 lbs. gluten feed	3.69	.82	1.94	.14
Totals	27.82	2 28	14.07	.65

This is a large ration, for large cows, but doubtless, most of them will eat some of the oat straw in addition. If not, cut down on the other roughage until they will.

KEROSENE AS A BOILER COMPOUND.—PRICES OF ELGIN BUTTER.

Will the use of kerosene in the place of a boiler compound in a boiler in a creamery taint the butter when the steam is used only to heat the water which is used to cleanse the utensils and to steam the churn and worker? Would you recommend the use of kerosene for this purpose, and if so how much at a time?

Could you please publish the weekly prices of butter of the Elgin Board for the year 1898? P. B.

Gratiot, O.

Should decidedly object to the use of kerosene in a creamery boiler. Even with the greatest care, the kerosene will be liable to get into the vessels and thus taint the butter.

If you must use a boiler compound "soda ash" is as good as any, and will not taint anything.

Send 25 cents to D.W. Willson, Elgin, Ill., for a little booklet giving the prices of butter on the Elgin Board of Trade for 1898 and previous years.

PASTEURIZING MILK—TUBERCULOSIS.

1. In one of your back numbers you made mention of a Russell vat for pasteurizing small quantities of milk. Have made inquiry from five different firms and none of them know anything about it. So I came to the conclusion to have one made if you would be kind enough to give a little advice in regards to its construction and operation, or give me the names of firms handling the vat.

2. Got it in my head that tuberculosis in the animal kindom was the same as consumption in the human race. Is this so?

Utah. C. J.

On a small scale you can pasteurize milk by setting a pail of milk in a boiler or vat of hot water. Stir the milk slowly, so that it will heat evenly until it is heated to 160° and keep at that temperature for twenty minutes. Then remove and set in cold water. Stir the milk so that it will cool rapidly.

A Russell vat is the same apparatus, only made on a larger scale, with provisions for stirring by machinery and heating by steam.

Tuberculosis and consumption are the same disease, whether in man or animal.

WHEN SHOULD A COW BE BRED?

An Indiana subscriber asks this question and the answer to it is: At such time as will bring her fresh at the time desired. If a cow freshens in September and one is satisfied with that month, let service be withheld until December; if in June or July, and it is desirable to have the next calf in the spring, let her be served at first opportunity.

A New Mexico reader submits some analagous questions, and to him we say: One service is better than more; if not fruitful, repeat in three weeks; there is no way known of controlling sex of offspring; aversion to the male is the best evidence that a cow is in calf.

WEIGHING HAY.

Please tell us through HOARD'S DAIRYMAN of a practical method of weighing hay fed to cows. With grain, silage, etc., it is easy enough, but with hay, different.

Would it not be all right to let them have whatever they will clean up all right, of hay and other roughage, such as corn stover?

Omaha, Neb. B. B. C.

It is not expected, in other than experimental work where absolute accuracy is demanded, that all, or even any of the feed is to be habitually weighed. The different measures full of the different kinds of feed may be weighed occasionally, so that one can be practically certain of the amount in pounds, is all that is necessary in ordinary farm practice.

The only difference with hay and other coarse fodder, is the one suggested. Each cow should have all she will clean up, be the same more or less If the feeder wants to know how much this is, let him weigh a few "forkfulls", and thus educate himself to estimate very closely. We specify a certain number of pounds of fodder in our formulas, but this is only our estimate of the probable average amount required by the herd, and is given in order that the totals may appear.

TOO LATE NOW TO STOP MILKING.

I have a grade Jersey heifer three years old, and her second calf is due the 17th of March. She is now giving 7½ pounds milk per day. I am feeding at present, 20 pounds mixed hay and 5 pounds grain (bran with ⅙ oil meal) per day. Is the ration all right? Shall I continue to milk her right up to calving? How long before and how long after calving is the milk not fit for butter making, etc? W. L. R.

Newport, Me.

The above inquiry bears date of February 22nd, which is less than four weeks before the second calf is due. If a cow cannot go dry fully four weeks, it is better to continue milking without interruption. Twenty days before and five days after calving are the periods usually assigned for rejecting milk. The feed is as good as can be determined without special observation of results. If any change is necessary, it would be to in increase rather than decrease the grain.

FOUR OHIO QUESTIONS.—CRIMSON CLOVER.

1. How much seed is sown per acre? Is it sown with wheat or oat crop or is it sown alone? Does it make good hay or is it used for grazing only?

2. Should grain rations be reduced as a

cow declines in milk flow or should they be fed the same at all times?

3. Is it best to feed, say six pounds ground feed twice a day or to feed four pounds three times a day?

4. Are all your tabulated feed rations based on the amount for each feed or the amount to feed for the day?

Ohio. J. W. E.

1. Crimson clover may be sown at the rate of 6 to 12 lbs. per acre. It is an annual and is usually sown in the late summer or early fall and under favorable conditions lives over winter, starts early in the spring, and may be either plowed under as a fertilizer for corn or a little later cut for hay. It must be cut very early, before any of the heads begin to ripen, as otherwise certain saw-like, hairy protuberances develop which become a source of danger, especially to horses. It probably could be sown in the spring with wheat or oats and furnish fall grazing, but in that event would not live over winter. An excellent plan is to sow the clover at the last cultivation of the corn.

2. The grain part of the ration should be reduced as the cow begins to shrink. The true test is to watch the cow and apportion the feed according to her condition. When she commences to fatten unduly, it is evident she is receiving more feed than she can make profitable use of.

3. We think the better plan is to feed only twice a day, thus giving time for rumination and full digestion.

4. A ration is calculated to suffice for twenty-four hours.

WHICH BREED?

I am anxious to begin to improve my dairy by breeding it up to a better standard, but am at a loss to know just what breed to tie to.

I have a dairy of thirty-five cows; ship the milk to Philadelphia, where I wholesale it. Can you suggest a breed that would be most likely to give satisfaction where a large flow of good quality milk is desired, combined with a strong constitution?

Are the Ayrshires considered good dairy cows, and does their milk test well?

Norristown, Pa. R. C.

During the last few months our correspondents have frequently asked us the above question, and we have as frequently stated the impossibility of deciding, more especially as we cannot tell the manner of animal our correspondent prefers. "A large flow of good quality of milk is desired," our correspondent says. A well selected, carefully fed herd of natives will do that. And if he places at the head of his herd a bull of either one of the four dairy breeds, he will make no mistake, provided his bull is prepotent in dairy qualities. It is noticeable that the advanced dairymen who are successful in their work, look more to the individual cow than they do to breed, and depend on the test and scales rather than on pedigree. They take a good cow wherever they can find her and the kind of bull she is bred to depends more on the individual preference of the dairyman than any other factor.

The Ayrshires are a pronounced dairy breed, the milk ranking in richness between the Jerseys and Holsteins.

COTTAGE CHEESE.

Could you give us any information as to how to make cottage cheese? We want to make it out of both skim milk and butter milk. S. BROS.

La Porte Co., Ind.

Put the sour skim milk and butter milk in a pan or pail and set it in a kettle of water, and slowly warm it to not over 140° F. The temperature will depend on the quality of cheese wished. The higher the temperature the dryer and harder the cheese will be. The degree of sourness of the skim milk will also affect the product, so it is not possible to give exact temperatures. After the curd has separated, put it in a clean sack and hang up to drain, a little pressure will hasten things. It is usually salted and put up in small prints, wrapped in tin foil.

COLOR OF MILK.

Is the color of winter milk affected by the feed given the cows? I have a winter dairy of registered Jerseys giving 5% milk, which is shipped and sold in a distant city. We have complaints that our milk is whiter than 3% milk taken at the same dairy. Contrasting the condition and care given these herds with ours, I am at a loss to understand the reason for this.

Our cows are fed well eared silage, in perfect condition, timothy and clover hay, with balanced ration of bran, gluten and oil meal. They have water in their stalls, and are cared for according to the best ideas advocated in HOARD'S DAIRYMAN. The cows are well and the greater proportion fresh the past autumn and early winter. L.

Moravia, N. Y.

The color of milk depends partly on the feed and partly on the breed, and to some extent on the amount of sunshine given to the cows. Different animals also vary widely in this respect. In the summer when the cows are on green, succulent feed, the color is deepest, but in the winter, the milk is almost white. Guernsey milk is the only exception, but even that is not pronounced in color, during the winter months.

Contrary to common belief, the color is no indication of the richness. A highly colored milk may contain less fat than a pure white milk.

FISHY BUTTER.

Will you please give us your opinion as to the cause of butter turning "fishy" after being held a time? A. McC.

Montreal.

The so-called fishy flavor has been charged to a variety of causes. Neglecting to aerate the milk when strong tasting weeds are abundant; accepting milk for separation that is just on the edge of sourness; churning at too high a temperature; working and salting at high temperature, sometimes 80° to 90° F.

Anything in fact that will affect the keeping quality of the butter and cause it to change in quality rapidly, but more than anything else, any method of handling the milk, cream or butter that will cause it to become soft and slushy, during working and packing.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series, VI.

GLANDERS.

One of the most dreaded diseases that affect our domesticated animals, is glanders. This disease is highly contagious, affecting, under normal conditions, the solid hoofed animals, horse, ass and mule. Occasionally it attacks other species, man included. The disease is widely spread over almost the whole world, but is particularly severe in the warmer climates.

The disease manifests itself in two phases, phases that are so distinct in many ways, that they have been given separate names. One is the cutaneous, or skin affection, known as farcy; the other the derangement of the mucous surfaces of the air passages, to which is given the name glanders. The characteristic symptoms of the latter phase of the disease are the ulcers that are produced in the nasal and other mucous surfaces. These break and discharge, the disease germ being thus disseminated. The internal organs are also frequently involved. When the lymphatic system beneath the skin becomes involved, as it is very apt to do when the disease is spread throughout the system, inflammation sets in, which later gives rise to the suppurating tumors that end in the so called "farcy buds."

The disease may assume either a chronic or an acute phase. In fact, it is because of its presence in chronic cases that the percentage of affected animals is as large as it is, for the trouble in these cases is frequently not recognized until infection in other animals has occurred. In chronic cases the disease may sometimes be held in check for considerable periods, only to break out again at a later date. This is particularly noticeable in horses grown on western ranches. These animals may do well during the summer season, but with the advent of unfavorable weather, the disease frequently breaks out afresh.

CAUSE OF GLANDERS.

The inciting cause of glanders and farcy, is the glanders bacillus, *B. mallei*, an organism that develops luxuriantly in the animal body, but not outside under ordinary conditions. The germ is spread from animal to animal through the discharges from the mouth and nose.

The material containing the disease germ may be deposited on the surface of stalls and mangers, on hitching posts, or in watering troughs, or parts of the harness as bridles, bits, etc., and so in a variety of ways find its way into another herd. The organism producing the disease can retain its vitality in a dried condition for a considerable period, but not nearly as long as in a moist state. This fact is of material importance in explaining the distribution of the disease, for it is a recognized fact that the disease is apt to be spread more by means of polluted watering troughs, pails, etc., when the disease germ remains moist, than where it is dried. The danger from hitching posts is lessened from the fact that the disinfecting action of sunlight is added to that of drying, but even under these conditions, infectious material is not infrequently transmitted to other animals.

Sometimes the virus of the disease is transferred directly from one animal to another. This is possible where horses are herded or pastured together, as is often done in the western states. Under these conditions, a glandered animal may spread the disease much more rapidly than would be possible where the stock is kept separate, as in individual stalls.

DIAGNOSIS OF THE DISEASE.

In the early stages of the disease, it is often very difficult to accurately diagnose the disease by physical examination. This is especially true with the chronic type of the trouble. The nasal discharges, or enlarged glands, from which the disease derives its name, may often be wanting. In farcy, the symptoms of the disease may be more apparent, but it more frequently happens than not, that the malady cannot be recognized by simply the clinical appearance. Sometimes it is confounded with non-infectious inflammatory and ulcerative affections that may occur on the mucous surfaces.

Within recent years a method of diagnosis has been devised that does for glanders what tuberculin does for tuberculosis. This is the *mallein test*, so called because mallein is a product from the growth of bacillus mallei, the glanders microbe.

While mallein is made from the glanders bacilli and their growth products in cultures, still it does not contain any of the living germs, and therefore can not produce the disease. This substance is used in a similar way to tuberculin, being injected beneath the skin. In a horse that is free from any trace of glanders, no material change in condition is noted where mallein is used. In a horse affected with the disease, even in the earlier stages, or in the latent, chronic form, there is a marked reaction.

Three different conditions may be noted in varying degree:

1. *Temperature reaction.*—A rise in temperature from 1.5°-2.5° F. will occur from eight to fifteen hours after the injection of mallein.

2. *Local reaction.*—At the point where the material is introduced, a swelling generally occurs that indicates a reaction in the tissues. This may persist for several days.

Food Caused Pain

Catarrh of the Stomach Cured by Hood's Sarsaparilla.

"I was taken sick about a year ago with catarrh of the stomach. At times I would have a ravenous appetite and at other times could not eat. My food caused me excruciating pain. I was running down so fast I had to stop work. My friends urged me to take Hood's Sarsaparilla. I did so and soon began to feel better. The disagreeable symptoms of disease gradually passed away and flesh and strength returned. I owe it all to Hood's Sarsaparilla." MARY L. CUMMINGS, North Brookfield, Mass. Remember

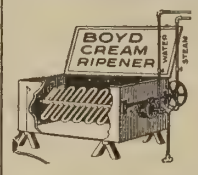
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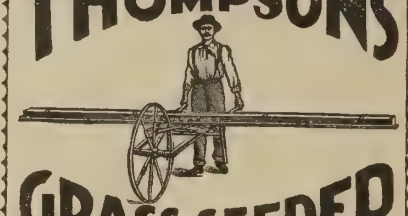
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In addition to these, certain lymphatic glands in the proximity to the jaw are frequently enlarged.

3. *Constitutional reaction.*—A glanderous animal will generally show signs of marked constitutional disturbance, appearing dejected, and thoroughly sick. The pulse is usually rapid.

The use of this agent greatly facilitates the detection of the disease, especially in those cases that could not be recognized clinically. By using this test, it is thus possible to eradicate the disease from stock, whereas the old clinical methods of examination frequently left one or more animals in the herd to propagate the disease and so continue its spread. In many of the European states, the use of mallein is made compulsory.

The disease of glanders, unlike many others of a communicable character, does not protect an animal from a second attack. Not infrequently the disease may apparently heal itself, only to break out at a later date if the predisposing factors of climate and other conditions facilitate a development of the disease germ.

Concerning treatment of the disease but little can be said. It sometimes happens that the animal appears to gain the mastery over the disease as a result of natural causes, but not often is this permanent. In most states, animals that are proven to be glanderous are condemned and shot.

Cleanliness Essential to Good Butter Making.

[Paper read at the Sioux Falls Meeting by MRS J. L. STEWART, of Janesville, Minn.]

Creamery work to me is but another phase of housekeeping, and I would rather eat food cooked in a dirty kitchen by an unclean cook, than eat the butter or use the cream and milk from a dirty creamery or dairy operated by a dirty creameryman or dairyman.

Under ordinary conditions, milk always reveals bacterial life when examined in the proper manner, says Russell. If, however, it were possible to serve the milk in exactly the same condition as it is secreted, no microbes would be found in the milk from a healthy cow. In the process of withdrawing it from the udder it usually becomes contaminated.

The sources to which the bacterial contamination of milk may be ascribed vary greatly in different cases. From the time the milk is drawn until it is consumed, in one form or another, it is continually subjected to contamination from external sources. Milk is so admirably adapted for bacterial growth, that the organisms that gain an entrance into the dairy are usually those that preponderate in the fluid.

Of first importance are the vessels that are used during milking, and also all storage cans and other dairy utensils that come in contact with the milk after it is drawn.

As the usual by-products of the factory, skim milk and whey, are invariably rich in bacteria, owing to the high temperature at which they are separated, they should not be returned in the factory set of cans. It often happens that they are improperly cleaned, and, if so, the milk is richly seeded with these organisms from the whey or milk. A large proportion of the taints and troubles that bother factories are due to this direct cause.

Butter and cheese making both require the presence of bacteria, but the germ life must be of the right sort to be beneficial in its action. For this reason, the maker wishes the milk to be free as possible from all contaminating influences. If the milk is intelligently and properly handled on the farm, the raw material will be turned over to the factory in prime condition; but the rational treatment must be continued in the creamery if the best of products is to be expected. Numerous influences are at work in the factory that add their mite to the milk in different stages of its manufacture, and ultimately affect in a serious way the final product.

The cardinal precept in the factory, as well as in the farm dairy, should be cleanliness. Cleanliness here must not be taken to mean a mere absence of dirt and filth, but all utensils that come in actual contact with the milk should be rendered as germ free as possible. From the time the milk enters the weigh can, until the butter is in the tub, it should be remembered that many opportunities for infection are always present.

The germ content of milk, says Prof. Russel, varies so greatly that unless the conditions are all known, it is impossible to foretell what may be found therein. It is therefore highly important not only for the milk handler, but for the buttermaker that the germ life in milk should be reduced to the lowest possible number.

If for certain purposes more bacteria are needed in the milk, it is far better for the maker to add the desired forms himself as in a starter than to have the raw material infected through slovenly methods of handling.

The good qualities are dependent upon the relation of bacteria to cream. The germ content and the quality of ripened cream butter varies materially, depending upon the way the cream is handled.

The modern method of delivering the whole milk at the creamery and separating the cream from the milk by centrifugal force give the maker better control of the ripening process. Control of the ripening process exerts a profound influence on the character of the fermentation that takes place, and naturally modifies the product.

Thus we see that cleanliness is the one essential thing necessary for the production of good butter. Wherever we find dirt and filth, the false bacteria are sure to abound and affect the product in one stage or another of manufacture.

Let us then have for our watchword "Cleanliness," and in so doing improve the quality of our butter as well as improving the sanitary conditions of the creameries and farm dairies.

Gasoline Engine in the Dairy.

ED. HOARD'S DAIRYMAN:—In your issue of December 30th, "Buff Jersey" asks for experience of those who have used steam and gasoline engines for dairy purposes.

We have used a gasoline engine in connection with our dairy for the past two years, and in our estimation there is nothing that will equal it for dairy purposes. We use the power for separating our milk, churning our butter, grinding our corn, shelled corn, oats, barley, rye and other feed, also cutting our ensilage.

It takes from 30 to 60 minutes each morning and evening to separate our milk. After the milk has been taken to the basement of our dairy building, and the separator is put in readiness, our engine can be at full speed in two minutes; we then go to the basement, and no more attention is given it until our separating is finished, when we turn the switch and the engine stops (as does also our expense).

When everything is ready for churning, the engine is started, and we return to the basement and attend to our duties there, until such time as no more power is needed, when we touch the button and the engine and expense stops. The power from the engine is transmitted to a shaft in the engine room, from this shaft it is transmitted to our feed grinder in an adjoining room, also to another shaft in the basement, and from the basement shaft it is transmitted to the separator and churn.

Our ensilage cutter is located about 50 feet north of the dairy building. The shaft in the engine room extends through the north wall of the building sufficient to admit of a 12-inch pulley, from here it is transmitted to a tumbling rod 50 feet in length, which is attached to our ensilage cutter.

When cutting ensilage, we start our engine in the morning, and the engineer goes out and feeds the cutter. We are not troubled with heat, cobs, coal, wood, engineer, steam going down, no water, etc. Our engine is 10-horse power, and is supplied from a 50-gallon tank, encased in the ground about 20 feet from the engine room. We have small steam boiler in the wash room in the basement from which we get steam to wash our cans, pails, separator bowl, etc., etc.

It costs us ten cents per hour for gasoline, when we are cutting ensilage. Our cutter is an eight-horse power machine. For our work, we need the power one hour in the morning, one hour in the evening, and one or two hours during the day for grinding, churning, etc., etc. We think there is no power we could get equal to the gasoline engine. We touch the button and it does the rest. MORRILL & SON.

Polk Co., Neb.

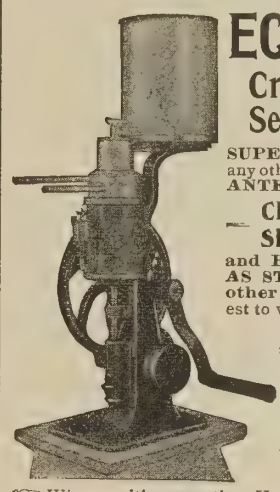
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CHAPIN & CO., Milwaukee, Buffalo, St. Louis, Boston. **Agents** for **GLUTEN FEED.** This feed is one of the best milk producers known, contains 27% digestible protein, keeps cows in healthy condition. Worth your attention in feeding economical rations. Sold in car lots, price based on its milk-producing value. Ask your grain dealer for price. Write our nearest office for full information.

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan,
LINDEN LAWN FARMING CO.,
Lock Box 354, Olney, Ill

COMMON SENSE MILK BOTTLE.



Consumers of milk in every town and city demand their milk in bottles—the only safe method of milk delivery. **The COMMON SENSE BOTTLE** with the chemically prepared paper cap is the only practical bottle, and has superseded all others. All genuine caps have printed on them in ink, "Pat Sept. 17, 1889"

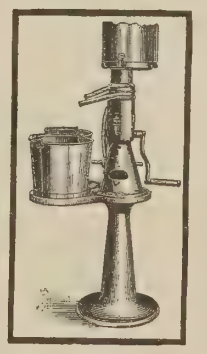
THATCHER'S ORANGE BUTTER COLOR

The only purely vegetable and non-poisonous color. M'f'g by
The Thatcher Manuf'g Co., POTSDAM, N. Y.
Send for circulars and other valuable information

Good Cows

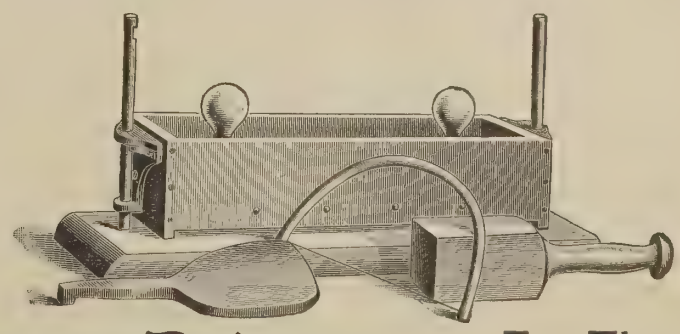


are the foundation of successful dairying. The next important step is to secure an



Empire Cream Separator.

Then it will be an easy matter to make high-grade butter and the most of it. They run 50% lighter than any other machine of similar capacity. Our catalogue will tell you all about separators. Send your address.
U. S. Butter Extractor Co, Newark, N. J.



Butter Printers For The FARM DAIRY

ADJUSTABLE TO EXACT WEIGHTS.
Made in All Sizes, From 5 to 50-lb.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Agents for Hand and Power De Laval Alpha Separators.

The Dual-Purpose Cow.

No. 3.

ED. HOARD'S DAIRYMAN:—If I have rightly understood the position of HOARD'S DAIRYMAN it claims that the dual-purpose cow cannot be bred with any certainty, that she is a product of accidental variation, that is to say, a sport. If this view is not correct I would like to be put right. My contention is that she is not necessarily a sport, but that in judicious hands she can be bred with as much certainty as a straight dairy cow or a straight beef cow. There is no recognized principal of breeding that is at variance with such a view. In this connection, however, I will admit two things, first, that in a great many instances in our country she has not been bred on any systematic plan, and second, that because of this some time must elapse before the average man would be as sure of results as he would be at a later period of systematic breeding. That so little attention has been given to the systematic breeding of this cow, at least in the United States, makes it all the more evident that when she is bred by system, as she may be, she will be a vastly superior animal to what she is now.

That the dual-purpose cow may be bred with as much certainty as any other kind of cow is demonstrated by the success which has attended the breeding of dairy Short-horns in England, by the high attainment reached by the Red Polls in England in the production of both meat and milk, and by the high attaiment of the Devons in the same country. Figures and facts may be given in support of this contention.

But in the meantime I realize that I am limited to only a certain amount of space. High attainment in both lines of production in a single herd would suffice to sustain the correctness of the contention that dual-purpose cattle can be bred with as much certainty as any other class of cattle. But, it is not necessary so to rest the proof on a single herd, since the breeds named can furnish herd after herd with such attainment. And the same is also measurably true of the Brown Swiss.

There is nothing in the recognized laws of breeding against such attainments. If it is true that some herds within a breed of cattle will milk much better than other herds in another breed, and will then fatten readily when dry, and if the same is true of an entire breed as is the case with the Red Polls, it is evident that the laws of breeding are not at variance with such attainment. If such attainment is possible in one instance, why is it not possible in ten thousand instances? I concede, however, that on the average farm, the farmer who brings together a herd of dual-purpose cows gathered promiscuously, and therefore of various blood elements, would not attain results from systematic breeding for dual-purpose cattle at the first, as he would at a later period. Until time enough elapsed to establish dominant characters, there would be less of certainty in the outcome, but ere long such uncertainty would be no more frequent in the herd than in a straight dairy herd. But this concession in no way lessens the force of the contention, that dual-purpose cattle may be bred with as much certainty as straight dairy cattle. So self-evident is this view to the writer, that I do not hesitate to say, that the man who affirms that dual-purpose cattle cannot be so bred, only holds up before the world his utter ignorance of the laws of breeding when he makes such an affirmation. And he deliberately shuts his eyes to attainment that has been achieved with the various classes of cattle named above.

That the returns from dairy cattle and their progeny are greater than from dual-purpose cattle and their progeny, has not been proved. At the outset of this controversy I threw down the challenge asking for such proof. No one, so far as I know, has taken up the gauntlet. It is not for me to furnish such proof. I am acting on the defensive. I am fighting for the existence of the dual-purpose cow, who has been denied the right to live. My contention is that the arable farmer who wants to grow beef and to sell his cream cannot do so without her, and that the man who tries to persuade him not to keep such a cow is not his friend.

Dairymen have tried to meet my challenge by quoting very large profits made from the sale of the milk of selected dairy herds. Such citations only support my view. I have always held that a selected dairy herd will bring a higher return in milk to the owner than a selected dual-purpose herd. But that only tells half the story. The other half has never yet been told, and until it is no one is justified in claiming that the all round profit from an average dairy herd is greater than the all round profit from an average dual-purpose herd. But suppose it were demonstrated that the net profit from a straight dairy herd is in the meantime greater, what would be gained by dairymen? Why, breeders of dual-purpose cattle would go straight into dairying, or at least many of them would, and what would this mean to the markets of dairy products? Then, the pendulum would begin to swing back again in the direction of beef growing.

I leave this question in the hands of the fair-minded reader. If my logic is defective, I will publicly thank any reader of HOARD'S DAIRYMAN who will conclusively show me that it is so. Is not that fair? But if it is not defective, then I claim that no man has any right to hold me up as an enemy of progress in dairying. I have not answered any of the many references made to me by the writers in the DAIRYMAN during recent months, for without exception they were based on a misapprehension of my position. Beyond all question the American public will soon ascertain where the truth lies in this controversy. If the experiment stations and the farmers find that the dual-purpose cow is a myth, a delusion and a snare, then all the worse for Shaw; but if they find that she is none of these, then all the worse for Hoard. THOS. SHAW.

University of Minnesota.

Guernsey Cattle.

ED. HOARD'S DAIRYMAN:—Please give a discription of the Guernseys, giving size, color, etc. Also, give the address of some one, or more than one, who advertises pure bred Guernseys for sale. Give those living nearest in the state.

Which would be the better cross with the Holstein, the Jersey or the Guernsey?

Will you also give the name and address of men having Short-horn (Durham) cattle for sale, giving those who have the best breeds for milk and beef. J. F. B.

South Dakota.

The Guernsey cattle are a sister breed to the Jerseys in many respects. Their original home, like the Jersey, is one of the Islands in the English channel near the coast of France. Like the Jersey, they have been specifically bred for a hundred years or more, to give milk rich in butter fat. They will average a little heavier in weight than the Jersey, and are different, somewhat, in outline and color. They are a very gentle and companionable breed of cattle, and excel all other breeds in the high yellow color of their milk and butter.

They are greatly liked by dairy farmers when they are fed and treated as dairy cattle should be.

We fear our correspondent is not a close reader of the DAIRYMAN, or he would see the names of a number of breeders of Guernsey cattle who advertise in its columns. They are all "good men and true", and we advise him to write them if he desires to purchase a bull. We would very gladly give the names of any Short-horn breeder who has cattle of *real profit* for the dairy, combined with beef, if we knew of any.

Filling the Silo.

ED. HOARD'S DAIRYMAN:—We think the trouble A. H. A., Blue Mound, Ill., is having with mouldy silage, is because he filled his silo too fast, and did not let each day's cutting heat before fresh corn was put in. We had the same trouble at first, but now have none. Fill your silo slow; keep it well packed, and let each day's cutting heat way through, (if it will not, cut every other day) and you will have no mouldy silage. The idea that the spots are where the man stands, is all bosh. Cut fine, one-half inch. Fill slow and pack well, and he will have no trouble. L.

New York.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

DO YOU SEE THAT BAG?

It is our Registered Trade Mark and means that our

STERLING GRADES OF SEEDS

are unconditionally the best that money can buy. Write now for our 1899 Catalogue of IMPROVED FARM SEEDS, TESTED VEGETABLE SEEDS and choice FLOWER SEEDS. It is mailed free on application. Our seeds are sold by leading merchants

N. K. & Co. STERLING GRASS & CLOVER SEEDS RECLEANED AND TESTED

NORTHRUP, KING & CO., SEED GROWERS, MINNEAPOLIS, MINN.

It is intended that our STERLING Brands of Grass and Clover Seeds shall represent the best qualities obtainable

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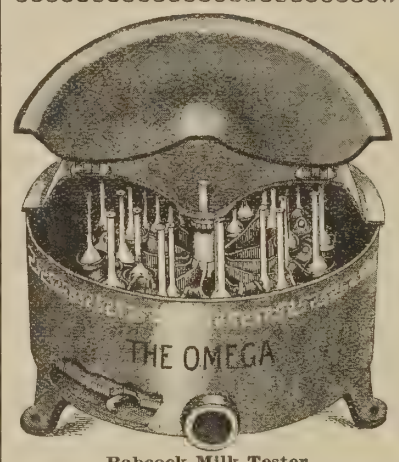


SEND ONE DOLLAR

Cut this ad. out and send to us, state color, gear, size of frame and whether Gents' or Ladies' is wanted, and we will send you this HIGH GRADE '99 MODEL $50.00 WAYMAN BICYCLE by express, C. O. D. subject to examination. You can examine it at your express office and if found perfectly satisfactory and the grandest bargain you ever saw or heard of, pay the express agent the balance, $18.75 and express charges.

THE WAYMAN is built on honor from the best material money can buy; there is no better made bicycle. 22, 24 or 26 inch frame of 1⅛-inch German seamless tubing, finest two-piece hanger, best drop forge connections, full ball bearing, patent retainers, our own best guaranteed single tube pneumatic tire, highest grade equipment, handsome nickel decorations, enameled black, maroon or green, any gear.

WE SEND A BINDING ONE-YEAR GUARANTEE. OUR FREE BICYCLE CATALOGUE shows men's and women's new '99 Bicycles at $8.25, $11.75, $16.95 and up, but our $19.75 WAYMAN is the greatest value ever offered by any house. You can make $5.00 every day taking orders. ORDER ONE TO-DAY. DON'T DELAY. Address, SEARS, ROEBUCK & CO. (Inc.), Chicago, Ill.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.

Sanitary Dairy Pail.



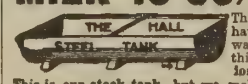
This Sanitary Dairy Pail is made of heavy tin plate in which is fitted the ring containing fine strainer wire. This ring is made to lift out, or hinged to run back, as desired.

THIS PAIL is used by the Kansas State Agricultural College.

Send for Catalogue of . . . SANITARY DAIRY APPARATUS.

STAR MILK COOLER CO., Haddonfield, N. J.

MILK IS 88% WATER



That shows the importance of having an abundant supply of water on the dairy farm. For this purpose nothing is superior to HALL STEEL TANKS. This is our stock tank, but we make others for feeding pigs and calves, cooling milk, hauling whey—anything you want. Special price to *first inquiries* from *new territory*.

Circulars Mailed FREE.

THE HALL STEEL TANK CO.

64 North Ashland Avenue, CHICAGO, ILL.

Second-hand Separators

I have on hand a lot of Cream Separators in good order, that I will sell cheap for cash. Second hand Sharples Factory and Dairy Separators. Also De Laval Standard Alpha and Baby Separators of almost all sizes. Also second hand separators of other makes. Write for prices and particulars. P. O. Box 856, Philadelphia, Pa.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The entire offering of butter on Monday's Elgin Board of Trade, aggregating 4,740 pounds was sold at 21 cents, all bids being at that figure. After the close of the call four lots of 1,500 lbs. each were sold on the floor at 20 cents. The Quotation Committee announced the market steady at 21 cents.

The following were the sales reported:

Factory.	*Pounds.*	*Price.*
Red Clover	1,800	21c.
McConnell	840	21c.
Cold Spring	2,100	21c.
FLOOR SALES.		
County Line	1,500	20c.
North Aurora	1,500	20c.
Bald Mound	1,500	20c.
Oswego	1,500	20c.
Total	10,740	

The sales for the corresponding week of the three preceding years were as follows:

Feb. 28, 1898, 6,600 lbs. of butter sold at 20c.
March 1, 1897, 34,860 lbs. of butter sold at 18c.
March 2, 1896, 59,280 lbs. of butter sold at 21@21c.

Elgin, Ill., Feb. 27 1899. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Feb. 27—Butter—Offerings 179 tubs. Sales, 100 tubs at 20c, 79 tubs at 21c. Official market steady. 21c.

CHICAGO, Ill., Feb. 27—Butter—Creamery, extra 20½@21c; firsts creamery, 19@20c; seconds 14@15c; dairies, selections, 17c; No. 1, 15@16c; No 2, 13c; extra, laules, 14c.

Eggs—At mark, cases included, 23½@27c, closed at 24@25c.

Cheese—Full cream, Twins, good to choice, 10 @10¼c; Cheddars, 9¾@ 0¼c; Young Americas, 10 @10½c; Swiss, 10@12c; Limburger, 8@10¼c; Bricks, 8½@10½c

Cattle—Trade was active and prices ruled strong to 10c higher. Receipts about reached expectations, but the quality was only fair. Strictly prime beeves would sell around $5.90@6. The highest price reported was $5 70 for some fed westerns. The corresponding Monday a year ago some cattle sold at $5 85, the highest during the first eight months of 1898. Native steers averaging 940@1,610 lbs. sold at $3.90@5.65, bulk, $4.60@5.30; straight Texas steers, 840@1,147 lbs, $3.90@4 60; native cows, $2@4.40 heifers, $2.85@4 65, bulls, $2.75@4 60; stags, $3 25@5; calves. $4@7; and feeding cattle, $3.50@4.60.

MILWAUKEE, Wis, Feb. 27—Butter—Creamery extras, per lb. 20@20½c; firsts, 18@19c seconds, 16@17c; imitations, 15@16c; fresh dairy, good to choice selections, 16@17c. Market unchanged and fairly active.

Cheese—Full cream Twins per lb. new, 10½@ 11c; Brick, 10@10½c; winter made, 9@9½c; Limburger, 9½@10c; winter made, 9c; Swiss block, 10½c; drum 12@13c.

Eggs—Fresh per dozen, 20c. Market weak 3@ 4c lower and unsettled, owing to a slow demand and steadily increasing receipts.

NEW YORK, Feb. 27—Butter 21c for western creamery; 20c for state dairy, half firkin tubs finest.

Cheese—10¾c for state large full cream.

Eggs—34c for western.

BALTIMORE, Md., Feb 27—Butter—Steady, fancy creamery, 22@23c; ladle, 15@16c; good ladle, 13@14c; store packed, 11@13c; rolls, 12@ 13c.

Eggs—Firm at 30c.

Cheese—Steady fancy New York large, 11@ 11¾c; medium, 11¼@11½c; small, 11½@11¾c.

KANSAS CITY, Mo., Feb 27—Butter—Active firm; Creamery, 16@20c; Dairy, 17c.

Eggs—Prices quoted 8c lower than Saturday. Fresh candled Missouri and Kansas stock, 20c cases returned; 20½c in new white wood cases, cases included. Receipts larger and the prospects of continued milder weather give reasons to expect abundant supplies and lower prices. The demand localy is very small.

ST. LOUIS, Mo, Feb. 27—Butter—Steady; creamery 19@23c; dairy, 14@17½c.

Eggs—Lower 23c.

PHILADELPHIA, Pa., Feb. 27 Butter—Solid packed separator creamery, extra, 22½c; creamery, firsts, 22c; creamery, seconds, 19@20c; imitation creamery, extra, 8c; imitation firsts, 17c; imitation seconds, 15c; ladle packed, extra, 15c; firsts, 14c; seconds, 13c; print butter, creamery, extra, 23c; firsts, 22c; seconds, 20c.

Eggs—Pennsylvania and near-by, 33c; Western, 34c; Southwestern, 33c.

CINCINNATI, O., Feb. 27—Butter—Easy.

Eggs—Demoralized, 22c.

Cheese—Strong; good to prime Ohio flats, 11 @11½c.

Latest quotations for fancy creamery: Newark, N. J., 21c; Buffalo, 23c; St. Paul, 20c; Minneapolis, 19½@20c.

NEW ORLEANS, Feb.27—Butter market quiet, 22@23c.

BOSTON, Mass, Feb. 27—Butter market very weak, 22c. Weather mild.

Cheese—Steady, 11@11¼c.

Eggs—Market demoralized.

DETROIT, Mich., Feb. 27—Butter—Elgin extras, 22c; Michigan. 2 c; dairy, fancy, 17c.

Eggs—Weak, 25c.

PITTSBURG, Pa., Feb. 27—Butter—Slow and lower. Creamery, 20@22c; country roll, 17@18.

Cheese—Scarce and higher. N. Y. creamery, 11½@12c; Ohios, 11@11½c.

Eggs—Market wild, 35@40c; sold up to 43@45 last week, but these prices will not hold.

NEW YORK MARKET.

NEW YORK, Feb. 28—Butter receipts for the week, 35,915 packages. Exports for the week 5,283 packages. The market has been steady all the week, with sales of extra creamery at 22c; good to fine selling at 20@21c; under grades moving at 17@19c. Best fresh imitations are enquired for at 16@18c; and we note sales of fine fresh ladle goods to exporters at 13@14c. Finest selections of new Dairy make from this state sold at 20@21c, but most of the tubs arriving however are lacking in quality over colored, mixed in color or bad flavor, and sold at lower and irregular prices. A June colored butter in March is unreasonable, hence if any coloring matter at all is used at this season of the year, it should be only a little to change the butter from a blank white. Summer make butter shows no improvement in price There were light sales of June freezer stock at 15@17c; small dairies of firkins and tubs at 14@15c; and we note sales of 100 packages odds and ends on New York State Dairy butter at 13c. We quote:

Creameries, extras, 22c; medium, 19@21c; poor, 16@18c. Dairies, extras, 20@21c; medium, 16@18c; poor, 12@14c.

Cheese—Receipts for the week, 11,219 boxes, exports for the week, 11,809 boxes.

There was more business done this week both for export and home trade. Buyers claim they were able to buy at less price than last week, while the receivers report a firm market at full prices and stocks clearing up to their satisfaction We quote: Full cream, small, extra, 11@ 11¼c; medium, 10@10½c; poor, 7@9c. Full cream large, 10¼@10½c; medium, 9@9½c: poor, 6@8c.

Eggs—Receipts for the week: 28,834 cases.

Prices have advanced 2 and 3 cents per dozen every day since our last and winds up to day (Saturday) at 35 cents asked and market bare of stock. Any increase in receipts would drop prices very materially. We quote: New York & Pennsylvania, 35c per dozen; Western, 35c per dozen. DAVID D. LEWIS & CO.

177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, Md, Feb. 23—Butter—The embargo laid upon trade the previous week by the heavy snow was removed, and receipts of delayed shipments increased the regular supplies of creamery, as well as other grades, to such an extent that all wants have been fully met, and receivers have had their stocks that were depleted fully replenished, and the anxiety that prevailed as to the near future has vanished with the return of moderate weather. The proportion of the grade that goes for extras in the lines of separator creamery is still very small and the skill of the salesman is taxed to the utmost to persuade the buyers to take the selections at quotations; of course, the inferior and very faulty parcels have to be worked out by making liberal concessions in price. Gathered cream makes are in fair supply; and show more effects of the severe winter weather; some of the heretofore favorite and attractive marks have been rejected by the regular takers, and have had to compete for favor with the best ladles. Imitation creamery is scarce, the receipts falling far short of the demand although the quality is below the average for this time of the year. Ladles also are scarce, especially the high grades; there is no accumulation of any kind. Trading in Junes showed some little increase the early part of the week, but at the close sellers show some uneasiness about the final disposition of the holdings Blocks and prints again are in fair receipt, and the prices are easing off. Rolls are in fair receipt; the wire edge seems to be off; the demand continues good for all good to choice lots.

Creamery separator, extras, per pound, 22@23; firsts, 20@21; seconds, 18@19; gathered cream, extras, 19 firsts, 18; seconds, 17; Ohio, extras, 20@21; firsts, 19@20; seconds, 17@18. Roll, extras, 14@15; firsts, 13; seconds, 12. W. Va. Roll, extras, 13@14; firsts, 12; seconds, 11. Creamery Blocks, (2 lbs.) extras, 23@24; firsts, 21@22; seconds, 19@ 20; prints, (½ lb.), extras, 23@24; firsts, 20@21; seconds, 18@20. Md., Va. and Penna Prints, extras, 20; firsts, 18; seconds, 15@16

Cheese—Our cheese market is in good shape and firm with moderate offerings, and a good demand for desirable grades.

N. Y State Cheddars, fine, 11@11¼; choice, 10¾@10¾; fair, 7@8; Flats, fine, 11¼@11½; choice, 10½@10¾; fair, 7½@8½; small, fine, 11½ @11¾; choice, 10¾@11; fair, 8½@9. Ohio Flats, fine, 10@10½; choice, 9@9½; fair, 8@8½; Picnic, fine, 10½@10¾; choice, 9½@10; fair, 8½@8¾. Swiss cheese, fine, 11@12; choice, 9@10; fair, 8@ 8½c.

Eggs—Oh, my, did you hear the drop from the blizzard prices of last week? The break in prices took place on last Friday and Saturday, owing to the heavy receipts on those two days. Eggs were sold as low as 22 cents, but so far this week the receipts from all sections have been very light, and with our market quite bare of stock, prices have re-acted. We do not know how long these prices will hold; it will depend upon the receipts The demand to-day is active on all fine stock at outside quotations. Duck eggs—There is a good demand for all large clean stock; small and dirty eggs will not bring top prices. The market is active at 26 cents.

301 Exchange Place. G. M. LAMB & BRO.

FOREIGN MARKETS.

BOSTON, Mass, Feb. 25—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane, give butter markets as depressed, the weather being decidedly against the article. The arrivals of American this week are quite liberal, and being in so many hands, some of whom are pressing sale, causes a wide range of prices. Most holders, however, are looking for an improved state of things, with diminished receipts from America and gradual falling off of receipts from the antipodes, the weather will have more to do with future markets than anything else. Some very nice American creameries in boxes have sold close up to Canadians, say, 21@22c, but equal quality in tubs can be had at 19@20c. Medium grades of creamery are entirely neglected, margarine mixtures taking their place. The demand for finest fresh imitations is not so good this week as last, and it takes something very fine to command 16@17c. Ladles are a dragging sale at the moment at 15c downwards.

Cheese markets are not at all satisfactory to importers; to move quantity, concessions would have to be made that they do not feel like entertaining at the moment. Buyers continue most aggravating in their small purchases. Finest Septembers are nominally 10¾@11c, Canadian bringing ½c more.

LIVERPOOL, Feb. 27—Butter—Finest United States, 94s; good, 65s.

Cheese—American finest white and colored, 49s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Gas Engine—The Ohio gas and gasoline engine is a new and improved motor just on the market. If you are interested, you should send for catalogue. Address OHIO GAS ENGINE CO., Bucyrus, Ohio.

For Sale—Two creamery outfits for sale, in whole or by the single article. Address C. E. NAPIER, Agent, Franklinville, Catt. Co., N. Y.

Improve Your Separators.

HAVE YOUR MACHINES REMODELED AND REPAIRED.

This is the best time for users of "Alpha" DeLaval separators to have their machines repaired, remodeled and brought up-to-date. The beginning of another season is at hand and our Shops can now do such work without the delay unavoidable a month or two later.

Separator users should understand the importance of both keeping their machines in good running shape at all times and of availing of later improvements as far as possible. It makes a great deal of difference in results when your machine is running roughly and out of order. Repairs should be very small and your machine always run smoothly with proper care, but when from any reason repairs are necessary remember that they very soon pay for themselves in better work, and that you are only going from bad to worse in putting them off.

Few users of older machines appreciate the extent and importance of later improvements and the degree to which such improvements are applicable to their machines. The capacities of all older machines can be materially increased. Increasing capacity not only largely increases their usefulness but also the thoroughness of skimming. The improved interior bowl construction is stronger and more stable and adds greatly to the durability of the machine. Any DeLaval machine of to-day is intrinsically worth double the same style of machine made two years or more ago. Many of the improvements can be incorporated into the older machines at reasonable cost.

In older "Alpha" No. 2 machines the capacity can be increased to 4,000 lbs. per hour, improved discs, stronger shaft, and disc strengthening ribs put in bowl, and bowl thoroughly repaired at a cost of $125. If the oil cups stand high they may be lowered. Sight-feed ones should be used. If running parts are overhauled at same time the machine will then be worth twice what it was before.

In "Alpha" No. 1 machines the capacity can be increased to 2,500 lbs., and the same bowl improvements and repairs made at a cost of $100. The bowl construction improvements can be made in ealier 2,500 lbs. bowls at reasonable expense. Every small bowl spindle machine can and should be remodeled in frame for present standard size of spindle. High setting oil cups may be lowered. Sight-feed ones should be used.

In "Baby" No. 3 machines earlier bowls can be remodeled and increased in capacity to 750 lbs., including thorough bowl repair, at a cost of $35 This makes new larger capacity covers necessary, costing $7. Sight-feed lubricators can and should be used. Many other little improvements can be made if machines are sent in to Shops, at reasonable cost.

In "Baby" No. 2 machines earlier bowls can be remodeled and increased in capacity to 375 lbs., including thorough bowl repair, at cost of $25. This makes new larger capacity covers necessary, costing $5. Sight-feed lubricators can and should be used. Larger supply cans may be had. Many other little improvements can be made if machines are sent in to Shops, at reasonable cost.

Write to New York or Chicago Offices, give the serial bowl number of your machine, and find how it can be improved and the probable cost. Do this either directly or through the nearest regular agent. Loan bowls can be had whenever wanted while bowls go to Shops. Loan machines, however, cannot be supplied.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts., CHICAGO.	74 Cortlandt Street, NEW YORK.	1102 Arch Street, PHILADELPHIA.

Wanted—Position in dairy, 50 to 75 cows—buttermaker. H. MILLS, Highland, Mich.

Public Sale—Thursday, March 9th, ten registered Jerseys, lot of grade Guernsey cows and heifers. Fine 2-year-old Hood Farm bull at private sale or exchange. E. H. SMITH, Salem, N. J.

For Sale—A desirable farm of 120 acres, at Deronda Station, Polk Co., Wis. For particulars, write LOCK BOX 18, Deronda Station, Wis.

Position Wanted In a creamery by an experienced butter-maker. Have had 4 years experience and good success. Student of Wis. Dairy School. Good references. LEHNHERR, New Glarus, Wis

Wanted—A single man to work on dairy farm. Must be an expert milker, steady and of good habits. Also married man, same as above, for tenement house. State wages and give references. F. C. LAUER, Rochester, N. Y.

Dairymen, Attention! Excellent Opportunity—Established dairy business of eight years standing. Farm consists of 175 acres. Will sell all or part at very low figure, considering income from the dairy It is situated one half mile from main street of Milford, which has a population of 2,000, where all milk is delivered. Full information cheerfully given. Address T. J. CURDY, Milford, Mich.

Wanted—A first class butter maker. Live alone and milk 12 cows Wages $40.00 per month. Also a good milker wages $30 00 per month. F. E. ADAMS, Telluride, Colo.

Wanted—Position as butter maker, in Northern Iowa. Best of references furnished. Am capable of running any machine. Can do my own plumbing Wages reasonable. Address RICHARD KAUNZNER Fairfield, Rock Co., Wis. 3-2

Wanted—Industrious man with family who understands dairy farming. Good offer to the right party. J. C. RAY, Tampico, Mexico.

Wanted—To buy stock sheep. Some high grade or thoroughbred Shropshire ewes that will lamb this spring. Also wanted, a few Tamworth sows. FRANK O. CHESNEY, 302 Hall Bldg., Kansas City, Mo.

If you want to receive any one dollar book or a year's subscription to any one dollar magazine for 25 cents, address ELTON G. RICE & CO., Berwyn, Ill.

A Bargain—Full blood Jersey cows not registered, 2 and 3 years old, 8 head. Excellent breeding. H. M. EBBOTT,, Fort Atkinson, Wis. 3 tf

For Sale—Several DeLaval farm separators, or will exchange for cows or calves. Address P. M., Four Corners, Iowa.

Wanted—Location for creamery or cheese factory. I will build, buy or rent, or work by the month. Have ten years experience in butter making, and five years in cheese making. Address E. G. HODGES, Calhoun, Wis.

Creamery for Sale or Rent—The California creamery with first class outfit and all modern improvements. For particulars, address JOHN KELLER, G. W. BENNETT, Flat, Ohio

For Sale, Cheap—Dairy farm 116 acres near fine college. 2 houses, 3 barns, 3 silos. F. M. SWIFT, Olivet, Mich. 3-2

Position Wanted by a first-class and temperate butter-maker. Address L., care Hoard's Dairyman. 3-2

Wanted—A good working dairyman to take charge of 100 head of milch cows. Applicant must be thoroughly competent and not afraid of hard work. Address BONNE TERRE FARMING & CATLLE CO., Bonne Terre, Mo. 3-2

Position wanted in a cheese factory by an experienced cheese-maker. Have had 12 years experience and can give good references. Address P. O. BOX 96, Flat Rock, Ind.

For Sale—A first-class creamery 25 miles from Sioux City. Write for particulars and terms. DEWITT GOODRICH, Climbing Hill, Ia. 3-3

For Sale—8 can Champ. cabinet creamery, $15.00; 60 gal. "Ideal" bbl. churn, roller bearings, $6.00; 50 gal. cream vat, copper bottom, metal lined, ice or steam, $10.00; Eureka butter worker, $4.00; 20 cases of 5 lb. spruce Bradley butter boxes, 40c. case. J. T. CLARK, Clinton, Mich 2-2

Dairy school graduate wants work in creamery or dairy. Address "HOLT", Andover, Mass. 2-2

A Complete creamery outfit for sale cheap that has been used but very little. Address HABIGHORST BROS., Sheboygan Falls, Wis. 11f

Iowa Farms For Sale—$2 per acre cash, balance ½ crop until paid. J. MULHALL, Sioux City, Ia. 1-3

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

For Sale—One first-class creamery and skimming station. DOWNING MFG. CO., Downing, Wis. 35-tf

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—To trade a 43-acre farm, good six room cottage, and barn. Land rolling, and nearly surrounded by oil wells, producing from 10 to 400 bbls. per day, ½ to 3 miles away. Situated 10 miles from Parkersburg, 4 miles from railroad. Will be sold for high grade or full-blood Jerseys or $1,500.00 cash. This is cheap outside of the prospect for oil. Don't write unless you have first-class individuals. Also will sell or trade 416 acres of fine coal land in Kanawha county, 6 miles south of Charleston, Davis' Creek. R. R. runs through property. 95% of land underlaid with three seams of coal, one seam, 40 in., is free from any slate and with a bare trace of sulphur. There is no finer bituminous coal in West Va. Will take $5,000.00 worth of full-blood Jerseys and $5,000.00 in notes of one, two and three years. Titles guaranteed, J. F. WOODYARD, Parkersburg, West Virginia. 2-4

Lands in Wisconsin Cheap—The Chicago, St. Paul, Minneapolis & Omaha Railway Company has upwards of 400,000 acres for sale in northwestern part of the state at low prices and on long time. These lands are most desirable because of their proximity to the markets of Minneapolis, St. Paul, Ashland, Eau Claire, Duluth and Superior. If you wish to visit these lands homeseekers cheap excursion tickets can be secured at C. & N. W. ticket offices in Chicago, Milwaukee, Janesville, Beloit, Elgin, Aurora, St. Charles and Dixon March 7th and 21st. Maps and information furnished on application to G. W. BELL, Land Commissioner, Hudson, Wis. 8-4

Mr. Wheaton's Canadian Dairy Notes.

ED. HOARD'S DAIRYMAN:—Our last two letters contained summaries of the January Dairymen's Meetings. There is still another gathering of this kind to account for, and that not the least important one either. During the meeting of the western dairymen at London, in January, 1898, the cheese and butter makers of Western Ontario decided to form an organization for their own special benefit. The preliminary arrangements entered into at that time were confirmed, and the organization completed at a subsequent meeting held at Woodstock, in Feb., 1898.

This new organization, which has just recently celebrated its first birthday, is known as the Cheese and Buttermakers' Association of Western Ontario. It exists primarily for the makers, as only persons actively engaged in the making of butter or cheese are eligible for membership. So far, the association has had a rapid growth, and the bulk of the makers in the west have become members, and subscribed to the rules and regulations governing it. Though, practically, a maker's organization, its object is to foster the dairy industry as a whole, by elevating the position of the maker, and by bringing them in touch with each other, endeavor to remove some of the grievances under which they have labored, during the past few years.

A section of the dairy community may feel that makers, as such, have no grievances, and that from May 1st to Nov. 1st, or while the factories are in operation, it is all smooth sailing. But every one who has had anything to do with the management of a factory knows that many makers have very serious grievances at times. One of the things that has made the maker's lot a more or less hard one, is that too much responsibility has been saddled upon him. He is held responsible, at most factories, for the quality of the cheese, no matter what kind of milk is delivered by the patrons. In the light of the more recent investigations into the cause of bad flavors in milk this does not seem fair. To remedy this grievance, this new association has drawn up a new form of agreement for use between makers and cheese companies whereby the former is not held to be altogether responsible for the flavor of the cheese. It has also provided inspectors, who may be called in when there is a dispute as to how far the maker is responsible where inferior cheese are produced. The object of this is to place upon the patrons any loss which may result from cheese made from an inferior quality of milk.

Another grievance which the majority of our makers are suffering from is that of being underpaid for the work they do and the responsibilities they assume. This results, in many cases, in the maker not making enough to enable him to employ sufficient help to do his work properly. This the association will endeavor to remedy by granting certificates of workmanship to its members, and making an organized effort to educate factorymen in the way of paying a fair wage for good work. These objects should not antagonize the patrons, but on the other hand, cause them to rejoice in that there is in existence a new factor, pledged to do everything in its power to aid cheese and buttermaking in this country.

THE FIRST ANNUAL CONVENTION.

The first annual convention of this new organization took place at Listowel, Ont, on Feb. 1st and 2d, and was in every way a successful gathering. Mr. T. B. Millar, Kincardine, Ont., president of the association, in his annual address, outlined the work connected with its organization. In spite of the many drawbacks and discouragements, during the past season, cheese and buttermakers have not much to fear for the future. We cannot raise the price of cheese and butter, but we can improve the quality, and thus increase the demand. To make the finest butter and cheese, we must have men and women, who are desirous of attaining to the highest standard, a first-class quality of milk, and better buildings for making and curing the cheese in.

THE CARE OF MILK.

Mr. W. A. Bathwell, an Oxford county maker, read an excellent paper on this subject. He emphasized cleanliness, and that immediately after milking the milk should be well stirred and aerated until the animal heat was out. It should then be put in a sheltered, airy place, free from bad odors, to keep till taken to the factory. It should not be kept in large quantities over night, and should not be put in cold water till all the animal heat was out; and not then, unless in very hot weather, or when it is to be kept over Sunday. The fault for bad flavor lies, as a rule, with the patron who has control of the milk till it reaches the factory. He urged makers to reject milk which was not in a good condition for cheese making.

In the discussion which followed, the use of perforated tin vessels was recommended for straining the milk, rather than a cloth which was often conducive to uncleanliness. The cheese makers were fairly well posted, and if patrons would only do their duty thoroughly, there would be little danger of bad cheese. The people were not suffering so much from lack of knowledge, as from not doing what they knew.

SUMMER BUTTER MAKING.

In taking up this subject, Mr. Fred Dean, St. Marys, pointed out that there were no fixed rules for summer butter making. Cleanliness was the key note, and it ought to be observed all the way through. He advised pasteurizing the milk. In the discussion which followed, the ripening of the cream was emphasized as being a most important point. He who knew this, understood the most difficult part of butter making.

WINTER BUTTER MAKING.

Mr. J. F. Millar, St. George, in his address on this subject, showed that cream should be ripened at a temperature of from 70 to 75° F., or have the cream started to thicken in six hours from the time it had seperated. Quick ripening will improve the flavor of the butter. When cream is ripe it should be cooled to 60° F. in about an hour's time, then gradually down to 50 or 52° F, and should remain at that temperature for three or four hours before churning, in order to harden the globules of fat properly. Cream should be ripened ten or twelve hours before it is churned. Cream should be rich enough to churn 50° to 54° F., time to churn varying from fifty minutes to one hour. Churn until granules are as large as wheat grains. When butter is properly washed it should be allowed to stand for thirty minutes, at least, before working, and should be well worked, whether worked once or twice.

CHEESE MAKING.

This was one of the chief subjects for discussion at the meeting, which was led off by a very practical address by Mr. G. C. Publow, Instructor in cheese making at the Kingston Dairy School. It has been said that the limit of cheese making had been reached. This meant that the makers must make their cheese so fine that when the consumer tastes it he will want more. The chief faults were bad flavor and acid cut cheese, which was weak in body, and with a bitter flavor, the result of the condition of the milk and curing. In curing it was better to have two rooms and lower the temperature gradually. What the trade demanded to-day was a cheese with a sweet, nutty flavor and a silky texture. In the manufacture of such a cheese it was necessary to have a good factory to make it in, a good factory to cure it in, good milk to make it from, and an intelligent and skilled man to make it.

Practical addresses on other phases of dairying, were delivered by Professor Dean, Mark Sprague, T. J. Dillon, E. Agur, I. W. Steinhoff T. C. Rogers, and Geo. McDonald.

The following are the officers for 1899:—President, T. B. Millar, Kincardine; Vice-President, G. H. Barr, Sebringville. Directors, Geo. E. Goodhand, Milverton; John Brodie, Mapleton; E. Agur, Brownsville; T. E. Nimmo, Pine River; James Morrison, Stratford; T. O. Barry, Ingersoll; W. W. Brown, Atte cliffe Station. Inspectors, J. B. Millar and Jas. Morrison. Dairy Supt., W. W Harris, Brussels. Sec. and Treas., W. W. Brown, Attercliffe Station.

A new feature in connection with dairy conventions in this country, was a dairy exhibit. There were quite a number of entries in the cheese and butter classes. After the awards were made, one or two of the best lots were cut up and their good qualities pointed out to the members present. This

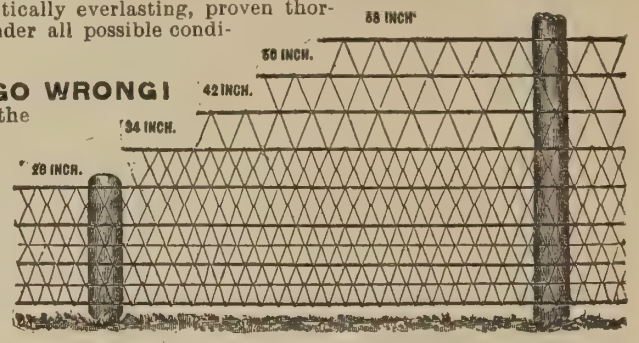
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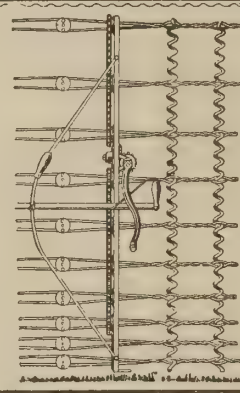
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in 10 hours, 27 to 60 inches high, 7 to 12 cables, can be built with the

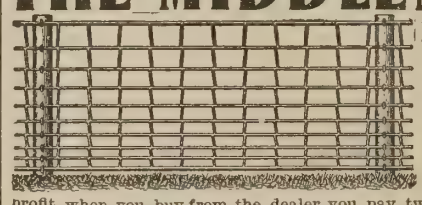
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THE MIDDLEMAN'S MONEY



makes the fence no better. Then why pay him a lot of extra money? Why not save that amount by buying from us at wholesale prices? We do not impair the quality to make our fence cheap. In fact, we depend upon the quality to hold your trade. We could not sell the

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as cheaply as we do if we had to sell it through the dealer. When you buy from us you only pay one profit, when you buy from the dealer you pay two profits. Send postal card for circulars and prices.

THE ADVANCE FENCE CO., 4002 OLD ST., PEORIA, ILL.

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* * 1899 * *

The Golden Wedding Edition—An authority on all subjects pertaining to the Garden—24 pages lithographed in colors—Sent with Due Bill for 25 cents worth of seeds, your own selection, for 15 cts.

Free with any of the Following Bargains.

Vick's Trial Vegetable Garden, 16 standards	$ 50
6 Dahlias—2 Cactus; 4 Show, named varities . .	60
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Credit given for Full Amount of Purchase to buy other goods.

More Vegetable Seeds for the money than any other house

Vick's Magazine—Special 1899 offer—the Magazine 1 year, and the Guide for 25 cents.

Vick's Little Gem Catalogue, free.

JAMES VICKS SONS, ROCHESTER, N. Y.

PAGE

A MINIE-BALL

won't "sweep an avenue," but its screech will call attention. These little ads. may remind you we have larger ammunition for the asking. Write us.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



STEEL WEB PICKET

FENCE FOR LAWNS AND CEMETERIES.

Steel Gates, Posts and Rail. Cabled Field and Hog Fence with or without lower cable barbed. Cabled Poultry, Garden and Rabbit Fence.

DE KALB FENCE CO., 22 High St., DE KALB, ILL.

A big yield of both profit and satisfaction will result if you plant

FERRY'S Seeds

They are always the best. Do not accept any substitute—buy none but Ferry's. Sold by all dealers. Write for the '99 Seed Annual—free.

D. M. FERRY & CO., Detroit, Mich.

THERE ARE OTHERS But the LAMB Is the..... ONLY



factory made fence on the market with a heavy, continuous upright wire. *It will pay you* to investigate its merits.

Lamb Wire Fence Co., Adrian, Mich.

POTATOES $1.20 a Bbl.

Largest Seed POTATO growers in America. The "Rural New-Yorker" gives Salzer's Earliest a yield of 464 bus. per acre—ripe in 28 days. See Catalogue for prices. Our great Seed Book, 10 Farm Seed Samples, worth $10 to get a start, for 10c. postage. JOHN A. SALZER SEED CO., LaCrosse, Wis.



SEEDS

Cheapest Ever Grown.

BEST in the world; none other as GOOD; warranted to be by far the CHEAPEST.

Prettiest book in all the world FREE.

SEEDS 1c and up for large packets. Send yours and neighbors names for my Beautiful Illustrated Catalogue.

R. H. SHUMWAY, Rockford, Ill.

proved to be a most instructive feature of the proceedings.

INSTRUCTORS APPOINTED.

The directors of the Cheese and Butter Association, of Western Ontario, met recently and appointed four instructors to visit the cheese and butter factories under its jurisdiction. It was decided to appropriate $3,400 of the funds of the Association for this work, and visits will be made to factories making application for the instructor's services. It is the intention to have these instructors, as far as possible, reach the patrons of the factories, and instruct them in the care of the milk.

AGRICULTURIST AT THE EXPERIMENTAL FARM, OTTAWA.

This position, which has been vacant for a couple of years, has been filled by the appointment of Mr. J H. Grisdale. Mr. Grisdale is a Canadian, but has spent the past year at the Iowa Agricultural College, fitting himself for higher work in agriculture. When a student there last fall, he won first place in the live stock judging contest at Omaha. He has received a wide training during his agricultural studies, and should do good work in this new field. J. W. WHEATON.

Toronto, Canada.

The Milk Trust from a Farmer's Standpoint.

ED. HOARD'S DAIRYMAN: First of all, the producer and milk shipper would have nothing to lose but all to gain, judging from all the trouble that he has had for the last fifteen years or more. There are in Chicago hundreds of dealers in milk who make it a business to impose upon the milk producers in various ways, principally in not paying his bills. They are an irresponsible set who not only impose upon the farmer, but also on the consumer by giving milk of a very inferior quality, and in many cases they do not take proper care of it after receiving it from the farmers. Of course I take it for granted that the much talked of milk trust, headed by Mr. Joseph Leiter would be composed of the largest and best dealers in Chicago, or in other words the present talent of the business. They, together with Mr. Leiter's capital to buy out such retail routes as were desirable, and run them all under one management, which in this particular line of business would be very great, especially in the stopping of running many delivery wagons, and closing up of many of the smaller places of business of those the combination saw fit to buy out.

All of this great saving of expense would make it possible for them to pay liberally to all of such producers who would be up-to-date men in their line of business, and would be willing to take the greatest care of their milk possible, and bind themselves to feeding restrictions, State Veterinary Inspection, extra care of barns and stables, and in fact, run their dairies on modern dairy principles. He would feel that such a combination would pay their bills promptly and care for his cans while in the city as they should be. In fact, in my opinion, it would give new life to many of the now much abused milk shippers. And for this particular reason, since the source of supply is the all-important part of the business, the consumers would derive a direct benefit because their product would be handled by those who had the reputation and ability to run a clean, straight-forward retail and wholesale milk and cream business.

I say, as an old shipper of milk and farmer, let the trust come along. I can see nothing but elevation and betterment over the present state of affairs in our line.

I hereby extend a hand of welcome to Mr. Leiter and his milk trust. A FARMER.

Milwaukee County, Wis.

Richness of Cream—Dividing Returns Among Patrons.

ED. HOARD'S DAIRYMAN:—I am running a small creamery in Washington Co., Oregon, and receive both milk and cream, some of my patrons preferring to skim their own milk, using the deep setting gravity process. I use the Babcock test for testing the quality of both milk and cream and made an average of five pounds of butter to the 100 pounds of milk, received the month of January, and 21 9-10 pounds to the 100 pounds cream for the same month. One of my patrons thinks his cream don't test high enough; says he churned some himself and got a pound of butter from 3 ounces less cream than his average at creamery. I take composite tests and think cream is liable to vary even with the most careful skimming, while he thinks it should be the same every time. I use a bottle with large stem graduated to 25%, for testing cream, and small ones, graduated to 10% for milk. Now, I may not understand how to test properly, for all I know about it I learned from the party I bought creamery from, and count milk and cream on the same scale per 100 pounds, according to test. Would like to have you tell us through the DAIRYMAN if cream skimmed by gravity process, deep setting, is not liable to vary in quality even with most careful skimming?

2. The proper way to count amount of butter made from milk of different tests, Babcock testing machine being used.

J. J. HARTLEY.

Washington, Co., Oregon.

The richness of cream will vary widely according to the time and temperature of setting. It may contain anywhere from 10 to 40 per cent of fat, according to the above conditions. This variation was the main factor in causing the Babcock test to be invented and adopted in creamery work. Your patron might easily have found a variation of several pounds in testing two samples, instead of ounces, with no cause for surprise.

The *average* overrun is 15 per cent, but in practice it may be either above or below this amount. The fairest way is to divide the proceeds of the butter sold according to the per cent of fat brought by each man. Thus: If a patron brings 100 pounds of fat, by test, and the total amount of fat brought was 1,000 pounds, he would have brought 10 per cent of the total fat and is entitled to 10 per cent of the proceeds of the butter, after all expenses of manufacture have been taken out. The other patrons can be paid in the same way, according to the per cent of butter fat furnished.

WHEN YOU BUY A TESTER



you want one that will do absolutely correct work very rapidly, The

RUSSIAN BABCOCK TESTER

which is almost entirely automatic in every respect and has a speed indicator which will show you at a glance the proper speed, will fulfill all requirements. It is made entirely of cast iron, steel and brass, wearing parts are easily replaced when worn, and it has special glassware which is very easily cleaned and filled. HOT WATER IS ADDED WHEN THE MACHINE IS AT FULL SPEED. Exhaust steam from the motor keeps the bottles hot. All glassware guaranteed correct.

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Every Speck of Dirt



is removed from milk by Meloney's Patent Milk Strainer. A new principle in milk straining—practically filters the milk. Yet it's simple—no complicated parts, nothing to get out of order; as easy to operate and to clean as the commonest strainer.

MELONEY'S Patent MILK STRAINER

is the best, most economical device for purifying milk ever invented. We want a reliable agent in every dairy community. Write for full description and free catalog of everything for the dairy—hand and power separators, coolers, milk scales and buttermakers' supplies.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia, Pa.

WHAT IS THE BEST SEPARATOR?

THE IMPROVED UNITED STATES.



Why—Because it has the Triple Current Bowl which recovers all the cream in the milk.

Skims Perfectly Clean; Is Very Easy to Operate.

WILLIAMSBURG, IOWA, July 28, 1898.

The Improved U. S. Separator is giving splendid satisfaction. It skims *perfectly clean* and is very easy to operate. We would not think of handling any milk without the Improved U. S., which I consider the best separator on the market.

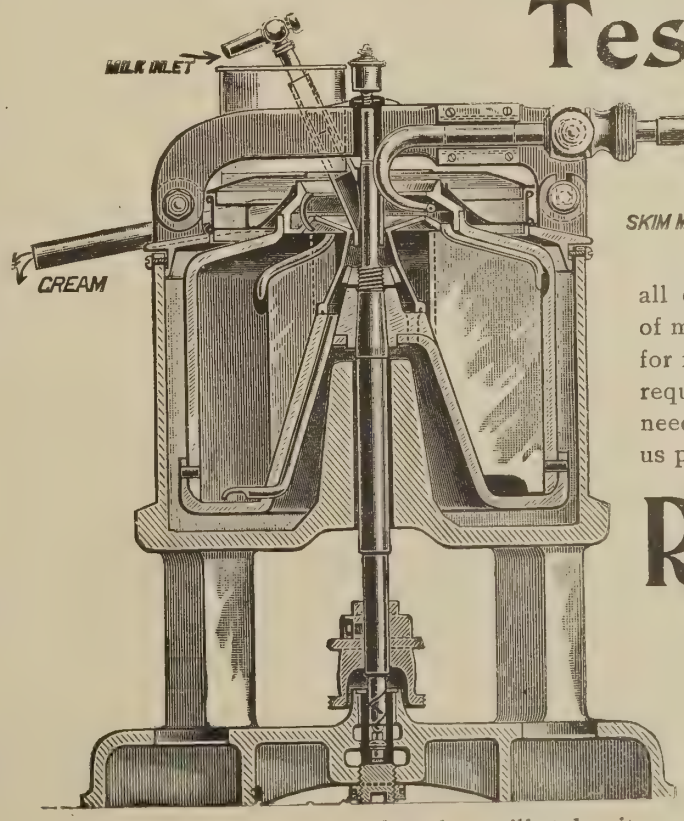
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For Walking or Riding Plows. Makes share last longer, makes it self-sharpening and prevents plow from swinging either way. It will make plow run same in light and heavy soils, or with 2 or 3 horses. It is a wonder worker. If you use a plow at all it will be worth $5 to you to investigate this simple device. It weighs 8 oz. and a postal will bring you full description and a beautiful catalog (with hand made half-tone pictures) of up-to-date implements. MORRISON MFG. CO., Ft. Madison, Iowa.



Test It Yourself.

Test the Reid Improved Separator in your own creamery under all conditions—power, temperature, quality of milk, etc Carefully test the skim milk for fat Note the time and amount of power required for the day's run, the attention it needs and the time it takes to clean it. Let us put a

REID Latest Improved 1899 Separator

in your creamery; give it a thorough trial and if it doesn't do exactly as good work as any other machine of equal cost, and do it more cheaply, we'll take it out and foot all the bills. Catalog and full particulars free.

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30th and Market Sts., PHILADELPHIA, and CEDAR RAPIDS, IOWA.

An Ontario Herd Record.

ED. HOARD'S DAIRYMAN:—I have just lately made up my milk record for the past ten months, of all my cows that have gone dry up to the 1st of February, since last year's record was made, on the 10th of last March. I cannot make up the full herd of 55 cows before the 1st of April, as they will not all have milked their full season before that time, but as this is the time of year when the Dairy Conventions and Farmers' Institutes are being held, I was often asked how my cows were doing this year, and a number of parties wished me to send them a record, so I have made up the record of 40 cows, taking them in regular course as they have gone dry, which I think is a fair average of the herd. The average, last year, of the entire herd of 55 cows, was 10,242 pounds; average time of milking, 11 months, 23 days; butter fat, 3½, and 418 pounds butter. This year they are doing considerably better, owing to having been better cared for and better fed during the summer months. Fed a half winter's ration of both ensilage and grain all summer, and we tried to protect them from the severe heat and flies during July and August, and continued to weed out all the poorer cows, and replace them with good heifers coming in, so that our milk record this year is showing a considerable improvement over last year, and we have been trying to improve every year since we started in to weigh each cow's milk once a week. Test the quality with Babcock tester once a month and keep a yearly record of every cow and weed out twelve to fifteen of the poorest milkers every year and replace them with good heifers, which we have coming in every year, as we raise all our best calves, and turn them either into beef or cows.

We commenced working on this system four years ago, also of providing green feed for the cows during a drought or very dry time during the mid-summer months, but last summer we made another great improvement by feeding our cows ensilage and grain all through the summer, when on either good or bad pasture; fed half a regular winter ration of both ensilage and grain. Cows like ensilage in hot as well as cold weather, even when on good pasture. We also added another improvement last year. In very hot weather we kept our cows in stable during the day and out in pasture at night, also washed them with a mixture called "Shoo-Fly," manufactured, I think, in Philadelphia. We put it on either with a brush or a spray pump, made for that purpose, applied it twice a week, which drove the horn-flies all off the cows. All of these improvements have had a good effect, in largely increasing the flow of milk, so that this season our cows have averaged 11,660 pounds of milk each, testing 3½% fat, making 476 pounds butter. Average time of milking, twelve months.

The average time of milking, twelve months, seems long, but that is caused by our milking our two-year-old heifer with first calf longer than we do the older cows, viz.: twelve to sixteen months. Cows weeded out for beef are also milked a longer period, which lengthens the average time on the whole herd. My best cow, number 56, is a cross. A Holstein bull crossed with a Shorthorn cow, being a half Holstein, half Shorthorn. She is now six years old. She gave first year, as a two-year-old, 10,100 pounds of milk in eleven months. Next year she gave 15,000 pounds in eleven months. Next year 17,740 pounds in ten months, twenty-one days, and this year, so far in ten months up to 1st Feb., 18,000 pounds of milk. Now giving 33 pounds per day, we intend milking her two and a half months longer, making twenty times her weight in milk in one year. The quality of her milk has averaged during the whole four years about 3 6-10%, running 12½ months. We expect she will give in the 12½ months, 20,000 pounds milk, nearly from 3 4-10 to 4% fat, which made into butter for the first year would be 424 pounds, second year, 630 pounds, third year, 745 pounds, and the fourth, this year, (the phenomenal), 840 pounds of butter from one cow in one year. In the four years she has given 62,840 pounds milk, making 2,639 pounds butter. You will not find many cows in America that have beaten this record. Now, this wonderful record has been brought about by good breeding, extra care and good feeding. Have a good, warm, well lighted, well ventilated, comfortable stable; roomy, single stalls, fresh, running, spring water and salt always before them; fastened with chain around neck, giving them freedom, allowed to run out for an hour or two twice a week on fine days, but kept in on stromy and bad or cold days.

We believe in feeding well, and find it pays to do so. We feed as follows: First thing in the morning, before milking, clover hay; after milking, feed 20 lbs. ensilage with 6 lbs. of grain feed put on top of it in the manger; at noon they are fed a little wheat or oat straw, for a change; at 4 p. m., just before milking, they are fed ensilage and grain, same as in the morning; and in the evening, after milking, fed clover hay. Grain feed, most generally consists of 6 lbs. bran, 3 lbs. pea meal, 2 lbs. cotton seed meal, average from 11 to 12 lbs. per day. Feed some cows more and some less, according to the amount of milk they are giving. Feed our best cow No 56, from 16 to 20 lbs. per day, according to amount of milk she is giving, same proportions and mixtures as the other cows. I may say, the different kinds of grain feed are well mixed before feeding, weigh out and mix up two days' ration at a time.

We sometimes feed oil cake meal in place of the cotton seed, and corn meal in place of pea meal, but prefer the cotton seed and pea meal, particularly in the summer season, as cotton seed fed in summer improves the quality of butter, makes it firmer. Now feeding corn meal in place of pea meal, for the reason that peas are so high in price this winter, costing from $7 to $8 per ton more than corn meal. Feed 2½ lbs. corn meal, 2½ lbs. cotton seed meal, with 6 lbs. bran per day. Our clover hay is good, well-saved, cut early on the green side, well cured in cocks covered with cotton hay caps, protecting hay from rain or dew whilst curing. Our daily winter ration is 40 lbs. ensilage and 10 to 12 lbs. of grain feed mixture per day. If cotton seed and oil cake were both the same price, we would feed both, half the quantity of each, but just now oil cake costs $7 to $8 per ton more than cotton seed meal, so that we are not feeding any oil cake to our cows this winter. We are greatly in favor of corn ensilage, both for winter and summer feed; find it to be the best, cheapest and most convenient for feeding, both for the summer, as well as winter. Last summer, we fed a half winter's ration of both ensilage and grain feed all summer, and the result was that our cows averaged 1,220 lbs. more milk this year than last. Milk worth $1 per 100 lbs. would net $12.20, the extra cost would be 20 lbs. ensilage at 10 cents per 100 lbs., 2 cents; 5 lbs. grain feed at 60 cents per 100 lbs. equals 3 cents, making the extra cost for summer feeding 5 cents per day per cow, and for the 150 days would be $7 50, deduct extra cost of feed $7 50 from the extra quantity of milk worth $12.20 would leave a net balance of $4.70 per cow, and for the 55 cows would be $258 50, net gain for the season, as the extra manure saved would more than pay for the extra labor in feeding.

In making the above estimate, I have left out my best cow, No. 56, which if included, would make still better showing of profits on summer feeding. You will see that I have not included my best cow, No. 56, in making up this year's record. By putting her in with the 40 would bring the yearly average up to 11,800 lbs. for this season, but as there are 14 cows yet to come into this year's record, which are still milking, we may find it necessary to put our best cow in with them in order to keep up the average of the herd of 55 cows to the 11,660 lbs. average as above stated.

We are greatly in favor of alfalfa clover for green summer feed, both for cows and pigs, which we have been growing for four years experimentally. We now have four acres. It produces wonderful crops. We cut four times a year and feed it green to our 300 hogs, once a day, and feed it to our cows once a day, alternately with ensilage once a day. Cows, like ourselves, like a change, and a variety of food.

I might add that we weighed each milking daily from our best cow for three months after she came in fresh on 4 h of April, 1898, and for the first month she averaged 88 lbs. milk, per day, testing 3.4 lbs. butter fat—3 lbs. fat or 3½ lbs. butter per day, or 21 lbs. butter fat, 24½ lbs. butter in 7 days. I see in the report of the dairy test at the International Exposition, at Omaha, last summer, the best record in the 7 days' test was 13½ lbs. butter fat, so you see I am a half better. Unfortunately my cow is not a pure-bred Holstein, and not allowed to compete for prize money. I forgot to mention that my herd of cows are mostly Holstein. One quarter of them pure-bred, the remainder ¾ to ⅞ Holstein blood, having used a pure-bred Holstein bull 15 years, first cross with Short horn cows. E. D. TILLSON

Ontario.

A Cheese Factory Report.

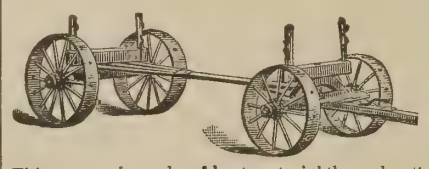
ED. HOARD'S DAIRYMAN:—Report of the Fassbender's cheese factory; opened March 28th, 1898, closed December 9th, 1898.

No. lbs. of milk	893,965
No. lbs. of cheese	90,760
Price per lb.	08c
No. pounds of milk to 1 lb. of cheese	9 84
Average test of milk	3.78
Total cash	$7,260.80

Bungert, Wis. H FASSBENDER.

Farm Wagon for only $19.95.

In order to introduce their Low Metal Wheels with Wide tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

Hood Farm Jerseys For Sale—Bull of rich breeding—Solid color, black points. Sire, Chromo, sire of 8 in 14 lb. list, by Diploma, the sire of 42 in the list, including Merry Maiden. Dam, Postscript, test, 14 lbs. 1½ oz., dam of 1 in 14 lb. list, by a son of Combination; 2d dam Transcript, 17 lbs. 7 oz., has two tested daughters and one producing son. Write for price. HOOD FARM, Lowell, Mass.

— THE —

A. J. C. C. Cows

in our sale list just issued comprise a pure St. Lambert granddaughter of Allie of St. Lambert; three granddaughters of Naiad of St. Lambert; a tested cow, deep in the blood of Nettle 901, Imp.; whose dam has an excellent test and six tested daughters; a cow deep in the blood elements of that wonderful cow, Mollie Garfield; and others of similar merit. Some are fresh; others longer in milk. Sale List No. 3, giving short pedigrees, sent on application.

WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

High-Class Jerseys.

DIPLOMA

Left behind him 85 daughters, 44 including **Merry Maiden** have records. 14 of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination**, which in four years service left 73 daughters, 25 of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239**, son of **Brown Bessie**, Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374**, full brother in blood to **Merry Maiden**. State what is wanted.

H. C. TAYLOR, Orfordville, Wis.

Miller & Sibley's Jerseys.

IDA'S RIOTER OF ST. L.

Leads All Other Sires that Ever Lived in Average Butter Record for 28 Daughters, Being Nearly 20 lbs. Apiece.

All full weekly tests. 5 made with 1st calf; 4 made with 2nd calf. Tested by 8 different owners. One daughter, Ida Marigold, won the lion's share of the honors at the World's Fair. His get have won over 70 first prizes and sweepstakes at state fairs or great expositions. He weighed 1760 lbs. His dam's official butter test, 30 lbs 2½ ozs; milk record, 67 lbs. a day. His daughters are heavy milkers.

For Sale—Grandsons and granddaughters of Ida's Rioter of St. L., also cows in calf to his sons.

224 First Prizes and Sweepstakes won by this herd at 22 State Fairs or great Expositions. Home of many great milk and butter producing cows. Our Adelaide of St. Lambert gave 82¾ lbs. of milk one day; 2005¼ lbs. one month—the world's Jersey record. **224**

No catalogue. Special literature sent if this paper is mentioned

No animal sold for less than $100. Prices low for quality. Every animal tuberculin tested before sale, if desired.

MILLER & SIBLEY,
Franklin, Venango Co., Penna.

ESTABLISHED 1890—500 Acres—Incorporated 1897. THE LINDEN LAWN FARMING CO., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys.

C. S. MACE, Mgr.

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.

JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD

POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th**, the champion **CATONO KHEDIVE**, the champion **CZAR COOMASSIE**, and **IMP. GOLDEN BAR**, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to J. E. TYRRELL, Marysville, O.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.

Young Stock rom 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.

F. H. SCRIBNER, Rosendale, Wis.

FILSTON FARM

Jersey Herd

(OVER 300 HEAD.)

If You Want A JERSEY BULL CALF of fashionable blood and handsome color, bred to beget heavy milkers, or large ENGLISH BERKSHIRE PIGS at reasonable prices, write to the FILSTON FARM, Satisfaction Guaranteed. Glencoe, Md.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO F. WESTON, Supt., Biltmore, N. C.

Locust Lane Stock Farm

. . . Service Bull . . .

BROWN BESSIE'S GRANDSON No. 34891.

State What You Want.

G. E. COLEMAN, Perry Center, N. Y.

FOR SALE!

DOUBLE GRANDSON OF

Exile of St. Lambert

13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL,
Rochester, N. Y.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

A Maryland Herd Record.

ED HOARD'S DAIRYMAN:—I am very fond of your paper, it is worth more than its cost to a man, if he only keeps one cow.

I would like to tell the readers of your valuable paper what my cows have done the past year. But the last time I wrote, which was last March, I failed to see it in print. I thought you was looking for higher briers and better berries. Yet I have concluded to try again. I suppose the right name for my cows is scrubs; judging by the look of them, they belong to the 150 or 200-lb. class. May the Lord have mercy on the cow when her owner brings her down so low as that. I had four cows the whole year, and three part of the year, thus making it equal to 5 5-6 cows for the year. We make and sell butter. Have a DeLaval separator and think it can't be beat. Have no silo, wish I had one. Have no milk tester but contemplate getting one. Cow No. 1 was fresh Dec. 1, 1897, was two years old March 1, 1898. Cow No. 2 was fresh Nov. 3, 1897, milked her until Oct. 27, 1898, then sold her. No. 3, fresh March 10, 1898, milked whole year. No. 4, fresh April 28, 1898, milked all the year. No. 5, fresh April 16, 1898, milked all the year. No. 6, fresh June 1, 1898, bought her June 4th, used her milk from June 6. No. 7, fresh July 2, 1898, was two years old the following August. No. 4 and 5 have only been fresh twice. The calves we sell for veal, they have the whole milk for three or four weeks. We raise the heifer calves from some of the best cows. We have some heifers that look very promising.

The year ending Dec. 31st, 1898, we sold 1,875¾ lbs. butter, besides what was used in a family of three besides some hired help which, I think, made another 100 lbs. Mr. Editor, two years ago I was looking up some heifers, priced one in Michigan, the price asked was $50 for one two-year-old not bred. I thought her cheap enough but had no $50 then. I went and bought a black heifer, a bunch of bones that was springing, for $20, best of course. When she was three not four years old, from 255 lbs. milk churned 12½ lbs. butter in seven days. Then a friend said his neighbor had a heifer which he would sell for $18 when fresh if she came out all right. I bought her. When she was three not four years old gave 213 lbs. milk churned 13¼ lbs. butter in 7 days. Can you tell me how I could make more out of a $50 heifer? One cow we raised churned 12¾ lbs. butter in 7 days. One old cow after being fresh 6 months gave 169⅜ lbs. milk churned 9⅛ lbs. butter in 7 days, it was no force test, just fed and milked as usual only the milk separated separately. Our breeding has been, breed to the first male we come to, but at present have a grade Jersey. I am feeding 20 lbs. clover hay, 5 lbs. wheat bran, 3 lbs. corn and cob meal, some little corn stover, and all the wheat straw they want to eat. I have had a hard time getting three of my cows dry in the last 30 days.

CHARLES S. CONAWAY.

Carroll Co., Md.

A Michigan Cow Barn.

ED. HOARD'S DAIRYMAN:—Noticing in your paper a request for further description of our cow barn, the same is given herewith. I have tried to make it plain but it is not so easy to get a clear impression from a written description as by seeing the object described.

The length of building may be according to number of stalls required, but its width must be 30 feet. Central alley four feet wide, extends its entire length. Roller doors are at either end, one opening upon floor of main barn, the other outside the building.

The cows stand upon plank platforms at either side of central alley, facing it. At one end, next the main barn, is a roomy box stall and just across the alley from this is the feed room where ground grain and bran are stored. A driven well with pump is at one side the door of this room, conveniently located for use both in mixing feed and in watering stock.

The platform upon which the cows stand measures 7 feet 6 inches from the alley to manure trench at rear of stalls. Two feet of this is partitioned off for mangers, leaving five feet six inches where they stand. This proves to be about the right length for good sized Jerseys. When standing naturally in the stalls the hind feet come just to rear edge of platform. For smaller cows or heifers we arranged movable mangers, the animals standing back in the proper position and mangers adjusted to suit each one's length of body. We have never used a 2×4 or any thing of the kind across rear of stalls to keep them in desired position as it seemed to us that arrangement of this kind must be a source of inconvenience to the animals in lying down. The dividing partitions are from alley way back four feet and ten inches. This divides the mangers as well as the stalls so that each cow has her food entirely to herself.

The width of stalls and mangers is 3 feet 6 inches, thus allowing plenty of room for feed as well as for the cow. The alley is boarded up on each side four feet high to form back of mangers. On the side next the cows the center of manger is but eight inches deep for a space of ten inches, each side of that it is boarded up to a height 16 inches from the floor.

On each side the center of manger (next the cow) are upright pieces rising from the floor five feet to a two by four passing cross wise of stalls to which they are fastened. These are nailed flat against inside of manger for the cow to put her head between. They are oak boards 6 inches wide, one inch thick. They are ten inches apart at center front of manger and spread to 20 inches where they are fastened to the girt.

They also slant a little (as they rise) toward the rear of platform. To the inside of the upright at left of each animal, is fastened an iron rod one-half inch in diameter and 20 inches long, bent at the ends (which are flattened) so that when screwed fast to the upright the ring in the end of neck chain which is used in tying, will slip up and down thereon. This gives more liberty to the head when in the stalls.

The manure trench is 16 inches wide and 10 inches deep. It is made of oak planks and although in constant use for a period of eight years, shows no sign of decay.

Back of manure trench, next outer wall is a space three feet wide, filled in with coal cinders, and used as a passage way behind the cows. There are good sized windows every eight feet on either side the building (north and south) and sliding doors open into the barn yard.

All lumber used in the construction of this stable was taken from the farm and sawed at a neighboring mill. It is mostly oak. The exact cost it would be difficult to state under these conditions.

No separate grain boxes are provided with the mangers, as it has always been our practice to cut the rough feed and moisten it, adding the grain (which is ground) and mixing all together 12 to 24 hours before feeding. In this way it is put into the mangers together.

This stable is entirely satisfactory to the owner, and were we to build again no changes would be made, at least none of any importance.

We prefer a platform made for the cows to stand on of plank rather than cement. Plenty of straw is employed for bedding. Although the animals remain inside most of the time in cold weather, we have never had a case of injury to udders or to knees as is frequently reported as a result of accident.

Our stable is eight feet to floor above and has provision made for ventilation, although in this respect it is not quite so perfect as we would like. W. C. ROCKWOOD.

Good Returns from a Small Herd.

ED. HOARD'S DAIRYMAN:—I take great interest in the DAIRYMAN and have found it to be of much help to me in the work I have undertaken, a little over a year ago, and its valuable contents have done a great deal toward making my new enterprise an undoubted success.

I am a mail carrier, and spend my spare time with my little dairy, consisting of six cows, and find it very interesting work.

I am inclined to think that when I first started my dairy that my cows were of the "dual-purpose" class, but I have changed them around to such an extent that for the past six months my dairy has consisted of, what I consider, through the valuable aid which I have obtained in information through the DAIRYMAN, all of the "special-purpose" class, and comparing the two classes, I will state that it would take several more cows such as I had the first six months of my experiment to give me the excellent results which has been attained by the splendid dairy which I now have.

The following figures will give an idea of the good results received from my little dairy in the past six months: I sell the milk all through the year, 22 quarts for $1.00. The smallest receipts for one month, in the past six months, was $79, and the largest receipts for one month were $86.54, so that you can see that I am being well repaid for the spare time which I give to the care of, what I consider, one of the nicest little dairies in the district.

I again wish to thank you for the valuable information gained through the DAIRYMAN, and wishing you success, I remain,

Chittenden Co., Vt. G. A. W.

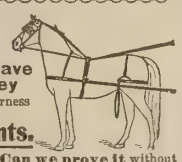
Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co. Box 130 Quincy, Ill. for their catalogue; which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.





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Because we have no agents.

Can we really do it? **We say yes. Can we prove it** without cost to you? We can. **How?** We will ship you a harness, saddle, or vehicle, without you sending a single cent, and let you look it over at your freight house and if you don't find we have given you the **biggest bargain** you ever saw or heard of return the goods to us at our expense. **We give with each vehicle a 2-years iron-clad guarantee** protecting you against poor material and workmanship. Our vehicle catalogue describes the largest line of **buggies, road wagons, phaetons, surries, spring and farm wagons, carts, harnesses and saddles** ever shown in one book. **It's free. Send for it.**
Marvin Smith Co. 55-59 N. Jefferson St. X 18 Chicago, Ill.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

HILLSIDE HERD
French Canadian Cattle
A few choice young bulls for sale.
C. E. COLBURN, - - Portlandville, N. Y.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle, Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

BROWN'S BRONCHIAL TROCHES
1850-1898.
48 years of success prove these troches to be the best for Coughs, Colds, Hoarseness, Bronchitis, Asthma.
In boxes—never sold in bulk.

Pioneer Herd HOLSTEIN-FRIESIANS,
Foundation herds of merit a specialty, for sale; also Plymouth Rock fowls and eggs.
S. N. WRIGHT, Elgin, Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

A RARE OPPORTUNITY.
No herd of Holstein-Friesians in America offers such rare opportunities in the selection of young bulls. Twelve young bulls ready for service, are now offered for sale at prices ranging from $75.00 to to $200. The sires and dams of these bulls are of the finest animals to be found in America, and were selected with great pains and with one purpose in view, to obtain the highest individual quality—the richest breeding—and the largest performance, all in one. This has been accomplished at Valley Mead. Address
KARLEN & CO., Monticello, Wis.

Ten Choice Yearling
Holstein-Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.



HOLSTEIN-FRIESIAN CATTLE. Choice registered bulls, heifers and calves sired by Pauline Paul of Portage's De Kol, 21704, and Cybelf's Pieterje Chief No. 21238, grandsons of Pauline Paul, Princess of Wayne and Pieterje 2d, the 3 grandest cows ever tested for milk and butter, out of Netherland Aaggies Wayne and Pauline Paul, dams of the best families of the breed. The right cross to produce the best results Come and see our stock, or write, stating what you want. We send nothing but stock we believe will please.
WM. O. DAWSON & SON, South Bend, Ind.

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two excellent Registered Guernsey Calves.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

ROSENDALE GUERNSEY HERD.
TUBERCULIN TESTED.
1st Prize Herd Wis. State Fair 1894 to '98. 1st Prize Herd at Minn. State Fair and at the Trans-Mississippi. Exposition 1898.
Come and see the herd, We keep only 400 lb. cows. **GEO C. HILL & SON., Rosendale, Wis.**

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. **FRED TSCHUDY & SON, Monroe, Wis**

Official Quotations for Elgin Butter.

In response to an inquiry, Mr. G. H. Gurler, Chairman of the Quotation Committee, of the Elgin Board, has sent the following letter:

ED. HOARD'S DAIRYMAN:—Your esteemed favor of the 14th received. Will say there is a Quotation Committee of five members to make official price each week at the close of the Call Board. This committee receive telegrams from the different markets at one o'clock p. m. of that day, and they make the price as they consider right, in comparison with the other markets. Their price don't always correspond with the sales made on the Board.

There are times when it may be to the advantage of some particular individual to boom that market for his personal benefit or lack of knowledge as to the conditions of the other markets. Such things have been done there, and could not be avoided. The Quotation Committee are to do away with that kind of element that used to make some bad breaks on the Board. We have found it much more sa isfactory.

Hope I have made it plain enough so you will understand the intention of the Committee. G. H. GURLER.

DeKalb, Ill.

Score of Cheese at Madison Meeting.

ED. HOARD'S DAIRYMAN:—The follow- is the score of cheese exhibited at the Madison meeting:

EXPORT CLASS.

No.	Name of Exhibitor.	Post-office.	Flavor.	Texture.	Color.	Make up	Total.
			45	30	15	10	100
1	W. P. Hamm	Kohlsville	40	27	14	5	86
2	J. A. Carswell	Lone Rock	30	25	11	7	73
3	Julius Berg	Algona	39	25	14	8	86
4	A. Schoenman	Plain	45	23½	15	8	97½
5	Geo. W. Drischel	Cambridge City, Ind.	40	18	12	9	79
6	C. A. Pickard	Ithaca	35	24	11	8	78
7	William Nisbet	Hub City	42	23	14	9	91
8	Hugh Nisbet	Woodstock	44	26	14	9	93
9	Scott Lieurance	Homer	40	27	15	7	89
10	P. H. Kasper	Nicholson	43	28	15	8	94
11	Thomas Johnson	Boaz	44	29	13	8	94
12	F. E. Remmington	Boscobel	41	28½	14	9	92½
13	H. F. Kellner	Cazenovia	42	27½	13	9	91½
14	Jno. Kelty	Boscobel	39	25	15	5	84
15	Wm. Zwicky	Van Dyne	45	30	15	8	99

DOMESTIC CLASS.

1	W. P. Hamm	Kohlsville	42	28	14	9	93
2	A. Schoenman	Plain	40	29	14	9½	92½
3	J. R. Biddulph	Providence, Ill.	35	10	5	9	59
4	W. H. Spooner	Rutland	35	25	13	8	81
5	Wm. Zwicky	Van Dyne	44	29	15	9	97
6	G. H. Lindeman	Denmark	40	28	13	7	88

Committee on Cheese Exhibit: Hon. D. M. Macpherson, Chairman, R. A. Horton, C. A. White.

Madison, Wis. U. S. BAER.

More Agricultural Improvement in Maryland.

ED. HOARD'S DAIRYMAN:—While we see much to deplore in the field of agriculture, and evidences of want of light and knowledge in so many places in farm management, the great possibilities that may be realized in most any branch of farm production, are frequently met with where intelligence is put into the methods that are used

In the southern portion of Maryland, in St. Mary's county, where many acres of land have been greatly depleted and run down by continuous years of tobacco growing, is a farm of 170 acres, that is an object lesson in soil improvement, that should carry conviction to every owner of land in that community, and in the state. Capt. R. W. Sylvester, president of the Maryland Agricultural College, bought this farm, a few years ago, and while he is teaching the boys at the college the science of agriculture, he is applying its beneficient principles to this poor farm, and his practice is as successful as is his teaching

The price paid for the farm was $900, or a little over $5.00 per acre. At the time this farm was purchased, its highest yield of corn was but two and one-half bushels per acre, while the highest yield of tobacco was 150 pounds per acre.

CRIMSON CLOVER AND PEAS.

The improvement of the soil began by sowing crimson clover early in the sp ing, upon which was turned sows with their pigs, and later one cow per acre, to be turned into beef. Later the clover was plowed down and peas drilled in, one bushel to the acre. When these were well grown, the pigs and cows were turned in to graze upon them, and in this way very cheaply and rapidly fattened. Under this system the land has been greatly improved. From twenty to twenty-five cows are now annually fattened, mainly on the clover and peas, while 6,000 p unds of pork are annually produced, with only a little grain finishing, the entire cost of food for hogs not exceeding $60.

For seven successive years tobacco has been grown on the same land with crimson clover as an after cover crop. From 150 pounds, the yield has been brought up to 600 pounds per acre with no other fertilizer than the crimson clover, and an application of eight bushels of lime per acre. In seven years this farm has increased in value four times the original price paid for it, and it has been accomplished in a very inexpensive manner, with clover, peas, hogs and beef.

A few miles out from Baltimore is the farm of Samuel Shoemaker of 400 acres. Upon this farm, by far the finest dairy work in the state is done. The object here is to produce milk of the finest quality and of the greatest possible purity. The health of the cows is as carefully guarded, as that of members of the family. On every pleasant day they are turned out into a field, protected by a grove, and are kept in the sunshine as much as possible.

This is done to give them full opportunity to take pure air into their lungs, to give them strong vitality and active digestive power. There is no evidence of, or fear from tuberculosis in this herd of over fifty cows, made up of high grades, Short-horns, Jerseys and Guernseys, with some pure breds among them.

When the cows are outside, the stables are flushed with water, also the sides and ceilings, that the purest atmosphere may be had for the cows when they are again put in them.

The same care is extended to the food of the cows. The grass is cut when at its best, and secured in the best possible condition.

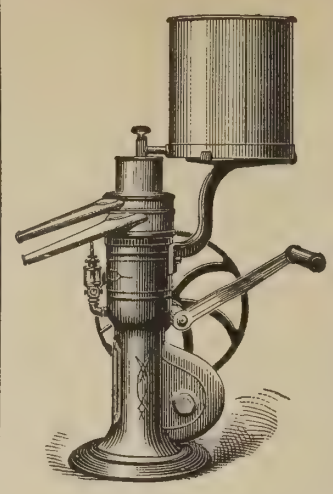
Bran is examined for adulteration, and only the best quality of oats and corn used. The men who work about horses, hogs, drawing out manure and the general farm work, are not allowed to enter the cow stable and milk in their working clothes, but have to put on a clean suit and wash their hands, before they are allowed to handle this milk.

The milk is handled with equal care, thoroughly aerated, and every utensil, bottle and can scalded and re-scalded until absolute cleanliness is secured. This may seem like unnecessary care, labor and expense, in the production of milk, but there are many consumers in cities who when they are assured that the milk they use is pure and free from all contagion from filth, from bad odors about stables, and impure air where the milk is handled, who are more than willing to pay ten to twelve cents a quart, as they do, for this milk, and use it abundantly, especially for children.

One of the best ways to increase the consumption of a food, is to establish a good degree of confidence in its wholesomeness and purity, and with its increased use will often come some enhancement in its value.

AN INTERESTING COMMUNITY OF FARMERS.

At Sandy Spring, Montgomery Co., seventeen miles from Washington, is a community of farmers representing the highest ideal in farm life. It is a settlement made up almost



National...

Cream Separator.

Ease of Running	The NATIONAL is the Best.
Perfection of Skimming	The NATIONAL is the Bes
Quality of Cream	The NATIONAL is the Best.
Strength and Durability	The NATIONAL is the Best.
Ease of Cleaning	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



THE

AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving First Premium and Diploma At The ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER,
St. Marys, Ont., and
S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y

Mentioning this paper.



EVERGREENS

100, 6 to 8 in. $1; 12 to 18 in. $2.50. 100, 2 ft. $10 prepaid. 100, 4 to 6 ft. 5 varieties, $15. 45 choice Fruit trees, 20 varieties, $10. Ornamental & Fruit Trees. Catalogue and prices of 50 great bargain lots SENT FREE. Good Local Agents Wanted.

D. HILL, Evergreen Specialist, Dundee, Ill.

CHOICE FRUIT

is the only kind that pays for the cost of growing and marketing. The best are *Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant*, Immense stock. Warranted true to name. My Catalogue is FREE but it is worth dollars to you.

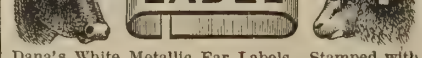
Allen L. Wood, Wholesale Grower, Rochester, N. Y.



SHOEMAKER'S BOOK on POULTRY and Almanac for 1899. 160 pages, 100 illustrations of Fowls, Incubators, Brooders, Poultry Houses, etc. How to raise Chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about Incubators, Brooders and thoroughbred Fowls, with lowest prices. Price only 15 cents.
C. C. SHOEMAKER, Box 857, Freeport, Ill.



BRABAZON'S POULTRY CATALOGUE FREE! It's a beauty; over 50 colored plates. Illustrates and describes fine Turkeys, Geese, Ducks and chickens; gives prices of fowls & eggs. Finest Buyer's Guide published. Inclose 10c. for postage, etc.
J. R. Brabazon, Jr. & Co., Box 58, Delavan, Wis.



LABEL

Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.
C. H. DANA, 55 Main Street, WEST LEBANON, N. H.



Fine Pasture This Year Heavy Crop Next Spring

"Sand Vetch" will grow on any kind of soil and yields ten to fifteen tons to the acre of the finest green fodder for cattle and hogs. Superior to clover as a soil renovator—nothing to equal it for enrichening the ground.

For description see our catalogue which will be mailed free on request. Write for it to-day.

CURRIE BROS. 320 Broadway, Milwaukee.

Artichokes! MAMMOTH WHITE FRENCH. A sure preventive of Hog Cholera. Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.

FREE Our handsome Seed Catalogue, or for a 2c. stamp, seed catalogue and A PACKET of the Large German PANSY SEED
Address, COLE'S SEED STORE, PELLA, IOWA.

Clover and Timothy.

We are recleaners of all kinds of field seeds. Medium and Mammoth Red Clover, Alsike, Alfalfa, White and Crimson Clovers, also Timothy, Orchard Grass, Red Top, Blue Grass, Mixed Lawn Grass, Rye Grass and Imported Grasses, Dwarf Essex Rape, Vicia Villosa, Field peas, Ohio Beardless Barley and Spring Wheat.

Write for Field Seed Price List, also 1899 Seed Catalogue.

The Henry Philipps Seed and Implement Co., 115-117 St. Clair St., Toledo, Ohio.

entirely of those known as Friends or Quakers.

Over fifty years ago a number of families took up a large tract of land at this place, and they were attracted to it by the very fine growth of hard wood timber. The soil proved, however, very disappointing, and when cleared and put to growing crops, the yield was not above five bushels of wheat and ten bushels of corn to the acre. A farmers club was organized, and means were carefully discussed and considered how best to improve the soil, which was so much less productive than they expected to find it. This club is now fifty years old.

A woman's club was also organized, probably the first in the country, older than Sorosis, and the women very intelligently studied their part to be taken in the building up of that community.

THE RESULTS OBTAINED.

There is a community of prosperous, intelligent, highly cultivated and educated farmers' families, rarely to be met. Clover was used and fertilizers were studied and intelligently applied, until the soil has been made highly productive, yielding for many years 35 to 45 bushels of wheat, and corn 60 to 75 bushels per acre. From this improvement of the soil, these families have educated their children, and graduates from Swarthmore College are frequently met with in the sons and daughters. They have a public library, in addition to private libraries, while upon their tables will be found daily papers and magazines.

Their houses are connected by telephone, and they can converse with each other daily without leaving their homes. Many of their houses are furnished with bath rooms and closets and the modern improvements of city houses. They have stone roads, so that they can go to Washington with their produce, two to three tons to the load, at any season, while it is with expedition and comfort that they can go to each other's homes, their religious meetings, lectures, club meetings and post-office.

Here is a very marked illustration of what the soil will do for an individual, or for a community, if they will study its needs, and intelligently co-operate with it.

When will more of our farmers learn this all important lesson, to use the soil aright, and not abuse it; to so develop its possibilities as to get from it better living in every sense and the higher thinking that naturally results from better living.

A nation of farmers like these, who put their faith in the soil and show it by their works, who believe in industrial improvement, who would turn "swords into plough shares and spears into pruning hooks," would place agriculture before the world in its true position, and bring to such nation greater power, growth and wealth than countless ages of war and conquest, with all of its attendant destructive forces and influences.

GEO. T. POWELL.

Utilizing the Straw Product of the Farm.

ED. HOARD'S DAIRYMAN:—An item in Mr. Jennings' "New York Institute Echoes" in the DAIRYMAN for January 27, is worthy of "Note and Comment". It relates to what Mr. Smith saw while passing on the road and is as follows:

"Yesterday I saw men hauling baled straw a distance of five miles, over almost impassable roads, where they were to sell it for $3 00 per ton. It cost $1 00 to bale the straw and was worth $1 00 to haul it—twice tha. I should say—leaving $1.00 for the straw that contained $2.00 worth of fertilizers.

Such business methods will not make any money for the man who persists in pursuing them," says Mr. Smith.

Should think not, certainly.

It hardly seems possible that men—not a man—should pursue any such method as this, when so much better use could be made of the straw on the farm. It cannot be that such men read up-to-date farm literature, else they would pursue a different course.

Permit me to give a little experience on this point. Since keeping a winter dairy, we find no use for straw as a feed, but it is otherwise profitably disposed of.

A part of the oat crop is made into hay, being cut quite green for the purpose. One feed a day is given, following that of ensilage in the morning, and it is eaten with a relish by the cows and without waste. Are just getting through with this kind of fodder and could use more to advantage if we had it. We consider this a profitable use to make of a portion of the oat crop and it prevents the over-accumulation of straw.

The rest of the straw—oat and barley—is used for bedding. That for the cows is run through a fodder cutter. In an hour enough to last a twenty cow stable can be cut. With it the cows are bedded twice a day and in this way are kept clean. We consider it better for this purpose than whole straw, both as bedding and an absorbent, besides being superior to handle in the manure.

Pigs and calves are kept to utilize the skim milk, butter-milk, etc. These are kept in roomy pens and we find it necessary and profitable to keep them well supplied with whole straw for bedding, and to absorb the liquids, of which there will be considerable, from animals fed on milk.

It requires quite an amount for this purpose and as a result the supply of manure is largely increased.

The horse stable is filled with horses for use on the farm and for other work, and these are liberally bedded with straw. This, with the manure, goes to another building used for swine, where it furnishes them with a comfortable bed, without extra cost, and is by them in turn worked over and comes out the best of fertilizers.

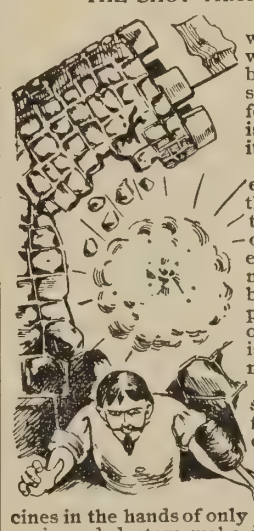
This is our method for disposing of straw, and as one object of stock keeping is the making of manure for the improvement of the farm and the production of more and better crops, it is found to be a profitable one, much better than selling it for a very small price, or undertaking to feed it to milch cows or young growing animals.

Sometimes we do not have straw enough for bedding and then sawdust is used instead for the cows. This makes nice clean bedding, fully as good as the cut straw, but, of course, is not as valuable in the manure, only so far as it can be used as an absorbent. When dry it will be found excellent for this purpose.

E. R. TOWLE.

Vermont.

THE SHOT THAT TELLS.



Do you know what happens when one of our big thirteen-inch shells strikes a fortification? It is fairly *lifted* off its foundations.

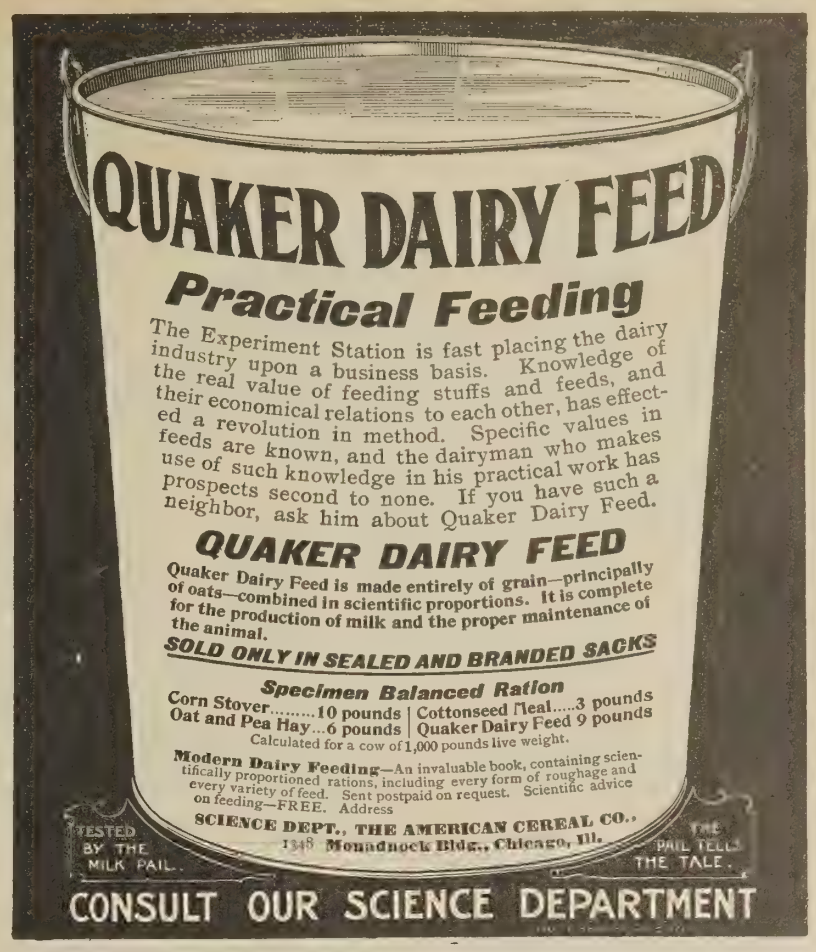
This is the modern way of doing things: concentrating every ounce of power and energy into one tremendous irresistible blow that simply annihilates opposition. This is the method that means success.

It is just the same in the warfare against disease. While all sorts of half-way compromising medicines in the hands of only partially experienced doctors make a feeble, "small-calibre" sort of resistance to the enemy, Dr. Pierce's magnificent "Golden Medical Discovery," with its splendid blood-purifying, liver-toning, strength-creating power, hurls the fortress of disease from its very foundations, and searches and drives out the lurking symptoms of weakness and debility from every secret hiding place in the entire physical system of mankind.

The work of this grand "Discovery" is thorough; it gives the health that is all health; the strength that is solid and substantial and lasting; not flabby fat; not false stimulus; but genuine, complete, renewed vitality and life-force.

"I had been a sufferer for fifteen years nearly all the time," says Mrs. Sarah E. Taylor, of Eureka, Greenwood Co., Kans., in a friendly letter to Dr. Pierce. "In August, 1896, was taken with severe cramping pain in my stomach. The doctor here said it was due to gall-stones. He relieved me for a short time, and then there was a hard lump about the size of a goose egg formed in my right side. It became so sore I could scarcely walk about the house, and I had no appetite. I consulted the best doctors in town and they said medicine would do me no good. I gave up all hope of ever getting well again.

"You advised me to take your 'Golden Medical Discovery' and 'Pleasant Pellets,' which I did according to directions. I began to feel better and my appetite came back. Now it is a little over a year since I began to do my own work. I am stronger than I have been for five years."



Spring Litters of Pigs...

Do you expect them? If you feed the sow *Wilbur's Stock Food* her delivery will be surer and safer and the pigs healthier. The food then fed will keep sow and pigs from disease and mixed with grain will fatten them for market better than anything else. F. B. Henry of Culbertson, Md., says:

"It is the best Food for hogs to be found. We are not able to recognize them as the same after two weeks' feeding."

If your feed dealer, harness maker, grocer or druggist doesn't keep it send 50 cents for a package containing 40 feeds and sample of White Rock Hoof Packing. Our booklet, "Pasture in Packages," tells how you can give your animal the benefit of pasture and at the same time keep him working or in the stable, tells how to keep up the cow's flow of milk, fatten the steers or hogs and save grain in feeding the animal.

Wilbur Stock Food Co.
179 2d ST., MILWAUKEE, WISCONSIN.

SEEDS

THE ALBERT DICKINSON CO.
Timothy, Clover, Flax, Hungarian, Millet, Red Top, Blue Grass, Lawn Grass, Orchard Grass, Bird Seeds, Ensilage Corn, Pop Corn, Buckwheat, Field Peas, Etc.
Offices, Cor. Clark & Sixteenth Sts., CHICAGO, ILL.

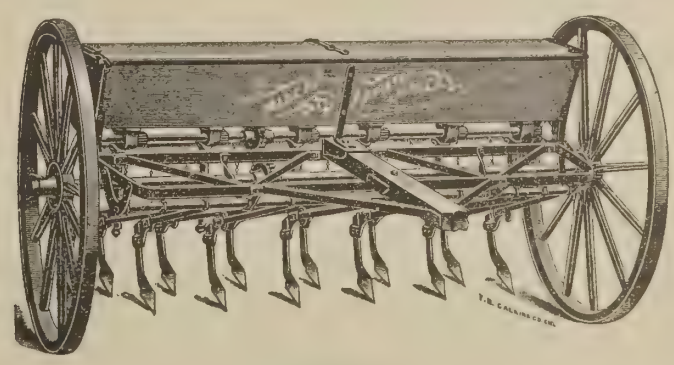


ILLUSTRATION.

The above cut illustrates the Badger Seeder, manufactured by the Appleton Mfg. Co. of Batavia, Illinois. The following are a few of its points of advantage, as claimed by the manufacturers:

It has Spring Hoes which automatically adjust themselves to rough and uneven ground. It has a continuous steel frame. It has steel drag bars. It is simple in construction, and easy to operate. It is strong and durable. "Badger" Seeders sold twenty years ago are still in use doing good work. In fact it has every advantage which can be claimed for any other seeder, and many which are exclusively its own. A complete description can be had by addressing, for circulars, the manufacturers at address given.

Sterilizing Skim Milk.

ED. HOARD'S DAIRYMAN:—Can you give me the address of one or more creameries using a home-made skim milk sterilizer, or can you publish a description of one for a large creamery. W. A. CHIPMAN.

Kossuth Co., Ia.

Will some of our subscribers, who have used such an apparatus, give us their experience.

Ripening Cream.

ED. HOARD'S DAIRYMAN:—I see there are many inquiries concerning the ripening of cream in winter, in the average farm dairy. I will give my method, which I have followed successfully for three years:

I use a tin can with a close cover; never use stone jars if you desire to make fine flavored butter. I keep the cream sweet until the evening before churning; then place the cream can in a vessel containing hot water, add the starter to the cream and stir the cream frequently until the temperature is raised to 75 degrees. Then set the cream in a warm corner by the kitchen stove, and in 12 to 15 hours it will be ripened. Churn at 60 or 62 degrees. V. D. R.

Johnson Co., Ind.

Premium List of Pennsylvania State Dairymen's Association.

PREMIUM LIST OF BUTTER.

Class A.—One package of creamery butter made in the state from milk of not less than five individual dairymen. Not less than 30 pounds. First prize, $5 00; second, highly commended.

Class B.—One package of dairy butter, not less than 10 pounds in prints, made in private dairy. First prize, $5.00; second, highly commended.

SPECIAL PRIZES.

Through the kindness of the manufactures of dairy supplies and apparatus, we are able to offer the following special prizes:

No. 1.—Offered by P M. Sharples, West Chester, Pa., a No. 1 Sharples Hand Separator for the highest scoring butter made from cream separated by Sharples separator in the craamery class.

No 2.—Offered by P. M. Sharples, West Chester, Pa. a No. 1 Sharples Hand Separator for the highest scoring butter made from cream separated by Sharples separator in the dairy class.

No. 3 —Offered by P. M Sharples, West Chester, Pa., a "No Tin" Babcock Tester for butter scoring the second highest made from cream separated with Sharples separator in creamery class.

No. 4.—Offered by P. M. Sharples, West Chester, Pa , a "No Tin" Babcock Tester, for butter scoring second highest made from cream separated with Sharples separator in butter class.

No. 5.—$10.00. if butter scoring the highest number of points in any and all classes is made from cream separated by the Improved United States Creamery Separator.

No. 6.—$5 00, if butter scoring the second highest number of points under same conditions, offered by the Vermont Farm Machine Co., of Bellows Falls, Vt.

No. 7.—Offered by Diamond Crystal Salt Co., $15.00 in cash for the highest scoring butter exhibited, providing the same is salted with Diamond Crystal Salt.

No. 8.—Offered by D. H. Burrell & Co., Little Falls, N Y., a "Facile" 8-Bottle Hand Tester for butter scoring highest colored with Hansen's Danish or Columbia butter color.

No. 9.—Offered by Wells, Richardson & Co. Creamery butter. To butter maker scoring highest, colored with Wells, Richardson & Co's., improved butter color, a solid gold medal, with name of winner engraved thereon.

No. 10.—To butter maker scoring second highest colored with Wells, Richardson & Co's., improved butter color. $5 00 in cash.

No. 11.—Dairy butter. To the highest scoring dairy butter colored with Wells, Richardson & Co's., improved butter color, $5'00 in cash.

No. 12—To second highest scoring dairy butter colored with Wells, Richardson & Co's., improved butter color, $1.00 in cash.

No 13.—Offered by the Thatcher Manufacturing Co., $10.00 in cash for the highest scoring creamery butter colored with Thatcher's Orange Butter Color.

RULES GOVERNING CONTEST.

1st.—Butter showing marks of tryer will not be allowed to compete for prizes.

2nd.—There shall be no marks or brands on the packages or cases that will indicate who is the manufacturer.

3rd.—No prizes shall be awarded butter scoring less than 90 points

4th.—No entry fee shall be charged, but every exhibitor must be a member of the Pennsylvania State Dairymen's Association in full standing.

5th.—The standard of perfection by which butter will be judged is as follows: Flavor, 45; texture, 25; color, 15; salting 10; packing, 5; finish, 5.

6th.—All scores are the property of the Pennsylvania State Dairymen's Association, to be pub lished as it sees fit.

Intending exhibitors may send their application for membership and their annual membership fee of one dollar to the secretary, who will furnish them with entry blanks.

Let all butter makers enter this contest, and receive the benefit of knowing how his goods stand in competion. Address all communication to Meadville, Pa. J. C. MCCLINTOCK, Sec.

CONCERNING OUR ADVERTISERS.

TEST OF HOLYOKE LEDA 2ND, 98893.

ED. HOARD'S DAIRYMAN:—Holyoke Leda 2nd, 98893, dropped April 5, 1893. Dropped her last calf August 11, 1898 For the seven days ending September 7, 1898, she gave 232 lbs., 4 oz. of milk that churned 14 lbs., 15 oz. of butter, salted 1 oz. to 1 lb., and worked ready for market. Holyoke Leda 2nd 98893 is a model dairy cow. She was sired by David of Glynllyn, 26760. She is out of Holyoke Leda, 52812, test 18 lbs.. 11½ oz. Owned by C. A. Sweet. A. J. KINDBERG, Tester.

Lone Tree Stock Farm, Greensburg, Indiana.

That reliable firm of seedsmen, Northrup, King & Co., of Minneapolis, Minn., have issued a catalogue for 1899 that is artistic in design and remarkably strong in its offers of farm, vegetable and flower seeds.

Their series of Primers on questions of interest to farmers is compi ed by the best authorities and are furnished free of charge, a feature which is greatly appreciated by their old customers, and will be by those who become their customers duriug the present year.

One of the many interesting features of their book is their flower seed mixture in connection with which liberal cash prizes are offered. Seven prizes for the greatest number of species produced from single package, three prizes for the best photographs of the gardens, three prizes for the best essays on how to grow the School Garden Flower mixture, etc. Their advertisement appears in another column.

HIGH GRADE WORK.

There is a great deal of kicking in the average creamery at the work done with the Babcock tester, and not without reason. As soon as the farmer gets keen enough to demand a tester in the creamery, he also wants to be credited with the last one-tenth of one per cent of butter fat that is in his milk, for he realizes that the one-tenth saved means several dollars in the course of the year. To meet the demand for a higher grade of work, the Elgin Manufacturing Co., of Elgin, Ill., has put on the market a Russian tester. It does work that can be relied on under all circumstances. This machine is run by the direct action of a jet of steam that also heats the bottles. It is so arranged that it does not need to be stopped when filling the bottles with water, and it requires only one-half the acid and half the milk in order to make a test. The tester is enameled and is fitted with a speed indicator, so that the operator knows exactly what he is doing.

The Lamb Wire Fence Co., of Adrain, Mich. make a fabric which possesses all the cardinal points of excellence in a fence, efficiency, durability, simplicity and a handsome appearance when erected

Efficient, in that it will turn all stock, horses, cattle, sheep or hogs without injury to either animals or fence; having a straight, heavy, upright frequent enough to prevent the spreading of laterals and rigid enough to prevent a hog nosing under the base wire and crowding through.

Durable, in that it is made from the best quality of galvanized hard steel wire in large sizes, not weakened by being bent, warped and twisted before it gets into service in the field.

Simple, in that it is complete in the roll, ready to stretch and staple as soon as the posts are set, 80 rods or more at a single pull, requiring but few posts to make a perfectly servicable fence, capable of bearing removal and re-erection in another locality, perfectly adaptable to hilly ground without cutting, bulging or drawing uprights out of perpendicular. An absolute equality of length in the laterals insuring an even pull, and a perfectly uniform tension when the fence is under strain.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

VERMINOUS BRONCHITIS —NYMPHOMANIA.

Our calves seemed very well until about three weeks ago. They were taken sick with diarrhœa, and then it changed to a cold, or I would say pneumonia, which began with a slight cough, and then stuffed up in the lungs. The first calf was given laudanum for the bowel trouble, but did not seem to give much relief. The last calf did not have bowel trouble so bad, seemed to have the cold, which we doctored with a Blair's liniment, the same as we give a person, to break up a cold, but seemed to give little relief.

I have a four-year-old half Jersey heifer which had a calf last spring, and has been in heat at the regular times since, but do not get her in calf, although with a bull.

Ayrshire, Iowa. J. C.

ANSWER.

You have, in my opinion, verminous bronchitis. The diarrhœa was the affect of this disease, and not pneumonia. This is termed hoose, husk, etc. You do not give to me as good an account of the symptoms as you ought to do. Your pneumonia is the stuffing up of the air passage, etc. The Stringylus micurius is a parasite which affects calves, and is very fatal. Damp pastures and poor food are among the chief causes. Remove to a high, dry, airy location. Feed any of the oil cakes, in change from one to another, roots, ground feed, oats, corn, equal parts of sulphate of iron, gentian and ginger, well mixed, and given to ten calves of two to three months old, and less if younger, according to age and size. Each morning, give one tablespoonful of salt, at above age, etc. Disinfect and fumigate with burning sulphur and pitch. Confine in a room suitable for the purpose, but be careful not to make the fumes too strong. The person in charge must not leave the fumigation, but stay and watch closely from 20 to 30 minutes. Destroy by fire or bury all the excrements, and disinfect all and everything.

2. Your best and cheapest way will be to use some of the advertised cures for nymphomania, or give four dram doses of black haw, or two dram doses of false unicorn each morning for a few days, then rest 4 to 6 days, then repeat.

FAILURE TO BREED.

We are having a great deal of trouble in this particular vicinity to get cows to breed again after calving. They come in heat regularly, take bull all right, but do not seem to catch. We have examined two of these cases, and find the womb contracted and the mouth closed down tightly, and in both cases pointing down. We succeeded by the aid of a veterinarian in opening one cow, but the other we could not open only enough to get one finger into the neck of the womb.

Liberty, Ind. S. C. T. & SON.

ANSWER.

The country is full of such cases. The os ought to be closed, except at particular times. No true veterinarian used mechanical force. Give same as above to stop coming in heat for several seasons, four to six, then stop the medicine, and serve the cow on the second day only once. Then keep from smell, sight or hearing of a bull, or a cow in heat.

TUMOR ON CHEEK.

Bull, five years old, has an enlargement on side of head below the eye, seemingly between the teeth and cheek, about the size of walnut.

I might say that last November I had a 4-year old that had the same enlargement, but on the other side of face, remained a few weeks and went away or disappeared quickly and nothing was done for it. The one affected now, otherwise is all right; bothers him perhaps some while eating small ears of corn. SUBSCRIBER.

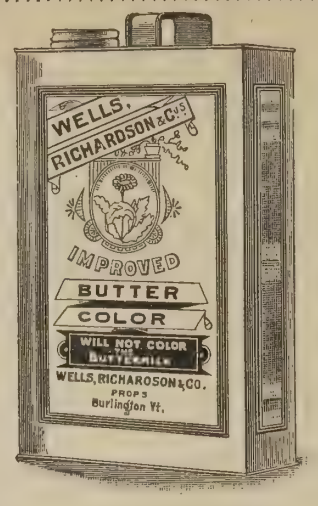
Leaderville, O.

ANSWER.

Try the same remedy and if it does not go away, apply again. There may be a carious tooth or teeth. Let some one make a close examination and ascertain the fact and then act accordingly.

EFFECT OF ACONITE.

I had a valuable cow taken sick last Friday, during the night. When I came out to milk, Friday morning, she seemed weak and sick; she was lying down, but got up on her



PRACTICALLY

EVERYBODY USES IT.

At the Western Dairy meetings for season of 1898 and 1899, all the prize winners were users of WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR. With an era of better goods and better prices, why should not all buttermakers use the best color.

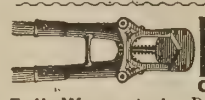
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BE HUMANE and remove the horns of your herd and that of your neighbor's herd BY USING THE KEYSTONE DEHORNING KNIFE

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VIRGINIA and CAROLINAS ILLUS. gives general information of these States Illus. description of elegant and cheap fruit, grain, stock farms for sale. Postpaid 25c. Sothern Farm Agency Lynchburg, Va.

Mammoth Bronze Turkeys from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write H. P. West, Fayetteville, Wis.

WANTED—Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., BOX D, INDEPENDENCE, IOWA.

1899 Bicycles Down to $8.25.

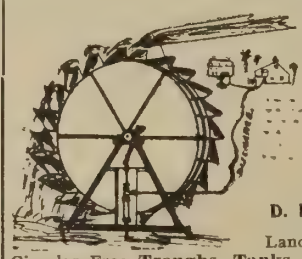
Men's and women's new 1899 model bicycles are now being offered at $8.25 to $23.75 and sent to anyone anywhere for full examination before payment is made. For catalogue and full particulars, cut this notice out and mail to SEARS, ROEBUCK & Co., Chicago.

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Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

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$18.00 Buys 4-foot Steel WATER WHEEL and Pump. Beats every known power for fresh water. Runs with ¼ in. stream.

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Circular Free Troughs, Tanks, Stacks, Etc.



$4.00 10 MINUTES with a ChamponSickle and Tool Grinder GRINDS A 6-FT. SICKLE to the most perfect bevel and keenest edge; grinds heel and point and opposite sides of a section at once. Is adjustable for all work, stone oscillates up and down, sickle remains stationary. Flat stone grinds plow points, cultivator shovels, discs, axes and all kinds of tools, quicker and better than any machine made. Stones made of corundum. Will last 20 years. Try it. If not found the best and handiest made, return it at our expense. Price, 1 stone for sickle, $4. 2 stones for all work, $5. Also all sizes and kinds of Plows, Cultivators, Hand and Horse Seeders, Drills, Planters, Rollers, Mowers, Hay Rakes, Hay Carriers and outfits, Wind Mills, Pumps, Spray Pumps, Harness. Disc Harrow, cuts 6¼-ft. $15.99; Smoothing Harrow, cuts 7½-ft. $4.20. We have no agents. We sell direct to you at lowest prices, on trial, without a cent with order. Send for FREE 320-page Agricultural Catalogue.

Marvin Smith Co., 55-57-59 N. Jefferson St. Y 18, Chicago.

feet when requested, but staggered some. After we got through milking she could not stand. I gave her 35 drops of aconite and sent f r a layman; he said milk fever, and recommended one-half pint of whiskey to warm her up, and 40 cr 50 drops of aconite every two hours, which treatment I followed all day Friday and Saturday forenoon; thinking she might be bound up, as there had nothing passed her bowels, I gave her ¾ of a pound of Epsom salts and two of ginger. In less than an hour she was worse, and never recovered; died Saturday night. I think the salts killed her, but can t make anybody else think so. I opened her and found her heart full of clotted blood, and lungs looked black and blood shot; her bowels were not packed, seemed in a healthy condition. A. D. C.

Dryden, N. Y.

ANSWER.

You gave aconite enough to kill four cows. The salts had nothing to do with her death, not the slightest. Thus another victim to malpractice.

INVERSION OF WOMB.

A neighbor of mine had a cow that dropped her calf the other night. (Her time was up) Everything went all right and they left her alone for about an hour and a half; when returning to attend to her, they found that her womb had inverted and filled with the involves, with the placenta hanging onto it. The cow was in good condition.

Amherst, Wis L S.

ANSWER.

Impossible to tell you the cause. There are many—usually straining in calving. Injuries from many causes. The only remedy I know of is to prevent the injuries. Inversion of the womb, termed among the laity, casting of the wethers, is a bad condition, and requires the presence of a practical man. I think not, though such might have happened.

NYMPHOMANIA.—CALF SCOURS.

I have a Jersev heifer that is fifteen months old. She came in heat and was served, went six weeks and was in heat again and was served and now has come in heat again for the third time, having run the six weeks the same as before.

I have seen several remedies in your valuable paper for scours in calf and have tried several of them without any benefit, now I have a new remedy and with me it's a sure cure.

When you prepare the skim milk for the calves, reduce the amount so that you can add one-third or a little more of new milk fresh from a cow, feed a few times this way and gradually diminish until they are entirely on the skim milk again, it works like magic. C. E. B.

Silver Springs, N. Y.

ANSWER.

You have a nymphomaniac animal. Select one of the best remedies you see advertised in the D IRYMAN, or give 4 drams of black haw and 2 drams of false unicorn, this is for a full grown cow, reduce for younger animals. To this add half a dram of gelsemium, 3 to 6 doses, three days between first and the last. Stop bulling.

CONSTIPATION.

I have a thoroughbred Jersey heifer 11 months old, that is habitually constipated, and for the last month she has been worse than usual. For six months, when on milk, I kept her in condition by adding to the milk scalded oil meal, but now oil meal fed up to ½ lb. a day with 2 qts. of bran, has no effect. She is get ing ½ peck of roots, and all the clover hay she will eat beside the grain. She has always had an abnormal desire to eat anything she can pick up, such as bits of paper and shavings, and will gnaw wood, and lick dirt and gravel. What is the proper dose of Epsom salts for an animal of this heifer's age, ½ lb. has no effect on her whatever. A. A.

Elizabeth, N. J.

ANSWER.

When a remedy in full dose does not act as a physic it is logically correct to increase the quantity. Give two drams of podophyllum—mandrake—each morning for three mornings. Then rest two days, then give the same dose for two mornings, then wait 3 days and give one dose. Then one dram every other day for a period of two weeks, or so. Put half a dram of nux vomica in every other dose, this is the best hepatic in the materia medica.

ACTINOMYCOSIS.—RUPTURED UDDER.

I have a thoroughbred Jersey heifer which has all the symptoms of big jaw, i. e., a large swelling under the jaw.

My neighbor has a valuable brood mare, which was not properly attended to when her last colt was weaned, and the result is that she has a burst udder from which milk, matter and corruption generally, are issuing.

La Conner, Wash. W. J. C.

ANSWER.

1 Get a competent person to examine the case. If it is actinomycosis there is no remedy, and if there was a cure, no sane man would attempt to propagate stock from such a contaminated animal.

2 Here again you need a practical man to examine the condition and act accordingly. Not knowing the conditions, I can't prescribe. Keep clean. All such cases as these need, and must have a personal attendant, who knows just what to do.

RETENTION OF PLACENTA. INSTRUCTIONS FOR REMOVING WANTED.

Have a thoroughbred Holstein heifer 21 months old. She gave birth to a deformed calf in December, that died the same day. She has not been in heat since, but has been discharging, the first month, quite a lot of pus, and it has not quit entirely yet, as she had a very hard and stubborn bag the first three weeks. I have given her some physic. She gives nearly 30 pounds good, rich milk a dav. Another cow gave birth to a calf only 8 months on her way; the calf lives, but the cow did not clean; had it taken away by a veterinarian. He did not get what it seemed to me half what he should, and, although four weeks have passed, she is discharging much light colored, and sometimes bloody matter. Does not come up to her full flow of milk yet. Could Dr. Horne not tell us how to take away the placenta? So many farmers live way off from where able veterinarians live, and they cannot always be had when wanted. I should think by a little advice, what we should loosen and how, a farmer ought to be able to do such a job.

Boyden, Ia. D. J DE T.

ANSWER.

There is never danger in giving physic to a strong cow. There is always a great chance for improvement when an alterative is needed. Physic her several times, good.

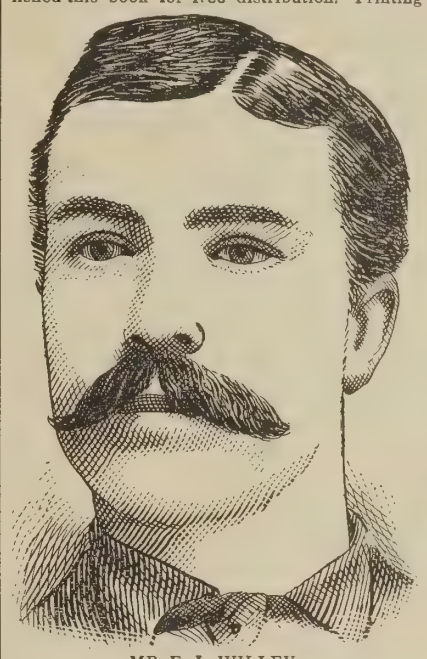
2 I would have to say as the musician said when asked by a friend to tell him how to play: Learn. It is a delicate thing to remove all the placenta when attached or otherwise abnormal. None but the ignorant believe removing the afterbirth to be simple. I can't tell you how to do this. It can be learned only by witnessing the operation performed by one experienced in such cases.

Rupture Book Free.

Home Method That Restores No Matter How Bad The Case.

Welcom Advice From A Well Known New York Specialist.

A prominent specialist in the cure of rupture has writen a book on the subject and tells how any sufferer can cure himself at home at slight expense. And the best of it is that he has published this book for free distribution. Printing



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is, nowadays, such a rapid art that it doesn't cost a great deal to get out a neat book and give it away. The book is writen by Dr W. S Rice, 353 W. Main St., Adams, N. Y., and by merely send ng your name and address he will mail you a copy f ee of all cost. The portrait above is that of Mr F. L. Willey, Shelton, Wash., who was cured of rupture by Dr. Rice. Mr. Willey says:—"I sent to Dr. Rice for one of his books on rupture and found it very valuable. The information therein was the first real knowledge I had ever received that could convince me that rupture was a curable malady. I used his home treatment and am glad to say that my rupture was perfectly cured and that I haven't had any return or noticed any difference between the healed place and any other solid part of me. I was cured sound and well."

Readers are requested to write at once for this free book. No matter if you are wearing some kind of a truss that affords some relief send at once and learn all about the new home cure which Dr. Rice has clearly explained and fully illustrated, Write today and if you know others who are rup tured ask them to write. It contains advice that may save your life.

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ENOUGH of it must be contained in fertilizers, otherwise failure will surely result. See that it is there.

Our books tell all about fertilizers. They are sent *free* to all farmers applying for them.

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CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

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ANTI-ABORTION SERUM



Hypodermatically administered, is a POSITIVE CURE for abortion in cows. Sworn testimonials furnished on application. Dr. D. ROBERTS, Veterinary Surgeon, Address, Waukesha, Wis.

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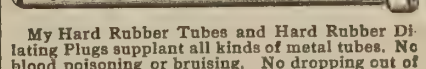


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in cows and scours in calves. The only sure and safe cure and preventive is ANTIABORSIN. This is the verdict of thousands of breeders and dairymen. Cures by inhaling fumes, which destroy the germs of disease One gallon enough to treat 20 cows 3 months. Specific No. 1, sure preventive and cure for hog cholera. Specific No. 2 prevents and cures roup in fowls and gap in chickens. All remedies prepared by DR. L. HAGADORN, V. S., Oneonta, N. Y. Send for free booklet and testimonials to
ANIMAL GERMICIDE CO.,
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ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, $3 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS
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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
Dr. WM. HORNE, Janesville, Wis.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$1.50
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Silo Doors and Chutes.

ED. HOARD'S DAIRYMAN:—A few words in reply to request of Williams Bros., page 1,061 of your issue of Feb. 10th, as to the how of getting silage out of our silos.

Each silo is provided with four doors, one above another. The lowest one is four feet from bottom, the other three divide the remaining space equally to top of silo. Usually the silage will have settled so that very little digging out and throwing back is required to permit the removal of upper door, if not we throw over the top.

A four sided chute, constructed to hang easily in the door way, with gunny sack or burlap extension at the bottom reaching into the cart conveys the silage to that vehicle and prevents the lighter silage being scattered by the wind. GEO. T. VAN NORMAN.

West Newton, Mass.

The Ideal Farmer.

[From the Texas *Farm and Ranch.*]

The difference between the leader of an orchestra and the man who plays second fiddle, is that the one loves his business and the other only his weekly stipend; one works for fame and the other for bread. The man who saws catgut, or saws wood, and is not in love with his business, never rises above the condition of a common laborer. Enthusiasm is necessary to success in every field of effort. No man can become an ideal farmer who does not love farming, and especially his own farm. It is not necessary that a woman be both beautiful and rich to inspire love in the heart of her husband. The same may be truthfully said of the ties that exist between the farm and the farmer. A man may love his wife because she is his wife; so a farmer should love his farm because it is his farm, and is and will be what he makes it. Whatever its physical features, it can be made lovely in the eye of him whom it nourishes and shelters; and it is equally true that when love does not exist, there will be neglect and dissatisfaction, whether between man and wife or between farm and farmer. "Money makes the mare go," but it is pride of possession, and the natural affection that should exist between man and his faithful servant, that keeps the mare fat and sleek, and enables her to continue going.

To be proprietor of a piece of God's earth large enough to feed and comfort a family, and large enough to afford free air and wholesome exercise to all the living creatures it nourishes, is a thing to be proud of. If it is not adorned with natural beauty, adorn it. If the soil is not naturally fertile, generously fertilize it. One of the most lovable women the writer ever knew, wore red hair and four hundred freckles. Culture and conscience had made ornaments of what, in others, were blemishes. A farmer who loves his farm home will make it beautiful, though located on a piney woods hillside.

But love of home and farm is not sufficient to make an ideal farmer. He must have enthusiasm. No man ever achieved distinction in any calling without enthusiasm. The farmer who hurries home from the country festival that he may see if his seeds are coming up, to see how much this crop or that one has grown; who loves to exhibit to admiring friends the beauty and graceful movements of his favorite colt; who talks respectfully to and caresses his milch cow; who rises in the morning before the crowing of the cock that he may work upon his plans for improving his estate, may be depended upon to become an ideal farmer. He will find no time to whittle goods boxes, and little for the discussion of current politics with the ward heelers of his market town. His heart is where his treasures are, and his farm and family being his treasures, there his interests center and thither his tracks tend. His time and talent will be taken up and fully occupied with work and plans for the improvement of his farm and the comfort of himself and family, and domestic animals. Love of home is one of the noblest instincts of humanity. To a right-thinking man, the place where all the fondest emotions of life were exercised, where his children were born, where they prattled and played, where they grew to manhood and womanhood, and where, perhaps, some of them sleep beneath the green sod, must be a hallowed spot though ever so humble, and if so, the chief effort of his life will be to cherish and benefit and beautify such a home. For this purpose a large bank account is very useful, but by no means essential. Love of home, enthusiasm in his work, and energy of mind and body will ultimately effect their perfect work, and the result will, sooner or later, be an ideal farm and an ideal farmer, not, perhaps, according to the estimate of sordid avarice, but strictly in accordance with the ideal of Texas *Farm and Ranch*

Transfers of Guernsey Cattle from January 15 to 31, 1899.

BULLS.

Avenal Faucette 5063, James L. Branson to H. Mc. K. Twombly, Madison, N. J.
Beulah Bonny Boy 5767, W. D. Richardson to C. L. Eairbank, Fitchburg, Mass.
Commander Stonecrest 5772, A. S Apgar to T. G. Dunlap, Allamuchy, N. J.
Dandy of Guernsey Hill 5770, S P. Boles & Son to C. M. Greer, Canonsburg, Pa.
Duke La Gile 2nd 4527, N. J. Agl College Farm to I. S. Crane, Chatham, N. J.
Gray Lump 5298, M D. Cunningham to H. Riedeburg, Stone Bank, Wis.
Galtee More 4959, Ezra Michener to John Q. Holcombe, Ringors, N. J.
Harry N of Oswego 5774, C H. Lockwood to N. E. Smith, Harford Mills, N. Y.
John of Bernards 5742, E C. Brill & Bros to E. H. Schley Bernardsville, N. J.
Lord Salisbury 5562, Est. A. H. Colby to James Brown, Salisbury, N. H.
Mark Hanna 4981, C. H. Farnam to J. H. Foster, Hanover, N. H.
Oakwood Lad 5773, Mrs. H. Hayward to J. T. Buckwalter, Conestoga, Pa.
Oliver C. 4989, J. W. Sanders to W. F. Newton, Lenox, Mass.
Quarry 5428, S. C. Hall to J. W. Knight, North Gorham, Me.
Quidor 5322, Edward S. Clark to George Hanson, South Valley, N. Y.
Red Hill 2nd 5769, Joseph J. Comley to H. W. Perkins, Auburn, Me.
Sir Merriewald 5775, Wm. Lindsay to L. B. Risdon, Trenton, N. J.
Sunnyside Royal K. 5764, Franklin S. Kendall to W. A. Alexander, Scipirville, N. Y.
Steuben Chief, 5783, Clayton C. Taylor to H. G. Shaver, Savona, N. Y.
The Granger 5768, Wm. H. Taylor to N. G. Williams, Brooklyn, Conn.
True Type's Emperor 5789, Elliot Warren to F. R. Horner, Washington, D. C.
Vesta's Coral 5766, Geo. C. Hill & Son to Louis Cabot, Dublin, N. H.
Viscount Vincent 4384, Louis McLane to Daniel S. Pearce, Belfast, Md.

COWS.

Athens Beauty 11236, Job Griffin to Chas. B. Case, Trenton, N. J.
Annetta's Jingles 6874, Lady Somerset 11246, J. W. Sanders to Walter D. Woodman, Sanbornton, N. H.
Berkshire Maid Select 6340, Berkshire's Myrtle Maid 9065, Hartha's Panchon 11209, Jenny Select 6009, Little Milkmaid 9056, Martha of Hazelwood 11210, Midget of Hazelwood 11208, W. D. Richardson to Louis Cabot, Dublin, N. H.
Belle of Koshkonong 6194, Ruth Custer 8839, Vie 7221, August Krumheuer to Louis Cabot, Dublin, N. H.
Betsy Fair Lad 2348, Pet Sister 7507, G. B. Tallman to Wm. H. Caldwell, Peterboro, N. H.
Betsy Fair Lad 2348, Martha Lyons 5697, Wm. H. Caldwell to E. C Damon, Wesminister, Mass
Boscabello 10677, James Lawrence to Louis Cabot, Dublin, N. H.
Clorette's Ruby 10565 Duke's Princess 2nd 10148, Fillpail's Rose 9769, Hazard's Queen 10528, Ruby's Prudy 10564, Wm. H. Caldwell to Jas. B. Councilman, Mount Wilson, Md.
Corella of Ridgeview 11240, Collen B. Meirs to Chas. B. Case, Trenton, N. J.
Crocus of Cayuga 7507, A. S. Apgar to Wm. H. Taylor, Saugatuck, Conn.
Daisy Martin of River Bend 7847, Daisy of River Bend 2941, H. W. Barbour to T. C Collins, Farmington, Conn.
Empress of Roanoke 11217, L. D. Passano, Jr., to Thomas Lewis, Roanoke, Va.
Edith B. 11245, Edward Horne to William Smith, Richboro, Pa.
Forest Rose 4750, Sibel Munroe 6369, G B. Tallman to Louis Cabot, Dublin, N. H.
Fernwood's Pride 5285, E. B Crane to Wm. H. Caldwell, Peterboro, N. H.
Hazard's Queen 10528, E. B. Crane to Wilbur Hazard, Wickford, R. I.
Hazard's Queen 10528, Wilbur Hazard to Wm H. Caldwell, Peterboro, N. H.
Hettie B. 5494, Hettie B. 2nd 6442, Pride of Maple Shade 8271, Princess Mouksa 7373, Mrs. A. W. Dockstader to F O Wells, Greenfield, Mass.
Lady Alice 9768, Lady Laurine 7016, Phallene 5683, Quintilla Vauxbelets 7022, Royaline 5684, F W. Tratt to Louis Cabot, Dublin, N. H.
Lulu Cooper 11235, M. H. Olin to P. J. Cooper, Perry Center, N. Y.
Lady Spencer 2nd 6029, Patsy H. 7330, Zona 6179, Martes 8988, Polly Du Castel 2nd, 6436, Wm. B. Harvey to E. B. Staggers, Jr., Newart, Del.
Sadie Sylvine 11170, E. C. Brill & Bros. to Henry M. Clapp, Westhampton, Mass.
Miss Good Luck 11238, Bradley M. Sears to Wallace W. Stores, Willimantic, Conn.
Orange Bud of Daisydale 7760, Wm. H Taylor to Allen S. Apgar, Ridgefield, Conn.
Perrot's Jewel 11230, Sweet Eva Lena 11229, Long Bros. to Howard Reiber, Butler, Pa.
Premium's Pride 11241, N H. College of Agr. and Mechanic Arts to P. J. Connors, New Market, N. H.
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Sallie Maria 9758, Virginia of Groton 9757, Wm. H. Caldwell to Arthur H. Linely, Trumbull, Conn.
Sadie C. 11212, Clayton C. Taylor to Jas. B. Councilman, Mount Wilson, Md.
Stranford's Jubilee 11247, Stranford's Loraine 11248, J. B. Duke to R T. Woodward, Cream Ridge, N. J.

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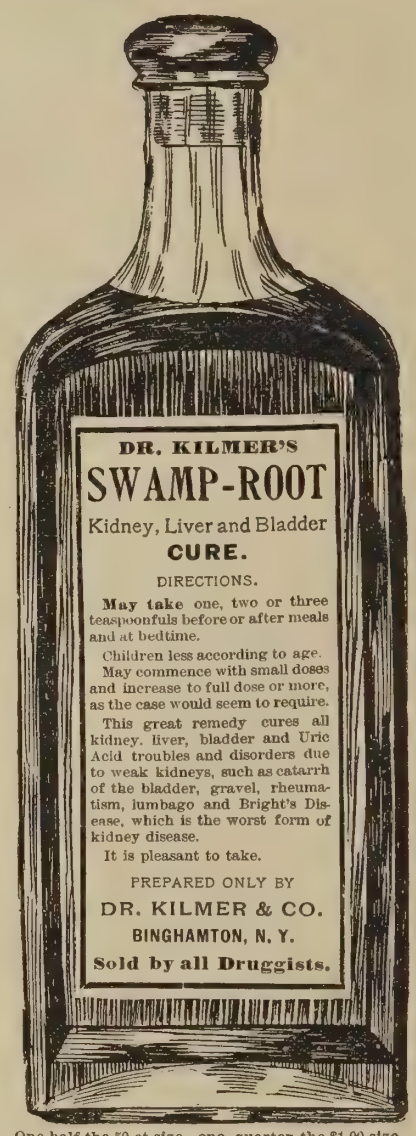
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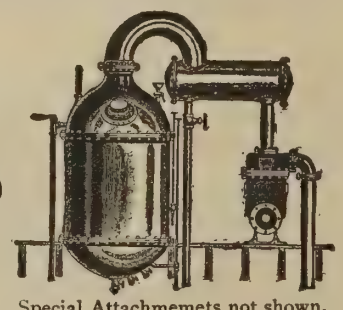


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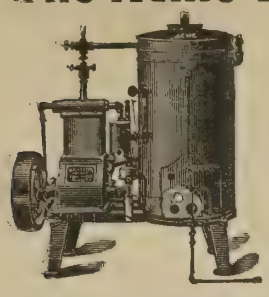
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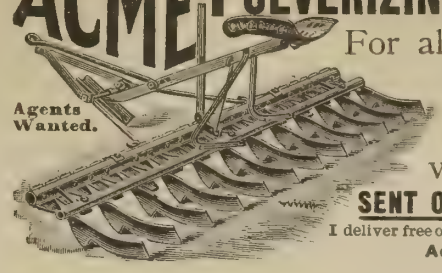
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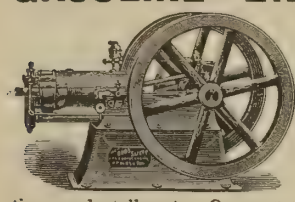
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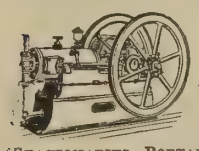
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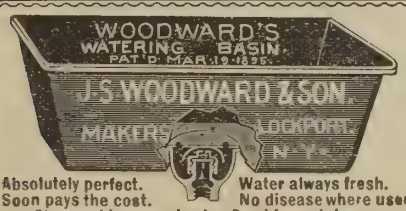
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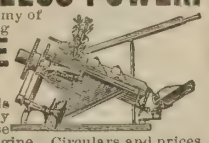
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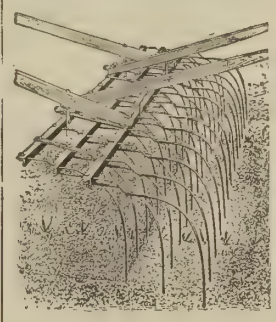
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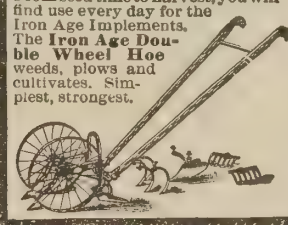
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"I tended last season 75 acres of **corn** and **potatoes** with the Success Anti-Clog Weeder, and I am in my 70th year. I must say I never before saw such clean fields of corn and potatoes in my life. With the weeder I did with one team as much work as three men and three teams could do with the old style cultivators, and did the work in a very much better manner, too." L. B. MARSH, Trempealeau, Wis.

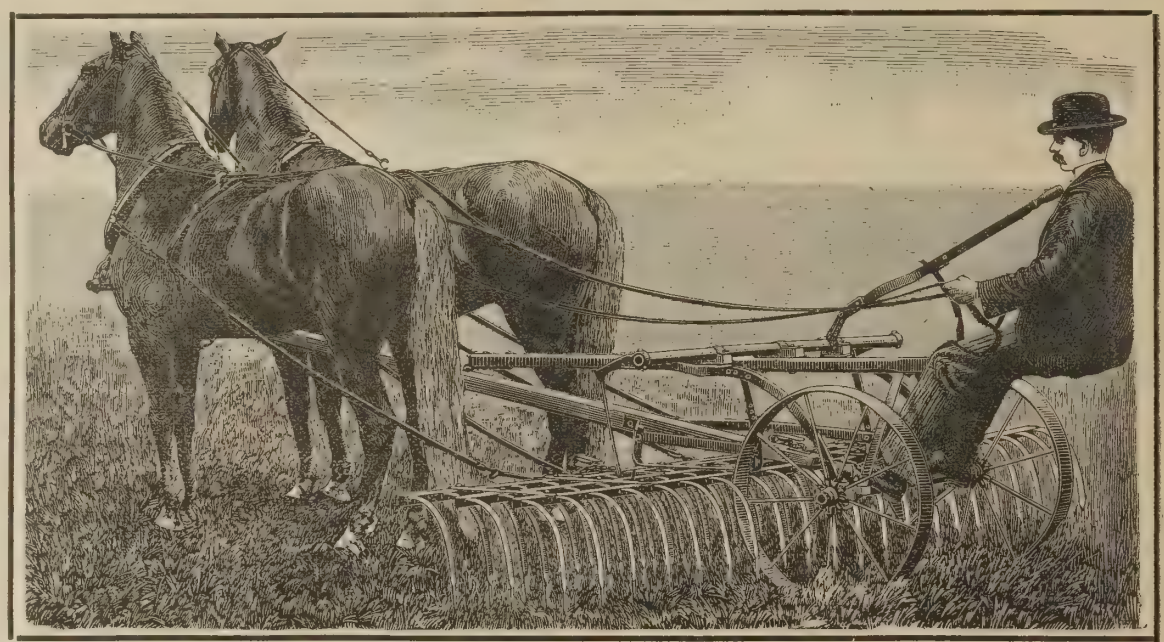
"I used your weeder on twenty-five acres of **corn** and ten acres of **potatoes** during the past season. It was run exclusively by a thirteen-year-old boy. I find, as the result of using the weeder, that, if run in time, the weeds cannot start. Its work is highly satisfactory." W. J. ROBERTS, Columbus, Wis.

"I would not be without the Success Anti-Clog Weeder for three times what it cost me. I would like to have the agency for my county. I have used the weeder on **corn** before it was up, and after it was plowed, with great success. Just after the **corn** was planted we had some heavy rains, which packed the ground very hard. I put some weight on the weeder and it did the work very fine." MARLOW KIDD, Glen Haven, Wis.

"I like the Success Anti-Clog Weeder very much. I worked 30 acres of **corn** and 1 acre of **potatoes,** and the consequence was I had good, clean corn and potatoes, and I would not sell my weeder, if I could not get anyother one, for $25. I have seen a good many weeders, but I like yours the best of any. I think it is the best weeder made." C. E. GIBBS, Prairie du Sac, Wis.

"The Success Anti-Clog Weeder is all you recommend it to be. Five times the price would not buy mine from me if I could not get another." E. KINNEY, West Salem, Wis.

"I used the Success Anti-Clog Weeder on my **wheat** after sowing clover seed and it was worth twice its price every day I used it for that purpose. For cultivating corn and potatoes it is the best tool I ever had on my farm. My ten-year-old boy worked my corn with the weeder when corn was 2½ feet high without removing any teeth. I used the weeder in a truck garden on **corn, potatoes, beans, cabbage, tomatoes, onions, beets** and **strawberries,** and it did very fine work. It is the greatest labor-saving, money-making tool on the farm." T. J. HALFERTY, Brimfield, Ind.



Special Price on the first order from every district where we have no agency. And the agency goes with the first order if you want it.

CAUTION: This Weeder is protected by our patent No. 600,782, dated March 15, 1898. The public is notified and warned that any infringement on our flat tooth Weeder, whether manufacturing or dealing in the same will be promptly prosecuted. Agents handling our Weeders are requested to send us names of persons thus infringing on our patents.

D. Y. HALLOCK & SONS, Box 812, York, Pa.



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No 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

THE COLUMBUS CARRIAGE & HARNESS COMPANY, COLUMBUS, O.

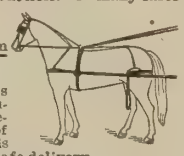


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IT WON'T

jump the track nor bind when door is warped or wall is crooked. **T RAIL TRACK** pivotally hung to Brackets. **Hangers** on both sides of doors.

Nothing Like It, Rapidly replacing all others. **Gold Medal** at Omaha. Write for circular also catalogue of up to date Hay Tools.

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Newton's **COW TIE** Improved Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO. Batavia, Ill. Catalogue Free

2,000 BICYCLES,



$12.50 TO $17.50, MODELS 1899.

High Grade Gents or Ladies, all made to sell at $50, guaranteed. We ship on approval.

Free Wheel to Agents. We want one in every town. Send for circular of our new Bicycle wonder, "The Peerless" **Bicycle Watch** can attach and detach from handle bars. Remember a written guarantee goes with each and every Bicycle we ship.

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THE ONLY LOW-DOWN

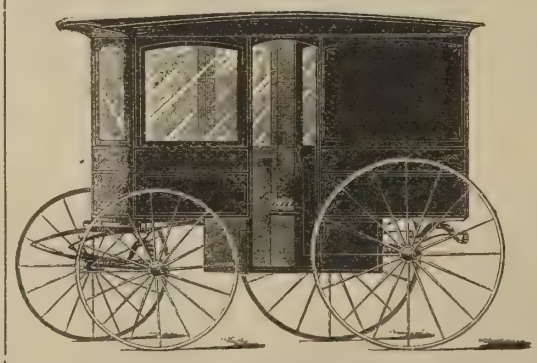
Short Turn
Straight Bottom
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Light Draft Wagon
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Sole . . . Manufacturers,
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A Perfect Milk Wagon



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Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order, and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.

$5 to $30 3000 BICYCLES

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NEW AND SECOND HAND.



2d Hand—good as any for service, $5 to $12. **New '99 Models $12.50 to $30.** None higher. We guarantee to save you money. Largest variety to select from. Lowest prices ever quoted. Every customer satisfied. Shipped subject to examination and approval. No money in advance. A few good AGENTS WANTED. For price list and particulars address the old reliable cycle house.

BROWN-LEWIS CO., (EK) 293 Wabash Av., Chicago.
[The above Co. is reliable and every wheel a bargain—Editor.]



Pressed Steel Wheels.
For Farm Wagons and Trucks Have all the latest improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the best metal wheels on the market, buy them from **The Arnold Metal Wheel Company** Lock Box 28 New London, Ohio.
Catalogue and prices on application.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MARCH 10, 1899. NUMBER 4

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

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Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—Irving Nat'l Bank. Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
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David W. Lewis & Co.

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Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

THE MICHIGAN SEEDER will sow your clover and timothy easily and evenly in any weather or wind; quantity per acre adjustable. Light weight, steel wheel, best made. **Catalogue free,** with prices.



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12 Feet
14 "
16 "

SEEDER & HAMMOCK CHAIR CO., Homer, Mich.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,- BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

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Hundreds of creameries and dairy houses in the "butter belt" will this spring need to renew their Vats, Churns, Tinware, and all the machinery that goes to make up a first-class, high grade establishment. In buying of your local dealer you should specify that the articles shall have been manufactured by

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Their name is a guarantee of high quality and their goods can be bought at reasonable prices. We are also agents for the

SHARPLES CREAM SEPARATORS

The most easily operated and most generally satisfactory separators in the market. We have these separators in all sizes for both creamery and dairy use. We are manufacturers of creamery supplies. Send for our illustrated catalogue.

HANEY-CAMPBELL CO., - Dubuque, Iowa.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

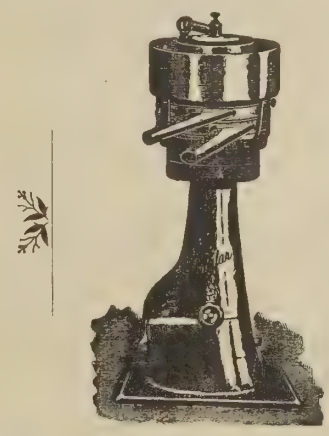
Write for Catalogue.

Has The Inside Track.

The milk in a Sharples Tubular Separator spins around a two inch radius in the largest sized factory machines. From three to five times this radius is the rule with all other factory separators.

Won't your hat fly off more quickly in turning a short corner than a long one, even though you are going at the same rate of speed? Well, it's just so with the skim milk falling out of the cream in the "Tubular."

The Tubular Separator is full of practical common sense and scientific knowledge, but it has no discs in it.



THE TUBULAR CREAM SEPARATOR

Tubular No. 25 skims 2,500 lbs. per hour.
Tubular No. 40 skims 4,000 lbs. per hour.
Tubular No. 60 skims 6,000 lbs. per hour.

Hundreds are in use and their users are wildly enthusiastic in their praise. Acquaint yourself with Tubular truth. Send for catalogue No. 46.

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San Francisco, Cal.

P. M. SHARPLES,
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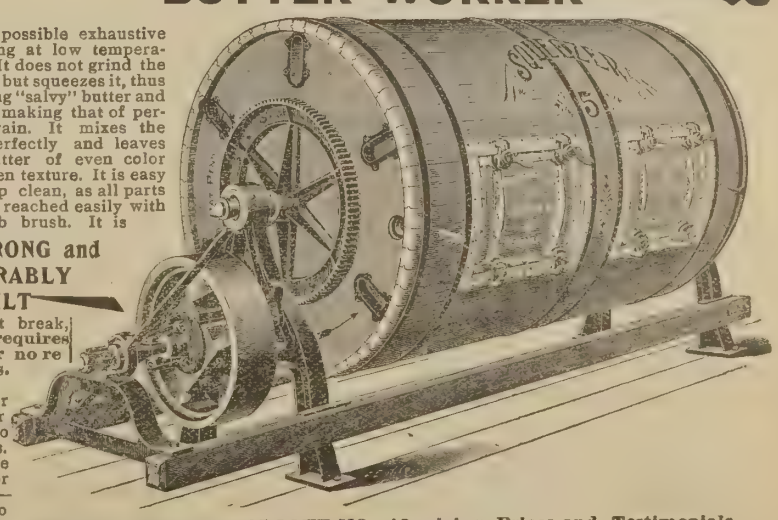
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

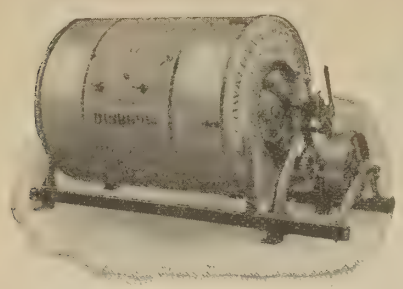
STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—5 to 150 gallons.



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SUCCESS

This is the magic word that marks the limit of every man's aspiration. Men who have and men who will achieve success are those who take advantage of every faculty which the world affords in their particular line.

...The DISBROW

COMBINED CHURN and BUTTER WORKER.

IS ITSELF A SUCCESS,

And will promote the success of every man or institution which uses it.

It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

Owatonna Mfg. Co.,
Sole Manufacturers,
OWATONNA, MINN.

Creamery Package Mfg. Co.,
Chicago, Ill. Kansas City, Mo.
Minneapolis, Minn. Omaha, Neb.
Waterloo, Iowa.

KNOWLEDGE



Of the aggregate results from your herd ought not to satisfy you. Your aim should be to bring the average up to the best results from your best cow. This is up-to-date dairying. What you want is quality, not quantity. In order to intelligently weed out your herd you should have one of our

IDEAL HAND TESTERS.

You may be surprised to find that some of your cows which have been "filling the pail" have been filling it with water. Knowledge gives confidence. These are things that IT WILL PAY YOU TO KNOW. Our prices on these Testers are reasonable. Write for them.



"Ideal" Jar Cup Finish.

In Our MILK DEALERS' SUPPLY DEPARTMENT

Can be found everything necessary for the Dairy or Milk Depot. Try our "IDEAL" Milk Jars and Caps. We know our Jars are stronger, of better shape and color, than any other. Write for our special Milk Dealers' Price Current. Also our little booklet, "Suggestions to the Milk Dealer," FREE.



Printed Pulp Cap.

Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

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KANSAS CITY, MO. MINNEAPOLIS, MINN.
WATERLOO, IOWA. OMAHA, NEB.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.

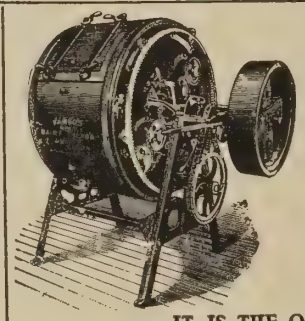


Premium Butter

More than half of the Wisconsin Butter at the World's Fair THAT SCORED 100 POINTS was salted with VACUUM PAN SALT. More than three-fourths of all Premium Butter at Wisconsin State Fairs during the last five years was

Salted with VACUUM PAN SALT.

BUTTERS & PETERS SALT & LUMBER CO.,
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THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

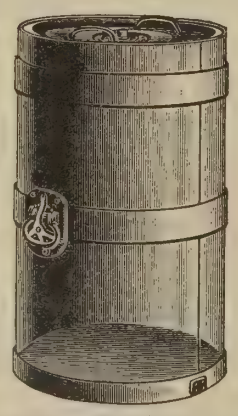
Salt Surety

Is a good thing to have and costs little to get. It costs fifteen cents extra on every ton of butter to have a salt you can absolutely rely on. That is the first cost of using

DIAMOND CRYSTAL SALT

but, the fifteen cents comes back in fifteen different ways before you are through with it. It comes back in a saving of time, in added flavor to the butter, and weight. More—but why enumerate when the book, "The Salt that's all Salt," tells the story complete. It is yours for the asking.

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A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans.

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,
Sole Manufacturers, - - CATTARAUGUS, N. Y

PRINT BUTTER

SHOULD BE WRAPPED IN

GOOD PARCHMENT.

(Not the Cheap Kind.)

YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

DEPARTMENT H,
Paterson Parchment Paper Co., Passaic, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

PITCH CHEMICAL COMPANY, Bay City, Michigan.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

THE Chicago Butter and Egg Board strongly endorses the law proposed by Congressman Davidson, taxing colored oleomargarine 10 cents a pound.

The dairy sentiment of the country, as well as all enlightened sentiment among consumers in cities, is crystallizing very rapidly in favor of this measure. The more the oleomargarine question is understood among consumers, the more revolting it appears. A few weeks since we saw a film of paraffine four inches long and as wide and thick as a case knife blade, taken from less than two ounces of oleomargarine, by one of the chemists of the New York Department of Agriculture. Paraffine will resist the action of strong acids. It is put into oleomargarine to give it body. Here is an absolutely indigestible product put into this fraud butter and yet there are thousands of foolish people declaring that it ought to have "free course, run and be glorified."

The whole fraud would be speedily taxed out of existence, if the farmers alone would stand up as they ought to and say to their congressman what they want done.

MR. PHILIP'S COWS.

The Senior Editor of the DAIRYMAN well remembers making a study of the cow Yeksa whose phenomenal record of 561 pounds of butter as a two-year-old excited much comment at the time. In many particulars of outline both of these cows resemble their mother and grandmother Yeksa. Mr. Phillips has spoken to us many times of the excellent record these two cows were making for him. They are not phenomenal cows, but they will very well satisfy the heart and judgment of a keen judge of cows, if they are measured either by form or performance.

HOARD'S DAIRYMAN has been at work for years trying to get dairy farmers to take the effort to cultivate a close, special judgment of cows. There are so few real good judges of cows. This is proved when we take a drive through the country, and see what kinds of cows satisfy the mindand judgment of the men who keep cows.

There are but few farmers who seem to show that they have the ability to breed good cows. That is proved in the same way, by looking at the cows they produce.

If any man doubts whether the cow farmers of the country need to be lifted up and broadened out into a better knowledge and judgment of cows, all he has to do is take a look at the kind of cows the farmers are contented to keep. Now these two cows of Mr. Philip's represent another order of ideas, which had to do with their breeding; another order of judgment which has had to do with their management from calfhood up; another order of ideas about feeding. All of this results in there being another order of cows, and their performance at the pail and churn shows it. The old Bible maxim, "By their fruits ye shall know them," when applied to cows, means, by what they yield at the churn; by the kind of heifers they produce, and that is the greatest of all. When applied to the farmer who keeps cows, it means another measure of judgment which may be rendered. By his cows shall ye know and measure his brains, his intelligence, his energy, in a word, the kind of dairyman he is.

LET US BE PRACTICAL.

One of the most valuable and instructive letters that has appeared in the DAIRYMAN for a long time is that of our friend and acquaintance, E. D. Tillson, of Ontario, on page 52 of last week's issue. Mr. Tillson is one of the most studious and progressive dairy farmers in Canada and is also a man of strict probity of character. His statements may be relied on as not overdrawn. We wish every reader would take especial notice of a few points that he brings out in his practice.

1. Feeding ensilage in summer. When the DAIRYMAN took up this question a few years ago and said: "The summer silo is the easiest, cheapest and most efficient way to provide succulent food for cows in summer drouths," we were met by numerous criticisms to the effect that we were not "practical."

That word "practical" is a very convenient cover for lots of men to hide behind when they do not see clearly themselves. They think anything they cannot see or understand is not practical, when perhaps a neighbor right near them is demonstrating that it is profitable, and that makes it practical. Mr. Tillson is one of many representative dairymen who have built and filled silos for summer use.

2. Note that he finds his cows do a great deal better the season following if they have been kept well up to the mark and fed a little grain during the previous summer.

3. He makes especial provision for weeding out the unprofitable cows; he weighs each cow's milk once a week and tests for per cent of butter fat once a month. There is not much labor or bother in that. Besides, it gives him boundary lines whereby to judge correctly of his cows.

4. He guards his cows against the flies in summer by taking a little pains and expense in that direction. HOARD'S DAIRYMAN has been earnestly advising this for years. There is big profit in it. But because some farmers never did such a thing, and have always forced their cows to care for themselves they shake their wise heads and say, "it ain't practical". Mr. Tillson finds these things practical; so do thousands of other men.

5. Mr. Tillson has bred up his herd, carrying with him as a constant measure, the ideal in form and performance of a *dairy* cow. It is the cows that are lacking in dairy performance, not beef, that he is constantly weeding out of his herd.

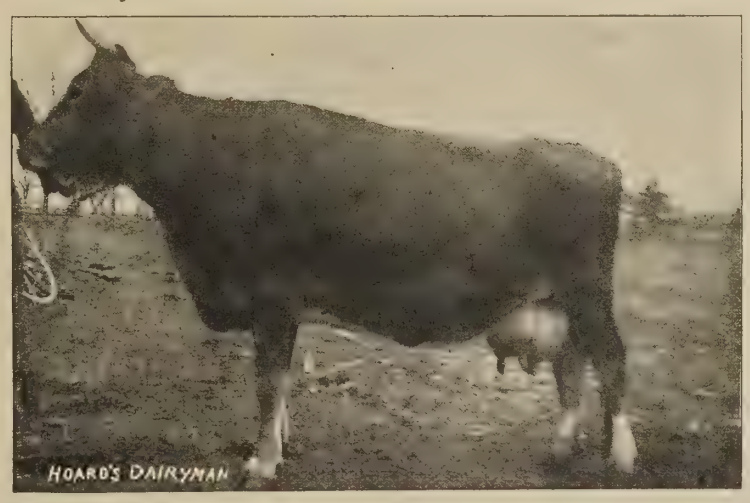
That shows how important it is for every dairy farmer to establish *right ideas* about a cow in his mind if he hopes to produce cows that will bring the highest profit. Here comes in the value of being a reader of good dairy literature where right ideas are brought out, described and talked about. If a man cannot soak up good judgments from such associations he must be a dullard indeed.

What would it cost a man to visit Mr. Tillson and get all those ideas of dairy management. Yet it can be read in the DAIRYMAN, and others like it, every week in the year for the cost of ten cigars or 20 glasses of beer. Yet there are thousands of farmers who prefer the cigars and beer because they understand them better.

It is the *demonstration* of what is really *practical*, really *economical*, really *profitable*, by such men as Mr. Tillson and hundreds of others who tell their story in the DAIRYMAN, that establishes landmarks and boundary lines for us all to follow. This dairy question from the cow to her finished product is obscure and hazy in the minds of many farmers because they will not read and study to establish clear judgments on it. It is the same as if they had no boundary lines to their farm. Mr. Tillson's herd of 55 cows averaged last year 10,242 lbs. milk and 418 lbs. of butter. How did he get these? By cultivating his mind, increasing his knowledge, so that he might avoid costly mistakes. There is no other way to be practical, or secure practical results, and any man may travel it that will.



QUEEN VASHTI, A. G. C. C. 6051.
Property of A. J. PHILIPS, West Salem, Wis.



YEKSA'S QUEEN, A. G. C. C. 6631
Property of A. J. PHILIPS, West Salem, Wis.

Two Wisconsin Guernseys.

ED. HOARD'S DAIRYMAN:—I send you under separate cover, pictures of my two cows, Queen Vashti and her daughter, Yeksa's Queen. The latter is the dam of the young bull I sold to the Kansas College of Agriculture last spring, and last week I shipped her last bull calf to Geo. C. Hill & Son to do work in their fine herd. In order to show the heredity of these cows I send Yeksa's record as a two year old. She was the dam of Queen Vashti; she died in calving; her third calf was owned by Mrs. Foster, of Sparta, (Farmer's Wife, who wrote such excellent articles for HOARD'S DAIRYMAN years ago,) bought of I. J. Clapp. Her dam was Eminette, a fine cow. As a two-year-old Yeksa gave 5,330½ lbs. of milk.

Total butter for 11 months 561 pounds; largest amount of milk in one day 30 lbs.; smallest at expiration of 11 months, 14 lbs. Her average was 9½ lbs. of milk for one of butter. As a three-year-old, she made over 600 lbs. of butter in 12 months. Noticing this fine cow, and seeing her milked and tested, I was induced to buy her daughter, Queen Vashti, and it proved a good investment. She is a very gentle, handsome cow, not phenomenal, but a persistent milker for seven years. Her best record in 10½ month's milking was 482 lbs. of butter, and her smallest 342 lbs.; a total for seven years 2,518 lbs. of butter. She has given me two heifer and five bull calves, and two of the latter I now have, the youngest two weeks old, the other 11½ months. Yeksa's Queen, named by Mrs. Foster, has a larger record than her dam, but was longer making it; 599 pounds of butter in 12 months out of 9,686 lbs. of milk. Her largest month's milking was in June '97, 1,030 lbs. smallest, in January 595.

Her record for six months this season from May 29th to Nov. 29th, was 5,728 pounds; largest yield, June, 1,128 11-16; smallest, November, 687 3-16.

Queen Vashti gave, this season, from Dec. 29, '97, to July 4th, '98, 185 days, 4,149 8-16 pounds of milk; average test 5.6.

Average test, the past season, six months, of Yeksa's Queen, 5 4.

I have a two-year-old heifer from Yeksa's Queen that gave, this season, from May 29th to Dec. 1st, 128 days, 2,771 pounds; average test 5.2. This shows heredity. You will notice Yeksa's Queen has great capacity. She has never been fed to her full capacity, and has wonderful navel development. These cows have no better care than any farm cow should have. A. J. PHILIPS.

La Crosse Co., Wis.

A tired cow, a worried cow, a cold cow, an abusedcow, an ill fed cow, a cow that is uncomfortable in any way will make the owner pay for her discomfort and in the long run pay him back many times over for his neglect or abuse.

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TO THE MEN WHO DON'T TAKE HOARD'S DAIRYMAN.

Mr. J. Moldenhawer, of Washington, D. C., is a highly skilled dairyman. He is engaged in producing the finest of milk for the highest paying demand. Mr. J. C. Jurgensen, of Brooklyn, N. Y., in writing to us in the issue of Sept. 23, concerning a visit he paid Mr. Moldenhawer, says:

"Mr. Moldenhawer is himself picking out Hoard's Dairyman before any other of the many farm papers he keeps, and he frankly says that your great paper is of high value to him. When a man with his reputation says so, how can the farmers who expect to make money by keeping cows for dairying, get along without the Dairyman. Still it is a very trying job to try to convince farmers how much it would help them to keep an extra good dairy paper."

What is the lesson that the above teaches? This: That no man who is keeping cows for profit can afford NOT to have such a friend and adviser as Hoard's Dairyman at his elbow every day in the year. Simply put a dollar bill in a letter with your name, post office, county and state plainly written on a piece of paper, and mail it to us, and secure the paper to Jan. 1, 1900.

THE letter in our last issue from G. H. Gurler on the "Price of Elgin Butter," was by mistake attributed to him as Chairman of the Quotation Committee. Mr. Gurler is a member of the Board of Directors instead of the Quotation Committee.

THERE is a world of suggestion and food for thinking in Mr. Geo. T. Powell's description on page 54 of the last issue, of that body of prosperous Quaker farmers at Sandy Spring, Maryland. It is a picture well worth studying. Such men and their wives and children are the true kings, queens and princes of the land. Contrast them with all they have and enjoy with some other communities that every one of our readers know of.

What has made the difference in favor of the Marylander is simply this: They let their brains have a chance to grow; they studied the principles of good farming. And of such is the kingdom of good farmers.

WHAT NEXT?

Edward Nipple was arrested and fined in Denver for selling milk below the standard. He made the plea that in the jolting of a wagon the milk at the bottom of the cans is stripped more or less of its cream.

FORM, FUNCTION AND TEMPERAMENT.

HOARD'S DAIRYMAN welcomes communications of the kind submitted by Mr. S. Burchard and printed on page 70, without regard to the circumstance that the views expressed may differ from those held by its editors. What it wants is light, more light, on all subjects connected with *"Dairying and Dairy Stock Interests"* and it knows of no way of getting this light except from the lamps of experience, statistics, and sound reason. It is not without respect for the opinions and practices of the fathers, but it also subscribes to the doctrine so pithily expressed by the late Hiram Smith, the great apostle of Wisconsin dairying, who said, (when charged with inconsistency because he advocated in his later years views contrary to those expressed previously) "if I haven't learned anything in the last ten years, I ought to have died ten years ago."

The associate editor well remembers the dairy herd referred to by Mr. Burchard, and agrees with the commendations bestowed upon it. The owner of that herd lived up to the possibilities of his day, both as to the breeding and the care of dairy cows, but the son has made some advances and is nearer the goal of the ideal dairy cow, than was the father. We expect still further advance and shall not be greatly surprised to learn that as the years go by he attaches less and less importance to "square endedness" and other beef characteristics.

We have sometimes thought that our Holstein-Friesian breeders were more nice than wise in their attempts to distinguish between the "milk form" and the "milk and beef form". We intimated as much to Mr. Carpenter, of Menominie, Mich., at the recent Wisconsin Dairymen's Convention and he promised to send us some photographs of typical animals to illustrate this distinction.

The contention of HOARD'S DAIRYMAN is that Function, acting through successive generations, determines Form. In other words, nature is always striving to work along the lines of least resistance. Every living thing, whether among plants or animals, tends to take on and transmit that form which will enable it to accomplish its mission in life without unecessary expenditure of energy. Form therefore becomes to a very great extent an index of and limitation upon Function, although not in any sense its origin or cause. This lies still further back, and for want of a better term is called Temperament, an intangible something that will sometimes overcome the limitations of form and give speed to a cart-horse and dairy ability to a beefy built cow, but, let it not be forgotten that with such a formed animal there must be an expenditure of extra energy necessary to overcome the want of harmony between the individual form and the individual function.

The statistics given do not seem to us conclusive. If we assume that all these cows were properly assigned to their respective classes, it by no means follows that the 108 cows with the higher weekly records would hold a similar rank if the yearly yields were compared; or that these higher weekly records returned a larger net profit; or that the progeny from these cows *inherited* the dairy ability found in that from the cows possessing the "milk form." In other words, the deduction is too broad when compared with the facts.

We are very sure the writer of the article here commented upon will take no exceptions, and we see no good reason why others should, to the statement that the scales of points adopted by the various associations and cattle clubs are not only exceedingly arbitrary but were based upon very inadequate knowledge of the relation of form to function, and in several particulars are too much concerned with the details which were supposed to be necessary for a conventional standard of symmetry of outline. What has become of that milking strain of Short-horns which gave character and excellence to the herd of cows to which our correspondent refers? They were outlawed and, we say it not without regret, practically exterminated by a "Scale of points" which demanded beef characteristics. Such bulls as Sylvester Burchard, Senior, put at the head of his dairy herd could win no prizes in the show ring, because they did not conform to this arbitrary scale of points for the typical Short-horn. They were set aside, despised, forsaken, killed; and the "typical", prize-winning, scale-of-points bulls were promoted to fill the vacancies thus created, with the result that very many Short-horn cows of today need the assistance of a wet nurse to keep their calves from starving.

Not very many years ago Holstein-Friesian breeders were pursuing much the same course. HOARD'S DAIRYMAN warned them of their folly and adjured them to hold fast to the dairy quality of their cattle and let dairy excellence rather than straight lines and conventional scales of points, be given the place of honor. It has been much pleased to observe that there has been a very decided change of front in this regard, both by breeders and judges, and that the Holstein-Friesian Association has been wise enough not only to recognize but to encourage dairy excellence pure and simple, without regard to peculiarities of type or strict conformity to an arbitrary scale of points, the length of face or the size of tail.

"HOLD UP OUR HANDS AND PRAISE GOD."

Mr. W L. Dexter, of Russell, Ind., who keeps a dairy of 50 cows and ships milk to Chicago, sends us a small club of subscribers and writes as follows:

"I am going to devote a little time to help you along in your good work. The fight you are making against the butterine fraud deserves the support of every man in the United States who keeps a cow. If the bill now before Congress, putting a tax of 10 cents a pound on all butter substitutes in imitation of yellow butter passes, it will stop the making of that stuff. And then we can hold up our hands and praise God."

Mr. Dexter is a practical man and a wise man. He doesn't let other men fight his battles and never say a word or do a thing to indicate that he appreciates it.

Now let every reader of the DAIRYMAN on this day of the year of our Lord, 1899, sit down and write a letter or postal card to his congressman, asking that member to support Bill H. R. 11,604. It will make a wonderful difference with the action of that member if he begins to hear from his constituents, Show him you are interested, at least two cents worth in this matter.

There is no influence in Congress like letters and postal cards from home constituents and the more of these they get the greater the influence.

Don't fail to do this good and patriotic work.

Wisconsin Dairy School, Class of 1899.

ED. HOARD'S DAIRYMAN:—One hundred and eight students were present at the last examination of the term, which closed February 16th. There have been 122 in attendance during the winter.

All of the departments of the school, milk testing, pasteurization of milk and cream, creamery butter making, and cheese making, have been more crowded than before. About two and one-half tons of cheddar cheese were made by the students, and the remainder of 5,000 lbs. of milk received daily they made into butter or pasteurized bottled cream. Nearly one-half of the students had places to work at the close of the term.

Mr. Henry Van Leeuwen, who has been instructor in milk testing during the winter, goes to the University of Missouri at Columbia for the month of March, to give instruction in dairying in their short Course.

Mr. U. S. Baer, one of our dairy school instructors in cheese making, has been engaged as cheese instructor for the ten weeks' term beginning March 13, at the Dairy school of Pullman, Washington.

Twenty-six applications for butter or cheese makers were received by us in January, and up to date, ten in February.

Madison, Wis. E. H. FARRINGTON

Breeding up a Dairy Herd.

Experience of a Canadian Dairyman.

ED. HOARD'S DAIRYMAN:—Knowing that you have always taken a great interest in good cows and have been laboring hard for these many years trying to teach us farmers the great importance and benefit in having better cows, I thought you might be interested in knowing what progress one of your people has been making over here in Canada. I have been engaged in farming more or less for forty years and have kept cows all that time, but never took any special interest in trying to breed up a herd of especially good dairy cows until I took HOARD'S DAIRYMAN, some six or eight years ago. I was led by the teachings of that good dairy paper to see the importance of knowing just what each cow in the herd was doing, whether she was paying for her board or not. As HOARD'S DAIRYMAN told just how to go to work to find out whether our cows were paying for their board or not, I took its advice and bought a pair of scales and Babcock tester and started in to find out which cows were worth keeping and which were not. I soon found out that many of my cows were running me in debt for their board, so I sent my foreman away to a breeder of first-class Holstein cattle to buy a bull. He bought for me a young, good, registered bull and four good, young, registered heifers, and I commenced breeding up and weeding out, raising all my best heifer calves and weeding out all the poorer cows that were not paying for their board, selling them for beef. I replaced them with good heifers, keeping a record of the amount of milk and butter that each cow made during the year, weighing each separately once a week and testing quality with Babcock tester once a month.

Now, I think that I have as good a herd of cows as there is in Canada, and I think you will agree with me when you look over the record that I am sending you herein enclosed. When we commenced to improve the herd by better breeding and weeding out we also adopted a better system of feeding and better care, provided better stables, with more comfortable, healthful and pleasant surroundings.

We were taught how to make all these improvements and stimulated to do them, through the reading of HOARD'S DAIRYMAN, as well as other good agricultural papers, attending lectures and conventions, etc. HOARD'S DAIRYMAN gave us the first start and stimulated a desire for other good reading matter and more agricultural knowledge. This gave me ambition and pride to keep up with the times and which led to my going to a lot of expense in building new stables, improving the old ones, building and fitting up a creamery, buying scales and Babcock tester, building piggery for keeping pigs to utilize our by-products from creamery to best advantage. So now we have got things fixed up pretty nice. It has cost some money, but it gives me great pleasure in looking over these improvements and showing our visitors over the place (we have lots of them). Just received a letter from the secretary of a Farmers' Club, saying that I am to have twenty visitors here next week, coming in on one train. So you see it gives me a good deal of pride to feel that I have something nice to show them when they come, and if the editor of HOARD'S DAIRYMAN should ever be passing through Tilsonburg and would stop over one train, I would take the greatest of pleasure in showing him through our beautiful town and over the Annandale Farm, and show him some of the outcomes from his hard and earnest teachings these many years.

Enclosed you will please find milk record giving the record of herd for two years.

Ontario. E. D. TILLSON.

The record above referred to was published last week on page 52.

It Fits All Sections of the Country.

Thirty Thousand dairymen, butter makers, cheese makers and breeders of dairy cattle read HOARD'S DAIRYMAN each week. These men are found scattered all over the continent from Nova Scotia to Mexico; from the Atlantic to the Pacific. Besides a large edition is sent to all the countries of Europe and to Australia and New Zealand.

That shows that wherever an intelligent man and a cow are found together they want HOARD'S DAIRYMAN, "for what there is 'n it for them." It shows also the humbug of that plea that dairy problems are different in different sections. HOARD'S DAIRYMAN "shines for all." Only $1.00 a year, or less than 2 cents a week.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc; and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

BUTTER AND BEEF BREEDS.—RICHNESS OF MILK.—PRICE OF POP CORN.

What breed of cattle would you prefer if butter making is the sole object, and what breed is preferable if butter and beef are both to be considered?

Will a cow's milk show about the same per cent of butter fat during a period of a year's milking, or is the milk richer when she is a new milker than it is after she has been milked six or eight months?

I never saw pop-corn quoted in any market report. What is an average price per bushel and what color sells best, red or white? R. B. H.

New York.

As we have frequently stated, breed is of secondary importance so long as we use a dairy type, selected, fed and bred intelligently.

Dairymen are paying more and more attention to the individual animal. It should be understood that there can be pedigree without performance and performance without pedigree. Consequently, if you find a good animal that by scales and test shows a profit to its owner, put it in your herd if you can. At the head of your herd place a bull of one of the pronounced dairy breeds; one from a strain of butter producers. It makes but little difference which one, so long as you breed and select intelligently from his get. If you like a large animal take a Holstein; if you prefer small cows, a Jersey or Guernsey will fill the bill.

The DAIRYMAN has always claimed that beef and butter could not be obtained, with profit, from the same animal. Others think differently and you had better follow their advice rather than that of the DAIRYMAN. Prof. Shaw claims that the Devon is a good representative of the dual-purpose cow.

As a rule, the milk is richer after the cow has been milked for six to eight months. The milk is poorer immediately after calving than at any other period, but there is a larger flow.

Rice pop-corn is quoted at the present time at 1½ to 1¾ cents per pound. The red corn is not quoted.

A WASHINGTON RATION.

Will you kindly give me a ration from corn meal, wheat bran, shorts and timothy hay for grade Jersey cows? C. S.

Monroe, Wash.

One cannot suggest a satisfactory ration formula from the feeds named. Where some of the by-products which contain 20% or more of protein cannot be had, the dairyman should lose no time in providing himself with clover or pea hay. One hundred pounds of timothy hay contains only 2.8 pounds digestible protein, where there are 6.8 pounds in the same quantity of clover hay and still more in pea hay. The best we can do for this inquirer under present circumstances is to advise feeding not less than 10 pounds of bran and shorts daily—more if the cows can make good use of more—and all the hay they will eat.

BUCKWHEAT MIDDLINGS FOR HORSES.

Are buckwheat middlings good for horses? How much of them dare I feed?

I am feeding buckwheat middlings, corn meal, mixed with cut carrots and beets, to my cows.

What value are the middlings with bran at $14 and corn and oats ground at $16? I am getting them at $12.

Sodus, Mich. J. E. K.

We cannot see why buckwheat middlings should not be a suitable feed for horses if mixed with bran, or better yet, with ground corn and oats, or bran. Unless mixed with something of this kind they become sticky or pasty in the mouth, and neither horses nor cows relish them. For balancing a ration otherwise deficient in protein, buckwheat middlings are worth from 50 to 75 per cent more than bran, but for purely nutritive purpose only about 5 per cent more.

SLOW CHURNING.—COW PEAS AND KAFIR CORN.

Since getting a cream separator we have had trouble in churning; the same taking frequently three times as long as when using the gravity system, and often being compelled to raise churning temperature to 70° F., while all the other conditions remain the same as formerly as far as we know; cream cans immersed in well water at 50° F. just after separation; held in frost proof room about 24 hours, then raised by immersion in hot water to about 75° F., starter added and left to ripen. Think that the open setting requires less time to afterwards ripen, and that possibly the fault lies here. Can some dairyman give farm dairy methods? Also will L. W. Lighty please give his method of sowing the cow peas and kafir corn? How prepare the ground? Does he sow the peas and then plow under 4 inches deep as for Canada peas, and sowing the corn on the surface at a later period? Please make this clear on each point, and the time for his latitude. J. B. D.

Benton Co., Ind.

Can you not give more data? How rich is your cream? What degree of ripeness? Are your cows on dry feed alone? Are the cows advanced in lactation? All these points have an effect on the ease and rapidity of churning and we must know something about the above points before we can tell where your trouble is. Cream from separator requires more time to ripen than from open setting.

A NEW YORK RATION.

Will you kindly make a balanced ration for good sized cows from the following feed stuffs: Ensilage, clover hay $6 per ton, rye and oats mixed of about equal bulk, worth about $22 per ton, bran $19, cotton seed meal $26 per ton. J M H.

Malone, N. Y.

We should not feed the rye and oats at the priced named, but use bran and cotton seed meal somewhat as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. clover hay	8.47	.68	3.58	.17
5 lbs. bran	4.40	.63	1.93	.15
2 lbs. cotton seed meal	1.84	.74	.34	.24
Totals	21.31	2.38	9.35	.74

This formula is deficient in dry matter and digestible carbohydrates, which can be supplied with straw or some other coarse fodder, if any is to be had cheaper than clover hay. If not increase the latter up to the limit of each cow's appetite.

A PENNSYLVANIA RATION.

Please give me ration from the following feeds: Clover and timothy, (mixed) hay, $10 per ton; corn stover, $7.00 per ton; bran, 65 cents per cwt.; corn and oats chop, 90 cents per cwt.; gluten feed, 80 cents per cwt.; old process oil meal, $1.50 per cwt. For good sized, selected, common cows.

Wilmerding, Pa. R. W. T.

If these cows are fresh or nearly so, they ought to return a good profit from the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. hay	12.87	.72	5.94	.24
10 lbs. stover	5.95	.17	3.24	.07
4 lbs. bran	3.52	.50	1.54	.12
4 lbs gluten feed	3.69	.82	1.93	.12
Totals	26.03	2.21	12.65	.55

We realize that this ration costs nearly 17 cents, but a very considerable portion of this cost is returned in the value of the excrement for fertilizing purposes. The cows must be kept at all events, and if they pay a good profit on the feed, in excess of that required for mere maintenance, there is a decided gain. Fully three-fifths of the above ration would be required for their simple maintenance, and would cost in the neighborhood of 11 cents per day. If the milk brings in only 12 cents per day, there would be a clear profit of one hundred per cent in feeding as above.

COWS WERE DRIED OFF AT WRONG TIME.

Cows are in perfect health, but are not more than paying for their feed. They are very fat, and have ravenous appetites. Their calves are respectively 2½ and 5 months old. I milked them to within a week of calving, possibly that is the trouble. I am feeding equal parts of wheat bran and cotton seed meal. I mix with the meal and bran four pounds of cottod seed hulls morning and evening. Two and a half pounds meal, 2½ pounds bran, mixed with 4 pounds of hulls constitutes a meal. Will you kindly give me a well balanced ration. We have corn meal, cotton meal and hulls and bran.

Paschal, Ga. J. B. G.

We think the trouble with these cows is not so much that they were milked too long, as it is that they were dried off when so near freshening. Unless a cow can be dry fully four weeks, she better be milked continuously. That the cows are very fat is evidence that they are receiving more feed than they can economically use. Cut down on the cotton seed meal, at least, half; that is, instead of feeding 2½ pounds twice a day, feed only half as much, and if the cows continue to lay on fat, reduce the amount still more.

It is, perhaps, doubtful whether these cows will ever fully recover from the injury occasioned by forcing them dry so late. We cannot explain fully, or certainly, why such results follow, but it seems probable that there is some injury to the tissue of the glands in the udder which interferes with subsequent normal action.

A RATION FOR COWS—HAY FOR CALVES.

Would like a balanced ration for a herd of grade Guernseys weighing from 800 to 900 pounds each, from the following feeds: good early cut clover with a very little timothy in it, good ensilage quite rich with corn, bran $16 per ton, middlings $17 per ton, gluten feed $16, oil meal $30, cotton seed meal $28, oats 30 cents per bushel.

We would like this ration with as little grain as possible and have it right, as we have to buy the grain, and have the clover and ensilage in plenty.

Which is the better feed for young calves about a month old getting separator milk, timothy hay or second crop clover with a very little timothy in it and well cured, or ensilage? W. J. & C. G. M.

Morton Corners, N. Y.

We suggest as follows for the cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs hay	8.47	.68	3.58	.17
4 lbs bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	82	1.93	.12
Totals	23.60	2.39	11.25	.62

If the cows will eat it the hay may be increased to 12 or even 14 lbs. per day and the bran reduced at the rate of 1 lb. for 2 lbs. Feed the grain with the silage.

Good second crop clover, if cut before it passed out of blossom is better for the calves than timothy. They will not eat very much at first but should be supplied with fresh hay at least twice daily.

TAMWORTH HOGS.

In yours of January 20th inst, I notice what J. A. McDonald says about Tamworth hogs? I want to know more about those hogs, and who has them to sell nearer than the advertisers you have from Canada.

Where does J. A. Mc Donald live, and has he those hogs for sale?

Freeborn Co., Minn. F. W. BARLOW.

You will find Mr. McDonald's ad. in the DAIRYMAN.

BLATCHFORD CALF MEAL.

Do you know anything about Blatchford's calf meal? It sells for $3 per 100. Could not a man mix just as good a calf food for less money? Please give me a ration from the following feeds: corn stover and timothy and clover hay (I put timothy first, as the hay is only about one-fourth clover), for coarse feed, and rye feed at $14 per ton, and gluten feed at $18. The rye feed is all of the rye that is left from the flour (bran and middlings). G. R. S.

Ballston Lake, N. Y.

Blatchford calf meal is a most excellent combination for growth and health of calves, and is used quite extensively by dairymen and breeders. Others get along with home-made mixtures which probably cost less, but are probably not just as good. The proper plan for this inquirer is to get some of the meal and try it for himself.

For the cows, if near full flow of milk, we suggest a daily allowance of, say, 4 pounds rye feed, with 5 pounds gluten feed, 12 to 15 pounds hay, and all the stover they will eat.

SILAGE FOR SUMMER DROUTH.

Being an interested reader of the DAIRYMAN and a dairyman myself, in a small way, I would like a little information about ensilage. I have a silo 14×28×27 feet deep, divided in the center, that we have filled three years with corn, with excellent results.

Is there any spring crop that could be profitably used to put in the silo, to tide over the dry weather and shortness of pasture that we nearly always have here in central New Jersey, from the middle of July until the corn is ready to put in? Peas and oats will grow here, but not so good as farther north. We also raise good crops of red clover. The crimson clover has not been a success here.

Locktown, N. J. C. R.

Common red clover makes excellent silage. Or you can put up enough corn silage the year before to last through the winter and carry some over to meet the exigencies of the summer drouth.

A NEW YORK RATION.

Will you please give me a formula for balanced ration (for milking cows) of ensilage, hay, timothy and clover, wheat bran, and linseed or cotton seed meal?

Would it be advisable to feed milk cows corn meal even where one raises it on the farm? W. D. B.

Ricard, N. Y.

The advisability of feeding some corn with other grain will depend somewhat upon its relative market value. For example, we submit the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
12 lbs. mixed hay	10.30	.58	4.75	.19
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. cotton seed meal	1.84	.74	.34	.24
Totals	24.03	2 40	10.91	.79

This gives at least a full supply of protein, and if ground corn costs less than bran, we would take out, say, 2 lbs. of the latter and let 2 lbs. of corn take its place.

A NEW YORK RATION.

Would you kindly formulate a ration of the following. I want to get as large a flow of milk as possible: Wheat bran, $17; rye feed, $14; corn meal, 18; gluten feed, 18; clover mixed hay, $5. M. L.

Wemple, N. Y.

We have no conception as to what this so-called "rye-feed" may be. If it is rye bran and middlings, it is probably cheaper at $14 than wheat bran at $17; but if it is a conglomerate mixture of a little of everything, we would advise letting it alone. We therefore submit a formula, selecting the feeds that are well known and have a fairly uniform and ascertainable quality, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17.16	.96	7.92	.32
4 lbs bran	3.52	.50	1.54	.12
4 lbs gluten feed	3.69	.82	1.94	.12
Totals	24.37	2.28	11.40	.56

We consider this about the least that a cow in fairly good flow of milk should receive, and there are cows that could profitably be fed quite a good deal more. The only way to determine just how much to feed is to watch the results and the way the cow applies what is not required for maintenance. If she takes on superfluous body fat, we may be sure she is receiving more grain than she can profitably use for milk making.

FEEDING HEIFERS—REMOVING WARTS.

We have some 15 heifers that we are feeding on sorghum cane, and they have a straw stack to go to at all times, but they are not doing as well as they ought to. They have not come in heat to breed, and I think that is a sign they are not feeling well. What can I feed them in the way of roughage that would balance their feed some? Would alfalfa hay be sufficient, or would peas and kafir corn be better sowed together?

I have a heifer that has a wart on the shoulder about the size of the end of your thumb, or one-half inch high and an inch across; rough and dark looking. What must I do to take it off? W. H. B.

Concordia, Mo.

At least half of the fodder for these heifers should be alfalfa hay, or something of that kind. Kafir corn and pea hay would be good, but not better. A little grain each day would help to bring these animals into condition.

For removing warts, consult the index and back numbers.

AN ICE-CREAM QUESTION.

Please tell me how to make good ice cream that will stand up. We want to add ice-cream to our trade, but the kind we make melts too quickly. B. J. C.

Willink, N. Y.

This is out of our line. Will some correspondent please answer the above?

PREPARING A HEIFER FOR HER FIRST CALF.

I have a three-fourths Jersey heifer, a little over two years old, who will have her first calf about May. What treatment should I give her, and what food is best for her now; also after she has had her calf? Our market affords corn meal, cotton seed meal and wheat bran and chops. For roughage we have shucks, common grass hay and cotton seed hulls, with occasionally some dried field peas in the shell. Kindly make me a ration. I am advised to go through the process of milking her from now on, to stretch her bag so she will give more milk, and to prevent caking, etc. What would you advise? E. H. C.

Albany, Ga.

For the present give this heifer a mixture, equal parts by weight, of ground corn (chops) and bran, and from 2 to 4 pounds per day. Increase the amount in April to about six pounds. Give her in addition, all the hay and "shucks" she cares to eat. Do no milking unless absolutely necessary to reduce inflammation. We want the udder to swell to its utmost,—the more the better, if it does not become hot, feverish and tender, which it is not likely to do. If a few days before she is due to calve the bowels are not in first-class condition, give laxative doses of Epsom salts, but not so much as to operate as a physic. A quarter of a pound will probably suffice, and may be repeated the second or third day if necessary.

After the calf appears, feed very light for three or four days, and entirely of bran for grain, then increase gradually, adding a little corn chop and less cotton seed meal. Watch appetite and other symptoms, and if everything moves on favorably, at the close of the first month, she may be receiving from 4 to 6 pounds of bran, 2 pounds chop and 1 pound, or possibly 2 pounds cotton seed meal daily.

MARKET FOR CONDENSED MILK.

I am thinking of building a condensing factory. Can you tell me where I can dispose of two or three cars of milk a week either plain or sugar condensed? What is the average price of same?

WM. PETERSON.

We should advise you to correspond with some of the wholesale grocers in Chicago. They can furnish you with data that the DAIRYMAN would be unable to give.

Peas and Oats.—A Cow Pea Inquiry.

ED. HOARD'S DAIRYMAN:—I saw L. W. Lighty's article, on page 8, of the Feb. 17th issue. I became greatly interested because it corroborated my ideas in regard to the growing of peas and oats for hay, in so dry and warm a climate as exists in Southwestern Michigan and Pennsylvania. I have followed the DAIRYMAN'S plan of seeding, *i. e.* plowing the peas under 4 inches, and then drilling the oats on the top; still I have not had very good success for the reasons stated by Mr. Lightly—too dry and hot about the time the peas come into bloom, and in case of the smaller Canada field pea, the vines will shrink and seem to almost disappear.

I have been trying to find the analysis of pea hay and oat hay and determine from it if the oat hay would not do without the peas. I ask your help, as I have been unable to find such analysis. I have nothing but a little experimental knowledge to guide me. As far as that goes, which is not far, I have had very good results from the feeding of the oat hay alone, and from close observation of the churnings could not tell any difference when pea and oat hay were fed, or oat hay alone. However, the peas sown with the oats has left the soil in much the better shape. I should continue to sow them, although the seed costs us here from 90 cents to $1.25 per bushel, if Mr. Lighty's article had not appeared.

Now I am anxious to try some cow peas, and I ask Mr. Lighty to be kind enough to name the best two varieties for hay and silage for use in Southwestern Michigan. I have got a 15-acre field that has just been relieved of an old peach orchard, which needs lots of nitrogen, and I believe that the cow pea will help to put it there, and help furnish some cow feed for the dairy also.

Mich. GARDNER AVERY.

Following is the analysis asked for:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Cow pea hay	79.7	9 3	38.4	1 2
Oat hay	84.9	4 3	46.4	1.5

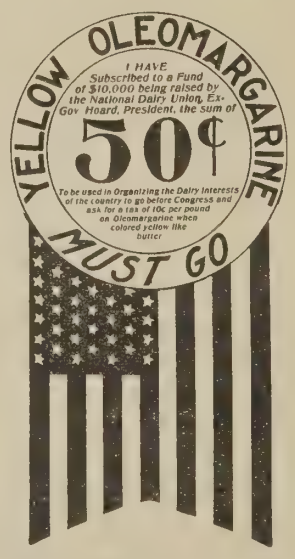
The cow pea hay contains about twice the digestible protein of the oat hay, and is a more valuable feed in consequence.

NATIONAL DAIRY UNION BADGES.

Secretary Knight, of the National Dairy Union, has gotten up a beautiful and suggestive badge for all those who desire to enroll themselves in the ranks of opposition to the oleomargarine fraud. The badges range in price from $10 to $5, $1 and 50 cents.

Below, we give an illustration of the design of two of the series. It will be seen that in general outline the badges are alike, the only difference being in the sum named on the face.





The object in selling these badges is to assist in raising a fund for the National Dairy Union of $10,000, which will be used in a

Faith in Hood's

The Great Cures by Hood's Sarsaparilla Are Indeed Marvelous.

"My husband suffered with stomach trouble so bad at times he could not work. He has taken Hood's Sarsaparilla and it is helping him wonderfully. He also had a scrofulous humor but Hood's Sarsaparilla cured this and he has had no trouble with it since. My little boy, too, has been taking Hood's Sarsaparilla and it has given him a good appetite. We have great faith in Hood's Sarsaparilla." MRS. J. H. EDWARDS, 50 Edinburg St., Rochester, New York. Be sure to get Hood's because

Hood's Sarsaparilla

Is the best—in fact the One True Blood Purifier. Sold by all druggists. $1; six for $5.

Hood's Pills are the best after-dinner pills, aid digestion. 25c.

Artichokes! MAMMOTH WHITE FRENCH. A sure preventive of **Hog Cholera.** Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.

SEED DUE BILL FREE

To get new customers to test my seeds I will mail my handsome **catalogue for 1899,** lithographed and beautifully illustrated, and a **10c. Due Bill,** good for 10c. worth of seeds for trial, **absolutely free.** It is full of bargains. All the **Best Seeds, Bulbs, Plants, Roses, new Fruits, Farm Seeds, Potatoes, etc.,** at lowest prices. **Ten Great Novelties** offered without names. I will pay **$50, FOR A NAME** for each. Don't buy your stock until you see this new catalogue. Several varieties shown in colors. Great inducements for orders this year. **You will be surprised** at my bargain offers. Send your address on Postal to-day. Tell your friends to send too. Old customers will receive a copy.
F. B. MILLS, Seedsman, Box 111, Rose Hill, N. Y

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan,
LINDEN LAWN FARMING CO.,
Lock Box 354, Olney, Ill



ECLIPSE Cream Separators

SUPERIORITY over any other make **GUARANTEED;** they are **CLOSEST SKIMMERS** and Built **DOUBLE AS STRONG as any other make;** also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Ag'ts wanted. Catalogue FREE.
C. L. Chapman Separator W'ks, ERIE, PA.

When writing mention HOARD'S DAIRYMAN.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**



THE MILK MAN wants an Aerator, but he wants something more, he wants a cooler as well—aeration improves the flavor, but doesn't add to the keeping qualities of milk—it's the cooling that does that. The CHAMPION Milk Cooler and Aerator does both; it's cheap, too. Get our book "Milk."

CHAMPION MILK COOLER CO.,
67 Main Street, - - CORTLAND, N. Y.

legitimate manner in arousing sentiment in favor of the passage of the law now before Congress to tax colored oleomargarine 10 cents a pound.

Every reader of the DAIRYMAN is truly interested in fencing up the gigantic fraud and swindle, both for the protection of the consumer, as well as the producer of honest butter. Make your choice friends which badge you will have, but don't fail to send to the DAIRYMAN for one or the other, and thus help the cause along.

The National Dairy Union is fighting a foe with millions of capital at its back, but we will win if the dairy farmers of the land will give us their moral, political and financial support. Bidges will be sent postage free on receipt of money.

Some Butter Questions.

ED. HOARD'S DAIRYMAN:—Some little time ago, may be in December or early January, some correspondent—a woman—was talking about certain faults in her neighbors' butter making; she stated that at a tempera ture of some 62° F., or between that and 67° F., it was not possible to get all the butter fat. The man declared that her article was not of value because while she told us that certain results were not satisfactory, the right way and the right temperature for proper churning and proper collection of all the butter fats, were not set forth. Now, if that woman sees this, will she not kindly enlighten us on these points? Let her read her article over and tell us in a positive way how to right these wrong ways, instead of simply telling us they are wrong. We have always thought that along in the sixties was the right temperature for churning, and I notice right in a DAIRYMAN before me, that another writer says, apropos of the same subject, proper temperature for churning, (this latter authority being W. C. Rockwood, Mich., Dec. 9th issue of the DAIRYMAN): "If it (the cream) is below 60 degrees Fahrenheit, the cream should be warmed, for life is too short to spend unnecessary time in doing such monotonous work as turning the crank of a churn. Cream from Jersey cows will come hard at 66 degrees Fahrenheit, and if the cream has been properly ripened, there will be no loss of butter fat in churning at that temperature." Then after saying some other very good and helpful things right to the point, things that every dairyman wants to know, the writer adds as a finale: "The one important feature aside from cleanliness, to be observed in butter making, from first to last, is expressed in the one word, temperature. That tells the whole story from A to Z. It is temperature that decides the question of butter fat extracted from the milk, temperature which ripens the cream properly, temperature which brings the butter within a reasonable length of time and ensures its being in a good condition when it comes; temperature which governs the proper washing of the granules and incorporation of salt, and finally it is temperature which preserves its quality until it is consumed."

That is exactly my idea, but when "doctors disagree" about the temperature what are we to do and how are we to know just what it should be? The first article I mentioned was written in exact contradiction of the theory always held that somewhere in the sixties is the right temperature for churning, and even raising the temperature above that which the thermometer states as correct, in winter time seems to be sometimes almost necessary, and if what Mr. Rockwood says is true, we are safe to do this. "If the cream is ripened properly, there will be no loss of butter fat." Will not someone write us an article just upon this one subject of temperature, tell us just exactly the correct temperature for all the different processes from the time the milk is taken from the cow until the butter is made and finally consumed. Tell us just how to ripen the cream, tell us just how to heat it properly for churning, tell us just how to make the butter gather properly, if it bothers by not gathering and not separating from the buttermilk, tell us how warm to make the brine which we add to the mass to bring about the separation of the butter from the milk. Tell us how strong to make the aforesaid brine, tell us at what temperature butter keeps best and longest intact. There is material for a very good and helpful article on this one subject of temperature. Who will write it? I hope someone who knows absolutely and not one who guesses, someone who will state as an absolute fact and not as a mere "think so."

Now another question is this:—and I find it is by the same W. C. Rockwood and in the same article from which I have been quoting, he says: "It is difficult to convince the average butter maker (which of course is the farmer's wife) that once working butter is sufficient. They think because they have always re-worked it that that is the only way to do, yet this second working is not only unnecessary, but it is an actual injury to the quality of the butter, especially in cold weather, when the butter becomes so hard within a short time after removing it from the churn. A good many women complain of weak wrists, and tell how hard it is to 'work over butter,' but you cannot persuade them to give up that second working. They admit that nothing is gained by it except that a little more brine is expelled, yet they persist in doing it, although in getting it in a condition, where the second working is possible, the butter bowl is set so close to the stove that the butter melts on one side while still hard on the other," etc., etc.

I am one who still clings to the idea that butter needs a second working. Now it may be if the butter, the brine and everything is just right when the butter is taken from the churn that it can be manipulated so that it will be just as good as it can be without the second working. I was surprised in reading an article in one of our papers of the Northwest, written by an editor who had visited many creameries just for the purpose of finding out what is considered perfect butter, perfect machinery and all the other details of perfect buttermaking. In summing up he was very much surprised at the percentage of water which was considered the proper thing in butter. I shall have to be as indefinite as some others whose indefiniteness I deplore, but the quantity of water that could be worked into the butter, and made to stay there, and still have the butter good seemed to him to be one of the chief requisites of the butter maker. He said some very good and pertinent things which I cannot quote. But will some one who knows tell us what is the correct amount of water or brine which should be lett in the butter? Does the butter buyer prefer butter with plenty of brine or water in it? It certainly would be more profitable to sell butter that way, for water weighs more than butter fat, and every ounce of weight counts in the long run, and when butter is made in quantities, it must count to a considerable degree.

I have seen butter at the stores when it would be taken out of the jars or tubs in which it was packed, just running with water wherever the ladle was entered. It was surprising to see how much, how very much water or brine the butter could hold, and had the weather been colder, it would not have exuded quite so freely. I think that butter was not worked the second time, and if it had been, could it have been injured by that working?

I wonder too if women are so careless in making butter as to put the butter bowl by the fire until "one side is melted and the other hard as a rock", as our correspondent testifies. Maybe some of them are but, well, maybe some of them are not, who knows? I have always rather carried the idea that as far as cleanliness, and details went in butter making, the women butter makers were nearly—yes very nearly—as particular as the men butter makers; maybe I am mistaken, for it is a man who makes the butter here.

Will someone tell us whether it is better to use brine for salting butter, or the dry salt, and if the former, will he or she tell us how much salt to how much water, and the quality of both to a pound or even to ten pounds of butter? Is the idea, that where brine is used the salt is already dissolved, and the butter can be taken care of without the second working? It has always seemed that the water or brine can be worked out better after the butter stands awhile. I am open to conviction, and I want to learn exactly the right way, but how few, even of those who write to instruct us, are exact in all the little points and details.

Don't think for a minute that I am criticising Mr. Rockwood, if that person is a Mr., and if not a Mrs. or Miss, not at all. I think the article, to which I have referred, fine, and as near exact as we often find them.

Will he not tell us just how to handle butter so that it will not need the second working? For you see women cling close to this old superstition.

Butter can be brought into a shape to be worked without overheating it on one side, that seems as though it would be absolutely disastrous to the entire product. Melted butter is not a desirable thing save as a sauce for fish or certain things, and—to work,—well I don't wonder folks say the second working is an injury instead of a benefit if the *modus operandi* is as described.

Butter is generally very pliable when taken from the churn and it would be easy to injure the grain by much working at that time, I think, and it does seem as though by letting it stand a little, the salt or brine permeates the whole mass better. There is no chance for streakiness when butter is properly worked the second time, there is less water to sell surely, but twenty cents a pound more or less is a good price for water, and although it is a scarce article here we could afford to let it go at that price.

Don't criticise me—unless you want to—I am looking for instruction, and what I have said that does not coincide with professional ideas in butter making, put down to lack of knowledge. ROSE SEELEY MILLER

S D.

Milk Your Cows Clean.

ED. HOARD'S DAIRYMAN:—It is a well known fact that cows not milked clean will tend to dry up in short order. Another important reason for milking clean is to get all of the butter fat, which is contained in a much larger per cent in the last than in the first milk drawn as is shown by the following experiment:

The College dairy has conducted an experiment showing the importance of clean milking. Five cows that were giving a fair quantity of milk were selected, and their milk collected in half-pint bottles, each teat contributing its share to every bottle. These samples were tested with the Babcock test, with the following results:

Cow No. 6 varied from .6 of 1 per cent to 7.2 per cent. Cow No. 10 varied from .2 of 1 per cent to 6.6 per cent. Cow No. 14 varied from 1.6 per cent to 5 8 per cent. Cow No. 15 varied from 1.5 per cent to 6 8 per cent. Cow No. 20 varied from .8 of 1 per cent to 7.8 per cent.

The results show a gradual, although not entirely uniform, increase in the per cent of fat from the beginning to the last of the milking, except with the last two samples drawn from each cow. Here the per cent of fat would take a sudden leap, amounting often to a third or a half of the total variation. This shows very clearly how important it is to get all the milk. By averaging the results it was found that the last quarter of a pint was worth from three-fourths to one and a half pints of milk first drawn from the udder.

Moral: Milk clean and get fat.

Kansas Exp. Station. D. H. OTIS.

IS THIS YOUR STORY?

"Every morning I have a bad taste in my mouth; my tongue is coated; my head aches and I often feel dizzy. I have no appetite for breakfast and what food I eat distresses me. I have a heavy feeling in my stomach. I am getting so weak that sometimes I tremble and my nerves are all unstrung. I am getting pale and thin. I am as tired in the morning as at night."

What does your doctor say?

"You are suffering from impure blood."

What is his remedy?

Ayer's Sarsaparilla

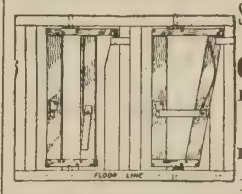
You must not have constipated bowels if you expect the Sarsaparilla to do its best work. But Ayer's Pills cure constipation.

We have a book on Paleness and Weakness which you may have for the asking.

Write to our Doctors.

Perhaps you would like to consult eminent physicians about your condition. Write us freely all the particulars in your case. You will receive a prompt reply

Address, DR. J. C. AYER, Lowell, Mass.

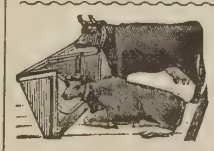


Scott's Perfect Swinging And Self Closing **Cow Stanchion**

Each cow shuts herself in place.

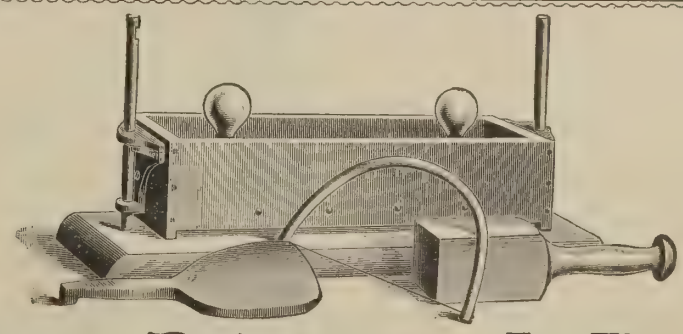
CIRCULARS FREE.

B. C. SCOTT, 83 Beach Street, Bridgeport, Conn.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO. Batavia, Ill. Catalogue Free



Butter Printers For The FARM DAIRY

ADJUSTABLE TO EXACT WEIGHTS.

Made in All Sizes, From 5 to 50-lb.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for Hand and Power De Laval Alpha Separators.

Some of the Many Advantages of the Dairy Cow.

ED HOARD'S DAIRYMAN:—Having worked myself out of the woods and out of a swamp with a few cows, I know they will pay, and as the dual-purpose men and beef men say dairying does not pay with their stock, let us see why the dairy cow does pay.

First, in the assurance that her calves will make good cows, (and this will appear in its due prominence when we estimate the loss in raising a poor cow) while from other stock it is at least doubtful. I referred in my last to getting heifers in dairy form of good quality from a good sire, but how much better from dam of same qualities. A poor man must do his best with what he has.

A much greater advantage is found in the quantity and quality of the milk. The dairy cow may be expected to give a fair quantity of from four to five per cent milk instead of three to four per cent milk, and to give it nearly the year around, instead of from six to eight months. The Babcock test alone, shows the quality of each cow's milk. Few persons seem to know that the cow determines the quality of the milk, hence the discontent among creamery patrons.

To give satisfaction to the general-purpose men the proprietor needs two kinds of testers. Again, few properly estimate the value of constant returns. The cow gives milk twice a day, and a little difference in value each time counts during the yearly yield of the real dairy cow. But we are met with the objection that the little old cow does not make much beef, but as she has paid for herself each year for ten or twelve years we dispose of her the best we can and are satisfied, and the calves get very fat on plenty of good milk and the men are so glad to get them that we have just sold one at three months old that weighed 140 lbs.

And now Mr. Editor allow me to say that I am satisfied that if there were many more readers of the DAIRYMAN there would be fewer complainers, and many more real dairy cows and many more happy, prosperous dairymen. I told a man yesterday that if he would take your paper and read it and was dissatisfied I would pay the dollar for him, so well am I assured that he would see the worth of it. In the future I may say how we feed and take care of the cows as we ship cream on train to creamery.

Carroll Co., Ohio. N. E. KIMBALL.

Manure—Corn—Swine Raising—Feeding Calves.

ED. HOARD'S DAIRYMAN:—All good things come to an end. My vacation is one of the good things and came to an end on March 1st. We are now looking after the comfort of sixty Jersey cows and heifers.

While we were taking our vacation we were not altogether idle, our far m foreman Nathan, was busy drawing manure from our town and with the aid of a No. 3, Kemp manure spreader, has given a field of young clover a fine dressing. He used two wagons and one team. In this way he took out four large loads daily. The wagon boxes were 14 feet long and 3 feet high. Our herd and poultry managers att ended school and looked after the comforts of some Jersey heifers we brought from Tennessee last fall; while your scribe attended two state dairy conventions, a farmers' institute and *writ* a book which we have named The Dairyman's Hand Book.

Now I will say to the readers of the DAIRYMAN that our book has the merit of only containing what we know, therefore is necessarily very scarce of pages. We did think of writing of what we did not know but on consulting our printers we found that to issue such a book would necessitate waiting for warm weather so that the work could be handled out-of doors where room was no object. If any one wishes this valuable work to add to their collection the price will be a stamp to cover packing and mailing (no charges for drayage).

Thanks for the information I have received regarding gasoline engines through the DAIRYMAN. We have given up the idea of making one engine do the work of our farm. We will put in an engine and boiler in creamery room and use a gasoline engine at barn. We will be pleased to hear from any one who has a four-horse engine and six-horse boiler in good condition, that they wish to dispose of for any cause, or any size near this will be considered.

Our county held its Annual Farmers' Institute last week and we had a very profitable meeting. Several papers of value were read. The paper on corn culture was of especial merit and was written by P. R. Sperry of Eleanor, Ill. Mr. Sperry has won many premiums on his corn at county and at state fairs; it is one of his specialties.

To illustrate his talk he had two ears of corn that measured practically alike and looked alike. On putting them on the scales one weighed 1 lb, 2 oz. and the other 1 lb. The difference was in depth of grains, one was 5/8 in. long and the other 1/2 in. long.

He recommended fall plowing and old clover sod as best for large yield. Has a special check row chain with dropper knots thirty inches apart in rows and rows 3'6" wide. Plants corn not over two inches deep.

Recommends four plowings or cultivatings; cautions farmers not to plant corn of 1898 raising in northern Illinois. Says it will not make a stand (tested new corn and corn raised in 1897; result, no germination in 1898 crop while 1897 crop all grew).

Buff Jersey spoke of the special-purpose dairy cow and was promptly called down.

The paper on swine raising by Geo. T. Pierce, of Monmouth, was an able paper. It treated on foods and care. He emphasized feeding the brood sow for growth and milk production; cautioned the farmer against feeding too much corn; told how to make a brooder for young pigs in cold weather. He uses a barrel, in it he puts a large jug of hot water and packs straw around it nearly or quite covering it up, then puts pigs in barrel and covers it up with a loose blanket.

A paper on steer feeding by R. G. Ranny of Little York just hit the masses of farmers. They could sit and listen to feeding 35c corn to steers and hogs regardless of what these finished animals would bring in market, and by their silence give approval. I would very much like to have some one give me the figures showing what profit there is in a steer put in feed lot that cost $25 when a yearling and weighed 650 or 750 lbs., and what profit is there in a $3.50 per cwt. hog fed on corn at above price.

BUFF JERSEY.

Macbeth lamp-chimneys save nine-tenths of the cost and all the trouble.

Go by the Index.

Write Macbeth Pittsburgh Pa

Farmers' Knives Free! To Buyers of our Garden Seeds. A test of our Northern Grown Seeds will at once convince you there are no better grown and we therefore make the following unheard of offer to the readers of this paper.

37 Packets fresh garden seeds and knife No. 7sb, all for 77cts. postpaid or 37 packages fresh garden seeds and knife No 77sb, all for 97 cts postpaid. Cut out this advertisement and send us 77cts. if you want knife No. 7sb, or 97cts. if you want knife No. 77sb, and the following grand collection of THE BEST VEGETABLE SEEDS, (retail price is over $1.75) and we will send the entire 37 packets and the knife FREE, all postpaid.

No. 7 SB. 1 pkg. Gem Peas, 1 pkg. Eclipse Blood Turnip Beet, 1 pkg, Dwarf Wax Beans, 2 pkgs, Early June Peas, 1 pkg String Beans, 1 pkg. Yellow Danvers flat Onion, 1 pkg. Kobbs Gem Watermelon, 1 pkg. Ox Heart Carrots, 1 pkg. Large Early York Cabbage, 1 pkg. Marble Mammoth Drumhead Cabbage, 1 pkg. Long Green Cucumber, 1 pkg. Danvers half long Carrots; 1 pkg. Green Citron Muskmelon, 1 No. 77SB. pkg. Perfection Tomato, 1 pkg. Trophy Tomato, 1 pkg. Rutabaga, 1 pkg. Big Boston Lettuce, 2 pkgs Purple Top Turnip, 1 pkg. Hollow Crown Parsnips, 1 pkg. long Scarlet Radish, 1 pks. Double Curled Parsley, 1 pkg, Celery, 1 pkg. Thyme, 1 pkg. French Breakfast Radish, 1 pkg. Summer Crookneck Squash, 1 pkg. Curled Simpson Lettuce, 1 pkg Eearly flat Dutch Turnip, 1 pkg. Scarlet Turnip Radish, 1 pkg. Denver Market Lettuce, 1 pkg. Early Russian Cucumbers, 1 pkg. Cutham King Cabbage, 1 pkg. Sweet Pumpkin, 2 pkg Early Minnesota Corn, 1 pkg Red Globe Onion



KNIFE FREE.

At 77 cents the No. 7sb, 4-blade Congress buck horn handle, best steel warranted knife will be sent FREE.

The No. 77sb, knife is just what every farmer should have. Extra weight, finely polished ends, three heavy steel blades, including hoof blade. We give it FREE to every person ordering the above collection at 97cts. through this advertisement, or we will furnish the 37 fresh packets of garden seeds to anyone postpaid for 77cts—no better seeds grown or sold at any price. This collectioncannot be broken or any variation made.

T. M. Roberts' Supply House, Minneapolis, Minn.

Please mention Hoard's Dairyman when writing.

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition,—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

A STRING OF VICTORIES.

Probably the most remarkable string of victories ever won by any butter color have recently been awarded to

Thatcher's Orange Butter Color.

At the last three conventions heard from it led all competitors. At the New York State Dairy Association meeting, held January 25-26, 1899, at Gouverneur, New York, Mr. L. L. Dewey, of Lawrenceville, won first, and he used only **THATCHER'S ORANGE BUTTER COLOR.** The most highly skilled butter makers a'ways use it because they know it is pure an l heal hful.

Send for a sample and for circulars.

THATCHER MANUFACTUR NG CO, - Potsdam, N. Y.

SEND NO MONEY

WITH YOUR ORDER, cut this ad. out and send to us, and we will send you **OUR HIGH GRADE DROP CABINET BURDICK SEWING MACHINE** by freight C. O. D. subject to examination. You can examine it at your nearest freight depot and if found perfectly satisfactory, exactly as represented, equal to machines others sell as high as $60.00, and THE GREATEST BARGAIN YOU EVER HEARD OF, pay your freight agent **Our Special Offer Price $15.50** and freight charges. The machine weighs 120 pounds and the freight will average 75 cents for each 500 miles. **GIVE IT THREE MONTHS' TRIAL** in your own home, and we will return your $15.50 any day you are not satisfied. We sell different makes and grades of Sewing Machines at $8.50, $10.00, $11.00, $12.00 and up, all fully described in Our Free Sewing Machine Catalogue, but $15.50 for this **DROP DESK CABINET BURDICK** is the greatest value ever offered by any house.



This illustration shows the machine open, ready for use.

BEWARE OF IMITATIONS by unknown concerns who copy our advertisments, offering unknown machines under various names, with various inducements. Write some friend in Chicago and learn who are RELIABLE AND WHO ARE NOT.

THE BURDICK has every MODERN IMPROVEMENT, EVERY GOOD POINT OF EVERY HIGH GRADE MACHINE MADE, WITH THE DEFECTS OF NONE. MADE BY THE BEST MAKER IN AMERICA, FROM THE BEST MATERIAL



This shows the machine closed to be used as a center table, stand or desk.

MONEY CAN BUY. SOLID QUARTER SAWED OAK DROP DESK CABINET, PIANO POLISHED, one illustration shows machine closed, (head dropping from sight) to be used as a center table, stand or desk, the other open with full length table and head in place for sewing, 4 fancy drawers, latest 1899 skeleton frame, carved, paneled, embossed and decorated cabinet finish, finest nickel drawer pulls, rests on 4 casters, ball bearing adjustable treadle, genuine Smyth iron stand. Finest large High Arm head, positive four motion feed, self threading vibrating shuttle, automatic bobbin winder, adjustable bearings, patent tension liberator, improved loose wheel, adjustable presser foot, improved shuttle carrier, patent needle bar, patent dress guard, head is handsomely decorated and ornamented and beautifully **NICKEL TRIMMED. GUARANTEED** the lightest running, most durable and nearest noiseless machine made. Every known attachment is furnished and our Free Instruction Book tells just how anyone can run it and do either plain or any kind of fancy work. **A 20-YEARS' BINDING GUARANTEE** is sent with every machine. **IT COSTS YOU NOTHING** to see and examine this machine, compare it with those your storekeeper sells at $40.00 to $60.00, and then if convinced you are saving $25.00 to $40.00, pay your freight agent the $15.50, WE TO RETURN YOUR $15.50 if at any time within three months you say you are not satisfied. ORDER TO DAY. DON'T DELAY. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)

Address, **SEARS, ROEBUCK & CO. (Inc.) Chicago, Ill.**

WE ARE MANUFACTURERS OF HIGH GRADE DAIRY GOODS.

They are the strongest, the neatest and the most serviceable made in the United States. They are cheaper in the long run than the kind usually offered the people who only look at the price. When buying of your dealer see that they are of our manufacture.

CREAMERY SUPPLIES

We are making **VATS** colored, so as to show the natural grain of the wood. They are far handsomer and stronger than the old style. Give the creamery an air of neatness. We are agents for the

RENOWNED SHARPLES TUBULAR SEPARATORS.

If you intend building a new dairy house or creamery we will *furnish you plans free of cost.* We have a warehouse full of **Churns, Butter Boxes, Elgin Butter Tubs, Elgin Babcock Tests, Tread Powers, Engines and Boilers.** Send for illustrated catalogue and price lists or call at our factory.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

Heel Plate

For Walking or Riding Plows. Makes share last longer, makes it self-sharpening and prevents plow from swinging either way. It will make plow run same in light and heavy soils, or with 2 or 3 horses. It is a wonder worker. If you use a plow at all it will be worth $5 to you to investigate this simple device. It weighs 8 oz. and a postal will bring you full description and a beautiful catalog (with hand made half-tone pictures) of up-to-date implements. **MORRISON MFG. CO., Ft. Madison, Iowa.**

— ONLY TO —

Wisconsin and Minnesota Farmers.

We ship **Fine Fresh Ground MICHIGAN LAND PLASTER** by the carload of fifteen tons and upwards, loaded at our Mills at Grand Rapids, Mich., at the special low price of

ONE DOLLAR PER TON.

Farmers may combine and order together. Fifteen tons the least that can be shipped. Special Freight by Car Ferry to Milwaukee of 5 cents per 100 lbs. Cash must accompany order.

MICHIGAN & OHIO PLASTER CO.,

401 Pythian Temple. Grand Rapids, Michigan.

WHAT HOARD'S DAIRYMAN TAUGHT HIM.

Mr. George V. Saffarroius, owner of the "Marion Farm", at Palmyra, Mo., writes:

"At another time I will add my testimony as to how HOARD'S DAIRYMAN showed me the way to make cows pay.

I am a "firm believer in the "Wisconsin heresy". I bought a two-year-old heifer, last fall, at the St. Louis Fair, on form alone for $75. She was put in the milk and butter test and won it. I sold her to Dr. Still, of this state, for $300, and she made 24 pounds 3½ ounces butter in seven days.

I do not write this necessarily for publication, but to encourage you in the good work. My greatest benefit derived from the paper has been from the balanced rations.

The heifer above mentioned is Rysi St. Helier."

Ripening Cream.

ED. HOARD'S DAIRYMAN:—I would say in reply to inquiry on above subject, in DAIRYMAN for February 3rd, that we churn twice a week, about fifty pounds at a time. After the cream is removed with separator, it is cooled down to about 45° F., then put in a large can and kept in a moderately cool place. As each addition of cream is made, all is thoroughly stirred in the can.

The day before churning, the cream is heated to 80° F , by placing can in a vessel of hot water, and stirring until the desired point is reached; then if the weather is very cold it remains near a fire until the next morning, when it is churned. Churn when slightly acid at about 60° F., and only a short time is required for the purpose.

Have no trouble with the cream, churning, or the butter, when following this method. The milk is from Jersey cows, mostly fresh, and the butter brings best market prices.

Franklin Co., Vt. E. R. TOWLE.

A War Against Milk Preservatives.

A vigorous war is being prosecuted in Kansas City against what is called "embalmed milk" which is simply doing by milk what General Miles charged the meat contractors had done by meat used by the army.

Speaking of the use of formaldehyde, City Physician Coffin said: "It is a deadly poison and placed in the hands of an ignorant milk dealer or dairyman is a constant menace to life. The directions on the packages sold are supposed to tell him how much to use, but what is to prevent one of these men from carelessness, indifference or possibly, when under the influence of liquor, doubling that amonnt and poisoning a score or more of his customers. Formaldehyde is very useful for some purposes, and one of those purposes is to make the pickle in which dead bodies are kept at medical colleges. No punishment is too severe for the man who puts it into an article of food or drink.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, aggregated 7,020 pounds. Bidding opened at 20 cents, and all sales made were at that figure. On call 3,000 pounds were sold and 1,920 pounds on the floor at the same price. The Quotation Committee announced the market firm at 20 cents. The sales reported were:

Factory.	*Pounds.*	*Price.*
Big Foot	3,000	20 cts.
Shattock's Grove	1,920	20 cts.
Total	4,920	

The sales for the corresponding week of the three preceding years were as follows:

March 7, '98, 6,480 lbs. of butter sold at 19¼ cts.
March 8, '97, 24,420 lbs. of butter sold at 18 cts.
March 9, '96, 36,420 lbs. of butter sold at 21 cts.

The New York market was reported steady at 20 cents. H. C. B

Elgin, Ill., March 9, '99.

DAIRY MARKETS.

ELGIN, Ill., March 6—Butter—Firm, at 20c; offerings 117 tubs; sales, 82 tubs.

CHICAGO, Ill., March 6—Butter—Creamery, extra, 19@19½c; firsts, creamery, 17@18c; seconds, 14@15c; dairies, selections, 17c; No. 1, 15@16c; No. 2, 15c; extra ladles, 14c.

Cheese—Full cream, Twins, good to choice, 10@10¼c; Cheddars, 9¾@10¼c; Young America, 10@10½c; Swiss, 10@12c; Limburger, 8@10¼c; Brick, 8½@10½c.

Eggs—At mark, cases included, sold at 18@20c per dozen.

Cattle—The beef cattle market was generally 10c higher. The quality was poor and the demand quite good. The best cattle were not fancy. Beeves sold at 3.80@5.90, largely at 4 65@5.35. About 1,200 Texas cattle sold at 3.75@4 50. The market for native butcher stock was active and strong. Stockers and feeders ruled about steady. Estimated receipts for Tuesday, about 3,000 cattle 30,000 hogs and 15,000 sheep

Bran—Quotable at 12.50@13 per ton.

MILWAUKEE, Wis., March 6—Butter—Creamery, fancy prints, per pound, 19½@20c; extras, 19@19½c; firsts, 18@18½c; seconds, 16@16½c; imitations, 15@16c. Dairy, selections, per pound, 15@16c; lines, 13@15c. Roll, fair to choice fresh, 11@13c. Market lower under fair offerings and a quiet trade.

Cheese—American full cream, October Twins, 10½@11c; Brick, October choice, 10@10½c: winter made, per pound, 9@9½c; Limburger, fall choice, per pound, 9½@10c; winter made, 9c; Swiss, drum, choice, 12½@13c; block, choice, 10 @10½c, Market unchanged and fall goods in fair request, while winter goods are more or less neglected.

Eggs—Fresh, per dozen, 17@17½c. Market steadier, owing to the colder weather and smaller receipts

NEW YORK, March 6—Butter—Active; best western creamery, 20@20½c.

Cheese—Very firm; state, full cream, large white and colored fancy 11½c; small, 12@12¼c.

Eggs—In good demand and receipts small; prices lower, however, at 23½@24c for southwestern.

BALTIMORE, Md., March 6—Butter—Market quiet; creamery separator, extra, 22@23c; creamery separator, extra first, 20@21c; creamery first, 19@20c; ladle, extra, 16@17c; western store-packed 13@14c.

Eggs—Market easy; strictly fresh stock, 23@24c

PHILADELPHIA, Pa., March 6—Butter—Solid-packed; separator creamery, extra, 20c; firsts, 19c; seconds, 18c; imitation creamery, extras, 17c; firsts, 16c; seconds, 14c; ladle packed extras, 15c; firsts, 14c; seconds, 13c; print butter, creamery, extra, 21c; firsts, 20c; seconds, 18c

Eggs—Pennsylvania and near by, 20c; western, 20c; south-western, 20c; southern, 19c.

KANSAS CITY, Mo., Mar. 6—Butter—Unchanged; country active; creamery 14@19c; dairy 15c.

Eggs—Declined 1c: receipts increased; fresh candled Kansas stock, 14½c.

BOSTON, Mass., Mar. 6—Butter—Creamery, extra 21½@22c; western extra 21@21½c; dairy, extra, 18@19c; imitation creamery, 15@16c; western ladle 14c; print creamery, 22@22½c; box creamery, 22@22½c.

Eggs—Fancy near by, 30@32c; choice fresh, 28c; Michigan, extra, 28c; western, 26@27c; fair to good 25@26c.

ST. LOUIS, Mo., Mar. 6—Butter—Firm; creamery 19@23c; dairy, 14@17c.

Eggs—Higher, 17½c.

DETROIT, Mich., Mar. 6—Butter—Elgin extras slow, 22c; fancy dairy, 16c.

Eggs—Easy, 17c.

Cheese—11½c.

NEWARK, N. J., Mar. 6—Butter Market steady; 20c for best Elgins with fair receipts.

NEW ORLEANS, La., Mar. 6—Butter—Market steady, fair demand, 22c.

PITTSBURG, Pa., Mar. 6—Butter—Steady. Creamery 20@22c; choice country roll 17@18c

Cheese—New York full cream 11½@12c; Ohios 11@11½c.

Eggs—Fresh, 24@25c; buyers buying very sparing y..

WASHINGTON, D C., Mar. 6—Butter—Market weak. Extra 20½c, firsts 20c.

BUFFALO, N. Y., Mar. 6—Butter—Extras 20c, firsts 19c; best imitations 16c. Large accumulation of extras in receiver's hands.

Eggs—20c.

NEW YORK MARKET.

NEW YORK, March 4th, 1899.—Butter—Receipts for the week, 31,754 packages; exports for the week, 4,407 packages.

Market dropped to 21c early in the week, trade was steady and receipts well cleared until Friday when there was an accumulation of stock and offerings at 20½c without attracting buyers; at the close 20c is the extreme price for extras, and the trade is looking for better demand and steady prices for the balance of the week.

Exporters bought only fresh goods, and we note sales for this account of fresh imitations at 15@17c; and lines of fresh ladles at 13@15c.

Old butter is only inquired for in a small way, with sales finest June creamery at 16@17c, and good lots at 15c. Odds and ends of N. Y. state dairy is selling at 13@15c. We quote:

Creameries, extra, 20c; medium, 18@19c; poor, 15@17c. Dairies, extra, 18½@19c; medium, 15@17c; poor, 13@14c.

Cheese—Receipts for the week, 8,719 boxes; exports for the week, 4,230 boxes.

Trade from all over were in the market for few cheese this week, and the result was an active market at steadily advancing prices, culminating to day, Saturday, at 11½c for finest large cheese and 12@12½c for best small sizes. White cheese had the call and sold at ¼c premium over colored and are in light stock, few hands, and firmly held at quotations. Holders are not anxious to sell any considerable lines of cheese at present prices and are dealing out their stock in small parcels feeling that higher prices will be reached before new make comes on the market. We Quote:

Full cream, large, extra, 11¼@11½; medium, 10@10¾; poor, 8@9; small, extra 12@12½; medium, 11@11½; poor, 8@10.

Eggs—Receipts for the week, 15,777 cases.

Market left off week ago at 35c, then took a big tumble early in the week to 23½c and again suddenly advanced to 30c, then went back to 27c, and closes up with stock all cleaned up and prices firm at 28c. We quote: Fresh eggs from all sections, 27@28c per dozen.

DAVID W. LEWIS & CO.
177 & 179 Chambers St.

FOREIGN MARKETS.

BOSTON, March 4—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as dull and lower The expected diminished arrivals from Australia do not materialize; they are continuing quite liberal. There has been quite a pressure to sell and prices have given way 2@3s on the week. Finest Australian is to be had at 21c with very good offering at 20@20½c. Canadian brings about the same money as Australian, when in boxes. American butter has been a dragging sale, the weather is against business and as none of the American butter is strictly fine it meets with a very slow sale at very irregular prices. Creameries have sold all the way from 17@19½c, finest imitations selling the best of any American, prices ranging from 16 @18c. Ladles have become a dragging sale at anything over 14@14½c, occasionally 15c is made, but it is for the very best description.

Cheese markets are a bit firmer in sympathy with the improved conditions in America and Canada, but there is no speculative buying at the moment. Finest Septembers are to be had at 10½ @11c; the demand for under grade continues good. Anything from 10c downwards in active request and small supply.

LIVERPOOL, Mar. 6—Butter—Finest United States, 94s; good 65s,

Cheese—American finest white and colored, 49s.

HIGHEST PRIZE HONORS

— FOR —

Cream Separators.

The DeLaval Cream Separators have received nearly Two Thousand Prizes, Medals, Awards and Diplomas, during the twenty years they have been before the public. Five Hundred of these awards have been Prizes and Medals from Fairs and Exhibitions of marked importance The collection is representative of every World's Fair and International Exposition during such period, every state and almost every county of the United States, and every civilized country and province in the world.

At the World's Fair, Chicago, in 1893, the DeLaval Cream Separators were solely selected by the Official Committee of Experts and Experiment Station Representatives for use in the practical Working Dairy of the Great Fair, where their work received the highest possible commendation. And in the Exhibition Department they received except onal honors in being awarded the only Medal and Diploma regularly given to centrifugal creaming apparatus.

In the later World's Exposi ions, at Antwerp in 1894 and Brussels in 1897, the DeLaval machines well sustained their previous Fair and Exhibition record and further demonstrated their overwhelming international superiority. They received the Grand Prizes at each of such expositions.

The only important Exposition competitive exhibits of cream separators during 1898 were at Munich, Bavaria; Luxembourg, Germany, and Vienna, Austria. In each instance the Highest Award went to the "Alpha" DeLaval machines.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Registered Guernsey bull one year old. Large of his age, and a splendid animal. He is worthy of a place at the head of a registered herd. From a tested cow. C. R. BRIDGMAN, Darlington, Wis.

Thoroughbred—Ayrshire Calves for sale. Address J. M. HARRAN, Malone, N. Y.

For Sale—Several De Laval farm separators, or will exchange for cows or calves. Address P. M , Four Corners, Iowa.

For Sale or Exchange—Guernsey Bull Honorius 3361, Dropped March 9th 1893. Also his son dropped March 18th, 1898. Solid light red color. Write for prices, etc. WM. H. SWARTZ, Box 119, Waukesha, Wis. 4-2

For Sale—A first-class creamery 25 miles from Sioux City. Write for particulars and terms. DEWITT GOODRICH, Climbing Hill, Ia. 3-3

Public Sale—Of Stock and Farm implements, on Wednesday, March 22, 1899, on Bloomfield Cottage Farm, on Marlton Pike, 3 miles from Camden, consisting of the following: 22 thoroughbred Jersey heifers, age 6 weeks to 19 months old, entitled to registry in the A. J. C. C.; 2 fine bull calves; 7 graded heifers 2 years old, Jersey and Guernsey, sired by Guernsey bull Traveller's Boss 2887. These heifers are all with calf and will be in profit soon; also 4 horses, wagons, carriages, harness and grain. Sale 1 oclock sharp. No postponement on account of the weather. 5 months' credit given. SILAS BETTS, Camden, N. J.

For Sale—The finest 160 acre farm in Cottonwood county, Minn., 25 miles from the Iowa State line: 2-story house, 24x30, with 1-story addition 12x14, granary 24x24, barn 24x48 and 24x40. All in good condition, and situated in fine grove; large and small fruits on place; rich soil and no waste. Must sell, and here is a bargain for you. Prices low and terms easy. Call on or write at once to THOS. E. SIME, Windom, Minn.

For Sale—A first-class cheese factory six miles N. W, of Appleton. Good location and everything in first-class shape. For particulars address. NICK HUSS, Appleton, Wis. 4-3

Cheese Maker Wanted—Address S., care HOARD'S DAIRYMAN, Ft. Atkinson, Wis.

For Sale Cheap—Farm of 120 acres. One mile from P. O., creamery, and depot. Good and new buildings. Everything O. K. A bargain on easy terms. Address F. R. CONSTANCE, Waupaca, Wis. 4-2

Wanted—A good working dairyman to take charge of 100 head of milch cows. Applicant must be thoroughly competent and not afraid of hard work. Address BONNE TERRE FARMING & CATLLE CO., Bonne Terre, Mo. 3-2

Wanted—Position as butter maker, in North ern Iowa. Best of references furnished. Am capable of running any machine, Can do my own plumbing Wages reasonable. Address RICHARD KAUNZNER Fairfield, Rock Co., Wis. 3-2

A Bargain—Full blood Jersey cows not registered, 2 and 3 years old, 8 head. Excellent breeding. H. M. EBBOTT,, Fort Atkinson, Wis. 3-tf

For Sale, Cheap—Dairy farm 116 acres near fine college. 2 houses, 3 barns, 3 silos. F. M. SWIFT, Olivet, Mich. 3-2

Position Wanted by a first-class and temperate butter-maker. Address L., care Hoard's Dairyman. 3-2

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

For Sale—One first-class creamery and skimming station, DOWNING MFG. CO., Downing, Wis. 35-tf

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—To trade a 43-acre farm, good six room cottage, and barn. Land rolling, and nearly surrounded by oil wells, producing from 10 to 400 bbls. per day, ½ to 3 miles away. Situated 10 miles from Parkersburg, 4 miles from railroad. Will be sold for high grade or full-blood Jerseys or $1,500.00 cash. This is cheap outside of the prospect for oil. Don't write unless you have first-class individuals. Also will sell or trade 416 acres of fine coal land in Kanawha county, 6 miles south of Charleston, Davis' Creek. R. R. runs through property. 95% of land underlaid with three seams of coal, one seam, 40 in., is free from any slate and with a bare trace of sulphur. There is no finer bituminous coal in West Va. Will take $5,000,00 worth of full-blood Jerseys and $5,000.00 in notes of one, two and three years. Titles guaranteed, J. F. WOODYARD, Parkersburg, West Virginia. 2-4

Lands in Wisconsin Cheap—The Chicago, St. Paul, Minneapolis & Omaha Railway Company has upwards of 400,000 acres for sale in northwestern part of the state at low prices and on long time. These lands are most desirable because of their proximity to the markets of Minneapolis, St. Paul, Ashland, Eau Claire, Duluth and Superior. If you wish to visit these lands homeseekers cheap excursion tickets can be secured at C. & N. W. ticket offices in Chicago, Milwaukee, Janesville, Beloit, Elgin, Aurora, St. Charles and Dixon March 7th and 21st. Maps and information furnished on application to G. W. BELL, Land Commissioner, Hudson, Wis. 2-4

Home Seekers' Cheap Excursion—The North-Western Line will sell home seeker's excursion tickets February 21, March 7 and 21, with favorable time limits, to numerous points in the West and South at exceptionally low rates. For tickets and full information apply to agents Chicago & North-Western R'y. 32-3

The Dual-Purpose Cow in Montana.

Average 175 Pounds Butter—Value of Calf Not Given—Ration Formula—Bloat Prevented.

ED. HOARD'S DAIRYMAN:—I come as penitent as may others have, for information.

I have been dairying for 15 years, with a dual purpose cow. My reason for it was to keep the standard of my herd up. When you are dairying and stock raising both, it is hard to keep the dairy stock out of the herd, so I chose the dual-purpose cow for that reason, not from choice, for I see, from reading your paper, that the special-purpose cow makes twice as much butter as mine. I get an average of 175 pounds to the cow. Milk mostly in summer; have had trouble in getting cows to come in in the fall. I have followed the advice of your paper in that respect too.

We have a good range here. I do not count anything for pasture; I have 70 acres of alfalfa, cut about 4 tons per acre; have raised it for 10 years; find it much better than wild hay for milk. Am milking 30 cows, taking your advice in regard to winter dairying; have a No. 2 DeLaval separator. We have raised the standard of our butter 25 per cent by the hints in your paper.

Please formulate me a ration from the following feeds: Alfalfa hay, second cutting, good, $7 per ton; chopped oats $22; chopped barley $18 per ton; bran $18 per ton; oat straw $1 per ton. Oil meal would have to ship from there, would cost about $3 per hundred.

I see a great deal in your paper about bloat; have lost a good many cattle with it. Three years ago I noticed those cattle that I turned on off of the range did not get it, so I have made it a point since to get them filled up on other grass and turn them on, and keep them on continuously, and have not lost a hoof since. Being wet does not make any difference; neither does frost. Their being hungry and their stomachs being empty is what does it. It generally is a very rank growth, and they hog it down, and it forms a gas that does the work.

Montana. A SUBSCRIBER.

Our friend has some extra good dual-purpose cows, and is giving them extra good *dairy* care and feed, but they do not pay him as well as good dairy cows would. If he is satisfied, or others similarly situated and doing as he does, are satisfied and prefer to keep on, it is not for us to object.

We suggest that he try a formula somewhat as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. alfalfa hay	10.99	1.32	4.75	.14
8 lbs. oat straw	7.26	.10	3.08	.06
5 lbs. bran	4.40	.63	1.93	.15
5 lbs oats	4.45	.46	2.37	.21
Totals	27.10	2.51	12.13	.56

If more straw or hay will be eaten, it should be fed.

Scientific Dairy Farming.

Old and New Methods.

ED. HOARD'S DAIRYMAN:—I meet many farmers who ridicule the term "scientific farming;" they say that the methods taught by the agricultural papers and farm institutes are adapted to only fancy farming by people who have plenty of capital, and that the average farmer with only a small capital cannot make a living if he should practice them. Recently, after returning from a dairy convention, I met some farmers in the village store, and the conversation turning on the convention, the opinion expressed by most of the farmers was that the teachings of the scientific dairymen were of no use to them, their ideas would not work if put in practice on their farms, and that any of these farm institute speakers could not take their farms and make a living from them.

These farmers referred me to well-to-do farmers that had made all their money by practicing the old way of farming, but it is a significant fact that these farmers admitted that neither they nor the farmers they mentioned, were now making any money. I tried to show them the true meaning of scientific farming, and that there had been an entire change in the methods of production and distribution in the last 25 years, and that farmers must now adapt their plan of farming to the new order of things.

The true meaning of science is knowledge that can be reduced to some order or system. If I have any knowledge of anything gained from experience or observation, if I can verify it, then systemize and classify it, so it can be intelligently expressed to others, then I may call it science. If I have a theory of anything, it is not science. If I, or any one, have theories about farming that we have not worked out until they have have become actual knowledge, the term scientific farming would be a misnomer if used to describe our theories. When I hear farmers sneer at scientific farming, I want them to understand what the words mean, then the use of them would become reputable among them and they will understand each other when talking about "scientific farming."

What many farmers now need is to realize the radical changes that have taken place in all the methods that have to do with the production, distribution and consumption of dairy products, then if there is any scientific teaching that will help him to adjust his methods to meet the changes that have taken place, he should avail himself of them.

Twenty-five years ago, when I was living on my father's old dairy farm, every cow was fresh in milk in the spring, the most of the butter was made during the summer months, and packed in firkins. Every fall we could depend on several butter buyers coming to our home to buy the butter. The cows were dried off in the fall, or early in the winter, and no more butter was made until the next spring. In those days the production of butter was confined to a few Eastern states, and there was a demand in the large cities for all the butter—old butter, too—at good prices. Then came the inflation prices of the war times and a great opportunity was given for farmers to pay for their farms, if they were bought at the right time.

This method of farming was adapted entirely to summer dairying. The only grain fed the cows was a little in the spring, before grass, and this was grown on the farm. The butter was all made at home by the farmer's wife, and the expense of drawing the milk to the creamery, and money paid for making the butter was saved. The breadstuffs and vegetables used by the family were all grown on the farm, taxes were less, less was spent for the comforts or luxuries of life, and the social demands were less, so the economical farmer could save more money than the farmer of the present time.

I do not say that he could make more than the enterprising farmer of to-day, but that the processes of dairying being nearly all conducted on the farm, and being less a consumer of other people's products, he could live and save money on a smaller cash income than he can now. Butter making has been relegated to the factory, and the demand now is for fresh butter, so the farmer must practice winter dairying, to hold his trade with the factory. The butter buyer, instead of going to the farmer, now goes to the factory where he can buy butter in large quantities that is of the highest quality, and uniform in grade. The Western states have become butter making states, and with their cheap grain and transportation facilities, they can under sell the Eastern dairymen in their own markets, and still make larger profits.

The result of a large production of any article, and intense competition, is that the standard of quality is raised. The market demands a better article, and inferior goods are of little value. The fact is, that the dairyman of to-day is *compelled* to produce a better article, and produce it cheaper than at any other time. He must patronize the creamery in order to sell his product, he must pay the creamery for manufacturing it, and he must produce a part in the winter when it costs him more, and there is only one way for him to meet the changed conditions of things, and that is to produce his milk at a less cost.

The old methods of farming that I have described will not do, and the farmer who tries to make them fit with the present order of things, will soon find his mistake. If our agricultural papers, and dairy conventions, and farm institutes can tell us how to make fair margins in these times, we want to hear from them. If we have men who have studied the situation, then have gone to work and made their farms pay good profits, by what has been called "scientific farming", they should have something to tell us. When they tell us that the silo, clover, soiling crops, testing their cows to see which pay a profit, and warm stables with tight gutters that save all the liquids, have helped them to solve the problem of reducing the cost of production, we may rightly call it "scientific farming", and we will do well to make it our study. W. J.

Delaware Co., N. Y.

Form and Function.

Views of a Holstein-Friesian Breeder.

ED. HOARD'S DAIRYMAN:—The discussion carried on between the *Breeder's Gazette* and HOARD'S DAIRYMAN has suggested to my mind some thoughts that I am inclined to transfer to paper, for the reason that "square-endedness" was a term that my father often used when I was a boy, and that the cows possessing the opposite conformation he called "pumpkin-splitters." If the Associate Editor of the DAIRYMAN will let his mind wander back to the days of his boyhood, when his mornings and evenings were spent in the cow yard, and he helped me to drive the cows to and from the pasture, he will well remember that there were no "pumpkin-splitters" in my father's herd, which at that time was giving more milk and producing more cheese per cow than any other herd in Madison Co., N. Y. They were bred from Short-horn bulls of the milking strain, crossed on the best native cows, and some of them having several crosses of Short-horn blood. They had straight lines, clean, blood-like heads and necks, and were well up in "square-endedness."

Perhaps the impression this herd made on my boyish mind, so warped my judgment that I have never since been able to see much virtue in a "pumpkin-splitter," although I will be fair and own that there are some good ones among cows of that conformation. But after experience and observation have taught me that a cow to stand up under the heavy strain of milking and breeding must have two ends to her. It seems to me that it is not necessary that a cow must be cut out like the new moon from her rump to her hock, with a sloped rump, prominent chine, with the crops deficient, with high shoulders, and with angularity all over, to be a good producer. I have seen good ones among them, but I have seen just as good, yes, and better, possessing the straight lines.

There are some doggeral lines, more familiar to a former generation, expressing so many of the good points of an up-to date cow that I hope I may be pardoned if I copy them:

She is long in her face, she is fine in her horn,
She'll quickly get fat without cake or corn;
She's clean in her jaws and full in her chine,
She's deep in her flank and wide in her loin.

She's broad in her ribs, and long in her rump;
A straight and flat back, without ever a hump;
She's wide in her hips and calm in her eyes;
She's fine in her shoulders and thin in her thighs.

She's light in her neck and small in her tail;
She's wide in her breast and good at the pail;
She's fine in her bone and silky of skin;
She's a milkman's without and a butcher's within.

There are angular, ungainly cows in every breed, and some of them are good producers, but do such cows represent the typical dairy animal? I think every dairy breed has a scale of points. I am not very familiar with any of them except the Holstein-Friesian, but I doubt very much if any of them give points for crooked lines or ungainly conformation.

There are some breeders that seem to go wild over some sport or some cow that has made a large record, no matter whether she is a roach-back or a sway-back, whether a "pumpkin-splitter" or a "square-ended" one. If she is only good on paper, that is enough. They don't seem to care about whether she is a typical dairy cow and capable of conferring the characteristics of a dairy

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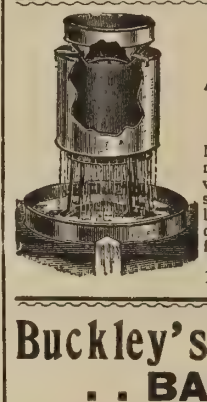
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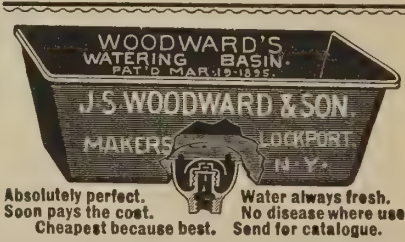
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cow upon her offspring. They forget that there are scales of points of the different breeds, and that it is not only the privilege, but the duty of a breeder to breed as closely as possible to the scale of points of the breed he is handling.

I believe that it is conceded by every good judge of dairy stock, that a loose structure is conducive to milk production; but this does not mean that the dairy cow should be ill shaped, or that she should look as though she was put together hap-hazzard. It only means that the bones in her frame work should be far apart, indicated by the open ribs and joints of the vertebrae, and by the hollows in the shoulders and thigh pits. The breeder who breeds to type, guided by the scale of points, is, in the end, the successful breeder; or in other words, he who breeds typical animals from the great producers, and drops all animals not typical, will, in a short time, have reason to be proud of his herd.

As I have already said, perhaps my early training has warped my judgment; those who know me best can better determine. I have handled dairy stock in Central New York for the past fifty years, and the cow that comes the nearest to my ideal of a dairy animal, is the typical Holstein-Friesian, Americanized. The Holstein-Friesian Association have been very wise in their past legislation. They used money and brains without stint with a view to advancing the breed to that point where every animal will be a typical one, and they have tried to educate the breeders in that line of work. Their scale of points is designed to represent the perfect dairy animal. They consider the fair test, the official test, and the show ring as educators. They believe that no man should go into the show ring as a judge of dairy stock unless he can tell when asked, why he makes his awards thus and so. Hence, they have made a list of the best educated men for the fair associations to select from as judges. They believe that the fair is an educational institution for the farmer, and that an incompetent judge brings discredit upon the fair and upon the breed he claims to represent.

The typical Holstein-Friesian, Americanized, is of the milk and beef form. A recent investigator in looking through a few volumes of of the *Advanced Register* finds 108 cows, above five years old, of the milk and beef form, which have to their credit an average record of 18 pounds and 14 ounces of butter in one week per cow; 86 cows of the milk form, which have a credit of 16 pounds and 10⅔ ounces per cow; 4 of the beef and milk form, which have a credit of 16 pounds and 4 ounces per cow. These observations, extending to so large a number of cows, show conclusively, that the association have made no mistake in the type chosen. He also finds that the level backed cow, (through another large series of observations) in average production of butter per cow, per week, exceeds by 2¼ pounds the cow of irregular conformation.

Hamilton, N. Y. S. BURCHARD.

Was it Profitable?

ED. HOARD'S DAIRYMAN:—Enclosed find one dollar for your valuable paper. We find after a trial of a few months that we cannot do without it.

We have been trying dairying in connection with farming about two years. Last year with 12 cows we sold butter and milk to the amount of $1,294.30 at a cost of $614.40. Our cows are grade Jerseys; no thoroughbreds, though I keep a registered bull. Heifers one-half and three-fourths grade give one to one and a half pounds of butter a day when fresh.

We feed with cotton seed meal and hulls, wheat bran and hay. Our heifers milk close up to time of calving; indeed, we have one three-fourths grade that has her third calf that has never been dry since her first calf. Would like to know what you think of our little dairy. Is it worth keeping up or not?

Bill Co., Ga. Mrs. M. E. TUCKER.

When a lady can handle 12 cows as intelligently as it appears Mrs. Tucker has handled her herd, can make each cow and heifer earn in gross over $100 per cow, and from the whole herd receive a net profit of over 100 per cent, it strikes us quite forcibly that she is a past master in the art of profitable and economical dairying. We would say, "keep it up."

With such results we would not advise attempting to raise beef. The effort necessary to beef production, if applied to an enlargement of the dairy, would pay much better. Then, besides, it is evident the lady is endowed with special discernments in the work of handling dairy cattle. Where such is the case, it is better to follow out on such lines and not distract or confuse profitable effort with something else.

Asafoetida for Calf Scours.

ED. HOARD'S DAIRYMAN:—I will give you my experience with asafœtida for sick and scouring calves.

I find that asafœtida is the best medicine for sick calves. It can be fed in a powdered state in their milk.

One small teaspoonful of powdered asafœtida I consider a good dose for a young calf. Another good way to give asafœtida is to dissolve it in a little water or whiskey, put the asafœtida in a bottle, any size you wish, and pour the water or whiskey on it and let it dissolve.

If a calf is very low it is good to give him this dose: one tea cup of warm water sweetened, one tablespoonful of alcohol and one teaspoonful of laudanum.

In about an hour after giving this dose, the calf will take his feed of milk. H. L.

Deer Lodge Co., Mont.

How Do You Keep Your Dairy Accounts?

ED. HOARD'S DAIRYMAN—One favor I would like to ask. Your paper has been very instructive to dairymen in regard to feeding and taking care of cattle. Now I would like to hear from some of the successful dairymen as to what system they use in keeping the books of the business.

I think after a man has learned how to take care of his cattle, it would be of great benefit to him to have a system of book-keeping, whereby he would know precisely how much his business was paying him. H. G. D.-

Toledo, Ohio.

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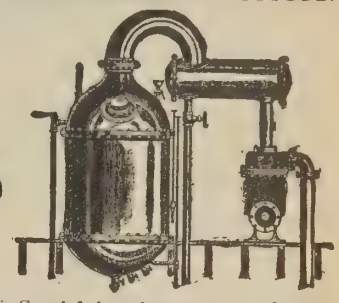
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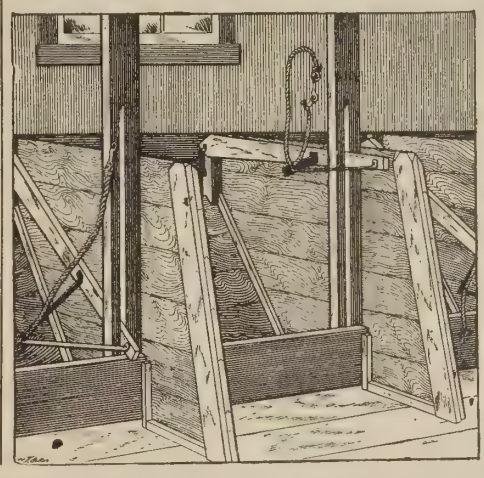
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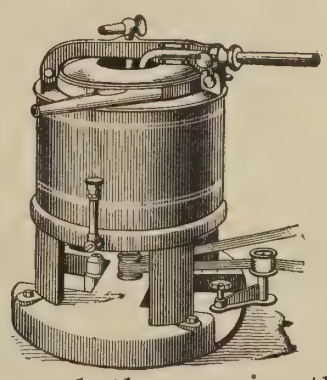
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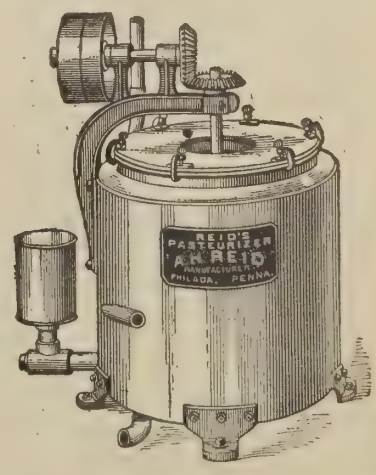
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PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, VII.

GLOSSARY.

Milk duct, milk cistern, milk sinus:—The milk as secreted flows out into small channels which empty into others, forming larger openings, known as the *sinus*. These empty into a common cavity of considerable size known as the *cistern*, and from here the milk flows through the *duct* in the teat to the outside.

Indurated:—Said of tissue when it undergoes hardening or solidification.

Mammitis, mastitis:—Inflamation of the mammary gland in the cow; the udder.

CONTAGIOUS GARGET.

Affections of the udder are quite frequent in cattle, and generally these troubles are referred to under the name of garget. Various other names, such as inflammation or congestion of the udder, "caked" bag, and the more scientific expression, mastitis or mammitis, are also used in a similar connection. A common symptom in many of these troubles is the development of an inflamed area that may become hard and dense. The character of the same varies a good deal in different cases. A "gargety" condition is to be ascribed to various causes. Most frequently the difficulty is purely physiological, a simple congestion appearing before, or soon after calving, and undoubtedly associated with the function of maternity. Not infrequently the condition may be greatly aggravated by external causes, a wound or a bruise, exposure, etc. Troubles of this sort however, are not communicable from animal to animal although it is highly probable that many of them are associated more or less directly with the presence of various kinds of bacteria. They are simply accidental.

As opposed to garget produced in this way, there are also inflammatory udder diseases that are contagious in character. These maladies are, without much doubt, produced by the development of parasitic bacteria that find their way into the udder, and there set up the inflammatory action that results in the "gargety" condition. Whether there is more than one kind of germ that is thus able to cause these affections, cannot be declared with certainty at the present time, but there is no longer any question as to the relation of at least one species of bacteria (a streptococcus) to an infectious or communicable garget in cows.

This condition may be determined by the formation of a hard lump at the base of the teat. Sometimes the tissue becomes inflamed and tender before this hardening or induration occurs. The flow of milk is lessened under such conditions, although the general appearance of it is not always materially changed when first drawn, but such milk usually ferments more rapidly than usual. In the more advanced stages the milk becomes thickened and more viscous. In the severest form, the tissue of the udder may reach such a condition that suppuration occurs and the secretion may then become filled with pus.

From the symptoms of the disease this type of garget can be distinguished from the ordinary sporadic trouble which is characterized by the altered character of the secretion (stringy, clotted or lumpy milk) and the early development of local inflammation.

Contagious garget may sometimes be confounded with tubercular garget which is practically tuberculosis of the udder. Both dtseases are of germ origin but the manner and cause of infection differ and in effect one can generally distinguish between the two. The tubercular germ gains access to the udder from the inner tissues of the body. The disease germ spreads through the system by the way of the lymphatic circulation and invades this granular organ, the udder, from above, while as a rule, in infectious garget, the disease germ finds its way into the animal by way of the milk ducts. In tubercular troubles the deeper glandular tissue first shows sign of being affected; in true contagious garget the disease generally begins in connection with the milk duct, cistern, or sinuses.

MANNER OF INFECTION.

The contagious nature of this disease is already well understood, but the manner in which the disease germ is distributed from animal to animal is by no means so thoroughly apprehended. Infection is frequently conveyed by means of the milker. The pernicious habit that is not infrequently practiced, of moistening the hands with a few streams of milk, aids materially in spreading the disease from the affected animal to any others that may not have yet succumbed. The disease germ finds its way into the udder from the outside, by way of the milk duct. In the milk cistern the conditions are very favorable for its growth. As a consequence the milk acquires infectious properties, by reason of the germ life which it contains. The walls of the cistern and sinuses develop a catarrhal condition, while later the tissue becomes hardened and swollen. It is frequently thought that soiled litter or bedding serves to spread the diseased matter, but this method of infection has not been definitely determined.

TREATMENT.

Inasmuch as the disease is of germ origin, no method of treatment strikes at the root of the trouble, that does not destroy the bacterial life in the affected organ. This can only be done by injecting antiseptic solutions into the milk cistern. For this purpose, Nocard found that a lukewarm solution of boracic acid (4%) introduced immediately after milking, was very effective in destroying the organism. The streptococcus of this disease appears to be especially susceptible to the action of this acid.

Much can be done to limit its spread, by using such precautions as will prevent the microbe from finding its way from udder to udder. In milking the herd, animals showing a "gargety" condition, should be milked last. Recognizing how often the milker serves to carry the disease, the hands of the milker should be thoroughly washed in a disinfecting fluid. For this purpose a 2% carbolic solution will suffice. The teats and lower part of the udder should also be moistened, in a similar way, to destroy any germ life of this character that finds its way to the outside of the animal.

Questions Answered.

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?

2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of test.)

3. Is it much trouble or expense to do this, and what plan did you pursue?

4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system until you brought out of it a herd of grade cows?

5. What was the breed you selected, and how much more butter, cheese, or milk did you get from the daughters than from the original mothers?

6. Would you advise changing breeds, one after another, or breeding right along in the same line?

7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the granddaughter?

Ed. Hoard's Dairyman:—1. Yes.

2. Forty-eight hours test; six months apart. July and January. Forty cows. No rejections.

3. Experts were sent to my farm for this purpose, free of expense to me, from State Experiment Station.

4. Yes.

5. Ayrshires; 2,000 pounds per annum increase of milk from each grade above what I had been getting from their dams.

6. Always breed in the same line, and invariably use a pure bred sire.

7. They were finer, but, in most cases, less hearty, and less profitable in the dairy than animals not closely inbred.

My common stock dairy averaged 4,000 pounds each per annum, my grades 6,000 pounds, and my full bloods, with which my farm is now stocked, 7,000 pounds. The average of all the cows in this state is only

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases, is no longer an experiment but a necessity.



Our readers w ll do well to write to Wm. Stahl. Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treaties on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

Second-hand Separators

I have on hand a lot of Cream Separators in good order, that I will sell cheap for cash. Second hand Sharples Factory and Dairy Separators. Also De Laval Standard Alpha and Baby Separators of almost all sizes. Also second hand separators of other makes. Write for prices and particulars. **P. O. Box 856, Philadelphia, Pa.**

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

— THE —

A. J. C. C. Cows

in our sale list just issued comprise a pure St. Lambert granddaughter of Allie of St. Lambert; three granddaughters of Naiad of St. Lambert; a tested cow, deep in the blood of Nellie 901, Imp., whose dam has an excellent test and six tested daughters; a cow deep in the blood elements of that wonderful cow, Mollie Garfield; and others of similar merit. Some are fresh; others longer in milk. Sale List No. 3, giving short pedigrees, sent on application.

WINTERGREEN HILL FARM CO., Scottsville, N. Y.

High-Class Jerseys.

DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records. **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.

H. C. TAYLOR, Orfordville, Wis.

Miller & Sibley's Jerseys.

IDA'S RIOTER OF ST. L.

Leads All Other Sires that Ever Lived in Average Butter Record for 28 Daughters, Being Nearly 20 lbs. Apiece.

All full weekly tests. 5 made with 1st calf; 4 made with 2nd calf. Tested by 8 different owners. One daughter, Ida Marigold, won the lion's share of the honors at the World's Fair. His get have won over 70 first prizes and sweepstakes at state fairs or great expositions. He weighed 1760 lbs. His dam's official butter test, 30 lbs 2½ ozs; milk record, 67 lbs. a day.. His daughters are heavy milkers.

For Sale—Grandsons and granddaughters of Ida's Rioter of St. L., also cows in calf to his sons.

224 **First Prizes and Sweepstakes** won by this herd at 22 State Fairs or great Expositions. Home of many great milk and butter producing cows. Our Adelaide of St. Lambert gave 82¾ lbs. of milk one day; 2005¼ lbs. one month—the world's Jersey record. **224**

No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Prices low for quality. Every animal tuberculin tested before sale, if desired.

Also For Sale—Children's Ponies and registered Shropshire Sheep. MILLER & SIBLEY, Franklin, Venango Co,, Penn.

ESTABLISHED 1890—500 Acres—Incorporated 1897. The Linden Lawn Farming Co., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys.

C. S. MACE, Mgr.

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.

JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD

POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. **W. H. FORBES, Clifton, Ohio.**

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

Sires in Service:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry, Signal cows some of them tested. Write to **J. E. TYRRELL, Marysville, O.**

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.

Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**

F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock IN YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."

FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys

Bull For Sale—Solid Color. Dropped March 21, 1898. Sire, Chromo, sire of 6 in 14 lb. list. Dam, Milly Judd, 14 lbs. 3¾ oz., by a son of Diploma; 2d dam, Ocla, by Diploma; 3d dam, Compressa, 14 lbs. 13½ oz., by Upright; 4th dam, Commotion, 17 lbs. 6 oz., dam, of 3 in 14 lb. list, by Combination. Write for price to HOOD FARM. Lowell, Mass.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO F. WESTON, Supt., Biltmore, N. C.

Locust Lane Stock Farm

. . . Service Bull . . .

BROWN BESSIE'S GRANDSON No. 34891.

State What You Want.

G. E. COLEMAN, Perry Center, N. Y.

FOR SALE!

DOUBLE GRANDSON OF

Exile of St. Lambert

13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. **P. J. COGSWELL, Rochester, N. Y.**

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. **N. N. Palmer & Son, Brodhead, Wis.**



Parted In A Dream—(New) A love song founded on a strange incident of the late war—words and music by Halbert L. Hoard. (A 50 ct. song.) Sent post-paid for 25 cts. to readers of Hoard's Dairyman.

Darling Lenore—(New) A song of deep sentiment by the same author, published Jan. 25, '99. (A 50ct. song.) Sent post-paid for 25 cents to readers of Hoard's Dairyman.

For 3 cts. I will send words of both songs with with miniature page of music of each.

HALBERT L. HOARD, Fort Atkinson, Wis.

3,000 pounds, and nine-tenths of the dairymen of this state breed from scrub or grade stock, rather than pay $10 for a thoroughbred bull calf for grading up their stock.

Allegany Co , N. Y. L. D. S.

ED. HOARD'S DAIRYMAN:—1. I own a Babcock tester, and use it when I want to on whole milk, skim (separated) milk and butter milk.

2. Had six cows and rejected two of them.

3. (a) It is not much trouble to make a test and but little expense.

(b) I cannot answer this unless I would say I went strictly according to directions of the maker of tester. I have never had the least trouble in making any kind of a test.

4. I had common cows, that general purpose kind, when I commenced the butter business, but soon found they were money losers, and bought registered Holstein-Friesian. I make as much butter now from one cow as I did from two general-purpose.

6. I would not advise changing breeds for various reasons.

7. Have had no experience. Kind reader, actual experience tells me to let this "general-purpose cow" severely alone. May you, new or intending beginner, profit by my loss. Buy "beef cattle" or "dairy cattle." I. R.

Wabash Co , Ind.

ED. HOARD'S DAIRYMAN:—1. Yes.

2. My herd will average eight. My plan for testing is not to weigh the milk and take tests for any great length of time, but always make them when cows are on luxuriant pasture, and when I change the feed. I do not condemn hastily, but when a cow continues to make a poor average for all the tests, in comparison to the rest of the herd; makes the butter that she makes cost me, on an average, over 10 cents per pound, I sell her to the butcher. The question has been with me, not altogether how much milk they give, or what per cent they test, but how much do they make it cost me, and every summer I have one or two cows for sale.

3. Yes, if you make a good test, it is quite tedious, but not expensive.

4. Yes; began with good cows and used registered sire.

5. Jerseys. Have not had one heifer to come up to my old cows yet.

6. Stick to one kind, by all means, and let that be the kind you take the most fancy to.

7. Yes, once. Had two teats on one side grown together, and would not breed; so I can't tell what effect on dairy capacity, but I judge she would have been the poorest cow on the farm. I won't do that any more.

I seldom write to any paper, but you "DAIRYMAN" people are very courteous and treat everybody fair and right, so I thought I would tell what little I knew about your questions in regard to that great animal, the cow. C. A. S.

Ohio.

ED. HOARD'S DAIRYMAN:—Will try and answer your list of questions.

1. Until I was satisfied I was keeping some cows that were not giving me value received for the feed I was giving them.

2. I am still testing and am rejecting; started with twelve, have six of the original number left, have twelve at present by adding heifers to my herd.

3. It is some trouble to test but not as expensive as to keep cows that are eating up fodder they are not paying for.

4 Yes.

5. Selected a registered Jersey sire to breed up from; am using the third sire since I first commenced to grade up. They have increased about fifty lbs. a cow per year since I first started to grade up. But I must stop here and give HOARD'S DAIRYMAN some of the credit of the increase of butter per cow as they receive better care now.

6. No. Stick to the breed you have started with; do not mix them up.

7. Yes. The health and dairy capacity seems to be all right as far as I am able to judge, but they are not old enough to give a final decision, only with first calf.

I will add one question more which is not in the list and I have failed to see discussed in the DAIRYMAN. Which cow is the more profitable, the one that gives three per cent milk or the one that gives six per cent and gives half the amount? B. B. W.

Beaver Dam, Wis.

ED. HOARD'S DAIRYMAN:—1. Yes.

2. I have tested at different times for 2 years. I did not reject any cows. First year 10 cows, second 12 cows.

3. No. I took samples of the morning's milk also night's milk, also noon's milk, when milking three times a day, I milk the cow dry, mix it thoroughly, then take sample; tested them separate and have mixed them, tested as soon as I could after milking.

4. Yes. I intend to continue.

5 Holstein.

6. No. Breed right along in the same line.

7. No, nor don't intend to. I have not been in the dairy business only little over three years, so I am unable to answer all the questions.

At the annual cheese meeting to-day some of my neighbors said they could feed butter fat into the milk, I contradicted and they wanted to bet; I asked how they did so and one said by feeding ground oats and peas; another by feeding green corn fodder. They are people that don't read the DAIRYMAN, nor any other paper, and if you give them the paper to read they would say, I don't believe it. W. S. W.

Fond du Lac Co., Wis.

HOW A COUNTRY EDITOR UNDERSTOOD IT.

We have often been amused at the "stuff" which is stuffed in the "dairy departments" of country newspapers, edited evidently by machinery, but here is an interpretation straight from the shoulder in a South Dakota paper.

The interesting fact has been brought out at the Sioux Falls meeting, that one can get from a pint to a quart more milk in a week from a cow, by warming the water, and mixing two spoonfuls of opodeldoc in a barrel of spring water, heated slightly, with two stacks of saw dust stirring slowly, after which set aside and allow to cool to about 70 degrees Farenheit. Let it harden and then saw up in stove lengths and burn in a heater.

The farmers who read that paper must feel greatly refreshed over the solid chunks of dairy wisdom they get from such a source.

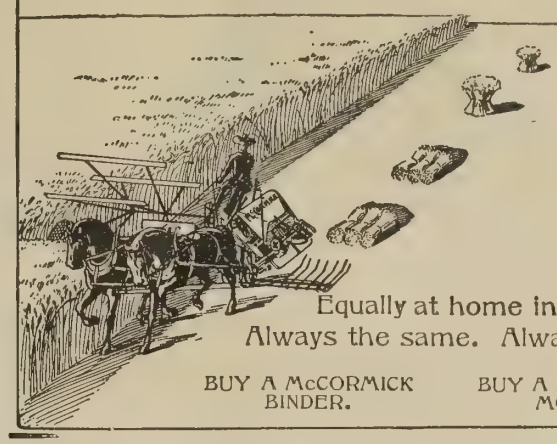
Cheese Makers in Washington.

ED. HOARD'S DAIRYMAN:—I wrote a short letter to you some time ago about a remedy to cure clover bloat in cattle, also stated that cheese makers were scarce in this part of the country. Since that time I have received so many letters that I couldn't answer them all, so would like to say through your columns, that a few good cheese makers are employed in this county at $25 to $50 per month, according to size of factory. I would refer them to P. McIntoch & Chase, Ray, leading factory now of this county.

Tellamook Co., Wash. WM. R.

Astonishing The Nations!

That has always been the way with the McCormick.
Always New! Always in Front! Always Leading!
The most Modern of all Machines!





Equally at home in Oriental wheat fields and American prairie lands.
Always the same. Always efficient.

BUY A McCORMICK BINDER. BUY A McCORMICK MOWER. BUY A McCORMICK CORN HARVESTER. BUY A McCORMICK FODDER SHREDDER. BUY A McCORMICK REAPER. BUY A McCORMICK RAKE.

SEND 47 CENTS (postage stamps taken) and we will send you this beautiful Violin complete with bow, case, book, rosin and patent finger-board, by express C. O. D., subject to examination; if found a wonderful bargain for the money, pay the express agent the balance, $1.28 and express charges. Others ask $5 for this outfit; we offer the same to you at $1.75. Get our musical catalogue and take time to read it, and you will find by purchasing from us you not only save cents but dollars.



T. M. Roberts' Supply House, Minneapolis, Minn.

Please mention Hoard's Dairyman when writing.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

HILLSIDE HERD
French Canadian Cattle
A few choice young bulls for sale.
C. E. COLBURN, - - Portlandville, N. Y.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle.
Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

A RARE OPPORTUNITY.
No herd of Holstein-Friesians in America offers such rare opportunities in the selection of young bulls. Twelve young bulls ready for service, are now offered for sale at prices ranging from $75.00 to to $200. The sires and dams of these bulls are of the finest animals to be found in America, and were selected with great pains and with one purpose in view, to obtain the highest individual quality—the richest breeding—and the largest performance, all in one. This has been accomplished at Valley Mead. Address
KARLEN & CO., Monticello, Wis.

Ten Choice Yearling
Holstein - Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

Pioneer Herd HOLSTEIN-FRIESIANS.
Foundation herds of merit a specialty, for sale; also Plymouth Rock fowls and eggs.
S. N. WRIGHT, Elgin, Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two excellent Registered Guernsey Calves.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

ROSENDALE GUERNSEY HERD.
TUBERCULIN TESTED.
1st Prize Herd Wis. State Fair 1894 to '98. 1st Prize Herd at Minn. State Fair and at the Trans-Mississippi. Exposition 1898.
Come and see the herd, We keep only 400 lb. cows. **GEO C. HILL & SON., Rosendale, Wis.**

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

New York State Dairymen's Association. Annual Meeting at Gouverneur.

Butter and Cheese Scores and the Officers Elected.

ED. HOARD'S DAIRYMAN:—Never in the history of this old association was there ever seen a like exhibit of dairy products as was shown at Gouverneur. More than 1,300 samples were on exhibition, and nearly or quite one-half the counties of the state were represented. Mr. Krocker, who scored the butter, said he never before saw so large an exhibit of dairy butter, or one which scored so high. It was, on the whole, quite better than was the creamery; while the cheese was very fine. All in all, the exhibit was fully one hundred per cent larger than that at the state fair last fall.

As the DAIRYMAN'S bailiwick now extends, not only over the "wild and wooly west", but the Empire state and the world at large, and, as all its readers are, or will be, interested in the score figures of the meeting, I herewith send them somewhat condensed.

CLASS ONE.

Creamery Butter—D. E. Boyer, Downsville, six entries, scores, 93 to 95 points; Clark Marshall, Summerville, four entries, scores 87 to 93; R. R. Colton, Richville, one entry, 90; C. L. Morelton, Hopkinton, one, 92; Henry Ebbert, Otisco, one, 95; Peter Langwell, Sodus, three 92 to 94; Thomas S. Rutherford, Shipman, three, 89 to 93; D. W. Westcott, Moira, one, 94; Ayer & McKinney, Meridith, three, 94 to 96; Edward VanAlstyne, Kinderhook, two, 92, 93; Hobart Dairy Co., Hobart, one, 95; F. X. Beaumert & Co., Antwerp, four, 93 to 95; W. E. Spurr, Sennet, one, 94; C. H. Jones, Winthrop, one, 91; Mather Brothers, Belleville, one, 92; Rockdale Co., Rockdale, two, 95, 95¼; G. W. Barnasky, West Coxsackie, two, 94, 96; Charles S. Smith, Sidney Center, one, 95; J. P. Hoetkin, Gouverneur, four, 91 to 95; L. L. Dewey, Laurenceville, four, 94 to 96½; Day & Goings, Halsborough, three, 89 to 91; Elgin Butter company, Scotsburg, one, 92; L. R. Nye, Converse, one, 92; C. P. Root, Gilbertsville, one, 90, D. G. Donahue, Charlotte, Vermont, two, 92; F. H. and F C. Leonard, Crary's Mills, one, 95; Maple Grove, Newark Valley, two, 94, 95; J. F. Hodgkin, Gouverneur, three, 93 to 94; F. H. Lalone, De Kalb Junction, one, 90; A. W. Overæker, Gouverneur, one, 90; J. E. Strong, Potsdam, two, 90, 94: W. E. Hitchcock, Savanah, one, 95; Rosemary Creamery, Adams, two, 94, 95; Duplicate prints, 94; Rosemary creamery, Adams, three, 94 to 96½; W. V. Beach, Charlotte, Vt., one, 93; John P. Douglas, Theresa, two, 95; Fred O'Brien, Lowville, one, 96.

There were other entries, but their scores were so low they were not noted in the list of awards.

CLASS TWO.

Dairy Butter—A. C. Bigger, Pepacton, four entries, 94; H. W. How, Madrid Springs, five, 94 to 95; J. W. Marshall, Sommerville, one, 90; R L. Colton, Richville, six, 91 to 94; Chester Burs, Eastbrook, three, 93 to 94; Mrs. Nettie Merz, Lowville, one, 94; Daniel Griffiths, Elmdale, three, 90 to 91; Martin J. Winsor, Hartwick, four, 94 to 95; C. P. Miller, Edicks, two, 96; Austin Leonard & Son, Troy, Penn, two, 91, 94; Harrison Lee, North Stockholm, two, 94; Stockholm Duplicate tubs, three, 94 to 95; Jno. Ennes, Pattersonville, one, 95; Jared Van Wagenen Jr., Lawyersville, two, 94 95; Daniel Griffith, Elmdale, one, 93; Nelson St Dennis, Potsdam, one, 92: Geo. W. Sisson, Jr., Pottsdam, three, 92; Egbert Stillson, Sidney Center, one, 93; W. Mc Kerrow, Middleville, three, 94 to 95; Dodge and Richardson, Gouverneur, ten, 92 to 95; F. J. Bellinger, Ogdensburg, one, 95; Thomas Rutherford, Shipman, one, 93; J. Mc Harron, Malone, 98; O. J. Woodard, Rodman, one, 93; Thomas F. Telford & Son, Meridale, one, 90; C. E. Coleman, Perry Center, 93; L. J. Neer, Jefferson, one, 93; John T. Mc Donald, Delhi, one 94; M. E. Pitt, Crary's Mills, two, 93; Dodge & Truax, Gouverneur ten, 92 to 93; Mrs. George Bonfoy, West Windfield, one, 91; Mather Brothers, Belleville, one. 94; Jno. Livingston, Morley, four, 91 to 95; Samuel Coon, Morley, one, 95; P. R. Taylor, North Hammond, one, 89; Warren E. Gannett, Smithville, two, 91, 92; M. J. Radokey, Colchester, one, 93; Frank G. Hildreth, Herkimer, one, 93; T. W. Ells, Bigelow, four, 91 to 93; Charles H. Peabody, Gouverneur, two, 92, 93: M. L. Howard, Pierrepont, one, 94; H. D. Baker, Gouverneur, one, 94; E. B. Howard, Pierrepont, one, 93; H. B. Baker, Gouverneur, one, 93; M. L. Howard, Pierrepont two, 92, 94; R. M. Brown, Gouverneur, five, 92 to 94; L. F. Collins, Fowler, one, 95; S. Miller, Algona, two, 95; D. H. Miller, Algona, two, 94; J. N. Baum, Potsdam, two, 89, 90; O. V. Austin, Narwood, five, 88 to 91; M. D. Thompson, Malone, two, 95; Anson H. Condrat, Morristown, three, 94 to 95; H. N. Waters, Lowville, two, 90, 94; Thomas Mills, Gouverneur, one, 92; James H. Danforth, Philadelphia, N. Y., one 90; Ellerslie Stock Farm. Rhinecliff, one, 94; Edwin H. Chase, Chase, two, 93: Will E. Kay, Herkimer, one, 95; Amos Wait, Gouverneur, three, 91 to 95; W. M. Scripture, Hermon, four, 93 to 95; Henry Bucklen, Gouverneur, 94; W. Ells, Bigelow, one, 91; D. G. Donahue, Charlotte, Vt., one, 95; Myron J. Scott, Hailsborough, two, 89, 91: W. Wheeler & Son, Potsdam, two, 94, 95; H. B. Baker, Gouverneur, one 92; Peter Allen, Hammond, one, 92: Erwin Allen, Hammond, one, 95; Mrs. F. E. Dawley, Fayettville, two, 96; Fred O'Brien, Lowville, one, 96; E. R Turner, Popes Mills, two, 93; William Gilligon, Lowville, one, 96; F. L. Colton, Richville, three, 91 to 95; Mrs. Wm. Lawyer. Brasie Corners, three, 90 to 94; Effie A. Gillete, Stockholm, one, 93; Morgan Wood, Martinsburg, one, 91; J. W. Marshall, Sommerville, one, 86; George W. Masher. Gouverneur, one, 93; C. H. Scott, Gouverneur, four, 92 to 95; W. A. Parks, Gouverneur, one, 92; George Cooper, Morristown, two, 92, 93; Daniel Griffith, Elmdale, seven, 90 to 92; M. J. Johnson, De Kalb Junction, one, 89; W. E. Mills, Weedsport, one, 92; Wm. Gilligan, Lowville, two, 96

As in the creamery class, there were a number of entries that, either because they scored so low, or through some defect of the type written copy given to me, were not noted. Perhaps, like Rip Van Winkle's drink, the judge did not "coundt dis von."

CLASS THREE.

Export Cheese—G. H. Marshall, Sommerville, two entries, 95, 95½, E. L. Finn, Pinchney, one, 96; A. F. Brown, Edwards, two, 94½, 95; J. P. Lewis, Sandusky, one, 94¼; Mather Brothers, Belleville, one, 93⅛; A. Miller, Algona, one, 93; Michael Hatley, Constableville, one, 94⅛; J. M. Fitch, Lowville, one, 99; J. H. Searl, Lowville, one, 98⅛; W. J. McComb, Boonville, one, 93; G. W. Augsbury, Plessis, one, 95; E. A. Hurst, Macomb, one, 95; H. Petrie, Turin, one 96½: D. F. Babcock, Chippewa Bay, one, 96.

CLASS FOUR.

Home Trade Cheese—E. G. Graves, Lowville, two entries, 96½, 97; W. S. Keyes, Philadelphia, one 97; J. A. Merz, Lowville, one 95⅛: E L. Finn, Pinchney, one, 96½; M. G. Fassett, West Martinsburg, one, 95½; E. W. York, Lowville, one, 97; Mrs. W. A. Wheeler, Bellwood, one, 95½; C. M. Henry, Denmark, one, 96; A. and H. E. Cook, Denmark, one, 96; Cook & Otis, Denmark, one, 96½; G. L. Bartlett, Edwards, one, 95½; John Baird, Newport, one 95½; W. E. Gaynor, East Martinsburg, one 98⅛; D. E. Kent, South Easton, one 94; A. P. Brown, Edwards, one, 95; A. and H. E. Cook, Denmark, one, 98; B. M. Graves, Copenhagen, one 96½; Wm J. Fitzgerald, Newport, one, 96½; W. E. Wilkinson, Belfast, one, 96½; A. B. Hargrave, Heuvelton, one, 94½; John Cooper, Macomb, one, 90; A. Miller, Algona, one, 92; William Gilligan, Lowville, one, 97½; W. H. Fitch, Lowville, one, 97½; J. H. Searle, Lowville, one, 98; David Miller, Constableville, one 97; E. C. Curtis, Brasie-Corners, one, 97⅛; W. A Freeman, Gouverneur, one, 95; Homer Smith, Gouverneur, one, 94½; Thomas Mills, Gouverneur, one 89; Fred H. Loucks, Lowville, one, 95½; C. P. Root, Gilbertsville, one, 92½; F. L. Hall, Lowville, one, 96; Frank Goodison, Osborneville, one, 94⅛; F. A. Lalone, De Kalb Junction, one 95⅛; J. L. Wood, De Kalb Junction, one, 94½; A. W. Overacker, Gouverneur, one, 88½; H. Petrie, Turin, one, 96½: A. Lambert, Salisbury, one 94½.

The reader, if he stops to scan the figures, will see that the other counties were not in it with" Little Lewis," when it comes to cheese, just as they never are at the state fairs, but she did not get there in the butter schedules as she ought. But then, the Right Hon. S. Brown Richardson is the president elect of the State Dairymen's Association, and has got blood in both eyes, and to spare. He said to me, "Woe unto any other county between Lewis and Manilla, that shall dare to keep beside Lewis county next year, when the lodge opens in either the dairy or creamery degrees. The fiat has gone out, and our armor has been buckled on. Let the tenderfoots stand aside or be killed in the rush." Nuff said.

CLASS FIVE.

Fancy Cheese—There were several varieties of fancy cheese exhibited but, somehow, the secretary, in making his report, failed to enumerate them, so that the reader will not know of what variety the prize winners were. Following are the scores:

W. S. Keyes, Philadelphia, 94⅛; A. and H. E. Cook, Denmark, 95½; Jared Van Wagnen Jr., Sawyersville, 97; F. X. Beaumert, & Co., Antwerp three entries probably different brands, 99, 99, 99, 94; Eugene P. Norton, Attica, 100; N E. Clark, Potsdam, 94¼; W. H. Fitch, Lowville, 96; J. H. Searl, Lowville, 96; Mrs. F. E. Dawley, Fayetteville, 100; F. Siegel, Gouverneur, 96½; Copley Bros, Seneca Falls, 98; Fred Fuess, Watertown, 98; Fred Feuss, Watertown, 99; H E. Cook, Denmark, 94½.

There were a large number of resolutions presented and adopted, but, being more of a local than other matter of interest, are ommitted in this report.

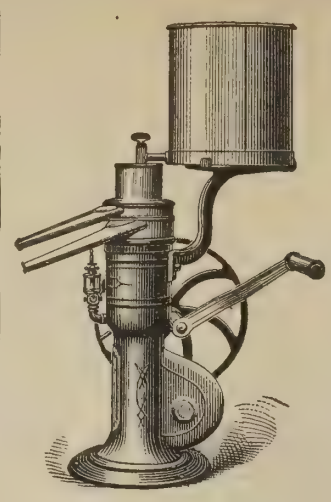
The newly elected officers are: President, Hon. S. Brown Richardson, Lowville; W. W. Hall, Gouverneur, Secretary; F. E Dawley, Fayettville, Treasurer.

Belleville, N. Y. C. W. JENNINGS.

About "Bacon" Hogs.

Much has been said and written within the last year or two about what it is the fashion to style as "bacon" hogs, and inferentially as vastly superior to anything produced by the hog-raisers of the United States who are content with such breeds as the Poland-Chinas, Berkshires and Chester Whites, and corn as their principal diet. To give an idea of the way "bacon" hogs and bacon making are discussed elsewhere, the following is given from the *Farmer's Advocate*, of London, Ontario, Canada, dated August 20, 1898:

How shall I breed, manage and feed the bacon pig? Will he pay me as well or better than the heavy, fat hog? These are live questions with a host of Canadian farmers, whose appetite for swine-raising was keenly whetted lately by six cents per pound, live weight, Toronto prices. A multitude of counselors have suddenly sprung up to tell the farmers "how to do it," but some of them tend to confusion, not safety, Solomon to the contrary notwithstanding. This is the breed, says one; cross-breeds are the thing, contends another; "feed peas," is the panacea of a third. In an "instructive" circular the other day we read that corn feeding made hard, dry, coarse bacon, with soft, oily, yellowish fat. We once saw the magic "Canadian pea fed" brand—the delight of political editors—going on boxes of bacon from hogs that never tasted a pea



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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
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Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

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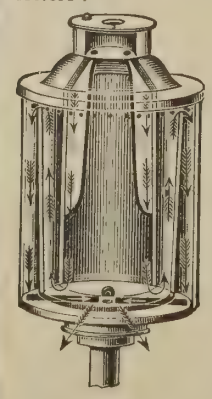
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TRIPLE CURRENT SEPARATOR

Users say it is **unequalled** for **clean skimming,** durability and ease of operation. They surely ought to know. Read a few of their letters:



The More Used the Better Liked.

RIDGEWAY, WIS., Jan. 9, 1899.
The more we use the Improved U. S. Separator the better we like it. It is as **reliable as a good clock,** and it seems to me that it will be **as durable.** It runs light, does good work, is easy to take care of, and made to last.
THOS. CONVEY, Conductor of Farmer's Institutes.

Takes Out Every Particle of Cream.

SILVINA, WASH., Jan. 2, 1899.
The No. 5 Improved U. S. Separator is all right. It is easy to turn, easy to clean, and takes out every particle of cream. We make considerable more butter and receive 2½ cents per pound more for it. It is the best machine a farmer ever bought. MAX BARTL.

Greatest Labor-Saving Machine.

TURIN, N. Y., Jan. 11, 1899.
The No. 5 Improved U. S. Separator works finely. It is the greatest labor-saving machine for making butter that was ever made. **We could not do without it.** Every farmer should have one. J. BIBBINS.

Remember that in order to have the best, the **TRIPLE CURRENT SEPARATOR,** you must buy the **IMPROVED UNITED STATES.**

Illustrated circulars free on application.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

A letter by a leading Toronto packing-house, published in the report of Agricultural Commissioner Robertson, states, in reporting on the great excellence of wheat fed pork, that the complaint in England about pea fed pork was that both fat and lean were too hard. The farmer usually gets the blame for everything, including some of the drover's work, but we never hear that any defects in the bacon, "soft" or "hard" originate in the packing-house. Seriously, however, we believe the fair-minded farmer will take the view that he should give heed to the character of hog wanted by the packer, who must understand the market end of the business, so far as is consistent with a reasonable margin of profit over cost of production. Let there be fair dealing on both sides, and an effort to get on common ground. As far as the *Farmer's Advocate* is concerned, we aim to get at the facts based on the experience of our staff in breeding and in feeding swine many years, for both butchers and export packers, extending observations and special researches into the results of experimental work, as well as into the methods pursued on farms where it is made a specialty. Intelligent farmers and breeders who have been engaged the greater part of a lifetime in swine-raising must surely be credited with having learned something about their end of the business.

We have endeavored to set forth the needs of the bacon trade, according to the extended experience of the Ingersoll (Ontario) Packing Company: have briefly reviewed the Danish practice in bacon production, according to Mr. Ginge, a native of Denmark, who is not only at the present time giving his undivided attention as manager of the Canada Packing Co., to the production of bacon of high order, but who was for years closely identified with the Danish bacon trade with England; and facts are given as to the plan of the Irish curers to improve their product.

BREEDING.

On one hand, we have what is termed the special-purpose bacon type, such as the pure-bred Tamworth; and at the other the heavy, oblong style of hog, common in the western states. Besides the various pure breeds, we have the great army of varied grade and cross-bred swine. Canadian breeders for the past ten years have been aiming to conform the leading breeds more or less toward the bacon type, and this has had a corresponding effect on our swine generally, though many marketed are yet far from the packer's ideal.

Now the breed type of sire and dam fixes largely the character of the offspring. It is idle to fancy that any combination of feeds will convert the fat, dumpy Suffolk into the long, deep-sided, lean-meated bacon hog. As well expect a Jersey cow that converts her food into rich milk to be metamorphosed into a four-sided Aberdeen-Angus, beef to the heels. It is the well-bred hog, too, that converts his food into flesh at a profit. He has been bred for years with the object of fixing that power in his nature. For generations several of the chief breeds of swine have flourished, and to-day all merits are not, nor are they likely to be wrapped up in one skin, be it red, white or black; and in our opinion no greater misfortune could befall live stock than to sweep away all breeds but one, even though the curers agreed as to which that should be. Without competition and emulation, progress would cease and degeneracy would set in.

Why does the packer ask for bacon type? No doubt because its product realizes his best profits; hence he can pay more for it, and if more costly to produce the farmer should get more for it. There is less competition in the fancy brands. The United States sends over $30,000,000 worth of pork products to the British markets, Canada less than $6,000,000; so, the less heavy fat pork we produce the less we will have to compete with the vast mass of that character which brings a lower price. The American farmer, with his model of a western Poland-China, for example, and cheap dent corn, especially when picked from the undigested droppings of steers—a common system with them, which we cannot think would ever commend itself to the discriminating nostril of the British consumer—says he can produce so cheaply that he makes just as much money and does it easier, even though he gets less for his pigs than the Canadian. We will surely do better to take our chances at the top. Without dictating as to breeds let the farmer, in the choice of his brood sows (usually grades), and pure-bred males, look to the bacon form, including a good ham, and seek to get with it what is known as a good feeder, according to his best knowledge, judgment and conditions.

Let the young pigs, as they grow up have plenty of exercise, grass to pick in its season, and learn to feed at the trough with the dam. At two or three months they should be going on well. Don't allow them to get stunted on the one hand, nor too fat on the other. Feed them shorts, peas, barley, oats, wheat, etc., mixed with skim milk or whey, so that they will get the elements (protein and ash) necessary to develop flesh and strong bone. At five or six months old, the finishing period, with heavier feeding, will begin. The packer seems to prefer attaining 180 average weight in about eight months, providing that lean dominates rather than fat. The fact is demonstrated beyond question, that as the hog grows heavier it costs more to put on each pound of flesh; but we are not aware that it has been shown, definitely, how the cost of a 180-pound pig at six months compares with that of the same weight at eight months. There should still be moderate exercise, pure air in the pens, and scrupulous cleanliness.

We recommend feeding mixed grains, ground fine, as a rule, and soaked twelve to twenty-four hours before using. By mixing aright we get a ration that will go to make a better class or meat, and, we think, gain in palatability. Something green in summer, and pulped roots in winter aid digestion, and access to the soil promotes good health. If the pigs begin to get disordered and crippled up, vary the feeding and try a mixture of sulphur, charcoal and ashes, salt and a little bluestone, placed in a separate box or trough where they can take it at will. In a very and clear and able article, Professor Day, of the Ontario Agricultural College, explains the relation of foods to animal increase, which every feeder in Canada should carefully study. No one grain is a perfect food for hogs. Seek to get an economical combination that will be rightly balanced for flesh, fat and heat (or energy) production. Barring peas in Manitoba and the Northwest, and some other sections, where "the bug" is troublesome, we grow all the leading grains to perfection, including the hard flint corn. Corn, however, is carbonaceous, largely fat and heat producing, so in feeding the bacon pig it must be used in limited quantities along with such food as shorts, oats, peas, wheat and barley. It is thought by some that the western dent corns are not equal to the hard Canada corn for fine quality of product. A bad general system of pig management may be responsible for some defects attributed to certain foods. Barley is one of our best "all-round" pig feeds, and for bacon is regarded most favorably in Great Britain and Denmark. Ground peas alone make too heavy and compact a food, but a favorite way with many is to feed them soaked, whole, especially to young pigs. Beans, though not unlike peas, according to analysis, are regarded in great disfavor, as producing pork dark in color and of soft, inferior quality. In one or two limited districts where grown extensively, owing to depressed prices the lower grades, especially, have been utilized in hog feeding.

Building a Stave Silo.

ED. HOARD'S DAIRYMAN:—This is my plan in regard to the construction: Commence six feet below the surface with stone and cement; finish one foot above the surface; then commence with 2 x 4 scantling, placed in center of wall, scantling of dressed matched pine, 20 feet long, placed flatwise instead of edgewise, with each lap well pitched. Hoops from top to bottom 2 feet 6 inches apart, bottom hoop 4 inches; strap iron; the rest 2½ inches, with lug bolt, right and left screw to tighten; round shingles, roof entrance, outside, at top; inside, or in the barn, through small doors, between hoops, say 5 or 6 feet apart. To be built without lining, with three coats of paint on outside. Silo to be built at end of barn.

If this pattern will not make a substantial silo, please state through the columns of the DAIRYMAN why not. HIRAM GREEN.

Mercer Co., Ohio.

We see no reason why the above plan would not be perfectly successful.

MARRIED HAPPINESS

is dependent upon the health of the wife more than on any other one thing. If a woman is troubled in a distinctly feminine way the most delicate nerves of her body are in a state of chronic irritation. She has headache and backache. She is listless and spiritless. She is cross and blue. She feels that life is not worth living and her temper reflects the condition of her nerves. Poor, suffering wife—poor, distracted husband. If the husband is a cheerful, good-humored man he will sympathize—if he is nervous, tired and irritable himself, he will probably go off to the club or seek elsewhere more congenial company.



A sick woman is to be pitied because she is miserable and because she has not yet learned that Dr. Pierce's Favorite Prescription will make her well.

The "Favorite Prescription" was developed over thirty years ago in the regular practice of Dr. R. V. Pierce who is and was then, chief consulting physician to the Invalids' Hotel and Surgical Institute, at Buffalo, N. Y. Since then it has been used by millions of women and has brought health, happiness and contentment to as many homes.



"My wife was sick for over eight years," writes Albert H. Fulbe, Esq., of Altamont, Grundy Co., Tenn. "She had uterine disease and was treated by two physicians and got no relief. At last I read about Dr. Pierce's Favorite Prescription. I sent to the drug store, got one bottle and the first dose gave ease and sleep. She had not slept any for three nights. Being sure that it would cure her I sent for five more bottles and when she had taken the sixth bottle she was sound and well. We now have a fine boy at our house."

The "Favorite Prescription" contains no alcohol and no opium or other narcotic, and is perfectly harmless in any condition of the system.

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MANN'S NEW BONE CUTTERS prepare bone in the best and cheapest way. Cut fast, fine, turn easy. Mann's Clover Cutters, newest, fastest, $8. & $10. Mann's Swinging Feed Tray and Granite Crystal Grit make the business profitable. Catalog free. F. W. MANN CO., Box 18, Milford, Mass.

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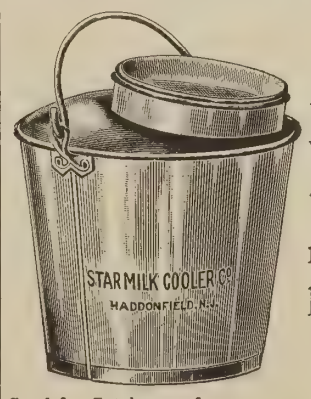
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CHAPIN & CO., Milwaukee, Buffalo, St. Louis, Boston. Agents for GLUTEN FEED. This feed is one of the best milk producers known, contains 27% digestible protein, keeps cows in healthy condition. Worth your attention in feeding economical rations. Sold in car lots, price based on its milk-producing value. Ask your grain dealer for price. Write our nearest office for full information.

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This Sanitary Dairy Pail is made of heavy tin plate in which is fitted the ring containing fine strainer wire. This ring is made to lift out, or hinged to run back, as desired.

THIS PAIL is used by the Kansas State Agricultural College.

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Not impossible at all—if that tool is the "PLANET JR." No. 4 Combined Drill. It sows in drills, or drops perfectly in hills; and with the change of one bolt it becomes a perfect wheel-hoe, cultivator, rake or plow. Many a successful farmer uses no other tool in his small crops, from beginning to end of the season.

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Can a Cow Reason?

ED. HOARD'S DAIRYMAN:—Some people say that cows do not think, but we had one that did. Her name was Greyhound. She was one of those cows that always tended to her own business and never gave anyone any trouble, until one night when we were tying up the cows, she would not go into the barn, but ran around it and started off down in the field. One of the men followed her and she went straight to a mire hole where a cow was in and could not get out. As soon as she found out the man saw the cow she turned and went to the barn and took her place as usual. If that is not thinking and reasoning I don't know what is. C. S.

Monroe, Wash.

CONCERNING OUR ADVERTISERS.

All readers of the DAIRYMAN who will, this season, purchase a small boiler and engine, should send for the new catalogue of the Rochester Machine Tool Works, Rochester, N. Y., who manufacture the well known "Acme" engine. It is one of the best on the market for the dairy farmer.

THE following from J. E. Keith & Co., Chicago, Ill.:

"We received a copy of your paper and are glad to say that we feel pleased to have an ad. with you once more and hope that our future experience with it will be as satisfactory as the past, for we can truly say that our advertisement in your paper brought us more business, than any other paper we ever used, and a good class of customers."

The above speaks well for the "DAIRYMAN" and we can also say of J. E. Keith & Co. that they are responsible, wide-awake, hard workers, and up-to-date in their business methods.

FOR harrowing sod ground the "Acme Pulverizing Harrow" comes in good, because it does not tear the sods up, and yet chops and pulverizes the soil, until it is as mellow as an ash heap. It will be sent on trial, to be returned at the manufacturer's expense if not satisfactory.

A NEW CALENDER FREE.

John Bauscher, Jr., Freeport, Ill., has our thanks for the finest calendar of the season. It is surely a work of art and would ornament the walls of any poultry raiser. This fine calendar will be sent to any of our readers who mention HOARD'S DAIRYMAN and enclose a two cent stamp for postage. You will not regret it. He also sends out his large 84 page Poultry Book for 15c post paid.

ADVANTAGES OF DIRECT BUYING.

New innovations do not, as a rule, meet with prompt public approval. While the American people are famous all around the world for their business acumen and general aptitude to think out and bring into action new inventions and new methods, we often show a disposition of positive lethargy when it comes to changing so-called fixed principles and methods.

Certain manufacturing institutions have in recent years inaugurated a new system of disposing of their products, which is unqualifiedly to the advantage of the consumer. It took courage to make the change, but they did it Among the pioneers in this new method of doing business was the Elkhart Carriage and Harness Mfg. Co., of Elkhart, Indiana, whose ad appears on another page. These people began this plan of doing business twenty-six years ago and have adhered to it strictly ever since. The result has been so entirely successful that they are to-day the largest manufacturers of carriages and harness in the world, selling to the consumer exclusively.

In dealing with the Elkhart people there is no risk to assume, as they ship either vehicles or Harness anywhere for examination and guarantee every article they manufacture and sell. Then, too, one may deal satisfactorily from any distance. The Elkhart Carriage & Harness Mfg. Co. publish an extended illustrated catalogue, which they will take pleasure in mailing to all our readers who request it.

REMOVED TUMOR, ALSO CURED FISTULA.

COMO, HENRY Co., Tenn., April 9, 1898.

THE LAWRENCE WILLIAMS Co., Cleveland, O.

Replying to yours of 5th inst., in regard to the tumor I removed from back of my hand, will say that it had been growing for two or three years. I had shown it to two doctors and they both led me to believe it might be cancer. I began using the Caustic Balsam, by applying it once or twice per day, with my finger; did not rub it to create any friction. I kept this up for two or three weeks when it became loose and I took hold of it with my fingers and pulled it out by the roots. It left quite a hole, but it has healed, and there is no scar or anything by which you can tell it was ever there. I also cured a fistula on a fine mare with three applications. H. H. LOVELACE.

RUN OVER BY A STEAM ENGINE.

GRANADA, Minn., Jan. 2, 1899.

PAGE FENCE Co, Adrian, Mich.

DEAR SIRS—During the past year I have put up seven miles and eighty rods of your different styles of Page Fence on my farm, and all are giving entire satisfaction.

Last year while we were threshing we gave your 13 bar 58 inch fence a good test We weighted the fence and pressed it to the ground and then drove the steam thresher over it, but when the weight was removed it came to its place and stood as erect as ever, and no one could have seen where we drove over it. Yours truly

F. L. PARK.

The flavor of butter is of prime importance to the creameryman. In order to obtain it neatness and cleanliness are necessary qualities which should be drilled into the operator at every stage of the process. Machinery should be furnished him that can be kept clean and neat. "Any old thing" will not do in the creamery or dairy Haney-Campbell Co., of Dubuque, Iowa, are putting out vats now that for beauty of finish are hard to be equalled. Instead of being painted, they are finished so as to show the natural grain of the wood. Inside they are built in the same substantial manner that is so well known to all users of the Haney-Campbell goods. When fitted with these the creamery looks almost as neat as a drawing room. They cost little more than the other vats, are as easily kept clean, and give a tone to the establishment that is imparted to the butter sent therefrom.

UNTIL the last week or so, there has been running in the DAIRYMAN an advertisement from the Standard Paint Co., of 81-83 John St., New York City, and we trust many of our readers have availed themselves of the opportunity of securing a sample of the Ruberoid Roofing, which they are the manufacturers of.

There is a great deal that could be said for this roofing and it recommends itself to the farmer, combining efficiency with economy. It is made from the best and strongest of felt, no paper whatever being used. They do not contain tar or asphalt, to run or melt with heat, and is absolutely water proof and vermin proof. It renders an excellent service in barns, poultry houses, stables, etc., and is extensively used as a siding This company are also manufacturers of the extensively used P. & B. Preservative Paint. This paint is not affected by acids, alkalies, moisture or stable gasses, and merits a very liberal use by dairymen and farmers generally.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

POOR FLOW OF MILK.

A young cow calves without any trouble, cleans nicely, eats well, and seems perfectly healthy in every respect and yet gives no more than a pint of milk twice a day. Ordinarily she is a very fine milker. What is the cause, and what the remedy? T. F.

Victoria, B. C.

ANSWER.

There is no accounting for the freaks with the milking of a cow. I know of nothing to do but feed milk-producing food. Nutritious, sloppy, warm food and one massage daily. Good exercise and sunlight, etc., is all I can recommend that is rational.

BITTER MILK.

One of my neighbors has a fine Jersey cow but about a week ago she began to give bitter milk, so bitter that they cannot use it.

Alplaus, N. Y. W. D.

ANSWER.

The cause is undoubtedly in the food. Give full and immediate dose of physic and look to the food and remove the cause. The physic will more than likely remove the bitterness but the same cause will be likely to give the same result. The cause must be removed to affect a cure.

POOR APPETITE—FAILURE TO BREED—EATING THE AFTER BIRTH.

1. I have had several cows act strangely this winter. At first they would refuse to eat and would tremble as if cold, shrink on their milk until they gave nothing to speak of and then they would gradually come back to their appetite and their milk and would be all right, the whole thing lasting about a week or ten days.

2. Some of my cows have been served by bull from two to seven times and have not caught yet. I have been to four different bulls and the cows range in age from 3 years to ten years old.

3. Is it necessary for a cow to eat the afterbirth when she calves? F. H. L.

Hampshire Co., Mass.

ANSWER.

1. I would judge the cause to be the extreme cold. When I lived upon the Illinois prairie, in '51, I had 500 sheep all in the condition you name. My horses and cattle tumbled about and gave but a scant flow of



Michigan in Line As Usual.

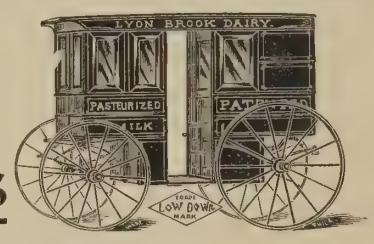
At the Michigan State Dairy Convention, held at Grand Rapids, Mich., February 1, 2 and 3, 1899, H. A. Shellenberger, of Chesterfield, Mich., and J. F. Phillips, of Flint, Mich., tied for Grand Sweepstakes on a score of 95. Both used **Wells, Richardson & Co.'s Improved Butter Color,** as did over 95 per cent of all exhibitors at this successful convention.

"THE KIND THAT HAS NO MUD."

There Are Others

But they all came after ours.

WE ARE THE ORIGINATORS



Of the now famous "LOW-DOWN" Milk Wagon.

Imitation is an acknowledgement of real merit Thirteen years' trial has proven the Parsons "Low-Down" Wagons to be **THE BEST.** ☞ Secure our catalogue of strictly first-class, hand made, up-to-date, durable work.

PARSONS' "LOW-DOWN" WAGON WORKS,

EARLVILLE, N. Y.

SEND ONE DOLLAR

CUT THIS AD OUT and send to us, and if you live within 700 miles of Chicago, we will send you this TOP BUGGY by freight C. O. D. subject to examination. You can examine it at your freight depot, and if found PERFECTLY SATISFACTORY, EXACTLY AS REPRESENTED, EQUAL TO BUGGIES THAT RETAIL AT $60.00 to $75.00 and the GRANDEST BARGAIN YOU EVER SAW, pay the freight agent OUR SPECIAL PRICE, **$38.90,** and freight charges, less the $1.00 sent with order.



WE MAKE THIS TOP BUGGY IN OUR OWN FACTORY IN CHICAGO, from better material than most makers put in $75.00 buggies. **Latest style for 1899.** Body, 24x54 from the Best Seasoned Wood. Gear, Best That Money Can Build. End Springs, as illustrated, or Brewster Side Bar. Wheels, High Grade Screwed Rim Sarven's Patent. Top, 24 ounce, Daily Rubber Heavily lined, full side and back curtains. Painting, guaranteed equal to any $150.00 buggy work, Body black; Gear, dark green or Red. Upholstering, heavy green French body cloth or Evan's Leather. $38.90 IS OUR SPECIAL PRICE for top buggy complete, wide or narrow track, full length side and back curtains, storm apron, carpet, wrench, anti-rattlers and shafts. GUARANTEED TWO YEARS will last a lifetime. For buggies at $15.95 and and up, WRITE FOR FREE BUGGY CATALOGUE. YOU CAN MAKE $500.00 This Year Selling OUR $38.90 BUGGIES. ORDER ONE TO DAY, YOU CAN SELL IT FOR $60.00. DON'T DELAY.

Address, **SEARS, ROEBUCK & CO. (Inc.), CHICAGO, ILL.**

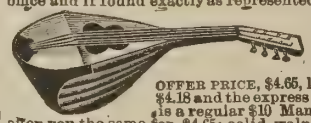


SUCCESS OR FAILURE

often depends upon the start. If you start right you have a better chance of success. To start right in the poultry business the buy **Reliable Incubators and Brooders.** They work automatically and cannot fail of good results. Our POULTRY BOOK, 228-pages, 10c, tells all about them and a thousand other things you should know about poultry. We send it for 10 cents. RELIABLE INCUBATOR & BROODER CO., Box B 51, Quincy, Ill.



SEND 47 GENTS with this ad and we will send you this Mandolin, by express C.O.D. subject to examination. Examine it at your express office and if found exactly as represented, and the best bargain you ever saw or heard of, pay the agent our SPECIAL OFFER PRICE, $4.65, less the 47c, or $4.18 and the express charges. This is a regular $10 Mandolin but we offer you the same for $4.65; solid walnut and maple, has 13 ribs, handsomely polished celluloid edges, rosewood fingerboard, inlaid position dots, mahogany neck, American patent head, beautiful butterfly inlaid with pearl, guard plate inlaid around sound hole; latest patent nickel plated sleeve-protecting tail-piece, extra set best quality steel strings, and Guckert's Book of Chords, with latest patent finger-board chart which teaches anyone how to play. Write for musical instrument, organ and piano catalogue. Address



T. A. Roberts' Supply House, Minneapolis, Minn

Please mention Hoard's Dairyman when writing.

WANTED—Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

1899 Bicycles Down to $8.25.

Men's and women's new 1899 model bicycles are now being offered at $8.25 to $23.75 and sent to anyone anywhere for full examination before payment is made. For catalogue and full particulars, cut this notice out and mail to SEARS, ROEBUCK & Co., Chicago.

True Dairy Supply Co.,

Contractors and Builders of

BUTTER & CHEESE FACTORIES

And Manufacturers of Machinery, apparatus and Supplies for Cheese and Butter Factories, Creameries and Dairies.

303, 305, 307 and 309 Lock St.,

☞ Correspondence Solicited. SYRACUSE, N. Y.

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

L. A. BAKER,

Care of Manufacturers Bank,

New Richmond, Wis.

Champion Sickle and Tool Grinder $4.00



Grinds 6-ft sickle in 10 min. to perfect bevel. With flat stone it grinds plow points, discs, axes and all other tools. Price, 1 stone for sickle, $4; 2 stones for all work, $5. Stones made of corundum lasts 20 years. **Shipped on Trial.**

$24.50 to 28.80



Calumet Check Row Corn Planter. Never misses; drops in hills and drills. We challenge the world with this planter—most perfect one made. Will ship it on trial in competition with all others. If it don't do better work than others return it. Don't buy a back number. **Prices reduced.**



Buys this **Steel Beam Cultivator,** plain, with 5 steel reversible shovels, spreads to 33 in. A 9-h Cultivator, made of best material, **Steel Wheels,** and all complete $10.95. Riding cultivator $16.99. Double shovel plow $1.60. Largest line of cultivators ever offered. Also plows.

$15.99



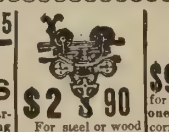
This Disc Harrow cuts 6¼ ft, has 12 16-in. discs; price $15.99. 8 sizes, 3 kinds to select from. Steel lever harrow cuts 10 ft., $7.10. Wood frame harrow cuts 7½ ft. $4.20. Spring tooth harrows all sizes and prices—reduced

$16.25 BUYS



this 8-ft. steel mill; guaranteed easiest running a strongest made; pumping and power mills, 8 to 16-ft.; also tanks, pumps, pipe & all pumping supplies. We furnish complet outfits. **Prices all reduced.** *Catalog free.* Don't fail to send for it.

$2.90



For steel or wood track hay carr'r 40ft. outfit including carrier, fork, pulleys, han'g & floor hooks, rafter irons, rope, &c. $6.70. Longer or shorter outfits for barn or field.

59c for a hand corn planter



$9.80 for this one-horse corn, bean, pea and **Garden Seeder.** Drops in hills and drills. 12 ac. a day. Fertiliser extra. Handles all kinds of seed perfectly.

TRY IT if it isn't best made and don't work perfect, **return it.** 90 styles planters & drills.

SEND FOR CATALOGUE showing the **largest and most complete** line of implements ever offered. Our line represents 38 year's experience. We **buy the best** that money can get in enormous quantities for spot cash. **WE HAVE NO AGENTS.** We sell for spot cash and never have a loss, therefore, in buying from us you receive the benefit of large quantities and all that cash will get, besides **saving the middleman's profit.** All goods guaranteed to be exactly as represented. **You can return any goods** bought of us, at our expense, **if not found perfectly satisfactory.** Send for catalogue at once. This ad will not appear again. **MARVIN SMITH CO. 55-57-59 N. Jefferson St. A 18, Chicago, Ill.**

milk. 1851-2 was the coldest winter in the history of Chicago.

2. You are making bad worse each time you bull a nymphomanac subject. You need a sure antiphrodisiac, e. i. deadener of sexual desire. Give four drams of black haw and one dram of false unicorn, each mornings for three mornings, rest two days, then repeat, then one dose every three days up to four doses. Your best plan is to select a remedy from the DAIRYMAM.

3. No.

POOR FLOW OF MILK.

I have a Jersey cow which has dropped a calf between 1st and 10th of December. She was due some time in January She did not get rid of the afterbirth as she should have, so took it from her after twenty-four hours. She has never milked as she should have, although her appetite has been good most of the time. Her hair looks all right and it seems to me that she should be doing well. She is being fed 3 lbs. cotton seed meal, 6 lbs. wheat bran, 6 lbs. cotton seed hulls, and good, bright sorghum hay, daily, two feeds.

I have another cow in the same condition. Has been in milk since September. Have tried everything but cannot bring her to her usual flow. I am now getting from six to eight pounds at each milking from each of them. The first cow mentioned milked for me, with the calf before, from twenty-eight to thirty-two pounds daily.

Texas. D. M. BATES.

ANSWER.

I know of nothing to do but to feed sloppy, nutritious food and use continuous massage for quite a while. Milk closely and well at each milking. This will be more than likely to help the two cows to increase of milk.

GARGET.

My cows get sore in the end of one of their teats and soon the quarter swells, milk gets thick and soon the quarter is ruined. Others will swell in the quarter before anything is wrong with the teat. Cows stand on floor and are stanchioned nights. Plenty of hay, consisting of wild hay, millet and alfalfa; no grain except what they get on stalk fields, as they are out day time. Two years ago they did the same way, but we fed heavy of meal, and laid it to the meal. J. E. G.

Albion, Neb.

ANSWER.

Immediate full dose of physic and repeat in four days; then if needed repeat the third time. Cleanse end of the teat with hottish water and castile soap; then keep soft with the following ointment: oil of almond and spermaceti ointment, equal parts, and two drams of aloes, to be thoroughly mixed and the end of the teats to be kept well annointed for a while. Don't forget the physic.

SMUT POISONING.

Our calves are dropped apparently strong and all right in every way, but when 12 to 48 hours old they begin hanging their heads, necks become stiff, and gradually grow stiff all over. Their muscles twitch, some have sharp pains. Some show signs of scours (not bad) others do not. Some live to be three weeks old but are stiff, and all die.

Portland, N. Y. SUBSCRIBER.

ANSWER.

Looks to me like smut poisoning, caused by smut in the mother, obtained in some form of the food. All the symptoms indicate clearly, poisoned by smut; this can be found in the corn and stalks, in the bran and largely in the second growth clover and in other kinds of food, to be quite sufficient to affect the calf in embryo, or even after.

I would advise you to have a competent person look into cause and act accordingly. This is the nearest I can approach a diagnosis

Horse Owners! Use

COMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid**, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

Thousands Have Kidney Trouble and Don't Know It.

There is a disease prevailing in this country most dangerous because so deceptive. Many sudden deaths are caused by it,—heart disease, pneumonia, heart failure or apoplexy are often the result of kidney disease. If kidney trouble is allowed to advance the kidney poison in the blood is liable to attack the vital organs, or the kidneys themselves break down and waste away cell by cell. Then the richness of the blood—the albumen—leaks out and the sufferer has Bright's Disease, the worst form of kidney trouble. Kidney trouble can be detected although it be slow and deceptive. First, by analysis of the urine; second, by the simple test of setting the urine aside in a glass or bottle for twenty-four hours, when a cloudy or brick-dust settling indicates it.

It was for just such troubles that in His infinite power and goodness the Great Physician caused Swamp-Root to grow for the benefit of suffering mankind, leaving it for Dr. Kilmer, the great kidney and bladder specialist to discover it and make it known to the world. Its wonderful efficacy in promptly curing the most distressing cases is truly marvelous.

By sending your address to Dr. Kilmer & Co., Binghamton, N. Y., you may have a sample bottle of Swamp-Root, the great kidney, liver and bladder remedy, and a book that tells more about it, both sent absolutely free by mail.

When writing be sure and mention reading this liberal offer in HOARD'S DAIRYMAN. The regular fifty-cent and one-dollar sizes are sold by most druggists. Make a note of the name, SWAMP-ROOT, Dr. Kilmer's Swamp-Root, and remember it is prepared only by Dr Kilmer & Co., Binghamton, N. Y.

FIRE DRIED SEED CORN

Best varieties, both White and Yellow Dent. HENRY SHERMAN & SONS. Ft. Atkinson, Wis.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for **FREE $2** trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa

Big Baby Carriage Sale.

If any of our readers will cut this notice out and send to Sears, Roebuck & Co., Chicago, Ill., they will send you, free, by mail, postpaid, a handsome catalogue of baby carriages in colors, with lowest Chicago wholesale prices, free examination offer, tell you how to order, etc., etc.—[Editor]

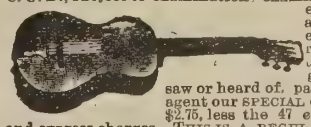
Mammoth Bronze Turkeys

from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write **H. P. West**, Fayetteville, Wis.

Our Poultry Yards are under the management of an EXPERT, thoroughly familiar with the leading variety of fowls, backed by 20 years' of successful experience in mating, rearing and exhibiting among the leading fanciers of the country. ☞ Send stamp for illustrated Catalogue.

WHITEWATER POULTRY ASS'N, Whitewater, Wis.

SEND 47 CENTS with this ad to us and we will send you this Guitar by express C. O. D., subject to examination; examine it at your express office and if found exactly as represented and the best bargain you ever saw or heard of, pay the express agent our SPECIAL OFFER PRICE, $2.75, less the 47 cents, or $2.28 and express charges. THIS IS A REGULAR $8.00 GUITAR—MAHOGANY FINISH, highly polished and nicely inlaid around sound hole, American patent head, best patent tail piece, powerful and sweet in tone; extra set best silver steel strings, Gucker's Book of Chords, with patent fingerboard which teaches anyone how to play. Write for musical catalogue. Violins 97c and upwards, toy pianos, 40c and upwards, harmonicas, 3c and upwards, strings 1c and upwards, violin cases 20c and upwards, best bargains in musical goods on earth.



T. M. Roberts' Supply House, Minneapolis, Minn.

Please mention Hoard's Dairyman when writing.

Buy This Farm

IF YOU HAVE ANY IDEA OF BUYING ANY FARM.

Located less than three miles from the city of Fond du Lac, Wis.

200 ACRES!

Perfectly equipped for a first-class grain and stock farm. Look for particulars in next issue of HOARD'S DAIRYMAN, or write

W. D. CORNELL, Fond du Lac, Wis.

VIRGINIA and CAROLINAS ILLUS. gives general information of these States Illus. description of elegant and cheap fruit, grain, stock farms for sale. Postpaid 25c. Sothern Farm Agency Lynchburg, Va.

GOODHUE



Self-oiling, Best Governed, Acknowledged to be the most powerful and durable made. We have everything the farmer needs in this line.

Towers, Tanks and Pumps, Cutters, Grinders, Shellers, etc.

Galvanized Steel

POWER AND PUMPING MILLS

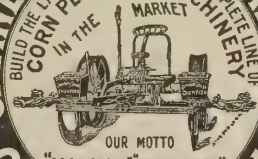
Catalogue, full of valuable points, free.

Appleton Mfg. Co.

35 Fargo St. BATAVIA, ILL.

JANNEY MANUFACTURING CO. OTTUMWA, IOWA.

BUILD THE LARGEST, BEST AND MOST COMPLETE LINE OF CORN PLANTING MACHINERY IN THE MARKET



OUR MOTTO "GOOD GOODS" "GOOD SERVICE" "MODERATE PRICES"

Mention Hoard's Dairyman.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**



SOUND ADVICE.

"The Page Company, like its product, has the very highest reputation and we should ourselves put full faith in everything they say. Write them by all means." Reply to inquirer in "Country Gentleman," Feb. 23, 1899.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

SEND 47 CENTS.



Send 47 Cts. Special Offer.

Cut this ad out and send to us and we will send you this Violin outfit by express, C. O. D., subject to examination. Examine it at your express office and if not exactly as represented and the most wonderful bargain you ever saw or heard of, pay the express agent our special offer price, $2.57—less 47c or $2.10—and express charges. This is a REGULAR $8.00 Stradivarius model Violin—richly colored, highly polished, powerful and sweet in tone; complete with fin bow, one extra set strings, violin case, rosin and one of the best instruction books ever published. Write for musical instrument and organ and piano catalogue.

T. M. Roberts' Supply House, Minneapolis, Minn.

Please mention Hoard's Dairyman when writing.

WHY



Can we Save You Money on a saddle, harness or vehicle?



Because we have no agents.

Can we really do it? **We say yes. Can we prove it** without cost to you? We can. **How?** We will ship you a harness, saddle, or vehicle, without you sending a single cent, and let you look it over at your freight house and if you don't find we have given you the **biggest bargain** you ever saw or heard of return the goods to us at our expense. **We give with each vehicle a 2-years iron-clad guarantee** protecting you against poor material and workmanship, Our vehicle catalogue describes the largest line of **buggies, road wagons, phaetons, surries, spring and farm wagons, carts, harnesses and saddles** ever shown in one book. **It's free. Send for it,**

Marvin Smith Co. 55-59 N. Jefferson St. X 18 Chicago, Ill.

Gilt-Edge Butter

is the only money-making kind. But to make it, and the most of it, you must use the latest improved machinery. It is just this sort of product that has built up the demand for our

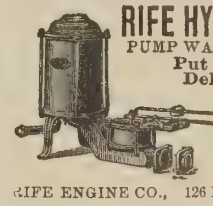


Empire Cream Separators.

They get all the cream from the milk and leave it in the best condition for churning. Lightest running and simplest in construction. Our catalogue will tell you why.

U. S. Butter Extractor Co., Newark, N. J.

RIFE HYDRAULIC ENGINES



PUMP WATER BY WATER POWER.

Put in Place of Rams. Deliver More Water. Never Stop. Your Money Back If You Want It.

Send your conditions for catalogue and guaranteed estimates.

RIFE ENGINE CO., 126 Liberty Street, New York.

Volume XXIX of Hoard's Dairyman

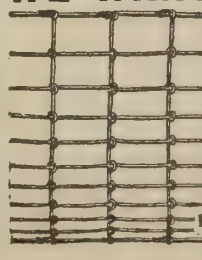
Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased greatly.

Get a Binder

now for the present volume and preserve the copies in handy form for reference and reading.

BINDER BY MAIL POSTPAID, 75 CENTS

WE WANT AGENTS.



Any good active farmer can make a nice sum of extra money selling our

...PITTSBURG... WOVEN WIRE FENCE.

We will reserve territory for the right kind of men. Write at once. The first order from a locality secures township agency. The price is O. K. Stands all tests and meets every requirement. Write for special terms and circulars. Mailed free.

Pittsburg Woven Wire Fence Co. 17 Penn. Av., Pittsburg, Pa.

Philadelphia Milk.

ED. HOARD'S DAIRYMAN:—I have just read the 'Notes and Comments" of Mr. John Gould, wherein he states that all the milk bought by Mr. Geo. Abbott must not be less than 4½%. I think that if Mr. Gould would visit one of Mr. Abbott's light lunch places and call for a glass of milk, he would do the same as I did, ask the waiter to give him the next glass half cream, which seemed about the sort of milk that would suit every man that was used to drinking milk from his own dairy, where 6½ quarts milk make a pound of butter.

I also note that Mr. Gould is ready to boom Messrs. Sharpless, Darlington & Abbott, and such men that to an extent monopolize the prices of the producer. I would further say that if all the milk Mr. Abbott receives will test 4.5%, he is not willing to pay the price that would warrant a man to ship such milk. W. H. W.

Feasterville, Pa.

The Milk Business in Philadelphia.

The annual report of W. J. Byrnes, inspector of milk for the Philadelphia Board of Health, throws a strong light on the subject, and is valuable as a basis for future judgment on the question of the value of a thorough system of city milk inspection. As the DAIRYMAN has repeatedly said, every intelligent effort to stop adulteration and cheating in milk, cannot but be in the interest of every honest farmer who produces milk for city use.

In his report Inspector Brynes says:

"The effect of diligent inspection is apparent in the reduced percentage of adulterated milk from year to year, as follows: 1892, 11.15 per cent.; 1893, 6 per cent.; 1894, 3.82 per cent.; 1895, 4.29 per cent.; 1896, 3.81 per cent.; 1897, 2.38 per cent.; 1898, 1.78 per cent. It will be seen that a gradual decrease in the percentage of adulteration has attended unremitting and methodical inspection.

Added water as a requisite for the 'better keeping' of milk has ceased to be an accepted dictum of the farmer. The time honored method of cooling milk by the addition of water has been superseded by safer methods. Discarding the rinsings has likewise been found the wiser course to avoid the charge of adulteration. A more liberal treatment of the cows is also found to be necessary to enable the farmer to furnish a fair average milk.

Recent analyses of the milk found in the wagons and shops of dealers show the average to be 13.09 per cent total solids, 4.05 per cent. of fat and 9.04 per cent solids not fat.

This is the quality of milk the consumer pays for and is entitled to get and is getting. An attempt to lower or depreciate the quality of the supply as found by the analysis should be resisted to the utmost. It is more than likely that a bill of this character will be presented at the present session of the legislature to legalize the production of an inferior milk which will relieve the farmer from the burden of feed bills.

He vehemently declares that the price received from the dealer, or middleman, is not sufficiently remunerative to justify the feeding necessary to produce other than inferior milk. But reduction in quantity does not mean reduction in price; at least to the consumer. It is to be hoped that the rights of the latter will receive some consideration from our lawmakers at Harrisburg.

Mr. Byrnes calls attention to substitutes for chemicals formerly used, which were employed by dealers to prevent the souring of milk, and to reduce the expense of ice bills. In thirty-four prosecutions for so violating the law seventeen defendants pleaded guilty. Two were convicted, and one, a farmer, was acquitted, two discharged with a warning and twenty-one cases are still pending. Prompt disposal of milk cases is prevented, the Inspector states, by the priority given to prison and urgent criminal cases.

In closing, the report calls attention to the necessity of better legislation in the interest of pure milk.

ILLUSTRATION.

We feel sure that every regular reader of HOARD'S DAIRYMAN has seen the advertisements of the Hallock weeders, and we know that hundreds of them have already ordered a weeder for the coming spring; but reader, have you done so? If not, you will have reason to regret it from the first day fit to stir the soil until your crops are "laid by," but you will not realize your loss as would the man who has once used these weeders and is then deprived of it.

We know personally many farmers who used these weeders last year and regret that lack of space prevents us from reproducing some of the many letters we have seen commending them. Here is a sample letter:

DIME, ARMSTRONG CO., PA., Feb. 17, 1898.

Messrs. D. Y. HALLOCK & SONS, York, Pa.—DEAR SIRS:—I bought a weeder from you last season which gave the best satisfaction of any tool I ever used. I worked a ten acre field of corn with it into which I never put another tool, and it was the cleanest field of corn I ever raised. Everyone was astonished at the work I could do with that weeder. Several of my neighbors will buy them the coming season. Send me agents' terms, I think I can sell some for you.

Yours truly, J. J. REARICK.



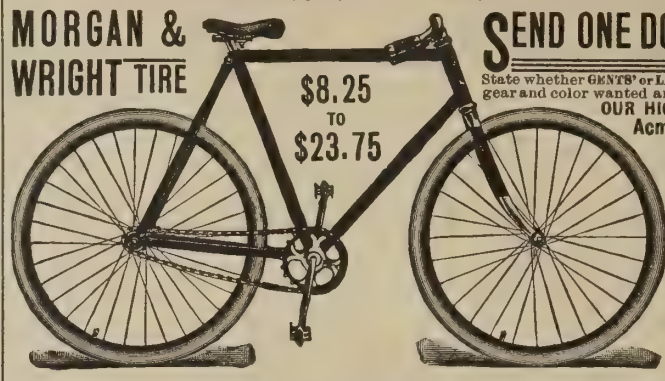
If you have not done so, write to-day to D. Y. Hallock & Sons, Box 812, York, Pa.

O. DOUGLASS BUTTER CULTURE.

ST. GEORGE, MINN., Feb. 20, '99. O. Douglass Butter Culture Co., 81 Austin St., Charlestown, Mass. Dear Sirs:—In the Genesee Salt contest I scored 97½; at the State Fair, Minnesota, I scored 95½; at Sioux Falls Convention I scored 95; being a money winner at each. I used your culture in all of the above. C. H. CLEVELAND, St. George, Minn.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin St., Charlestown, Mass.

MORGAN & WRIGHT TIRE

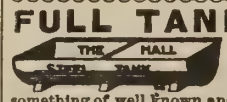


SEND ONE DOLLAR CUT THIS AD. OUT and SEND TO US . . . State whether GENTS' or LADIES' bicycle is wanted, gear and color wanted and we will send you this OUR HIGH-GRADE '99 MODEL Acme Prince bicycle by express C. O. D., subject to examination. You can examine it at your express office, and if found perfectly satisfactory, exactly as represented, the greatest bargain you ever saw and equal to bicycles others sell as high as $50.00, pay your express agent our special offer price, $18.75 and express charges, less the $1.00 sent with order. Express charges average $1.00 for 500 miles; greater or lesser distances in proportion.

MORGAN & WRIGHT'S Highest-Grade, one year guaranteed, pneumatic Tire, 22, 24 or 25-inch Diamond 1⅛-inch seamless steel tubing frame, finest 2-piece Sealy hanger, finest crystal steel adjustable bearings throughout. Wheels, Rowel's best 28-inch. Full ballbearing throughout. Acker ball retainers throughout. Finest equipment. Index chain. Canton padded Saddle. Best handle bar made, up or down turn. Clark's anti-friction, ball-bearing, ball-retaining pedals, heavy leather tool bag, fine wrench, oiler, pump and repair kit. Wheel is given finest possible finish, enameled black, green or maroon. All bright parts heavily nickel plated on copper. No wheel is more handsome. A BINDING ONE-YEAR GUARANTEE with every bicycle. If you don't find it equal to other $40.00 wheels, DON'T TAKE IT. **$8.25 Stripped, $11.75 and $16.95 Fully Equipped** is our price for cheaper (1899) bicycles. No old models, no worthless second-hand wheels. OUR FREE BICYCLE catalogue shows our entire line up to $23.75. WRITE FOR IT. ORDER OUR $18.75 BICYCLE AT ONCE, MORGAN & WRIGHT TIRE, highest equipment; you will save $20.00. You can make $100.00 every month selling these $18.75 WHEELS at $25.00 to $35.00. (Sears, Roebuck & Co. are thoroughly reliable—Editor.)

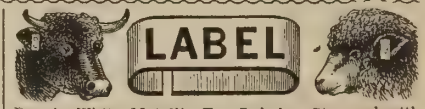
SEARS, ROEBUCK & CO. (INC.) CHICAGO, ILL.

FULL TANK VALUE!



When you buy, you want and should secure your money's worth. That means that you must buy something of well known and standard value. You get it every time in the ***Hall Steel Tanks.*** Best material and workmanship insure lasting qualites. We make them any size, for any purpose. Estimates furnished on special jobs. Write for what you want. CIRCULARS AND PRICES MAILED FREE.

The HALL STEEL TANK CO. 64 N. Ashland Av. Chicago, Ill



Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.

C. H. DANA, 55 Main Street, WEST LEBANON, N. H.

QUAKER DAIRY FEED

Modern Dairy Feeding

This interesting little book is written for the practical dairyman. It covers the subject of milk production in the light of the best and most recent thought, and is the most valuable book on the subject ever published. A practical dairyman himself, the author handles his subject with due regard to the actual value of his material in practice, and his findings can be confidently accepted as safe working guides. The book is free. Send for it.

Quaker Dairy Feed

Quaker Dairy Feed is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.

Sold only in Sealed and Branded Sacks

SPECIMEN BALANCED RATION

Timothy Hay, -	12 pounds	Gluten Meal, - -	3 pounds
Malt Sprouts, -	3 pounds	Quaker Dairy Feed,	8 pounds

Calculated for a cow of 1,000 pounds live weight.

OUR FEED EXPERT.—We wish to come as close to the consumer as possible, and freely offer the personal services of our Feed Expert in assisting in the solution of feeding problems. While our **"Modern Dairy Feeding,"** which we will send postpaid on request, covers the ground as thoroughly as possible, farm conditions vary so greatly that special information will often be of immense value. Our facilities for giving such information are the best, and we gladly invite your correspondence. Address

SCIENCE DEPT., THE AMERICAN CEREAL CO.,
1348 ***Monadnock Bldg., Chicago, Ill.***

TESTED BY THE MILK PAIL.

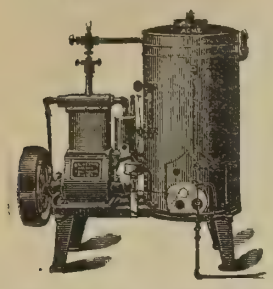
THE PAIL TELLS THE TALE.

CONSULT OUR SCIENCE DEPARTMENT

PAUL E. DERRICK ADV'G AGENCY, N.Y.

ON THE MARKET TEN YEARS.

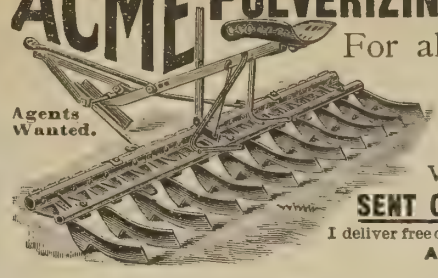
The Acme Engine Still LEADS



1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to Rochester Machine Tool Works

No. 9, Center St., Rochester, New York.

ACME Pulverizing Harrow, Clod Crusher and Leveler



For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

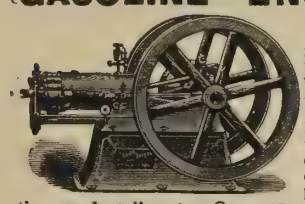
I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

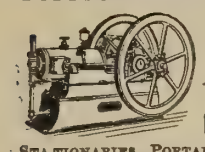
PLEASE MENTION THIS PAPER.

The OLDS GASOLINE ENGINES.

Simple and Economical



Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc, One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. OLDS GASOLINE ENGINE WORKS, Box 419, Lansing, Mich.

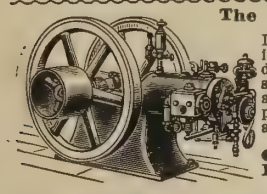


FARMERS, FEEDERS, Dairy Creamery And all other MEN are appreciating the CHARTER GASOLINE ENGINE.

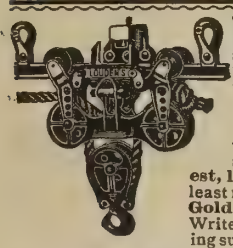
STATIONARIES, PORTABLES, ENGINES AND PUMPS.

PROOF by addressing Charter Gas Engine Co., Box 73, Sterling, Ill

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The Lambert Is a success at grinding feed, cutting fodder, churning butter, separating cream, anything, it's so simple. Write for catalogue, prices, etc. The Lambert Gas & Gasoline Engine Co., Anderson, Ind.



WHY BUY! an old style Hay Carrier when you can get the Latest Improved

Louden

worth more than twice as much. The strongest, lasts longest. Takes least room, and works best. Gold Medal at Omaha. Write for "Pointers" showing superior merit. Also circular of Best Barn Door Hanger on Earth, "How to Build HAY Barns," etc.

LOUDEN MACHINERY CO., FAIRFIELD, IOWA.



YOUR BARN DOOR or gate won't sag or drag on the bottom if hung with the STANLEY CORRUGATED STEEL HINGES. They are twice as strong as others and cost no more. Won't bind in the pin and can't break. Ask your dealer for them. Circulars FREE.

The Stanley Works, Box 12 New Britain, Conn.

WE SELL DIRECT TO THE FARMER.



Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.

Sulky Plows, $25. Riding Gang Plows, $35. 3-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.

Hard Steel CastorCoulter with Plow, $1.50 extra.

HAPGOOD PLOW CO., Box 196, Alton, Ill.

Only Plow factory in the United States selling direct to farmer.

Agricultural Land Seekers



save time and money and improve their condition if their ticket carries them to the

Free Homestead Lands in Western Canada

Secure for yourself and your sons a heritage, costing you nothing. In the course of a few years it will

Yield You a Competence

as it has done thousands of others, who failing elsewhere, to-day have comfortable homes. Yield of wheat is phenomenal and prices the highest, owing to extra quality of grain and

Low Railway Rates that Exist.

Climate healthy, fuel plentiful and taxes merely nominal. Write for particulars and experience of farmers to the nearest Agent of Canadian Government or Supt. Immigration, Ottawa, Canada, or

T. O. CURRIE, Canadian Government Agent, STEVENS POINT, WIS.

160 ACRE FARMS IN WESTERN CANADA FREE

THE "BADGER"



A SPRING HOE SEEDER

which automatically adjusts itself to rough and uneven ground. The same "BADGER" which has commanded the trade for over 25 years, except that

IT IS VASTLY IMPROVED.

Continuous steel frame and steel bars. Every advantage found in every other seeder and some exclusively its own. **The proof of its strength, durability and effective utility** is the fact that many are **in use to-day that we sold 20 years ago.** We make a 11-ft. Force Feed Seeder without bars also. Catalogue and circulars FREE.

Appleton Manfg. Co. 35 Fargo St., Batavia, Ills.

CYCLONE CORN HUSKER



Husks the corn and cuts and shreds the fodder. It has a capacity of about **30 Bushels Per Hour.** Will work well with green or dry fodder. Warranted for one year. Send for catalogue at once.

ROSENTHAL CORN HUSKING MACHINE CO. 31st and Walnut Sts., MILWAUKEE, WIS.

VAUGHN FLEXIBLE HARROW, Pat'd



No Bolts to get Loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists. D. C. VAUGHN MFG. CO., JEFFERSON, WIS. Best on Earth

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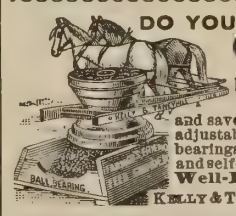


Pressure between burrs in grinding is carried on chilled roller bearings. Large inside burr revolves twice to sweep's one. Ordinary length sweep

DAIN DOUBLE GEARED MILL

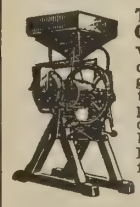
Sold under an absolute guarantee to do double the amount of work of any other mill of same size or money refunded. Write for circulars and prices.

DAIN MFG. CO., Carrollton, Mo



DO YOUR OWN... GRINDING With one of our FARMER'S FRIEND Sweep Feed Mills, and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. We make Well-Drilling Machinery.

KELLY & TANEYHILL, Waterloo, Ia.



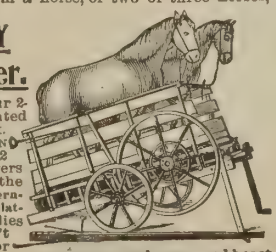
THE CROWN POINT GRINDING MILL, With the Letz patent burrs, that don't dull when running empty. Grind all grain, damp or dry, as fine as desired, the oats so fine that it can be fed to pigs. Grind with less power than others, as they are made with roller bearing. A boy can operate them. Make no mistake—buy the best. Send for catalogue.

CROWN POINT MFG. CO., Crown Point, Ind.

The Most Power

can be gotten from a horse, or two or three horses, by using a

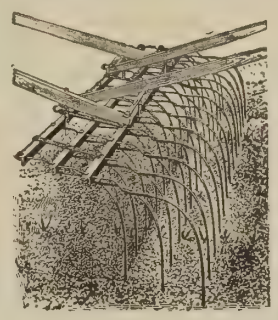
SMALLEY Tread Power.



This cut shows our 2-horse power mounted on a 2-wheel truck. Provided with EVENERS; all our 1, 2 and 3 horse powers are equipped with the Smalley Patent Governors and Speed Regulators. If the band flies off the horses can't be thrown out or damaged. No danger of fire; no mud; man and beast indoors. Applicable to all purposes requiring power. Don't buy until you get our free POWER CATALOGUE.

Smalley Mfg. Co. Box 16, Manitowoc, Wis.

ROUND OR FLAT FINGERS. Which are Best?



NO GOOD JUDGE decides a case until BOTH sides have been heard. Neither should YOU. Read and BELIEVE all that other manufacturers say of the value of a GOOD weeder in the field, but before buying ANY weeder see what WE have to say about

BREED'S new "VICTOR" WEEDER with ROUND FINGERS,

then decide in favor of the one you think is best AND BUY IT.

Twelve years of PERFECT success with ROUND FINGERS enables us to

GUARANTEE that our "Victor" Weeder will do BETTER work in ALL crops and EVERY spot and place than any other shape or make, and that they will do GOOD work where others will not work at all. When one does not do so it may be returned and we will refund the entire cost to you.

☞Agents wanted everywhere. First Weeder in a town at special price, and you have the agency if you want it. Write TO-DAY for our circulars. THEY MAY SAVE YOU DOLLARS.

THE Z BREED WEEDER CO.,

265 Merchants Row, - - BOSTON, MASS.

THE FAMOUS KEYSTONE LINE OF SEEDING, PLANTING AND CULTIVATING TOOLS.



Victor Disc Harrow —greatly improved for '99. Oil tubes to the bearings from top of frame—positively exclude all dust or dirt. Steel scrapers, double adjustment levers—easy to place gangs at any angle. Ball bearing—no side pressure and easy draft. Made 4, 5, 6, 7 and 8 ft. wide, with 18 or 20 in. discs. SEEDER ATTACHMENTS are made for 6, 7 and 8 ft. disc harrows.



Keystone Force Feed Broadcast Seeder are made 8½ or 11 ft. wide. Sows broadcast all small grains in any quantity in the best possible manner. Mounted on low steel wheels. Made with or without grass seed attachment. Equipped with CULTIVATOR ATTACHMENT if ordered. Made with end wheels or middle wheels. Has the best force feed we know. Send for special Seed Circulars.



Keystone Rotary Drop Corn Planter —it's a whole hill drop, each hole in seed plate holds enough grain for a hill. It never skips or misses. Equipped with Automatic Wire Reel. Has a drill attachment. Gear throws out automatically at end of row. Always drops at even depth because of the shoe gage on each runner.



Keystone Potato Planter —sprung quickly into popular favor because it is a simple and effective machine for the purpose at a reasonable price. Fits the needs of the man who grows an acre or two of potatoes, but who is not regularly in the business. Plants 10, 14, 17 or 20 inches apart in rows. Send for circulars.



Keystone Walking Cultivator. This is clearly a leader among the machines of its class. It is made entirely of steel and iron except tongue, singletrees and neck yoke. Strong and well braced in every way. Steel braces and four soft center steel shovels. Full line of Riding Cultivators also. Send for circulars.

KEYSTONE MANUFACTURING CO., 39 RIVER STREET, STERLING, ILLINOIS.



TOWERS' SURFACE CULTIVATORS

BOTH RIDING AND WALKING, A COMPLETE SUCCESS.

J. D. TOWER & BRO.:—"We have given your Surface Cultivator a thorough trial the past season, and we have been highly pleased with the result, not only as regards the superior condition in which it left the soil for conservation of moisture, but as to the way in which it handled weeds. The stiff stemmed milk weeds, iron weeds, had to go. The destruction of the small weeds, such as foxtail, was complete. J. J. Edgerton, Farm Foreman Iowa Agricultural College, 1898."

☞Send for Treatise on Corn Culture, and discount to **introduce** where we have no agent. **J. D. TOWER & BRO., 4th Street, Mendota, Ill.**

Be Fair with Your Fields

and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of **fine and coarse manure evenly;** it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. **Spreads lime, wood ashes, salt, etc.,** equally well. With the drill attachment **it puts the manure direct into the open drill.** Made in three convenient sizes. Ask the opinion of anybody that uses one. **Write for illustrated catalogue.**

Kemp & Burpee Mfg. Co., Box 46, Syracuse, N. Y.

THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our 2, 3 and 4-horse

TREAD POWERS

because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

ST. ALBANS FOUNDRY CO., St. Albans, Vt.

GROUND FEED



is the best feed for all animals because it is more easily digested than whole grain. Then, too, there is no loss in feeding it. With a fast grinder like the

Kelly Duplex

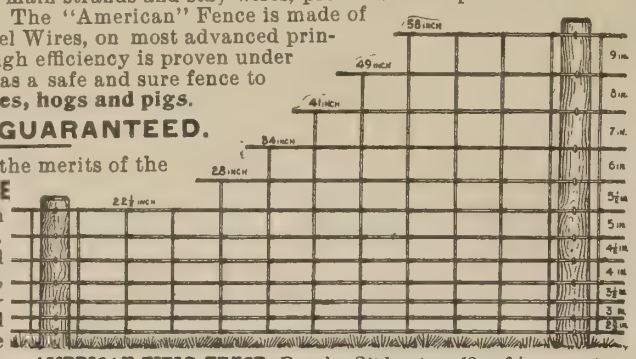
it can be ground daily, being always fresh, or ground in quantity as desired. **This is the only really fast Grinder made** requiring small power. Don't buy a grinder until you get our **free** catalogue **No. 16.**

O. S. KELLY CO., Springfield, O.

THE FENCE THAT FENCES.

"AMERICAN" ALL STEEL WOVEN WIRE FIELD FENCE.

Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

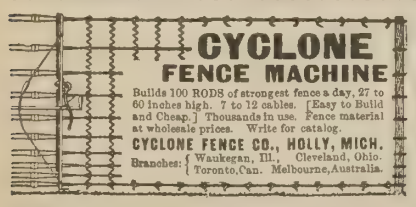


EVERY ROD GUARANTEED.

INVESTIGATE the merits of the **AMERICAN FENCE** at our agency in your nearest town. If you can't find such an agency, write us for complete catalogue and we will see you are supplied.

AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

AMERICAN STEEL & WIRE CO. General Offices: **CHICAGO, ILL.**



CYCLONE FENCE MACHINE

Builds 100 RODS of strongest fence a day, 27 to 60 inches high. 7 to 12 cables. [Easy to Build and Cheap.] Thousands in use. Fence material at wholesale prices. Write for catalog.

CYCLONE FENCE CO., HOLLY, MICH.

Branches: { Waukegan, Ill., Cleveland, Ohio. Toronto, Can. Melbourne, Australia.

FARM AND GARDEN SEEDS.

We are recleaners of all kinds of field seeds. Medium and Mammoth Red Clover, Alsike, Alfalfa, White and Crimson Clovers, also Timothy, Orchard Grass, Red Top, Blue Grass, Mixed Lawn Grass, Rye Grass and Imported Grasses, Dwarf Essex Rape, Vicia Villosa, Field peas, Ohio Beardless Barley and Spring Wheat.

Write for **Field Seed Price List,** also **1899 Seed Catalogue Free.**

The Henry Philipps Seed and Implement Co., 115-117 St. Clair St., Toledo, Ohio.

FRUIT GROWERS

to be successful in these times must start with the best kinds of berries, which are, **Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant.** Catalogue (worth dollars) telling all about small fruit, **FREE.**

ALLEN L. WOOD,

Wholesale Grower. **Rochester, N. Y.**



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer

1	Pkg. 13 Day Radish,	10c
1	Pkg. Early Ripe Cabbage,	10c
1	" Earliest Red Beet,	10c
1	" Long Lightn'g Cucumber	10c
1	" Salzer's Best Lettuce,	15c
1	" California Fig Tomato,	20c
1	" Early Dinner Onion,	10c
3	" Brilliant Flower Seeds,	15c
Worth $1.00, for 14 cents,		$1.00

Above 10 pkgs. worth $1.00, we will mail you free, together with our great Plant and Seed Catalogue upon receipt of this **notice & 14c** postage. We invite your trade and know when you once try **Salzer's seeds** you will never get along without them. **Onion Seed 65c.** and **up a lb. Potatoes at $1.20 a Bbl.** Catalog alone 5c. No. 140

JOHN A. SALZER SEED CO., LA CROSSE, WIS.



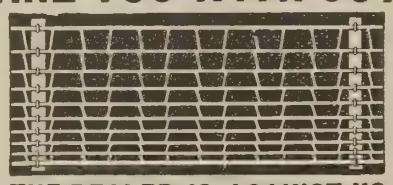
SEEDS

Good and Cheap

BEST in the world from 1 cent per packet up. Celebrated for strong and rapid growth. Postage paid. **Large lot of extra packages free in every order.** Oldest reliable seedsman in the west. Send yours and neighbors address for prettiest large catalog ever printed.

R. H. SHUMWAY
ROCKFORD, ILL.

ARE YOU WITH US?



THE DEALER IS ACAINST US

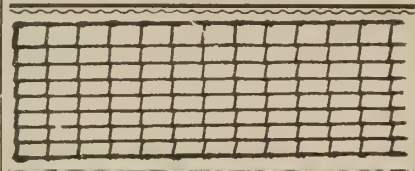
because we sell you wire fence direct from the factory at wholesale prices.

The dealer does not give you a better fence than we do, but he charges you more for it. You can buy the

ADVANCE FENCE

direct from us just as cheap as the dealer can. That makes a saving that will amount to something nice. A postal card will bring you circulars and prices.

ADVANCE FENCE COMPANY,
4002 Old Street, Peoria, Ill.



CABLED FIELD AND HOG FENCE

With or without lower cable barbed. Cabled Poultry, Garden and Rabbit Fence, Steel Web Picket Fence for lawns and cemeteries, Steel Gates and Posts.

DE KALB FENCE CO., 22 High St., DE KALB, ILL



Actual.... Experience

clearly demonstrates that a light, soft upright in a wire fence **IS A FAILURE.** Better look them over carefully and

Buy one that will not disappoint you.....

Lamb Wire Fence Co., Adrian, Mich.

Can't get under. The barbed wire holds him back.



Pig-Tight

With our **Duplex Automatic Machine** you can make 100 styles of fence at the rate of 60 rods a day, that will turn everything except wind and water. Makes a good hog fence at 12c. per rod. Rabbit-proof fence for nurseries, orchards, etc., at 16c. per rod. A splendid farm fence at 18c. per rod and poultry fence

Horse-High

at 19c. per rod. Every foot of it will possess the three leading features of this ad. Plain, coiled Spring and barbed wire to farmers at wholesale prices. Get our free catalogue before buying. Address,

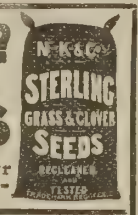
KITSELMAN BROS.,
Box 57, Ridgeville, Ind.

Bull-Strong

DO YOU SEE THAT BAG?

It is our Registered Trade Mark and means that our

STERLING GRADES OF SEEDS



are unconditionally the best that money can buy. Write now for our 1899 Catalogue of **IMPROVED FARM SEEDS, TESTED VEGETABLE SEEDS** and choice **FLOWER SEEDS.** It is mailed free on application. **Our seeds are sold by leading merchants.**

NORTHRUP, KING & CO., SEED GROWERS, MINNEAPOLIS, MINN.

It is intended that our STERLING Brands of Grass and Clover Seeds shall represent the best qualities obtainable

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SEEDS

THE ALBERT DICKINSON CO.

DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

THE ONLY LOW-DOWN

Short Turn
Straight Bottom
Short Coupled
Light Draft Wagon
on the Market.

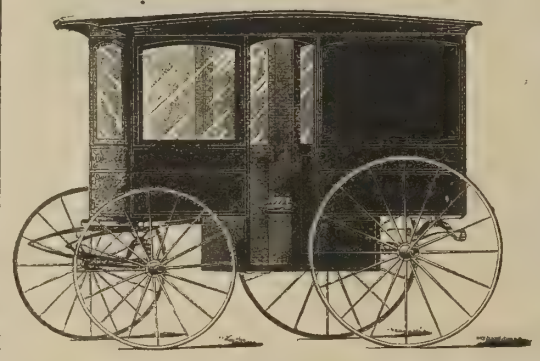
20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

SHIPMAN, BRADT & CO.,

Sole... Manufacturers,
DE KALB, ILL.



A Perfect Milk Wagon



On a Perfect... Short Turning Ge ar

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order, and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



Don't Pay Three Profits

No. 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

THE COLUMBUS CARRIAGE & HARNESS COMPANY, COLUMBUS, O.



ROAD WAGONS

$28.00 buys this handsome leather trimmed, solid panel back-end spring road wagon. Made strong and durable. Fine finish. On receipt of $1.00 we will forward this wagon "C. O. D.," subject to "Approval." Can be returned at our expense if not positively the best wagon ever sold at such a low price.

FIVE SHOVEL CULTIVATOR



$3.25 buys this all steel lever cultivator complete with center and hilling shovels and wheel. Sent "C. O. D." upon receipt of **50 cents,** to be returned at our expense if not positively the best made cultivator ever sold at such a low price. Send your order early. We handle and manufacture complete lines of Carriages, Wagons, Farm Implements and many other things at very low prices. Ask for catalogue. It is **free.**

John Dorsch & Sons, 223 Wells St., Milwaukee, Wis.

IRON ROOFING BRAND NEW

THESE ARE THE ONLY

$1.50 PER SQUARE. OF 10x10 FEET OR 100 SQUARE FEET.

THESE ARE THE ONLY



SHEETS ARE 26 TO 32 INCHES WIDE AND 5 TO 10 FEET LONG

TOOLS YOU NEED

WE CARRY A COMPLETE STOCK OF ALL KINDS OF MERCHANDISE AND MATERIAL BOUGHT AT SHERIFFS', RECEIVERS' AND TRUSTEES' SALES.

TOOLS YOU NEED

WRITE FOR FREE CATALOGUE.

OUR PRICES ARE ½ OF OTHERS.

CHICAGO HOUSE WRECKING CO., WEST 35TH & IRON STS., CHICAGO.

WOOD SAWS

Our Smalley and Battle Creek self-feed Drag Saws are the standard of the world. Also all sizes of Circular Saws, and the celebrated B. C. Picket Mill Horse Powers for operating. Silo Machinery, Feed Mills, Roo. Cutters, Corn Shellers.

SMALLEY MFG. CO., Sole Makers, Manitowoc, Wis.

FROM MAKER TO USER DIRECT AT WHOLESALE PRICES



Buggies $35 and Up.

BUGGIES AT WHOLESALE.

We manufacture a full line of **Buggies, Phaetons, Surries, Spring Wagons and Road Wagons and sell them to you direct**

From our Factory at Wholesale Prices.

This saves you all the extra expense of double shipment, traveling men's expense, middle men's profits, &c.

We make all the Vehicles we Advertise.

Each is the best of its kind. Best seasoned stock, best workmanship, best finish and best styles.

Our line of Single and Double Harness

embraces everything you could wish in style finish and variety of mountings. Handsome illustrated catalogue FREE. Prices of everything in plain figures.

EDWARD W. WALKER CARRIAGE CO.
29 Eighth St. Goshen, Indiana.

2,000 BICYCLES,



$12.50 TO $17.50, MODELS 1899.

High Grade Gents or Ladies, all made to sell at $50, guaranteed. We ship on approval.

Free Wheel to Agents. We want one in every town. Send for circular of our new Bicycle wonder, "The Peerless" Bicycle Watch can attach and detach from handle bars. Remember a written guarantee goes with each and every Bicycle we ship.

CAPITAL WATCH & BICYCLE CO., St. Paul, Minn.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MARCH 17, 1899. NUMBER 5

University of Ill

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

REFERENCES:—Ex-Gov. W. D Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments. Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—Irving Nat'l Bank, Bradstreet; R. G. Dun & Co.,; Mercantile Agencies. 151 Reade St., NEW YORK.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

— THE —

Wisconsin Curd Test.

It shows the quality of every patron's milk and points unerringly to the milk that causes **Bad Flavor and Gass Cheese.** For full particulars address

A. J. DECKER, Fond du Lac, Wis.

CHR. HANSEN'S

Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES awarded to CHR. HANSEN'S LABORATORY

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and **SANITARY DAIRY ENGINEERS.**

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

WE ARE MANUFACTURERS OF HIGH GRADE DAIRY GOODS.

They are the strongest, the neatest and the most serviceable made in the United States. They are cheaper in the long run than the kind usually offered the people who only look at the price. When buying of your dealer see that they are of our manufacture.

CREAMERY SUPPLIES

We are making **VATS** colored, so as to show the natural grain of the wood. They are far handsomer and stronger than the old style. Give the creamery an air of neatness. We are agents for the

RENOWNED SHARPLES TUBULAR SEPARATORS.

If you intend building a new dairy house or creamery we will *furnish you plans free of cost.* We have a warehouse full of **Churns, Butter Boxes, Elgin Butter Tubs, Babcock Tests, Tread Powers, Engines and Boilers.** Send for illustrated catalogue and price lists or call at our factory.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

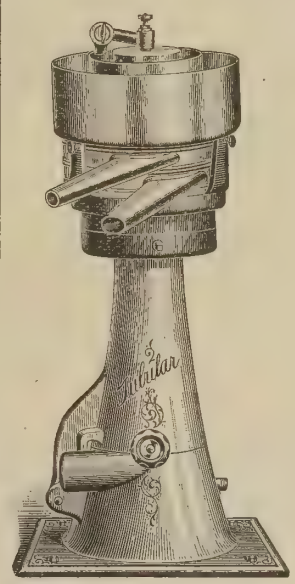
Creamery Apparatus And Dairy Supplies,

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.

His Coat Tails Cracked



As he went around the corner. Why? Because he turned the corner so short. Just so with the skim milk in a

Sharples Tubular Separator.

The largest factory Tubular swings the new milk around a four-inch diameter circle and the milk and cream quickly separate and *thoroughly separate.* The centrifugal force on the milk in a Tubular is three times as great as in any other separator, though it travels no faster.

THE BOWL ALONE REVOLVES.
IT SPINS ON AIR.
IT IS A HOLLOW BOWL.
IT IS DURABLE.
IT IS A SIMPLE BOWL.
IT WEIGHS BUT 30 LBS.
IT SKIMS 1 1-4 TO 3 TONS.
IT IS EASY TO WASH.
IT LEAVES .05 TO NOTHING.

It's Cream and Butter are Superb.

Send for Circular No. 46.

BRANCHES:— Toledo, Ohio. Omaha, Neb. San Francisco, Cal. St. Paul, Minn. Dubuque, Ia.

P. M. SHARPLES, West Chester, Pa.

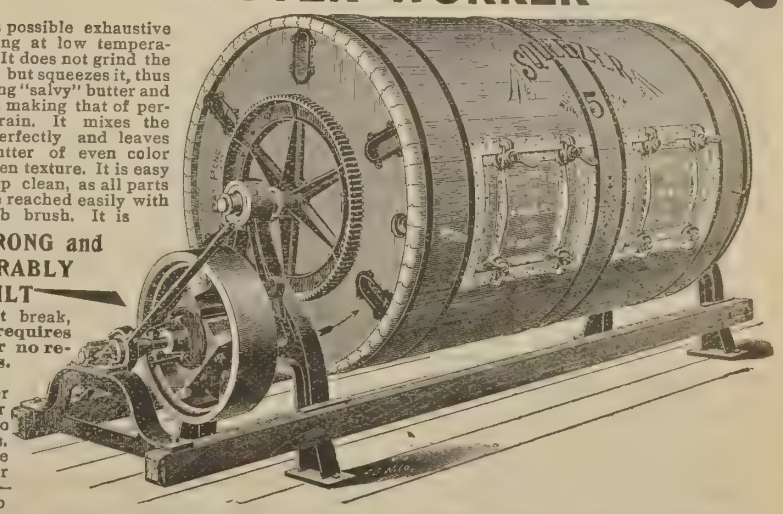
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



☞ SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.

ELGIN MANUFACTURING CO., - - Elgin, Ill.



It is Always

HARD TIMES

FOR PEOPLE WHO ARE BEHIND THE TIMES.

Keep up with the times and the times will be good to you and you will enjoy the prosperity of the times.

The Creamery is BEHIND THE TIMES which is not equipped with a

DISBROW

Combined Churn and Butter Worker.

These are good times. NOW is a good time to buy a Disbrow and prepare for the coming season. They are making money for their users everywhere.

OWATONNA MFG. CO.,
SOLE MANUFACTURERS. - - - OWATONNA, MINN.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— 1, 3 and 5 W. Washington St.,
Kansas City, Mo. Minneapolis, Minn.
Waterloo, Iowa. Omaha, Neb.
CHICAGO, ILL.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,
Sole Manufacturers, - - CATTARAUGUS, N. Y



Premium Butter

More than half of the Wisconsin Butter at the World's Fair **THAT SCORED 100 POINTS** was salted with VACUUM PAN SALT. More than three-fourths of all Premium Butter at Wisconsin State Fairs during the last five years was

Salted with VACUUM PAN SALT.

BUTTERS & PETERS SALT & LUMBER CO.,
LUDINGTON, MICH.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

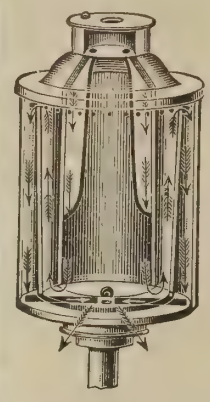
FITCH CHEMICAL COMPANY, Bay City, Michigan.

Save Money and Labor by Buying

THE IMPROVED U. S.

TRIPLE CURRENT SEPARATOR

Users say it is **unequalled** for **clean skimming,** durability and ease of operation. They surely ought to know. Read a few of their letters :



The More Used the Better Liked.

RIDGEWAY, WIS., Jan. 9, 1899.
The more we use the Improved U. S. Separator the better we like it. It is as **reliable as a good clock,** and it seems to me that it will be **as durable.** It runs light, does good work, is easy to take care of, and made to last.
THOS. CONVEY, Conductor of Farmer's Institutes.

Takes Out Every Particle of Cream.

SILVINA, WASH., Jan. 2, 1899.
The No. 5 Improved U. S. Separator is all right. It is easy to turn, easy to clean, and takes out every particle of cream. We make considerable more butter and receive 2½ cents per pound more for it. It is the best machine a farmer ever bought. MAX BARTL.

Greatest Labor-Saving Machine.

TURIN, N. Y., Jan. 11, 1899.
The No. 5 Improved U. S. Separator works finely. It is the greatest labor-saving machine for making butter that was ever made. **We could not do without it.** Every farmer should have one. J. BIBBINS.

Remember that in order to have the best, the **TRIPLE CURRENT SEPARATOR,** you must buy the **IMPROVED UNITED STATES.**

Illustrated circulars free on application.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

There's More Money

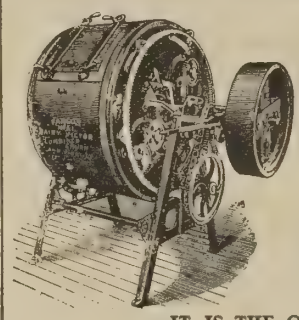
in milk than you can get out of it by the old way of skimming. If you had a Victoria Separator you would get *all* the cream—and a better quality of cream—from the milk, in much less time, with much less work than by any other way. It will pay any one who makes butter or sells cream, to write for illustrated, descriptive circular of the



VICTORIA CREAM SEPARATOR

Made in hand and power sizes, adapted to the needs of the smallest as well as the largest dairies. The Victoria Hand-power Separator is as practical, as durable and skims as close as the largest separator made. **Agents wanted.** Write for catalog of dairy appliances—milk coolers, strainers, milk scales, butter tools, etc.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia, Pa.



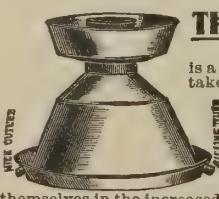
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



THIS PERFECTION MILK COOLER AND AERATOR

is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all **animal odors, odors** arising from **stables, feed, etc.** This method of treatment makes the milk keep sweet much longer. It is better for making **butter, cheese,** etc., and will stand shipment much better.

Cost But Little and Last Indefinitely.

They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated catalogue and prices of **Farm and Dairy Supplies.**

L. R. Lewis Mfr., Box 10, Cortland, N. Y.

PRINT YOUR NAME BUTTER

SHOULD BE WRAPPED IN

GOOD PARCHMENT.

(Not the Cheap Kind.)

OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

DEPARTMENT H,
Paterson Parchment Paper Co., Passaic, N. J.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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A GOOD MOVE.

We learn from correspondence in the Wisconsin State Journal, that all the Swiss and Limburger cheese factories in the vicinity of Mt. Vernon, Wis., will open the season, this year, with the practice of receiving all milk according to the Babcock test, and divide receipts by the percentage of fat. The same item says all the patrons will make an effort to improve their cows. A large number of Cheddar factories in this state will adopt the same plan the coming season. This is encouraging.

HOW SUCCESSFUL DAIRYMEN PRODUCE GOOD COWS.

Here is the advice, and the record that lies back of the advice, of John Armstrong of De Smet. S. D., which he gave before the South Dakota Dairy Convention:

"Do not fail to use the best dairy bull within reach. I am now using one out of a young cow that made twelve pounds of butter per week with first calf. Her dam made 20 lbs., grandam 17 lbs. 4 oz., and great grandams, 19 lbs. in 7 days. This bull's sire's dam, two grandams, and four great grandams have a seven day average of 19 lbs., 10½oz. We expect something good from him.

"In January I delivered to the creamery 8,466 lbs. of 4.8 per cent milk from ten cows and two heifers, which will bring about $75; the skim milk is worth $7 to feed to calves and pigs, making a total for the month of $82. Deduct from this for feed $21 and we have a net gain of $61.

Mr. Armstrong simply accepts the fact that if the dairy farmer wants cows that will pay to work with he must become his own breeder. And if he becomes his own breeder he must study out the *principles* of sound dairy breeding and be governed by them. He must not follow out mere notions or desires, but follow out principles.

Grade Cows for the Dairyman.

Ed. Hoard's Dairyman:—I have been much interested in the Dairyman for several years, and not a few, but many good things have I found in it. I have recently been much interested in the pictures of noted dairy cows, which have, from time to time, appeared in its columns, all of which have been pure bred animals. Sometimes I have thought, that were it possible for you to get them, the pictures of cows known as grades might interest a class of farmers, who have not the means to own a phenomenal cow of any of the registered dairy breeds, with a pedigree of great length. I have sometimes wondered if the presenting of the pictures of some noted animals did not have the effect of discouraging some farmers, who, with faint heart, were encouraged in the belief if they could not own a world beater, there was no use of their trying to breed anything better than what they at present owned, and so kept on year after year, with their scrub animals.

Now, as a matter of fact, I believe there are many cross-bred, or grade cows of some of the dairy breeds, that if they were brought out, and fed and cared for, along lines that have developed some phenomenal cows, that would, for practical purposes, be found but little inferior to the pedigreed animals. Do not understand me as saying anything belittling pure bred animals. For it is to them that every grade owes what merit it posesses. But I speak of it for the sole purpose of encouraging men of small means, to make the best of their present condition, and grade up by using bulls of pure blood and high in merit.

In order to show the force of my argument, I send you a picture of two cows, neither of them pure bred, yet some pure blood flows through their veins. They are not phenomenal cows, but cows of good dairy quality, cows that pay to keep, even with low price butter, cows such as any farmer can own if he will. That is all I claim for them.

The one on the left of the holder, as he stands facing us, was born in March, 1882, making her 17 years of age nearly. She is a cross-bred Ayrshire and Jersey, her mother an Ayrshire, her sire a pure bred unregistered Jersey. She dropped her first calf, which is at the right of the holder, at twenty-three months of age, and has been milked continuously ever since. She has never been milked without a feed of grain of some kind (thus showing that grain feeding has not worn one cow out, as many predict it will). She has produced a calf annually and it has been strong and of fair size. She calved on Feb. 6th and was being milked once per day, and was given 8 pounds of mixed corn and oat chop, with an equal quantity of wheat bran and a little linseed oil meal. She produces annually, on an average, 6,200 pounds of milk, testing shortly after calving 4 6% butter fat; six months after calving she tests 5.4% butter fat and later as high as 6%. Her companion in the picture is now 15 years old; was sired by a pure bred Ayrshire bull, making her a three-fourths bred Ayrshire cow. She is owned by my hired man, Robert Dodgson, of Logan, N. Y., and is his only cow. His family consists of himself, a wife and one son. In one year's time she has produced a calf which was fatted upon her milk for veal, furnished the family with milk for family use, and also the butter used in the family, and there was sold from her 195½ pounds of butter, no account having been made of the total amount she made, nor the milk used by the family. I will say they use milk and butter both in the family and don't stint themselves either. She is also fed grain feed summer and winter, and is now giving 12 pounds of milk daily, and is due to calve March 15th. These cows, as before stated, I do not consider anything wonderful at all. They are simply dairy bred, yet not pure bred. They have a dairy form and a dairy function, and when fed so as to enable them to do what they are bred for, can do it and are doing it. That is all there is about it in a nutshell. Any farmer in the land can, if he will, by the use of a pure bred bull of merit, produce a whole herd, of just as good ones, and when he has them, his dairying will pay some per cent of profit even with ten cent butter.

Logan, N. Y. C. D. Smead.



A JERSEY-AYRSHIRE COW AND HER DAUGHTER.

See accompanying letter of Dr. C. D. Smead, Logan, N. Y.

Barns for Alfalfa Hay.

Ed. Hoard's Dairyman:—Most of the readers of the Dairyman are so situated that there is no question with them whether they shall put their hay in a barn or stack it outdoors. They know by experience that the losses by rain in summer and snow in winter, will much more than equal the cost of the barn. But the Dairyman has a large constituency living in the arid west to whom the problem is not so easy and certain of solution.

An experiment was lately made at the Colorado Agricultural College, to determine the difference in loss between the barn and the stack. Our first cutting of alfalfa is cut during our rainy season and is often much injured in the stack, so that our cows refuse a good deal of the coarser parts. The second and third cutting are less likely to suffer and the third cutting makes the finest dairy feed in the world. In our experiment the first cutting of a field of alfalfa was divided, two loads put in the stack, the next two in the barn, and so on through the field. Everything was carefully weighed and sampled when put in and the same weights and samples taken when the hay was fed out in February.

The hay in the stack was in four layers. The top and bottom layers lost sixteen per cent of their feeding value and the middle layers lost eight per cent. The difference is due to the greater amount of fermentation in the hay that is dampened by the rain on top and the moisture absorbed from the ground in the bottom layer.

This stack was well made and had a chance to settle thoroughly before any heavy rains came, so that the above amount of loss represents about as little as ever occurs with the first cutting. As already stated, the loss in the second cutting is less, and for the third cutting the loss is but slight.

The average loss of the hay put in the stack was 12½ per cent. The loss of the other half put in the barn was 2½ per cent. The difference in favor of the barn is just ten per cent, or one-tenth of the hay. This means that nine tons of hay of the first cutting put into a barn will feed as many cows as ten tons of hay put in the stack.

The practical question is: Can one afford to build and use a hay barn for the sake of saving one-tenth of his hay?

The cheapest hay barn will cost about two hundred dollars for a barn large enough to hold forty tons of hay. If the barn is made larger, the proportional cost will be less, but if it is to be built in the field this is about as large as can be made and have the hay put up without much long distance hauling.

Counting interest, repairs and depreciation at ten per cent per year, the cost of the barn is fifty cents per year for each ton of hay it will hold. The amount of labor required to put hay in a barn, as compared with using a stacker, is at least half as much again, while it will take more work to feed the hay from the barn than the stack. It is evident, then, that using a barn costs at least seventy-five cents a ton more than stacking.

Will it save the seventy-five cents? The answer to this depends on the price of hay and the weather during the summer. The amount of loss given above—ten per cent—represents the least probable loss. In 1895 our first cutting put in the stack lost thirty-five per cent of its feeding value.

With hay at two and a half to three dollars per ton, there is little chance for profit in building barns to help preserve it. But when the price reaches six dollars per ton, as it has this winter in most of the dairy districts of Colorado, it is probably a good investment to build barns enough to hold at least the first cutting of alfalfa.

W. W. Cooke.

Colorado Agrl. College.

The Jersey vs. General-Purpose Cows.

Ed. Hoard's Dairyman:—I want to relate an experiment made under my supervision some years ago, which is just as applicable to many farmers to-day as then. It came about in this way. My parents at that time kept three cows, one a Jersey and two general-purpose. All were, practically, in similar lactation periods, and treated exactly alike. Of course, I was a boy then (a period when you are supposed to know less than your seniors,) and when the question was raised about selling the Jersey cow, of course I kicked. She was to be sold simply because she did not give quite as much milk as her partners. Mother was just sure she was the poorer cow, because she—like so many mothers, fathers and even sons at the present day—simply looked at the quantity of milk, and not at the quality. After much persuasion I finally carried my case—i. e. these cows must have a regular (?) court trial.

Oh! but that was a momentous week of waiting. Mother kept the milk and cream of the two general-purpose cows in one vessel, and the Jersey cream alone. Finally the seven days were up and cream ripened, and you can imagine I churned gladly then, and mother worked and salted the butter. Results, Jersey 6 pounds, 1 ounce; two general-purpose, Short-horns, 4 pounds, 8½ ounces merchantable butter, and about one quart of cream for coffee. Understand, it took both to make 4 pounds, 8½ ounces and 1 quart of cream. In my notes, I find the Jersey was fresh the first of November 1891, and the test was made in May 1892 on timothy and nothing but timothy pasture, during the day only. You, no doubt, think the Jersey stayed, and in that you are right. She subsequently died of milk fever.

Now I want to draw an object lesson from this experience. But in order to do so I will be obliged to hold before you the practice of my kind and worthy father, who four years ago kindly turned the reins over to his only child, who now tries to support him by breeding up a herd of Jersey cows.

The object lesson is this: My father bred that Jersey to anything that a neighbor chanced to have, except a Jersey, and, of course, never got results equal to the dam. His error was the too common error of beefiness, etc., larger cows and heavier veals.

Look at that cow's results—giving milk 7 months, and then on nothing but timothy pasture make 6 pounds, 1 ounce of butter. She was a Klondike—a veritable gold mine; a 300-pound rate at the end of 7 months, under such treatment.

If my father would have bred that one cow the way I must myself now breed other ones, I would have a herd of Jersey cattle that no $1,000-bill would tempt me. The way for you and me to do now, is to do what we think they (our fathers) should have done. Do test your property for a gold mine, before you sell your treasure in disguise for a song that has no music. A. Hursh

Wayne Co., Ohio.

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TO THE MEN WHO DON'T TAKE HOARD'S DAIRYMAN.

Mr. J. Moldenhawer, of Washington, D. C., is a highly skilled dairyman. He is engaged in producing the finest of milk for the highest paying demand. Mr. J. C. Jurgensen, of Brooklyn, N. Y., in writing to us in the issue of Sept. 23, concerning a visit he paid Mr. Moldenhawer, says:

"Mr. Moldenhawer is himself picking out Hoard's Dairyman before any other of the many farm papers he keeps, and he frankly says that your great paper is of high value to him. When a man with his reputation says so, how can the farmers who expect to make money by keeping cows for dairying, get along without the Dairyman. Still it is a very trying job to try to convince farmers how much it would help them to keep an extra good dairy paper."

What is the lesson that the above teaches? This: That no man who is keeping cows for profit can afford NOT to have such a friend and adviser as Hoard's Dairyman at his elbow every day in the year. Simply put a dollar bill in a letter with your name, post office, county and state plainly written on a piece of paper, and mail it to us, and secure the paper to Jan. 1, 1900.

ARE CREAMERIES PROFITABLE?

This is a question which an Iowa paper, the *Maquoketa Record*, undertakes to answer in the affirmative, and in proof of its assertion it brings forward the following record kept by John Roher, as the result of the sales of milk and calves from his dairy of twelve cows, covering a period of nine months. The creamery which takes the milk is co-operative and presumably Mr. Roher is one of its best patrons. Here is the record.

May milk	$ 10 90
June milk	24.51
July milk	25.88
August milk	25.55
September milk	26.45
October milk	31 08
November milk	28.00
December and January milk	22.18
Sale of calves	175.00
Total	$ 369.55

An average of $30.797

We wonder, sometimes, when we see such low records quoted as being profitable, if the farmer who makes them really thinks he is making money? In Wisconsin, and in Iowa also, $30 is just about what it costs to keep a cow for a year.

If this estimate is true in Mr. Roher's case, and we judge it is, he has simply labored the whole year to keep the kind of cows he has, for just what their feed and pasture is worth, balancing the labor with the manure.

We are inclined to think the difficulty lies in the kind of cows he is keeping. It will pay Mr. Roher, as well as a good many other creamery patrons, in Iowa and other states, to look into the question. How much ought a creamery cow to earn, in order to bring a profit?

Then one more question. Does it pay to keep cows for dairy purposes, pay all the expense necessary to such purposes, that are not dairy cows? With well posted dairymen, the above return would be considered about $20 under the mark

In this, as in thousands of other cases, the creamery has, in reality, nothing to do with the matter. Profit or loss follows upon the fact, whether the man who owns the cows is a dairyman or not. Has he dairy cows to start with? Does he feed and handle his cows as a well posted dairy farmer should? Is everything done at the farm end to bring a good profit? The creamery is but an agent to make up and sell one product of the cow alone, the butter.

Right here is where the great mass of creamery patrons need better ideas of what they must do, if they amount to anything, more than to dance attendance on their cows for a year, without a cent of profit. A little reading and study on this question will help them wonderfully if they will take it.

MANURIAL VALUE OF FEED STUFFS.

The inquiry of A. D. C., Dryden, New York, as to the difference in the manurial value of oats and bran, and the suggestion that we "don't, apparently, figure much, if any, on manurial values," prompts us to give the subject somewhat more than a passing notice. A little more than four years ago, on page 818 of volume 25, we published a table showing the total fertilizing contents in a ton of the several more common feed stuffs, and their practical manurial value to the farmer, based upon the then current market values of nitrogen, phosphoric acid and potash.

There have been various revisions of the tables of analyses since that time, and some modifications in values, so that it, perhaps, is not inexpedient to publish a revised table. We said then, and still believe the fact to be, that the discussions at farmers' institutes, and the tables published in the books, are misleading, in that the majority of farmers understand the term "fertilizing constituents" to mean available manurial value. This is an erroneous conclusion, but all the same it seems to discredit the statements made.

In a ton of average wheat bran the chemist finds 53 4 pounds of nitrogen, 57.8 pounds phosphoric acid, and 32.2 pounds potash, and at the general market price of the elements, 15 cents, 7 cents and 4.5 cents respectively, it is very truthfully said, that a ton of wheat bran contains $13.50 worth of fertilizing material. That is to say, it would cost that much to purchase these amounts of nitrogen, phosphoric acid and potash, in the market, and every ton of bran withdraws these amounts of fertilizing material from the soil, less the very small amount of nitrogen (if any in the case of bran) derived from the air.

The same conclusions could be made in regard to the other feed stuffs, but the figures would be modified to correspond with the varying analyses. A ton of shelled corn takes less fertility from the soil than a ton of oats, and a ton of oats less than a ton of wheat, and a ton of milk much less than either, as will appear in the accompaning table.

When we sell a ton of hay or a ton of corn we are selling fertility that has come from the soil of the farm, and unless some return is made, the farm will become barren in the course of a very few years, because the available fertility has been taken away and sold. On the other hand, if we buy a ton of bran and feed it to stock, or if we feed the hay to stock, carefully husband the resulting manure and return it to the soil, we conserve or replenish fertility. Herein is one of the important elements of profit in animal husbandry.

In the last column of the table herewith, we give what we believe to be a conservative estimate of the value, to the farmer, of the manure made from a ton of the different feed stuffs mentioned. Every farmer knows that it is not possible to save all the manure or to preserve all the value of that which is saved. More than half of the total manurial value is voided in the urine, which cannot be saved without considerable loss, even with the best arrangements, and when saved, is very easily washed away. And so, without further specification of the sources of loss, we deduct from the total manurial content in the feed, 50% for this unavoidable waste in the grains, and 66% for waste in the hays and coarse fodders. This is in accord with the custom in England, where they are quite as careful about saving fertility, as we can expect to be. Further, instead of estimating that 80% of the fertilizing elements in the feed are voided in the excrements, as is commonly done, we adopt the exact figures of a feeding trial with milch cows, at the Wisconsin Experiment Station in 1866, namely: 62% for the nitrogen, 89% for the phosphoric acid, and 63% for the potash.

On these bases, the crude nitrogen in grain, silage and roots may have a manurial value to the farmer of 4.65 cents per pound, phosphoric acid 3.12 cents per pound, and potash 1.42 cents per pound. In hay, straw and other dry forage these figures would be 3.10 cents, 2 07 cents and 0.95 cents respectively. But even these reduced values, conservative as we have made them, cannot be realized if the liquid excrement is not saved, or if the manure piles are left to leach in the yard.

AVERAGE AMOUNTS OF FERTILIZING ELEMENTS IN DIFFERENT FEED STUFFS AND ESTIMATED VALUE OF SAME IN THE MANURE.

	TOTAL CONTENTS PER TON IN POUNDS.			
	Nitrogen.	*Phosphoric Acid.*	*Potash*	*Estimated Available Manurial Value.*
Corn silage	5.6	2.2	7.4	$ .43
Corn fodder (field cured.)	35.2	10.8	17.8	1.49
Corn stover (field cured.)	20.8	5.8	28 0	1.03
Clover hay	41.4	7.6	44.0	1.86
Timothy hay	25.2	10.6	18.0	1.17
Oat straw	12.4	4.0	24.8	.79
Wheat straw	11.8	2.4	10.2	.50
Mangels	3.8	1.8	7.6	.34
Sugar beets	4.4	2.0	9.6	.40
Turnips	3.8	2.4	9.8	.39
Ground corn	36.4	14.0	8.0	2.24
Ground corn and cob	28.2	11.4	9.4	1.80
Ground oats	41.2	16.4	12.4	2.60
Ground rye	35.2	16.4	10.8	2.30
Ground wheat	47.2	15.8	10.0	2.83
Wheat bran	53.4	57.8	32.2	4.74
Wheat middlings	52.6	10.0	12.6	3.22
Rye bran	35.2	16.4	10.8	2.30
Buckwheat bran	72.8	35.6	25.6	4.86
Buckwheat middlings	85.6	43.8	22.8	5.67
Cotton seed meal	135.8	57.6	17.4	8.36
Linseed meal (old process)	108.6	33.2	27.4	6.47
Linseed meal (new process.)	115.6	36.6	27.8	6.91
Gluten feed	70.4	4.2	1.3	3.42
Gluten meal	100.6	6.6	1.0	4.90
Milk	10.6	3.8	3.6	
Skim milk	11.2	4.0	3 8	.70
Butter	2.4	1.4	.5	
Cheese	79.0	13.0	2.4	
Whey	3.0	2.7	3.7	.28

Creamery Questions.

ED. HOARD'S DAIRYMAN:—Our people have been talking creamery for some time past. A firm of creamery owners who own a creamery and several skimming stations in neighboring towns, have talked of building a skimming station here. Their proposition to the farmers was that they would build and equip the plant, and buy the milk of the farmers, by the Babcock test, and pay them for the butter fat within two cents a pound of the Elgin butter price; that is, if Elgin price of butter is, say, 22 cents, they would pay 20 cents per pound for butter fat. Is that a fair transaction for the farmers? It does not seem to me like it is, if there is a gain in butter over butter fat of about 1/6. If it is not a fair price, what would be?

On what basis are creameries usually run, where they are not on the co-operative plan?

About what will a plant ready to run, to use the milk of, say, 400 or 500 cows, cost? What help is needed to run it? About what do farmers have to pay creamery owners for making and marketing butter?

If run on the co-operative plan, what would be the approximate cost of making, allowing for interest on investment, wear of machinery, etc?

Would like as much information as you can give us on the building, equipping and running of creameries. A READER.

Ohio.

The price paid for making and marketing butter is usually from three to four cents a pound, depending on the amount of milk to be handled. A pound of butter fat will make an average of 1.15 pounds of butter. The price that should be paid for butter fat will vary according to the price of butter.

In co-operative factories, each patron is credited with the amount of butter fat he brings to the factory. The butter is made and sold; all expenses of making and selling are deducted from gross amount, and the net returns are divided among the patrons according to the per cent of total fat each one has contributed. Formerly, and to a certain extent at the present time, the net proceeds were divided according to the weight of milk delivered by each patron. But this is only in cases where all milk is pooled, regardless of its per cent of fat, and no tests are made.

A creamery having capacity to handle milk of 300 to 500 cows can be built for from $800 to $1,500, and the equipment will cost about as much more.

Such a creamery will require a buttermaker at $60 to $75 per month, and a helper at $25 to $30. The cost of making butter on the co-operative plan varies widely, according to the skill of the conductors and the amount of milk made up. It may run as low as two cents per pound and as high as five.

University of Wisconsin, the Short Course for 1899.

The attendance for the past year was 196, more than double that of three years ago; of these thirty-two come from outside the state. Dairymen, stock breeders, etc., are rapidly appreciating the value of the graduates' services—one hundred calls having been received at the University during the past three weeks. Seventy-one students have secured positions in their respective lines of work, and numerous calls are coming in daily, that the College is unable to fill. Already 110 applications have been received for the next term, beginning November 28th, 1899.

Information Wanted.

ED HOARD'S DAIRYMAN:—I notice a party in your paper asking about how to keep check on milk drivers. I have never seen this discussed and would myself like to know how best to keep tab on them.

Bonham, Tex. D. M. B.

MR. H. G. M., OF WESTBORO, MASSACHUSETTS, WRITES:

"Six years ago I was a city boy too green to harness a horse. After two years spent with successful farmers as a hired man I started in myself. Now I have 38 head of Jerseys and my herd will bring me this year $3,500 to $4,000. I sell the milk and cream."

"I OWE WHATEVER SUCCESS I MAY HAVE ATTAINED TO THE GOSPEL OF THE DAIRYMAN."

ONLY ONE DOLLAR A YEAR FOR THIS GOOD FRIEND AND HELPER.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty four hours

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

DIGESTIBLE NUTRIENTS

Dry matter.	*Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

FOR AN ONTARIO MILKMAN.

Advise the best ration from the following feeds: clover hay, $4.50, mixed clover and timothy, $5, with corn stover and straw. Grain feed, bran, $13, shorts $14, gluten feed $17.50, corn meal $16.25, chopped oats $20. Can get cotton seed meal but not sure of price. Will have a few mangolds and intend building a silo the coming season.

We retail Jersey milk at 6 cents per quart and ordinary milk at 5 cents per quart, (Imp. quart weighs 40 oz.)

Intend building stave silo 16×24; foundation of gravel and concrete six or eight inches deep for bottom of silo, after silo is erected bank around bottom with cement. Would this be satisfactory? W. W. E.

Ont.

From the feeds named we should select about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay	12.70	1.02	5 37	.26
10 lbs stover	5.95	.17	3.24	.07
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.82	1.94	.20
Totals	25.86	2.51	12.09	.65

This should suffice for cows in full flow of milk, and cows weighing less than 1,000 lbs. will not be likely to eat all the hay and stover. In that event reduce the allowance of hay.

The silo will probably work all right although we would not bank up around the bottom either inside or outside with so unyielding a substance as cement. The staves will probably shrink some, and then if there is a rim of solid cement on the inside they cannot be tightened. If the cement is on the outside more or less space will be left.

A KENTUCKY RATION—HARDENING BUTTER.

I would like a balanced ration of the following feeds: Ship stuff or otherwise wheat bran and middlings mixed; ground corn and cob, cut sorghum cane, and cut millet. Have been thinking some time of adding cotton seed meal; it is hard to get it here, and costs about $21 or $22 per ton. If I should conclude to use it, how much should be added to that ration, and is that too high priced for profit?

Our cows are grade Jerseys, and ages run from two to seven years; their weight runs from 700 to 900 pounds. We are milking 10 cows, and with the feed I have mentioned, the profit per month has been about $75.

We get 25 and 20 cents for our butter, the year around. H. J.

Mt. Sterling, Ky.

These cows are doing very well now, but it is possible they might do even better and at less cost for feed, by getting some cotton seed meal. For use with sorghum and millet for roughage, 1 pound of cotton seed meal is nearly as valuable as 3 pounds of ship stuff. Moreover, cotton seed meal helps to make a firm butter, and will be especially serviceable in this direction during the summer. But it is too concentrated, that is, contains so much nutriment in so small bulk, that it should always be mixed with some lighter material for feeding. Bran is excellent for this purpose, but any kind of cut feed will answer.

For the present we suggest as follows, for an average:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. sorghum hay	5.97	.35	3.73	.04
10 lbs. millet hay	9.23	.45	5.17	.13
4 lbs ship stuff	3.52	.51	1.83	.13
4 lbs. corn and cob meal	3.56	.26	2.52	.14
1 lb. cotton seedmeal	.92	.37	.17	.12
Totals	23.20	1.94	13.42	.56

Commence with not to exceed one half pound of cotton seed meal per day, and increase very gradually, up to nearly or quite two pounds—reducing ship stuffs and corn and cob meal, when the allowance gets above one pound.

REGISTERING INBRED ANIMALS—WET AND DRY FEED.

I have a standard bred Jersey cow, and have a standard bred Jersey bull, two years old, from the same cow. During my sickness, the cow and bull (her own calf) got together. Can the offspring be registered, or is the in-breeding too close?

2. I am feeding 2 pounds bran, 2 pounds corn meal, 2 pounds ground oats and 2 pounds shorts. Which will produce the best results in feeding, wet or dry? J. McK.

Stanton, Neb.

So long as the sire and dam are thorough bred and registered, the calf can be registered, regardless of close in-breeding.

If the cow is in normal condition, there is no reason for wetting the feed. It makes more work for the farmer, and the stalls and mangers cannot be so easily kept wholesome if the feed is wet. Besides which it is no particular advantage to the cow.

COST OF SILAGE.

Will you please let me know what ensilage is worth per ton? J. H. L.

Dutchess Co., N. Y.

The average cost of ensilage is $1.50 per ton. In individual cases the cost may be above or below this figure, depending on conditions of soil, labor, climate, ect.

ALFALFA IN NEW YORK.

I would like your opinion about sowing alfalfa. How much per acre, and how early in the spring. I would use it for soiling my dairy. I live 50 miles north of New York city, and fear the climate may be too severe.

New York. T. C.

There is much difficulty in obtaining a good stand of alfalfa in the eastern states, unless certain precautions are taken. The ground should be as free from weed seeds as possible. For this purpose, summer fallow the proposed alfalfa field for one season, to reduce the soil to proper fineness, and sprout and kill all seeds lying near the surface. The following spring sow from 20 to 30 pounds of alfalfa seed per acre, in drills, and cover lightly with a harrow. Sow without a nurse crop in April.

TUBERCULOSIS AND CROSS BREEDING DISCUSSED.

I have always been an admirer of Guernsey stock, but having lost two Guernsey bulls in last two years from tuberculosis, have now a full blood Holstein, and trust I may not lose 50% of my calves as have been doing. Would you have recommended this cross, having 11 cows, and most of them grade Guernsey or Jersey?

I am feeding stalks with corn thereon, and giving about 5 quarts of bran and what alfalfa hay they will eat. Shall soon have to feed wild prairie and millet hay. I know the corn would do more good if ground, but will it pay for husking, shelling and then going 6 to 10 miles to get ground? Of course hogs behind cows. My cows tested for February, 4.4%. Most of our patrons are 4% or less. Do you not think Holsteins at 3.8%, would be more profitable than my present condition? G. L. G.

Mission Hill, S. D.

Having already purchased the Holstein bull, it is rather late to ask advice. We can, however, unreservedly condemn the principal reason given for making the change. There is no breed immune to tuberculosis, and so far as the statistics show there is no considerable difference in the percentage of animals in the several breeds affected with this disease. Moreover, few calves die of tuberculosis, or as a sequence to tuberculosis in either parent. It is well demonstrated that perfectly healthy stock can be raised from cows that are decidedly tuberculous, provided they are separated from their dams at birth and fed on sound milk, or that which has been pasteurized, and are not otherwise exposed to the infecting germs.

This is not saying that you may not have excellent results from the cross now introduced. Some of the large producing cows have come from a similar cross, but the general opinion is that the average is not likely to be better. This is by no means a fully demonstrated conclusion, but rather a theoretical deduction, and we should not be disappointed if you have some excellent heifers and some inferior ones.

We do not think it would pay to husk and grind the corn, but it would pay a big profit to build a silo this coming summer for storing feed for next winter and next summer.

When the alfalfa hay is gone, you will find it profitable to add a full feed of bran to your daily ration, perhaps as much as 10 pounds per day to each cow that is near her full flow of milk.

A NEW YORK RATION.

Will you please give me a properly balanced ration from the following grains: rye, corn and cob, and wheat middlings, ground and mixed. I could get some gluten feed or oil meal, if you think it would pay me. My cows have common meadow hay with very little clover, and are mostly Jerseys and in full flow of milk. I could exchange my rye at 50 cents per bushel for rye bran at 75 cents per hundred, if it would make a better feed.

During the year '97, I made 2,495 lbs. butter from 8 cows, but did not do quite so well in '98, because of abortion among several of my cows, last winter. We use the United States separator, and supply private customers at 25 cents by the year. C. M. S.

West Lebanon, N. Y.

Estimated on the basis of its nutritive value alone, when ground rye is worth $20 per ton, rye bran would be worth $16 50; taking only the protein element into consideration (and this is what is particularly needed for balancing the excess of carbohydrates in the other feed stuffs), when rye bran can be bought for $15, ground rye would be worth only $12.37½.

For a minimum daily allowance to cows in full flow of milk, we can recommend the following:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
18 lbs. hay	15.63	.50	7.81	.25
5 lbs. rye bran	4.42	.58	2.52	.10
5 lbs. gluten feed	4.61	1.02	2.42	.25
Totals	24.66	2.10	12.75	.60

For cows of decided dairy ability, we would increase the grain somewhat—especially the gluten feed—and in that event, it is probable less hay would be eaten.

Corn and cob meal and middlings could be substituted for the rye bran, but it is probable the expense would be greater, as it would require 6 lbs. of these to equal the 5 pounds rye bran in protein. There would, however, be some saving in hay.

FOR NEW YORK HOLSTEINS.

Will you kindly name ration for herd of Holsteins? I have plenty of corn ensilage, hay, and shredded fodder corn and carrots. Bran, corn meal, middlings and linseed meal are easily obtainable at this point. I have certain cows that nothing seems to keep in condition so well as a portion of corn meal included in their ration. Will you also name the best balanced ration for young growing stock? F. P.

Saugerties, N. Y.

If confined strictly to the feeds named, we would select and combine about as follows for this class of cows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
8 lbs. hay	6.82	.22	3.47	.11
8 lbs stover	4.76	.14	2.59	.05
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. ground corn	4.45	.40	3.33	.22
2 lbs. oil meal	1.81	59	.65	.14
Totals	28.85	2.31	15.47	.86

This is a large ration, but it is intended for large cows capable of making large returns. Milch cows that require corn to keep them in condition have the true dairy temperament, and should be fed accordingly.

We would just as soon omit the oil meal in the above formula, and take gluten feed in its place, by doubling the amount and reducing the bran and corn by an equal amount. We have not included the carrots, because the amount likely to be fed each day would make no considerable difference in the figures as an equivalent amount of hay or shredded stover would be refused.

For the young stock, we would recommend the silage, hay and stover, but little or no grain. Young, healthy animals can eat enough roughage, if of good quality, to keep them growing,—and fat must be avoided.

WHAT KIND OF A COW TIE?

I expect to build a new cow barn this spring and cannot make up my mind whether to put jacks in, or to have stalls and a chain to tie them by. If you will favor me by stating your experience as to which you think the most comfortable for the cow, for in whichever she is the most comfortable, that is the one I will get the best results from.

Whitford, Pa. C. C. S.

We suppose "jacks" to be a local name for stanchions, and if this is correct, there is

no room for two opinions. Use the tie. Or, still better, adopt some one of the several modern cow stalls, of which illustrations have been given in the DAIRYMAN from time to time.

The senior editor uses the so-callled "model stall", which consists, in effect, of a sloping rack for hay, the bottom about 30 inches from the floor. This forces the cow well back when standing up. While thus standing, notice where her hind feet are, and a little in front of them fasten a piece of 2 x 4 or 2 x 3, so that when the cow lies down, she will draw forward, quite out of the way of all droppings. Fasten with an ordinary halter.

The associate editor has some stalls made by hanging swinging partitions on the old stanchion frames, with a rope (or chain) running from one to the other, which prevents the cow from backing out, with a gutter at the rear to hold the droppings, and a device (anything which will answer the purpose, will serve) to prevent the cow from moving forward.

Each stall has some merit peculiarly its own. Some would prefer one and some the other. And there are other stalls, some patented, like the "Drown" and the "Bidwell", and some not patented, like the "Scott", (See page 30, this volume) the "Thorp" and the "Baker".

EARLY CORN FOR SILO.

I have a large silo and would like to fill early, so as to be through the 1st of September. What kind of corn should I grow? Will the eight row corn do, and how early can it be handled? I want a feed with the grain in with the ensilage. WM. H. S.

Belvidere, Ill.

Any early maturing variety will do. The eight rowed variety is an early kind and will probably do well with you.

Put in the silo as soon as it glazes.

PEAS AND OATS.

1. What kind of peas should be sown with oats for hay or silage?

2. Where can they be bought and at what price?

3. With oats yielding 40 bushels per acre on good corn land, what would be the yield in tons if cut for hay?

4. Is oat and pea hay difficult to cure in damp weather?

5. Will alfalfa silage bloat cattle?

6 What special fertilizer is there in the market for potatoes?

7. What is the commercial value of tankage, ground and unground?

8. What kind of a mill is necessary for grinding? WM. P. H.

Muscatine, Iowa.

It depends on the locality. If you have a dry, hot summer, the Southern cow pea is the best.

Any dealer in seeds will supply them.

In the South a yield of 3.5 tons of hay per acre is reported. It would probably be less in Iowa.

It is hard to cure in wet weather the same as any hay.

No.

Address dealers in fertilizers. They all have special makes for potatoes.

The value of tankage varies according to the per cent of fertilizing ingredients present. It may run from $16 to $26 per ton.

We do not know. Inquire of manufacturers. See ads in DAIRYMAN.

A CEMENT FLOOR FOR COW STABLES.

Can you or any of your readers tell of any experience with cement floors in barns? Also, I should like to know how much, and what kinds of cement should be used in building a cow barn floor? S. H. L

Northwood, Ia.

From a back number of the DAIRYMAN we take the following:

First excavate to a depth of about five inches below the line where you wish the surface of your floor to come, making the surface level and smooth. Fill in a layer of sand and gravel, about one inch deep, level off and firm well. Cover this with three inches of concrete, composed of five parts of clean, sharp gravel to one of Portland cement, mix dry, add water and re-mix thoroughly, and lay and pack firm. Finish the floor with a three-quarter inch covering of Portland cement and sand, composed of four parts cement to seven of sand, and finish with a trowel. The surface may be roughened at the finish, if desired, in order to prevent slipping. For cow stalls, with a gutter behind the cows, there should be a curbstone used along the edge of the gutter; otherwise the cement floor will soon begin to crumble and give way at the edge. By all means employ a man for this work, that knows his business, as this is a job that is very easily and irreparably damaged by poor workmanship. J. J. EDGERTON.

Iowa Agricultural College.

SILO QUESTIONS.

I wish to build a silo for next winter's feed for cattle. Part of the silo will be under the ground, say 12 feet, and 12 feet above. I prefer a tub silo, and wish to put in whole silage, if possible. Can I put in whole silage, so it will keep in a tub silo? What diameter will be necessary in order to have the silage keep? The corn will be bound with a harvester. Can I put as much silage in whole, as when cut with a machine? About how much more waste will there be in whole silage than cut silage? Give directions how to lay the silage.

I see by your paper there is any amount of trouble with garget and bloody milk. A cupful of ground beans, fed every other day with a little ground feed, is a sure cure, and does not hurt the cow; must compel the cow to eat it. E. B.

Lyons, Neb.

It is very doubtful whether you can silo the large, heavy dent corn, whole, and have it keep well. With the smaller flint corn it can be done. Success in siloing whole corn depends on the size of the stalk—a small stalk being necessary to have the corn pack well and prevent air spaces. The great point is to pack in layers, and see that every hole is filled, and the whole layer made solid as possible, before beginning another layer. There is more loss reported in feeding whole siloed corn; large pieces of the butts being left. We do not know of any figures giving the relative amount of cut and whole silage that a silo will contain.

FEEDING VALUE OF CARROTS.

Please give me feeding value of carrots for milch cows, how much to feed, etc., also what will be the yield per acre, should land be very rich? It is said that carrots will increase the flow of milk and give butter desired color. I want to plant 2 or 3 acres

Phillips Co., Ark. J. F. M.

Carrots have nearly the same feeding value as ruta-bagas. A yield of 28 tons per acre is reported when grown on rich soil.

As they are quite low in dry matter, (11.4%) their value depends more on their action as a succulent feed on the system of the animal, than upon the amount of nutrients they contain. When fed to cows, they will give the milk a higher color. It will not pay to feed them otherwise than as a relish, in small amounts.

THE GRAVITY CREAM SEPARATOR.

Will you please answer through the columns of your paper as to what you think of the so-called Gravity Cream Separator, which is a large tin can with a glass and faucet near the bottom of it. The process is: Put in as many pounds of water as you have milk (the colder the water the better) and let set from four to six hours; then draw off milk. Agents are selling them here at $7 to $15, according to the size, and claim better butter can be made by this process than any other. Also that the skimmed milk (which is half water) is far better than milk skimmed by a creamer or centrifugal separator. Also that the milk is skimmed cleaner and the cream is purer than any other process of getting cream. Would you advise buying one in place of a DeLaval or Sharples separator at $100 to $125 for from ten to 15 cows? S. E. S.

New York.

The gravity cream separator has been tried at several Experiment Stations and its performance found to be far below what is claimed for it. Everything claimed for the gravity separator can be equally well done in a shot-gun can. The dilution method does not give as clean creaming as deep setting and is no better than ordinary shallow setting.

The only time when it might be useful would be in the case of milk from cows far advanced in lactation. All other claims, as to improved quality of cream or skim milk, are without foundation.

A hand separator will pay a large interest on the investment in the extra amount of fat recovered over other methods of creaming.

BUTTER FAT AND LACTATION PERIOD.

For several winters my tests and yields of butter have gone contrary to what scientists endeavor to teach, namely: that as a cow gets further along in lactation, the tests of her milk go up. Added to this, they teach us that feed does not govern, in any way, per cent of fat. I find that May and June are the lowest months, except when July is excessively hot and flies are bad, like last year, when that was the lowest month. Directly the weather cooled in September, up went the tests and yield, until about the middle of November. Since then cows have shrunk in milk, and the tests and yield have gone down, averaging nearly c.5%.

What I would like to get at is, a test not of individual herds well taken care of, but a general test of a lot of patrons' herds, who give their cows a good deal of litter for feed, the open canopy for shelter at night, and look for the wool on their backs as protection against storms. Have any results from a general standpoint of average conditions been given? C.

Wash.

There are many things besides feed which affect the yield of milk, and a larger number which influence the per cent of fat.

Heat and flies will take the fat out of milk as readily as cold or rain, and should be equally provided against. It is very probable that if the cows were kept in a cool, shady stable, you would find that they would follow the rule of increased fat, which has been observed to accompany advanced lactation.

On page 856 of the last volume, you will find some records made by the Kansas Experiment Station at the Meriden Creamery, Kansas.

BABCOCK TEST IN CHEESE FACTORIES.

Will you kindly give a few of the principal reasons for using Babcock test in cheese factories? There is quite a difference of opinion among the patrons of our cheese factory. C. I. H.

Nunda, N. Y.

Primarily, the same reason exist for testing in a cheese factory as in a creamery—the prevention of fraud by watering and skimming the milk. On page 10 of the present volume, you will find a more extended discussion of the relation of butter fat to cheese. In the near future there will be a further discussion of the same subject in the columns of the DAIRYMAN.

MEASURING CREAM BY GAUGE.

Will you please inform us if there is any rule for figuring up the amount of butter we should have from cream measured by gauges and tested by the Babcock test?

This is the way our creamery takes in cream but I think the cream ought to be weighed when tested this way. C. E. F.

Monroe Co., Wis.

To give each patron his due, the cream should be weighed and tested. A gallon of cream will weigh from 8.1 pounds to 8.50

Salt Rheum

Intense Suffering—Could Not Sleep—Cured by Hood's Sarsaparilla.

"I had salt rheum on my arms, which itched intensely and kept me from sleeping. The skin on my hands would crack open. My friends believed I was suffering from blood poisoning. I decided to take Hood's Sarsaparilla. I did not see any improvement with the first bottle but continued with the medicine and after taking five bottles I was completely cured. My hands are now as smooth as I could wish." A. D. HAGEY, Elroy, Pa.

Hood's Sarsaparilla

Is the best—in fact the One True Blood Purifier. Sold by all druggists. $1; six for $5.

Hood's Pills are prompt, efficient and easy in effect. 25 cents.

Take a Cow



out of the pasture and feed her

Wilbur's Stock Food.

She will show no loss of milk, no loss of butter in quantity or quality. One cent's worth of Food a day saves $1.00 worth of grain per month. Package containing 40 feeds, with sample of White Rock Hoof Packing, by mail, for 50 cents.

Wilbur Stock Food Co.
179 2d Street, Milwaukee, Wis.

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CHAPIN & CO., Milwaukee, Buffalo, St. Louis, Boston. **Agents for GLUTEN FEED.** This feed is one of the best milk producers known, contains 27% digestible protein, keeps cows in healthy condition. Worth your attention in feeding economical rations. Sold in car lots, price based on its milk-producing value. Ask your grain dealer for price. Write our nearest office for full information.

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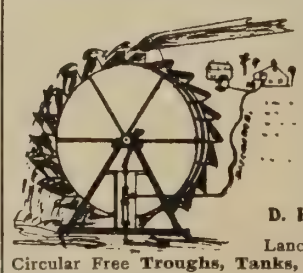
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Buys 4-foot Steel WATER WHEEL and Pump. Beats every known power for fresh water. Runs with ¼ in. stream.

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THE MILK MAN

wants an Aerator, but he wants something more, he wants a cooler as well—aeration improves the flavor, but doesn't add to the keeping qualities of milk—it's the cooling that does that. The CHAMPION Milk Cooler and Aerator does both; it's cheap, too. Get our book "Milk."

CHAMPION MILK COOLER CO.,

67 Main Street, - - CORTLAND, N. Y.

pounds, according to its richness; a difference of several ounces of butter fat to the patron, if the cream is measured instead of being weighed. The cream gauge is a thing of the past and should not be used when we have better methods and apparatus for testing milk or cream. There is no rule that will give such strict justice to each patron if the gauge is used.

SIZE OF SILOS.

What diameter should we make a round silo for the summer feeding of a herd of fifty-five cows? It is desired to feed largely and do not expect to get much food from the pasture which will be not very large.

Macomb Co., Mich. TRUE BROS.

Fifty five cows fed silage all the year will use about four hundred tons; at the rate of forty pounds per head per day. If this is put into a single silo it will be 32×28 feet in diameter. It would be better to use two silos 30×21, especially if it is to be fed in summer.

AN ALABAMA RATION.

I have pea hay and corn stover to last till about the 1st of April; can then get cotton seed hulls at about $6 per ton. Would you buy them to mix bran, cotton meal and corn meal with, or not? Each of the above grains cost $20 per ton. Sell butter at 20 cents. Average a little over a pound of butter per cow, strippers and all, per day. Grass will begin to grow by the first of April. Please tell me how and what to feed a fresh cow, giving 40 pounds of milk a day, after April first.

May the DAIRYMAN and its editors live long to tell us boys how to dairy.

James, Ala. M. W. H.

Cows on grass crave some dry fodder, and in the absence of hay or other roughage would advise feeding hulls up to the limit of each animal's craving for them. Mix the bran, corn and cotton seed meal, equal parts by weight, and feed from 6 to 9 lbs. daily, varying the amount to the response made by each cow. If any cow develops an ability to turn more grain into milk, increase the proportion of bran and corn.

BREWERS' GRAINS ANALYSIS.

Please let me know in next issue of your your valuable paper if enclosed analysis is correct. S. H.

Crystal City.

The package that came with the above letter was a brewers' grains envelope containing corn bran, and we hardly know which analysis our correspondent wants.

The analysis of the grains given is some five per cent higher in protein than the average given in the feeding tables, but this is no proof that the analysis is not correct, as waste products of all kinds tend towards higher protein content; owing to more careful manufacturing methods by which the fat and starch are more exhaustively removed.

A PENNSYLVANIA RATION.

Please send me a daily ration for cows weighing about 1,000 pounds. Have on hand timothy hay, corn fodder, wheat bran, $16 per ton, gluten feed, $16 per ton, middlings, $18 per ton, oil meal, $28 per ton.

Wexford, Pa. S. M. C.

To 12 pounds timothy hay and 10 pounds corn stover add 4 pounds bran, 5 pounds gluten feed and 1 pound oil meal.

OIL MEAL AND BRAN.—FATTENING STEERS.

In a recent number you made the statement that when bran was worth 100, linseed oil meal was worth 130. Geo. A. Smith, New York Experiment Station, give bran nutritive ratio as 1 to 3.5; oil meal, 1 to 1.4, and from the analysis given by the Department of Agriculture I can't see but what the feeding value is different from what you state, especially to use as a balancing food.

Can you give me the cheapest fattening ration for fattening steers (coming 3 years) of the following feeds: Timothy, $6; clover, $5; bran, $12, oil meal, $25; corn, 30 cents per bushel.

I have been feeding bran with corn, but quit the bran, as they got to scouring. Am feeding just corn and hay at present and they are gaining better than with bran. I was trying to feed a balanced ration, but they didn't do as well as they are doing now.

White Co., Ind. C. E. G.

The statement referred to was limited exclusively to the nutritive or life sustaining value of the two feeds and is supported by the following figures. In 100 pounds of bran there are approximately 58 pounds of digestible nutrients, after reducing the fat to its carbohydrate equivalent; in 100 pounds of linseed oil meal there are 78 pounds of digestible nutrients, on the same basis, which is between 30 and 35% more than in bran. The value of either in special cases may be considerably enhanced, and herein there is opportunity for the exercise of an educated judgment.

For example, for feeding those steers, we should consider a little oil meal—say, two to three pounds per day—much cheaper at $25 than bran costing less than half as much. And with milch cows, where there is no succulent feed, like silage or roots, the oil meal has a special value. In either case, however, we believe some bran could be fed with profit. The amount to be fed must be determined by circumstances. These steers should receive every day just all they will eat with becoming relish and hold out from day to day. Let corn be the staple and the oil meal and bran the accessories. The bran is useful for extending the corn meal, so that it will be better digested and the oil meal has peculiar tonic and hygienic effects.

FREEZING THE FAT OUT OF MILK.

Is there such a thing as freezing butter fat out of the milk? If so which will suffer the most by freezing, the butter fat or the butter solids?

We are having some complaint of low tests that were taken during the cold weather.

River Styx, Ohio. H. B.

If you mean freezing the fat out of the milk after it is drawn,—no. If to the action of cold on the quality of milk given by the animal,—decidedly, yes. Nothing will so reduce the fat in the milk as exposure of the cow to rain, storms or severe cold, in any shape.

The cow will protect herself at the expense of the milk pail, even if she has to use up twenty cent butter fat to keep her warm. The report given by D. H. Otis, in a recent number of the DAIRYMAN, showing a loss of 21 per cent of fat after a severe cold snap, shows how close a cow's comfort and the dairyman's pocket-book are related.

CORN STOVER—SHREDDED FODDER.

What is corn stover as given in balanced rations for dairy cattle? Is it corn fodder as we put it up in the fall?

Stover: "Fodder and provisions of all kinds for cattle." This is the definition we find for stover.

Have you any knowledge as to the feeding qualities of shredded fodder, or is this (shredded fodder) what is meant as corn stover. Please tell us something about shredded fodder. S. S.

Kansas.

Henry, in Feeds and Feeding, gives the definitions:

Corn fodder: Stalks of corn, either green or dried, which are grown for forage, and from which the ears have not been removed.

Stover: The dry stalks of corn from which the ears havs been removed.

Shredded fodder is corn stover that has been passed through a shredding machine. The butts and coarser parts are broken into stringy like masses. These are eaten by cattle when they would reject the whole stalk. In consequence, it is a more valuable feed than an equal weight of corn stover.

How the Fund Will Be Used.

The National Dairy Union is endeavoring to raise $10,000 with which to secure the enactment of a law by congress, taxing all oleomargarine manufactured and colored in semblance of butter; $3,000 has already been raised. Precisely how this fund is to be used we have not seen stated, but we feel confident that not a dollar of it will be spent illegitimately. It is not pleasant to think, however, that where the Dairy Union puts up one dollar the oleo-makers can, and, if need be, will put up twenty to prevent the passage of any such law. While we recognize as clearly as any one, the need of some restraining measure, we doubt very seriously if this measure can ever be passed through congress.—*Jersey Bulletin.*

The fund will be used very largely in the dissemination of information among the people, paying the expense of sending able men to discuss the question before Congressional committees. Not a dollar will be used in any way that can bring the blush of shame to the cheeks of any dairyman. We believe the bill will pass. Every time the dairymen have gone before Congress, as with the oleo law in 1886, and the filled cheese law, they have won.

A City Milkman's Advice.

ED. HOARD'S DAIRYMAN:—If you can spare the space (in reply to U. A. Towns, page 33, No. 2) I will say first, he made the mistake of his life, when he stopped reading the DAIRYMAN, for while it contains but very little about peddling milk, the whole secret lies in producing the best article, and creating a demand for it. Having a trade established, keep your standard up or improve it, and you have no competition, as I will show you by my experience. I live in a town of 15,000 inhabitants, and when I started to peddle milk, there were 13 milk wagons running every day. My friends said I was foolish to start in a crowded field like this, but I told them I would have plenty of opposition but no competition. So I started by selling milk from cows that would test not less than 5% butter fat by Babcock test. Then I aerated all the milk as soon as drawn from the cows, and then cooled it to nearly 40° F. and bottled it with all the cream in it, which showed up well in the bottles. After my milk is all sold for the day, my bottles are washed in very hot water with a power brush; then thoroughly sterilized before refilling. I started in September, 1898, and am now selling 800 quarts a week, at 6 cents a quart, while the other milk dealers have cut down to 5 cents, and I am gaining trade every week. I simply claim that I have the cleanest, purest and richest milk in town, and when a lady once tries it, she will not alone continue to use it, but tells her neighbors and friends and they come for it. The only trouble is, I have no cream to sell, nor can I make butter as others, but my cream goes with the milk.

I find many people keep one or two cows in town, and they are hard competition, because they generally keep good Jersey cows that give good milk.

I think U. A. T. should join his hired man in reading HOARD'S DAIRYMAN and produce a better article than those doctors and lawyers do, and they will dispose of their cows, and come to him for milk. Aerate your milk and relieve it from all cowy or grassy taste; it will be sweeter and keep longer. I also use a "Maloney" triple strainer, and filter my milk before aerating it. Hoping this will benefit someone struggling the same road, I am for an honest dollar. J. P G.

Ottawa, Ill.

Creeping Consumption

Do not think for a single moment that consumption will ever strike you a sudden blow. It does not come that way.

It creeps its way along.

First, you think it is a little cold; nothing but a little hacking cough; then a little loss in weight; then a harder cough; then the fever and the night sweats.

The suddenness comes when you have a hemorrhage.

Better stop the disease while it is yet creeping.

You can do it with

Ayer's Cherry Pectoral

You first notice that you cough less. The pressure on the chest is lifted. That feeling of suffocation is removed. A cure is hastened by placing one of

Dr. Ayer's Cherry Pectoral Plaster over the Chest.

A Book Free.

It is on the Diseases of the Throat and Lungs.

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If you have any complaint whatever and desire the best medical advice you can possibly receive, write the doctor freely. You will receive a prompt reply, without cost. Address,

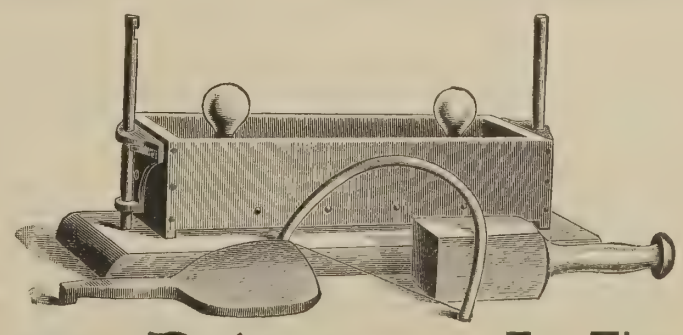
DR J. C. AYER, Lowell, Mass.

Artichokes! MAMMOTH WHITE FRENCH. A sure preventive of Hog Cholera. Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan,

LINDEN LAWN FARMING CO.,
Lock Box 354, Olney, Ill



Butter Printers For The FARM DAIRY

ADJUSTABLE TO EXACT WEIGHTS.
Made in All Sizes, From 5 to 50-lb.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Agents for Hand and Power De Laval Alpha Separators.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, VIII.

GLOSSARY.

Sporadic:—Said of a disease when it occurs occasionally or accidentally

Immunity:—A state of insusceptibility toward any specific bacterial disease.

Placenta:—Equivalent to afterbirth.

Incubation period—Every disease has a certain lapse of time between the introduction of the disease germ, and the breaking out of the malady. Such a period is known as the period of incubation.

Spermatozoa;—The male reproductive element in the semen.

CONTAGIOUS OR EPIZOOTIC ABORTION.

Abortion, or as it is frequently called "slinking" or "slipping" the calf, may arise from a great variety of causes. Exposure, shock, effect of acute disease, insufficient nutrition, and numerous other factors may be the cause of an animal's aborting her young, but such cases are accidental, and do not spread from animal to animal. Occasionally the general condition of the herd, predisposing the system to abortion, may, simultaneously, produce troubles of this kind in a number of animals. Not infrequently it happens that a single case of abortion is followed in a short time, by several others. Under such circumstances one may well have reason to suspect that the difficulty is not sporadic or accidental, but communicable from animal to animal, and that the cause does not rest in the manner of feeding or handling the animal, or the condition of her system, but in a specific organism that is distributed throughout the herd in various ways. Sometimes the disease establishes itself in a herd, and acquires such intensity, that the loss of calves is practically total. In the course of a few years, the difficulty seems to wear itself out, and gradually disappears, but any fresh animals introduced into the herd, from time to time, are quite likely to fall victims to the malady. This indicates that the disease confers a type of immunity by which the animals that have once had the disease, become, in course of time, refractory to the disease germ itself, just as a person is proof against small pox or most other contagious diseases, by virtue of the original attack.

The contagious nature of this type of abortion has been recognized for many years, but all attempts to find the true cause have, until recently, failed. It was natural to expect that the disease was due to some sort of a micro-organism, but the specific parasite was not discovered until 1896, when Bang, the Danish veterinarian, proved the relation of cause and effect between a specific microbe and the disease. His researches show that the disease germ affects the walls of the uteras, producing a catarrhal inflammation between the womb and the adhering afterbirth. This causes a sloughing of the placenta, and thus deprives the foetus of the necessary nourishment from the mother. The poisons found by the growth of the germs are also absorbed by the placenta, and affect the tissues that sustain the life of the developing calf. The period of incubation between the infection and the delivery of the calf, is quite prolonged.

Bang, found that it required ten weeks between the introduction of the disease germ into the vagina and the beginning of the abortive action. This indicates the slow and insidious nature of the trouble, and explains why its continuance in a herd is so prolonged.

MANNER OF INFECTION.

Recognizing the germ nature of the disease, it is self-evident that the trouble can only be caused by the introduction of the causal organism from some outside source. If one is acquainted with the way in which the germ finds its way into the animal, it would be comparatively easy to prevent its wide spread distribution. One of the chief agents in spreading contagion is in serving a cow with an infected bull. The animal himself may have been entirely free from all trace of the malady, but in a previous service on a cow that has the germs of the disease in the generative organs, he may acquire the disease, and thus widely dissiminate it among herds that were previously free. These microbes readily pass into the uterus with the spermatozoa, and find lodgment in those tissues that seem to be especially susceptible to its development.

It has been claimed by some that the bedding or litter under an affected animal may serve to retain the disease germ unimpaired for a considerable period of time, and so function as a carrier of contagion. Unquestionably the microbe may pass out from the uterus with the vaginal discharge, and thus be spread over the surface of the stall. Whether it can be introduced into the vagina indirectly is a question on which the evidence is not so clear, although it not infrequently happens that animals occupying stalls previously used by other aborting animals acquire the disease.

PRECAUTIONS TO AVOID SPREADING.

It is possible to control the distribution of the organism by antiseptic solutions. Strong disinfectants cannot be used on the mucous surfaces of the generative organs, but in a dilute condition they are permissible. Even corrosive sublimate in proper dilution (say 1.800 or one-eighth as strong as the ordinary disinfecting solution) has been recommended as a uterine wash. In cases of contagious abortion, the afterbirth should be quickly removed, and properly disposed of. Not infrequently carelessness in this regard is a means of propagating the disease. It is often asserted that sympathy, or the inhalation of odors is a potent cause of abortion, such as the sniffing around a dead fœtus that has been aborted by other animals. It is much more probable that infection is such cases occurs directly by the absorption of the germ from the calf or afterbirth than in any other way. In all cases of this disease, care should be taken not only in regard to the disposal of the fœtus and afterbirth, but the hinder parts of the affected animal should be bathed for a time with a dilute corrosive sublimate solution (1:2000) or with 2% corbolic acid solution. One must bear in mind that the disease is communicable, but that the cause can be prevented from spreading by destroying its vitality with these germ killing solutions.

Book-Keeping on a Dairy Farm.

Ed. Hoard's Dairyman:—H. G. D., Toledo, Ohio, asks about keeping accounts with his herd, or book-keeping on a dairy farm. I think this would be a good subject to write on for a time through the columns of the Dairyman. My business in the past few years has given me a good opportunity of seeing the lack of book-keeping among the best of our dairy farmers, and why this is so, is a strange thing, for no business should require a more careful and accurate accounting than a herd of dairy cows and their products. Unlike an ordinary business, the careful keeping of accounts will not only show just what is being done, but will increase the profits by showing the cows that are eating more value than they yield. It also shows results from feeding different feeds, which enables us to select feeds that will yield best returns at least cost.

As an example; we are saving now on 25 cows, 7 cents daily, each, or $1.75 total, by knowing just what our cows require, its cost, etc. This saving, is quite an item on 25 cows, and as we will soon milk 35 or 40, the saving will amount to a large sum in a year. Our method of book-keeping is briefly this: At barn, every cow's milk is weighed and put on a monthly milk sheet; these sheets are of good card board; they are carefully filed away, so that at any time a cow's daily record can be seen. The monthly total of milk is placed on a ledger; the cow's Babcock test also, and as feeds are all carefully weighed, a cow's month's work is before us at any time. From barn, we go to creamery where each milking is weighed on a platform scale and recorded on a sheet. This sheet also shows the Babcock test of herd, how many pounds of milk it takes to make one pound of butter, and also shows just how many pounds of butter comes from churn. All milk fed calves is also recorded. These above figures are all given a place in ledger.

We have also printed forms, or monthly statements, that we fill out. They show total

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Bronchitis, Hoarseness, Sore Throat Effectively Relieved.

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John I. Brown & Son, Boston.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the Victor. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

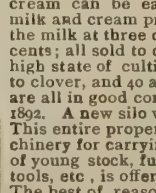
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Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. N. DIRIGO ENGINE WORKS, Portland, Me.

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MIXED PAINTS

At WHOLESALE PRICES, delivered FREE For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.



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Revolving Six-sided CHURN.

Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes. Send for catalogues.

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Binder Twine Our famous "Blue Label Brand." Prices and samples ready April 20th. Write now and we will send when ready: Prices will be lower than you think. We deliver from Chicago Omaha or St. Paul, as desired. MONTGOMERY WARD & CO., CHICAGO.

1899 Bicycle for One Dollar.

We will send our highest grade gents' or ladies' 1899 Acme King Bicycle to any address on easy conditions for only $1.00—the conditions include the distributing of 1,000 small circulars, which you can do in three hours. Send no monney. For full particulars how to get our best bicycle for $1.00 and a few hours work, cut this notice out and mail to us.

Sears, Roebuck & Co., Cycle Dept., Chicago.

BABCOCK Milk Testers.

Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. J. J. ANGUS, Plymouth, Wis.

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

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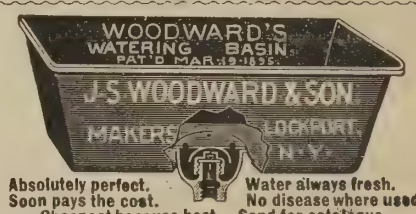
DAIRY FOR SALE.

On account of failing health, the undersigned offers for sale, at a bargain,

- - MEADOW FARM DAIRY, - -

Located within one mile of the post-office, city of Stevens Point, Wis., containing 300 acres of land; 200 acres under cultivation, balance first-class farming land and pasture. This dairy is well established, having been in full operation for over twenty years; 35 cows are now milked, from which $9 00 worth of milk is sold daily. The number of cows and the receipts from the sale of milk and cream can be easily doubled. Every quart of milk and cream produced is sold right at the door; the milk at three cents and the cream at fifteen cents; all sold to one man. This farm is under a high state of cultivation; 20 acres is now seeded to clover, and 40 acres to timothy. The buildings are all in good condition, having been built since 1892. A new silo was built during the past season. This entire property, including the necessary machinery for carrying on the place, 5 horses, 6 head of young stock, full blooded Jersey bull, wagons, tools, etc, is offered for sale on reasonable terms. The best of reasons for selling. Here is a great opening for the right man. Address

GEO. E. OSTER, Stevens Point, Wis.



Absolutely perfect. Water always fresh. Soon pays the cost. No disease where used Cheapest because best. Send for catalogue.

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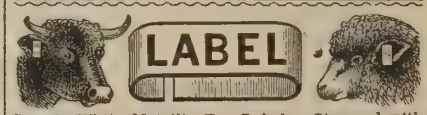
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MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non corroding, easily read.... ALUMINUM "STAY THERE" EAR MARKERS

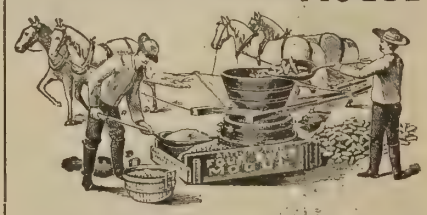
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Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.

C. H. DANA, 55 Main Street, WEST LEBANON, N. H.

The Anti-friction Four Burr MOGUL



Will Actually Grind 60 to 80 Bushels per hour. Has four burrs nearly three feet in diameter grinding at once. Grinds **Four Times as Fast** as other mills; has no friction; all the pressure is on the grain. No gearing, no oil needed, and the lightest draft known. We manufacture the largest and best line of Feed Mills sold, including the famous Iowa Mill No. 2, for $13. Agents wanted. Iowa Grinder and Steamer Works, Waterloo, Ia.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.

pounds of milk in month; pounds fed calves (whole milk); number of pounds used for making butter; number of pounds used to make cheese; pounds of butter made; pounds used in family; pounds sold; average cost of feed for pound of butter; number of cows in milk; heifers two years old in milk; cows dry; cows sold; cows bought; calves born; number of calves being fed milk; number of pounds of milk fed calves (skim milk); total pounds skim milk fed hogs, its value, per cent.

We also have a page in our ledger for each cow, showing when fresh, when dry, sex of last calf, breeding, and general remarks, showing any special traits of cow, such as subject to caked udder when freshening; liable to abort; desire to go dry too soon; liable to bloat; liable to have milk fever or any other thing we may have found out that will be a good thing to remember. Our plan is of our own devising and has answered our purpose for several years, but if any one can give us better ideas, we will gladly adopt them. Would like to have this matter discussed by several of our DAIRYMAN readers. BUFF JERSEY.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 5,760 pounds, all bids and all sales being at 20 cents, at which price the Quotation Committee announced the market firm. The sales reported were:

Factory.	*Pounds.*	*Price.*
Red Clover	1,520	20 cts.
McConnell	600	20 cts.
Shattock's Grove	1,800	20 cts.
Shabbona	1,200	20 cts.
Shabbona Grove	660	20 cts.
Total	5,760	

The sales for the corresponding week of the three preceding years were as follows:

March 14, 93, 8,400 lbs. of butter sold at 18½ cts.
March 15, '97, 24,320 lbs. of butter sold at 18 cts.
March 16, '96, 12,900 lbs. of butter sold at 21 cts.

The New York market Monday was reported firm at 20 cents. H. C. B.

Elgin, Ill., March 13, 1899.

DAIRY MARKETS.

ELGIN, March 13.—Butter—Firm; offerings 96 tubs; sales 96 tubs at 20c.

CHICAGO, Ill., March 13.—Butter—Creamery, extra 19@19½c; firsts, creamery 17@18c; seconds 14@15c; dairies, selections 17c; No. 1 15@16c; No. 2 12@12½c; extra ladles 14c.

Eggs—Fresh, at mark, cases included, sold at 13c per doz.

Cheese—Full Cream Twins, good to choice 11c; Cheddars 10¼@10¾c; Young America 11@11¼c; Swiss 10@13c; Limburger 7@10c; Bricks 8@11½c.

Cattle—Receipts were estimated at 19,000, including 1,500 straight Texas There was a scarcity of well matured beeves, and some of the best offerings sold at steady prices The general market, however, was weak at 10c decline for both natives and Texas. Trade was act ve and a good clearance was made. Exporters bought freely, principally at $5@5 25. Twenty 1,568-lb steers sold to a New York buyer at $5.80, with a three load bunch averaging 1,594 lbs. at $5 75. Steers averaging 890@1,620 lbs. sold at $3.85@5.65; bulk $4.60@5.30; corn fed Westerns $4 30@5.45; straight Texas steers 752@1,263 lbs. $3 75@4.80; Texas bulls $3.25; native butcher stock $2@4.90. Forty head of fancy 1,302-lb Western heifers sold at $5.10; feeding cattle $3.70@4 50.

To-day's receipts are estimated at 3,000 cattle: 25,000 hogs: and 15,000 sheep.

Bran—Quiet and sold at $12.25 per ton.

MILWAUKEE, Wis., March 13.—Butter—Creamery—Fancy prints per lb. 19@19½c; extras per lb. 19@19½c: firsts per lb. 19⅛@20c; seconds per lb 16@16½c; imitations per lb. 15@16c; Dairy selections per lb. 15@16c; roll, fair to choice fresh 11@13½c. Market unchanged and fairly active, and supplies do not accumulate.

Cheese—American Full Cream, October Twins 10½@11c; Brick, October choice, 10½@11c; winter made pe lb. 10@10½c. Limburger, fall choice per lb 9½@10c; winter made per lb. 9c: Swiss Drum, choice 12½@13c; Block, choice 10@10½c. Market strong for all but Limburger, the demand being fair and supplies moderate.

Eggs—Fresh, per doz 12c. Market steadier; receipts and trade now equally fair some sales were made at 12@12¼c, including cases.

NEW YORK, March 13.—Butter—Creamery, Western, extras 20c; firsts 19@ 9½c; state extras 19½@20c; firsts 18½@19c.

Cheese—State Full Cream, large, colored or white, fancy 12c, choice 11½@11¾c; small fancy 12½@12¾c.

Eggs—Western 14c.

PHILADELPHIA, Pa., March 13—Butter—Separator creamery, extra 20c; creamery firsts 19c; seconds 18c: imitation creamery, extra 17c: firsts 16c; seconds 14c; ladle-packed extra 15c.

Eggs—Pennsylvania and near-by 13c; Western 13c½; Southwestern 13c; Southern 13c.

BALTIMORE, Md., Mch. 13—Butter—Market quiet; creamery separator extras, 22@23c; creamery separator extras, firsts, 20@21c; creamery firsts 19@20c; ladle extras, 16@17c; Western store-packed, 13@14c.

Eggs—Market easy, strictly fresh stock 17.

ST. LOUIS, Mo., Mch. 13.—Butter—Firm, creamery, 18@22c; dairy, 13@17½c

Eggs—Higher; 11c.

KANSAS CITY, Mo., Mch. 13.—Butter—Steady. Creamery, 14@17c; dairy, 16c

Eggs—Steady; fresh 10½c.

CINCINNATI, O., Mch. 13.—Butter—Quiet at 21@21½c

Eggs Quiet; 10c.

Cheese—Firm; good to prime Ohio flat, 11½c.

NEW ORLEANS, La., Mch. 13.—Market easy 20½c on Elgin creamery.

NEWARK, N. J., Mch. 13.—Market steady; 20c for best extras. Receipts liberal.

BOSTON, Mass., Mch. 13.—Butter market steady; 21c for best.
Cheese—Very firm, 12½c.
Eggs—Steady; 15c.

DETROIT, Mich., Mch. 13.—Butter—Creamery slow, extra Elgins 21c. Fancy dairy 16c.
Eggs—Weak; 12½c.
Cheese—Firm; 12c.

WASHINGTON, D. C., Mch. 13.—Market steady, 20½c.

PITTSBURG, Pa., Mch. 13.—Butter dull and weak. Creamery 19@21c; choice country 16@17c.
Cheese—Firm with short supply. Full cream New York 12@12½c; Ohios 11½@12c.
Eggs—Away off, 12@13c.

BALTIMORE MARKET.

BALTIMORE, March 9.—Butter—Receipts of separator creamery the past week have been very light, consequently trading in this class of goods necessarily would be limited, even if all were sold, which, unfortunately, perhaps, was not the case, because of objections on the part of the buyers to the continued unattractiveness with respect to quickness of flavor, and the unwillingness of the receivers to concede the objection well taken; at this time, buyers affect to expect full new milk to all parcels with any pretentions to high grade, saying, "practically is this not the middle of March, and does not new-milk butter generally predeminate at this time?" To which the seller says no, but thinks yes, and straitway tries to get all possible for the dull-flavored lots that he can sell, and hopes for some buyers with dull senses to come along and take the others The gathered cream lots are in very small supply, and grading about as before; the demand is not quite as active as it was, because many have been driven to looking into other lines for supply. Imitation creamery is very scarce, so also are ladles. There is a small but steady demand for June and summer creameries, and it is believed that all now in the freezers can be disposed of before the 15th of April Blocks and prints are in full supply, with an indication of a surplus in the near future. Rolls are arriving in small quantity and have prompt sale. Creamery separator extras 22c; firsts 20@21c; seconds 18@19c; gathered cream extras 19c; firsts 18c; seconds 17c; Ohio, extras 20@21c; firsts 19@20c; seconds 17@18c; roll, extra 14@15c; firsts 13c; seconds 12c; W. Va. roll extras 13@14c; firsts 12c; seconds 11c: creamery blocks (2 lbs.) extras 23@24c; firsts 21@22c; seconds 19@20c; prints (¼ lb.), extras 23@24c; firsts 20@21c; seconds 18@20c; Md. Va. & Penna. prints extra 20c; firsts 18c; seconds 15@16c.

Cheese—Our cheese market is in good shape and firm with moderate offerings, and a good demand for all grades. N. Y. State Cheddars fine 11¼@11½c; choice 10¼@10½c; fair 7@8c; Flats, fine 11¼@11⅛; choice 10½@10¾c; fair 7½@8¼c; Small, fine 11½@11¾c; choice 10¾@11c; fair 8½@9c, Ohio Flats, fine 10@10½; choice 9@9½c; fair 8@8¼c; Picnic, fine 10½@10¾c; choice 9½@10c: fair 8½@8¾c; Swiss Cheese, fine 11@12c; choice 9@10c, fair 8@8½c.

Eggs—We are glad to say that the see saw market of the past two weeks has about settled, and we trust from now on to be able to approximate the market; receipts so far this week have been fair, and what lots that have been coming have met with prompt sale. The demand, while not active, is very good, and we look for a continuance of same Our quotations are for sales made this day; the market is unsettled, and we look for lower prices. Duck eggs continue in light supply; there is quick demand for all large, clean eggs, small or dirty eggs will not sell to advantage. Market unsettled at 17c. G. M. LAMB & BRO.
301 Exchange Place.

NEW YORK MARKETS.

NEW YORK, March 11.—Butter—Receipts for the week, 34,431 packages Exports for the week, 3,765 packages. There is no change in the market since our last. Receipts were liberal, trade only moderate, but prices have remained steady all the week and at the close there don't seem to be any surplus of extra fresh Creamery butter. Twenty cents was the ruling price for finest and good to fine creameries sold at 19 cents; off quality parcels were offered at 16 to 18 cents, without resulting in free business. Selections of New York State Dairy butter brought 19 cents and is wanted, but most of the tubs arriving are inferior quality and sell at much lower prices.

Very light business reported in old butter; we note sales of best quality June Creamery at 16@17 cents, also sale of 200 tubs to bakers' supply trade at 14 cents. What is left of old New York State Dairy is offered at 13@15 cents. We quote: Creameries, extra, 20c, medium 19@19½c, poor 16@18c; Dairies, extra 19c, medium 16@17c, poor 13@15c.

Cheese—Receipts for the week 7,210 boxes. Exports for the week, 7,467 boxes. This has been a lively week for the cheese trade and closes with an advance of fully one-half cent on all grades. We note sales to Western New York people of about 800 boxes fine white cheese at 11@11¾c, and say 1000 boxes for Pennsylvania account at same prices: also several thousand boxes home trade at prices ranging from 11@12½c, the latter price for fine September small size cheese. Market closes with light stocks and prices firm with advancing tendencies. We quote: Full cream, small, extra, 12½c, medium 11@12c, poor, 10@10½c; Full cream, large, extra, 12c, medium 10½@11½c, poor 9@10c; Part Skimmed, extra, 9½@10c, medium 8@9c, poor 5@6c.

Eggs—Receipts for the week, 4,501 cases. Prices kept tumbling all the week, culminating to-day (Saturday) with active trading at 14c. We quote: New York and Pennsylvania, per dozen, 14@15c, Western & Northern Sec., 14c; Southern, 13½@14c. DAVID W. LEWIS & CO.
177, 179 Chambers St.

FOREIGN MARKET.

BOSTON, March 11 —Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as quiet with American a dragging sale. Arrivals of Australian and New Zealand are quite sufficient for current wants of buyers, and some held stock is being pressed for sale. Finest Australian at 20½@21c, finest Canadian in boxes about the same. American creameries are selling all the way from 16@19c, very little good enough to bring the latter price. The large arrivals of New Zealand butter, the bulk of which is below average quality, places American butter to great disadvantage. Ladles and imitations have had a slow sale, as many of these New Zealand goods have been lowered to a price to take their place.

Cheese markets are quite firm, and prices the turn dearer. Finest Septembers are held at 11@11¼c, with some holders asking for more,

LIVERPOOL, Mch. 13.—Butter—Finest United States, 80s; good, 65s.
Cheese—American finest white and colored, 50s.

WHY USERS WHO KNOW AND USERS WHO THINK Buy "ALPHA" Disc Cream Separators.

The interior body dimensions of an "Alpha" De Laval No. 1 separating bowl (the standard Factory size) are 5⅛ inches depth by 9¾ inches diameter. The same dimensions of a "Baby" No. 2 "Alpha" bowl (the standard Dairy size) are 5 inches depth by 3⅞ inches diameter.

At a speed of 5600 to 6000 rev. per minute these bowls have actual separation capacities of 2500 lbs. and 400 lbs. per hour, respectively. At a wide range of temperature and a wide variation in thickness in cream they effect a uniformly thorough separation, as close on an average as 0.05 of butter-fat left in skim-milk.

By reason of small size of bowl and relatively low speed they run with ease by hand and with small consumption of fuel by power, which in conjunction with perfect mechanical construction—regardless of cost of manufacture and finish—gives them great durability.

All other cream separators are and must be twice as large in size or require double the speed, or both. All other bowls, to attain some capacity, are from half again to three times as large But one other type of Factory machine can be run at as low speed, while it has a three times larger bowl. All other Factory machines require a speed of 8,000 rev. per minute. The latest piece of mechanical idiocy in Factory separators requires a speed of 25,000 rev. per minute. All other Dairy separators require a speed of from 7,000 to 12,000 rev.

No other machine of any kind is capable of maintaining an average separation, under practical conditions, closer than from 0.1 to 0.5. High temperature is necessary and running a heavy cream either impossible or else involving still poorer separation and injury to butter product.

All other Factory machines require from three to five times the amount of power and consequent fuel consumption. All other Dairy machines require from one-half more to three times the amount of power, and are consequently only operatable by hand with greater effort in the smaller sizes and by power in the larger sizes which can be easily run by hand in the equivalent "Alpha" styles.

All other machines are made cheaply in the effort to sell cheaply. Their greater size and greater speed involve just so much greater wear and tear, cost of maintenance and impairment of durability.

The reason for all of these differences is found in the "Alpha" disc system of divided strata separation used in the De Laval machines and so protected by patents that its use is possible in no other. Feeble attempts at imitation, as far as patent restrictions will permit, are now to be found in almost every other make of machine. The only machine in which this is notably not the case requires a speed of 25,000 rev. against 6,000 rev. for an "Alpha" bowl of similar capacity, will then skim only to an average of 0.15 as compared with 0.05 for the "Alpha", and requires that a skilled operator stand over it and give it constant attention to keep it from breaking down or going to pieces

This is the whole separator story made as plain as volumes could make it, but if you would have it in greater detail you may find both detail and illustration in the new De Laval catalogues—"Dairy" No. 279, "Creamery" No. 509.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	NEW YORK.	PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Man and wife, no small children, on dairy stock farm, two miles from city. Good wages for right people. Write for particulars. Address, CARL MUTH, Sheboygan, Wis.

For Sale, Rent, Exchange—To responsible creamery men, fully equipped creamery; only one in county. Rare chance for right parties. Owner a lady, non-resident. Address, with stamp, A. J. FERGUSON, Wayne, Neb.

Here is a good opportunity to get just the Babcock milk tester you need for either a large or small dairy. Four bottle size $4 00, eight bottle $5.50. Advertisement in this issue of the DAIRYMAN. J. J. ANGUS, Plymouth, Wis.

For Sale—New De Laval Baby No. 2 separator for sale. HYGEIA CREAMERIES, Ft. Calhoun, Neb.

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

Wanted—I want to buy second-hand Alpha, 2,000 lbs. capacity. G. B. TOLMAN, Plano, Ill.

Wanted—Man and wife experienced in dairy farming; steady and trustworthy. Good chance for right party; good wages, good home. Box 116, Wayne, Du Page Co., Ill.

Wanted—Position is wanted as manager of a stock or dairy farm, by an experienced man. Would board help. Address LOCK BOX, 724, Malone, N. Y. 5-4

For Sale—One Acme Alpha Turbine Separator, re-balanced and re-tinned. Also churn, 2 cream vats, milk vat, butter worker (Eureka), milk cooler, shafting, piping, etc. These are second-hand but in good order. Will be sold at less than half the cost of new. For particulars, address C. C. VROMAN, Rodman, Jeff. Co., N. Y.

Wanted—Position in some good butter and cheese factory by a competent man with years of experience and can take full charge of creamery. Is posted in the latest methods in butter making and operating machinery. Can furnish the best references. N. NELSON, 923 4th, St., Sioux City, Iowa.

Wanted—Ten Men; able to give $200 security. To canvas for memberships to the Veterinary Science Association of London. Apply in person or by letter to room 5. Sutherland block, Janesville, Wis. 5-3

First Class—Cheese maker wanted. Address FEUDRICK BROS. Dunlap. Neb.

For Sale—Holstein-Friesian bull calf 6 months old, from a No. 1 cow. 80 lbs. milk per day and 18 lbs. butter per week. Will sell very cheap if taken soon. Want room for others. All particulars can be had by writing to WM. HAMBLY, Belmont, Wis. 5-2

Creamery For Sale—or rent. Excellent location. Address B. 150, care HOARD'S DAIRYMAN.

For Sale—Two Jersey heifer calves and a bull ten months old from a cow making 19 lbs. butter in a week. All registered. N. B. WHITE, Oconomowoc, Wis.

For Exchange—Aspinwall potatoe planter, in good order, for small upright boiler or cream separator. JNO. A. FUTHEY, Bellaire, Ohio.

For Sale—Registered Guernsey bull calves, and also a few females. Address JOHN BARTH, 109 Clinton St., Milwaukee, Wis.

For Sale or Exchange—Guernsey Bull Honorius 3361. Dropped March 9th 1893. Also his son dropped March 18th, 1898. Solid light red color. Write for prices, etc. WM. H. SWARTZ, Box 119, Waukesha, Wis. 4-2

For Sale—A first-class creamery 25 miles from Sioux City. Write for particulars and terms. DEWITT GOODRICH, Climbing Hill, Ia. 3-3

For Sale—A first-class cheese factory six miles N. W. of Appleton. Good location and everything in first-class shape. For particulars address. NICK HUSS, Appleton, Wis. 4-3

For Sale Cheap—Farm of 120 acres. One mile from P. O., creamery, and depot, Good and new buildings. Everything O. K. A bargain on easy terms. Address F. R. CONSTANCE, Waupaca, Wis. 4-2

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

For Sale—One first-class creamery and skimming station. DOWNING MFG. CO., Downing, Wis. 35-tf

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—To trade a 43-acre farm, good six room cottage, and barn. Land rolling, and nearly surrounded by oil wells, producing from 10 to 400 bbls. per day, ½ to 3 miles away. Situated 10 miles from Parkersburg, 4 miles from railroad. Will be sold for high grade or full-blood Jerseys or $1,500.00 cash. This is cheap outside of the prospect for oil. Don't write unless you have first-class individuals. Also will sell or trade 416 acres of fine coal land in Kanawha county, 6 miles south of Charleston, Davis' Creek. R R. runs through property. 95% of land underlaid with three seams of coal, one seam, 40 in., is free from any slate and with a bare trace of sulphur. There is no finer bituminous coal in West Va Will take $5,000.00 worth of full-blood Jerseys and $5,000.00 in notes of one, two and three years. Titles guaranteed, J. F. WOODYARD, Parkersburg, West Virginia. 2-4

Lands in Wisconsin Cheap—The Chicago, St. Paul, Minneapolis & Omaha Railway Company has upwards of 400,000 acres for sale in northwestern part of the state at low prices and on long time. These lands are most desirable because of their proximity to the markets of Minneapolis, St. Paul, Ashland, Eau Claire, Duluth and Superior. If you wish to visit these lands homeseekers cheap excursion tickets can be secured at C. & N. W. ticket offices in Chicago, Milwaukee, Janesville, Beloit, Elgin, Aurora, St. Charles and Dixon March 7th and 21st. Maps and information furnished on application to G. W. BELL, Land Commissioner, Hudson, Wis.

From the Far West.

Breeding up a Dairy Herd—An Investment Which Paid Fifty Fold—Bones for Fertilizer—Farm Creamery Plan Wanted—Ration Formula.

ED. HOARD'S DAIRYMAN:—Though I have only been a subscriber to your valuable paper a little over a year, I have become converted to its teachings on scientific farming and feeding for best results. Though I have not been able to secure other subscribers to your paper than those sent last fall, I never fail to speak a good word for it when opportunity is offered.

Three years ago I purchased the best bred registered Jersey bull I could secure, at a long price, to head my dairy herd, most of which were registered Holsteins of excellent dairy qualities, the balance grade Holsteins and common stock.

The present result is that I have twenty-four head of the special-purpose breed, coming two or three years old, comfortably housed in a 30 x 40 basement barn, well lighted and ventilated, and otherwise convenient, built on the "New Era" plan, found in HOARD'S DAIRYMAN, with but slight alteration. The one number from which I obtained this plan, saved me fifty times the subscription price of the DAIRYMAN.

Now, in this connection I would be pleased if some of your many readers will donate a plan for a small creamery building, the machinery and furnishings necessary, and the placing of the same as regards convenience in operating; also their experience in butter making in private dairy as against sending their whole milk or their cream to the factory.

I shall keep from 20 to 25 head of special-purpose cows (butter cows) and hope to profit in the future, as in the past, by putting into practice the teachings of the DAIRYMAN, as regards increasing the fertility of my soil, by having the manure spread daily on the fields. In this connection I wish to ask as regards fertilizing. There is quite an accumulation of bones around the slaughter houses in this vicinity; is the value of such fertilizer such as would warrant the trouble of gathering them? I now have a 2-horse power engine with which I intend operating creamery machinery. I also have before me a catalogue and price list from Wilson Bros., which quotes a No. 3 mill well suited to 1, 2, 3 or 4 horse power that grinds dry or green bones, corn on cob, small grain of all kinds, price $60, with a good per cent off. Do you know of this machine, or if any of your readers have used them, will they please report?

Now, Mr. Editor, if all of the foregoing should be consigned to the waste basket, please give me a balanced ration from the limited kinds of feed stuff: Wheat bran, weighing 25 pounds to the bushel, wheat shorts weighing 40 pounds to the bushel, $10 and $12 per ton respectively; wheat chop $18; barley $22; oats $22; no corn nor oil meal. If the purpose of the oil meal is to keep the bowels open, it is not needed, as I feed all the oat hay they will eat. After feeding grain, this has the required effect.

Colfax, Wash. C. O. C.

Although we have cut out several paragraphs from our friend's communication, there remains an "embarrasment of riches." In this hurrying, touch-and-go age, readers all too often skip the long articles. Of course they are the only losers thereby, but, all the same, we have too much reason to regret their loss. Short, crispy correspondence and articles add to the reader's estimate of the value of a paper, and if the above had been given in three letters, it is safe to say it would have found three times as many *interested* readers, and thereby accomplished more than three times as much good.

The one item about building a barn on the "New Era" plan, given in this paper some two or three years ago, and re-published last year, ought to lead thousands of other readers to studying the barn plans and other suggestions which are given from week to week in our columns. And it ought also to set more subscribers into the habit of saving the successive numbers as they are received. We furnish a specially made binder for this purpose, at the small cost of 75 cents, and any volume of HOARD'S DAIRYMAN, with its accompanying index thus preserved, will prove itself worth many times its cost, every year.

We believe it would pay well to collect and grind these bones, especially if they could be composted for four to six weeks with dampened wood ashes. There are many mills for this purpose, and it would be unfair to the others for us to commend one to their exclusion. We could not, if we would, try every machine that is put upon the market, and if we could, the merits of several are so nearly equal, and human judgment so fallible, that we should hesitate to offer specific advice. And further, the man who has the good sense not to be deterred from getting the best bred dairy sire he could find, notwithstanding the attendant "long price", can be safely left to his own discretion in buying a grinding mill. As a general rule it can be safely stated that the lowest priced bulls, the lowest priced machines, and the lowest priced seeds and feeds are not necessarily the cheapest.

Wheat, barley and oats at the prices given are out of the question, when good bran and shorts are to be had at about half the cost. For mature cows giving a full supply of milk, we should feed from 8 to 12 pounds of a mixture, half bran and half shorts, *by weight*, the amount to be determined by the way each animal disposes of it. Those that turn any part of the feed into body fat are receiving more than is profitable to feed a dairy cow. We do not object to feeding for growth, but for excess of fat.

Chicago Milk Supply.

ED. HOARD'S DAIRYMAN:—Two out of every three milk shippers we meet, ask some question about the "milk trust", which has received so much free advertising, recently in Chicago papers, especially the *Chicago Record*, which recently gave one of its financial columns to publish a prospectus of this new trust.

In the light of recent events, and knowing what we do about the so-called "trust", we are surprised to see the *Chicago Record* giving so much space to something that has turned out to be an ignominious failure, without apparently investigating it more fully than it did.

And, now that the options on the business which were to have formed the nucleus of this "trust" have all expired, and the organizers have all disbanded, we are surprised to hear the shining lights of the Chicago Milk Shippers' Union announcing, at their annual meeting, that the organizers of this trust are still hard at it, and urging the farmers, therefore, to closer organization and the prompt payment of larger annual dues.

In order to explain more fully some of these questions, let us repeat what, to the initiated, may seem like ancient history. For several years there has been an organization in Chicago to which most of the large dealers have belonged—we will not give names, as it would be betraying a confidence, but we know, personally, a majority of the members, and we know, further, that after their monthly meeting preceding the first of May and November of each year, each member sent his farmers a price for milk for the following six months, and these prices in every case were similar.

Some of the members of this association met on the street about two months ago and commenced to talk about the price of milk for the summer, and before they left it was agreed to meet in one of the parlors of the Palmer House to talk over plans for mutual protection and advantage. Shortly after this, Mr. Leiter was introduced—whether by his own request or the request of these dealers, we have been unable to learn—and a scheme embracing the consolidation of these concerns was planned. As there are numerous meetings at this hotel, the news reporters of the Chicago papers keep in close touch with the hotel clerk and tell of such meetings and of course the reporter noses around and and sees who is in attendance, guesses a good deal and writes a column or so for his paper. Thus was the so called "milk trust" conceived and announced.

One of the purposes of these meetings was

EVERY SUCCESSFUL farmer who raises fruits, vegetables, berries or grain, knows by experience the importance of having a large percentage of

Potash

in his fertilizers. If the fertilizer is too low in Potash the harvest is sure to be small, and of inferior quality.

Our books tell about the proper fertilizers for all crops, and we will gladly send them *free* to any farmer.

GERMAN KALI WORKS,
93 Nassau St., New York.

$15.00 IN CASH PRIZES

will be paid for the best reason written why Cornish & Company should not join the **CREAMERY TRUST.** $5.00 will be paid to the first best answer and $1.00 to each of the ten next best.

The "reason" must not contain more than twenty-five words and include our name. The answer must reach us before April 1st. Sign your name, address and give occupation. Address us always **CORNISH & COMPANY,** otherwise mail wont reach us.

CORNISH & COMPANY, ST. PAUL, MINN.

CREAMERY MACHINERY,
BOYD CREAM RIPENERS,
SHARPLES IMPROVED SEPARATORS.

The greatest amount of power procurable from the least amount of fuel, with the least attention to details, result from using the

RUMELY ENGINES

This is true in each case, whether you are **threshing, drilling wells,** running a **sawmill, grinding feed, cutting fodder** or **ensilage** or **anything else.** They are Semi Portable, Portable and Traction, either simple or compound. They range from 8 to 20 horse-power. The traction engines are remarkable for **large traction power, easy steaming, fast travel, great strength, simplicity and durability.** Boilers made of plate of 60,000 lbs. tensile strength. Fire boxes surrounded with water. We make also **Threshers, Horse Powers and Sawmills.** Illustrated catalogue sent free—fully describes all.

M. RUMELY CO., La Porte, Ind.

THOMPSON'S GRASS SEEDER

SOWS ALL KINDS OF GRASS SEEDS, TIMOTHY, CLOVERS, ALFALFA, FLAX AND RED TOP, and has a special

HOPPER FOR WHEAT, OATS, BARLEY AND RYE.

The hopper is so close to the ground that the wind can't blow the seeds away. That means regular seeding. Regular seeding means full crops.

THE ORIGINAL WHEELBARROW SEEDER

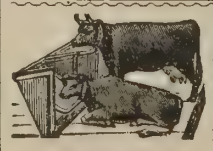
it still leads all others. It is so much easier to wheel the seed than carry it. Sows 30 to 40 acres per day. It is **strong, durable, lasting.** Write for free circulars and endorsements.

O. E. THOMPSON & SONS,
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HALL STEEL TANKS



are the best for supplying water for live stock. Being made of **galvanized steel** they cannot **rust, rot, burst from freezing, fall to pieces from drying out, etc.** We make tanks for all purposes. Also troughs for **feeding calves and pigs, cooling milk, hauling liquid manure,** etc. Write for what you want. We will make it. Special price to *first inquiries* from *new territory.* Circulars and price list mailed free. **THE HALL STEEL TANK CO.**
64 N. Ashland Ave. CHICAGO, ILL



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free



Pressed Steel Wheels.
For Farm Wagons and Trucks Have all the latest improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the best metal wheels on the market, buy them from **The Arnold Metal Wheel Company** Lock Box 28 New London, Ohio.
Catalogue and prices on application.

Good Cows

are the foundation of successful dairying. The next important step is to secure an



Empire Cream Separator.

Then it will be an easy matter to make high-grade butter and the most of it. They run 50% lighter than any other machine of similar capacity. Our catalogue will tell you all about separators. Send your address.

U. S. Butter Extractor Co., Newark, N. J.

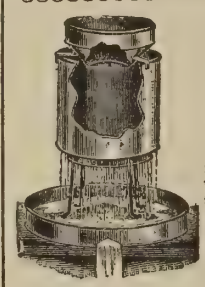


ECLIPSE Cream Separators

SUPERIORITY over any other make **GUARANTEED;** they are **CLOSEST SKIMMERS** and **Built DOUBLE AS STRONG as any other make;** also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Ag'ts wanted. Catalogue FREE.

C. L. Chapman Separator W'ks, ERIE, PA.

☞ When writing mention HOARD'S DAIRYMAN.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

W. H. YOUNG, Box 135, Aurora, Ill.

OUR INCUBATORS EQUAL THE BEST..

They have all the latest improvements and are sold at very low prices and **GUARANTEED** to please every customer. Send 6c. for our 148 page catalogue which contains full descriptions of our extensive line and tells how to raise poultry successfully. Send for it at once.



DES MOINES INC'B CO.
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Incubators and Brooders, Self-Regulating. Special low price for first in any locality. Agents wanted everywhere. Eggs for hatching, by the hundred cheap. B. P. Rocks a specialty. Catalogue free. Address Geo. S. Singer, Cardington, O.



MANN'S BONE CUTTERS prepares green bone so that hens can eat it. **MANN'S GRANITE CRYSTAL GRIT** prepares food so that the hens can digest it. A perfect food perfectly digested means strength, vigor and double the eggs. Catalog free. **F. W. MANN CO., Box 18, Milford, Mass.**

THEY HATCH MILLIONS

of **Chickens, Ducks, Turkeys** and **other fowls** in every state and territory in the Union and in many foreign countries—



THE PRAIRIE STATE INCUBATORS.

Used by the largest poultry breeders, duck and broiler farms everywhere. Have taken **over 200 first prizes** in all kinds of competition. The easiest to handle, cheapest to operate, **surest in results** and most handsome and durable in construction. 168 p. catalog and supplement **FREE.** Prairie State Incubator Co., Homer City, Pa.



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to get ahead of a competitor who had become notorious for cutting prices; but when it was announced in the papers, a little inquiry revealed the place of meeting and, we are told, the surprise was great when he walked into the meeting one day without invitation or even knocking at the door, and one of the causes of the abandonment of the scheme was lack of confidence in this dealer.

The other cause was the lack of financial aid from the public. That is, it looks as though Mr. Leiter thought that the fact that he had lent his name to this combination, that the "dear public" would "fall over themselves" to purchase stock in the new company, which was to have been known as "The Chicago Milk Company." But the public—at least some of them—had been led astray by Mr. Leiter in a wheat deal, recently, and consequently they did not subscribe for this stock as freely as might have been expected. One objection was that the firms represented controlled only about one-eight of the business, and the great question was, how was the other seven-eights to be brought into the company. The stock was then pulled off the market with the explanation that they intended to get a controlling interest before trying to sell more stock. A few days after this the options on the several milk companies expired, and thus the so-called "milk trust" fizzled out.

* * *

We understand there is some dissatisfaction in the ranks of the Milk Shippers' Union on account of some of the directors desiring a new president and also a new secretary. It is not our intention or desire to throw any cold water upon this organization, but it is to be deplored that the present officers have not succeeded in getting a larger representation of shippers to join their ranks. It looks as though some one connected with the present management was very unpopular.

We understand from some of the milk solicitors of our acquaintance on the various railroads carrying milk to Chicago, that some of their shippers who joined one or two years ago, have failed to pay their dues to continue their membership and now claim they will have nothing to do with the concern.

* * *

The price of milk for February was from 75 to 90 cents per 8 gallon can.

Chicago. THE INSPECTOR.

Creamery Questions—Skimming Stations—Summer and Winter Patrons.

ED. HOARD'S DAIRYMAN:—In buying cream by the Babcock test, what per cent should be allowed for overrun?

2. Will cream that has been pasteurized make as much butter as raw cream?

3. Will butter made from pasteurized cream keep as well as from raw cream?

4. Is it considered as good butter or better, or how does it compare with butter made from raw cream, I mean not pasteurized but properly ripened?

5. Will composite samples that have been preserved by bichromate potash test as high as the fresh milk?

6. What per cent water should good butter carry?

7. Will some one of those operating skimming stations state how they operate them? Do they ask the patrons to put them in or does the proprietor of the creamery put them in and then ask a pledge for so much milk to be furnished?

Now I would like to have a chat with brother creamery men.

Do you run your creamery the year through? If so, do you have any falling off in winter season? If so, how do you arrange with them? Do you allow them to come in on the same market in the summer season? I would like some arrangements by which I could make a just difference. I have retail jobbing trade for my butter that I must supply in winter as well as in summer, and this inflow of patronage in summer gives a large excess which must go to commission market; and as I charge so much per pound for making and selling, it cuts the price to my regular patron and this I wish to remedy. Any light I can get on this or any rule for governing will be a favor. B. H. A.

Mercer Co., Pa.

Our correspondent's questions if answered in full would make a short treatise in dairying and take more room than we can spare at present; consequently the answers must be rather brief.

The question of overrun is more theoretical than practical. The average is about 15 per cent, but in practice it may vary two or three per cent above or below this point, according to conditions in the creamery and quality of milk. It is far better to credit a patron with exactly the amount of fat he brings to the factory and divide the proceeds according to the actual weight of butter made, than to figure on a theoretical overrun.

2. Pasteurized cream will churn as close as raw cream. The advantage, if any, is in favor of the pasteurized cream.

3. Tests indicate that pasteurized butter keeps better than raw butter.

4. The quality of the two depends on the market. Danish butter that is nearly all pasteurized, ranks higher in the English market than the unpasteurized goods.

5. If your composite sample is thoroughly mixed and a correct sample taken there should be no difference between the two tests.

6. Good butter should contain not over 15 per cent of water.

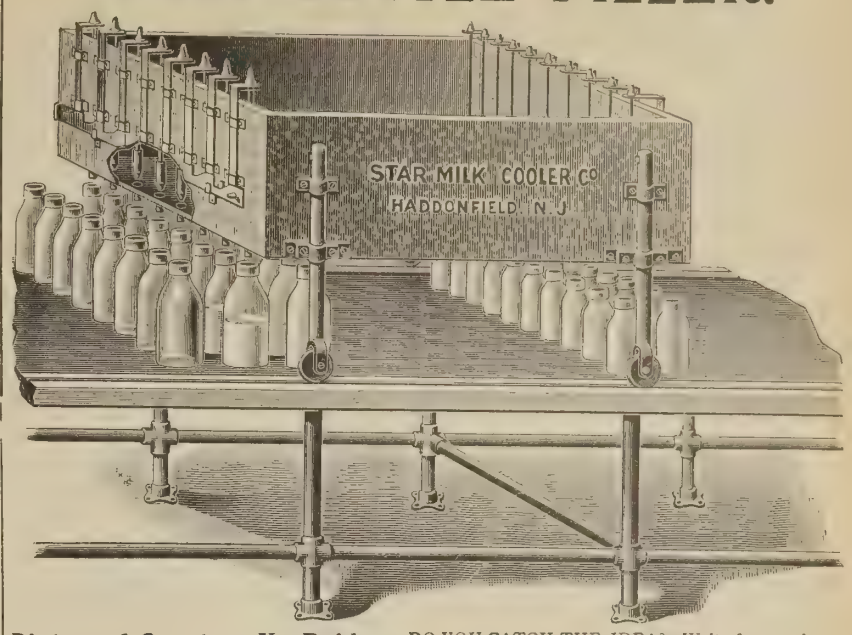
The Cows Enjoy It.

ED. HOARD'S DAIRYMAN:—Enclosed find $1 for a renewal of your paper "The Gospel light to Dairymen." I find it would be down hill work to do without it. When I first began to read it, it turned me "about face" to the cow. I keep a few high grade Jerseys and get from 300 to 350 pounds of butter per cow and they seem to enjoy the paper as I do when I read it to them. I may send you a statement later on what my cows have done for me for four years or more. Yours for the DAIRYMAN.

Vermontville, Mich. WALTER NAGLE.

We trust friend Nagle will not forget to send us the promised statement. We especially want statements covering a series of years.

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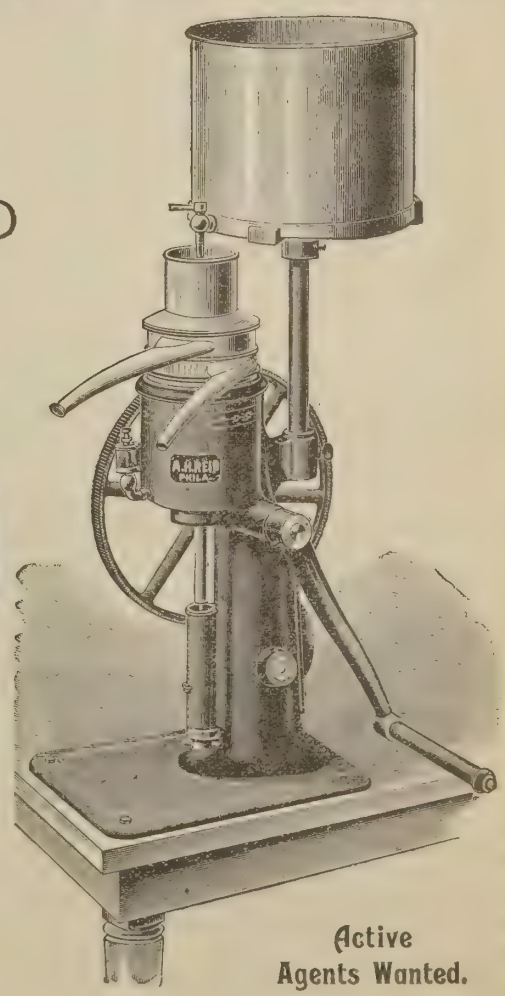
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Active Agents Wanted.

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Seasonable Notes From Michigan.

City Milk Trade—Beef and Butter—Ensilage—Root Growing.

ED. HOARD'S DAIRYMAN:—Something which tends to take the charm from the retail milk trade is trying to make the trips on mornings when mud, snow and slush is a foot or more in depth, wheels clogged until they resemble those of a chariot, and snow and sleet blowing at a rate of "forty knots an hour." Surely this is delivering milk under difficulties such as only those who have "been there"can appreciate.

One of our local milk routes is conducted by a woman, and a success she is making of the business too. Her up-to-date wagon makes its rounds every day driven by a milk maid who serves her customers in a most gracious and satisfactory manner. This is an innovation for this part of the country, yet it is one which need startle nobody in these end-of-the-century days.

It is a most respectable and suitable calling for a woman I am sure, and the share of public patronage bestowed upon the young woman in question speaks well for the manner in which she is received. The fashion may well be extended. It might prove a drawing card in places where nothing of the kind has been introduced heretofore. Patrons would be likely to have confidence in the product of a dairy presided over throughout every detail by a woman.

One feature of the retail milk trade which impresses me most forcibly in regard to our own city, is the change which has been witnessed within a year or two in the manner of delivery. Formerly less attention was paid to appearance and some milk wagons might have been seen which were actually filthy from long use and insufficient scrubbing, to say nothing of mud covering their exterior the year around. All milk was carried in tin cans holding from eight to ten gallons and ladled out to customers by the quart, after the old rule.

Now all that is changed. We have modern wagons, neatly painted and kept clean outside and in. Milk is bottled at the farm and delivered in neat wire baskets. Most dairies have coolers and a first class product is guaranteed. Nearly all dairy herds have at least a proportion of Guernseys or Jerseys.

To me it is a most encouraging sign of the improved and advanced ideas, now prevalent, to see these and other changes which are taking place in this most important industry.

Dairy cows seem to be in good demand and are bringing fair prices. Beef has another inning and many farmers are on the lookout for the cow that will make beef when she gets too old to make butter profitably.

There is fierce rivalry in discussing this subject between the dairy specialist and the dual-purpose cow advocate. Talk you ever so long and argue ever so forcibly it is impossible to convert either to the other's way of thinking.

The drover who drives about the country buying fat stock will tell you the Jersey has been a great injury to farmers, while the dairyman will tell you they have been a corresponding great benefit.

At our recent Round-up Farmers' Institute, at Pontiac, there was considerable discussion between the beef and the butter men. One successful dairyman stated that he had fattened a good many steers in the past, but should never do it again, while the same feed required to make one pound of beef would make a pound of butter. He had demonstrated to his own satisfaction the possibility of doing this. This gentleman is loud in his praise of ensilage as a food for milch cows

In the discussion upon silos and ensilage, one dairyman gave figures relative to the cost of ensilage. He has weighed the corn as it came from the field to the silo, and keeping careful account of all expense, puts total expense of growing, cutting, hauling and siloing the product at forty-six cents per ton. Certainly this is furnishing rations for the cow pretty cheaply.

One man who has had large experience in growing roots, gave, at an institute this winter, his method of growing them. He has made the subject a study, and figures to produce the crop at least possible cost. The soil is plowed deeply in the fall and again in the spring. It is made very fine and gone over several times at intervals of a week to kill the weeds, as fast as they sprout.

The variety of seed chosen is the Golden Tankard. They are put in rows 22 inches apart. When nicely up they are thinned out by means of a sharp hoe to about eight or nine inches apart. Frequent cultivation is given during the summer, and when the harvesting time comes, a rather novel method of procedure is gone through with. Men armed with sharp hoes go through, and with a single stroke sever the top from the root of each plant. A low wagon with rack follows (the rows being so spaced that the wheels pass between them) and men with wide forks pick up the tops. These are carried to the barn and fed to stock. The roots are then pulled by hitching a team to a 60-tooth drag, and going over the field crosswise of the rows. As those familiar with this variety of mangel are aware the Golden Tankards grow well above the surface of the ground, and this mode of pulling them is said to work finely, but very few being broken off.

This gentleman does not cut roots for any stock, but feeds them to cattle, sheep, hogs, horses and fowls, whole. The animals bite pieces out to suit themselves, eating them readily in this way, and of course the fowls know how to dispose of them in their own way. W. C. ROCKWOOD.

Mich.

The Use of Commercial Fertilizers on the Farm.

The Results of Years of Experience with Them.

ED. HOARD'S DAIRYMAN:—Noticing from time to time in the DAIRYMAN inquiries made in relation to the use of commercial fertilizers on the farm which the Editor does not answer from the fact that this excellent journal is published in a favored part of the country, where these aids to productive farming are not needed; but also taking into consideration that its circulation is not local but continually widening, embracing a goodly portion of the United States and extending over into the British Provinces, it will be seen at once that within this large and diversified territory, the conditions are not the same in Wisconsin as some others of the Western states.

In New England and the older Eastern states the manurial resources of the farm are not often sufficient for the demands of the soil and crops, and to this fact may be attributed the large use of commercial fertilizers. These are not generally used to take the place of farm manures, but to supplement and extend them for the purpose of getting larger returns in crops.

Every farmer should endeavor to make all of the manure possible and use it to the best advantage on the crops, as this is of the greatest importance, but having done this, if the conditions are such that the supply is not sufficient for the best results, then it will be advisable to use some form of fertilizer, to an extent that will be found to pay good returns for the investment. But considerable judgment and experimenting will be found necessary to enable the farmers to determine to what an extent this can be profitably employed in his land.

Experimenting on a small scale with different crops and on different soils, making use of such forms of fertilizers as he has reason to believe will produce good results, will not be expensive nor very difficult to do.

There is a wide range of reliable fertilizers and fertilizing materials from which to select, embracing that known as "complete fertilizers" as those containing proper amounts of nitrogen, phosphoric acid and potash, special fertilizers formulated for different crops, or any of these ingredients where they may be wanted.

Now I am not going to lay down any

No lamp is a good one without the chimney made for it.

Go by the Index.

Write Macbeth Pittsburgh Pa

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Volume XXIX of Hoard's Dairyman

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For Sale At lowest prices two Jersey Bull calves six and eight months old, and very well bred. For particulars Address Samuel H. Marshall. Madison, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

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Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

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Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED. F. H. SCRIBNER, Rosendale, Wis.

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by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."

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A. J. C. C. Cows

in our sale list just issued comprise a pure St. Lambert granddaughter of Allie of St. Lambert; three granddaughters of Naiad of St. Lambert; a tested cow, deep in the blood of Noble 901, Imp., whose dam has an excellent test and six tested daughters; a cow deep in the blood elements of that wonderful cow, Mollie Garfield; and others of similar merit. Some are fresh; others longer in milk. Sale List No. 3, giving short pedigrees, sent on application.

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Hood Farm Jerseys Choice Yearling Bull. Solid color, black points. Sire, Hood Farm Pogis, a son of Kathletta's Fancy that milked 22,374 lbs. in two consecutive years. Dam, Pedro's Fancy 2d of H. F., by Pedro Signal Landseer, sire of 1 in 14 lb. list; 2nd dam, Hary's Fawn, Test, 15 lbs. 6¾ oz., by Kathy's Harry; 3d dam, Ida's Fawn, 16 lbs. 1½ oz. by Ida's Stoke Pogis; 4th dam, Miss Rollo, imp. Address HOOD FARM, Lowell, Mass.

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70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL, Rochester, N. Y.

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Left behind him 85 daughters, 44 including Merry Maiden have records. 14 of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered Diploma stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire Combination, which in four years service left 73 daughters, 25 of them having records." The Jersey Bulletin says; "Great as doubtless Combination was, Diploma was greater." Service bulls, Recorder 29239, son of Brown Bessie, Champion Butter Cow at the World's Fair, and Diploma 2nd 36374, full brother in blood to Merry Maiden. State what is wanted.

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IDA'S RIOTER OF ST. L.

Leads All Other Sires that Ever Lived in Average Butter Record for 28 Daughters, Being Nearly 20 lbs. Apiece.

All full weekly tests. 5 made with 1st calf; 4 made with 2nd calf. Tested by 8 different owners. One daughter, Ida Marigold, won the lion's share of the honors at the World's Fair. His get have won over 70 first prizes and sweepstakes at state fairs or great expositions. He weighed 1760 lbs. His dam's official butter test, 30 lbs 2½ ozs; milk record, 67 lbs. a day.. His daughters are heavy milkers.

For Sale—Grandsons and granddaughters of Ida's Rioter of St. L., also cows in calf to his sons.

224 First Prizes and Sweepstakes won by this herd at 22 State Fairs or great Expositions. Home of many great milk and butter producing cows. Our Adelaide of St. Lambert gave 82¾ lbs. of milk one day; 2005¼ lbs. one month—the world's Jersey record. **224**

No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Prices low for quality. Every animal tuberculin tested before sale, if desired.

Also For Sale—Children's Ponies and registered Shropshire Sheep. MILLER & SIBLEY, Franklin, Venango Co., Penn.

rules in this matter, even if I were able to do so, but simply as a practical farmer, having used commercial fertilizers for twenty-five years or more—mostly standard superphosphates—as these seem to be well adapted to my soil, will give some of my experience with them, thinking it might be of benefit to others.

The soil of my farm is largely a gravelly loam, underlaid with hard pan and somewhat stony. The meadows are almost entirely arable land and require to be plowed every few years and devoted to cultivated crops, then seeded to grass in which to remain three or four years. To secure good crops, manure, or fertilizer, must be used, as on seeding again to grass the land should be in good condition. As there has not been during this time sufficient manure for this purpose, recourse was had to the standard superphosphates, which, as a general thing, have produced excellent results. These have been used on almost all crops raised.

For potatoes, we use three hundred pounds per acre in the hill of "potato fertilizer"—that is a form of phosphate containing more potash than that used for corn. Sometimes at the last cultivation, wood ashes, or these mixed with phosphates, are applied and worked into the soil. Use no manure with this crop and usually get good yield and quality.

If more fertilizer is needed, it should be spread broadcast and harrowed in lightly previous to planting, and then place some in the hill or drill.

For years we have grown a large amount of fodder corn to feed without husking—now have a silo—and have done this entirely with superphosphates. Plant on sod turned in fall, using three hundred pounds to the acre in the hill, the work being done with a planter. This is all of the fertilizer used and for many years have averaged excellent crops and at a small cost. Otherwise the crop is well cared for, but without the aid of the hand hoe.

If the corn were to be husked, would prefer a moderate amount of manure spread broadcast and harrowed in, with two hundred pounds of phosphate in the hill. This, with us, brings good returns.

Following the corn and potatoes, the land is sown to barley and oats, and seeded to grass. With these crops the farm manure is used. If there was not sufficient manure for this purpose, would use less—that is, make it go farther—and supplement with a moderate amount of fertilizer. Superphosphate will be found a great aid when seeding to grass, giving the young grass a vigorous start.

Where oats are sown on green sward or rough land that it is desirable to subdue, and there is no manure that can be spared for the purpose, these phosphates will be found to produce good results.

If on seeding to grass along with a grain crop, especially oats, farm manure is found to produce too rank a growth of straw, causing it to lodge badly, as is sometimes the case on alluvial soils, then I think it would be better to use phosphate when seeding, which will serve to produce stronger straw, thus keeping it from lodging and killing out the grass, and then spread on the manure soon after harvest. This will protect the grass, stimulate its growth and tend to a larger production of hay.

I have obtained good results simply from sowing broad cast 100 pounds of superphosphate to the acre, early in the spring, on grass, repeating the same for several years. This was on hard-pan soil, and somewhat moist. Calculated I got one-half ton of hay extra for this hundred pounds of fertilizer.

Where this is done it should be while there is a good stand of grass on sod, as it will be found difficult improving the product of a run out grass field with fertilizer or manure—such land should be plowed and cultivated to other crops, after which it can be re-seeded to grass again.

I have given here some of the results of my own experience with commercial fertilizers, hoping it may be of benefit to those readers of the DAIRYMAN who desire information on this subject, but the farmer should try for himself, and can, in this way, soon find whether they can be profitably employed on his own lands. E. R. TOWLE.

Franklin Co., Vt.

Gasoline Engines in the Dairy.

ED. HOARD'S DAIRYMAN:—In answer to Mr. W. C. Hughes' inquiry on page 1039 of February 3rd.

In regard to the danger of running a gasoline engine, with proper care there is none whatever. I am past three score years and have farmed all my life and run a dairy for twenty years. I have used coal oil in the dairy, gasoline and steam engine.

The coal oil engine did not give satisfaction. The gasoline engine will not give steady motion, and for that reason will not make a good separation of the fat from the milk, on account of causing the bowl to vibrate and run unsteady and sometimes getting the bowl out of repair.

The steam engine with a good governor will give you the smoothest and steadiest motion of any power I know of. When you are through separating and churning you have steam left to heat water for washing purposes. If you have the boiler larger than the engine proportions you would not have to attend to the fire as often, besides you might want to use it for cheese making.

DUNCAN MCKINNON.

Monterey Co., Cal.

Silage and Pure Milk.

ED. HOARD'S DAIRYMAN:—In looking through "Note and Comment," in the issue of February 10, on page 1060 of your paper, John Gould says in his Institute travels, among other things in speaking of silo talk:

"And with the backing of Geo. Abbott, the largest and most critical buyer of Philadelphia, that milk from silage was his best milk and such as he could certify to, the proof that silage was one of the best things about the barn, was not often challenged"

Now, Mr. Editor, in this vicinity there is a good deal of silage fed to dairy stock, and has been for the last few years. I feed between four and five hundred tons a year and as yet, have not had any complaints or fault found with the milk, but I have just been informed that some of the farmers who feed silage, and who send their milk to a creamery of considerable note, have been notified that after such a date their milk will not be taken at the creamery, as they, the company, are not going to handle any more milk made from silage fed cows.

Now here are two concerns handling milk. One claims that their best milk comes from the dairies where silage is fed, and the other does not want any milk from silage fed cows.

Now, I do not doubt in the least that Mr. Abbott is correct in his statement, and that he receives just as good milk from dairymen who feed silage, and also believe that the other parties have some cause for not wanting milk from dairies where silage is fed.

There must be something more than difference in opinion in this case. There must be a difference in the surroundings of the herds in this vicinity. I think too many dairymen keep their cows in too close quarters to make the best of milk, and then there is a great difference in silage. The quality depends somewhat on the time it is cut and put into the silo. The farmer who has to depend on the man who goes from farm to farm with his power and cutter, has to take it when it comes his way, and it may be two weeks before the corn is at its best, or it may be so late in the season that it is injured by frost and being over ripe. So the farmer cannot always control his silo filling just as he would like. Large farmers have the advantage by having their own outfit, and being able to do their work at the right time, and keeping their stock in a better condition for making good milk.

In many cases the silo is located too near the cows, so that they are constantly inhaling the odor from too sour silage, and in too many cases the farmer is afraid his cows will get too much fresh air and out-of-door exercise.

I believe in all the fresh air possible with prudence. I dislike very much to detect, on going into the stable, foul odor, and if I do detect any, I make it a rule to air out, as the good house keeper would say. Give the cows at least an hour or two of exercise in the yard every day when the weather is fair, and take this time when the cows are in the yard to air the stable and clean it up. Do not leave in the feeding floor in front of the cows, over night, or any time when the stable is closed, any cabbage, fodder, or turnips, or anything else the odor of which the cows will inhale, especially in air tight barns, the flavor of which we do not relish in the milk.

If we would only pay more attention to the comfort of our stock than the getting of a large quantity of milk made by unnatural conditions, we would hear less about poor milk from silage fed cows. I believe we should keep our animals in warm, clean and well ventilated stables, as free as possible from all odors, and with a reasonable amount of out door exercise. Our cows, if well nourished, will be healthy and in a better condition to give good, wholesome milk.

Worcester Co., Mass. E. A. H.

Guernsey Cattle Interest.

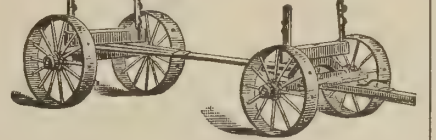
ED. HOARD'S DAIRYMAN:—The reports of the Secretary and Treasurer of the American Guernsey Cattle Club submitted at the recent annual meeting of the club showed a marked increase in the number of animals placed in the register for the breed, and also in the sales recorded. As compared with previous years, the work has nearly doubled in the last five. A committee from the club has been chosen to formulate plans for increase of office accommodations and safe storage of the records. This committee will report at the next meeting of the club

The first year's home tests of Guernseys, under the auspices of the club, are now well under way, and some very interesting results will be obtained. Twenty-one cows are competing for the herd prizes, and five cows in the single cow test. These are owned by Geo. C. Hill & Son, Rosendale, Wis.; Levi P. Morton, Rhinecliff, N. Y.; Ezra Michener, Carversville, Pa; and Jas. H. Beirne, Oakfield, Wis.

The January issue of the *Register*, which is published in quarterly parts, has four illustrations of Canadian and Island Guernseys that have become noted for their excellent record in the show ring and in breeding. WM. H. CALDWELL.

Farm Wagon for only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.



FINE BLOODED Cattle, Sheep, Hogs, Poultry, Sporting Dogs. Send stamps for catalogue, 150 engravings. N. P. BOYER & CO., Coatesville, Pa.



Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

Mammoth Bronze Turkeys from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write **H. P. West**, Fayetteville, Wis.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Holstein-Friesian Cattle. Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland. **L. F. JUDD & CO., Bloomington, Wis.**

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN**, Portage, Wis.

RICHLY BRED HOLSTEIN BULL,

Mechtchilde Sir Change,

Dropped Jan. 24, '98, and now ready for service. His breeding is of the best; in his veins flows the blood of

Oude Empress,	milk record	114	lbs. in 1	day
Mechtchilde,	"	112	"	"
Empress,	"	109	"	"
Jewel,	"	100	"	"
Mantado,	"	95	"	"
Ondine,	"	90½	"	"
Colantha,	"	89	"	"

and many others of great merit. If you want him write at once. **Price $65.00.**

Wis. Live Stock Association, Appleton, Wis.

HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

HOLSTEIN-FRIESIAN CATTLE Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle, Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Ten Choice Yearling

Holstein-Friesian Bulls

FOR SALE!

Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.

A. H. WEGEMANN, Lake Mills, Wis.

The Choicest Breeding.

To parties desiring young bulls of first-class quality and the choicest and most desirable breeding we offer rare opportunities for selection. We offer twelve bulls, sired by sons of Mechthilde, Parthenea, De Kol 2nd and Natsey, the "Dairy Queens," and out of cows of the most famous breeding, whose large milk and butter tests and showyard winnings stand unapproached in Holstein-Friesian cattle history of recent years. Remember Valley Mead is headquarters for H.-F. cattle, and is the home of the greatest butter cows and prize winners. KARLEN & CO., Monticello, Wis.

GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

M. D. Cunningham,
KANSASVILLE, WISCONSIN.

Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

WANTED!

GUERNSEYS

Twenty to thirty head of females under five years old. Please call the attention of your neighbors who have Guernseys to this inquiry. This ad will appear but once. Send description and prices to **L. V. AXTELL, Perry, Ohio.**

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.

I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.

J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.

225 Pure Bred Guernseys,

Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.

ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

MILLWOOD FARM

Guernseys!

Guernseys of All Ages and Sexes For Sale.

Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.

N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

Babcock Tests vs. Churn Tests.

ED. HOARD'S DAIRYMAN:—In reply to recent inquiries on this subject, Prof. W. A. Henry, of Wisconsin Experiment Station, Madison, Wis., writes to me as follows, under date of December 27, 1898:

"Replying to your inquiries, will say: First, without being able to prove my statement, but basing my judgment on the results of the most carefully and fairly conducted dairy tests, I believe that most of the records showing thirty pounds or more of butter in seven days are unreliable. I do not affirm that the parties did not get thirty pounds of something which they called butter, for the seven days, but I am firmly convinced that a large part of these so-called records were not honest, merchantable butter. I believe that private tests with dairy cows, and those where the milk and butter are not analyzed, are no more reliable than private trotting tests would be with horses, for human nature is the same in the owners of both these animals. Second: I believe that the Babcock test together with the scales combined gives us a far more correct method of estimating the butter capacity of a cow than the churn itself. This is true, because with these two instruments we can determine the total quantity of fat yielded by a cow in a given time, and when a cow has produced this fat she has done her part and is entitled to full credit. The churn is not a measure of a cow's butter productive capacity, because fat may be lost both in separating and churning, and the cow cannot be held accountable for either of these losses. Again, unless the butter is analyzed, it may not be a merchantable product, for which fault again the cow is not to blame, nor on the other hand should she have credit for water, casein, extra salt, or all of these, which the worker through his desire for a large production may leave in excess in the butter. Of course the Babcock test can be wrongly used, or it can be misrepresented, but with the scales it forms the simplest and most direct combination for measuring a cow's butter value. A man, who will cheat with the churn, will also cheat with the Babcock test, but the skimming device and the churn may both cheat the cow, when the man or the committee are honest. This the Babcock test will not do. By means of properly conducted official tests, and the use of the Babcock test, the representatives of our various breeds of dairy cattle are in a position to establish records which are reliable, and in time will become immensely valuable, as data accumulates and the effects of breeding and selections are realized."

This letter should be in the hands of every dairyman and every breeder of dairy cattle. Before the invention of the Babcock test, the churn was the only practicable means for testing cows within the reach of dairymen. It is probable that the earliest tests did not give full credit to the cows. As strife for extraordinary records grew there seemed to be no end to the number of pounds that might be reached. One record passed 46 pounds in seven consecutive days; the cow and the whole process of making was in the hands of an intelligent committee. The World's Fair threw a great light over such records. Cows that had been credited with 30 pounds and upwards, under most favorable conditions at that fair failed to make 20 pounds of butter of 80 per cent fat in the ordinary period of seven consecutive days. It was a great surprise. The public lost all confidence in the great records that had been reported. If these tests had no other effect they were not altogether vain.

With view of finding out how some of those great records might have been made, I took a quantity of rich cream, properly ripened, and churned it at a low temperature until it reached the point described by the word "broke". If it had been chilled it would have been about as dry as snow. An enthusiastic record maker might have reasoned in this way, "It is not cream, it is not buttermilk, therefore it must be butter." I estimated its weight 46 pounds and it contained 33 per cent fat. I added ice water and again started the churn. When it appeared as granules about the size of wheat, I drained off the buttermilk and let it stand draining several hours. No one, not a practical butter maker would have had suspicion that it contained an excess of moisture. It weighed 18½ pounds. By chilling it still more it might have been salted without loss of weight.

A thoroughly conscientious man, unfamiliar with butter making, might have readily endorsed this weight as the correct one of a merchantable product. I warmed it up, salted it, and found it produced 11 pounds of merchantable butter. It would make all the difference in the world whether a cow had a record of 18½ pounds or of 11 pounds, or double these figures, 37 pounds in seven consecutive days, made one way, or 22 pounds made another way. I do not pretend to know other ways, doubtless more fraudulent, by which great records may have been made. But I know butter by the churn is an indefinite quantity. In the light of the present we can put comparatively little value on records made by it.

The following letter recently received by our firm, shows that there are some persons who are willing to instruct others in the mysteries of making large records by the churn.

TORONTO, January 9, 1899.

"Messrs. A. & G. Rice, Dear Sirs:—We have fitted up the dairy of Mr. ——, of Toronto, with our new process of butter making. It is giving very satisfactory results. We can guarantee 25% better returns, a simpler process, more certain in results, better butter, a purer butter, less casein and water, and better keeping.

We work from 25% to 30% above the Babcock test. These advantages are important to you. We invite investigation, and can refer you to ——, who has kindly consented to your making any test you like, with either his cream or your own, and we suggest that you bring one week's cream of any cow you prefer, and that you have made previous tests of, and see what our process will turn out, or any other test you may wish. We use no chemicals or foreign material. We sell nothing, but work on royalty. Shall be pleased to give you any further information. Yours truly,"

At the same time we must not be too severe in our judgment of earlier churn records. Most of the cows are now dead, and we have no other means of getting at their worth. Many of them were great cows. Just what records to discount, and to what per cent, can never be known. But the farce of making records of 30 pounds and upwards is ended. The Babcock test is of wonderful accuracy, yet simple in its operation. No valid objection can be raised against it. What shall we say then, of those who would continue the old game of reporting churn tests. Be the records great or small, they are no longer worthy of attention, and it seems to me an insult to their readers, for our papers to publish them. It is difficult to overvalue official records made with the Babcock test. Prof. Henry points out the reason why, in a single sentence:

"By means of properly conducted official tests," he writes, "and the use of the Babcock test, the representatives of our various breeds of dairy cattle are in position to establish records which are reliable, and in time will become immensely valuable, as the data accumulates, and the effects of breeding and selection are realized."

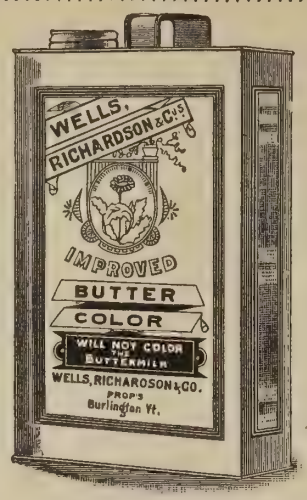
Curries, Ont. GEORGE RICE.

Inbreeding.

ED HOARD'S DAIRYMAN:—Question No. 7, page 1032, in DAIRYMAN of Feb. 3rd, brings to my mind recollections that may be of interest to some reader of your valuable paper. You are at liberty to abbreviate, or to ignore entirely without creating any "onpleasantness."

Nearly thirty years ago it was my good fortune to form an acquaintance with a most enthusiastic breeder of Jerseys, Mr. Wm. H. Hopkins, of Providence, R.I.,—now deceased—and here let me pay deserved tribute to his memory by saying that it is good fortune for any young man to form the acquaintance and possess the friendship and respect of one of his nobility of mind and character.

Beginning with the imported bull, Comet, No. 130, A. J. C. C. H. R., and cow, Theresa, No. 1919, Mr. Hopkins bred these animals and their descendents incestuously, according to his own ideas, and for the purpose of experimenting. On one occasion, having in mind the sale of Walcott & Campbell's New York Mills herd of Short-horns, where the highest price realized was $40,600 for a single cow, he remarked to the writer:



Always Use the BEST.

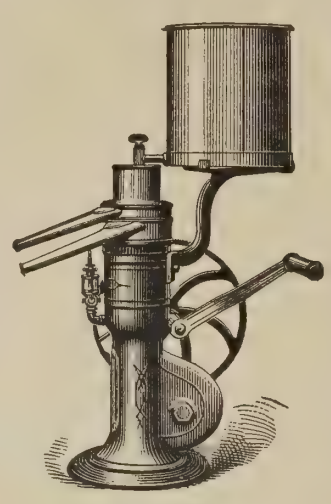
The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

"THE KIND THAT HAS NO MUD."



National... Cream Separator.

Ease of Running	The NATIONAL is the Best.
Perfection of Skimming	The NATIONAL is the Bes
Quality of Cream	The NATIONAL is the Best.
Strength and Durability	The NATIONAL is the Best.
Ease of Cleaning	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



THE
AMERICAN
Cream Separator
PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**
At The ST. LOUIS FAIR, as the
BEST CREAM SEPARATOR
For FARM USE. . . .
Send for Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER,
St. Marys, Ont., and
S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y

A Handbook for Farmers and Dairymen By... Professor F. W. WOLL, with the assistance of WELL-KNOWN SPECIALISTS. With Illustrations, 389 pages. 12 mo. Cloth. $1 50.

Modern Dairy Practice By... GOSTA GROTENFELT, President Mustiala Agricultural College, Finland. Authorized American Edition by Professor F. W. WOLL, with Illustrations. Second Edition. 291 pages. 12 mo. Cloth. $2.00.

JOHN WILEY & SONS, 53 E. 10th Street, New York City

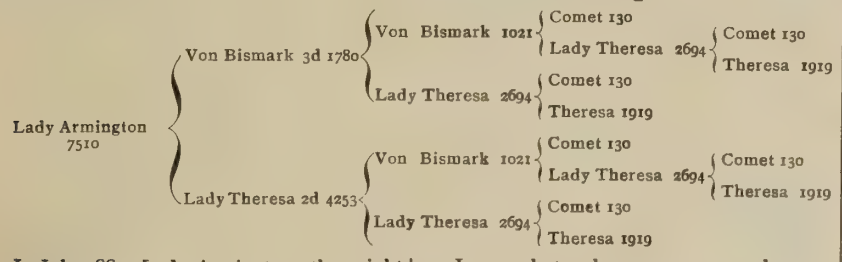
"I am going to breed a forty thousand-dollar cow, or bust something."

My observations of his herd were frequent, and for a time there was steady improvement in the dairy form and capacity of the cows. The type and color of the animals became fixed, the latter invariably a squirrel grey, with more or less white. But the tendency to fineness of bone and delicacy rapidly increased, and finally the calves were born extremely weak and frail, and some of them had not sufficient vitality to live, even under conditions and care most favorable to their comfort and strength.

Being a sufferer from paralysis, and only able to get about upon crutches, and with the aid of an assistant, did not prevent Mr. Hopkins from giving daily attention to his large business interests in the city, or seemingly detract in the least from his zeal as a "farmer," as he always delighted to style himself.

In the spring of 1877, he wrote: "Are you going to Fitch's sale? I have gone just as far as I dare to" (meaning in in-breeding his animals) "and I want a bull to go with my Theresa. I cannot attend myself, and I want you to select one for me."

In compliance with this request, I purchased a yearling bull, afterward registered as "Admiral Farragut, No. 2666; sire, Pierot 2d, No. 1669; dam, Myrtle 2d, No. 211." A most fortunate selection, as results proved. One of the most incestiously bred cows was Lady Armington No. 7610, bred as follows:



In July 1885, Lady Armington, then eight years old, was given a test for 7 days, with following result: Yield of milk 200 lbs.; yield of butter 17 lbs. 8 oz.

One month later, Beauty of Seekonk No. 14651, another daughter of Lady Theresa 2nd, 4253, sired by Admiral Farragut, No. 2666, was given a test of one week, at the age of 4 years 5 months, with following results: Yield of milk 251 lbs.; yield of butter 21 lbs. 3 oz. Individually, and in the dairy, this cow out-classed her incestuously bred half sister.

Nothing could ever induce Mr. Hopkins to part with a female of the Theresa family, and this herd numbered about thirty females. It was his purpose to make numerous tests as the conditions favored, and the result of these trials would have been most interesting and instructive, but in March the following year, 1886, an incendiary fire destroyed this herd, together with as many more choice thorough-bred Jerseys and the magnificent barn in which they were stabled.

That Mr. Hopkins was a good feeder is shown by a quotation from a letter informing me of the fire: "Your bull," (one purchased from me as a calf a year previous to the fire, and burned with the others) "weighed the day he was a year old 665 lbs. Admiral Farragut, when we got him from Fitch (about 13 months old) weighed 365 lbs., yet he weighed over 1800 lbs. before we killed him." L F. AVERILL.

Windham Co., Conn

Hand Separators—Experience Wanted.

ED. HOARD'S DAIRYMAN:—I would like some information from anyone who has had experience with hand separators and creameries.

We can send our milk to a creamery, but on return it is found to be sour and unfit for calves. We have therefore been contemplating buying a separator, if the experience of those who have done both ways would justify our doing so.

We like the paper very much and cannot see how anyone engaged in dairying could get along without it. R. M. G.

Black Hawk Co., Iowa.

An Inbred Connecticut Herd.

ED. HOARD'S DAIRYMAN:—Among the queries in the DAIRYMAN of Feb. 3rd, I find there are some that my experience enables me to throw some light on. Beginning with No. 4. Some twenty odd years ago I was milking seven or eight common stock cows. I bought a thorough-bred Jersey bull calf, and a heifer that was fifteen-sixteenths Jersey. These calves grew up to be treasures. The bull I foolishly killed when he was two years old but was lucky enough to supply his place with another good one. From the first, I saved heifer calves from my best cows and after four or five years I got to saving a bull calf if one of my best cows dropped one. I have bred in and in, bred sires to their own daughters, and one of the best veterinarians in Connecticut, after looking at my little herd of ten cows, reported in Hartford that I had the best lot of Jerseys in Connecticut. I had not told him that there was not a registered animal in the lot.

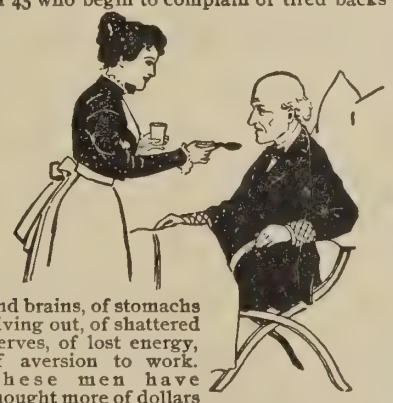
Not being registered, only the promising calves were saved, and some of these went to the butcher as yearlings. When they came in at two years old they had to make at least a pound of butter per day, and no general-purpose cow making butter and taking on fat at the same time got to be an old cow, she was allowed to take on all the fat she would as soon as possible.

We sell only butter and cream, and occasionally find a heifer giving a large amount of milk not quite up to our standard. I get good prices for such cows from some gentleman that wants a genteel looking family cow that will supply him and two neighbors with pretty good milk. I have not bought a cow in the past twenty years and my advice to a farmer would be not to change breeds if he was breeding what he wanted. If I took a notion to breed working oxen I should sell my Jerseys, but so long as we can have a handy market for all the butter we can make at 30 cents and for all the separated cream we dare spare at 40 cents per quart, some one further from market can raise oxen and general-purpose cows. R S HINMAN.

New Haven Co., Conn.

PREMATURELY OLD.

A man ought not to *feel* old, or to *be* old until well up towards the nineties, but now-a-days you don't see many such men. Instead, you hear people no older than 40 or 45 who begin to complain of tired backs



and brains, of stomachs giving out, of shattered nerves, of lost energy, of aversion to work. These men have thought more of dollars than of health. They forget that money is almost worthless without health to enjoy it. If men and women will take Dr. Pierce's Golden Medical Discovery, they needn't worry much about old age. The years will go by, but they won't show it. This medicine makes digestion perfect, and changes a disordered stomach into a healthy one that works as Nature intended. It regulates the liver, enriches the blood and tones the nerves. It prevents consumption by curing bronchitis, lingering coughs and bleeding lungs. The "Discovery" contains no alcohol; no false or uncertain stimulus; the power it gives is the power of Nature: deep, genuine and lasting. It does not create a craving for stimulants. In serious cases of sickness, Dr. R. V. Pierce, Buffalo, N. Y., will give free advice and counsel to those who write him.

"The reason I delayed writing was because I wanted to wait *one year* after I had taken the medicine before giving my statement, and now I can send a good, conscientious testimonial," writes Chas. H. Sergeant, of Plain City, Madison Co., Ohio. "During the summer and fall of 1896 I became all 'run-down,' nerves and stomach were out of order. I wrote to Dr. Pierce for advice. He said I had general debility, and advised Dr. Pierce's Golden Medical Discovery, and I used six bottles. Since I stopped taking it about one year ago, I have not taken any medicine of any kind, and have been able to work every day. My appetite is good, I can eat three square meals a day, and I do not feel that miserable burning in the stomach after eating."

QUAKER DAIRY FEED

Does Not Get Musty

The dairyman who buys a single carlot to carry him through the season should be protected. His feed should be of the same quality in April as in October. The general experience is that it gets musty and is not so palatable in the spring as in the fall. Quaker Dairy Feed is kiln dried and is guaranteed to keep the season through. This in itself is a commanding reason for buying our feed.

QUAKER DAIRY FEED

Quaker Dairy Feed is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.

SOLD ONLY IN SEALED AND BRANDED SACKS

Specimen Balanced Ration

Mixed Hay	15 pounds
Gluten Feed	6 pounds
Quaker Dairy Feed	6 pounds

Calculated for a cow of 1,000 pounds live weight.

Modern Dairy Feeding—An invaluable book, containing scientifically proportioned rations, including every form of roughage and every variety of feed. Sent postpaid on request. Scientific advice on feeding—FREE. Address

SCIENCE DEPT., THE AMERICAN CEREAL CO.,
1348 Monadnock Bldg., Chicago, Ill.

TESTED BY THE MILK PAIL. THE PAIL TELLS THE TALE.

CONSULT OUR SCIENCE DEPARTMENT

$19.75



SEND ONE DOLLAR

Cut this ad. out and send to us, state color, gear, size of frame and whether Gents' or Ladies' is wanted, and we will send you this HIGH GRADE '99 MODEL $50.00 WAYMAN BICYCLE by express, C. O. D. subject to examination. You can examine it at your express office and if found perfectly satisfactory and the grandest bargain you ever saw or heard of, pay the express agent the balance, $18.75 and express charges.

THE WAYMAN is built on honor from the best material money can buy; there is no better made bicycle. 22, 24 or 26 inch frame of 1⅛-inch German seamless tubing, finest two-piece hanger, best drop forge connections, full ball bearing, patent retainers, our own best guaranteed single tube pneumatic tire, highest grade equipment, handsome nickel decorations, enameled black, maroon or green, any gear.

WE SEND A BINDING ONE-YEAR GUARANTEE. OUR FREE BICYCLE CATALOGUE shows men's and women's new '99 Bicycles at $8.25, $11.75, $16.95 and up, but our $19.75 WAYMAN is the greatest value ever offered by any house. You can make $5.00 every day taking orders. ORDER ONE TO-DAY. DON'T DELAY. Address, SEARS, ROEBUCK & CO. (Inc.), Chicago, Ill.

Wise Man No. 1:

M. F. MEYERS, Huron, S. D.—"When I make butter for exhibition, and want to score high, I always use WORCESTER SALT."

Wise Man No. 2:

"At the Michigan State Fair, Grand Rapids, my butter scored highest—97. Used WORCESTER SALT—the only salt I like to use for butter."

Wise Man No. 3



FRANK G. HILDRETH, Herkimer, N. Y.—"Am awarded sweepstakes on butter—used the justly famous WORCESTER SALT. Never found any other brand that was 'in it' when it came to a test."

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.

...THE SPIRIT OF FAIRNESS...

In dealing with the public demands that in offering food products or ingredients of food we shall give nothing but what is pure and healthful. We shall not poison the stomach while pleasing the eye.

Thatcher's ORANGE BUTTER COLOR

Is made from Pure Vegetable substances. It contains no analine dye. It produces a delicate appetizing June tint, and it does not unfavorably affect the keeping qualities of butter.

IT CAN BE DEPENDED UPON.

Send for a sample bottle and give it a trial. Circulars upon request.

THATCHER MANUFACTURING CO, - Potsdam, N. Y.

The Virtues of Buttermilk.

The growing practice of utilizing the waste products of all manufactures has brought out the fact that buttermilk possesses many unsuspected qualities. A medical paper says its reputation as an agent of superior digestibility has become firmly established. It is, indeed, a true milk peptone; that is, milk already partially digested, the coagulation of the coagulated portion being loose and flaky, and not of that firm, indigestible nature, which is the result of the action of the gastric juice upon sweet cow's milk. It is of great value in the treatment of typhoid fever, and, being a decided laxative, it may be turned to advantage in the treatment of habitual constipation. It is no less valuable in kidney troubles, from its diuretic qualities. It is in great request for the treatment of diabetes, either alone or alternately with skim milk, and in cases of gastric ulcer and cancer of the stomach it can often be retained when no other food can. Chemical analysis shows that in its nature it greatly resembles koumiss, with the exception of which it is the most grateful, refreshing and digestible of the products of milk.—*Ex.*

Official Butter Test of Holstein-Freisian Cows from March 23 to May 1, 1898.

These tests are for seven consecutive days and are supervised by officers of agricultural colleges and state experiment stations, or by persons vouched for by such officers. The amounts of butter fat are determined by the Babcock test, and the amounts of butter are calculated on the basis of 80 per cent fat to a pound of butter, the rule established at the World's Columbian Exposition.

Miss Tutts 38932; age 3 years, 1 month, 4 days; amount of butter fat 10.581 pounds; amount of butter, 13 226 pounds.

Nannette 3d's Pledge 3d 41407; age 2 years, 1 month, 8 days; amount of butter fat, 11.747 pounds; amount of butter, 14 684 pounds.

Aaggie 3d's Wayne Pauline 41393; age 1 year, 11 months, 13 days; amount of butter fat, 9.354 pounds; amount of butter, 11 693 pounds.

Aaggie Cornucopia 2d 30597; age 6 years, 2 months, 1 day; amount of butter fat, 15.044 pounds amount of butter, 18 805 pounds.

Sadie Vale Concordia 32259; age 5 years, 5 months, 3 days; amount of butter fat, 16.772 pounds; amount of butter, 18.405 pounds.

Princess of Wayne 7th 28690; age 6 years, 1 month, 27 days; amount of butter fat, 15.600 pounds; amount of butter, 19.500 pounds.

Princess Aaggie Pauline DeKol 35059; age 4 years, 2 months, 25 days; amount of butter fat, 14.461 pounds; amount of butter 18 076 pounds

Maplecroft Maid 35907; age 4 years, 2 months, 20 days; amount of butter fat, 12.015 pounds amount of butter, 15 019 pounds.

Belle of Schillaard 3d's Aaggie 36825; age 3 years 11 months, 19 days; amount of butter fat, 10.648 pounds; amount of butter, 13 310 pounds.

Netherland Aaggie Madge 34960; age 4 years, 1 month, 16 days; amount of butter fat, 10.734 pounds; amount of butter 13.418 pounds.

Patty Waldorf 39031; age 3 years, 3 months, 18 days; amount of butter fat, 10.810 pounds; amount of butter, 13.513 pounds.

America 2d's Pauline DeKol 37096; age 3 years, 5 months, 15 days; amount of butter fat, 15.903 pounds; amount of butter, 19.879 pounds.

Paul DeKol's Mutual Friend 37172; age 3 years, 4 months, 5 days; amount of butter fat, 11.955 pounds; amount of butter, 14.944 pounds.

Shadeland Ruby 5th 29558; age 6 years, 11 month 1 day; amount of butter fat, 12.501 pounds; amount of butter, 15.626 pounds.

Shadeland Angie 21700; age 8 years, 2 months, 22 days; amount of butter fat, 12 347 pounds; amount of butter, 15.434 pounds.

Maplecroft Gem 34904; age 4 years, 6 months, 5 days; amount of butter fat, 15.357 pounds; amount of butter, 19.196 pounds.

Princess Aaggie Cornucopia 38927; age 3 years, 0 months, 2 days; amount of butter fat, 12.362 pounds; amount of butter, 15.453 pounds.

Minnie Hijlaard 39030; age 2 years, 10 months, 0 days; amount of butter fat, 9.133 pounds; amount of butter, 11.416 pounds.

Vevie Night 2nd's Dorinda 39388; age 2 years, 10 months, 9 days; amount of butter fat, 9.478 pounds; amount of butter, 11.847 pounds.

Zady Bergsma 37409; age 3 years, 1 month, 13 days; amount of butter fat, 12.978 pounds; amount of butter, 12.210 pounds.

Mutual Friend 2nd's Pauline 41396; age 3 years, 0 months, 17 days; amount of butter fat, 12.139 pounds; amount of butter, 15.174 pounds.

TESTS TO ASCERTAIN COST OF FOOD PER POUND BUTTER.

These tests are made and supervisedat the same time.

Mutual Friend 3rd 28389; age 6 years, 6 months, 26 days; amount of butter fat, 14.724 pounds; amount of butter, 18.405 pounds; cost of food per schedule of prices, 96 05 cents; cost per pound of butter, 5.2+ cents.

Paula Dorinda 41109; age 2 years, 10 months; amount of butter fat, 11.099 pounds; amount of butter, 13.874 pounds; cost of food per schedule of prices, 1.0985; cost per pound of butter, 7.9+ cents. S. HOXIE.

(Supt. Advanced Registry Holstein-Freisian Association of America), Yorkville, N. Y.

CONCERNING OUR ADVERTISERS.

PITTSFORD, Vt., Feb. 8, 1899.

ANIMAL GERMICIDE CO., 319 Washington St., New York—GENTLEMEN:—Wishing to add to your list of testimonials of the value of your Antiabortsio and Specific, I beg to say that for years I have been troubled with abortion and scours in calves. In the spring of 1898, I had 34 fine Holstein calves. At the age of two to three weeks they commenced to scour and die, until I had lost 21, which left me 13, and I considered them as good as dead. Mr. F. Hagadorn was at my place and prevailed on me to try the above named remedy. I had theretofore tried all of the so-called remedies without any avail, and at the time had no faith in this. I finally bought two gallons and am pleased to say it was the best investment I ever made. I commenced to use as directed, and to my surprise, I saved the 13 calves that were nearly dead. At the same time, I had had 7 cows abort. I used the remedy according to directions and up to this time have not had a single case of abortion or scours in calves.

Since Jan. 1, 1899, I have had 8 calves born, and they show no symptoms of disease. And all the cows that aborted last spring are with calf, and my herd, comprising 50 head, never appeared to be as healthy as they are to-day. G. F. HENDEE.

THE MANUFACTURER AND THE FARMER.

Manufacturers of almost every class of goods have always laid heavy stress upon the trade of the farmer. They have sought by all possible means to bring their goods to his notice. They besought him through the columns of the papers he reads, but more largely through the direct personal appeal of traveling salesmen, agents and dealers. In every instance the farmer has had to pay the bill. All the cost of manufacture, the expense of selling the goods, which embraces the salaries of traveling men and their expenses, the commission of dealers, losses on bad accounts, etc., etc., have been charged up on the price of the goods, and you have paid the bill. Of course, you have in many cases been allowed long time on your notes, but even then you have had to pay rates of interest for the privilege.

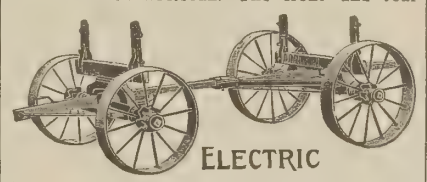
Why not change all this? Why not deal direct with the manufacturers, and pay the spot cash for what you buy? This arrangement teems with economy, and is by long odds the best and most convenient method of doing business. The Edward Walker Carriage Co, of Goshen, Ind., have adopted this plan of doing business, and find it most satisfactory to themselves and their patrons. They manufacture a full line of buggies, carriages, spring wagons, etc., and sell them direct to the consumer at wholesale prices. They give you at once the advantage of all the added expenses you have been obliged to pay in the past. You get better, fresher goods at a reasonable price. Write them for their illustrated catalogue, prices, etc.

STAY WITH THE FARMER.

In this day of trusts and combines there is some degree of satisfaction in knowing that there are yet a few people who stand ont independently

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned whiteoak. The front and rear



hounds are made from the best angle steel, which is neater, stronger and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130 Quincy, Illinois., for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.

WANTED—Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., BOX D, INDEPENDENCE, IOWA.

Parted In A Dream—(New) A love song founded on a strange incident of the late war—words and music by Halbert L. Hoard. (Regular price, 50c.) Sent post-paid for 25 cts. to readers of Hoard's Dairyman.

Darling Lenore—(New) A song of deep sentiment set to exquisite waltz music, by the same author, published Jan. 25, '99. (Regular price 50 cts.) Sent post-paid for 25 cents to readers of Hoard's Dairyman.

For 3 cts. I will send words of both songs with miniature page of music of each.
HALBERT L. HOARD, Fort Atkinson, Wis.



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VICTOR Incubator
Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE.
GEO. ERTEL CO., QUINCY, ILL.

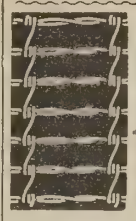
Second-hand Separators

I have on hand a lot of Cream Separators, in good order, that I will sell cheap for cash. Second hand Sharples Factory and Dairy Separators. Also De Laval Standard Alpha and Baby Separators of almost all sizes. Also second hand separators of other makes. Write for prices and particulars. **P. O. Box 856, Philadelphia, Pa.**

Price $3.50. Make Your Own Fence.



In various styles, costing from 10 to 20 cents per rod, with the most durable and easiest operated machine on the market. Exclusive sale in counties given a reliable, hustling man. This an exceptional opportunity. Write for circulars and full particulars to the **Wilmarth Fence Machine Co., Detroit, Mich.**



You want the BEST and SIMPLEST
Fence Machine.
WE HAVE THEM AND
WILL PROVE IT BY A TRIAL.
$10 AND $15 DELIVERED,
LAWN FENCING, FARM and YARD GATES, Wire and Ratchets, and Fence Supplies at low cost. FREE CIRCULARS.
Eureka Fence Co.
Box T, RICHMOND, IND.

$5 to $30 3000 BICYCLES
Everyone a Bargain.
NEW AND SECOND HAND.



2d Hand—good as any for service, $5 to $12. New '99 Models $12.50 to $30. None higher. We guarantee to save you money. Largest variety to select from. Lowest prices ever quoted. Every customer satisfied. Shipped subject to examination and approval. No money in advance. A few good AGENTS WANTED. For price list and particulars address the old reliable cycle house,
BROWN-LEWIS CO., (EK) 293 Wabash Av., Chicago.
[The above Co. is reliable and every wheel a bargain—Editor.]

8000 BICYCLES



Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10. Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance
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by helping us advertise our superb line of sample wheel to introduce them. Write at once for our special offer.
'99 models. We give one Rider Agent in each town **FREE USE**
MEADE BICYCLE CO., 290 Ave. S., Chicago, Ill.

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LUMP JAW
Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

EXCURSION RATES to Western Canada

and particulars how to secure 160 acres of the best wheat growing land on the Continent can be secured on application to the Superintendent of Immigration, Ottawa, Canada., or of the undersigned.

Specially conducted excursion will leave St. Paul, Minn., on the first and third Wednesdays in each month,

and exceptionally ow rates on all lines of railway reaching St. Paul, are being quoted for the mammoth

Excursion leaving there on April 5th for all points in Manitoba, Assiniboia, Alberta and Saskatchewan.

T. O. CURRIE.
Canadian Government Agent,
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Free Homes for Millions.



20,000,000
Acres Wheat and Grazing Lands for Settlement in Manitoba, Assiniboia, Alberta and Saskatchewan.

Deep soil, well watered, wooded, easily reached by railroads. Wheat averages 25 to 35 bushels to the acre. Vast areas suitable for the growth of grains and grasses, stock, &c., yet unoccupied. Immense coal fields, guaranteeing an illimitable supply of cheap fuel. The Canadian Government gives

FREE FARMS OF 160 ACRES

to every male of eighteen years and to every female head of a family, offering independence for life to every one with little means, but having sufficient energy to settle. Climate healthiest in the world. For information address Supt. Immigration, Ottawa, Canada, or

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160 ACRE FARMS IN WESTERN CANADA FREE

THE NEW BOOK
Feeds and Feeding
By Prof. W. A. HENRY.
Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premum.

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Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and Practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with pratice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Send as above, or will be forwarded, carriage paid, on receipt of price $2.0

$30 Saved



We will save you $30. on a top buggy. This high grade, leather quarter top buggy for $44.10 Never retailed for less than $75. It is made throughout of the very best of material that money will buy. All forgings are Norway iron. Gear is second growth hickory of the highest grade, air seasoned, sawed up and allowed to stand three years before being put into the vehicle. Painted, 16 coats, any color desired.

Guaranteed For Five Years.—With Ordinary Usage will last 25 years.

We ship it to you with the understanding that if you don't find it to be the biggest bargain in the way of a top buggy and to be equal to any buggy you have ever seen sold for $75, that you may return it to us at our expense and we will pay all freight charges. We do not ask you to send a single cent with your order. All the newest styles.
We save you money. WE HAVE NO AGENTS. Write now for free Catalog.

$53.35



No. 20002—Leather quarter top Phaeton with lamps, wide fenders, shafts, storm apron. All complete, $53.35. Seat, 37 in. wide, 20 in. deep; spring back 22 in. high. Trimmed with 16 oz. all wool cloth. This is only one of our many barg'ns

No. 20037 $48.50 No. 20048 $64.80



No. 20048—Canopy Top Surrey with wide patent leather fenders, elegant nickel plated lamps, all complete, $64.80. Retails for $125. Paint, any color desired.
No. 20037—Canopy Top Surrey only $48.50. We have the largest line of surreys ever shown.

$39.80



Platform Spring Wagon, capacity 1400 lbs. Price $39.80 We guarantee it to be the best and highest grade wagon ever sold.
Body—7 ft. long, 33 in. wide, 8½ in. deep. Axles—1⅝ inches, Wheels—1⅛ in. A handsome, strong wagon. We have the largest line of spring wagons ever offered. Our No. 20216 spring wagon, body 6½ ft. long, 30 in. wide, $27.90
Metal Wheel Handy Wagon, $19.80

$9.65



Hand Made
The best single buggy harness for $9.65 on earth. Every strap cut from the purest of oak tanned leather, positively guaranteed to be all hand stitched and hand fitted; equal to any harness ever sold for $18. Double Buggy Harness, $14.40; Farm Harness, traces 1½-in., 6 ft. long, $17.50. 85 styles to select from, $3.95 up.

MARVIN SMITH CO. 55-57-59 N. Jefferson St. B-18 Chicago, Ill.

and prefer to take chances with the man who tills the soil.

Among these may be named the Advance Fence Co., of Peoria, Ill., whose advertisement appears regularly in these colums. They manufacture woven wire fence of the various standard heights and sell it direct from their factory to the farmer. In fact they positively refuse to conduct their business in any other way, and the individual consumer can buy Advance fence just as cheaply as the dealer. The fence is of excellent quality and the methods of dealing are fair and equitable. If you are seeking farm fence of good quality, in any quantity, you should open correspondence with these people. Write them for illustrated catalogue which they mail free. Tell them that you saw the ad. in our paper, please.

THE following testimonial speaks well for the Ingersoll mixed paints advertised in the DAIRYMAN. Samples are free. See ad.

CHICAGO CO., Minn., Dec. 10, 1898.

MR. C. W. INGERSOLL,—DEAR SIR:—Having used your paint on our Grange Hall, I can say on behalf of the 81 members of the Oak Leaf Grange No. 569, we are thoroughly satisfied with the results, and give it the highest recommendation of any paints used. Fraternally yours,

AND. MOLBERG, Sec'y.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FAILURE TO COME IN HEAT.

I have a registered Jersey cow 3 years old that dropped her calf 23rd of last September and has not been in heat since. She is in good condition and plays about when turned out. Can something be given her to induce her to come in heat? E. S. M.

Dryden, Minn.

ANSWER.

Your easiest, cheapest, and in all respects, best remedy is one of the special medicines for not coming in heat, advertised in the DAIRYMAN, which see. These are studiously compounded especially for failing to come in heat.

GARGET.

I have a cow, 8 years old, was fresh the 8th of last February. She gave five gallons of milk per day; got along all right until about two weeks ago, there came a sore on end of front teat, extending about ½ inch up the teat. I had to pick the scab off to get the milk. I used a milk tube a few times and that quarter got to swelling, and finally caked up, and there is a greenish water comes from it; has a very bad smell. I gave her physic several times, and her bowels are all right, but she is getting very thin; has a poor appetite. She seems to be stiff in her legs, lays down most of the time.

Wilmington, O. J. F. McM.

ANSWER.

Bathe the teat and quarter with water as hot as she can stand, several times a day, until improved. Inject the following solution: Tilden's Bromo Chloralum, one to eight of warm water, two teaspoonfuls at a time; then get this out and inject again for 3 or 4 times a day, for a while, or until not needed. Rub tolerably hard with strong camphorated spirits, six parts, and common turpentine, one—only—part. Internally give two drams of blue flag in two or three ounces of old whiskey and four of water, for several days. Use much daily massage, kneading and gently squeezing, rubbing, etc. Sunlight, pure air, water and exercise every day.

INJURY TO TEAT.

I have a valuable registered Jersey cow which was injured by another animal stepping upon and cutting off one-half inch from end of teat, with result that milk runs out of this quarter almost constantly when cow is flush. Is there a remedy, and if so, kindly give it in your valuable department, as there may be others who have had cows similarly injured. W. L. H.

Lincoln, Neb.

ANSWER.

There is only one way to do. Dress the end of the teat, always gently, with oil of almonds, half an ounce, and the same of spermaceti, and as much compound tincture of myrrh and aloes as you can conveniently mix with this. Never pull off the scab—never work. I think I would use a hard rubber tube and a plug. They can be inserted and fixed in so as to remain until taken out to reflow the milk, etc. Be very particular to flow hottish water through the tube each time before inserting, as there will be quite a lot of extra stuff to block up the channel of the teat, etc. Always—every body—hold the teat straight down when inserting the tube, or plug. I have seen and admonished many persons for taking hold of the teat and turning the end upwards and then pushing in the tube while the teat was—as a matter of course—bent. This act has sored hundreds of cows' teats and the foolish actors have invarably laid it to the use of the tube. With an ordinary cow, I could use a tube for twenty years and not sore the teat. So can anybody else, if they will try.

NYMPHOMANIA.

On page 1065, Feb. 10, is an answer to A. W., Tempe, A. T., for chronic nymphomania, you do not say at what time before coming in heat that the medicine should be given. Should it be given so that the last dose will be given a day or two before, or does it make any difference how soon after having medicine should the cow be served. I have got a grade Jersey that acts the same as A. W.'s heifer and she is too good a cow to lose. R. T. R.

Belmont, Mass.

ANSWER.

Once again, service is adding fuel to fire, always. About ten. Your best plan is, always, to get a reliable special medicine with full professional printed directions. See ads in the DAIRYMAN.

WANT OF SALT.

My horses seem to enjoy biting each other, on neck and shoulders, and sometimes they seem pretty rough about it. One has a swelling on top of withers, very similar to poll evil, that I am satisfied is from the biting or bruising. I believe it has been growing for at least a month.

Randolph, Utah. W. S. M.

ANSWER.

The desire for salt is quite often the cause for this morbid desire, also licking dirt, etc. You ought to have put a stop to the biting upon its first appearance. Give them constant salt before them. Wash the neck clean and put on some offensive material disgusting to the horses; this will do all needed.

LUMPY MILK.

I have a Jersey cow which, after having been dry about six weeks, dropped her fourth calf the 22nd inst.—six days ago. She never makes much bag before calving. In this instance she was springing only about a week. She did not have much milk. After the calf sucked I milked her carefully and clean, but I observed that some hard lumps came from the left hind teat. I left the calf with her all the time, but milked the cow each night and morning. Last night and this morning I have been unable to get more than two or three tablespoonfuls of milk from that teat. J. K. H.

Livonia, Ind.

ANSWER.

I know of nothing to do, but feed nutritious sloppy food, and use massage, and by milking by hand. You did wrong to allow the calf to suck. Suckling calves have ruined many good cows. They are artificial animals, as it were, and we can't do any thing but harm, when we try to mix nature with the artificial process.

APOPLEXY.

I have lost three calves and three sheep by apoplexy. The calves have had separator milk with a little oil meal (Cleveland, steam cooked) and it is a year old, with three times as much bran with it; with all the hay and straw they will eat. The calves have been from 6 to 8 weeks old. The calf that died to-day I examined and found his brain very clotted, and his gall was very full; I thought twice as large as should be; I examined as soon as dead. The sheep had silage and hay and some salt, but not salt before them all the time; after putting salt before them lost no more sheep. The calves have a dry warm place in box stalls so they can exercise themselves. J. H. B.

Harrisonburg, Vt.

ANSWER.

You give me poor information as to symptoms, etc. I really don't know the cause in your case. There are many and quite different causes. Extravasation of blood in the lung, or lungs, is quite often the cause,—malignant anthrax, purpura hemorrhoge, etc. Such conditions demand and must have a personal examination to secure the correct and true nature of the cause of death, etc. Correspondence beyond this is not permissible.

DIARRHŒA IN CALVES.

Have had three calves die and have two more that I think will die. The first was about two months old, the others eight days old. They have diarrhœa, refuse to eat, get weak, breathe hard, nose gets cold and runs white stuff, seem to be cold, and in two or three days die. They are all right when they come, and the last two I have left with their mothers. E. D.

Tunnel City, Wis.

ANSWER.

There are several causes for diarrhœa in calves. Castor oil, one ounce, laudanum two drams—not more—one dose a day for two to four days. With this give porridge of linseed meal, or slippery elm. Also starch gruel, half a pint at a time. One scruple of nux vomica in each dose of any of the above. Change the food. Rub the belly briskly several times a day. Put a bit of clean and unslacked lime in the milk, the size of a hickory nut. Should they become costive, give warm castile soap injections once a day until not needed. Sun light, pure air and quiet.

Only one at a time of either of the above.

GARGET.

Can a cow, that has had garget, be cured of the disease permanently, or will it appear at the next calving? A. D. M.

Portland, Me.

ANSWER.

I can't tell. I incline to the belief that you will have to use all diligence and care to do this. You have a chronic gargetty cow, and they are always bad to manage. Your treatment is all I can give you.

ALFALFA BLOAT.

Will you kindly say where I can procure a trochar, or the instrument used for tapping a cow for bloat?

I am operating a creamery here, recently started, and during the last few months, several of our patrons have lost cows feeding on alfalfa hay, and which were lost from the neglect to have at hand the proper instrument to relieve the animal attacked, quickly. I have never had any experience with alfalfa, but I tell the people who inform me of their loss that no doubt with proper attention to the state of the bowels, and general conditions of their animals, this could be avoided.

Big Horn, Wyoming. T. S. S.

ANSWER.

Lucern should always be fed sparingly, never to a full feed, but judiciously mixed with some less heavy, nutritious stuff. A six-inch section of good garden hose is a simple but effective trochar in case of hoven or bloat. It is usually all that is needed. It is to be withdrawn and washed out two or three times, as it fouls with stuff from the paunch. A little quick lime in the water is a good preventive of hoven.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid**, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

ROBERTS' ANTI-ABORTION SERUM



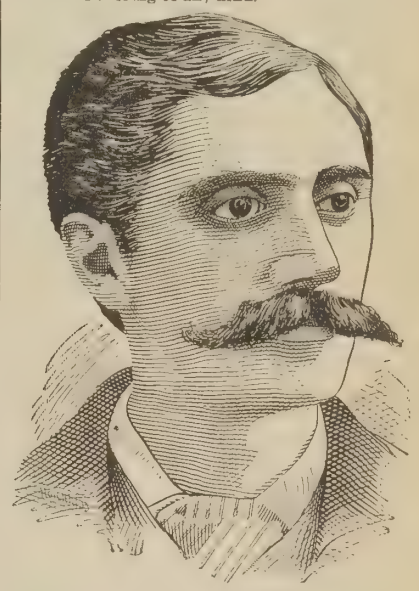
Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

Sure Rupture Cure.

Wonderful Restoration Reported from Boston, Mass.

GEO. F. MULFORD CURED AFTER SUFFERING EIGHTEEN YEARS.

Despi te the claims so frequently made that a surgical operation is necessary to cure rupture, the case of Geo. F. Mulford of Boston, Mass., who resides at 484 East 5th Street is pointed out as a direct refutation of the surgery belief. Mr. Mulford was ruptured for eighteen years and tried everything known almost but failed to even derive benefit. His rupture was such that trusses did not hold him and for this reason, the surgery idea was presented to him as the last resort. A final effort was made by the comparatively new method invented by Dr. W. S. Rice of Adams, N. Y., well known as a rupture cure specialist and in two weeks after treatment began Mr. Mulford was practically a cured man without having suffered pain, operation, detention from work or suffering of any kind.



GEO. F. MULFORD.

The important feature of the Rice invention is the fact that it holds any kind of a rupture no matter how severe it may be and is worn with so much ease and comfort night and day that a person scarcely realizes he is wearing it. The case of Mr. Mulford is somewhat identical with that of Geo. Bell, of St. Charles, Minn., reported cured by the same method of treatment. It is a wonderfully brilliant invention, is sold at a marvelously low price and is the greatest blessing ever devised for those who have suffered with rupture and erroneously believed there is no cure outside of the knife.

Readers should send for Dr. Rice's illustrated book on the cure of rupture and mail it to anyone they know to be ruptured. Such an act of kindness will be worth a great deal to those who suffer with this great affliction. Write to Dr. W. S. Rice, 353 Main St. Adams, N. Y.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for **FREE $2** trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, $3 oz. $4, 50 oz. $8, by mail.

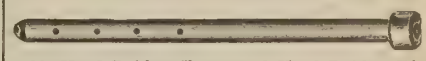
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Producing Clean Milk.

ED. HOARD'S DAIRYMAN:—Have just been reading about the man who milks into 1½ inch holes, in the top of his pail cover. It seems to me it would require a good deal of time and patience to learn to hit them right every time.

Have had fifty-six years of practical experience in milking, and have very seldom missed being on hand when milking time came. My way has always been to brush the cow thoroughly until I am pretty sure there is nothing to fall in the pail, then wade in, for all there is in it. Am sure my elbows go and come enough so that the streams of milk would seldom get inside the pail, so I have thought of suggesting this as a substitute. When first I began to take the DAIRYMAN, there used to be the picture of a cow, to which some one had strapped a cloth in such a way as to cover the udder to keep her neighbors or herself from sucking. Now why could not this same man make his fortune by inventing some way to have holes in the cloth; let the teats protrude; then we could milk without having to close one eye to take aim at those little holes. Am not sure but I would like to make such a purchase myself, when he gets them so they work nicely. H. E. HERRICK.

Ashland Co., Ohio.

Further from Jamaica.

ED. HOARD'S DAIRYMAN:—I have read with interest the ration you proposed for my friend at Port Maria, under the head of a "Jamaica Ration" in your issue of February 3rd, 1899, page 1,034.

Wheat bran, cotton seed meal, linseed oil cake, oats, etc., have all to be imported. I consider cost too high on account of heavy freight, duty, etc., to be profitably fed to milch cows.

I do a milk business, only, and have at present merely "scrub cows" of a Devon mixed with Short-horn strain, giving about 12 quarts daily. Later on, however, I intend importing Holsteins, and going in for that breed exclusively.

I pasture my cows on Guinea grass and Para grass (this latter I take is the same as your "water grass", analysis of which I enclose). I bring the cows into the stable at about 1 to 2 p. m., and I want you kindly to make me out a balanced ration for feed in the stables, when the stock come in.

I can grow sugar cane and green fodder corn at a comparatively small cost, also bananas, (analysis of the green and ripe banana I enclose). I can also purchase rice bran at 75 cents per 170 pounds. I send you enclosed a sample of this rice bran, and should be much obliged if you would kindly send me the analysis of it. How will it take the place of your wheat bran, and how will it do as a feed for young calves?

As I can sell all my milk at 9 cents per quart, I do not want to give my calves a drop more milk than is absolutely necessary. How soon can I begin feeding them the rice bran and in what quantity?

What feed will it make for horses, mixed with corn or oats?

I am a great believer in your paper, and find it very useful, and as a proof I enclose $2.60, for one year's subscription for my brother. H. FARQUHARSON KERR.

Jamaica, W. I.

Rice bran has the following analysis:

	Total Contents.	*Digestible Nutrients.*
Water.....	9.7	
Ash.....	10.0	
Protein.....	12.1	5.3
Carbohydrates.	59.4	45.1
Ether extract..	8.8	7.3

As wheat bran has 12.6 per cent digestible protein, it is quite apparent that rice bran would be a poor substitute for it, unless there is a great error in calculating the digestibility of its protein contents, which we confess seems probable. The only way to determine this satisfactorily would be to try it experimentally. We should apprehend no bad results from feeding it very freely, by which we mean, all a cow will eat, but bringing her to this limit gradually. If a cow should eat in pasture and dry hay the equivalent of 20 pounds of this Para grass, and 12 pounds of rice bran in addition, there would still remain a very decided deficiency in protein, which it seems to us could not be supplied in any way more cheaply than to import cotton seed meal.

We must say, however, that we consider 12 (imperial) quarts of milk per day, (equal to 30 pounds,) a very good yield indeed, especially if it can be maintained for several months at approximately this rate.

We should not like to feed this bran to calves until after they have commenced to ruminate, as it evidently is not readily digestible, judging as well from the appearance of the sample sent us as from the tables of digestible nutrients. Hay tea makes a very fine substitute for milk in calf rearing, and is made by steeping or boiling hay in water, and thus extracting its nutritive constituents. Early cut hay is best, and it is quite probable that some of the rice bran could be mixed with the hay to good advantage. One cannot be expected to give explicit directions as to the amount to be used, but the feeder, watching from day to day, should be able to determine this. It is usual to recommend ground flax seed to be used in connection with hay tea, but rice bran is quite rich in fat and might suffice. Whole oats are also fed to calves with excellent results.

We do not feel competent to express an opinion as to the use of rice bran for horses. It does not seem to us a very desirable feed for this purpose, both on account of its bulk and low per cent of protein, and yet experience may demonstrate the contrary.

FREE TO MILLIONS OF SUFFERERS.

The New Cure For Kidney, Bladder and Uric Acid Troubles.

Almost everybody who reads the newspapers is sure to know of Swamp-Root.

It is the great medical triumph of the nineteenth century; discovered after years of untiring scientific research by the eminent kidney and bladder specialist, Dr. Kilmer, and has truly wonderful powers in curing kidney, liver, bladder and uric acid diseases.

Kidney trouble is responsible for more sickness and sudden deaths than any other disease, and is so deceptive that thousands have it without knowing it.

Your kidneys filter your blood and keep it pure, that's what they are there for. You are well when your kidneys are well.

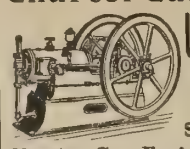
Thousands owe their health and even life to Swamp-Root, and thousands more can be made well, who to-day think themselves beyond help, if they will take Dr. Kilmer's Swamp Root.

By special arrangement with the DAIRYMAN and to prove for yourself the wonderful and prompt curative powers of this great discovery, every reader will be sent by mail, prepaid, a free sample bottle, and with it a book telling more about Swamp-Root and containing some of the thousands upon thousands of testimonial letters received from sufferers cured.

Please mention that you read this generous offer in HOARD'S DAIRYMAN and send your address to Dr. Kilmer & Co., Binghamton, N. Y.

If you are already convinced that Swamp-Root is what you need, you can get the regular fifty-cent and one-dollar sizes at the drug stores or of medicine dealers. Make a note of the name, SWAMP-ROOT, Dr. Kilmer's Swamp-Root, and remember it is prepared only by Dr. Kilmer & Co., Binghamton, N. Y.

Charter Gasoline Engine



USED Any Place By Any One For Any Purpose

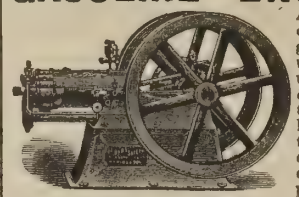
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State Your Power Needs.

Charter Gas Engine Co., Box 73, Sterling, Ill.

The "OLDS" GASOLINE ENGINES.

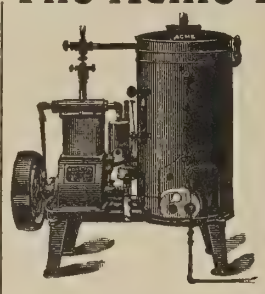
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Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc, One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. OLDS GASOLINE ENGINE WORKS, Box 419, Lansing, Mich.

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1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to Rochester Machine Tool Works

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Best varieties, both White and Yellow Dent. HENRY SHERMAN & SONS. Ft. Atkinson, Wis.

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and its possibilities under the Silage system—being the theme of

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of the University of Wisconsin, neatly bound into a volume of 195 pages and now being sent out by the SILVER MFG. CO. SALEM, O., is unquestionably the best book yet introduced on the subject. It includes:

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are the best for Farm Uses. Grind ear corn and any grain mixed or separate for feed. Table corn meal, buckwheat, rye and graham flour for family use. Easiest kept in order, large capacity, less power. Send for new book on mills and sample meal.

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Pressure between burrs in grinding is carried on chilled roller bearings.



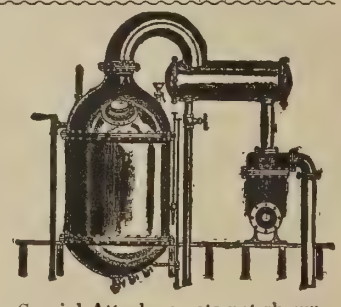
Large inside burr revolves twice to sweep's one. Ordinary length sweep

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We are the only firm that builds factories complete, put them in operation and guarantee results.

ILLUSTRATION.

The combined seed drill and wheel hoe, illustrated below, shows only one of many of the wonderful "Iron Age" labor saving implements. This tool is a whole tool house of itself. It is a perfect seed drill, double wheel hoe and single wheel hoe. It will sow, weed, cultivate, rake and plow—in fact, it will do all the work that could be desired in a garden or truck patch. The wheels are made of steel, 16 inches high; the frame is made of pipe coupled to malleable castings. The arch is high, so that 20-inch plants can be cultivated without injury. The combination is such that it can be quickly changed to a perfect double or single wheel hoe, as may be desired; while the seed drill, which is a perfect one, can be quickly attached or removed. This tool, in common with the other well known "Iron Age" implements, is having a large sale throughout the country.



The "Iron Age" Combined Seed Drill and Wheel Hoe.

The handsome "Iron Age" catalogue sent free to all mentioning this paper. Address Bateman Mfg. Co., Box 153, Grenloch, N. J.



HOW THEY GROW ONIONS IN RHODE ISLAND.

One of the most striking pictures in our new 1899 Catalogue is a long procession of men sowing onion seed with the "PLANET JR." Hill-dropping Seeder, one of the greatest labor-savers in the whole list. It shows how live Yankee onion growers are making money with the "PLANET JR." tools.

This catalogue will interest your whole family. It not only describes the Seeders, Wheel-hoes, and combined hand tools, the Horse-hoes, the Pivot-wheel Cultivators, the wonderful Beet Cultivator that works four rows at once, and all the other horse tools, but it includes also SIXTEEN FULL PAGES of fine photographic views—interesting field-scenes in France, California, New Zealand, Manitoba, etc., showing the different crops and methods of cultivation, and the "PLANET JR." tools at work. Write for a copy; it's free.

$500 in Gold for the best gardens in 1899. Write for particulars

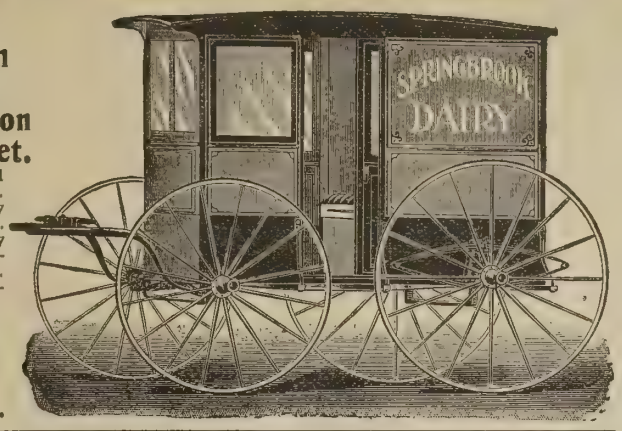
S. L. ALLEN & CO., Box 1107 D, Philadelphia.

$500 in Gold $500 in Gold $500 in Gold $500 in Gold

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THE ONLY LOW-DOWN

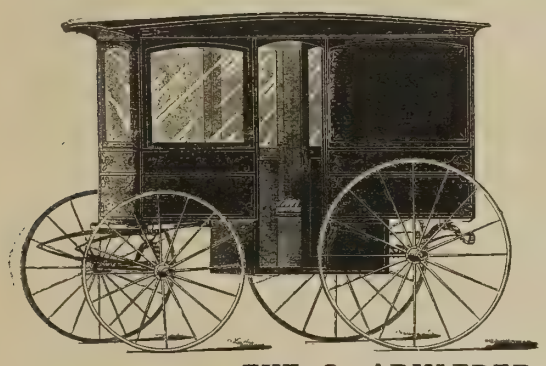
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Straight Bottom
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Light Draft Wagon
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20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

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Sole Manufacturers,
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A Perfect Milk Wagon

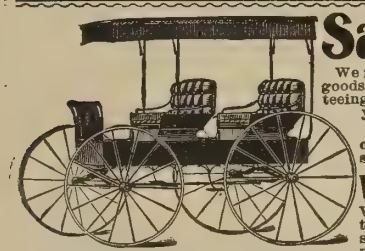


On a Perfect . . .
Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



No. 521—Canopy-Top Duplex Wagon, with curtains all around, storm apron and pole or shafts. Price $50; as good as sells for $80.

Satisfaction Guaranteed

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We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.

WE HAVE NO AGENTS.

We have no desire to increase the cost to you by this or other means; hence we sell you direct from our factory at wholesale prices. We are not jobbers or dealers. **We make everything we sell.** Largest selection—170 styles of vehicles, 65 styles of harness.



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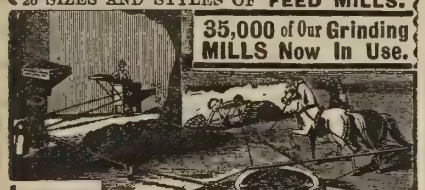
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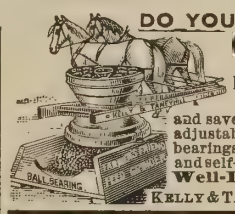
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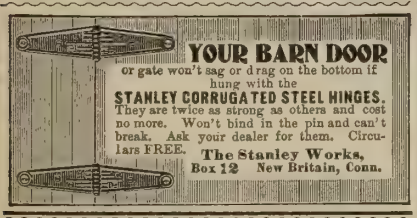
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or gate won't sag or drag on the bottom if hung with the
STANLEY CORRUGATED STEEL HINGES.
They are twice as strong as others and cost no more. Won't bind in the pin and can't break. Ask your dealer for them. Circulars FREE. **The Stanley Works,** Box 12 New Britain, Conn.



IT WON'T

jump the track nor bind when door is warped or wall is crooked. **T RAIL TRACK pivotally** hung to Brackets. **Hangers on both sides of doors.**

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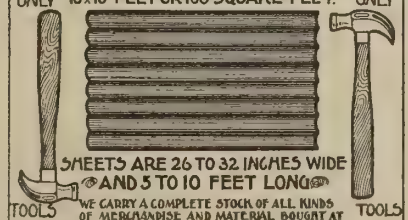
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$1.50 PER SQUARE. OF 10×10 FEET OR 100 SQUARE FEET.

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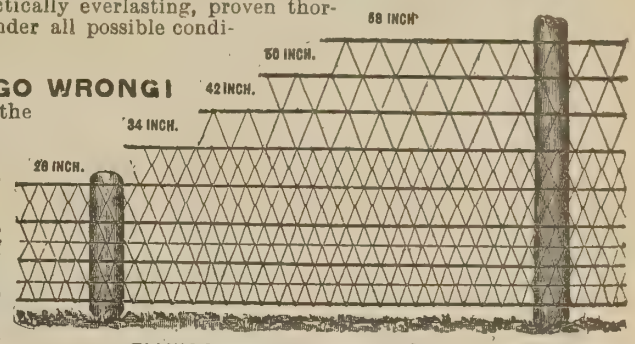
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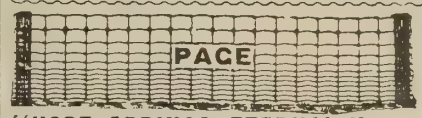
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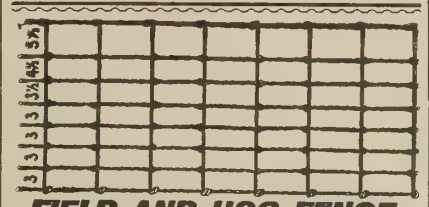


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It applies to us. We have the right thing at the right price

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UNION FENCE CO. DeKalb, Ill.

ECONOMY IS THE KEY TO WEALTH.



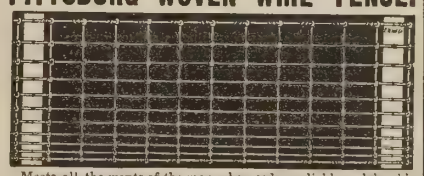
You can save money by buying your woven wire fence from us.

WE SELL DIRECT TO THE FARMER At Wholesale Prices.

We use only the best quality of steel wire, all galvanized; no small wires used; it's all interwoven; the stays can't slip. Write to-day for circulars and prices.

ADVANCE FENCE CO., 4008 Old St., Peoria, Ill.

PITTSBURG WOVEN WIRE FENCE.



Meets all the wants of the man who needs a reliable and durable fence. Made of just the right weight of wire; takes up all expansion and contraction; does not sag and properly constructed will last indefinitely. It makes friends wherever introduced. We want a reliable agent in your locality. First order secures township agency. Write at once. Circulars, testimonials, etc., free.

Pittsburg Woven Wire Fence Co., 17 Penn. Av. Pittsburg, Pa.

ADAM

THE FENCE MAN

Makes Woven Wire Fence that "Stands Up." **Cannot Sag.**



Get his new catalogue. It tells all about **The Best Farm Fence Made.**

W. J. ADAM, Joliet, Illinois.

WANTED—Ladies and gentlemen to procure subscriptions for the best fifty-cent woman's monthly magazine in the United States. The most beautiful and popular woman's magazine on very liberal commissions. Terms, sample copies, special helps and premiums furnished free. Address THE AMERICAN QUEEN, 78-80 Walker St., New York.



SEEDS CHEAP

BEST in the world from 1 cent per packet up. Celebrated for strong and rapid growth. Postage paid. Large lot of extra packages **Free** in every order. Oldest reliable seedsman in the west. Send yours and neighbor's address for prettiest large catalog ever printed.

R. H. SHUMWAY, Rockford, Ill.

CHOICE FRUIT

is the only kind that pays for the cost of growing and marketing. The best are *Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant,* Immense stock. Warranted true to name. My Catalogue is **FREE** but it is worth dollars to you.

Allen L. Wood, Wholesale Grower, Rochester, N. Y.

Mention this paper.



EVERGREENS

100, 6 to 8 in. $1; 12 to 18 in. $2.50. 100, 2 ft. $10 prepaid. 100, 4 to 6 ft. 25 varieties, $15. 45 choice Fruit trees, 20 varieties, $10. **Ornamental & Fruit Trees.** Catalogue and prices of 50 great bargain lots **SENT FREE.** ☞ **Good Local Agents Wanted.**

D. HILL, Evergreen Specialist, **Dundee, Ill.**

In buying seeds **"economy is extravagance,"** because the cost of cultivation wasted on inferior seeds always largely exceeds the original cost of the best seeds to be had. The best is always the cheapest. Pay a trifle more for

FERRY'S SEEDS

and always get your money's worth. Five cents per paper everywhere. **Always the best.** Seed Annual free.

D. M. FERRY & CO., Detroit, Mich.

BUY NORTHERN GROWN SEEDS

FARM SEEDS

Salzer's Seeds are Warranted to Produce.

Mahlon Luther, E. Troy, Pa., astonished the world by growing 250 bushels Big Four Oats; J. Breider, Mishicott, Wis., 173 bush. barley, and H. Lovejoy, Red Wing, Minn., by growing 320 bush. Salzer's corn per acre. If you doubt, write them. We wish to gain 200,000 new customers, hence will send on trial

10 DOLLARS WORTH FOR 10c.

10 pkgs of rare farm seeds, Salt Bush, Rape for Sheep, the $3000 Corn, "Big Four Oats," Beardless Barley, Bromus Inermis—yielding 7 tons hay per acre on dry soils, etc., "40c. Wheat," including our mammoth Seed Catalogue, telling all about our Farm seeds, etc., all mailed you upon receipt of but 10c. postage, positively worth $10, to get a start, **100,000 bbls. Seed Potatoes** at **$1.20** and up a bbl.

35 pkgs earliest vegetable seeds, $1.00

Please send this adv. along.

JOHN A. SALZER SEED CO. LACROSSE WIS.

Catalog alone, 5c. No. 140

FARM AND GARDEN SEEDS.

We are recleaners of all kinds of field seeds. Medium and Mammoth Red Clover, Alsike, Alfalfa, White and Crimson Clovers, also Timothy, Orchard Grass, Red Top, Blue Grass, Mixed Lawn Grass, Rye Grass and Imported Grasses, Dwarf Essex Rape, Vicia Villosa, Field peas, Ohio Beardless Barley and Spring Wheat.

Write for **Field Seed Price List,** also **1899 Seed Catalogue Free.**

The Henry Philipps Seed and Implement Co., 115-117 St. Clair St., Toledo, Ohio.

Hallock's Success Anti-Clog Weeder And Cultivator

The most practical and profitable machine ever invented for both weeding and cultivating all kinds of crops. Almost doubles the yield; does more and better work and saves more money than any other implement ever made for the purpose. Write at once for full information and sheets of testimonials from progressive and prosperous farmers in every state. (*$100 reward for any testimonial proven to be false.*) Read what those who have used it say about it.

"Hallock's Success Anti-Clog Weeder does all that your circulars claim for it. I have used it on everything, **onions, melons, beans, potatoes, corn, wheat.** It is a great labor-saving machine. I certainly want the sale of your weeder another season." HENRY HOGUE, Pepin, Wis.

"I tended last season 75 acres of **corn** and **potatoes** with the Success Anti-Clog Weeder, and I am in my 70th year. I must say I never before saw such clean fields of corn and potatoes in my life. With the weeder I did with one team as much work as three men and three teams could do with the old style cultivators, and did the work in a very much better manner, too." L. B. MARSH, Trempealeau, Wis.

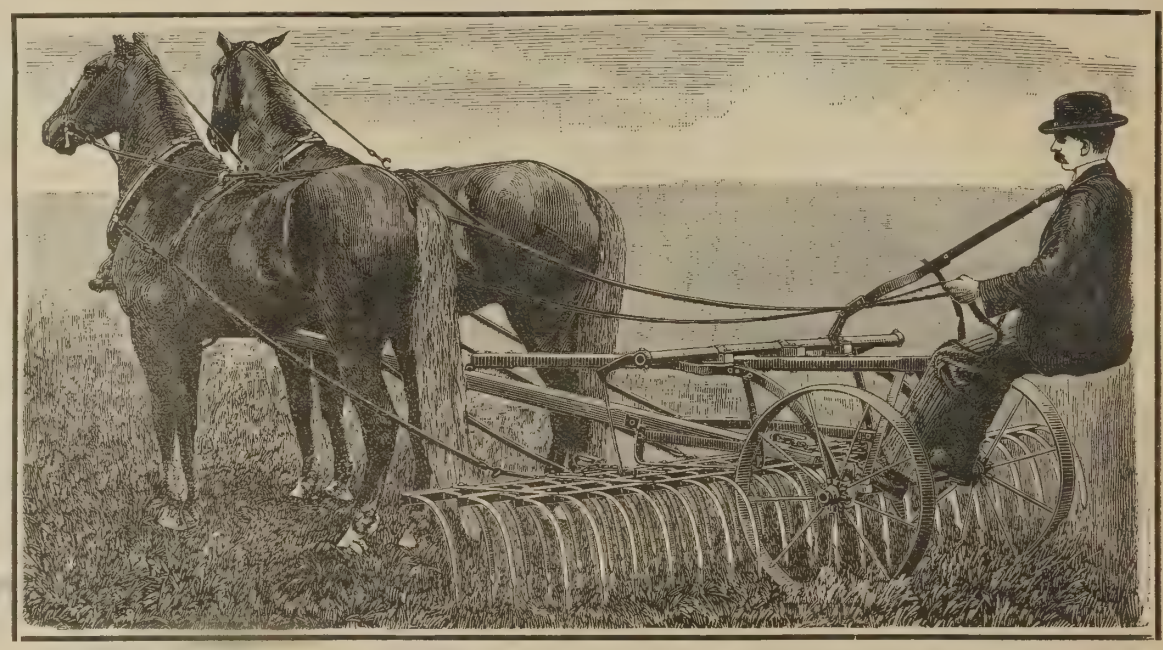
"I used your weeder on twenty-five acres of **corn** and ten acres of **potatoes** during the past season. It was run exclusively by a thirteen-year-old boy. I find, as the result of using the weeder, that, if run in time, the weeds cannot start. Its work is highly satisfactory." W. J. ROBERTS, Columbus, Wis.

"I would not be without the Success Anti-Clog Weeder for three times what it cost me. I would like to have the agency for my county. I have used the weeder on **corn** before it was up, and after it was plowed, with great success. Just after the **corn** was planted we had some heavy rains, which packed the ground very hard. I put some weight on the weeder and it did the work very fine." MARLOW KIDD, Glen Haven, Wis.

"I like the Success Anti-Clog Weeder very much. I worked 30 acres of **corn** and 1 acre of **potatoes,** and the consequence was I had good, clean corn and potatoes, and I would not sell my weeder, if I could not get anyother one, for $25. I have seen a good many weeders, but I like yours the best of any. I think it is the best weeder made." C. E. GIBBS, Prairie du Sac, Wis.

"The Success Anti-Clog Weeder is all you recommend it to be. Five times the price would not buy mine from me if I could not get another." E. KINNEY, West Salem, Wis.

"I used the Success Anti-Clog Weeder on my **wheat** after sowing clover seed and it was worth twice its price every day I used it for that purpose. For cultivating corn and potatoes it is the best tool I ever had on my farm. My ten-year-old boy worked my corn with the weeder when corn was 2½ feet high without removing any teeth. I used the weeder in a truck garden on **corn, potatoes, beans, cabbage, tomatoes, onions, beets** and **strawberries,** and it did very fine work. It is the greatest labor-saving, money-making tool on the farm." T. J. HALFERTY, Brimfield, Ind.

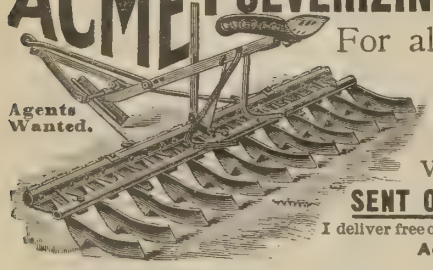


Special Price on the first order from every district where we have no agency. And the agency goes with the first order if you want it.

CAUTION: This Weeder is protected by our patent No. 600,782, dated March 15, 1898. The public is notified and warned that any infringement on our flat tooth Weeder, whether manufacturing or dealing in the same will be promptly prosecuted. Agents handling our Weeders are requested to send us names of persons thus infringing on our patents.

D. Y. HALLOCK & SONS, Box 812, York, Pa.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



Agents Wanted.

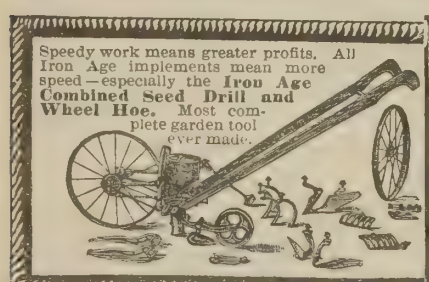
For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

PLEASE MENTION THIS PAPER.



Speedy work means greater profits. All Iron Age implements mean more speed—especially the **Iron Age Combined Seed Drill and Wheel Hoe.** Most complete garden tool ever made.

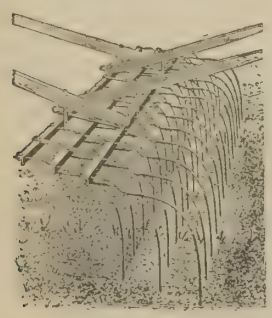
Iron Age Speed

It will plow, level, furrow, sow, cover, rake, cultivate, hoe and hill. You can plant more, cultivate more, sell more at higher prices if you use the IRON AGE COMBINED SEED DRILL AND WHEEL HOE. Distributing points conveniently located.

Send for the handsome Iron Age book of farm and garden implements for '99.

BATEMAN MFG. CO., Box 153, Grenloch, N. J.

ROUND OR FLAT FINGERS. Which are Best?



NO GOOD JUDGE decides a case until **BOTH** sides have been heard. Neither should **YOU.** Read and **BELIEVE** all that other manufacturers say of the value of a **GOOD** weeder in the field, but before buying **ANY** weeder see what **WE** have to say about

BREED'S new "VICTOR" WEEDER with ROUND FINGERS,

then decide in favor of the one you think is best **AND BUY IT.** Twelve years of **PERFECT** success with **ROUND FINGERS** enables us to

GUARANTEE that our "Victor" Weeder will do **BETTER** work in **ALL** crops and **EVERY** spot and place than any other shape or make, and that they will do **GOOD** work where others will not work at all. When one does not do so it may be returned and we will refund the entire cost to you.

☞Agents wanted everywhere. First Weeder in a town at special price, and you have the agency if you want it. Write **TO-DAY** for our circulars. **THEY MAY SAVE YOU DOLLARS.**

THE Z BREED WEEDER CO.,

265 Merchants Row, - - BOSTON, MASS.

JANNEY MANUFACTURING CO. OTTUMWA, IOWA.

BUILD THE LARGEST, BEST AND MOST COMPLETE LINE OF CORN PLANTING MACHINERY IN THE MARKET

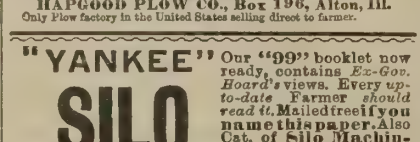
OUR MOTTO "GOOD GOODS" "GOOD SERVICE" "MODERATE PRICES"

Mention Hoard's Dairyman.

WE SELL DIRECT TO THE FARMER.

Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.

Sulky Plows, $25. Riding Gang Plows, $35. 8-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.



Hard Steel Castor Coulter with Plow, $1.50 extra.

HAPGOOD PLOW CO., Box 196, Alton, Ill.

Only Plow factory in the United States selling direct to farmer.

"YANKEE" **SILO SENSE.**

Our "99" booklet now ready, contains *Ex-Gov. Hoard's* views. Every *up-to-date* Farmer *should read it.* Mailed free if you name this paper. Also Cat. of Silo Machinery, *BADGER ROUND SILOS,* 50, 75, 100 tons. *Farm Powers, Feed Mills. Root Cutters, Corn Shellers, one and two hole.*

SMALLEY MFG. CO., Sole Makers. Manitowoc, Wis.

$17 You Send No Money

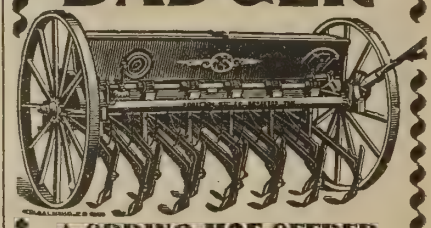


Until Goods Arrive. Disc Harrows, Lever Harrows, 11-foot Seeders, Cultivators, Wagons. Write for delivery prices and catalogue.

EMPIRE MFG. CO.

60 River Street, Sterling, Ills.

THE "BADGER"



A SPRING HOE SEEDER

which automatically adjusts itself to rough and uneven ground. The same "BADGER" which has commanded the trade for over 25 years, except that

IT IS VASTLY IMPROVED.

Continuous steel frame and steel bars. Every advantage found in every other seeder and some exclusively its own. **The proof of its strength, durability and effective utility** is the fact that many are **in use to-day that we sold 20 years ago.** We make a 11-ft. Force Feed Seeder without bars also. Catalogue and circulars **FREE.**

Appleton Manfg. Co. 35 Fargo St., Batavia, Ills.

VAUGHN FLEXIBLE HARROW. Pat'd

No Bolts to get Loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists.



D. C. VAUGHN MFG. CO., JEFFERSON, WIS. Best on Earth

Turn the Fodder into Food.



Live stock waste fully one-half the corn fodder when it is fed to them without previous preparation.

THE CYCLONE CORN HUSKER

husks, cuts and shreds the corn, green or dry. **Runs with 8-horse tread or any other power** that will equal or give more. Circulars **free.**

ROSENTHAL CORN HUSKING MACHINE CO. 31st and Walnut Sts. MILWAUKEE, WIS.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MARCH 24, 1899. NUMBER 6

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill. REFERENCES:—Ex-Gov. W. D Hoard,

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments. Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

JOHN JAMISON, —ESTABLISHED 50 YEARS.— Butter, Cheese, Eggs, Poultry.

Water and Market Streets, - - PHILADELPHIA, PA.

I reach every outlet and have a constantly increasing trade. REFERENCES: Dun and Bradstreets; Merchants' National Bank, Philadelphia.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—Irving Nat'l Bank, Bradstreet; R. G. Dun & Co.,; Mercantile Agencies. 151 Reade St., NEW YORK.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

WE SELL DIRECT TO THE FARMER.



Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.

Sulky Plows, $25. Riding Gang Plows, $35. 2-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.

Hard Steel CasterCoulter with Plow, $1.50 extra.

HAPGOOD PLOW CO., Box 196, Alton, Ill. Only Plow factory in the United States selling direct to farmer.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES awarded to CHR. HANSEN'S

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and **SANITARY DAIRY ENGINEERS.**

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

WE MANUFACTURE . . . Vats, Churns, Butter Boxes.

We BUILD AND EQUIP CREAMERIES. We are AGENTS for

SHARPLES CREAM SEPARATORS.

When ordering Vats or other creamery supplies, see that your local dealer furnishes those of our manufacture. Our name on the goods is a GUARANTEE of excellence. Send for catalogue.

HANEY-CAMPBELL COMPANY, - Dubuque, Iowa.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896. I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried. E. A. GREEN, Sec'y, Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

. . THE . .

Sharples Tubular Separator.



Send to us for a circular of this separator and ask any questions you wish to know about it. Let us know your needs in the separator line and do us a kindness by giving us names of any others needing separators. We put the TUBULARS in on a very strong guarantee as to what you may expect of them and what they must do in actual use. They please other very exacting and experienced users and they will please you.

DIXON, NEB., February 21, 1899.

DEAR SIR:—

The **No. 40 Tubular Separator** gives us the very best of satisfaction. When skimming 4,170 lbs. of milk per hour, I test the skim milk repeatedly and never find over .05 of one per cent fat, and often less.

The quality of the cream is of the highest class,—a rich, smooth cream. We are well satisfied with the machine in every respect. Yours,

J. N. JACOBY, Sec. Dixon Creamery Co.

Send for Catalogue No. 46.

BRANCHES:— Toledo, Ohio. St. Paul, Minn. Omaha, Neb. Dubuque, Ia. San Francisco, Cal.

P. M. SHARPLES, West Chester, Pa.

D. DERBYSHIRE & Co., Brockville, Ont.

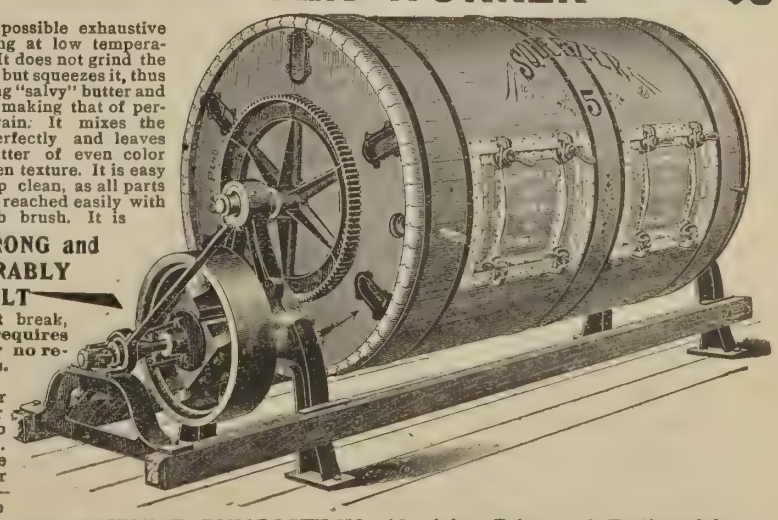
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—5 to 150 gallons.

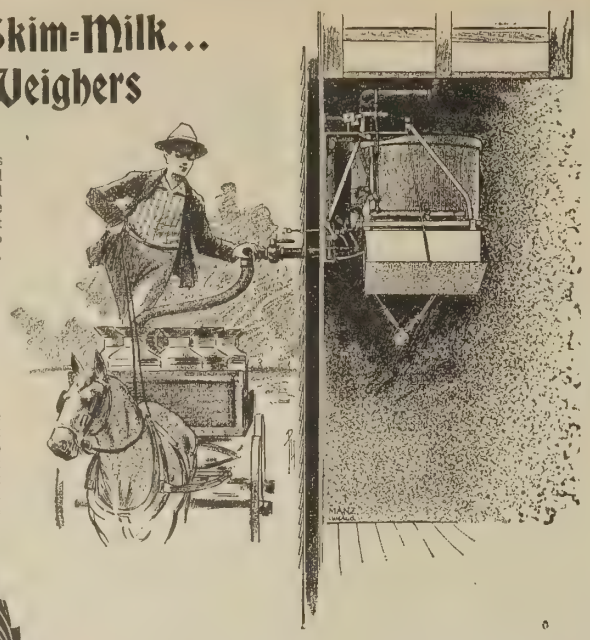


SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.

ELGIN MANUFACTURING CO., - - Elgin Ill.

NO AMOUNT OF ADVERTISING WOULD HAVE SOLD THE NUMBER OF
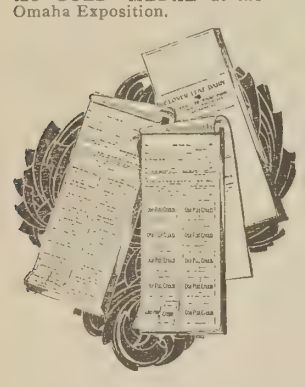
Ideal Skim-Milk... Weighers



which we have placed this season if it had not been a good machine. It is acknowledged to be the best machine on the market for the purpose. It costs more than a milk pump and some so-called weighers. But it does the business.

It will distribute a run of 30,000 to 40,000 Pounds and only have 25 to 50 Pounds Left. . . .

It does what we claim. We fully guarantee it. We ship it anywhere on trial. If after 30 days in actual use it does not prove satisfactory, we take it back. Our Weigher received the GOLD MEDAL at the Omaha Exposition.



...A... SANITARY Milk and Cream Ticket.

A coupon milk and cream ticket is the only milk or cream ticket that complies with all sanitary requirements, and is also the only milk ticket by which a complete check can be kept on both customer and driver. We would like to send you a sample.

We have a large up to-date and complete line of Milk Dealers' Supplies. Everything you need. Our Ideal Milk Jars and Caps are the best on the market. Write for sample.

Our latest Milk Dealers' Price Current contains new ideas and new apparatus. May we send you one?

Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Submilate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— Kansas City, Mo. Waterloo, Iowa. Minneapolis, Minn. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.

FACTS, NOT FICTION,

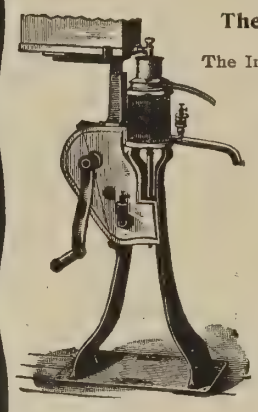
ABOUT

The Improved U. S. Triple Current Separators

They are the cleanest Skimmers on the market, as witness the reports from the State Experiment Stations and users the country over. They are also noted for their simplicity, ease of operation and durability.

A Few 1899 Experiment Station Reports.

Massachusetts,	average of 19 tests,	January 7th	to 31st,	.033	of 1%
Ohio,	" 19 "	" 10th	to 21st,	.034	of 1%
Vermont,	" 18 "	" 9th	to Feb. 3d,	.038	of 1%
Wisconsin,	" 17 "	" 2d	to 19th,	.03	of 1%
An average from 73 tests of skim milk of				.034	of 1%



The U. S. Excels in Every Particular

FORESTVILLE, CONN., Feb. 18th, 1899.

The Improved U. S. Separator is giving excellent satisfaction. In comparing it with other makes, have found it to far excel in every particular—in thoroughness of skimming, ease of operation, design and finish, simplicity of construction, therefore easy to clean, and durability. Any one contemplating buying a Separator should investigate the merits of the Improved U. S.

WILLIAM F. KENNEY,
Buttermaker for J. Hart Welch.

The U. S. the Best on the Market

DEER PARK, MO., Feb. 25th, 1899.

The butter I exhibited at the St. Louis Fair scored 98½ points and won the Sweepstakes over the creamery butter from several of the best Creameries in the United States. It was made from cream separated by the No. 5 Improved U. S. Separator I have been using for nearly three years, which has always been in running order and given entire satisfaction. If I had to buy another it would be an Improved U. S., for I think it the best on the market.

NATHAN KING.

No Loss of Cream in the Skim Milk

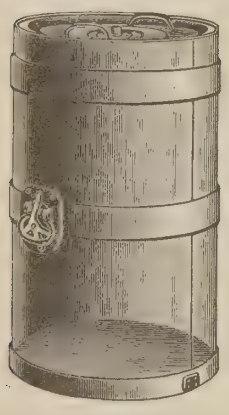
BROMPTON FALLS, P. Q., Jan. 31st, 1899.

The No. 1 and No. 0 Improved U. S. Separators purchased last spring are giving perfect satisfaction. They run smoothly and easily and take all the cream out of the milk. They are simple, durable, and not liable to get out of order.

A. MARTEL & CO.

Write for Illustrated Catalogues

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans.

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,

Sole Manufacturers, - - CATTARAUGUS, N. Y

FIND OUT IN ADVANCE WHAT SHE WILL DO.

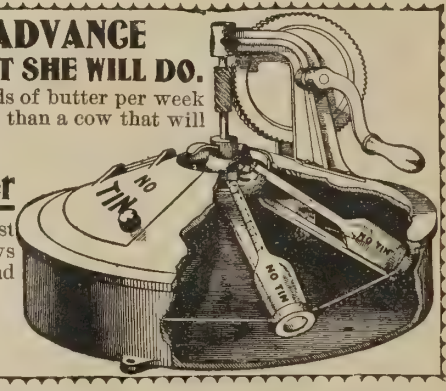
A cow that will make ten pounds of butter per week costs no more, and eats no more, than a cow that will make four pounds of butter per week.

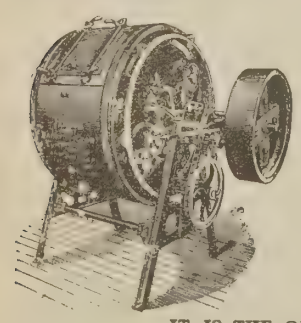
The No-Tin Babcock Tester

will tell the intending purchaser just what the cow will do before he buys her. Any farmer can operate it, and every dairyman should have it.

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THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

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quicker, easier, better than any other salt ever made. That's the reputation of Diamond Crystal Salt. It lives up to its reputation. The reason is that

Diamond Crystal Salt

is composed of flakes, not grains. It dissolves not only quickly, but entirely. No waste of labor or time. The salt is all in the butter and the butter is the better for it. Send for book about the *"Salt that's all Salt."*

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

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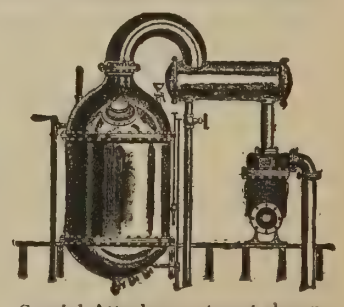
(Not) the Cheap Kind.)

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Condensed... Milk Factories

Built Complete By



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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the Dairyman is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

AS IT IS IN WISCONSIN.

The net gain in Wisconsin, in the manufacture of butter between the years of 1885 and 1895 was $6,459,971. The gain in the value of the cheese manufactured in the same decade was $999,280.

In no state in the Union have the farmers been talked to as much on the true principles of dairy farming as in Wisconsin. Our dairy conventions, farm institutes, the Dairy School and Short Course in Agriculture, at Madison, and the many who read Hoard's Dairyman as well as other papers, all constitute a great educational force. Does it pay? Read the above figures and ask the men who are getting rich by the aid of their cows. Brains, thought and study pay nowhere better than in dairying.

AS IT LOOKS TO HIM.

Daniel Brinkley, of Ravenna, Ohio, writes:

"Notice of expiration of my subscription forwarded to me here. Agreeable therewith I herewith hand you the *best invested* dollar I ever parted with. Although practically out of the dairy business, I cannot afford to be without Hoard's Dairyman in my family of growing boys and girls. It should be in every home in the land. The topics it treats upon are what the growing generation must come in contact with, and by keeping posted on present and past methods, they are better prepared to solve future problems."

It is very seldom that we have seen more truth concerning the future of the coming farm boy and man, crowded into fewer words, or better stated, than the above. What Mr. Brinkley says needs no comment. It speaks for itself in the minds of all thinking, intelligent farmers.

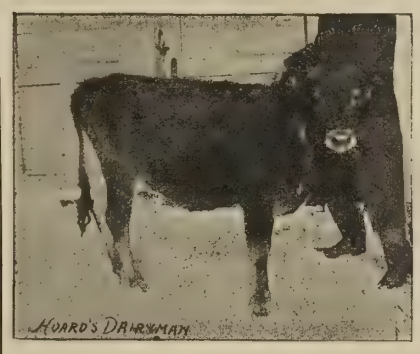
THE DAWN OF A BETTER LIGHT.

It always does the heart of the Dairyman good to get a letter from a subscriber who has profited by its teachings and wants his neighbors to share in the benefit with him. Mr. Amos C. Hallman, of Baden, Canada, sends us the subscriptions of two of his neighbors and writes as follows:

"I tell my neighbors that the Dairyman is worth many times its cost in what it teaches a man in selecting and judging a cow. I have paid particular attention to the different cuts of fine cows and the dairy form and type which have appeared in Hoard's Dairyman. Twelve years ago when I bought my first cow, I knew nothing of how to judge a cow. All I saw was a good sized udder. Now I like a good sized udder as well as ever, but I don't think you can judge a cow alone by that. The following points, I think, tend to show if the cow is of the dairy form and character: Sharp withers and incurving thighs are important. The high pelvic arch I had never seen mentioned until I saw it in the Dairyman. Another point, lots of room to store the food in. Now, when I look my herd over, I find that the cows that have these points prominently are the best.

So much for reading the Dairyman."

The Dairyman has often received requests to publish pictures of young animals of the dairy type, with a view of showing the latent dairy conformation. In some respects such cuts are valuable as showing at how early an age the typical conformation of a dairy animal can be observed. Calves at an early age should show the beginning of the dairy form, and even though it is there in embryo, it is sufficient to give promise of the future, under skillful care and feeding. Together with the cuts which appear in this issue, Mr. Beach, of the Storrs College, has sent us three photographs of calves, from which the accompanying cuts were made. Except in one case, no data was sent with the pictures.



The first in the series is a daughter of cow No. 2, Class I. The mother is designated by Mr. Beach as of the "ideal dairy type." She shows a net profit of $42.82 for the year. An examination of the cut of No. 2 will indicate to what extent she conforms to the "dairy type" as advocated by the Dairyman. Comparing the mother and daughter, we find that in those points in which the mother is prominent, the younger animal promises well. They are yet in embryo, but none the less there. Such calves are not pleasing to the beef man. They are not smooth enough in outline. They are too paunchy for their size; too thin in thigh and flank to promise well for future beef. A general want of evenness of outline would cause a beef man to give them but a single glance and then turn away for something more "square ended." To the dairyman, looking on with different purpose and different eye, they are full of promise.

THE MILK TRUSTS.

Where will this formation of trusts end? The latest is a milk combination with a capital of $30,000,000. It will be known as the New England Dairy Co., and will absorb all the milk selling concerns in Massachusetts, Vermont, Connecticut, Rhode Island and New York. It would appear to a casual observer that the farmers who supply the milk, if ever the trust becomes oppressive, could institute a whip-row very easily, provided they would organize. But there is the rub. The capitalists can organize, even with millions at stake, but the farmers will not. All that would be necessary to do would be for the farmers at every milk shipping station to organize a creamery and equip it and manufacture all their surplus milk into butter and feed the skim milk to calves and pigs. The milk trust bank on the fact that farmers will not organize and are not smart enough to keep their surplus milk at home and divert it to some other use, but that they must helplessly sell it to them, the trust. We must say the trust is generally right in its estimate.

But all this whip-row business depends on the milk shipping farmers having good dairy sense, a judgment and understanding as to the value of skim milk and how to feed it to young pigs and calves. Not one in a hundred of these milk shippers are well posted dairymen, capable of handling the whole question in all its economy or to all its profit. They are not skillful breeders of dairy cattle. They are liberal feeders of certain feeds, but few of them, however, believe in a balanced ration. They have gone to keeping cows and shipping milk with but little real dairy knowledge and the trust will handle them easily.

There is not a combination in the world that is as weak as one of these milk trusts, if only the farmers, on whom the trust must depend, understand the ins and outs of the whole dairy question, and would organize and work together intelligently for their own protection.

The trust never pays as much for the whole milk as a skillful dairyman and feeder of skim milk can get out of it, when profit and fertility of the farm are considered together. But most of these men, whom the trust gets its grip on, do not consider fertility of any special moment. What they are after is the present dollar. The future of themselves and the soil must take care of itself. Such sentiment and such men form a gateless opportunity for trusts of all kinds.

Brains Better than Muscle.

Ed. Hoard's Dairyman:—One of the best and most successful farmers in the state of Michigan with whom I became acquainted during my recent term of work there in the Farmers' Institutes, is A. M. Welch, of Ionia. He has a farm of 400 acres of good land. Not a great many years ago he was in debt $14,000 on it. He was strong, active, energetic and ambitious. His neighbors say "he was a terrible worker." But with all his expenditure of muscular energy, he was unable to reduce his indebtedness. Interest, taxes and other expenses absorbed all his profits.

One day in running a machine, one arm was so mangled that amputation was necessary.

At first he was terribly discouraged and thought his chances of ever paying for the farm were forever gone. But before the stump of his arm was healed over, he had made a firm resolve that now that he was forever unable to do manual labor, his brain must do the work. He determined to fertilize his brain and, as he was then to a limited extent engaged in the dairy business, Hoard's Dairyman played a very important part in this work. He increased his dairy, got better cows, learned how fine butter was made and how to get a good price for it. He commenced to supply the city with milk, and people soon learned that the best and purest milk to be had came from



Welch's farm. He had things all his own way in the milk business.

To make a long story short, Mr. Welch is now out of debt, has a fine house, large and convenient barns, with an abundant water supply handy in all of his buildings. In short, his place is a delight to all who visit it. Twelve years ago he built the first silo in that part of Michigan, and now others having patterned after him, there are thirty silos in his neighborhood.

People say to him: "Welch, what a pity it is that you did not lose your arm before." And he freely admits that "one brain is worth more than a half dozen pairs of hands."

I cannot help adding what has been said in substance many times before, that if farmers would try to know more, they might work less and get vastly better results. If they would take time to fertilize their brains their fields would be more fertile and produce better crops and more money.

Jefferson Co., Wis. C. P. Goodrich.

Dairy Outlook in Northern Wisconsin.

Ed. Hoard's Dairyman:—Burnett county, Wisconsin is in our new north—that part of the state which is steadily and quite rapidly developing into a splendid dairy region. To show you how things are moving, the following is worthy of note:

In a recent visit to our Agricultural College, by Mr. Ed. L. Peet, editor of the *Burnett County Journal*, published at Grantsburg, we were informed that there are now three creameries in Burnett county. These three creameries last season shipped their butter direct from Grantsburg to New York City, by a through refrigerator car. There came back to Grantsburg from New York City $30,000 in payment for the butter so shipped. This shows how the railroad and the refrigerator car have brought what some people think is the back part of Wisconsi almost to Manhattan Island, for it only costs about a cent and a half a pound to move butter that whole distance, and because of the refrigeration, it is practically as good when it reaches New York, as when it left Grantsburg.

Thus the pioneer farmers of Grantsburg, owning a few cows, have a cash monthly income. Three more creameries are now be-



ing built in Burnett county, and two creameries just across the line in Polk county.

This region is filling up with creameries, and is becoming one of the best dairy districts in Wisconsin. The people are frugal, hard working pioneers, who are starting out with good creameries, and a majority of them take the best of care of their cows. In this particular they are ahead of some other sections in the state that I visited, where, while more cows are kept, the farmers are more careless as to their care and management.

W. A. Henry.

Wisconsin Agricultural Experiment Station.

Mr. Wheaton's Canadian Dairy Notes.

Dairying in Quebec.—A Bonus for Improvements in Cheese Factories.—Disposing of Next Season's Product.—Winter Dairying.—Butter Export.

Ed. Hoard's Dairyman:—No part of Canada has made greater progress along dairy lines during recent years, than the Province of Quebec. The dairymen there seem more eager to adapt themselves to the needs of the times than those in some of the older dairy districts. The reason for this may be that the dairyman who has followed the business for 25 or 30 years is more "sot" in his ways, and it is more difficult to get him out of the old groove, than the one who has not traveled so long in the way. It is reasonable to suppose that experience would bring more perfect workmanship; and so it does in a great many cases, but not always. How often we see a beginner in the dairy business, who starts out on proper lines, reach a stage of perfection, if such were possible, in a very few years, far in advance of his neighbor, who has, perhaps, been a dairyman for a quarter of a century. If this holds good with individuals, why will it not do so with districts?

For several years the dairymen of Quebec have been carrying on a system of instruction in the cheese factories and creameries that in many respects far excels anything of

the kind practiced in some of the older dairy sections. The quality of the instruction given may not be any better, and in fact may not be so good, but its comprehensiveness is specially commendable. Instead of an instructor visiting a factory here and there, that may apply for his services, as is the case in Ontario, the instructor in Quebec is placed over a group of factories covering a comparatively small area, which he can easily make one trip over once a month. By this plan all the factories are visited in the district, regularly, which makes the instruction imparted more uniform and insuring an evener quality of cheese. Each of these districts looked after by an instructor is known as a syndicate, and there are upwards of forty of them in Quebec. Each syndicate contains from 15 to 25 factories or a sufficient number to keep an instructor busy during the season, and still allow him enough time to attend to his duties properly. One or two inspector-generals are employed to look after the local instructors, so that there is a complete and uniform system over a large area, which must result in bringing the quality of all the cheese or butter made in this area up to a uniform level.

The Quebec government has recently made another move that must go a long way towards improving the quality of the cheese in that Province. One of the crying needs of the Canadian cheese industry to-day is better curing rooms, and better methods of controlling the temperature during the curing process. The sub-earth duct is highly recommended for this purpose, and the Quebec government has decided to give a bonus of $50 to every cheese factory in the province that will put in a sub-earth duct, and other facilities for properly controlling the temperature in the curing rooms. A sub-earth duct in the average curing-room will cost from $125 to $200, so that the amount of the bonus will go a good way towards paying for the actual cost. Whether one believes in a bonus of this kind or not he cannot help but admire the good sense of the Quebec authorities in seeing the need of the industry and in doing their part to supply it.

Dairymen, in Ontario, are, however, very much alive in these matters also, and from what we can learn there will be a regular revolution in a great many factories in regard to curing facilities, notwithstanding that no bonus will be given by the government of this province. But why should dairymen wait for a bonus in order to enable them to put their business in order? A sub-earth duct and ice-rack in the curing rooms will more than pay for themselves in one season in the improved quality of the product and less shrinkage in the weight of cheese while curing. These improvements are then good investments for our dairymen, and unless the factory buildings are not worth it, there should be no hesitancy, whatever, in putting in the necessary appliances for properly curing the cheese after it is made. When one looks at this matter in a reasonable way, how foolish it seems not to do these things. To make a good cheese, and then have it spoil in the curing process seems to be the height of absurdity.

In a couple of months the cheese factories will be opening up again for business. The outlooks for prices just now is much more favorable than it was a year ago at this time. Though the cheese market has been somewhat inactive since the beginning of the year, the situation is a healthy one, and before new cheese is ready to be put upon the market, there is not likely to be a very large quantity of old stuff on hand to depress the market. The total shipments from Montreal and New York from May 1st, 1898, up to last week, (March 4) show a decrease of 554,274 boxes, as compared with the same period of 1897. The estimated stocks on hand on this side, are no larger, if as large as they were a year ago at this time, so that it is very likely all old stock will be worked off before the new goods are here. Dairymen, however, should make a special note of the fact that the British consumer is, every year, eating more meat, and does not rely so much upon cheese as a staple article of food as he once did. This being so, it will be necessary to have the quality of the goods sent forward of the very finest.

Factorymen connected with several of the local dairy boards of trade have met recently, to considered methods of disposing of next season's product. There seems to be a growing dissatisfaction on the part of factorymen with the present system of selling, and many of them are inclined to favor sending the product direct to the English dealer on commission without having it passed through the hands of the middleman as has been the practice heretofore. Nothing definite has been decided upon yet, and we are doubtful about anything being accomplished along this line till the patrons are more educated to it. There is, however, just enough unrest to show that considerable dissatisfaction prevails, in some sections, with the present system of disposing of the product.

Winter dairymen, taking everything into consideration, are having a very successful season. Prices have been well maintained, though the number of factories making butter has been nearly one-third larger than last winter. Until a few weeks ago the bulk of the winter butter was sent to Great Britain, where it sold for good remunerative prices, netting the factories from 19 to 20 cents.

Since the extreme cold weather, early last month, when the supply of milk fell off considerably, the local trade has taken most of the product; or rather, the local dealers were able to pay a higher price than exporters could afford. The ruling prices at Montreal, last week, (March 4) were from 20 to 21 cents for first class creamery. One feature in this winter's trade is that factorymen have been able to sell more of their butter outright to buyers on this side, and have not had to send so much of it over on commission.

The total exports of butter from Montreal, from May 1st, 1898, up to last week, show an increase of 94,224 packages over the same period a year ago, while the shipments from New York for the same period, show a decrease of 55,170 packages, making the net increase from this side 39,054 packages.

Toronto, Canada. J. W. WHEATON.

Subscription Price Saved Daily.

Following a Ration Formula Increases Yield of Milk.—Some Tennessee Dairy and Weather Notes.

ED. HOARD'S DAIRYMAN:—Enclosed you will find subscription for club of three, to whom please send HOARD'S DAIRYMAN one year. One year's reading it has convinced me that it is the best investment I can make. We have had Yankee weather during almost the entire winter. I use the word Yankee only to distinguish the north from the south. I am glad that we have no more north and south in the old sense, and that now, as our ex-Gov. Bob Taylor has recently said, Mason's and Dixon's line is only the dividing line between cold bread and hot biscuit.

The past winter, and especially the recent cold spell which sent the mercury below zero for five successive days, registering all the way from 13° to 22° below on 13th inst., has been the worst ever known in Tennessee and the entire south, and has taught us many things, not the least of which is to sympathize with our brother dairymen of the north and the more appreciate our usual mild winters of fair old Tennessee. Our dairyman said, during the cold spell, that his cows were not giving milk, but pure ice-cream. Although I have a splendid southern barn it availed very little good during the recent cold spell, for even the manure would freeze almost as dropped, but thanks to the HOARD'S DAIRYMAN it pulled me through with flying colors, and saved me *daily* the subscription price of the paper.

Money saved is money made. It was in this way: I had read so much about a balanced ration, so concluded would try it I followed a formula recently given in HOARD'S DAIRYMAN. This was begun about a week before the cold spell, and instead of falling off as usual during extreme cold, they actually increased. Your paper has helped me in many other ways, too. Often we have good grazing nearly all winter and do not feel the great need of a silo, but this winter has taught us to prepare for the worst instead of hoping for the best, and I expect many round silos will be built this year. Thanks to HOARD'S DAIRYMAN again for advocating the use of the silo.

The winter has taught us also that our wheat cannot be killed by extreme cold, but we hardly expect a full crop as the most of it was sown very late and has stooled very little. By reference to my diary I see that last year I planted all my early garden on February 9th, and finished breaking my corn ground on February 10th. This year not a furrow has been turned yet for anything, and to-day the ground is covered with snow, but "behind the cloud the sun is still shining". We welcome the brother from the north, but we hope you will keep your weather to yourself. I see some one asking in a recent number if he can make buttermilk from separator skimmed milk. I had the same trouble and found it impossible to make good old southern buttermilk. You ask me what is the difference between southern and northern buttermilk? I don't know that I can tell you, but there is a difference, and the best cannot be made after a separator. J. TAYLOR STRATTON.

Davidson Co., Tenn.

A Red Polled Record.

ED. HOARD'S DAIRYMAN:—I have a registered Red Polled cow (Ruby Twin) that will be ten years old, September 6th next, and weighs about 1,100 pounds. She dropped bull calf May 18, 1898, and is due to drop calf last of May, 1899. Will give you below, weights and tests of her milk, and hope you will be so kind as to let me know through your paper (in as plain form as possible) how much butter could be made from the milk during the year, if she gives the amount I estimate she will give, and the per cent fat between now and when she becomes fresh again the last of May next. We weighed the milk the last seven days of each month, except the month of September, when it was weighed a little before the last of the month. We have weighed each milking so far this year:

278¾ lbs. of milk last 7 days of May tested June 1, 3.8 per cent.
262 lbs. of milk last 7 days of June, tested June 30, 4.4 per cent.
180 lbs. of milk last 7 days of July, tested July 30, 5.6 per cent.
218¾ lbs. of milk last 7 days of August, tested August 30, 4.2 per cent.
179 lbs. of milk last 7 days ending September 26, tested September 26, 4.6 per cent.
151 lbs. of milk last 7 days of October, tested October 31, 5.6 per cent.
135 lbs. of milk last 7 days of November, tested November 30, 5 4 per cent.
142 lbs. of milk last 7 days of December, tested December 31, 6 per cent.
586¾ lbs. of milk 31 days January '99, tested February 1, 5.2 per cent.
343½ lbs. of milk first 19 days of February '99.
950 lbs. of milk before May 10 '99. (Estimated.)

The tests have been made with Babcock tester, by our butter maker at the factory, usually from morning milk. Her feed has been (since November last) clover and timothy hay, silage, bran and corn and oats (ground). Pasture mostly wild grass, that grows on river or creek bottom land. While weighing the milk in July, the feed was very short and flies very bad, also. I had her milk tested last April when she only gave 8 to 10 pounds a day and it tested 7.

S. S. CHANDLER, JR.

Waupaca Co. Wis.

The data given are not sufficient to allow more than an estimate on the total yield of butter for the year. But supplying average factors, when none are given, the calculations show that the yield of butter fat was 410.18 pounds, which would correspond to 462 pounds of butter. The above figures can be nothing more, however, than a very loose estimate, and the actual figures may be a number of pounds above or below those given above. The variations in the per cent of fat in a cow's milk, from day to day are so wide that nothing but daily weighing and sampling will give the actual yield of butter with anything approaching accuracy.

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Not a Symptom of the Affliction Since Cured by Hood's.

"When our daughter was two years old she broke out all over her face and head with scrofula sores. Nothing that we did for her seemed to do any good. We became discouraged, but one day saw Hood's Sarsaparilla so highly recommended that we decided to try it. The first bottle helped her, and after taking six bottles her face was smooth and we have not seen any signs of scrofula returning." SILAS VERNOOY, West Park, New York. Get only Hood's because

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Is the best—in fact the One True Blood Purifier.

Hood's Pills cure nausea, indigestion, biliousness, constipation.

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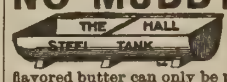
See that the name of the American Cotton Oil Co. appears on the red tag.

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CHAMPION MILK COOLER CO.,

67 Main Street, - - - - CORTLAND, N. Y.

JUDGE BURNHAM, of Kansas City, has decided a city ordinance that fixed the legal standard of cream at 20 per cent butter fat, to be unconstitutional because unreasonable. It is difficult to see just how the learned judge fixed his standard of reasoning. It used to be considered that it was only fair cream that was 25 per cent butter fat, or that would make one pound of butter to four of cream. If there was a law compelling the seller to sell cream by the test of butter fat, there would be no need of legal standard. In that case, the consumer could have the privilege of paying for just what he wanted.

SOMETHING ABOUT BUTTER FLAVOR.

At a recent meeting of the Elgin Board of Trade, there were exhibited four boxes of American butter, two of Minnesota and two of Wisconsin make, which had been exported to England, and there scored, then shipped back.

Two of the boxes, one from each state, were of poor flavor, or, as one man expressed it, "has an evaporated taste." These two boxes scored the highest of all in England, one 95, the other 96. The other two boxes showed much the best in flavor, but scored in England only 90 and 91. This showed that the butter with the lowest score had the best keeping properties.

At a recent convention of National Butter Makers at Sioux Falls, there was an interesting amount of kicking about the scoring. It was generally conceded that the average butter exhibited was several points off in quality, and "flavor" was where it chiefly lacked.

Robert Crickmore, Secretary of the Minnesota Association, says:

"The butter makers made the mistake of trying for too high a flavor. The result was that it was all gone by the time the judges got around to it."

Now here are two parallel cases, and the lesson to be drawn from each, is this:

This high, quick flavor so much desired, and which rules with the judges, is a sure accompaniment of short lived butter. It marks nearly the last stage of flavor before there sets in, as the next step, a disastrous change.

Should our judges give first premiums for butter, no matter how entrancing its flavor, if that is an indication of immediate loss in flavor, and consequent value?

Is not such judging misleading in its tendences, an education in a dangerous direction.

RAISE YOUR COWS.

To do this and to make sure you will have cows worth raising, provide yourself with a registered sire that has a strong line of dairy blood in him. H. L. G., a correspondent of the *National Stockman*, puts the matter in the right light when he says:

A dairyman must never depend on buying cows to run his dairy, especially if he intends making butter. When we first commenced making butter in a business way we depended on buying cows, but after we had bought some twenty, but one came up to what we called a standard cow. We paid eighty dollars for her. She never had a heifer calf for us. She gave rich milk and made sixteen pounds of butter a week when fresh. We milked her seven years and in all that time she never stood dry. We couldn't dry her up in any way. She had a calf each year.

We find in buying calves and raising them we get better cows than we can buy, which proves that it makes some difference how calves are fed.

Note this experience—but one of the cows in twenty that he bought came up to the capacity of a standard cow. A very successful dairyman of this vicinity once told us that he bought over one hundred cows in the endeavor to get a herd of less than twenty which would produce 200 lbs. of butter per cow. Now that is two thirds only of what a cow should produce if she is to be profitable.

Cows of only fair ability are selling now way above what they are worth as a real business investment. Think of it, buying cows as the milk dairymen of New York are doing, paying $40 and selling the milk at 1½ cents a quart. No wonder these men groan in spirit and pocket.

Everywhere is seen this loose, wasteful, unbusiness-like, undairy-like way of handling the dairy business. The old farmers of forty years ago knew better and did better than all this. They raised their best calves, and there was a snug, thrifty idea of managing all the forces of the farm, keeping up its fertility, *raising* good stock that made the country rich and prosperous.

It is a mistaken idea of economy when any man with a dairy of cows thinks he cannot afford to raise annually the best heifers and also provide those heifers with a sire that shall make them worth raising.

NUMBER AND VALUE OF MILCH COWS IN THE UNITED STATES FROM 1891 TO 1896.

	MILCH COWS.	
	Number.	*Value.*
Jan. 1.		
1891	16,019,591	$346,397,900
1892	16,416,351	351,378,132
1893	16,424,087	357,299,785
1894	16,487,400	358,998,661
1895	16,504,629	362,601,729
1896	16,137,586	363,955,545

The above computation, which is taken from the figures of the Department of Agriculture, shows that there has been a steady, though slow increase in the number of cows since 1891.

To the casual thinker, the small ratio of such increase will occasion surprise. For instance, the increase in four years, from 1891 to 1895 was only 485,039, while in 1896 the number actually decreased from that of the year before 367,043.

Of course this statement is but the estimate of the officials of the Department, but they have the best opportunity, and the most reliable data in the nation, upon which to base an estimate, and we may conclude that their figures are fairly accurate. These figures afford us an opportunity for looking at the actual drift of the dairy interest. The great fear of the average farmer is that the business will be speedily overdone, and the price of the cow product thus forced below the cost of production. As its readers well know, HOARD'S DAIRYMAN has never entertained such fears.

We have all along seen that the farmer had more to fear from under consumption, caused by hard times and the fraud of oleomargarine, than from over production.

The fact is, that if the cow can have full and free posession of the dairy market, without being obliged to meet the competition of fraud, there will be no danger of overproduction. Only one-half of the calves born each year are females, and but a small per cent of those ever reach motherhood and enter into dairy production. On the other hand, every child that is born continues through its life to be a consumer of cow product in some form or other, or in all forms.

The cost of production, which of course decides the amount of profit which is left in the pocket of the cow owner, is determined not so much by the market price of butter and cheese, as by the intelligence of the cow owner and the capacity of the cow. Put a *good* cow and an intelligent owner together, and more profit will be derived at low prices, than with a poor cow and ignorance with high prices. It is because of this great truth that HOARD'S DAIRYMAN preaches so incessantly upon the necessity of breeding up the quality of the cow, and at the same time increasing the intelligence of her owner. However, the better cow will begin to appear when the owner begins to grow in dairy intelligence, for better breeding and handling are invariably the outcome of such a growth.

The average value of the cows of the United States, as shown by the figures at the head of this article, was $21.62 in 1891; $21 41 in 1892; $21.96 in 1895, and $22.55 in 1896.

The cause of the marked falling off in the number of cows in 1896 is hard to determine. The high prices for veals no doubt has caused the death of many a likely heifer calf. It is a fact, however, that as the number of cows increases in any given territory, the number of heifers that are raised to cowhood decreases in like proportion. About Elgin, Ill., for instance, where exists a very dense cow population, but few calves are raised in proportion to the number of cows in existence. The farmers in that region depend mostly for their cows on buying from outside sections.

There is no doubt but that the price of good cows, or young heifers from well bred dairy lines, will continue to range high for years to come. For this reason we have urged our readers to pay more attention to the purchase of registered bulls of some one of the four dairy breeds, Ayrshire, Jersey, Holstein or Guernsey.

There is no difficulty in securing a handsome price for a likely young grade heifer of any of the above breeds. If the local price is not satisfactory, a small advertisement in the DAIRYMAN will soon bring the desired purchaser. Several car loads of such heifers have gone out from this section to distant states, in response to such advertising.

The value of the skim milk fed to such heifers would amount to over 40 cents a hundred, figured by what they consumed, and the prices received for them. But the chief value was derived from what the sire imparted, thus showing the wisdom of securing good parentage for a heifer, if one wishes to dispose of her or keep her for future use.

There is every encouragement for the dairy farmer who will try to be wise enough for his business. But the day is past when farmers can make a profit in dairying with a poor cow, the result of breeding without sound dairy intelligence.

A CANADIAN SUB-EARTH DUCT.

HOARD'S DAIRYMAN was the first paper in the world to bring to the notice of the cheese making public the utility and value of the sub-earth duct for tempering cheese curing rooms in hot weather. This it did way back in 1876,7,8 and 9. We have ever since been a persistent believer and pusher of the idea, and expect to be for all time to come. So we make no apology for calling attention to the following description of the duct now in use at the Ontario Agricultural College, at Guelph, Ontario, which we take from *Farming*:

"The duct is about 90 feet long, 6 feet deep at one end, 6½ feet deep at the other, to allow for drainage. In the trench were placed six rows of six-inch drain tile. Three rows were placed in the bottom and three rows directly on top of these, breaking the joints four inches. On the top of the tile was placed eight or ten inches of shavings, and then the dirt was filled in. At each end of the duct was placed a curb about three feet square. These curbs fit over the top of the tile in such a manner as to prevent the dirt from entering the end of the tiles. At the inlet end of the duct is a galvanized iron pipe 30 feet high, and 14 inches in diameter. On the top of the pipe is a hood or cowl, which turns towards the wind at all times. A constant stream of air enters the pipe, passes through the tile, and on its way to the curing room becomes cooled about 20°. The inlet of air to the curing room is regulated by means of slides. The warm air is taken from the room, through a ventilating shaft, which passes from the ceiling to the roof, and there connects with a galvanized iron pipe, which is 12 inches in diameter and 15 feet in height from the roof. The top of the pipe is covered with a cap to prevent rain entering the room. The inlet for the air should be at one side of the room, and the outlet at the opposite side, so as to change all the air in the room. The total cost of the duct was about $65 for a small room. For an ordinary curing room the duct should be 150 to 200 feet long, and from 8 to 12 feet deep, if at all possible, as this furnishes a supply of cooler air than the shorter and shallower duct. The curing-room should be insulated by lining the room with two-ply building paper, then nail on 2-inch strips, and then a lining of matched lumber. The floor, walls and ceilings should all be lined. The results of experiments conducted at the dairy school show that there is a marked improvement in the quality of the cheese cured at an even temperature of 60 to 65° F. Assuming that an increased value of the cheese is obtained of ¼ of a cent by proper curing methods, which is not out of the way, the value of the make of a 100-ton factory would be increased by $500. The loss by shrinkage in curing cheese at a high temperature was over one per cent, as compared with a low temperature. This, on a 100-ton factory, would be 2,000 lbs., which at 8 cents would be $160. It would, therefore, pay every factory in dollars and cents to have the curing-rooms fitted up so that the temperature could be controlled."

THE EVOLUTION OF THE DAIRY COW.

At the recent meeting of the Connecticut Dairymen's Association, Prof. C. S. Phelps, of the Storrs College, gave a very interesting address on the "Evolution of the Dairy Cow." The following is that part of the address which shows how this evolution affects New England and the older dairy districts of the country, and, farther, how it has developed breeds of cattle of definite dairy quality.

Dairying, as a special branch of farming, in New England, is the outgrowth of a changed condition of agriculture. In the early history of the east, a mixed system of husbandry was almost a necessity. Each farmer was obliged to grow, practically, all of the food and clothing used by the family. Under this system a general-purpose cow was developed. With an abundance of pasturage through the spring and summer, she could be made to furnish a sufficient quantity of butter and cheese to supply the family for the year. If needed for beef, she could be "dried off" in the fall, and fattened at pasture, with the aid of corn. Little, if any, effort was made to produce butter during the winter months. Hay alone was fed at this season, and if the herd gave what milk was wanted as food for the family, it was about all that was expected. The male animals could be fattened as steers, or developed into valuable work cattle. Conditions are now entirely changed. With the opening of fertile areas in the west, where grain can be cheaply grown, New England is no longer able to hold the markets for beef. The clearing up of fields from rocks and stumps, and the use of improved machinery, have afforded conditions more favorable for the horse than for the ox, for most kinds of farm work.

With these changes the general-purpose cow was no longer needed on the farm. A special-purpose cow for milk, or butter, or both, began to be looked for. It was found in the older countries, where the high value of dairy products had been longer appreciated.

The Ayrshire breed, while not especially common in Connecticut, is worthy of a high place as a milk producer. Professor Phelps called the Ayrshire a typical dairy cow. Few breeds will produce milk more economically than the Ayrshire. Jerseys and Guernseys were also highly spoken of by the professor. Some of the best foundation stock of these breeds was imported to or developed in Connecticut. The Jersey breed, unfortunately, has been reared, in the past, too much for fancy points. The Guernseys differ from the Jerseys, mainly, in size, averaging about 150 pounds heavier, and in the color of their butter. There is very little call for artificial coloring of the Guernsey butter. This breed is yearly gaining in favor.

The Holsteins as milk producers outstrip any other of modern breeds. But as a breed their milk is not of the highest quality for butter production, but what it lacks in quality is often more than made up in quantity.

The milk producing cow of today is an artificial development. Her power to elaborate milk far exceeds what nature designed. This unusual development of the milking function has also favored the development of the nervous system. In the end, raisers must come down to the matter of selection and individual merit as indicated by productiveness as the true basis upon which to build up the herd. The matter of selection may apply equally well to the selection of ordinary grade stock as well as the selection of animals for breeding. The digestive and assimilative capacity of the animal and the nervous system are points which seem to be of greater significance than has been given to them in the past. The two points which most strikingly indicate a nervous development are a broad, clear, prominent eye and a loose open condition of the spinal column with a prominent pelvic arch. A cow of a decidedly nervous "make up" is almost always thin in flesh. But if in connection with a strong nervous temperament she also has a powerful digestive system she will turn her energies almost entirely to the production of milk and butter.

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THE Minnesota Legislature is considering a bill to appropriate $20,000 to be expended during the next four years at the rate of $5,000 a year to encourage the art of butter and cheese making in the state. There is no doubt but if such an appropriation was made, it would return to Minnesota a hundred fold in actual worth.

WE have in hand for publication next week, a perspective view and ground floor plan of a dairy barn, built in this vicinity last season, which may afford some valuable suggestions to those dairymen who contemplate building a barn in the near future.

We also have coming for early publication, detailed plans for building the so-called plank frame barn. The plank frames save quite an item in cost, both in lumber and labor, and are appreciably stronger than the old style of timber frames.

THE report of that Michigan herd which produced an average of 6,608 pounds of 5% milk per cow, comes in good time to supplement, confirm and apply the facts brought out in Mr. Beach's analytical statement of the Storrs College herd. If it would not throw the editor of the *Breeder's Gazette* into a spasm of abusive speech, we would like to inquire what process of breeding on the dual-purpose plan he would pursue to produce a square-ended herd of such cows? But perhaps we should not tempt the weak beyond their strength.

PREPARE FOR THE WORST, NOT HOPE FOR THE BEST.

That is a very suggestive and instructive letter that is written by Mr. J. Taylor Stratton, of Tennessee, on page 104. Speaking of the good he got out of HOARD'S DAIRYMAN, the present winter, in the case of his cows, he strikes a thought, or the phrasing of a thought, that impressed us greatly. He says the present winter has taught him "to prepare for the worst, instead of hoping for the best." That is the reason he will provide himself "with a silo." A good silo well stored with the finest milk feed in the world, enables a man to prepare for the worst, and not only hope for, but secure the best."

That is the difference between a thoroughgoing, real, business dairyman and one of those half hearted, general-purpose fellows, who never prepare, but always hope. They are an easy, happy-go-lucky sort of men. It is easier to hope than it is to prepare. It is easier to trust to Providence than it is to build a silo. It is easier to hope for good luck than it is to calculate and work for it. And so they live along with poor cows, poor effort, poor calculation and poor return. Still they hope. But they will not build a silo, and so be prepared for the dried up pasture that will likely come next summer. Season after season are they caught in this way to the destruction of profit, but still it is so much easier to hope than prepare.

ANOTHER FORCIBLE LESSON.

HOARD'S DAIRYMAN has been preaching the solid truth, dairy cowology, for many years. We don't theorize, except on the basis of hard facts. When Prof. Haecker, of the Minnesota Experiment Station, made his trial for one year, with the herd of that Station, the DAIRYMAN went to the expense of having each cow placed before its readers in her own likeness. Prof. Haecker gave the record of each cow, just what she made, either profit or loss, and what her butter cost per pound. Then the story of her dairy form and temperament was told. As usual, the profit was found with the *dairy cow.*

Now we come again with another story of the same character from the Storrs Experiment Station, of Conn. Here are given the pictures of the cows, the tables of all the facts of their work for the year, and again it is proved that the "dairy form" and type is the winner in profit making. There are deep and valuable lessons in these illustrations—lessons for the Jersey, Guernsey, Ayrshire and Holstein Associations to consider in the outline they will give to their respective breeds of cattle; a lesson that dairy cows must be bred for dairy performance and all scales of points must *point* toward dairy results, not an empty breed type or characteristic which has no significance for dairy work. Here is also a lesson to the dairy farmer, telling him to study the cow more, learn more, read more, fill up more with useful judgment and understanding on the cow question.

One thing is clearly proved: *It is the cow herself that determines whether the feed shall be used for profit or loss.* Let us not forget this great basic truth.

Relative Value of Cream and Milk for Butter Making.

ED HOARD'S DAIRYMAN:—I do not quite understand your answer to my question in the DAIRYMAN of Feb. 24. I wrote to Prof. J. A. Van Wagenen, of Cornell University on the same subject and this is what he wrote in reply:

"A farmer who delivers cream instead of milk should be allowed at least 3 per cent more for each pound of fat delivered, for this reason: a separator will, on the average, leave in milk at least one tenth of one per cent of the fat originally present. This is, of course, just so much direct loss to the creamery. Or you may state the case in this way. The man who delivers a pound of fat in the form of cream enables you to put a full pound of fat in the churn, while on the other hand, the man who delivers you a pound of fat in the form of milk will enable you to put only about 96 or 97 one hundredths of a pound of fat in the churn. The man who brings cream has already met the necessary loss in skimming while the man with milk throws the loss on the factory. And when you consider that he has also saved the factory the trouble and expense of skimming the milk, it seems to me that 3 per cent is not enough as compared with the other party. I suggest that he should have at least 5 per cent more per pound of fat than the man who delivers milk."

In your answer you say we need not bother about the loss in skimming if we use the Babcock test on the cream. I would like you to explain that when seven or eight farmers' milk has been mixed and run through the separator, how the amount of butter fats each is entitled to can be determined by the Babcock test on the cream, when the milk does not test the same. EUGENE SHELP.

New York.

The Professor is theoretically correct. That is to say there is a (variable) loss in extracting or separating the cream from the milk which falls upon the farmer when he delivers cream and upon the creamery when milk is delivered. In the case of milk containing only 3 per cent of fat, this loss of one tenth of one per cent fat in the skim milk will approximate 3 per cent of the total fat, but with 6 per cent milk this loss will be only about half as much, because there will be only half as much skim-milk for the same amount of total fat and in these proportions for other qualities of milk.

For example: 2,000 lbs. of 3 per cent milk will yield, say 236 lbs. of cream containing 58.236 lbs. of fat and 1,764 lbs. skim-milk containing 1.764 lbs. fat, whereas 1,000 lbs. of 6 per cent milk will yield practically the same amount of cream, containing 59.236 lbs. of fat and there will remain only 764 lbs. skim-milk and in it there will be only 0.764 lbs. of fat.

If a creamery is fully equipped to handle all the milk that may be offered to it, the extra cost of separating a few hundred pounds of milk is practically nothing; whereas the extra trouble of taking in, sampling and caring for a few scattering deliveries of cream fully offsets the small gain of one half to one pound of butter fat in the cream from a thousand pounds of milk.

If all the patrons were to deliver cream, thus doing away with the necessity for installing, running and maintaining separators and milk vats, the case would present a different aspect.

A Michigan Dairy.

Balanced Ration—Better Cows—Warm Stables—Cream Ripening.

ED. HOARD'S DAIRYMAN:—After waiting so long I will comply with your request and tell you something of our dairy and how it is carried on.

To begin with, I have only been dairying for about three years. I came on to this farm five years ago. It had been pretty well run, and had been rented on shares for some time, and you know that that is not the fastest way to increase fertility. But the foundation is good, the soil being clay loam (rather too much clay).

Well, I went to work in the old rut plowing and sowing and I tell you it was up hill work and I would have sold out for a song. I made up my mind that I must make a change or go under. I subscribed for the *Practical Farmer* and got interested in clover and tillage. Then I subscribed for HOARD'S DAIRYMAN and got interested in cows.

After reading HOARD'S DAIRYMAN a while I made up my mind that dairying was the thing for me.

We had four or five common scrub cows that never had any grain and went dry most all winter. I bought two cows and put them with what I had and began sending milk to the creamery. I felt like quite a dairyman but some way I did not get rich very fast.

All this time I was reading HOARD'S DAIRYMAN and I saw that there was a great deal said about testing each cow, so I had my cows tested and found that most of them were running me in debt instead of making money. I finally sold all but one and replaced them by buying two good cows and one heifer of my own raising.

The cow that I kept made, in 1895-6, 265 pounds of butter with grain once a day. By this time I had the balanced ration idea in my head and began to practice it in my herd. The result was, in 1896-7 the 265 lb. cow made 354 lbs. butter and gave 7,401 lbs. of milk, but it was not all feed. I had learned to keep them warm and give them plenty of water twice a day and salt once a day.

The two cows that I bought made 350 and 294 lbs. of butter; the heifers' milk was not weighed regularly so I could not tell exactly how much butter they made. Others were bought and sold so I could not keep their record for the year. But still I didn't get rich very fast, I was not getting enough for butter to make it pay very big.

The idea to make and sell butter myself and sell to private trade, came to me, and I acted upon it and on the first day of January I began to make butter, tending to everything myself, using Cooley cans; sold the butter to private families at 20 cents by the year. Then I began to realize something out of the milk. That went all right until my ice, of which I had forty tons, gave out. Then I took another step and bought a cream separator last fall. I also built a creamery and ice-house combined. In the creamery you will find the separator, a 25 gallon barrel churn, a 25 lb. Reed butter worker, a six bottle Babcock tester, a large ice box and everything handy for making first-class butter.

In the barn the cows are kept warm and clean, lots of straw being used as bedding. We are careful to milk with clean hands and have the cows clean. The milk is run through one metal and two cloth strainers and then through the separator. Before the warm weather comes I am going to have an aerator for the cream to run through directly from the separator.

I am very well satisfied with my business now, only I want better cows. I have, at the head of my herd, a son of Lorita's Marigold Pogis, 43972; a bull of special merit as to dairy form and color.

As to breeding up my own herd, I have been unfortunate in having bull calves but have some very promising heifers growing now.

My dairy is now a winter dairy, most of the cows coming in in the fall. I think that I can make 100 lbs. more butter from a winter cow than from the same cow in summer.

So you see that from a discontented farmer, by reading HOARD'S DAIRYMAN and trying to profit by what I read, I now am contented and have a business that is both pleasant and profitable. My farm is gaining in fertility every day and by raising clover and saving all manure, I expect in a few years to have the old farm back to its former state of fertility.

You ask for experience in ripening cream. I have no trouble. I ripen it in just twelve hours every time and believe in quick ripening with a pure starter. I keep my cream cold until the night before churning day, then I warm up to 70 degrees by putting the can into a pail of hot water and stirring until warm enough, adding starter before warming. I use butter-milk from the previous churning if the flavor is all right. About once a month I make a new starter by taking two quarts of whole milk, run through the separator, and holding it at about 80 degrees till sour.

I send you one of my trade marks which is pasted on every jar of butter before it is delivered and is a guarantee of the contents.

In conclusion would say, keep good cows; take good care of them; feed a balanced ration of good, wholesome food; find a profitable market for your product; take HOARD'S DAIRYMAN, and you are sure of a good profit in your business. FRED M. LUTHER.

Ottawa Co., Mich.

WHAT about the frequent assertion of HOARD'S DAIRYMAN that the *dairy* cow is a valuable animal to have on the farm, and that it does not pay to milk any other? For answer read Mr. Beach's report on pages 112 and 113, of the Storrs College herd, and study the illustrations and tables which accompany it.

W. N. I., of Deans Corners,

New York, writes:

"I can credit Hoard's Dairyman with saving a valuable Holstein heifer and I also gave my neighbor an idea which he said saved his cow, One of his cows died and he said if he had known then what I told him it would have saved her also. Why will not dairy farmers invest one dollar for so valuable information ?"

Sure enough, why ?

It will take but a minute to write your name and address on a slip of paper, enclose a dollar and send it to the post office. Lots of witnesses tell you that it will pay you grandly.

"Now is the accepted time." TRY IT.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc, and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

WEIGHT OF A QUART OF MILK.

Will you please tell me how much a quart of milk weighs? L. L.

Jacksonville, Ill.

A quart of milk weighs 2.15 pounds.

COATING FOR PINEAPPLE CHEESE.

Can you inform me of what composition the coating of pineapple cheese is? Is it a commercial product, and if so, where can it be obtained? W. J. B.

Bay City, Mich.

We do not know that any special coating is used. Willard states that the smooth surface is given them by hand rubbing with sweet whey butter during the process of drying.

A MISSOURI RATION.—THE CREAM TEST OF MILK.

Will you kindly give me a balanced ration for a young cow that is giving thirty-five pounds milk daily. Have the following feeds: Bran, shorts, gluten feed, cotton seed meal, corn meal and oil meal and plenty of clover hay. I have no Babcock tester, but the milk from this cow tests 23% cream. B. C. S.

Palmyra, Mo.

This "cream test" is one of the most misleading things ever suggested to dairymen, except for comparing one cow with another when all the conditions are identical. If a tube of freshly drawn, warm milk is set in ice water, it will apparently show more cream at the end of six hours than when twelve or twenty-four hours have elapsed. Cream is simply a mixture in varying proportions of "skim milk" and "butter fat." The fat being of less specific gravity will continue to rise nearer and nearer to the surface and the milk serum, or skim milk, obeying the same law of gravitation, will tend to leave the upper levels. Thus the line of demarkation between the cream and the skim milk will tend to rise until the cream becomes so thick that the imprisoned serum cannot escape.

There is also a variance in the milk of different cows and of the same cow at different periods in lactation, in the readiness with which the cream will rise, by reason of difference in viscosity and the size of the fat globules.

We suggest the following daily allowance of feed:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay.....	16.94	1.24	7.16	.34
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. gluten feed.....	1.84	.41	.97	.06
2 lbs. corn meal.....	1.78	.16	1.33	.09
Totals.....	24.08	2.31	11.00	.61

In addition feed some corn stover or straw or more hay, if it will be eaten.

AN INDIANA RATION DISCUSSED.

Have six grade Jerseys (four fresh and two strippers) weighing 800 to 1,000 pounds. Ship butter to Cincinnati and receive 18 cents a pound throughout the year. Please suggest a balanced ration from clover hay and corn fodder (which we cut half and half in cutting box), bran at $15, cotton seed meal at $18 and corn of our own raising which we grind at home, cob and grain together. Also would it pay me to get a separator for eight cows next fall? M. B.

Delaware, Ind.

This inquirer reports that he is feeding at present four gallons of corn and cob meal and bran and two pints of cotton seed meal, but whether to one cow or the six is not stated. As this amount of feed would weigh nearly eighteen pounds, we incline to the opinion that it is the total allowance for all the cows. If this is the case, the amount is as much too small as it would be too large for one cow.

A fair ration (see glossary at head of this department) for the fresh cows would be four pounds of bran, four pounds corn and cob meal, two pounds cotton seed meal, and all the clover hay and stover they will eat. The "strippers" should receive less, and in proportion to the amount of milk they yield. Such a ration would tabulate about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay	10.16	.82	4.30	.20
10 lbs. corn stover....	5.95	.17	3.24	.07
4 lbs. corn and cob meal.....	3.56	.26	2.52	.14
4 lbs. bran.....	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.84	.74	.34	.24
Tota's.....	25.03	2.49	11.94	.77

It is probable that most of the cows will require less hay than specified above, and in all cases no more should be placed before any cow than she will clean up with relish. It is folly to waste good fodder, by allowing cows to "nose over" what they do not care to eat.

Give a little salt every day, or better yet, with every feed. Salt is not only an appetizer, but an aid to digestion and assimilation.

We consider a herd of eight cows as constituting about the dividing line between the gravity and separator systems of creaming. Unless the facilities for gravity creaming are of the best, we think a separator would be a profitable investment.

SILO QUESTIONS.

Which keeps silage the best, stone or wood? Silo to be round, 30 feet deep, with 6 feet below surface, what diameter for 50 cows with room for increase and some silage for summer feeding? Are round stone silos satisfactory? What distance should I build from barn to fill from barn floor 16 feet of silo being below cutting box and 14 feet above?

Purcellville, Va. H. P.

Fifty cows for 180 days will require 175 tons of silage. This will require a silo 30 feet deep 20 feet in diameter. If you intend to feed in the summer it would be better to build two smaller silos 30×16 feet each.

The closer you build to the barn the better. Otherwise there is too much work in handling the silage for feeding.

If a stone silo can be made air and water tight, there is no difficulty in having the silage keep. The early objection to stone silos was, it now seems, due to the stone being porous and admitting the air, which caused the silage to spoil. If the inside of the silo is given a smooth coat of cement, the air is prevented from entering and the silage keeps well.

FOR COWS IN FULL FLOW OF MILK.

Will you please balance me a ration. The feeds I can get are, wheat bran, gluten feed, chopped feed, Quaker dairy feed and clover hay. If there are any that ought to be added, or left out, let me know. I have been feeding 20 pounds clover hay, 5 pounds chopped feed, 4 pounds bran, 1 pound oil meal. Do you think it would pay to add some other concentrated food, like gluten meal, Quaker dairy feed?

My cows are grade Jerseys, and weigh 1,000 pounds, and in full flow of milk.

Jacksonville, Ill. L. L.

The ration as now fed tabulates as follows:

	Dry Matter.	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay...	16.94	1 34	7.16	.34
5 lbs. (corn) chop....	4.45	.40	3.33	.22
4 lbs. bran.....	3.52	.50	1.54	.12
1 lb oil meal.....	.91	.29	.33	.07
Totals.....	25.82	2.53	12.36	.75

We cannot suggest any improvement upon this ration, as an average for a herd, from the standpoint of productiveness, if the "chopped feed" is ground corn, or oats and corn ground together. If it is something else, as, for instance, a mixture of corn and *oat hulls* from some mill where oat meal is made—as is very likely to be the case if it is a feed shipped in by some feed merchant—no one can tell what its feeding value is.

Whether equally good results could be obtained at less cost, by using some of the other feed stuffs named, cannot be determined without knowing the local prices.

We invite special attention to the expression "as an average for a herd." A herd of cows should not be fed a uniform ration, because it is impossible to gather a number of cows together that have a *uniform* dairy capacity. It is manifest that a cow which yields only one pound of butter per day, requires less material to make that butter from, than when she yields one and one-half or two pounds per day, just as the horse at moderate work requires less feed than when at heavy work. In other words, cows should be fed with due regard to the returns and use they individually make of the feed given them.

It would be very strange indeed, if some of the cows in L. L's. herd would not do fully as well if the grain allowance was reduced from two to four pounds; and it would be equally strange if some of them could not profitably use more feed.

The report of the Storr's College Herd, which we publish this week, fully illustrates and confirms this statement.

RICHNESS OF CREAM AND THE SEPARATOR.

Can a separator be so gauged that only a certain per cent of cream is allowed to remain in the milk, thus enabling a dairyman to send out a uniform milk, and still be able to deliver cream too? Unless the milk from all the cows can be mixed (which is impossible if there are many) then some customers would receive richer milk than others.

If the separators can be so gauged to do the work, then the difficulty would be overcome. M. H.

Louisville, Ky.

It is very doubtful whether the separator could be depended on to do the work in the manner you wish without costing more than it would come to. Your circumstances may be different from other milkmen, and thus prevent you from mixing and blending your milk; otherwise we can see no possible objection to the use of a suitable milk vat for receiving the milk from all the cows and then adjusting the per cent by means of the separator—a, by no means, difficult task.

BITTER MILK.

I would like you to tell me the cause of milk getting bitter in the winter, when the cows are young and healthy, and are fed on clover hay, corn meal, middlings, cotton seed meal and have plenty of salt twice a day. C.

Louisville, Ky.

Bitter milk is caused by too long keeping at a low temperature. It is frequently noticed in winter, when advantage is taken of the cold weather to keep milk or cream for a number of days. If the milk is kept below 40° but not frozen, the low temperature prevents the growth of the lactic acid ferments, but not that of the bitter producing species. It is often observed in cooked milk. In summer, bitter milk may be caused by the food, more especially certain weeds.

VARIATION IN PER CENT OF FAT UNDER THE SAME CONDITIONS.

Why is it that in different barns on my farm, where we have the same type of cows, that are fed on the identical same food, that at one the milk tests from 4 to 4.10 and 4.20%, while at the other it runs 3.60 to 3.80%.

I repeat that the cows are as near alike as could be possible as to grade and type, and the food is of the same ingredients; one foreman, however, feeding quite wet, while the other rather only damp than very wet, but his cows being allowed to get all the water they want; and I think we can say that the one who feeds wettest produces the most milk, his, of course, being the lower test. And I would want to know whether all this affects the butter fat. M. B.

St. Louis.

Individual cows vary widely in the composition of their milk. This is especially shown in the per cent of fat. No two cows will give the same amount of milk and per cent of fat, even when the food, water, keep, and type of cow are the same.

So long as each animal receives all the water they require—and that is a large amount when in full flow of milk—wetting the feed is only an increase of labor. The cow has time and facilities for wetting the feed herself.

The amount of water used, under conditions, given by you, will not affect the butter fat. That depends on the individual cow, period of lactation, etc.

MINNESOTA QUERIES.

Why is not separator cream good whipped cream? Do I skim it too thick or too thin, or what is the cause?

Would you advise me to build a silo, or would it be just as good to cut the fodder and feed it dry or steam it? I am thinking

of getting a power to do my work with. If I get a steam engine, after the feed is cut, I could steam it from the engine. One of my neighbors, who is the best butter maker in the country, his cows seventeen in number, averaged 342 pounds of butter apiece last year. He had a silo and tore it out, cuts his fodder and feeds it dry. He claims that it is less work and just as good as a silo.

I am now feeding good red top and blue joint hay, ground barley and oats with some bran and a little oil meal. Would you feed oil meal to all the stock when they are fed on wild hay? (MRS.) J. D. H.

Hugo, Minn.

Separator cream should whip as well as cream raised by any other methed, if the temperature and per cent of fat are right. It should contain 20% of fat and be whipped at low temperature.

Build a silo by all means. There is less loss of feed, less labor required and more economy than in handling and feeding dry fodder.

Your neighbor's experience is contrary to that of hundreds of dairymen who have silos. He certainly cannot feed dry corn fodder without more labor and a greater loss of food than in a well made and filled silo.

Oil meal is always in order, but present prices are almost prohibitory. If you had silage or roots, or anything that would keep the bowels in good order, you would not need the oil meal, although it would still be a good feed.

COW PEA SILAGE—BANK BARN.

I made a small silo last year. It was only 10×10 and made of 2×4, stave fashion. Put on building paper, then lined with tin. Put my cow peas into it and had fine feed as as long as that lasted. I want to build a large one this year and fill both of them this fall. I want to plant some kafir corn this spring. Have not tried any of that yet for silage. I see by your paper that it makes good silage.

What do you think of a bank barn. I am thinking of building one this summer. Have a good place for one and would like to hear from some one in regard to that kind of a barn. J. W. K.

Ind.

It is expensive and quite unnecessary to line a silo with tin.

A bank barn is all right if sufficient provisions are made for light and ventilation.

CARROTS VS. BEETS.

I have been informed that large yellow carrots are better than beets for milch cows. Did you ever feed them, and would you try them? E. C. H.

Cresco, N. Y.

Carrots have a slightly better feeding value than mangels, but there is but little difference between them. They are too watery to be fed as the bulk of the ration, but are useful as appetizer and succulent food.

QUANTITY OF SEED OATS PER ACRE.

Have you ever tried light and heavy seeding of oats? For irrigation I sowed 30 pounds of wheat per acre and raised as high as 32 bushels, machine measure, but as I am a sort of a tenderfoot in this country would like to know about amount of oats to sow with drill—not broadcast.

Have raised nearly 70 bushels of oats with less than a bushel of seed in Colorado.

Ills. F. S. Cook.

The usual custom in this part of the country is to sow from 2½ to 3 bushels of oats per acre. Doubtless less would answer in some seasons. When one changes locations he can seldom do better than to follow the custom of his new neighbors in matters of this kind for his general crop, and experimenting in a small way with decided departures therefrom.

A MEXICAN FEEDING PROBLEM.

Mr. J. R. Arroyo writes us from San Louis Potosi requesting a formula for ration from corn stover, wheat bran, corn, cotton seed meal, brewers' grains (wet), corn bran, (wet from starch factory), barley straw and barley. He writes in Spanish and adds something about alfalfa and selling good milk. We are sure he could have made his meaning quite clear to us if he had attempted to write in English even if his construction had not been entirely correct. We appeal to him to try English next time, with the assurance that we have had too much experience with other nationalities in attempts to master the intricacies and difficulties of our language to take note of the mistakes.

There is no objection to feeding either the wet grains or the wet starch feed, so long as it is fresh and sweet. But these kinds of feed should always be stored in perfectly water tight boxes or casks and fed from water tight buckets. Otherwise the drainage on the floors or in the mangers will afford the best of material for the propagation of bacteria, which may in this way injure the milk. The prejudice and objection to these feeds come more from these external sources of contamination than from their internal effect when eaten by the cow.

We do not know that there is any particular choice between the brewers' grains and the starch feed, and presume they might be interchanged without occasioning any disturbance and we therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. stover	5.95	.17	3.24	.07
10 lbs. barley straw	8.58	.07	4.12	06
20 lbs. brewers' grain	4.86	.78	1.86	.28
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. corn	1.78	.16	1.33	.09
2 lbs. cotton seed meal	1 84	.74	.34	.24
Totals	26.53	2.42	12.43	.86

It is doubtful if all the cows will eat the full amount of stover and straw above specified and this is not material. Give each cow what she will eat.

COW PEAS.

I have seen considerable in your paper about cow peas. They seen to be unknown here. (1) How are they different from common Canadian peas?

(2) What kind of soil do they require?

(3) Where can they be obtained, and what price per bushel?

(4) How much seed per acre and when best sown?

(5) Is it best to sow alone, or with oats? Michigan. A. J. H.

The "cow pea" is in fact not a pea at all, but a bean, and very susceptible to injury by frost. It is as yet a semi-tropical plant and of doubtful availability in the climate of Michigan and Wisconsin. It is probable that early maturing varieties will be developed in the near future. Indeed, such are advertised now, but we hesitate to advise sowing any considerable areas to the cow pea north of central Illinois. Any of the large seed houses, like Ferry, of Detroit, or Dickinson in Chicago, would furnish seed. Correspond with them for prices and amount of seed per acre.

OATS AND PEAS FOR SILAGE.

Will you please inform me in regard to siloing oats and peas (Canadian field peas) equal parts of each. Can it be done successfully? If so, what is its feeding value, and can it be fed to any advantage with corn silage, (say one feed of each a day) and other food to form a balanced ration?

Mecklenburg, N. Y. L. C.

Oats and peas make excellent silage, but to feed this in alternation with corn silage would require two silos, and thus expose twice as much surface. One must, therefore, have very small silos, or quite large herds, in order to prevent waste from decay. We are of the opinion that the better plan would be to make hay of the oats and peas and feed this in connection with the corn silage.

Silage from oats and peas contains about 25% more digestible protein than does corn silage, but less carbohydrates and fat.

BUTTER IS TOO HARD.

I am making butter that appears to me (and customers) all that could be desired, excepting one thing. It is so hard that it cannot be spread even after standing all day in a room at 70° F. temperature. It is more like tallow in texture. H.

Peekskill, N. Y.

We suspect the trouble is largely, if not altogether, with the feed. Corn and cotton seed meal have a tendency towards producing the condition stated. We have a dim sort of a recollection, too, of having suggested a ration formula for this inquirer, and it may be that our advice has led him onto this shoal. If he has silage or roots, it would seem as though either ought to obviate this trouble. If not, he must try some of the glutens or linseed oil meal. There is, of course, great difference in cows in this respect, but, as a rule, the tendency to over hard butter can be obviated by proper feeding.

DAIRY FEEDING IN OKLAHOMA.

I write to you to try and find out something about feed for milk cows. We (or most of us) have had no experience in getting much out of our milk. We cannot raise tame grass here. Would like to know what you think of sowed kafir corn and sowed cane and millet, for feed for milch cows? Some say to cook corn and such feed and to make mush. We are milking six cows and take the milk to our creamery.

Stillwater, Okl. T. F. P.

Try alfalfa and cow peas. There is no reason why both of these crops should not do well in Oklahoma, unless it is by the absence of nitrifying bacteria in the soil. If they are absent, send to Kansas for a few hundred pounds of soil from a vigorous alfalfa field and scatter this on four or five acres of Oklahoma land. Alfalfa hay and ground kafir corn have been found to make an excellent ration for Kansas cows (as appears from a recent bulletin), thus confirming the opinion given in these columns two or three years ago.

Kafir corn or sorghum sowed broadcast, and cut and cured as hay, and early cut millet, make very good roughage for cows, but they require bran and cotton seed meal to be fed in connection, in order to get good results.

SPELZ.

I send you under separate cover, a package of what is called, by a German friend, "spelz". He is feeding a ration of 6 pounds ground spelz and 3 pounds bran, and claims it is just the thing. This grain yields some 45 to 50 bushels per acre—liable to lodge on rich land—and in order to thresh and hull well, should stand until very ripe. Sample sent was cut too green, and is shrunken.

Would like a report regarding it. Is it rich in protein, or other facts you may know. A. P. MCKINSTRY.

Minn.

We are unable to find any analysis of "spelz". Some of the cyclopedias and the Century Dictionary mention and describe it at length, as a sort of primitive wheat, much used for human food in ancient times. Its analysis probably would not differ very much from that of our wheat of to-day, and would contain about 10% of digestible protein.

We suggest that Mr. McKinstry get a fair

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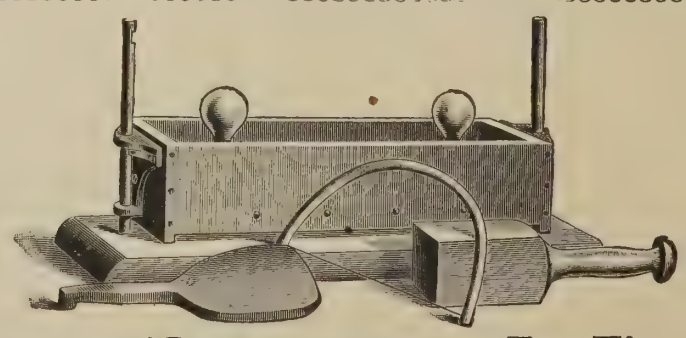


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RATION FOR A 60-POUND CALIFORNIA COW.

Please formulate a ration for me for a Holstein-Friesian cow giving seven gallons of milk. I am to feed for good milk, (rich in cream). Alfalfa hay $18 per ton; corn meal $23; heavy bran $23.

Such are prices, today, in this glorious land of sunshine. There can be no doubt about the sunshine part of it. It has been nothing else for two years now. We are deprived of rain. Out of about 150 retail dairymen, one year ago, there are still about half of us left. What will another year do with us? S. P.

Los Angeles, Cal.

Seven gallons of milk will weigh just about 60 pounds, and the cow that yields that much daily, must have generous feed. The formula we suggest below will cost nearly 28 cents per day, but this is only at the rate of 4 cents per gallon, or one cent per quart, and will leave a handsome margin for profit:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa hay....	18.32	2.20	7.92	.24
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. corn.....	3.56	.32	2.67	.17
Totals.....	25.40	3.02	12.13	.53

If experience proves that this does not suffice to maintain a maximum flow, increase the allowance of corn. Add a little salt to every feed, both as an appetizer and an aid to digestion.

The feed has so little permanent effect upon the *quality* of the milk, that this item is not any more taken into account. Feed for *quantity* and quality will take care of itself. We know there is a popular belief to the contrary, but the incontrovertible facts of hundreds of carefully conducted experiments fail to substantiate this belief. Any sudden change of feed is liable to vary the the per cent of fat for a short time, but as soon as the cow becomes well accustomed to the change, the milk returns to its normal qualities—unless, indeed, the cow is kept in a condition of high fever.

HERE'S A PROBLEM!

I am a Short-horn dairyman, breeding pure bred Short-horns for stock purposes with some grade cows yet on hand. The pure bred calves, either sex, sell readily at six to eight months old at from $75 to $125, and the grades at one year old, at from $28 to $35 for steers. I am marketing from 125 to 150 pounds of butter per week in a town fifteen miles distant, at a very good price, about half at twenty cents and balance at twenty-five cents on yearly contracts to hotel and private families. I am not able to supply the demand for this butter and want more cows.

Now I am a young man of only ten years of experience in breeding and don't think it best to divide interests too much, but it seems that here is a profitable division or rather combination of beef and butter.

Now for the problem. I could just as well keep twenty more cows, as I have the feed and the help, but what shall I buy, grade Short-horns or Jerseys? Pure breds of either breed seem too high priced for me to buy just at present. What is your advice?

Iowa. F.

With the prices for calves mentioned above, it seems to us that one might well devote himself exclusively to raising those pure bred Short-horns, even though the dams may be high priced.

Of course it is uncertain how long these prices will continue and it may be wise to cast an anchor to windward so that when beef declines and dairy products increase in price, one may not be left on the sand by the receding tide. To that end, if we were going into the dairy business at all, we we would get and breed and keep dairy cows.

Study the report we print this week of the Storrs College herd, and note that at least two of the cows did not produce butter enough to pay for the feed they consumed, whereas others made profits up to $42.82. If one gets a cow that will produce a grade steer worth from $28 to $35, when twelve months old, he will be pretty sure to have an animal that will not otherwise pay for her feed, and the total profit will be the value of the calf at birth and the small amount she may contribute to its growth.

EFFECT OF FEED UPON NEXT PERIOD OF LACTATION.

I have a considerable number of grade cows, some of them I think very good, and some I intend to sell in the spring. All are served to come in from November to January. Now at present price of butter and with liberal flow of milk, the feed I buy for them costs more than I get for the butter. When price goes down and flow of milk lessens, of course there will be a worse showing. This leads up to a question: Will the good cows I keep be any worse for milk when they freshen again if I stop the concentrated grain foods until that time or near the time and devote the labor of my men to the crops?

Peekskill, N.Y. J. H.

Good cows never require more feed than they can pay for, except when dry, unless prices go much lower than we have any reason to expect. When a cow fails to turn her surplus feed, (by which we mean whatever she receives above that required for her bodily maintenance) into other than the milk channel, it is time to cut down on the grain part of the ration. If given plenty of coarse feed when not giving milk, or when giving only a small quantity, they will do very well without any grain until after freshening. In other words, the condition of the individual cow must determine the character and amount of her feed. A cow should not be permitted to become too poor or too fat.

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Teachableness as a Factor in Profitable Dairying.—A Young Kansan's Views.

ED. HOARD'S DAIRYMAN:—Enclosed please find one dollar to cover subscription for another year.

I was born and raised on a farm (a dual-purpose farm at that,) and I became so thoroughly disgusted with farming that, at the age of sixteen I learned to be a telegraph operator, and decided to make that my life work. After working at that several years, I came to the conclusion that there were other methods of farming, besides the way I had been taught, so I left the railroad and came back to the farm, got married and started in with one cow. Have been farming three years, and now have fifteen cows, besides some calves. My herd is a mixed herd, but the best I could get in a beef country. I intend getting a pure bred dairy bull and grade up.

I have been a subscriber for one year and can truly say, that I have learned many things from your paper.

I think I have received more benefit from that one dollar than any other dollar I ever invested. It has taught me to increase my herd, to weed out poor cows, and replace with good ones, to utilize my skim milk, to feed a balanced ration, to raise crops that will produce a balanced ration, to re-build my barns and sheds, to know a dairy cow at sight, how to raise a dairy cow. In fact, your paper has awakened an interest for the dairy business in me, to such an extent, that I have invested in a quarter section of land and a Baby No. 2 De Laval separator. It is my intention to make a model, up-to-date dairy farm here right in the midst of a hundred and one beef farmers, and show some of the old fogies that it does "pay."

I have become so interested in my work, I am as happy as a school boy coasting on the hillside, where a few years ago I looked on farming, as do a great many now, as a dog's life with nothing but hard work from dawn till dark, year in and year out, struggling with might and main for a mere existence, and almost wishing death would come to put me out of misery. No wonder the boys leave the old farm. Education is needed more there, at the present, than anywhere else.

We have one of the most prosperous creameries in our town, of any in the state, having two skimming stations and running two separators in the creamery proper, but I cannot say that all the patrons are prosperous. I fear that if an investigation were made, it would reveal a state of affairs similar to that at Meriden, Kansas, yet you cannot get one person to subscribe for a good dairy paper. "Oh no, expenses too high already." No use to tell such men that they can just as well have $80 from a cow, in a year, as $8. They won't believe "it can be done." They want to "raise calves."

One thing I have noticed in particular, of late, and that is, that scarcely a day goes by without some creamery patron, probably twice my age (for I am several years on the sunnyside of thirty yet) comes to me with questions bearing on the dairy business. In fact, I have become local authority on the dairy business, nearly all of which I have learned from "HOARD'S DAIRYMAN."

But Mr. Editor, if this is not too long now, I want to ask one question, and then I'm through. Why do some dairymen milk heifers with first calf longer than they do old cows. M. L. DICKSON.

Edgerton, Kan.

The first period of lactation is lengthened in order to help establish the habit in the heifers of holding out in milk. If the heifer's first milking period is limited to eight or nine months, she will be liable ever after to "go dry" at about that time.

How Long Should a Good Bull be Kept?

ED. HOARD'S DAIRYMAN:—To what extent, or how long is it advisable to use a sire of one distinct strain at the head of a dairy herd; for instance, the sons of great sires, as Exile and others of fame? Would it be better to branch off on a distinct family every four or five years? Why would not wide diversions tend toward better constitutions? D. H. W.

Kummoor, Pa.

The famous Jersey bull, Ike Felch, was kept until he was thirteen years old. The editor of this paper bought one of his last daughters, Queen Felch, when a calf five months old. She proved to be the finest cow, in many respects, we ever owned. Her descendants all partake of the wonderful potency of the old bull. We have no such horror of inbreeding as many evince. In a registered herd, we would keep a bull until he had shown in his daughters his quality or potentiality of breeding. Then if he proved what we wanted, we would breed him to all of his daughters that showed strength of constitution. When his granddaughters came to breeding age, we would select a sire for them of the same family as their father, but removed a generation or two, thus keeping our breeding in line. We would still retain the original bull as long as he proved useful, breeding him to his daughters as before stated, but not to his granddaughters. The final effect of such a policy is to intensify and increase in the females the power and potency of the blood of the sire. Then when it comes to unite with that of another bull in the same line, we have, as a rule, a stronger answer in dairy quality, and no loss in dairy constitution and power.

In a business herd of natives, with a registered sire at the head, we would by all means pursue the same plan. In this way we greatly increase the percentage of heifer calves that make good, profitable cows.

A three-fourths in-bred heifer, carrying in her a double portion of the blood of her sire, will respond in type and form and performance, when bred to a sire of the same breed, nearly as close as a registered heifer.

We should understand that in dairy qualities, as in speed qualities in race horses, there is a constant need of concentration. The natural trend is variation and diffusion. This we must guard against.

One thing is absolutely essential, use no sire in the way we have indicated that has not proved himself the getter of cows of high dairy power.

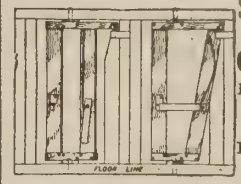


The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,
W. H. YOUNG,
Box 135, Aurora, Ill.

BABCOCK Milk Testers.

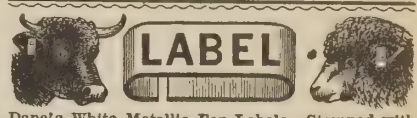
Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. J. J. ANGUS, Plymouth, Wis.



Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.
B. C. SCOTT,
83 Beach Street,
Bridgeport, Conn.



Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.
C. H. DANA, 55 Main Street, WEST LEBANON, N. H.

Binder Twine

Our famous "Blue Label Brand." Prices and samples ready April 20th. Write now and we will send when ready: Prices will be lower than you think. We deliver from Chicago Omaha or St. Paul, as desired. MONTGOMERY WARD & CO., CHICAGO.

BUY "DIRECT FROM FACTORY" BEST MIXED PAINTS

At WHOLESALE PRICES, delivered FREE For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

1899 Bicycle for One Dollar.

We will send our highest grade gents' or ladies' 1899 Acme King Bicycle to any address on easy conditions for only $1.00—the conditions include the distributing of 1,000 small circulars, which you can do in three hours. Send no money. For full particulars how to get our best bicycle for $1.00 and a few hours work, cut this notice out and mail to us.
SEARS, ROEBUCK & Co., Cycle Dept., Chicago.

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

L. A. BAKER,
Care of Manufacturers Bank,
New Richmond, Wis.

DAIRY FOR SALE.

On account of failing health, the undersigned offers for sale, at a bargain,

- - MEADOW FARM DAIRY, - -

Located within one mile of the post-office, city of Stevens Point, Wis., containing 300 acres of land; 200 acres under cultivation, balance first-class farming land and pasture. This dairy is well established, having been in full operation for over twenty years; 35 cows are now milked, from which $9 00 worth of milk is sold daily. The number of cows and the receipts from the sale of milk and cream can be easily doubled. Every quart of milk and cream produced is sold right at the door; the milk at three cents and the cream at fifteen cents; all sold to one man. This farm is under a high state of cultivation; 20 acres is now seeded to clover, and 40 acres to timothy. The buildings are all in good condition, having been built since 1892. A new silo was built during the past season. This entire property, including the necessary machinery for carrying on the place, 5 horses, 6 head of young stock, full blooded Jersey bull, wagons, tools, etc, is offered for sale on reasonable terms. The best of reasons for selling. Here is a great opening for the right man. Address
GEO. E. OSTER, Stevens Point, Wis.

WATCH AND CHAIN FOR ONE DAY'S WORK.



Boys and Girls can get a Nickel-Plated Watch also a Chain and Charm for selling 11-2 dozen Packages of Bluine at 10 cents each. Send your full address by return mail and we will forward the Bluine post-paid, and a large Premium List. No money required.
BLUINE CO. Box 358 Concord Junction, Mass.

A Question of the Cost of Production.

ED. HOARD'S DAIRYMAN:—The selling price for our products is controlled by the great world's market—the amount of goods produced, and the number of consumers of that line of goods, largely determining the selling price of that line of products. Prof. Bailey says: "The world's products bring the world's price. The special market fruit grower generally works on a small base. The world's market fruit grower works on a large base." The same holds true of all producers of standard products.

The cost of production is the only factor that lies largely in our control. It is all very nice and plausible to say, there is always room at the top; but it goes without saying, that we cannot all be president, or that the privates cannot all be major-generals. No, it is the great rank and file that need consideration and help.

We are often told if we produce the finest goods, we can get the cream of the trade, and make our own prices, but here is where the base is very limited—the cream of the trade is very limited. The great, great majority of farmers must furnish food products for that great world's army, the laboring people, the workers in the factories, mines, transportation lines, etc., etc.

A few, select few, may have the opportunity to sell to the millionaires, but he cuts no figure in the making of ruling prices, and we must learn to produce our line of products, be it milk or butter, grain, fruit or vegetables, at such a price as the ordinary laborer, the great body of consumers, can afford to pay. We must remember that the labor market is over supplied, and, as a consequence, wages are low, and the laborer cannot afford to pay us the prices he could some years ago, when wages were 50% higher.

Dollar wheat would be a great blessing to us, but it certainly would be the reverse to the great army of laborers of the country. We, of course, all desire better markets and better prices, but under present conditions it will be wisest for us to try to adjust ouselves to the existing conditions, try to produce milk, butter, eggs, grains, meats, etc., at such a price as the men who dig our coal and iron ore, and manufacture our implements, and print our books and papers, can afford to pay.

I do not advocate that we should debase ourselves or make slaves of ourselves, but that we should become masters of our vocation. We must call to our aid modern scientific discoveries, along our various lines of work.

The scientific findings along the line of stock feeding, the same doctrine that HOARD'S DAIRYMAN has been preaching so eloquently week in and week out for years, if carefully studied, and the knowledge intelligently applied, will enable us to reduce the cost of producing our milk, butter and beef, that we can sell at ruling market prices, and still have a fair profit.

If we study the soil, plants and plant food, we will learn that we are very wasteful of our resources, though unintentionally, very often. Often we purchase fertilizer that is not needed, and again omit what is needed; our land may have fertility enough, but not be in the right mechanical or physical condition. There may be plenty of mineral plant food, but the soil be lacking humus and nitrogen, but happily, during the last score of years, discoveries have been made by which we, whenever we so desire, can draw on the nitrogen of the atmosphere, and store it in the soil for the use of future crops, by the use of leguminous crops, as clover, peas, etc.

This knowledge and these discoveries all help us to produce crops cheaper, so as to meet the exigences of the times. It behooves us to diligently study along these lines, not only for our own sake, but for humanity's sake as well. L. W. LIGHTY.

Adams Co., Pa.

Dual Purpose Cows.

ED. HOARD'S DAIRYMAN:—At the risk of being called the "son of the devil" by Prof. Shaw, I will undertake to once more attack his dual-purpose theories, as embodied in his paper No. II, in second issue of Feb. 24th, last. Inferior milk and inferior beef animals can never be satisfactory to a progressive man, and a dual-purpose animal can never be any other, as is so thoroughly proven in that article.

To a breeder selecting animals everlastingly to be beaten in the show yard, and never to make a record over the pail, a dismal prospect opens up, and very few will face the music—knowingly. I reiterate my former contention, which I have since learned is very successfully practiced in Scotland, viz: Breed all cows, not required to keep up the strength of the dairy herd, to the best block of a beef bull obtainable, and in nine times out of ten you will score many points against the little beef and little milk producer.

In talking of averages of production, the professor possibly speaks of those in the college herd; but he knows that outside of that the tale is a different one; and he knows, moreover, that the general-purpose cow breeders, i e, the more ignorant and strongly prejudiced of the farming fraternity, seldom attain the figures he mentions for an average, with their herds. They are the men who judge a beef sire by the shape of his horns, and praise the cow that gives three parts of a pail (! !) night and morning, and judge of her butter fat by the color of her ear. But listen! The love so charmingly expressed for the dual-purpose is really a fear of the intelligent dairy farmer and his "Calamity Jane" with the screw end of the hogshead of butter.

See the dreadful prospect: A June morning, and the earth white as winter, but not with snow. What then? Ah, it is milk from that entering wedge shape, screw-ended, never letting up night mare of a single-purpose cow, flooding the entire country. But, to be serious, could a man write more foolishly than to say, that it would be a dire calamity to humanity, if milk were as plentiful as it should be? Look around, Mr. Editor; go into the dwellings of the average workman today and see whether there is any danger of a milk deluge. Have the children of our poor—the poor themselves—no consideration in the eyes of this champion of the go between? I dare to say that if every citizen of the United States had all the milk and dairy produce required for his or her well being, every cow, in all this vast country, put to her best, could not begin to supply the demand.

Politics engage our attention now, but as soon as we turn our eyes and mind from them, and apply ourselves only to the fruitful consideration of economics and ethics, we shall not only deal death blows to the profit mongers who now sell soap grease and glucose for butter, but we shall learn to see that the value of milk as a food, lies not so much in its ether extract, as in its well balanced entirety. From the milk itself, pure foods, such as Gruyére cheese and soft curd cheese will be made, and our brothers and sisters of low degree will eat with their brothers and sisters of high degree, neither low priced abominations nor high priced trash; but a food that will build up a well balanced physique fit to encompass a well balanced mind. That day is coming rapidly, and when dairymen will ultimately possess, i e., legitimately and systematically make use of the arable farms of this country, then rosy cheeks and bright smiles will cheer us on every hand, and the drones of our highways, without means of subsistence, and those in our palaces with a surplus of them, will no longer be a menace to public safety and prosperity.

That such a diet will cure all indigestion and dyspepsia, follows as a matter of course, and dreams of grandad's cows in the past, and deluges of milk in the future, will not trouble the leisure moments of either professors or students, but healthful labor and truthful views on all questions will unite all in the brotherhood so long and oft foretold so speedily to eventuate, and yet so inpracticable while the selfish interests of one set of men are in diametrical opposition to those of others. DANIEL F. BOISSEVAIN.

Ruskin, B. C.

BROWN'S Bronchial Troches
(Made only by John I. Brown & Son, Boston.)
give instant relief in
Hoarseness

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

Consumers Demand It.

The protest that is going up all over this country at the adulteration of foods, is having a marked effect. It is generally known that much of the butter on the market is colored with a coal tar color—a poison. People having learned how to tell it, and they will not use th s butter in many instances. If you want to know how to tell it, then write us. We charge nothing for the information.

THATCHER'S ORANGE BUTTER COLOR

Is made entirely from vegetable substances. It gives the butter a delicate June tint. It is free from any deleterious substances, and is a

- - PURE, HEALTHFUL COLOR. - -

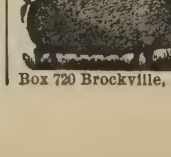
It is used by the best butter makers in the country. Send for a sample and also for circulars.

THATCHER MANUFACTURING CO., - Potsdam, N. Y

WHAT DO YOU CARE



where your vehicle or harness comes from **SO LONG AS YOU GET THE BEST VALUE FOR YOUR MONEY?** If you want a really good buggy—the kind that is built of good material throughout; best white poplar body, free from cracks and checks; gears of best air-seasoned, second growth hickory, 3 years old; all iron work of toughest Norway iron; top-machine buffed leather quarters; trimmed in heavy broad cloth; primed, filled, painted and then rubbed down and re-painted until it has had 16 coats; any color and striping you desire and hung on Eliptic, Jackson or Brewster Springs—the easy swinging kind, not the stiff, jolting kind. **If you want such a buggy we can sell it to you for $44.10 and Guarantee it for Five Years.** It is in every way the equal of buggies sold for $75. We ship it to you subject to your entire approval. **YOU TAKE NO RISK.** If you find it exactly as represented you send us the price asked. If not, you return it at our expense. Could anything be more fair!



Hand Made Harness Leaders
We lead all **IN QUALITY AND PRICE** on first quality hand made harness. Look at **this one $9.65.** All oak tanned leather, all hand stitched. We have good buggy harnesses as low as $8.95. Double buggy harness $14.40. Farm and team harness $17.50. Don't buy any of these things until you get a **FREE** copy of our **Vehicle and Harness Catalogue.**

We can sell you an unequaled Phaeton for - $53.35
An excellent Canopy-Top Surrey for $48.50 to $64.80
The best Platform SpringWagon you ever saw $39.80

MARVIN SMITH CO., 55-57-59 N. Jefferson St., C-18 Chicago, Ills.

DID YOU

Ever walk behind a plow all day and toward evening experience that soreness of arm and shoulder because you had a plow that persisted in winging over? If you want to know what will cure **the plow,** drop us a postal card. The heel plate will do it; it weighs but 8 ounces, but it's a wonder worker.

MORRISON MFG. CO., Ft. Madison, Iowa.

Farmers' Knives Free! To Buyers of our Garden Seeds. A test of our Northern Grown Seeds will at once convince you there are no better grown and we therefore make the following unheard of offer to the readers of this paper.

37 Packets fresh garden seeds and knife No. 7sb, all for 77cts. postpaid or 37 packages fresh garden seeds and knife No 77sb, all for 97 cts postpaid. Cut out this advertisement and send us 77cts. if you want knife No. 7sb, or 97cts. if you want knife No. 77sb, and the following grand collection of THE BEST VEGETABLE SEEDS, (retail price is over $1.75) and we will send the entire 37 packets and the knife FREE, all postpaid.

No. 7 SB. 1 pkg. Gem Peas, 1 pkg. Eclipse Blood Turnip Beet, 1 pkg, Dwarf Wax Beans, 2 pkgs, Early June Peas, 1 pkg String Beans, 1 pkg, Yellow Danvers flat Onion, 1 pkg. Kobbs Gem Watermelon, 1 pkg. Ox Heart Carrots, 1 pkg. Large Early York Cabbage, 1 pkg. Marble Mammoth Drumhead Cabbage, 1 pkg. Long Green Cucumber, 1 pkg. Danvers half long Carrots; 1 pkg. Green Citron Muskmelon, 1 No. 77SB. pkg. Perfection Tomato, 1 pkg. Trophy Tomato, 1 pkg. Rutabaga, 1 pkg. Big Boston Lettuce, 2 pkgs Purple Top Turnip, 1 pkg. Hollow Crown Parsnips, 1 pkg. long Scarlet Radish, 1 pks. Double Curled Parsley, 1 pkg, Celery, 1 pkg. Thyme, 1 pkg. French Breakfast Radish, 1 pkg. Summer Crookneck Squash, 1 pkg. Curled Simpson Lettuce, 1 pkg Eearly flat Dutch Turnip, 1 pkg. Scarlet Turnip Radish, 1 pkg. Denver Market Lettuce, 1 pkg. Early Russian Cucumbers, 1 pkg. Cutham King Cabbage, 1 pkg. Sweet Pumpkin, 2 pkg Early Minnesota Corn, 1 pkg Red Globe Onion



KNIFE FREE.

At 77 cents the No. 7sb, 4-blade Congress buck horn handle, best steel warranted knife will be sent FREE.

The No. 77sb, knife is just what every farmer should have. Extra weight, finely polished ends, three heavy steel blades, including hoof blade. We give it FREE to every person ordering the above collection at 97cts. through this advertisement, or we will furnish the 37 fresh packets of garden seeds to anyone postpaid for 97cts—no better seeds grown or sold at any price. This collectioncannot be broken or any variation made.

SPECIAL In order to test this paper as an advertising medium, to everyone who will enclose this advertisement with their order, we will send

20 PACKAGES VALUE $1 00 FREE!

making 57 packages of fresh garden seeds and the knife No. 7sb for 77 cents or knife No. 77sb and 57 packages for 97 cents. A remarkable offer.

T. M. Roberts' Supply House, Minneapolis, Minn.

Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

FOR SALE.

One of the best

CREAMERY PLANTS

In the Northwest. For full particulars address, **A. L. BRYANT,** Box 48, **Anoka, Minn.**

FOR SALE!

The farm of the late Oscar Hasbrouck, situated in Ulster Co., N. Y, on the Poughkeepsie Bridge R. R., 10 miles west of Poughkeepsie, containing 300 acres, 60 acres of which is heavy timber. It is well supplied with small spring brooks running through it, and has a fine wind mill for bringing water to the barns and house. The buildings cost over $20,000, and are all in fine condition. Fine modern house heated with hot air. This farm is under a high state of cultivation Wood lot alone is worth $5,000. This property is within one-half mile of depot, church, school and village. This farm is equipped with all farm machinery, tools, stock, etc. Must be sold to settle up the estate. For a gentleman's country seat and stock farm, this place has no superior. Possession giv n at once. For Price and particulars address one of the executors. **IRA H. HASBROUCK,**
Drawer 987, Kingston, N. Y.

ENSILAGE COMBINATION

A complete balanced feed for milch cows, without the addition of grain or other purchased feed. Composed of Corn and Early Soja-Beans; the latter (*the richest vegetable substance known*) supplies the protein and fat in which the corn is deficient. **Will save four-fifths of the feed bill.** No large dairy can be profitably operated without a silo, and every silo should be filled with two parts Corn to one part Early Soja-Beans. Details cannot be given here, but full particulars in Henderson's American Farmers' Manual, free on application to those who state where they saw this advertisement.

PETER HENDERSON & CO.
35 & 37 Cortlandt St., NEW YORK.

A Criticism.

Estimating Returns From a Dairy Herd.

ED. HOARD'S DAIRYMAN:—I have read with much interest your comments on "Low, Unprofitable Standards," in your last week's issue. The claim is there made that a man with "dairy" sense, on a 160 acre farm, can keep 30 cows in milk the year through, and that from those thirty cows he can have an income of $1,277.50 a year, counting the by-products at $400.

This claim I shall not dispute; it is fair, but presents only one side of the ledger. What I wish to show is that there is another side to the account, and with your permission, Mr. Editor, will here present both sides:

	Dr.	Cr.
By admitted credits from products and by-products.....		$1,277.50
To feed consumed at 10c per cow per day.....	$1,095.00	
To interest on capital invested in cows.....	60.00	
To labor of one man in feeding and milking.....	250.00	
	$1,405.00	

We charge only labor for one man, although you will readily admit that there would be work enough for two. In charging for feed, we hope you will allow us to use one of your many balanced rations, which you will concede to be absolutely necessary if we shall succeed in making the 30 cows give milk all the year through, and I think you will admit that even one of the cheapest rations will cost at least ten cents per day.

I have not charged anything for taxes, insurance, or accidental losses of a cow or two or a half a dozen calves, or for boarding the one man who is doing all this work for a little over $20 a month, because the sum was already too large to contemplate with satisfaction from the point of view of the farmer.

It may be that "lack of dairy intelligence produces just such results," but under the circumstances I should rather say that, "ignorance is bliss," especially as long as "intelligent" people are telling us that there is no remedy except in cheaper production.

"Intelligence" may be able to create a new species of cows, which will produce 50 cents worth of butter out of a ten cent ration, and whose capacity can be increased at will, like a threshing machine, but in the meantime we must be satisfied with the cow that God constructed.

I have been an almost constant reader of the DAIRYMAN for 6 or 7 years and will frankly admit that the theories advocated therein, at first struck me as very practical, and acting upon its ideas I went and bought a bull from one of the acknowledged dairy breeds, and to-day I have, I think, thirty females of all ages from that bull; some of them have already had 2 or 3 calves, and are old enough to show their capacities, but I regret to say that out of the whole lot I do not believe I will have one cow which will be capable of producing butter at a profit, at the prevailing conditions of the butter market for the last three years. If our patrons were going to kill off all the unprofitable cows, I am afraid that there would be no cows left. Any intelligent editor, even if he never handled a cow, ought to know that there is a limit to the natural capacity of all living things, including the cow. If you go beyond those limits an unnatural condition will begin to exist and will sooner or later assert itself through disease or degeneration.

C. AHLNESS.

Minn.

If Mr. Ahlness will refer again to the article he criticises, he will find it is not our writing, but a clipping from a Nebraska paper.

DAIRY MARKETS.

ELGIN, March 20 - Butter market active at 20c One thousand pounds sold at 20c, 800 pounds at 20½c, and 2,000 pounds at 21c.

CHICAGO Ill., Mch. 20—Butter—Creamery, extra, 19½@20c; firsts, creameries, 17@18c; seconds, 14@15c; dairies, selections, 17c; No. 1, 15@16c: No. 2, 12@12½c; extra ladles, 14c

Eggs—Fresh, at mark, cases included, sold at 12¼@12½c;

Cheese—Full cream, Twins, good to choice, 11½c; Cheddars, 10¾@11¼c; Young Americas, 12c; Swiss 10@13c; Limburger, 7@11c; Bricks, 9@12½c.

Cattle—Receipts were heavy, but the demand was very good and prices were generally steady. Some early sales showed a slight decline, while late transactions in some instances showed a little advance, compared with the close of last week. Exporters bought freely at $5 20@5.65. A load of 1,543-lb. straight Texas from the late Fort Worth fat-stock show sold at $6 and 6 loads at $5 30@5.50. The $6 cattle belonged to M. Lansom & Co and the $5.50 to A. Silberstein & Co. Native steers, averaging 843@1,630 lbs, sold at $4@5 75, bulk, $4.80@5 59; fed Westerns, $4 40@5.50; Missouri Texas, $4 20@4.90; native butcher stock, $2.25@4.85; calves, $4.50@6.75, and feeding cattle, $3.40@4.70.

To-day's receipts are estimated at 2,500 cattle, 23,000 hogs, and 17,000 sheep.

Bran—Firmer, with a sale of 1 car at $13 per ton.

MILWAUKEE Wis., March 20—Butter—Fancy Prints, per lb., 19½@20c; extras per lb, 19@20c; firsts, 18@19c; seconds, 16@17c: Imitations, 15@16c. Dairy—Selections, per lb, 15@17c. Roll Fair to choice, fresh, 11@13½c. Market strong under moderate arrivals which are quickly absorbed by the trade.

Cheese—American Full Cream—October Twins 11@12c; Brick, October, choice, 11@11½c; Winter made, 10½@11c; Limburger, Fall, choice, 9½@10c; Winter made, 9c. Swiss, Drum, choice, 12½@13c· Block, choice, 10@10½c

Eggs—Fresh, per doz, 12c.

NEW YORK, Mch. 20—Butter—Receipts 2,173 pkgs. steady; Western creamery 15@21c; Elgins, 21c; factory, 12¼@15c.

Cheese—Receipts, 2,877 pkgs; firm; large white 12c; small, 12½c; large colored, 12c; small colored 12½@12¾c.

Eggs—Receipts 11,747 pkgs; steady; Western 13c; Southern 12½c.

BOSTON, March 20 - Butter—Creamery, extra, 21c; western, extra 20½@21c; dairy, extra, 17@17½c; imitation creamery, 15@16c; western ladle, 14@14½c; print creamery, 21½@22c; box creamery, 21½c.

Eggs Fancy, near by, 15c; choice fresh, 14@14½c; Michigan extra, 14c; western, 13½c; fair to good, 10@10½c.

BALTIMORE, Md., March 20—Butter—Steady; fancy creamery, 21@22c.

Eggs—Firm; 12c.

Cheese—Firm, active.

ST. LOUIS, Mo, March 20—Butter—Steady; creamery, 17@22c; dairy 13@17c.

Eggs—Steady; 10¼c.

KANSAS CITY, Mo., March 20—Butter—Firm; creamery, 14@19c, dairy, 15c.

Eggs—Few carried over from last week and to-day's receipts moderate. Feeling firm, prices unhanged Hravier supplies are expected this week. Fresh Missouri and Kansas stock, in new cases, cases included, 11c; cases returned, 10½c.

NEW YORK MARKET.

NEW YORK, March 18 Butter—Receipts for the week, 32,717 packages. Exports for the week, 2,756 packages.

The phenomena of consolidation and co-operation and combination is no where more apparent or more interesting than is shown in the handling of Dairy products; to such an extent has this gone and to such proportions has it reached that the private dairy has become almost obsolete—even the Hon. Levi P. Morton, long looked up to as perhaps the leading development of high class private dairying, has withdrawn, and the dairymen of the state desire to say Good by to Mr. Morton with their hearty, best wishes for his future. On the other hand, the combination of milk in large dairy plants is accelerated and extended until the resultant effect upon this market here is getting to be an absence of private dairy receipts, and scarcely enough of private dairy butter is here to warrant quotations. Exporters have been buying a little fresh imitation creamery butter at 16@17c, some fine ladles at 14@15c. Fancy fresh creamery makes were cleared at 20c, and at the close is marked up to 21c. There is very little doing in early make butter and very little stock to do with, and the remnant is being peddled at from 13 to 16c, the price dwindling as the visible supply vanishes. We quote:

Creameries, extra, 21c; medium, 19@20c; poor, 15@17c; Dairies, extra, 20c, medium, 17@18c; poor, 13@16c.

Cheese—Receipts for the week, 15,956 boxes. Exports for the week 1,880 boxes. Not so much life to the market past week, but prices are unchanged and holders are indifferent, feeling that there is not more than enough stock to carry us into the new makes. We note sales of fancy small cheese to local trade at 12½@13c, large sizes, mostly white cheese, to out-of-town buyers at 11¾@12c, and one considerable line of summer make colored cheese changed hands on private terms. Winter make cheese selling from 1c@11c. We quote:

Full cream, small, extra, 12½@13c, medium, 11@12c, poor 8@10c; full cream, large, extra, 11¾@12c, medium, 11@11½c, poor, 8@10c; part skimmed, extra, 10@10½c, medium, 8@9c, poor, 6@7c.

Eggs—Receipts for the week, 92,092 cases. Plenty of eggs this week for every one; business was large and notwithstanding the immense receipts, prices dropped only one cent dozen on the week's business, and at the close free trading is going on at 13c for best marks eggs. We quote:

New York and Pennsylvania eggs 13@13½c per dozen; Western, northern Sec., 13c per dozen.

DAVID W. LEWIS & CO.

177, 179 Chambers St.

BALTIMORE MARKET.

BALTIMORE, MD., March 16—Butter—The absence of new features of general interest in this line of business seems, this week, to be the principal distinguishing fact, making it different from other like periods at this time of the year The receipts of separator creamery, as regards quantity, are about equal to the expectations, and they, in turn, measure up to the requirements, but they fall short of the flavor that buyers think they have grounds for exacting at this time, consequently, even the best grades are unsatisfactory and below extra firsts, or around about an 80 point quality, selling comes hard, but has to take place, because accumulations are the fear of the receivers now, when what is tolerable of the new make of to-day, would be intolerable of the figurative to-morrow. Shipments from the Elgin district are no exception to the general receipts, and we find the favorite marks sharing the condign criticisms with their less favored competitors. In the descending scale the next variety of butter is the gathered cream products, and about the receipts of them it can be said truthfully that they are very light, and because of that fact the grading is more liberal; demand for the best marks is largely in excess of the supply, and helps to dispose of some of the faulty lots at better figures than otherwise would be possible. Imitation creamery and ladles also are very scarce; demand active for the high grades. Very little doing in June creamery beyond sending out samples. In prints and blocks there is an increase of receipts, and a corresponding improvement in amount of business done in them Rolls are in very light receipt and generally sold on arrival.

Creamery separator, extras, per pound, 22; 1sts, 20@21; seconds, 18@19; gathered cream, extras, 19; firsts, 18; seconds, 17; Ohio, 20@21; firsts, 9@20; seconds, 17@18; imitation, extras 17@18; firsts, 14@15; seconds, 13. Iowa & N. W. ladle, extras, 15@16; firsts, 13@14; seconds, 12. Ohio and Indiana ladle, extras, 15; firsts, 14; seconds, 13. Roll, extra, 14; firsts, 13; seconds, 12. W. Va. Roll, extras, 13@14; firsts, 12; seconds, 11 Creamery Blocks, (2 lbs.) extras, 23@24; firsts, 21@22; seconds, 19@20; prints, (½ lb.) extras, 23@24; firsts, 20@21; seconds, 18@20. Md., Va & Penna. prints, extras, 20; firsts, 18; seconds, 15@16.

Eggs—Eggs have been in quite liberal receipt. So far this week, all lots arriving have met with prompt sale. The trade generally think that the price is low enough for the season, consequently there has been no accumulation of stock, as the demand has been fully equal to the supply. Our market is quite active at 12c. Duck eggs are coming in more freely, and owing to the low price of hen eggs, there is an easier feeling in duck eggs; all invoices of large clean stock meet with quick sale; small or dirty eggs are slighted.

301 Exchange Place. G. M LAMB & BRO.

FOREIGN MARKETS.

Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as quiet and in buyers' favor, who are buying for immediate wants only. The receipts of Australian and New Zealand continue liberal and with considerable stocks the outlook is uncertain. The weather is fairly seasonable but unless receipts fall off markets must decline. American creamery a dull sale, quality is not good enough to be attractive and is offered at 17@19c. Finest imitations sell fairly well at 16@17c. Ladles are less active and are dragging sale above 15c. Buyers ideas are 14c. generally. Finest Australian offering at 20@20½c. Grades just under finest are pressed for sale at irregular prices, which greatly interferes with American goods. Very little Canadian arriving and finest creameries are selling at 21@22c in boxes.

Cheese markets are in better shape. Arrivals are falling off, especially from New Zealand, which makes importers firmer in their ideas. The demand for grades under finest has been so great stocks of such are nearly exhausted and more attention is given to fall made, which is selling at 11@11½c with most holders asking more money A favorable wind up on the season is looked for.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Position Wanted—As butter or cheese maker. Twelve years experience. Highest references. J. C. H., Box 901. Whitewater, Wis.

Position Wanted—By a first-class buttermaker. Can furnish good recommends, one term at dairy school. L. J. KRAMER, Eastman, Wis.

Buttermaker wants situation; 8 years' experience. J. E. FORWARD, Mechanicsburg, Pa. 6-2

"ALPHA-De LAVAL" CREAM SEPARATORS.

"ALPHA-De LAVAL MACHINES possess every merit to be found in any other separator made—they do everything any other separator can do.

IN ADDITION:—

They skim from one-tenth to three-tenths closer in test percentages than any other separator can under practical conditions of operation.

Their actual capacity is 25 per cent. greater than the claimed capacities of other machines of relative size and price

They use just so much less relative power by reason of their smaller size bowls and necessary speed of only 6,000 rev. per minute, against larger bowls and speed of from 8,000 to 25,000 rev. in other machines

From the same reasons their cost of repairs is just so much less and their durability so much greater.

And again from much the same reasons, their cream is the more uniform, more thoroughly and quickly churnable, and productive of superior excellence in butter.

They are alone of the improved "Alpha" disc type of construction, which protecting patents prevent the use of in any other machine, and which gives them their overwhelming advantages in many respects.

Their mechanical design and construction is the best. Their selling prices are absolutely maintained. Consideration of cost need not and does not enter into their manufacture.

"Factory" or "Dairy" catalogues upon application.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.

GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.

BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Wanted Position—As butter maker. Best of reference from present position. Temperate, and do my own repairs. Seven years experience. Address Lock Box 123, Beichertown, Mass.

Wanted—Position by capable butter maker. Seven years experience in separator creamery. Address L., care HOARD'S DAIRYMAN.

Guernsey Bulls—and bull calves for sale. The best blood of two Experiment Station tests. Prices from $35.00 up. WILLIAM BLACK, Box 357, Mt. Vernon, Ind. 6-2

Six large young Toms—Mammoth Bronze, 28 to 32 lbs, $5.00 each; W. Holland, 24 to 26 lbs, $4 00 each. J. H. ROE, Chano, Ill.

For Sale—At a sacrifice, for proper reasons, large successful creamery. Best markets, cheap freights by water and rail at the door; 120,000 lbs. butter 1898; fast growing milk supply; perfect butter climate; no ice needed; spring water piped; green grass year round. Address at once, R. D. SANFORD, Coquille. Oregon. 6-2

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

Wanted—Position is wanted as manager of a stock or dairy farm, by an experienced man. Would board help. Address LOCK BOX, 724, Malone, N. Y. 5-4

Wanted—Ten Men; able to give $200 security. To canvas for memberships to the Veterinary Science Association of London. Apply in person or by letter to room 5. Sutherland block, Janesville, Wis. 5-3

For Sale—Holstein-Friesian bull calf 6 months old, from a No. 1 cow. 80 lbs. milk per day and 18 lbs. butter per week. Will sell very cheap if taken soon. Want room for others. All particulars can be had by writing to WM. HAMBLY, Belmont, Wis. 5-2

For Sale—A first-class cheese factory six miles N. W, of Appleton. Good location and everything in first-class shape. For particulars address. NICK HUSS, Appleton, Wis. 4-3

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52 tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Wanted—A married man to do general farm work. Must have good references. Write H. P. WEST, Fayetteville, Wis.

For Sale—120-acre dairy farm stocked with grade Jerseys. Will sell cheap with or without stock. H A. BOYNTON. Shiocton, Wis.

Wanted—Man and wife experienced in dairy farming. Permanent position to right parties. Good wages, new house. Address with references P O. Box 344, Keokuk, Iowa.

To Exchange—320 acres good Texas land, located 15 miles west of Beaumont, on So. Pac. Ry, and 3 miles from station. Will exchange land for Holstein cattle. Address A. R. CROUCH, Granada, Minn. 6-4

Type More Important Than Breed.

Record of Storrs College (Conn.) Herd, and Deductions Therefrom.

ED. HOARD'S DAIRYMAN:—The following tables have been compiled from the records for the past year of our college herd. This herd of 25 cows includes four registered Jerseys, three Guernseys, four Ayrshires, and the balance are mostly Jersey and Guernsey grades. The registered cows were selected for the college by committees of breeders of the respective breeds, and are presumably fair representatives of the several breeds. The grades have been selected and purchased from time to time, and perhaps are better than the average run of dairy cows.

MANAGEMENT OF THE HERD.

The feeding, milking, and care of the herd are attended to by student labor. While this system offers many advantages to the student, the unavoidable irregularity is not conducive to the largest yields from the cow. But the management of the herd is governed by the idea of using the herd for purposes of instruction. In carrying out this idea, we have kept a record of the daily milk yield of each cow, and the Babcock test for fat. Also the hay, silage and grain have been weighed out to each cow for each feed during the year. With these individual records at hand, the herd becomes of great value to the student in illustrating the types of dairy cows.

FEEDING.

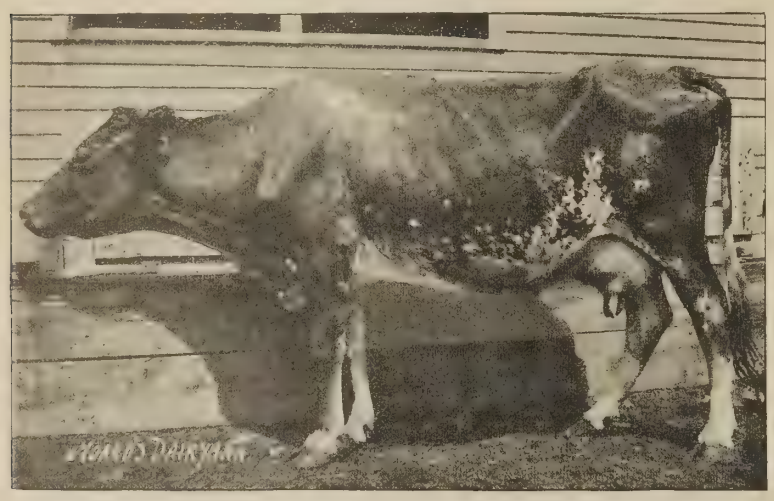
In the selection of concentrated feeds, we have been guided in our purchase by the relative price of protein in each. The herd has been fed a balanced ration of a nutritive ratio of about 1 to 5. In winter, this ration consisted of from 25 to 30 pounds of silage, 8 to 10 pounds of hay, and 6 to 12 pounds of grain, the latter varying with the ability of the individual to make good use of it. In summer, with scanty pasturage, soiling crops were supplied and some grain fed.

DIVISION OF THE HERD.

As a result of a study of the form of each individual cow, we have divided the herd into four groups or types. These divisions in the main correspond with those made by T. L. Haecker in his study of the Minnesota Experiment Station herd. While not drawn on fast lines, as will be noted by an overlapping of the divisions headed, "Net Profit," and "Cost of One Pound Butter," comparisons of the average of each group are worthy of some consideration by any student of dairy cows.

EXPLANATION OF TABLES.

In tables one, two, three and four, the first column gives the number of the cow; second, her age; third, her breeding; fourth, total cost of feed consumed; fifth, pounds of butter produced as estimated by the Babcock test; sixth, food cost of one pound of butter; seventh, net profit based on crediting each cow with butter only at eighteen cents per pound, no allowance being made for skim-milk or manure, or charge made for labor; eighth, milk produced.



COW NO. 1, STORRS COLLEGE HERD.

(Ideal Dairy Type.) Net Annual Profit, $40,42.

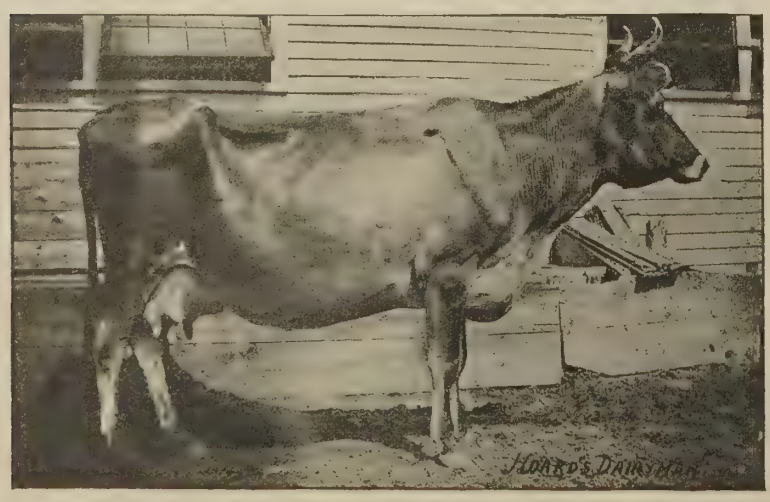
CLASS I—VERY SPARE, WITH DEEP BODIES AND WELL SPRUNG RIBS.

No. of Cow.	Age Years	Breed.	Cost of Food for One Year.	Butter 83 Per Cent Fat.	Cost of 1 Found Butter, Cents.	Net Profit.	Milk Produced.
1	9	Grade Guernsey	$44.54	472	9.44	$40.42	8,558
2	10	Jersey	48.80	509	9.58	42.82	8,465
Average			$46.67	490	9.56	$41.62	8,511

In the above class are two cows characterized as very spare, with deep bodies and well sprung ribs. They approximate in form very nearly to the ideal dairy type, and in addition to this form we find them to be persistent milkers.

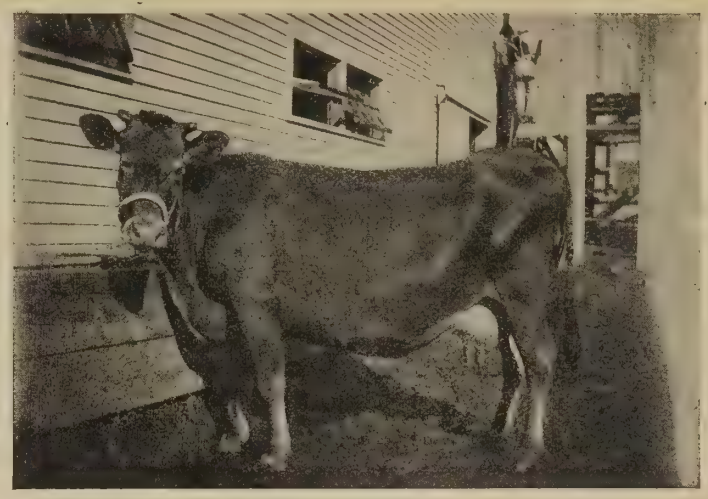
In 1897, cow No. 1, after having been in milk one year, and without dropping a calf, made a record of 466 pounds of butter. Cow No. 2 will resent any attempt to dry her off. These two cows, then, are placed alone in this group, instead of at the head of Class II, on account of this quality of persistent milking.

In our study of dairy cows we are looking for outward signs that will give token of this quality.



COW NO. 2, STORRS COLLEGE HERD.

(Ideal Dairy Type.) Net Annual Profit, $42.82.



COW NO. 7, STORRS COLLEGE HERD.

(Dairy Type.) Net Annual Profit $22,11.

CLASS II—SPARE, WITH DEEP BODIES AND WELL SPRUNG RIBS.

No. of Cow.	Age Years	Breeds.	Cost of Food for One Year.	Butter 83 per Cent Fat.	Cost of 1 Pound Butter, Cents	Net Profit.	Milk Produced.
3	2	Grade Guernsey	$40.60	368	11.0	$25.64	6,024
4	6	Jersey	40.21	360	11.1	24.59	5,379
5	6	Jersey	39.18	340	11.2	23.02	5,014
6	7	Grade Holstein	36.73	313	11.7	19.61	5,730
7	13	Guernsey	42.18	357	11.8	22.11	6,435
8	2	Grade Guernsey	37.78	308	12.2	17.66	6,077
9	6	Grade Holstein	42.88	343	12.2	18.86	7,304
10	7	Grade Jersey	36.71	297	12.4	16.75	4,540
11	8	Ayrshire	47.06	375	12.5	20.44	8,249
12	7	Grade Guernsey	40.04	337	12.5	20.62	4,754
13	10	Grade Jersey	44.08	352	12.5	19.28	6,548
14	9	Grade Jersey	41.00	316	12.9	15.88	5,500
15	8	Grade Guernsey	43.13	289	14.9	8.89	5,608
16	10	Guernsey	42.68	278	15.3	7.36	4,864
Average..			$40.94	331	12.4	18 62	5,859

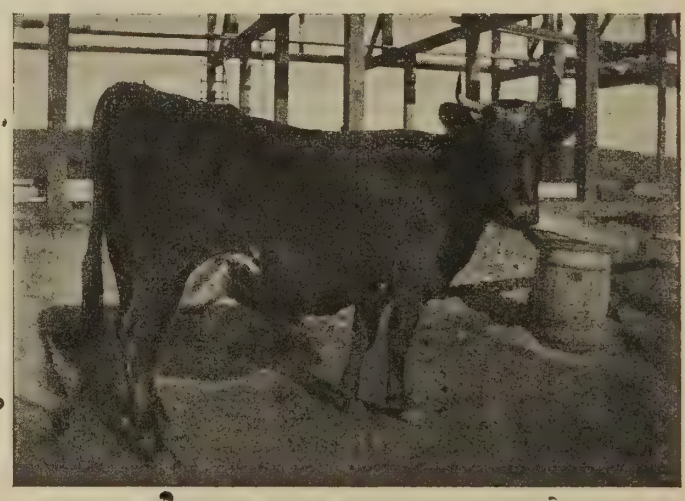
Fourteen cows of the herd fall into this group. They are characterized as spare, with deep bodies and well sprung ribs. As compared with Class I, they charge three cents more for each pound of butter produced, and make less than half as much net profit.

In group III we place five cows lacking digestive capacity. They might be described as "slab sided," as their ribs drop too soon after leaving the spinal column. A number of the individuals in this group have characteristics that are quite noticable. No. 18 is a quarrelsome cow, a fighter and the boss of the herd. No. 19 is a very nervous animal, and uses considerable of her energy in unnecessary worry. No. 20 is a discontented cow, and always on the alert for an open door or gate, and usually seen to be where she ought not to be. No 17 exhibits about as much intelligence as a chicken, often unable to find the barway fom the pasture at milking time.

Class IV (see opposite page) contains the cows that have a tendency to lay on flesh. Two of them were kept at an actual money loss and the average profit from the four was 55 cents. It will be noticed that two cows in this group are registered animals, one a Jersey and the other an Ayrshire.

In tables V, VI and VII, we have a grouping of the average of the different types, the average of the whole herd, and the average of breeds.

It will be noticed that the grades stand next to the Jerseys in pounds of butter produced, cost of one pound of butter, and in net profit.



COW NO. 11, STORRS COLLEGE HERD.

(Dairy Type.) Net Annual Profit $20.44.

CLASS III— SPARE, BUT LACKING DEPTH AND WIDTH OF BODY.

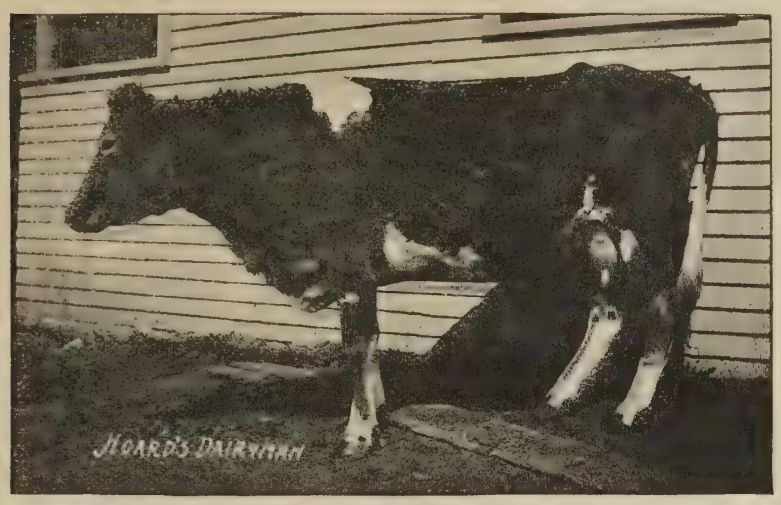
No. of Cow.	Age Years.	Breed.	Cost of Food for one Year.	Butter 83 per Cent Fat.	Cost of 1 Pound Butter, Cents.	Net Profit.	Milk Produced.
17	6	Grade Jersey	$37.59	282	13.3	$13.17	5,083
18	7	Guernsey	41.75	292	14.3	10 81	4,828
19	7	Ayrshire	41.27	286	14.4	10.21	7,188
20	7	Guernsey	39.36	246	16.0	4.92	4,122
21	6	Ayrshire	39.22	233	16.8	2.32	5,401
Average.			$39.83	267	14.9	$8.28	5,322

In comparing breeds with types, we find the range in amount of butter produced, to be, with the Jerseys 371, Ayrshires 266, or a difference of 105 between the highest and lowest. The variation due to type is 273 pounds.

In a similar way, the range in the cost of one pound of butter, between the breeds is

CLASS IV—COWS WITH TOO MUCH FLESH.

No. of Cow.	Age, Years.	Breed.	Cost of Food One Year.	Butter 83 per Cent Fat.	Cost of 1 Pound Butter, Cents.	Net Profit.	Milk Produced.
22	8	Grade Jersey	$40.77	257	15.8	$5.49	3,629
23	9	Jersey	46.21	276	16.7	3.47	5,069
24	4	Grade Guernsey	32.36	165	19.5	—2.66	3,141
25	7	Ayrshire	35.05	172	20.3	—4.09	3,826
Average			$38.59	217	18.1	.55	3,918



COW NO. 20, STORRS COLLEGE HERD.

(Lacking depth and width of body.) Net Annual Profit $4.92.

AVERAGE OF HERDS.

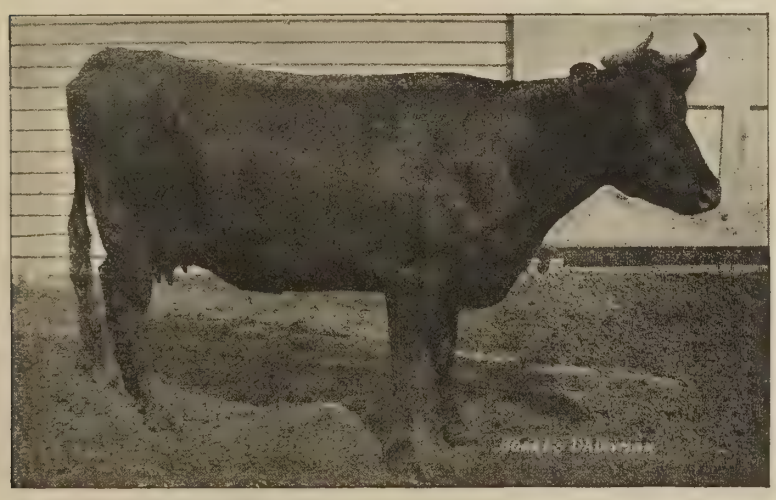
	Cost of Feed One Year.	Butter, 83 per Cent Fat.	Cost of 1 Pound of Butter, Cents.	Net Profit.	Milk Produced.	No.
Entire Herd	$40.80	313	13.6	$15.50	5,655	25

AVERAGE OF BREEDS.

Breed.	Cost of Feed One Year.	Butter, 83 per Cent Fat.	Cost of 1 Pound Butter, Cents.	Net Profit.	Milk Produced.	No.
Jerseys	$43.35	371	12.1	$23.47	5,982	4
Grades	39.37	314	11.7	16.46	5,523	14
Guernseys	41.39	293	14.3	11.46	5,140	3
Ayrshires	40.65	266	16.0	7.22	6,166	4

AVERAGE OF TYPES.

Breed.	Cost of Feed One Year.	Butter, 83 per Cent Fat.	Cost of 1 Pound Butter, Cents.	Net Profit.	Milk Produced.	No.
Typical Dairy	$46.67	490	9.56	$41.62	8,511	2
Dairy	40.94	331	12.4	18.62	5,859	14
Lacking Digestive Capacity	39.83	267	14.9	8.28	5,322	5
General Purpose	38.59	217	18.1	.55	3,918	4



COW NO. 21, STORRS COLLEGE HERD.

(Lacking depth and width of body.) Net Annual Profit $2.32.

four cents, while the range between the types is eight and one-half cents.

The range in net profit between breeds is $16.25, while the range between types is $41.07.

We may conclude then, that the form or type, more than breed, will determine the ability of a cow to produce butter economically.

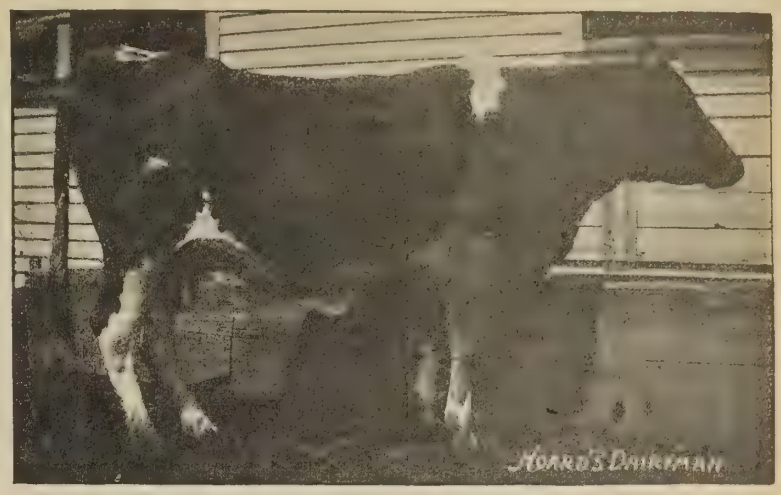
The following prices were charged for feed, per ton: Rowen $10; mixed hay $10; corn stover $6; silage $3; soiling crops $3; pasture (for the season) $3.50; bran $14; gluten $18.50; cotton seed meal $22; linseed oil meal $25. C. L. BEACH.

Storrs Agricultural College, Storrs, Conn.

From an Old Dairyman—Ripening Cream.

ED HOARD'S DAIRYMAN:—Am 66 years old in a few days; took my first lesson in milking at the age of 10 years; have been at it ever since. In the last forty-five years there has not been a day that I have not been the owner of a cow, and during that time there has been very few days when I have not been on hand at milking time Can do a fairly good job all the way through, from milking the cow to eating the butter or cheese. Can manufacture butter or cheese fit for the president, but there is one thing I can't do, although I have tried as hard as I knew how every year since I commenced taking your paper, and that is to convince my neighbors that it would be for their interest to take the DAIRYMAN. A story paper with a column of flashy farm items seems to fill the bill, so I have to give it up, and send you a lonely dollar as a renewal of my own subscription. I have before given my opinion of the DAIRYMAN, so it is not necessary to repeat. Many changes in my way of doing things have come about since I commenced reading it.

Have done my share of shifting about and trying different breeds of cattle, trying



COW. NO. 24, STORRS COLLEGE HERD.

(Beef Type.) Net Annual Loss $2.66.

to find the general-purpose cow, but have now settled on the Jersey. The beef man called yesterday (has kept away since the Jerseys came) said he found beef cattle scarce; heard I had quite a lot of two-year-old heifers and thought some of them might possibly do for beef. I told him I had the heifers, but part of them are making 25 cent butter, and the others will be in the same business in a few weeks. He intimated that it was pretty cold weather to milk. Said I: "It don't pay me to feed a cow 12 months for the sake of milking her 6, and, furthermore, I had as soon be milking in a good warm barn, as to be riding about in search of beef."

You ask how we ripen cream in winter. We try to keep as near the temperature of summer as we can. Have a can large enough to hold a churning, add, stirring thoroughly each skimming till the can is full; now raise and hold the temperature to between 60° and 70° F. Sometimes to hurry up the ripening, we add a cup of sour milk or butter milk, if all right. Stir occasionally until the cream thickens nicely and seems to run smooth off the paddle like paint; when ready for use, reduce the temperature, gradually to about 58° F. for churning; see that the churn is about the right temperature, so as not to change too much the temperature of cream.

Ohio. H. E. HERRICK.

Getting at the Simple Facts.

Fertilizing Values in Feed Stuffs.

ED. HOARD'S DAIRYMAN:—I have been a reader of your paper a year and have never seen its equal to get at the simple facts without so much paraphernalia as some papers advocate.

What we farmers want is an economical way of doing things, as we cannot make as much money as some of these professionals would have us spend getting ready to do business. Then it is the profits that we have to live upon, not capital.

Now I notice in making rations, you don't apparently figure much, if any, on manurial values. I would like to have you tell me how much more oats ground are worth than bran, everything considered. I myself, don't take much stock in manurial values, but if there is a material difference, I would like to know it.

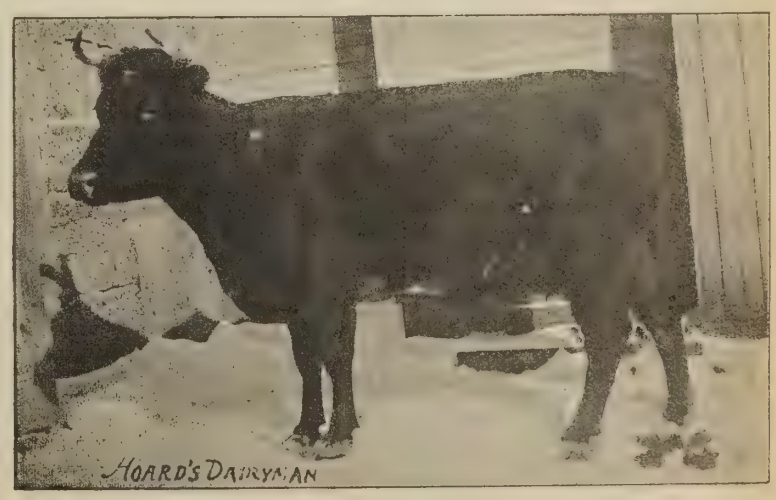
One thing else. How much grain should a cow be fed with 10 pounds hay and 35 pounds well eared ensilage, that is giving 50 pounds of good milk per day?

Give us more pictures of cows and criticise them, so we can tell a good cow as soon as we put our eyes upon them.

Dryden, N. Y. A. D. C.

It was intended to have the above communication and inquiry appear last week, in connection with our revised table of the available manurial values in feed stuffs. That table answers the inquiry, as to the secondary value of oats and bran, by showing that bran is the more valuable. In primary (or feeding) value oats are usually accounted as being worth 10 per cent more than bran.

The amount of grain required to properly feed a cow, that is receiving 35 pounds silage and 10 pounds hay, and is giving 50 pounds of milk daily, will depend in great measure upon the kind of grain. If bran and gluten feed are available, give 4 pounds of the former and 5 pounds of the latter, or 6 pounds bran and 2 pounds cotton seed meal. What is especially needed in connection with such roughage, is grain rich in protein? Corn would be out of place, and oats not first-class. A ton of oats contains only 184 pounds of digestible protein, whereas a ton of bran contains 252 pounds, a ton of gluten feed, 408 pounds, and a ton of cotton seed meal, 744 pounds. It is this larger proportion of protein which gives the excess of nitrogen in the manure, and thereby increases its value. Cotton seed meal is undoubtedly much the cheaper feed at present prices, but it is not prudent to feed much above 2 pounds per day, and not more than half as much as this at first.



COW NO. 25, STORRS COLLEGE HERD.

(Beef Type.) Net Annual Loss $4.09.

Prof. Haecker Answers a Feeding Question.

ED. HOARD'S DAIRYMAN:—I have received the following inquiry from Mr. H. C. Edmunds, of Austin, Minn.:

"Please give me a balanced feed for milk cows, weight about 1,000 pounds.

I have all feed on farm. Ground oats and wheat mixed, half and half in weight, ground corn and cob meal, wheat bran."

It is not possible to formulate an economical ration from the grains mentioned, without using considerable mill products. The wheat and oats are too expensive; better sell the succotash and buy bran and oil meal. Oil meal is recommended in the ration because it contains a high percentage of protein and will enable you to use more farm grown grains. Assuming that the hay contains one-third clover, the following is suggested:

Food.	Pounds.	Dry matter.	DIGESTIBLE. Protein.	Carbohydrates.	Fat.
Hay.....	15	13.14	.72	6.34	.20
Corn & cob	5	4.24	.32	2 81	.14
Bran.....	6	5.37	.75	2.52	.22
Oil meal.	2	1.80	.55	.67	.15
		24.55	2.34	12.34	.71

Another letter from your locality quotes corn at 32c, oats 20c, barley 40c, and bran at $10 per ton. Applying these prices to this ration, it costs 12.8 cents, which makes it evident that profits at these figures are very near the vanishing point. The difficulty is with the prevailing methods of farming. In this matter we are a century behind the times. We raise certain crops simply because our forefathers did. We should pay less attention to market values and more to feeding values. It is well enough to raise succotash, oats, barley and corn, if the crops are to be sold, but if it is our purpose to feed them, it will be well to do a little figuring.

Our farm grown feed stuffs contain all the nutrients in excess of our needs, except that of protein, and to make good this deficiency is why bran, oil meal, gluten meal and cotton seed meal are purchased. It therefore follows that crops for feeding purposes are valued according to the amount of digestible protein they contain.

Let us take, for example, an acre of oats, and assuming that it yields forty bushels per acre, amounting to 1,440 pounds, the average amount of digestible protein found in oats is 9.2 per cent, which makes the amount of digestible protein from an acre of oats 132.5 pounds. In buying bran at $10 per ton, digestible protein costs 4 cents, so the feeding value of the 132.5 pounds of digestible protein found in the acre of oats, is worth only $5.30 as feed for the dairy cow, while its market value is $10. Now, if we sell the oats, it will buy a ton of bran which contains 250 pounds of digestible protein and has a feeding value of $10. So we have exchanged the acre of oats which had a feeding value of only $5.30 for a ton of bran having $10 feeding value. Farmers universally desire to feed the grains grown on the farm, but if they would do just a bit of figuring they would soon free themselves from such notions.

An acre of barley yields, say, twenty-eight bushels per acre, which at forty-eight pounds to the bushel, amounts to 1,344 pounds of barley from the acre. Barley contains on an average 8.7 per cent digestible protein; so the acre of barley contains 117 pounds of digestible protein, which at 4 cents a pound fixes its feeding value at $4.68 per acre. Now, if we sell the barley at 40 cents, the price quoted, we receive $11.20 which will buy 2,240 pounds of bran containing 280 pounds of digestible protein, having a feeding value of $11.20. So we have exchanged the acre of barley, having a feeding value of only $4.68, for bran, having a feeding value of $11.20.

My grandfather planted corn in hills because his grandfather did; so I did likewise, and when the season was favorable, I found some fifty basketfuls on an acre. The long glistening ears looked fine; some were yellow, some white, some variegated, and now and then there would be a red one. These variations were a great puzzle to me in my boyhood days, and I often wondered why it was so, and if one were better than another, and to test the matter held out to bossy, two, one red and one white, to see which she liked best, and she said she preferred both.

Following the saying, "let well enough alone", I allowed fifty harvests to pass before I began to inquire why corn was good. An acre was planted in hills, it yielded forty bushels, weighing 56 pounds to the bushel, making a total yield of 2,240 pounds. Careful chemical analyses and feeding experiments showed that it contained only one nutrient, digestible protein, that an animal could convert into bodily growth, meat and milk, and that 100 pounds of corn contained 7.9 pounds of this nutrient and that the acre of corn contained 177 pounds of this substance. I also found that the corn stalks grown on the acre contained 38 pounds of digestible protein, making the total yield of the acre of corn planted in hills, 215 pounds of digestible protein, having a feeding value of $8.60.

I also planted an acre of corn so thick in drills that no ears were formed. It yielded 34,650 pounds containing 350 pounds of digestible protein, which, at 4 cents a pound, makes its feeding value $14 per acre.

I might submit many more comparisons, but enough has been cited to show that farmers should give more attention to the comparative feeding value of the grain and roughage they are raising for dairy cows.

Minnesota. T. L. HAECKER.

Salting and Working Butter.

ED. HOARD'S DAIRYMAN:—In the March 10th issue of your paper, Mrs. Rose Seeley Miller, after saying some very nice things about the writer, for which thanks are hereby extended, asks if I will give directions for handling butter so that it will need no second working.

The way we handle it is this: The cream is sour, somewhat thick, but not in the least over ripe. It is aimed to have it about the consistency of good paint. The surface has, before it is stirred, a satiny, glossy look, and it runs from the wooden paddle evenly.

The temperature varies somewhat in accordance with the season. In cold weather, we have frequently churned our Jersey cream at 66° F. and by the Babcock test, the buttermilk showed but the least bit of fat, not enough to make any appreciable loss on the churning. In summer, the temperature is kept as nearly as possible at 62° F. The churn is started at 60° F., or even at 58° F., if the weather is very warm, since the cream warms up in half an hour or so. Some times it is necessary to use ice after the churning has begun. It is always gathered in granules, no matter what the time of year.

Now, just a word of help here to Mrs. Miller in regard to the butter not separating from the butter milk. I have never known it to fail of separation if a quantity of salt is added to the cream when it showed signs of "coming." A handful will do for a small churning; be sure to get enough, that is all; more will do no harm. Some recommend using the salt in the form of brine, but we use the dry salt and find it acts promptly in bringing the butter globules to the surface. Draw off when the granules are small, like fine shot.

Wash in water at about 60° F., revolving the churn slowly for a moment only each time, so the granules will not mass. Never touch them with the hands nor with a ladle of any kind. They are to be kept entirely separate, so far as adhering to each other is concerned. Too much washing injures the quick, fine flavor of butter. It is not best to wash out every trace of butter milk. Two rinsings are sufficient. Let the last water be at a temperature of 62°. Allow the butter to drain in the churn a moment or two, then sift best dairy salt over the granules in the desired proportions. Any experienced butter maker knows with reasonable accuracy the amount of butter which a certain quantity of cream will produce. Turn the churn, if a barrel, so as to expose fresh granules, which are covered with salt as before. A large wooden fork is a good thing to use in incorporating the salt at this point. It is better than a ladle.

When the desired amount of salt has been incorporated with the granules of butter, replace the cover of the churn and revolve slowly ten or twelve times. Open the churn and break the lumps of butter apart. Again

MICA AXLE GREASE lightens the load—shortens the road.

helps the team. Saves wear and expense. Sold everywhere.
MADE BY STANDARD OIL CO.

FOR SALE 1 Registered JERSEY BULL two years old. 4 HEIFER CALVES from one month to six months old—good ones. A. J. SHEARER, 192 Front Street, Aurora, Ill.

Hood Farm Jerseys Son of the great producing cow, Modita, test, 16 lbs. 8 oz. Dam of 6 in 14 lb. list, including Costa Rica, 21 lbs. 6⅛ oz., 90 lbs 11¼ oz. in 31 days. the dam of Merry Maiden. Bull dropped Sept. 10, 1898, is solid color, and sired by the great Brown Bessie's Son Write for price to HOOD FARM, Lowell, Mass.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

For Sale At lowest prices two Jersey Bull calves six and eight months old, and very well bred. For particulars Address Samuel H. Marshall. Madison, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ESTABLISHED 1890—500 Acres—Incorporated 1897. THE LINDEN LAWN FARMING CO., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys. C. S. MACE, Mgr.

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested. JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inqurles promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to J. E. TYRRELL, Marysville, O.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Locust Lane Stock Farm
. . . Service Bull . . .
BROWN BESSIE'S GRANDSON No. 34891.
State What You Want.
G. E. COLEMAN, Perry Center, N. Y.

Introduce Milking Jersey Stock
INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best Write for our "little book."
FILSTON FARM, Glencoe, Md.

— THE —
A. J. C. C. Cows
in our sale list just issued comprise a pure St. Lambert granddaughter of Allie of St. Lambert; three granddaughters of Naiad of St. Lambert; a tested cow, deep in the blood of Noble 901, Imp., whose dam has an excellent test and six tested daughters; a cow deep in the blood elements of that wonderful cow, Mollie Garfield; and others of similar merit. Some are fresh; others longer in milk. Sale List No. 3, giving short pedigrees, sent on application.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

FOR SALE! A Fine JERSEY Bull Calf
DROPPED IN SEPTEMBER.
The calf is from the richest butter stock we ever owned, a great-grand-son of the cow QUEEN FELCH, who was a daughter of Ike Felch, one of the five foundation Jersey bulls of America. This young bull will be sold cheap for cash.
W. D. HOARD, Fort Atkinson, Wis.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.
70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL, Rochester, N. Y

High-Class Jerseys. DIPLOMA
Left behind him 85 daughters, 44 including Merry Maiden have records. 14 of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered Diploma stands peerless—his record is unapproached In proportion of tested daughters he out ranks his sire Combination, which in four years service left 73 daughters, 25 of them having records." The Jersey Bulletin says; "Great as doubtless Combination was, Diploma was greater." Service bulls, Recorder 29239, son of Brown Bessie, Champion Butter Cow at the World's Fair, and Diploma 2nd 36374, full brother in blood to Merry Maiden. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

BILTMORE FARMS' JERSEYS.
This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
Some Choicely Bred
BULL CALVES
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO F. WESTON, Supt., Biltmore, N. C.

The Lone Tree Jerseys.
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

Miller & Sibley's Jerseys.
IDA'S RIOTER OF ST. L.
Leads All Other Sires that Ever Lived in Average Butter Record for 28 Daughters, Being Nearly 20 lbs. Apiece.
All full weekly tests. 5 made with 1st calf; 4 made with 2nd calf. Tested by 8 different owners. One daughter, Ida Marigold, won the lion's share of the honors at the World's Fair. His get have won over 70 first prizes and sweepstakes at state fairs or great expositions. He weighed 1760 lbs. His dam's official butter test, 30 lbs 2½ ozs; milk record, 67 lbs. a day.. His daughters are heavy milkers.
For Sale—Grandsons and granddaughters of Ida's Rioter of St. L., also cows in calf to his sons.
224 First Prizes and Sweepstakes won by this herd at 22 State Fairs or great Expositions. Home of many great milk and butter producing cows. Our Adelaide of St. Lambert gave 82¾ lbs. of milk one day; 2005¼ lbs. one month—the world's Jersey record. 224
No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Prices low for quality. Every animal tuberculin tested before sale, if desired.
Also For Sale—Children's Ponies and registered Shropshire Sheep. MILLER & SIBLEY, Franklin, Venango Co,, Penn.

replace the cover and again revolve the churn very slowly. This time continuing the process until the butter forms in a compact mass, or perhaps there will be two of these large lumps of butter. I do not know that I can tell just how long this revolving should be kept up for I have never noted the time consumed, but it should not be continued too long. Five minutes is surely the extent. The butter drops solidly from one end of the churn to the other at every turn of the crank, and it gets pretty thoroughly worked in the operation. One will be surprised to see how great a quantity of brine will be expelled as the globules begin to press closer and closer together.

For the past year and a half we have discared the butter worker entirely, as has been noted in these co'umns before. When the butter comes from the churn, it is a firm, homogeneous mass. Packing into tubs or crocks presses out any excess of brine that may be left and not a "streak" or "mottle" can be found in the finished product.

This method of handling butter is so much less trouble than that ordinarily practiced by farm butter makers, that I try by iteration and re-iteration to persuade them to give it a trial.

If one still prefers to take the butter into a butter bowl and press it with a ladle in order to expel a little more brine, of course they can do so, but let this be done at the time it is taken from the churn, rather than later.

As to the amount of brine to be left in butter, our dairy authorites allow consider able "moisture". It is quite true that brine can be found in almost any package of butter. The exact amount which will be found varies according to the temperature of the butter at churning time. I have found that the finer the granules, caused by a low churning temperature, the more water will be held, consequently a greater amount of brine after the salt is added.

It will be found that reworking only does this in the average case. It does expel a little more brine perhaps, but in nine times out of ten this is done at the expense of the grain of the butter. Those granules once solidified must be crushed in reworking.

Why not put all the manipulation neces sary upon it while still pliable, when the granules yield to pressure more readily? Fine salt dissolves very readily when applied to butter in granular form, because each tiny particle is coated with water. This in turn, at once becomes brine after the application of the salt.

Now as to brine salting, I will give my experience, having faithfully tried it some years ago.

Where one has a trade, which calls for butter, only slightly salted, it may answer, but I have not been able to succeed in making it practicable in our case, since we are required to furnish that which is more than ordinarily salty.

Another difficulty lies in holding an even temperature during the time the butter is in the brine. It is difficult to prevent it getting too warm in summer in the ordinary churning room. I can see no possible advantage of this process over the one in use by us, as above described.

The only reason so far as I can see, for thinking that brine is more easily and perfectly worked out of butter, after it has stood awhile, is that when butter "comes" in a soft state it cannot be pressed sufficiently to expel the moisture, as any butter maker knows. Then, standing awhile in a cool place certainly is an advantage. But with a proper temperature, this is entirely unnecessary. Butter at 62° is at its best condition for working, at least with any cream that I have ever had to deal with. This is speaking of that from Jersey or Guernsey cows.

The last argument that "butter is generally very pliable when taken from the churn, and it would be easy to injure the grain by much working" is answered in the above paragraph I think. It should not be too warm, just above 62° for the last rinsing water, then stop working as soon as it looks waxy and solid. Draw the ladle's edge through it gently, and if only drops of brine exude, it is worked enough. Should this run off in a little stream, it is not worked enough.

If the operation is done just right, there will be no undue moisture. If there should be, turn it out of the crock or tub after it is packed. That is easy enough if one objects to selling brine at 20 cents a pound.

As for streaks, should these appear after the butter is cold, it is a sign that the salt was not evenly distributed, and a little more working will remedy that.

Mich. W. C. ROCKWOOD.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The aggregate offering of butter was 6,300 lbs.; 1,080 lbs. were withdrawn on a bid of 20 cents; 940 lbs. were sold at 20 cents; 780 lbs. sold at 20½ cents, and 2,100 lbs. at 21 cents. A lot of 1,200 lbs. remained unsold with 21 cents bid. The Quotation Committee declared the market active at 20 cents.

The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
McConnell	600	20c.
East Burlington	540	20c.
Franklinville	780	20½c.
Shattock's Grove	2,100	21c.
Total	4,020	

The sales for the corresponding week of the three preceding years were as follows:

March 21, '98, 11,100 lbs. of butter sold at 18¼c.
March 22, '97, 107,160 lbs. of butter sold at 18@18⅝c.
March 23, '96, 20,220 lbs. of butter sold at 21c.

The New York market, Monday, was reported firm at 21 cents.

The milk contracts for the ensuing six months were made Tuesday, at the various condensing factories, and butter factories in this section. The New York Condensed Milk Company contracted for something over 300,000 pounds of milk daily, at the five factories, Elgin, Carpentersville, Algonquin and Belvidere. At the two factories here, 13,000 cans will be taken daily. The company paid the following prices. For April, 85 cents; May, 70 cents; June, 60 cents: July, 80 cents; August, 85 cents and September, $1.00

The prices are the same as paid during the past three years, for the same period, but the amount of milk received is somewhat increased.

The contracts for the two factories here were made by Superintendent Eno, at the east side factory, and the amount delivered to each will vary according to the demand for bottled milk in the Chicago market. A milk famine in Chicago would cause the whole amount of milk purchased here to be delivered at the west side house, for the time being. The product of the bottling works has increased since the formation of the milk trust, as the company did not become a member of that organization, and is its most formidable rival.

The demand for condensed milk is on the increase, and business has been good during the past year.

A few dairies have been added to the list, and many of the patrons have been adding to their herds.

The demand for milk has come largely from Alaska and Japan, aside from the regular channels. The recent war has also added to the sales, and a market is being opened in the Philippines, Cuba, Hawaii and Porto Rico.

The average for the six months is about 80 cents a hundred pounds. At the other factories of the company the same prices were paid.

The Elgin Butter company paid 75 cents a hundred for milk and increased the amount of milk contracted considerably. The contracts were made by the gallon at the following prices: April, 8 cents; May, 5 cents; June, 5 cents; July, 6 cents; August, 8 cents.

Oatman Brothers at their Dundee creamery contracted 25,000 pounds and paid for April 85 cents; May, 70 cents; June, 60 cents; July, 80 cents; August, 85 cents; September, $1.

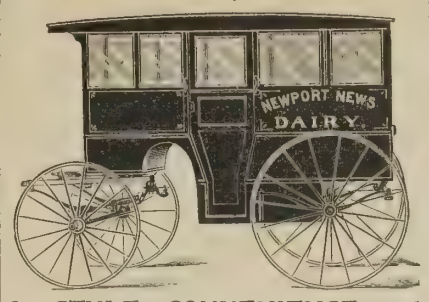
The Illinois Creamery Co., of this city, contracted for 14,000 pounds paying per hundred for April, 80 cents; May, 65 cents; June, 60 cents; July 75 cents; August, 80 cents; September; $1.

W. W. Sherwin, at St. Charles, paid for April, 50 cents per can; May, 45 cents; June, 40 cents; July 55 cents; August, 60 cents; September, 65 cents.

The St. Charles Evaporated Cream Company paid 58 cents a can for April, 40 cents for May and June, 54 cents for July, 60 cents for August, and 68 cents for September. H. C. B.

Elgin, Ill., March 20, 1899.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

The Scales an Incentive to Increased Milk Yield.

ED. HOARD'S DAIRYMAN:—Mr. T. A. Borman, of Navarre, Kansas, says his cows actually give more milk when there is a pair of scales hanging in the barn. At first thought this may appear ridiculous; but upon a little reflection it is not hard to understand. When a cow gives less milk than usual, the record shows it, and an attempt is made to discover the cause and remove it. On the other hand, when the yield is above normal, the causes are searched out and, if possible, the same conditions are supplied to the rest of the herd.

But I have not the time to bother with recording each cow's yield, says someone. Here experience comes to our aid and tells us that it takes about twelve seconds to weigh and record a cow's yield, or the milk from five cows can be weighed and recorded in one minute; and the extra pains that a milker will take when keeping a record, will more than pay for the time.

Kansas. D. H. OTIS.

Parted In A Dream—(New) A love song founded on a strange incident of the late war—words and music by Halbert L. Hoard. (Regular price, 50c.) Sent post-paid for 25 cts. to readers of Hoard's Dairyman.

Darling Lenore—(New) A song of deep sentiment set to exquisite waltz music, by the same author, published Jan. 25, '99. (Regular price 50 cts.) Sent post-paid for 25 cents to readers of Hoard's Dairyman.

For 3 cts. I will send words of both songs with miniature page of music of each.
HALBERT L. HOARD, Fort Atkinson, Wis.

Mammoth Bronze Turkeys from 40 lb. Tom. Toulouse Geese and Plymouth Rocks. Write **H. P. West,** Fayetteville, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

REGISTERED Holstein-Friesian cattle, Aaggies, Netherlands, Waynes. Pauline Pauls, De Kols, Pietertje families. **WM. O. JACKSON & SONS, South Bend, Ind.**

HOLSTEIN-FRIESIAN CATTLE Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Holstein-Friesian Cattle. Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland. **L. F. JUDD & CO., Bloomington, Wis.**

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., Simonsville, Vt.

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle.
Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Ten Choice Yearling
Holstein-Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

The Choicest Breeding.
To parties desiring young bulls of first-class quality and the choicest and most desirable breeding, we offer rare opportunities for selection. We offer twelve bulls, sired by sons of Mechthilde, Parthenea, De Kol 2nd and Natsey, the "Dairy Queens," and out of cows of the most famous breeding, whose large milk and butter tests and showyard winnings stand unapproached in Holstein-Friesian cattle history of recent years, Remember Valley Mead is headquarters for H.-F. cattle, and is the home of the greatest butter cows and prize winners. KARLEN & Co., Monticello, Wis.

Six Choice Yearling
HOLSTEIN-FRIESIAN BULLS
TRUE DAIRY TYPE.
Sired by Canary's Mercedes Royal Sirocco,
whose dam, in official 7 day test, gave 409½ lbs. milk. Average test, 4.92%. Butter fat, 20.129 lbs. From dams of equally high merit. ☞This appears but once.
HUTCHINSON BROS., - - Randolph, Wis.

GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

An Encouraging Report.

Both As to Cows and a Stave Silo.

ED. HOARD'S DAIRYMAN:—We have a herd of full blood and grade Jersey cows, twenty-two in all. Last year the average was 6,608 pounds milk with an average test for year of 5% by Babcock test.

While you report larger yields than this, we think we are doing very well, as we have only been in the milk business four years. Have raised all our heifer calves, and with but one exception they have proved better than the mother.

We have a stave silo 16×30 feet made of 14 and 16 feet 2×6 hemlock, dressed on one side, without dowels or bevels, with eleven ⅝ inch round hoops, and two flat hoops where the joints come.

Just 3,000 feet of hemlock in silo. This is our second year with it; silage keeps perfectly. S. E. W.

Battle Creek, Mich.

It is wonderfully encouraging both to the editor, who is constantly preaching the doctrine of the profit making qualities of the dairy cow, and to the thousands of readers who are earnestly seeking for the truth in regard to this matter, to have the privilege of reading reports like the above. Cows like those which S. E. W. keeps, even at the present low prices for butter, furnish a cash market for the fodder (hay, silage, etc.,) raised on the farm, thus maintaining the farm's fertility, and, in addition, bring in a net profit of from $25 to $40 each—exclusive of the value of the increase, the skim milk and the manure.

Remember that this is not the report of an Experiment Station herd, selected and fed without regard to cost, as many people erroneously believe, but of a farm herd, under a style of farm management easily attained on any farm, where the farmer is not hampered by old time habits and traditions, and a know-it-all frame of mind. It fully corroborates all that the Experiment Stations have reported and should satisfy even the most skeptical of the high plane of candor and integrity upon which these Stations are conducted.

We are also much obliged to S E. W., for his testimony concerning his stave silo. We especially commend two points to the careful attention of the reader, viz.: Short lumber is used for staves, and the edges are not beveled, nor are dowels used.

We may add that the flat hoops may be dispensed with by simply sawing into the ends of the staves where they come together, and inserting a narrow strip of galvanized sheet iron. Further than this, we also commend the plan of using some form of woven wire fencing for hoops.

Intensive Dairying on Seven and One-Half Acres of Land.

ED. HOARD'S DAIRYMAN:—At Huntsville, Albany county, New York, four miles out from Albany, lives Maria Corey, with her two sisters, Mary and Eliza. With them lives Mr. Henry A. Slack, who was severely wounded in the civil war, while serving under Gen. Alonzo Alden, of Troy.

When able to leave the hospital, although in delicate health, and obliged to use crutches in going about, his home was made with this family, and he assumed the management of these few acres. A small Jersey herd of from four to six cows, was established and carried to the best development, to which the most intelligent study and care were given.

A silo was built, 10 x 11 x 16 feet deep, and as young stock increased, was deepened to 20 feet. Two and one-half acres of land are used for growing Leaming corn for the silo. After the silo is filled, this land is put into rye and wheat. On the soiling plan the rye is cut and fed to the cows in the following spring, and ten days later the wheat is ready.

This green food has kept the cows as late as the middle of June, with as many as three tons cured and put in for winter feeding, when the ground would be ploughed and again planted to corn.

It has been demonstrated in this place that ten head of stock can be well kept for five months on one and one-eighth acres of Leaming corn in the silo, while two and one-half acres will keep six cows for a year. Two and a half acres are covered by an apple orchard and one acre in pear trees.

Orchard grass, oats and peas are grown for green feeding, and always with some surplus to be cured and fed with the ensilage. The winter feed per day is, 40 pounds silage and 8 quarts mixed grain, in the proportion of 6 quarts of wheat bran and, at times, 2 quarts of corn meal, or 3 quarts of Buffalo gluten feed.

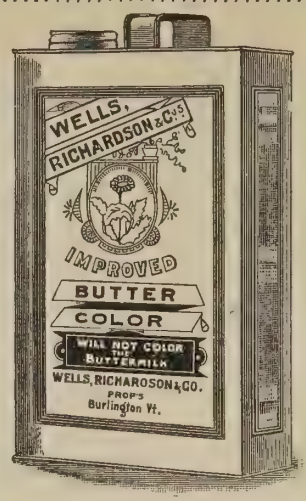
The summer feed is green rye, wheat, orchard grass, clover, oats and peas, besides 4 quarts of wheat bran and 2 quarts of gluten feed. The calves were raised with great care. They were always strong and healthy; their food was carefully provided and they were well developed, trained, in fact, educated toward the maternal functions. Their bodies were handled to give large development of stomach, and strong digestive power; their udders and the veins leading to them were manipulated, and developed to that extent that one heifer began milk secretion at eight months of age, and she had to be milked thereafter until she dropped her first calf. This is a remarkable instance of calf training, and early development of maternal function. We recall a visit to this home, when this circumstance occurred, and advised, as milk secretion had been stimulated in this calf and the udder was filling, the one safe thing to do was to take the milk from it.

We give a record of income from these few acres, for four years, which was entirely from the cows, with the exception of sales of fruit and vegetables, which range from $136 to $255 a year:

	Cows.		*Fruit and Vegetables.*	*Total.*
1893	5	$963	$200	$1163 00
1894	4	667	250	9 7.00
1895	5	600	136	736.00
1896	4	588	255	843.00
Totals		$2,818	$841	$3659.00

As the calves from this herd sold for high prices, we give the cash product per cow, not including the calf.

The butter was sold to the groceries in Albany, at prices ranging from 22 to 30



Always Use the BEST.

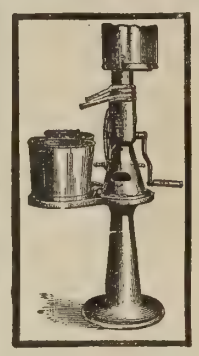
The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

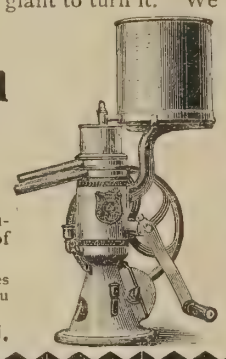
"THE KIND THAT HAS NO MUD."



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

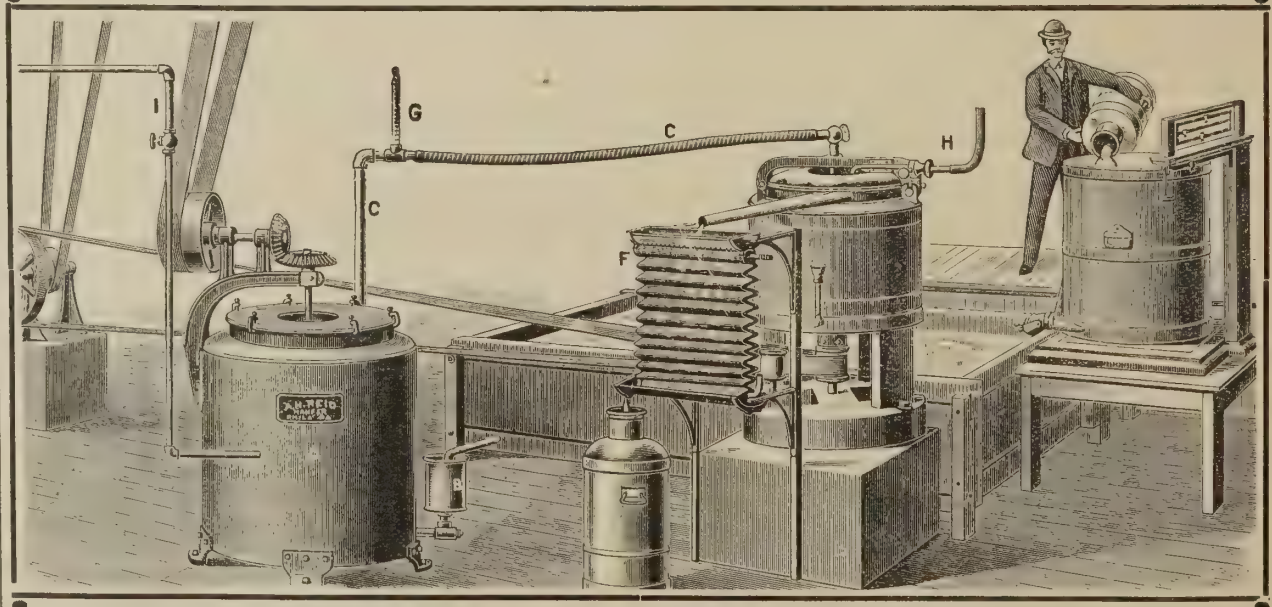
We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Grass and Garlic

ARE NOT FOUND IN BUTTER MADE BY THE

Reid Pasteurizing and Separating System



Milk flows through supply pipe and regulating reservoir *B* from Receiving Vat into Pasteurizer *A*, is Pasteurized and raised through pipe *CC* into Separator. Cream flows over Cooler *F*, skim-milk passes out tube *H* to Skim-milk Vat. *I* steam supply pipe and regulating valve. *G* Thermometer.

STILL POND, MD., September 26, 1898.

MR. A. H. REID, Philadelphia, Pa.

Dear Sir:—Early last summer we bought of you a Separator and Pasteurizer. We have found both machines give entire satisfaction. Every fall previous to this our customers have complained of butter tasting grassy. This season, notwithstanding the growth of weeds the pastures have had in them, we have not heard of a single complaint from our customers, and the demand for our butter now, is even greater than we can supply. We find the machine will do all you claim and we are very much pleased with it.

Very truly yours, STILL POND CREAMERY CO., JOS. W. HARPER, Treasurer.

A. H. REID, 30th and Market Sts., PHILADELPHIA and CEDAR RAPIDS, IOWA.

cents per pound, cream at 20 cents per quart and milk at 4 cents per quart.

1893, cash sales per cow, less calf	$117.46
1894, " " " " " "	117.40
1895, " " " " " "	102.00
1896, " " " " " "	117.00

In 1895, the record of four cows is given, showing the amount of milk of each. As cream and milk is sold, thus breaking up the butter record, the churn test has shown, through the year, that 16 pounds of milk made a pound of butter, and on that basis the butter yield can be closely estimated:

	No. Days Milked.	*No. Pounds Milk Given.*	*Butter Yield*
Rosalind Lowndes.	365	9,512	594
Jennie Warren....	365	7,443	465
Dora Lowndes.....	306	8,313	519
Beautiful Belle Lowndes.....	283	7,157	447
Totals.....		32,425	2,025

The actual cash sales for the four cows, were, that year:

Butter, 891 lbs. @ 25c per lb.	$222 75
Cream, 1.156 qts. @ 20c per qt	231.20
Milk, 1,981 qts. @ 4c per qt	79.24
Total	$533.19

As high as eleven head of cattle have been kept on this small farm, and with one hundred and twenty-five loads of manure made annually, the explanation of how this number of stock is kept does not become difficult. It is the same problem again, of improvement of the soil, with its liberal response, when liberally dealt with.

The lesson of the value of intensive methods is here made plain; the results on these seven and one half acres of land are far better than on most one hundred acre farms, with their extensive, careless methods. Not only are these few acres very highly productive, but the few cows present an equal contrast with the larger numbers in larger herds of haphazzard breeding, care and feeding.

Mr. Slack recognized in the soil a law of improvement—great in its possibilities—and he worked harmoniously with it. He recognized the same law in the dairy cow, and worked, not only intelligently, but sympathetically with that, and was rewarded at every advancing step with success.

In this most valuable lesson there should be great inspiration to others. To the man who has stood for the defence of freedom before cannon mouth and musket shot, until his body is shattered and health broken, and in this condition has worked out such results, is due unmeasured gratitude, homage and respect. Henry Slack has not been widely known publicly. He has been forced to work in quiet paths, but as a teacher and exemplar of good work, as they become known, he stands second to no man in the Empire State. GEO. T. POWELL.

New York.

Abortion—An Epidemic.

ED. HOARD'S DAIRYMAN:—I think it was Prof. W. A. Henry who said that it was the merit of Editor Hoard to first recognize the fact that it was to the maternity of the cow that we must credit the dairy business of the world.

This, of course, cannot be gainsaid; that is, the maternity business, whatever the connection Editor Hoard may have had with its discovery.

An obvious corollary is, that to the regular and normal maternity of the bovine race must we ascribe success in the dairy business and by the same token irregular and abnormal maternity would naturally bring disaster. This much as a sort of overture to some remarks on contagious abortion among cows. It has become a very prevalent and alarming disease among the cows of this vicinity.

In one herd of seventy-five or eighty cows, sixty-five of them have aborted within a year and a half. In another herd of fifty cows, ten abortions have occurred within three months. Other herds have suffered more or less. The epidemic is so acute and the disaster so wide spread that it seems to paralyze effort to stay it. The bulletins from the Agricultural Department at Washington have been gotten and read, as well as standard text books consulted, but it seems to the writer that there is need that some of our experiment stations should take the matter up and study it with greater care and devise some means to "abort" the disease in its incipiency instead of waiting for it to run itself out by destroying the usefulness of our very best herds.

I write this hoping that the DAIRYMAN will take up the subject and talk strongly to our scientific men until they will give it more study and accomplish something more than has been done heretofore in eradicating this discouraging and disastrous disease.

Detroit, Mich. A SUFFERER.

See the article by Prof. Russell in the last issue of the DAIRYMAN.

Transfers of Guernsey Cattle from February 1 to 15, 1899.

BULLS.

Count Golden 5546, Chas. L. Hill to James Forsyth, Owego, N. Y.
Charles I 5802, Mrs. E. B. Patterson to John E. Wilson, Rockville, Md.
Count Tricksey 5531, Geo. C. Hill & Son to Ethan Whiting, Waupun, Wis.
Don of Look Off Farm 4353, Hartley Lord to A. H. Walker, Kennebunk, Me.
Don of Harford 5788, Samuel S. Wright to George A. Stearns, Harford, Pa.
Guard of the Quarry 5003, Wilbur Hazard, to Nichols and Langworthy, Hope Valley, R. I.
Golden Nero 5508, Isaac Kimball to Geo. H. Howland, Gloversville, N. Y.
Gen. Mac of Peacedale 5356, Samuel G Bye to Samuel R. Haines, Rising Sun, Md.
Martie's Major 4110, H. A. Rider to C. E. Jenkins, Rochester, N. H.
Sheet Anchor 2d 4149, Isabel S. Wilhelm, to S. M. Shoemaker, Stevenson, Md.
Sir Coral 5239, Geo. C. Hill & Son to M M. and E. J. Hollingsworth, Landenburg Pa.

COWS.

Beauty's Cottie 11272, Jennet Beauty 11271, Jno. S. Pottorf to A. M. Carr, Salem, O.
Crocus R. 11273, R T. Ridgway to E. E. Lambertson, Freehold, N. J
Dotikins 9137, Maid 4th 6808, E. S. Thomas to Chas. D, Nixon, Owego, N. Y.
Erin's Daisy des Vauxbelets 7799, Hawarden's Lily 7797, Lady of Lake View 3d 7800, Squire's Phœbe 7796, Squire's Topsy 7798 Morris Lloyd to E. B. Staggers Jr., Newark, Del.
Fancy's Jewel 8450, N. I. Bowditch to F. N. Livingston, Haverhill, Mass.
Lady Garfield of Round Hill 3485, H. A. Rider to C. E. Jenkins, Rochester, N. H.
Lady Hall 11276, S. C. Hall to J B. Palmer, Jewett City, Conn.
Millwood's Cousin Betty 10037, Est. E. F. Bowditch to F. N. Livingston, Haverhill, Mass.
Myrta of Belvan Heights 11290. R. H. Page to Charles B. Case, Trenton, N. J.
Nellie Truth 6494, Nelly's Gem 4185, Hartley Lord to A. H Walker, Kennebunk, Me.
Procris of Paxtang 8722, Sultana of Paxtang 8732, Trilby of Paxtang 8727, Isabel S. Wilhelm to S. M. Shoemaker, Stevenson, Md.
Pauline Chief 6172, C. H. Lockwood to E. P. Wright, Canandaigua, N. Y.
Pocahontas of Meadowvale 11287, Collen B. Meirs to Henry A. Parr, Lutherville, Md.
Rubina Hudson 11275, S. C. Hall to Irving E. Holmes, Rochester, N. H.
Peterboro, N. H. WM. H. CALDWELL, Secy.

There is no argument so good as an absolute, plain, truthful statement of fact. There is nothing so interesting as fact.



In the true happenings in the every-day life of every-day people are materials for most thrilling novels. There are every day stories of heroism, suffering and the final triumph of good over evil—of happiness finally crowning endeavor. Here is a case in point:

In the county of Escambia in Alabama is the little town of Flomaton and there lives Mrs. Mollie Grimes. She was a good wife and mother but several years ago she found her health slipping away from her. She realized that this meant the inevitable nervousness and irritability that would surely lose for her the affection of her children and husband, and that as her health declined discord and misery would appear in her home. She was filled with the loving motherly instinct, but two miscarriages in succession almost broke her heart. She had almost lost hope when the clouds rolled away and the light of health and happiness returned.

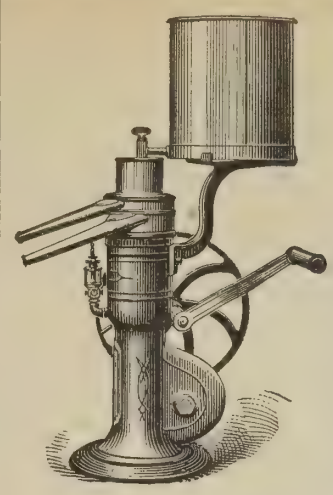
She tells her story in these words:

"I was almost heart-broken to think I could not raise any more children and had to suffer as I did. I had lost two children by miscarriages and I fully expected to lose another when, in August 1897, I learned of and began taking Dr. Pierce's Favorite Prescription and took it until after baby was born in November. With my other children I had suffered everything that flesh could suffer but this time I was in perfect health and had a very easy time. I was in labor only a short time. I cannot praise Dr. Pierce's medicines enough for I believe they certainly saved my baby's life and maybe my own life as well. I took the 'Favorite Prescription' and also the 'Pleasant Pellets. The 'Pleasant Pellets' act like a charm."



National...

Cream Separator.



Ease of Running	The NATIONAL is the Best.
Perfection of Skimming	The NATIONAL is the Best.
Quality of Cream	The NATIONAL is the Best.
Strength and Durability	The NATIONAL is the Best.
Ease of Cleaning	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.

THE AMERICAN Cream Separator



PRICE - - - $65

Still at the Head. Receiving First Premium and Diploma At The ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER,
St. Marys, Ont., and
S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had had a Binder and now had the complete volume with index bound, its value would be increased greatly.

Get a Binder

now for the present volume and preserve the copies in handy form for reference and reading.

BINDER BY MAIL POSTPAID, 75 CENTS

FINE FRESH GROUND MICHIGAN Land Plaster

ONE DOLLAR PER TON

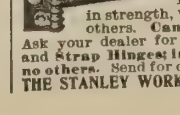
To Wisconsin and Minnesota Farmers ONLY.

Fifteen tons the least that can be shipped. Loaded on cars at our Mills at Grand Rapids, Mich.
Special Freight by Car Ferry to Milwaukee of Five Cents per 100 pounds.
We carry a large stock and can ship promptly.
Cash must accompany order.

MICHIGAN & OHIO PLASTER CO.,
401 Pythian Temple,
GRAND RAPIDS, MICHIGAN.

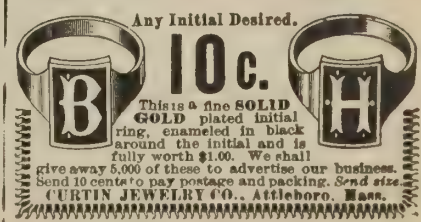
WANTED—Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

THE BEST HINGE
For Barn Doors, Any Doors, Gates, Etc., is the



STANLEY CORRUGATED STEEL HINGE.
The corrugations add 50 per cent in strength, while the hinges cost no more than others. Can't bind on the pin even if it rusts. Ask your dealer for Stanley Corrugated T Hinges and Strap Hinges; insist upon getting them and take no others. Send for circulars, etc., FREE.
THE STANLEY WORKS. Box 12, NEW BRITAIN, CONN.

Any Initial Desired.



10c.

This is a fine SOLID GOLD plated initial ring, enameled in black around the initial and is fully worth $1.00. We shall give away 5,000 of these to advertise our business. Send 10 cents to pay postage and packing. *Send size.*
CURTIN JEWELRY CO., Attleboro, Mass.

THE Kansas Legislature has just made an appropriation of $34,000 for the establishment of a Dairy School at the Agricultural College—$25,000 for dairy building, $6,000 for dairy apparatus and $3,000 for dairy herd. Plans for the building are already drawn and work on its erection will begin April 1st. It is expected to have it ready for use September 1st, and will open a fully equipped Dairy School Jan. 2, 1900, with courses in creamery butter making, cheese making and private dairying.

An appropriation of $2,000 was made for Farmers' Institutes, the first appropriation made for this work in the state. The total appropriation made for the college amounted to $110,000.

Aerating City Milk.

ED. HOARD'S DAIRYMAN:—In answer to Mr. N. A. Towns, will say, that I am in the same business, and have had a good deal of the same experience he speaks of.

The aerator has done a good deal towards giving the dairy a reputation in Chapter Hill, and I do not hesitate to advise any milk dairyman to invest in one.

I have gotten several people out of the way, who sold milk from one or two cows, by buying the cows, even if I have to pay a third more than the cow is worth. Of course, if I do this the man must agree not to sell any more milk for at least two years.

The aerator mentioned above, is advertised in this paper, and if Mr. Towns has never used one, he will be surprised to see the difference it will make in his milk.

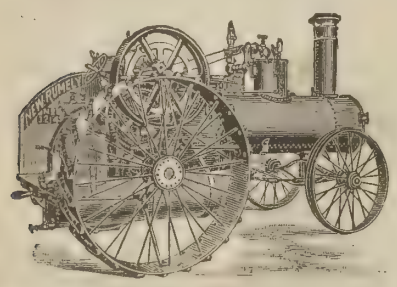
Although it is done by a good many dairymen, it seems to me fatal to put all of the milk in a large can and draw it from the bottom. The man who gets his milk from the bottom of the can, practically gets skimmed milk, and as long as this is done the milk will never be satisfactory, no matter how small the quantity. I put each man's milk in a can or bottle by itself so that he gets all the cream he pays for.

N. C. P. C. WILLIAMS.

ILLUSTRATION.

THE M. RUMLEY COMPANY.

The institution bearing the above name was established forty-six years ago, and has been doing business and growing all these years at LaPorte, Ind. They are manufacturers of a line of machinery that has not only made them famous in this country, but which has been of such quality and superiority as to attract trade from European countries as well.



The M. Rumley separators and engines are known everywhere for superiority of their construction and the uniform high quality of their work. The cut which we present herewith is that of the New Rumley Rear Geared Traction Engine with Friction clutch. It serves in an excellent way to illustrate the high quality of this company's product. This engine is famous for its high power coupled with econony as to steam and fuel; it is the quickest steamer known and is the best of high reserved force; it is possessed of unusual tractic power and takes its lead with ease over the most slippery roads. With all its size and power, it is so sensitive to the stearing apparatus as to be handled with perfect ease.

In addition to this Traction Engine, these people make also Compound Traction engines, Portable engines and Semi-Portable engines. In threshers, they manufacture the New Rumley separator, which combines the apron and vibrating principles, with loading spouts, high wagon elevators, clover hulling attachment, telescope weighing device, telescope bagger, etc. These machines are equipped with the famous Rumley Uncle Tom's Farmer's Friend Straw Stacker; the Rumley Band-Cutter and Feeder and the Rumley Automatic Stacker.

A full line of Dingee-Woodbury Horse Powers, Saw Mills of various sizes and Maurer's Automatic Baling Presses completes the line. Every article is the complete embodiment of good material, good skill and perfect workmanship. Write them for large illustrated catalogue, which they will take pleasure in mailing to our readers.

CONCERNING OUR ADVERTISERS.

NOTE the special offer in this issue made by the T M. Roberts Supply Co., of Minneapolis, Minn. It is too good for any one to miss. Twenty packages of garden seeds free.

THE Farmers' Handy Wagon Co., of Saginaw, Michigan, gives each month, to the readers of the papers in which they advertise, a Handy Wagon. If any of your readers have cards of the following numbers they can get a wagon by sending in their cards. Series A, 1174, 1172 and 2319. Series B, 4129 and 6593. Series C, 1504 and 1314. Series M, 1907. Series N. 8614. Series P, 1663. Series S, 367. Series U, 3203 and 428. Series X, 2459. Series V, 2272. Series Y, 8816. Series BB, 8672. Series CC, 6402.

P. J. COGSWELL says:

"Settles & Settles, of Palmyra, Mo., write me as follows: 'Ophi's Exile, our 75% son of Exile, is getting unusually fine calves. We recently sold a yearling heifer by him for $200.

A report of this kind, in these times of low prices is very encouraging, and shows that the recent depression does not bring ruinous prices to stock of the right individuality and breeding. Ophi's Exile is a 75% son of Exile St. Lambert, by Ophi of St. Lambert 49004, (test 14 pounds, 10½ ounces), she being by Exile of St. Lambert, and dam, Augerez's Violet, an imported cow. Ophi of St. Lambert is a most excellent cow. I have just sold a son of her, by Exile's Successor, to go to New Jersey."

A NOVEL SCHEME.

Mr. F. B. Mills, the enterprising seedsman, of Rose Hill, N. Y., whose success has been most remarkable, made so largely on account of his enterprise and fair dealing, has devised another scheme that is equally as forceful and attractive. The ten cent due bill that he furnishes to all who write him for a catalogue is proving a very liberal offer, and our readers need have no fear that they will be unfairly dealt with. Better send at once for catalogue and get a due bill which will help pay for your season's seeds.

The object in making this liberal offer is to induce those not acquainted with Mr. Mills to try his seeds for this season. Mr. Mills feels confident that one season's trial will make a permanent customer.

"NO REMEDY EQUAL TO CAUSTIC BALSAM"

WATERTOWN, Wis., Dec. 29, '97.

THE LAWRENCE-WILLIAMS Co., Cleveland, O — Your bottle of "Gombault's Caustic Balsam" arrived safe, and I feel duty bound to notify you of what an excellent, valuable remedy you have. I am a druggist, a graduate of Chicago College of Pharmacy, class of 1883. I have been in the drug business twenty years; have compounded horse receipts for some of our ablest and most experienced veterinary surgeons, but there is no remedy equal to your great "Caustic Balsam." No stable ought to be without your valuable remedy.

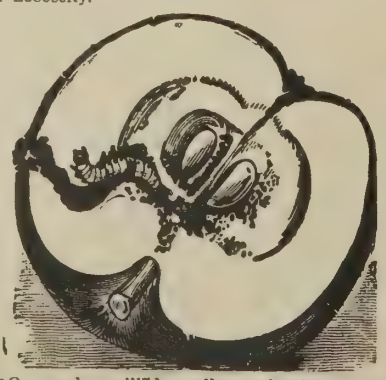
WILLIAM G. CODY, PH. D.

We often wonder if the general public properly appreciate the privilege of doing business with the pioneers and originators of an industry. Undoubtedly, no body else has so many advantages, in the way of knowledge of the business, requirements of the trade, actual needs of the people, best and most economic methods of manufacture, etc., as the active and observing pioneer in any line of manufacturing.

We know that this is true, at least, in the manufacture of green bone cutters. The Mann Green Bone Cutter was the original perfected machine of its kind, and remains to-day the leader among such machines. They have the largest factory in the world, devoted exclusively to the manufacture of green bone cutters, and are selling more machines than all other manufacturers combined. Their cutters embody in their construction every requirement of a perfect machine of this kind, and is the result of ample experience and extended experiment. They will be glad to mail their illustrated catalogue, which explains the cutters in detail, to all interested inquirers. Address, F. W. Mann & Co., Milford, Mass.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking

DON'T DESPAIR!

An American Scientists Great Work.

Consumption, Pneumonia, La Grippe, Asthma, Catarrh, Bronchitis and All Lung and Bronchial Troubles Can be Positively and Permanently Cured

DR. SLOCUM'S SYSTEM OF TREATMENT HAS REVOLUTIONIZED OLD-TIME THEORIES.

A Free Course of Treatment for all Sufferers for the Mere Asking.



SCENE IN THE SLOCUM LABORATORIES, NEW YORK CITY.

The Doctor Demonstrating to Medical Men, Scientists, Statesmen and Students the Value of the New Slocum System of Treatment for the Permanent Cure of Lung Consumption, Catarrh and All Pulmonary and Wasting Diseases.

Do you cough?
Do your lungs pain you?
Is your throat sore and inflamed?
Do you spit up phlegm?
Does your head ache?
Is your appetite bad?
Are your lungs delicate?
Are you losing flesh?
Are you pale and thin?
Do you lack stamina?

These symptoms are proof that you have in your body the seeds of the most dangerous malady that has ever devasted the earth —consumption.

Consumption, the bane of those who have been brought up in the old-fashioned beliefs that this disease was hereditary, that it was fatal, that none could recover who were once firmly clasped in its relentless grip.

But now known to be curable, made so by the world-stirring discoveries of that man whose name has been given to this new system of treatment.

Now known to be preventable and curable by following and practicing his hygienic teachings.

The new system of treatment will cure you of consumption and of all diseases which can be traced back to weak lungs as a foundation.

It is not a drug system, but a system of germ destruction and body building.

Not guesswork, but science.

Not a step backward, but a stride out of the old ruts.

Made possible only by Pasteur's Virchow's, Metchnikoff's and Slocum's latest discoveries in bacterology, hygiene and therapeutics.

In plain English, a system of modern scientific disease curing.

The System consists of Four Preparations which act simultaneously and supplement each other's curative action.

You are invited to test what this system will do for you, if you are sick, by writing for a free treatment to the Slocum Laboratories, New York City.

WRITE TO THE DOCTOR.

Send your name and full express and post-office address to the Slocum Laboratories, 98 Pine street, New York, and mention HOARD'S DAIRYMAN, and the Four Free Preparations of medicine will be forwarded you.

The system is a positive cure for consumption, that most insiduous disease, and for all lung troubles and disorders complicated by the loss of flesh, Coughs, Catarrh, Asthma, Bronchitis, etc.

Thin, pale, weak people become fat and hearty by its use.

The test is to try it.



— THE —

Willard Knapp Cow Tie

Still the Dairyman's Ideal.

Mr. DAVID ROBERTS, Breeder of Jersey Cattle, Moorstown, N. J., Writes Us:

"I have given your ties a fair trial and am **very favorably impressed.** If the cows could talk, I believe they would **shout for joy** and say **delightful.** I write to know your best price on twenty more."

All orders reaching us through the HOARD'S DAIRYMAN until May 1st will be DISCOUNTED 10 PER CENT to introduce our Ties in a new field.

SEND FOR FREE CIRCULAR.

WILLARD H. KNAPP & CO., BOX R, Cortland, N. Y.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

GRUBS IN BACK—HOLLOW HORNS AND TAIL.

How can I prevent worms or wolves from getting in cow's back? What is the disease that causes a cow's horns and tail to get hollow, and the remedy? We in the south call it hollow horn, but you say there is no such thing as hollow horn, but there are a great many cows die with this disease. J. D. P.
Austell, Ga.

ANSWER.

See article last week, or so, for grubs under the skin. Never saw a cow's tail that was hollow—never. Sometimes the tail of a cow becomes limp in places, but this is by no means a disease; it is a diseased tail, caused by some disease—organic or otherwise; of these there are several. The cure is to find the disease which is the cause, and cure it.

MILK FEVER.

On March 11th at 6 a. m. a mature cow gave birth (without aid) to a dead heifer calf which was due Feb. 22nd. The cow seemed all right and at 9 a. m same day cleaned nicely, ate and drank during the day in perfect ease.

At 8 p. m. she seemed comfortable and in good spirits; at 6 a. m. next day found her down and unable to arise. Called a veterinary. Hind legs and back useless, remained in this condition, growing worse, until 2 a. m. next morning when she died. Feed before calving, 1 pint ground rye and oats mixed in equal parts and 2 quarts bran per feed, clover hay, oat and rye straw mixed.
Leroy, Ind. C. B. B.

ANSWER.

If the cow came to her milk at all you had, unmistakably, milk fever. The reason for or cause of the dead calf is quite beyond my knowledge as there are so many different things which might have been the cause, accidents of any kind colds, etc., in getting up or in lying down, slipping backward with either or both of the hind legs, etc.

HARD MILKING.

I have a Jersey cow fresh in milk. One quarter of her udder is wrong. To all external appearance it is healthy, no cake or inflammation, but will only give me a good stream followed by several small streams, each succeeding one smaller than the one before, until no milk at all flows. By waiting, p rhaps, one minute, the above is repeated. By reaching well up on the udder with one hand I can bring down a sufficient amount of milk for one good stream. Then by taking the other hand, and by making two or three strips, I can get a portion of that milk, but I can feel some of it pass back by the hand I am holding it down with. Through all the squeezing and stripping the cow goes right on eating, showing that it does not hurt her. K B. J.
Allegan, Mich.

ANSWER.

You need the best and easiest milk tube to be had; read ads. in the DAIRYMAN. I expect the difficulty is from the membrane overcapping the head of the teat.

INJURY TO BULL FROM LOSING HORN.

While in excellent health, apparently, my bull slipped and broke off one horn. He bled profusely. We had great difficulty in stopping it. He ran down rapidly for some weeks after that, became very thin, though still ambitious. Ate heartily, but would not gain in flesh until the last few weeks. I am not now allowing him to breed, but he was so used for several weeks after the accident. How long should I keep him from service, if at all? Several heifers bred to him, both before and after the accident, still come in heat. Would say he also caught a cold, apparently. He ran at the nose a mattery substance and has still a light, loose, windy, infrequent cough.
Adams, Wis. G. L.

ANSWER.

You do not have tuberculosis, in my opinion, by any means. I think the injury which resulted in breaking off the horn is responsible for the depressed condition. Time and good care will recruit him, I think Don't care to medicate him at all. Feed good and nutritious food. No, don't let him serve for a little while, at least. Wash out the nostrils with bromo chloralum one to eight of water. Inject each nostril after washing—a little only.

SKIN DISEASE.

Will you please tell what is wrong with my calves? They become scaly around the eyes, and several of them have sores or scaby places at the side of the mouth. The hair comes off, but they are not very sore to touch them. The calves are doing well otherwise.
Will buttermilk remove lice from cattle?
Abilene, Kan. C. C. W.

ANSWER.

You have some form of skin disease and the treatment is the same for all and any. Pull off all the affected scabs; wash carefully with Tilden's Bromo Chloralum one to eight of water. After drying paint over the affected spots with tincture of iodine. Be very careful not to let it get into the eyes.

For lice use tar soap, and thoroughly rub into the bottom; then oil of tar one ounce; fish oil one quart. Rub down to the bottom of the skin.

Don't know about the buttermilk killing lice. It might.

FAILURE TO BREED.

Three of my best cows are doing very unsatisfactory indeed. One I think, has womb trouble. She hasn't dropped a calf in more than two years. She is regularly in season, but does not conceive. She has very offensive discharges, commencing about ten days after having been served, and continuing three or four days. Nearly every morning there is a tablespoonful of blood under her. Her appetite is fairly good at present; generally it is poor. She is thin and gives very litttle milk. J. B. G
Paschal, Ga.

ANSWER.

You need an examination by an expert. Service is quite contrary to logical conclusions, and always makes bad worse. She may or she may not be affected as you intimate. She may be suffering from chronic nymphomania, resultant from affection of the ovaries, or some portion of them. An examination can alone determine this.

SKIN DISEASE IN HOGS.

My hogs are affected with what I believe to be mange. They have small pimples on skin along belly and between legs. Sometimes a part is much tumefied and inflamed, and continues for some time. These symptoms are accompanied by severe itching, continual scratching and rubbing. In the fall I had them in open pens which were not fit for hogs during wet weather, but now I have a good, warm, dry, clean shelter for them. A SUBSCRIBER.
Ackermanville, Pa.

ANSWER.

You require and must have personal attention to your hogs Remove all the more affected to a high, dry, clean place. Scrub the affected with tar soap and hottish soft water, and give one ounce of castor oil and one ounce common turpentine. Repeat every second morning up to three doses. Get a genuine veterinary surgeon at once, and do as he recommends. You have a bad disease.

INJURY TO BULL.

What is the matter with my Jersey bull, 15 months old? Served cow three weeks ago all O. K., put him with another on the 10th, and found on his first attempt at service that the blood run from navel in a stream. Found no sore or cut, but seemed very sore.
Do you think he will recover?
Manilla, Iowa. C. W. W.

ANSWER.

I can't tell you. You need a personal examination of an expert. There may be a tumor out of your finding. There may be a rupture of the sack lining the base of the penis. He may recover, but such cases are doubtful.

CLOSED TEAT.

Can you inform me how to cure a teat (on a young cow) that is closed with a redish scab? Each time we milk, no milk can be drawn till the vent is picked open.
Kerrmoor, Pa. SUBSCRIBER.

ANSWER.

You need a good easy plug and an easy tube for a while. See ads. in DAIRYMAN. I know of no other equal remedy for just such cases.

COLD

One of our cows, fresh four or five days, in good condition, six years old, taken with sneezing, eyes swollen, most shut, and run water in great quantities. Backs in her stall, turns her head to the right side. Her rectum swollen the same as her eyes. Was the same last year; got over it in a few hours so she would eat but eyes were swollen quite often last summer. SUBSCRIBER.
Portage, Co, O.

ANSWER.

If large, 1½ lbs. of Epsom salts and two oz. of best ginger and one dram of nux vomica. In five days repeat with one pound. Bathe the eyes with sulphate of zinc, ten grains, water, cold, one pint. After the salts give two drams of podophyllum and half a dram of nux vomica in 3 ozs. of old whisky and 4 ozs. of cold water every alternate day for three doses. Then wait a week and give one more dose. If needed, inject the vagina with Tildon's Bromo Chloralum, one to eight of warm water, use liberally for three days.

Truth is stranger than fiction
You know it
And
You forget it
Until something happens
Then
You realize it
Thus
That enormous output
Of machines
For which
McCormick is famous
All over the world
That output
Which dwarfs all other outputs
By this shrewd advertisement
Shows its mammoth proportions
And you are astonished
Yet you knew it
Knew it well
Truth is truth but it needs

A Strange Reflection to emphasize it.

The McCormick Harvesting Machine Company of Chicago built and sold 189,760 machines in the season of 1898 just past.

McCORMICK

Our great sale is your guarantee. The most modern machine means most for your money. Buy the McCormick, it is always the best and it is always the cheapest in the end.

BUY McCORMICK BINDERS. BUY McCORMICK ONE HORSE MOWERS.
BUY McCORMICK DAISY REAPERS. BUY McCORMICK CORN HARVESTERS.
BUY McCORMICK BIG 4 MOWERS. BUY McCORMICK RAKES.
BUY McCORMICK NEW 4 MOWERS. BUY McCORMICK FODDER SHREDDERS.

Second-hand Separators

I have on hand a lot of Cream Separators in good order, that I will sell cheap for cash. Second hand Sharples Factory and Dairy Separators. Also De Laval Standard Alpha and Baby Separators of almost all sizes. Also second hand separators of other makes. Write for prices and particulars. **P. O. Box 856, Philadelphia, Pa.**

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan.
LINDEN LAWN FARMING CO.,
Lock Box 354, Olney, Ill

ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

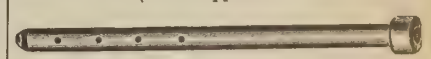
ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.
Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs
Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.
Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.
Send for free booklet and testimonials
Animal Germicide Co., 319 Washington St., N. Y.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS
(Patent applied for)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
Dr. WM. HORNE, Janesville, Wis.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure
The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for **FREE $2** trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis

Dairy Straws from Ohio.

Why Creameries Do Not Pay.

ED. HOARD'S DAIRYMAN:—Only here and there over Ohio does the creamery business seem to be a success. There are more of them that are in operation under a non paying basis, than of those that pay.

It is so seldom that creameries prove a real active paying investment, that we feel like making inquiry into the real reason why they pay, and also why they do not. The reasons are various, and also numerous.

Co-operative concerns have failed to respond to the wishes of those who have created them, largely, because the investors have failed to provide the sinews of war, namely milk, or, on the other hand, provided poor government for maintaining them. It is a notorious fact, that farmers will not combine together for their own defence, or if they do, will break faith with each other at the first rupture that may occur, and with unforgiving spirit, sink good hard cash rather than stay together for mutual and self protection. Co-operation in creamery work is by far the best, and cheapest means for dairymen to manufacture and market butter or cheese, but history fails to prove the fact. Nevertheless, with the bad record of such concerns, we do not believe that the reason why so many of them have been absorbed by private individuals is, not because the principles of co-operation are not right and perfect, but as we have already said, the fault of men and not the other.

It is a fact that but few men are competent to take charge of the business of a creamery, and especially without experience, and very often men here in Ohio are doing that very thing. They have been successful in their own business, and, for that reason, pushed to the front, when a creamery organization is perfected, and very often resulting in closing out of the plant, either in a short time or after lingering some time, collapses with disastrous results.

We know of a number of both co-operative and company concerns, that, failing to succeed in first hands, have been closed out at low figures, and under the management of the purchaser made paying affairs.

There are so many intricate things connected with the practical work and running of a creamery, that few men acquire the line of knowledge that successful work requires.

It may have been possible in years gone by, that some men have, by a mechanical business tact, made factory handling of milk pay, but to-day success for the beginner demands an education that will enable him to take up the work in a scientific way. The study of bacteria has become a part of that education, without which the young man who expects to make a first-class operator must become studiously familiar with, if his product seeks the top of the market, and expects it to stay there week after week, or by the whole year.

The owner of a creamery, who has not become familiar with the fact that the churn gain on high testing milk is higher than that of low testing milk, has already passed the place where is likely to make a paying success out of his plant.

Too many fail to comprehend that each pound of butter fat creates the same amount of gain, but that the loss sustained in the skimming and churning is the same in each class of milk; hence the percentage of loss to each pound of fat is greatest upon the poorer milk; hence the claim that the richer milk gives greater gain over the other. Just the lack of a fair comprehension of these facts has led many factories into trouble, by paying patrons not only for butter fat, but dividing the gain at the churn, upon an even divide, regardless of the difference of per cent of butter fat. We have known where patrons have left creameries, because of the fact that other patrons who brought in 3.5% milk against their 5% product, got an equal share of the gain.

We have knowledge where one factory went into debt head over heels, by the use of a popular butter calculator in making out churn gains from the fat tests, when there must have actually been little or no churn gain, from the fact that there was a high percentage of loss in both skimming and churning.

Experience has taught us that the creamery business demands a kind of book keeping unlike any other vocation. The ordinary double entry mode of keeping books, with books posted every month, with balance struck as often, does not afford sufficient knowledge at the end of each year to tell correctly how the business stands, where the above facts have been found to exist. The plan employed to correct the faults of this particular system, was to place each month's expense in that month's account, even if that money had been spent months before and placed to a separate account.

At the close of the year the business for that year was closed to date of settlement; product unsold, or on hand, invoiced at probable market price and a report made to stock-holders, and any deficit or gain attached to the first month of the year.

While this may not be the very best plan to follow, yet it has given satisfaction, inasmuch as the factory knew at the end of each year whether or not it came out ahead or behind.

We have reason to believe that the most successful and satisfactory creameries are those owned by individuals and conducted by their single ideas of what is best and conducive to success.

One plant, costing $5,000 put up and operated a short time by a company, sold for a small sum of money to a young enterprising man, and for years has made 1,600 lbs. of high grade butter daily, that finds its way into a large city at top prices. Others have done the same thing and will continue to do so.

Only last week, the writer stepped into a $3,700 plant that had recently been sold for less than $700 to the proprietor, who was batching it, and with the aid of a boy was running it himself, and by seeing to the selling himself, was making the plant pay him a fair compensation for time and money invested. Take a circumstance like this and make a comparison with an expensive plant on which a six per cent dividend must be paid by patrons if co-operative or for a joint stock company; the same ice, supplies, and from $50 to $75 per month for operator, the monthly expense will run from $110 to $150 for each calendar month.

It is useless to talk about a co-operative or stock company running a plant as cheaply as will a man who has the absolute ownership of it. It is simply out of the question and does not admit of successful argument.

Were I wanting to help start a creamery in my locality and wanted it to be a success, so as to continue my patronship, I would rather subscribe the money as an individual with others and when the plant was completed, turn it over to a trustee with orders to lease it for ten years or more to a good creamery man who was a success, for the magnificent sum of $1, at the end of which time, if kept in successful operation and repair by him, have said trustee turn the plant over in full to him, as a reward for his pluck and as a public benefactor, and I will make money by having it just that way. All this may seem strange, but after going through the grind once or twice, a fellow's foresight gets almost as good as his hindsight. At least, he does not care to be burnt twice in the same place, hence, avoids being cauterized. Here in Ohio a responsible man is liable for twice the stock he subscribes for, and cannot avoid responsibility by sale or transfer, after any debt may have accrued, unless incorporated under the laws of a limited corporation.

I doubt not but some party who has been connected with a successful concern, will attack this assumption, yet it is a noted fact that a majority of such creamery companies get to the place where they are compelled to squeeze their stockholders.

With the light that experience has taught us, and we were raising money to erect a creamery, it would be upon the plan we have urged, practically upon the gift plan, and forever closing up any gaps for doubling up subscriptions.

Had such a plan been in vogue for the past ten years, there would be less howlers, more substantial creameries and more farmers on the road to affluence and wealth.

Who will throw the first stone?

GEO. E. SCOTT.

Ohio.

ARE YOUR KIDNEYS WEAK?

Have You Bladder or Uric Acid Trouble?

YOU MAY BE AFFLICTED AND NOT KNOW IT.

By Special Arrangement, Every "DAIRYMAN" Reader, to Prove for Themselves the Wonderful Merits of SWAMP-ROOT, the Great Kidney Remedy, May Have a Sample Bottle Sent Absolutely FREE by Mail.

People are apt to believe that kidney disease is rather a rare disease, but recent discoveries have proved that it is a most common trouble indeed.

And the proof of this is, that most diseases, perhaps 85 per cent, are caused in the beginning by disorders of the kidneys.

You can't be sick if your blood is pure, free from kidney-poison and disease-breeding germs. Your kidneys should keep it so. That's what they are there for. And as long as they are well they perform their duties with thoroughness and dispatch.

You are well when your kidneys are.

Dr. Kilmer's Swamp-Root, the great kidney remedy, will make your kidneys well when they are sick.

Kidney trouble often comes from overwork or over exertion. From exposure to cold and other weakening influences, from lifting or a strain, from over-eating or drinking. All these things weaken you kidneys, and poisonous germs begin to creep into your blood.

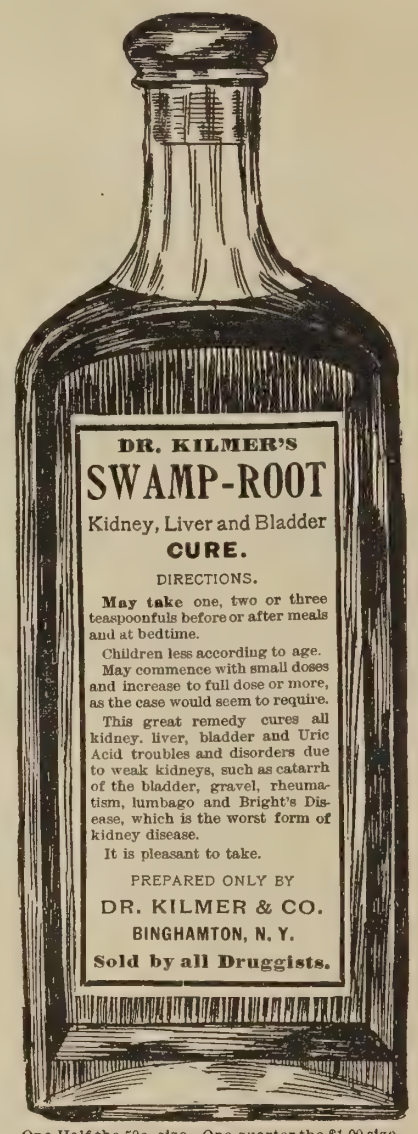
It is at just such times that Dr. Kilmer's Swamp-Root is needed.

When your kidneys are not doing their work, you have backache, headache, sediment in urine, scalding irritation in passing it, obliged to go often during the day and to get up many times at night, dizziness, or irregular heart, bladder or uric acid troubles, rheumatism, neuralgia, sleeplessness, nervousness, irratability, sallow complexion, bloating, dropsy, tired feeling, loss of energy and ambition.

Swamp-Root is the great medical triumph of the nineteenth century; discovered after years of untiring effort and research by the eminent kidney and bladder specialist, Dr. Kilmer, and has truly wonderful restorative and healing action on the kidneys and bladder.

The best proof of this is a trial, and nothing could be fairer than the offer to send a sample bottle of this great discovery absolutely free by mail.

To get a sample bottle and a book giving some of the thousands upon thousands of testimonial letters received from sufferers cured, write to Dr. Kilmer & Co, Binghamton, N. Y., and mention that you read this liberal offer in HOARD'S DAIRYMAN.

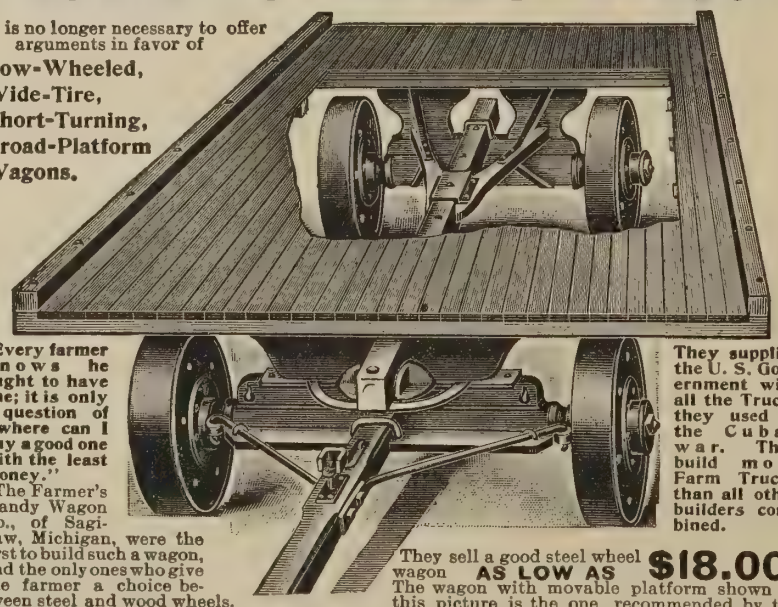


One Half the 50c. size—One quarter the $1,00 size.

If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent or one-dollar sizes at the drug stores. Don't make any mistake, but make a note of the name, SWAMP-ROOT, Dr. Kilmer's Swamp-Root, and remember it is prepared only by Dr. Kilmer & Co., Binghamton, N. Y.

FARMER'S HANDY WAGON

It is no longer necessary to offer arguments in favor of **Low-Wheeled, Wide-Tire, Short-Turning, Broad-Platform Wagons.**



Every farmer knows he ought to have one; it is only a question of "where can I buy a good one with the least money."

The Farmer's Handy Wagon Co., of Saginaw, Michigan, were the first to build such a wagon, and the only ones who give the farmer a choice between steel and wood wheels.

They supplied the U. S. Government with all the Trucks they used in the Cuban war. They build more Farm Trucks than all other builders combined.

They sell a good steel wheel wagon **AS LOW AS $18.00.** The wagon with movable platform shown in this picture is the one recommended by the Agricultural Colleges and Experiment Farms, and is the only truck ever adopted by the U. S. Government. The platform is easily removed and stakes placed on bolsters, then it is ready for an ordinary wagon box. The wheels turn under the load. **Send for Catalogue and prices.**

FARMER'S HANDY WAGON CO., Saginaw, Mich.

Steam in the Dairy.—A Good Jersey Herd.

ED. HOARD'S DAIRYMAN:—I will add a mite in favor of steam in the dairy. In the first place, hot water is a necessity, and the quickest and best way to get it is with steam. Second, fuel in the shape of wood is abundant on most farms. Third, the cost is considerable less. I am using a 1½ horse power tubular boiler and a one horse upright engine, which runs a De Laval separator, a Mason butter worker, a Stoddard barrel churn and a steam Babcock tester. There is a tank with a steam pipe running to it, that heats water for washing and sterilizing the utensils. I have seen a good many rigs, but after using this a year I see no place where I would change.

I am running Jersey cows, which average 300 pounds each of butter, and test from 4.8 to 6% of fat—that is, churned butter, besides supplying milk and cream for a family of four, and some sold to neighbors. Am feeding 15 pounds ensilage, and what hay they want, with 8 pounds mixed grain, corn, bran, cotton seed and middlings equal parts by weight; nutritive ratio 1 to 5.9; cost 15½ cents each for cows in full flow of milk. How is that? D. H. HILL.

Strafford Co., N. H.

Wise Words From Prof. Robertson.

No man on the American continent has a keener insight into the true philosophy of dairy management, or a truer foresight as to coming changes and modifications which shall affect the export demand.

At a recent meeting of dairymen in Canada, he spoke the following words of wisdom:

Farming concerns, as no other calling does, the sense of fair play in getting a living. A farmer doesn't get anything for nothing. He has to give an equivalent for everything, in stock, or labor, or something else. All other people, sometime or other, get something for nothing. For himself, he goes off on a holiday for a couple of weeks every five or six years, and his salary goes on just the same. Farmers make more money for the country than any one else, though they don't always keep it for themselves. We get $30,000,000 from our mines; $20,000,000 from our fisheries; $80,000,000 from our forests. Against this, we get $600,000,000 annually from agriculture.

With the great Anglo-Saxon race, the masterful sense is the sense of taste to the last. They are always working to get something for their mouths.

The thing that has developed the cheese business in Canada was that each factory was an object lesson to all who saw it, and farmers thought if another locality could have one, they could also have one in their own locality. This has increased our exports of cheese ten fold in a few years. Farmers should apply this principle of profiting by their observations, in other lines as well.

There is a growing demand for butter, but the lecturer thought that during the next ten years or so there would be a shrinking demand for cheese. The reason is that cheese on the tea table is coming to be considered unfashionable in England. The coming trade for the British tea table is cold ham and chicken and there is a hint in this for eastern townships farmers. The demand will grow for butter, because the people always eat bread and butter with their cold ham and chicken. These things Prof. Robertson had observed while in England. He advocated development of the pig and poultry trade along with manufacturing as much cheese as they could get a good price for. He then went into the question of what sort of swine should be raised. The difference between the many different breeds depends on the shelter, the feed and the care given. Any breed can in three generations be degenerated by neglect. So a poor hog may be bred up to a high class, but it will take a much greater time. It is always easier to destroy than to construct. Breed is the accumulation of someone's skill and management. With a pig a habit can be formed in five weeks that it will keep for a lifetime.

CARE REQUIRED.

The fact that a hog grows without much hair shows that it should be sheltered. There is no means of making a pig thrive when the wind blows on it. He never saw a pig willing to stand in the wind. The pig should also have a warm sleeping place and a dry one. One of the great troubles in making a pig pay is that it lies in a wet place. The floor of the pen should slant; this will keep it dry and will lessen the necessary labor of clensing the pen and the pig. The walls should be made so that they will be free from draughts. He would never build a stone pen in Canada, nor a cement floor to the pen. There should be plenty of light. Nothing promotes health in nature more than an abundance of sunlight. It kills all disease germs. After the pigs are weaned, they should be given a pasture where there is plenty of grass. Clover and skimmed milk will make pigs grow faster than anything else. Pigs should not be fed more than a quart and a half of milk a day. This, with some ground grain, will make the best bacon.

Referring to the value of oats for feed, the speaker said that the eastern townships farmers might produce better oats than they do. The peasant farmers of France grow eighty bushels of oats to the acre. And in that country the soil and climate is no better adapted than this to the growth of oats. The farmers here should grow twice as many bushels to the acre as they are getting. To get good seed, Prof. Robertson advocated that the farmer should go out to his oat field and clip by hand the best, earliest ripening, and largest heads of grain.

Returning to the feed of pigs. Prof. Robertson said that the feed should be always such as will keep them growing. They should be finished off on half corn and half oats, or some other grain. Farmers should get an average of two pounds of gain for every one hundred pounds of whey fed, and five pounds for every one hundred pounds of skim milk.

In answer to a question, Prof. Robertson said that since 1896 we have gained in our exports of bacon over 82 per cent.

For special bacon pork the hog should weigh about 180 pounds, live welght. The hog should not be fed very fast, and should be given plenty of exercise. This produces length and a thin back, desirable for bacon pork.

POULTRY FOR MARKET.

The fattening of poultry for the Engiish market was also gone into extensively by Prof. Robertson, and the possibilities of the expansion of this trade opened the eyes of many of his listeners.

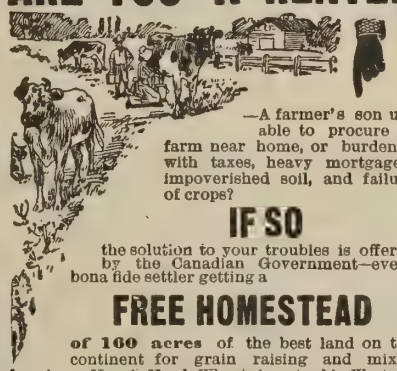
About half the lamp-chimneys in use are Macbeth's.

All the trouble comes of the other half.

But go by the Index.

Write Macbeth Pittsburgh Pa

ARE YOU A RENTER



—A farmer's son unable to procure a farm near home, or burdened with taxes, heavy mortgages, impoverished soil, and failure of crops?

IF SO

the solution to your troubles is offered by the Canadian Government—every bona fide settler getting a

FREE HOMESTEAD

of 160 acres of the best land on the continent for grain raising and mixed farming. No. 1 Hard Wheat is raised in Western Canada, the average yield is from **25 to 35 bushels to the acre.** Railways, schools, churches, &c., convenient, climate is the healthiest, the soil the best. For information apply to Supt. Immigration, Ottawa, Canada, or to

T. O. CURRIE,
Canadian Government Agent,
STEVENS POINT, WIS.

160 ACRE FARMS IN WESTERN CANADA FREE

EXCURSION RATES

to **Western Canada**

and particulars how to secure 160 acres of the best wheat growing land on the Continent can be secured on application to the Superintendent of Immigration, Ottawa, Canada., or of the undersigned.

Specially conducted excursion will leave St. Paul, Minn., on the first and third Wednesdays in each month,

and exceptionally ow rates on all lines of railway reaching St. Paul, are being quoted for the mammoth

Excursion leaving there on April 5th for all points in Manitoba, Assiniboia, Alberta and Saskatchewan.

T. O. CURRIE.
Canadian Government Agent,
Stevens Point, Wis.

TESTED BY THE MILK PAIL

Quaker Dairy Feed

is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.

Sold only in sealed and branded sacks.

Prof. Henry says: "For dairy cows there is no better grain than oats." In digestible ratio and protein content Quaker Dairy Feed is unequalled for the economical production of milk.

"MODERN DAIRY FEEDING"

An invaluable book containing scientifically proportioned rations, including every form of roughage and every variety of feed. Sent postpaid on request. Address Science Dept.,

The American Cereal Co.
1348 **Monadnock Bldg., Chicago, Ill.**

SCIENTIFIC ADVICE ON FEEDING

Big Baby Carriage Sale.

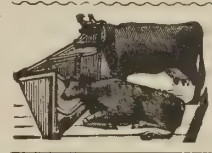
If any of our readers will cut this notice out and send to Sears, Roebuck & Co., Chicago, Ill., they will send you, free, by mail, postpaid, a handsome catalogue of baby carriages in colors, with lowest Chicago wholesale prices, free examination offer, tell you how to order, etc. etc.—[Editor]



FENNER'S
Revolving Six-sided CHURN.

Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes.

Send for catalogues.
R. W. FENNER,
South Stockton, N. Y.



Newton's Improved **COW TIE**
Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

Potash.

ENOUGH of it must be contained in fertilizers, otherwise failure will surely result. See that it is there.

Our books tell all about fertilizers. They are sent *free* to all farmers applying for them.

GERMAN KALI WORKS,
93 Nassau St., New York.



ECLIPSE Cream Separators

SUPERIORITY over any other make **GUARANTEED**; they are **CLOSEST SKIMMERS** and **Built DOUBLE AS STRONG as any other make**; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Ag'ts wanted. Catalogue FREE.

C. L. Chapman Separator W'ks, ERIE, PA.

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ZERO CREAMERY

Uses either water or ice. Does its work perfectly. Possesses desirable features found in no other.

Send for Circular, free, to learn all its merits. Efficient, inexpensive, clean, low temperature.
ZERO CREAMERY CO., PERU, IND.



Water alone will do the work. Money saved.

The Most Complete Creamery and Refrigerator on the Market.

THE NEW BOOK
Feeds and Feeding

By Prof. W. A. HENRY.
Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premum.

or

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and Practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with pratice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Send as above, or will be forwarded, carriage paid, on receipt of price $2.0

ALFALFA IN NEW YORK.

Mr. F. E. Dawley, superintendent of Farm Institutes in New York, informed us, while on a recent visit to that state, that fully one-half, if not more, of the hay harvested in his township, (Fayetteville, Onondaga Co.) and the adjoining township of Sullivan, Madison Co., the past year, was Alfalfa. Central New York farmers are coming to regard alfalfa with great favor, especially where cows are kept. It seemed almost like attending an institute in Colorado or Washington to hear the New York farmers discussing the alfalfa question as they did. We venture the assertion that in ten years it will be found on nearly every dairy farm from the Atlantic to the Pacific.

Oklahoma Cows Give But Little Milk.

ED. HOARD'S DAIRYMAN:—I read your paper carefully.

I read some of your readers claim of making from $40 to $60 a year from a cow. I say we have very fair cows, but we can't average but $15 per cow a year. Now there is something wrong somewhere, and I would like to know where it is. If you could help us and show where we make the mistake, (if we make any,) so that we could come anywhere near to what your readers claim, I am almost sure you would get some subscribers here. People say these newspaper men write a good deal, but it can't be done. To tell the truth, I have done all I possibly could; but making $40 per cow a year it is of no use to talk about it. I only keep seven cows, one thoroughbred Jersey, 4 grade Holsteins, and lately I got 2 registered Ayrshires. All become fresh lately. Sixty pounds of milk a day from seven cows, and the milk for two calves say 30 pounds. I feed all the corn stalks (fodder) they can eat, 6 pounds bran a day, and some corn in the ear. They have warm stable well bedded, good fresh water, we will milk regularly and clean, and have all the salt they want. Cotton seed meal we can't get, but we could get the seed $6 per ton. Would corn stalks, (fodder) bran and corn make a good feed for a dairy cow? Please let me know.

We can't raise timothy or clover. We could raise oats and make oat hay. Will oat hay be good feed? We could raise sorghum and make hay, but some neighbors say sorghum is not good feed for milk cows. What do you think about sorghum hay? I often read that you are doing and have done a good deal of good; now if you could do anything for us, do it, and we will surely be thankful and repay for same. We are running the cheese factory here, and would like to see our patrons making some money out of their cows. So far, it does not pay to keep milk cows and take the milk to the factory. We are paying from 50 cents to 75 cents per hundred pounds milk in summer. Now Mr. Editor, I hope to hear from you, and try to make us a ration for milk cows, if it can be made. Corn stalks (fodder), bran, $11 per ton, corn, 30 cents a bushel. In the fall we can get cotton seed $6 a ton.

Okarche, Okla. C. H. & SON.

The trouble is the cows are not fed right. A cow to do fairly well, must have at least two pounds of digestible protein in her daily ration. Corn fodder, such as is raised in Oklahoma, contains but 2.5 pounds of protein in 100 pounds of fodder; it will therefore be seen that in, say the 25 pounds she might eat, she would get but 6¼ tenths of a pound of protein. A good deal more must be provided in some way. If enough wheat bran, which contains 12.6% protein could be fed, that would supply it. But that could not be afforded with the low price of milk and the proportionately high price of bran. If our correspondent will look over the table of the analyses of feed stuffs, published in the DAIRYMAN of November 11, 1898, he may be able to select some of the feeds with which it will be practicable to provide the necessary protein. To be economical, this, in a great measure should be obtained in the coarse fodder.

Alfalfa hay, or cow pea hay, or both, each of which contain about 11% of protein, would be just the thing. We believe these could be raised in Oklahoma. Oat hay, if cut early, soon after heading, is much better than corn fodder. Another thing must be thought of, a cow needs a variety of foods. She cannot do her best on one kind of food, no matter how good it is. Alfalfa hay, with some corn fodder and oat h ay, and bran with a little corn, would make a good daily ration.

If an effort is made the coming summer to grow these feeds, we believe the cows will do much better next winter and bring in a yearly return of more than twice $15 each, provided the summer pasture or feed is good and they are not too much tormented with flies and other insects.

Sorghum hay is good, but it lacks that important thing, protein, even more than does corn fodder.

Legislating Against Oleomargarine and "Filled" Cheese.

The article below was taken from the *Breeders' Gazette*, written by a correspondent in the state of Washington:

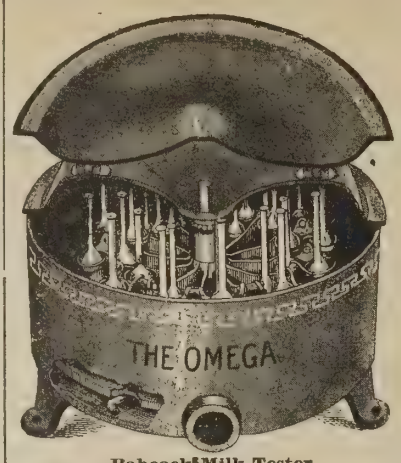
"A few years ago the state of Washington was flooded with oleo and filled cheese, and the dairy industry of the state was in a precarious condition; but within the past four years, a few dairymen, not more than ten or twelve at the start, got together and formed a State Dairymen's Association. They formulated a dairy law and fought it through the Legislature. A State Dairy Commissioner was appointed. When the prosecuting attorney of a leading county of the state virtually refused to prosecute a flagrant violation of the dairy law, this same little organization of dairymen passed a resolution denouncing in unmeasured terms the dilatory official. This resolution was couched in no unmeaning phrase. It specified the man who was denounced and it demanded an immediate prosecution of the case. The press, without which nothing could have been done, spread the resolution all over the state. The offending official was brought up with a jerk. The case was pushed vigorously. Special legal assistance was sought and was paid for by subscriptions from the dairymen of the state.

The defendant put up the plea that the yellow color of the oleo was its natural color, but the judge, who had recognized the importance to him personally of giving the case proper attention, gave the jury very plain instructions. He told them the question was not whether the oleo contained foreign coloring matter, but whether it looked like butter. The defendant admitted having sold it. The dairymen won. To-day the dairy industry of the state is in a flourishing condition. Very little adulterated butter or cheese is sold in the state; I should say no filled cheese and little oleo, the latter being sold in compliance with the law."

A year or more ago it was stated in the public prints that six tons of oleomargarine were sold monthly in the city of Birmingham, Ala. Possibly the figures were exaggerated, but there is no doubt but that immense quantities were sold. The local dairymen of the county organized and made war against the sale of this counterfeit butter, and they were rewarded with success. Oleomargarine was almost entirely run out of the market.

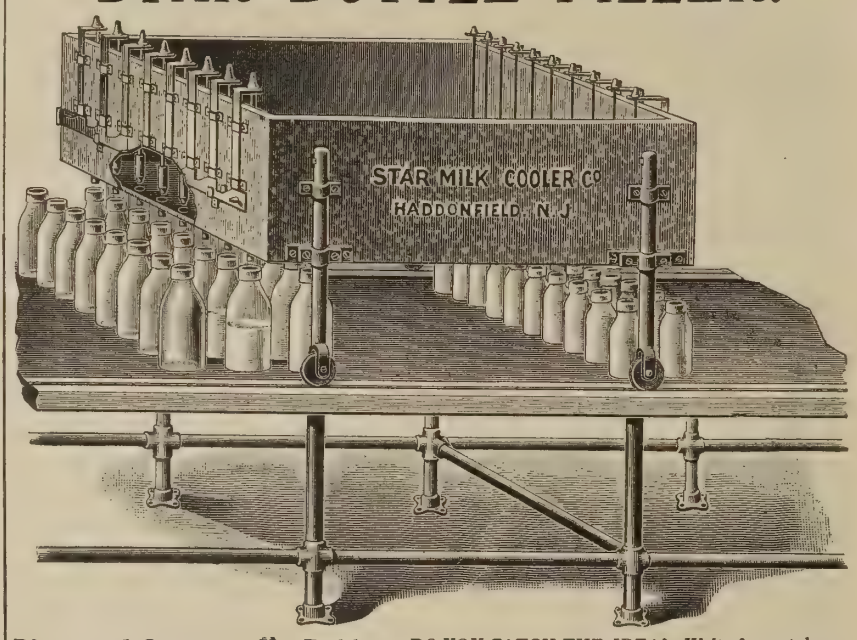
In the state of Mississippi, immense quantities of oleomargarine are sold every day in the year. We have in the state no law regulating its sale, as in the dairy states of the north. Many efforts have been made to induce our legislatures to pass bills to check the evil, and to give relief and protection to the dairy interests proper, but without avail.

The influence of the cotton seed oil mill interests is a gigantic power in Mississippi, and it is through this trust, which is in full sympathy with the manufacturers of oleo and compound lard, will continue to control our state legislatures for a long time to come—until the dairymen organize and press the needful legislation.—*The Southern Dairyman.*



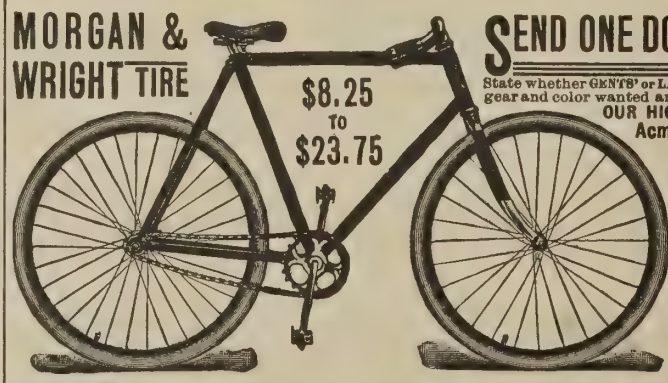
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Creamery Apparatus And Dairy Supplies.
Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.
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Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.
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Victor
ANY OLD STRIP OF TIN . .
With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

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SEND ONE DOLLAR CUT THIS AD. OUT and SEND TO US . . .
State whether GENTS' or LADIES' bicycle is wanted, gear and color wanted and we will send you this OUR HIGH-GRADE '99 MODEL Acme Prince bicycle by express C. O. D., subject to examination. You can examine it at your express office, and if found perfectly satisfactory, exactly as represented, the greatest bargain you ever saw and equal to bicycles others sell as high as $50.00, pay your express agent our special offer price, $18.75 and express charges, less the $1.00 sent with order. Express charges average $1.00 for 500 miles; greater or lesser distances in proportion.
MORGAN & WRIGHT'S Highest-Grade, one year guaranteed, pneumatic Tire, 22, 24 or 25-inch Diamond 1¼-inch seamless steel tubing frame, finest 2-piece Sealy hanger, finest crystal steel adjustable bearings throughout. Wheels, Rowel's best 28-inch. Full ballbearing throughout. Acker ball retainers throughout. Finest equipment. Index chain. Canton padded Saddle. Best handle bar made, up or down turn. Clark's anti-friction, ball-bearing, ball-retaining pedals, heavy leather tool bag, fine wrench, oiler, pump and repair kit. Wheel is given finest possible finish, enameled black, green or maroon. All bright parts heavily nickel plated on copper. No wheel is more handsome. A BINDING ONE-YEAR GUARANTEE with every bicycle. If you don't find it equal to other $40.00 wheels, DON'T TAKE IT.
$8.25 Stripped, $11.75 and $16.95 Fully Equipped is our price for cheaper (1899) bicycles. No old models, no worthless second-hand wheels. OUR FREE BICYCLE catalogue shows our entire line up to $23.75. WRITE FOR IT. ORDER OUR $18.75 BICYCLE AT ONCE, MORGAN & WRIGHT TIRE, highest equipment; you will save $20.00. You can make $100.00 every month selling these $18.75 WHEELS at $25.00 to $35.00. (Sears, Roebuck & Co. are thoroughly reliable—Editor.)
SEARS, ROEBUCK & CO. (INC.) CHICAGO, ILL.

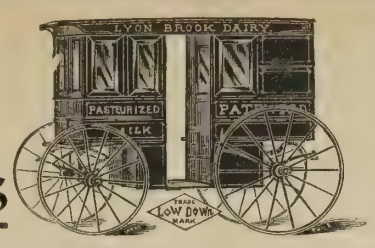


$500 IN GOLD!
The "PLANET JR." No. 4 Combined Seeder and Wheel Hoe is a dozen tools in one. It sows in drills or drops in hills at any distance, opening, sowing, covering, rolling and marking the next row, all at once; it is several kinds of wheel hoe, cultivator, rake and plow, changing to either very quickly. For all-season work in small crops, many farmers need no other tool.
The new "PLANET JR" descriptive catalogue includes this year a regular picture gallery—sixteen full pages of fine photographic views of field scenes in America, Europe, Australia, etc., showing this and the various "PLANET JR." hand and horse tools at work. It's intensely interesting. Write for a copy—sent free.
$500 in Gold for the best gardens in 1899. Write for particulars.
S. L. ALLEN & CO.
Box 1107 D, Philadelphia.

There Are Others

But they all came after ours.

WE ARE THE ORIGINATORS

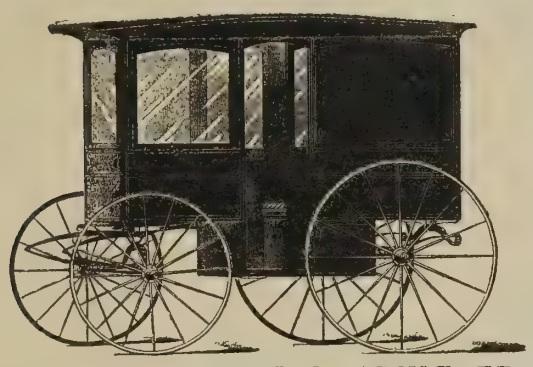


Of the now famous "LOW-DOWN" Milk Wagon.

Imitation is an acknowledgement of real merit. Thirteen years' trial has proven the Parsons "Low-Down" Wagons to be **THE BEST.** ☞ Secure our catalogue of strictly first-class, hand made, up-to-date, durable work.

PARSONS' "LOW-DOWN" WAGON WORKS,
EARLVILLE, N. Y.

A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



Don't Pay Three Profits

No. 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

THE COLUMBUS CARRIAGE & HARNESS COMPANY, COLUMBUS, O.

SEND ONE DOLLAR

CUT THIS AD OUT and send to us, and if you live within 700 miles of Chicago, we will send you this TOP BUGGY by freight C. O. D. subject to examination. You can examine it at your freight depot, and if found PERFECTLY SATISFACTORY, EXACTLY AS REPRESENTED, EQUAL TO BUGGIES THAT RETAIL AT $60.00 to $75.00 and the GRANDEST BARGAIN YOU EVER SAW, pay the freight agent OUR SPECIAL PRICE, and freight charges, less the $1.00 sent with order. **$38.90,**



WE MAKE THIS TOP BUGGY IN OUR OWN FACTORY IN CHICAGO, from better material than most makers put in $75.00 buggies. **Latest style for 1899.** Body, 24x54 from the Best Seasoned Wood. Gear, Best That Money Can Build. End Springs, as illustrated, or Brewster Side Bar. Wheels, High Grade Screwed Rim Sarven's Patent. Top, 24 ounce, Daily Rubber Heavily lined, full side and back curtains. Painting, guaranteed equal to any $150.00 buggy work, Body black; Gear, dark green or Red. Upholstering, heavy green French body cloth or Evan's Leather.

$38.90 IS OUR SPECIAL PRICE for top buggy complete, wide or narrow track, full length side and back curtains, storm apron, carpet, wrench, anti-rattlers and shafts. **QUARANTEED TWO YEARS** will last a lifetime. For Buggies at $15.95 and and up, WRITE FOR FREE BUGGY CATALOGUE. YOU CAN MAKE $500.00 This Year Selling OUR $38.90 BUGGIES. ORDER ONE TO DAY, YOU CAN SELL IT FOR $60.00. DON'T DELAY.

Address, SEARS, ROEBUCK & CO. (Inc.), CHICAGO, ILL.

SEEDS

THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

SEED DUE BILL FREE

To get new customers to test my seeds I will mail my handsome **catalogue for 1899,** lithographed and beautifully illustrated, and a **10c. Due Bill,** good for 10c. worth of seeds for trial, **absolutely free.** It is full of bargains. All the **Best Seeds, Bulbs, Plants, Roses, new Fruits, Farm Seeds, Potatoes, etc.,** at lowest prices. **Ten Great Novelties** offered without names. I will pay **$50. FOR A NAME** for each. Don't buy your stock until you see this new catalogue. Several varieties shown in colors. ☞ Great inducements for orders this year. **You will be surprised** at my bargain offers. Send your address on Postal to-day. Tell your friends to send too. Old customers will receive a copy.

F. B. MILLS, Seedsman, Box 111, Rose Hill, N. Y

FRUIT GROWERS

to be successful in these times must start with the best kinds of berries, which are, **Echo Strawberry, Loudon and Columbian Raspberry, Erie and Rathbun Blackberry, Pearl Gooseberry, Pomona and Red Cross Currant.** Catalogue (worth dollars) telling all about small fruit, **FREE.**

ALLEN L. WOOD,
Wholesale Grower. Rochester, N. Y.

Artichokes!

MAMMOTH WHITE FRENCH. A sure preventive of **Hog Cholera.** Enormous yield and the greatest root fattener for hogs, sheep, colts and cattle known. Write for circular. W. F. MANLEY, Richmond, Ind.



THE IMPROVED **VICTOR Incubator**

Catalogue 4 cts.

Hatches Chickens by Steam. Absolutely **self-regulating.** The simplest, most reliable, and cheapest first-class Hatcher in the market. **Circulars FREE.**

GEO. ERTEL CO., QUINCY, ILL.

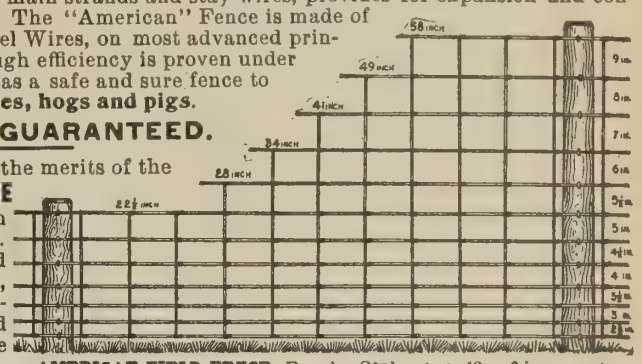
THE FENCE THAT FENCES.

"AMERICAN" ALL STEEL WOVEN WIRE FIELD FENCE.

Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

EVERY ROD GUARANTEED.

INVESTIGATE the merits of the **AMERICAN FENCE** at our agency in your nearest town. If you can't find such an agency, write us for complete catalogue and we will see you are supplied.



AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

AMERICAN STEEL & WIRE CO. General Offices: **CHICAGO, ILL.**

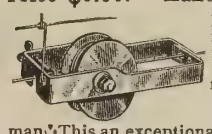


HAD THE GRIPPE?

Wire fences, as well as people, have felt the **grip**—of hard winter. Notice how they compare "after taking." No "tired feeling" about the Page.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

Price $3.50. Make Your Own Fence.



In various styles, costing from 10 to 20 cents per rod, with the most durable and easiest operated machine on the market. Exclusive sale in counties given a reliable, hustling man. This an exceptional opportunity. Write for circulars and full particulars to the **Wilmarth Fence Machine Co., Detroit, Mich.**

GOODHUE



Self-oiling, Best Governed, Acknowledged to be the most powerful and durable made. We have everything the farmer needs in this line.

Galvanized Steel *Towers, Tanks and Pumps,* *Cutters, Grinders, Shellers, etc.*

POWER AND PUMPING MILLS

Catalogue, full of valuable points, free.

Appleton Mfg. Co.

35 Fargo St. BATAVIA, ILL.



8000 BICYCLES

Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, **$9.75** to **$16;** Shopworn & second hand wheels, good as new, **$3** to **$10;** Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance

EARN a BICYCLE by helping us advertise our superb line of '99 models. We give one Rider Agent in each town **FREE USE** of sample wheel to introduce them. Write at once for our special offer.

MEADE BICYCLE CO., 290 Ave. S., Chicago, Ill



A VALUABLE BOOK ON POULTRY FOR '99 **FREE**

Something entirely new. The largest out. **Worth $25.** to anyone; tells **everything** about poultry and how to **MAKE BIG MONEY** with them. How to build Poultry houses, etc. Send 15c. for mailing.

JOHN BAUSCHER, Jr., Box 35 Freeport, Ills.



SHOEMAKER'S BOOK on POULTRY and Almanac for 1899. 160 pages, 100 illustrations of Fowls, Incubators, Brooders, Poultry Houses, etc. How to raise Chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about **Incubators, Brooders** and thoroughbred Fowls, with lowest prices. Price only 15 cents.

C. C. SHOEMAKER, Box 857, Freeport, Ill.



BRABAZON'S POULTRY CATALOGUE FREE! It's a beauty; over 50 colored plates. Illustrates and describes fine Turkeys, Geese, Ducks and chickens; gives prices of fowls & eggs. Finest Buyer's Guide published. Inclose 10c. for postage, etc.

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INCUBATORS Best ever invented, self-regulating. For Catalogue, G. S. SINGER, Cardington, O. Agents wanted.

INCUBATOR QUALITY.



When it comes to quality in an incubator, which embraces construction, working ability, etc., there is nothing that will equal

The Prairie State.

Two hundred first premiums in all kinds of competions with all kinds of machines. Send for catalogue.

PRAIRIE STATE INCUBATOR CO., HOMER CITY, PA.



DID THE SMALL TIE WIRES GIVE OUT?

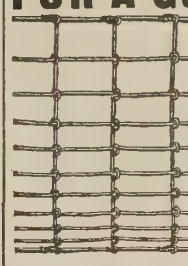
You probably had that experience if you bought a fence with a light, soft perpendicular wire.

WE HAVE A REMEDY

for that difficulty and can give you a complete fence of uniform strength.

Lamb Wire Fence Co., Adrian, Mich.

FOR A GOOD FENCE



One that embodies all the correct principles in **weight strength, size of mesh, height,** etc., buy the

...PITTSBURG... WOVEN WIRE FENCE.

It's a perfect wire fence at a moderate price. It is strong, durable, handsome and harmless to stock. Agents make money selling it. We want good agents in every locality. First order secures township agency. Circulars free.

Pittsburg Woven Wire Fence Co. 17 Penn. Av., Pittsburg, Pa.

HORSE-HIGH

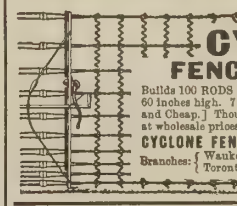
Laying aside all speculation these remain as the requisites of a perfect fence. Our Duplex Automatic Machine makes just such a fence in 100 styles at the rate of sixty rods per day, at a cost for wire of only

BULL-STRONG

18c. for a good farm fence; 19c. for poultry fence; 18c. for a rabbit-proof fence and 12c. for a good hog fence. We will sell you plain, coiled spring or barb wire direct at wholesale prices. Get our catalogue before buying.

Kitselman Bros., Box 57, Ridgeville, Ind.

PIG-TIGHT



CYCLONE FENCE MACHINE

Builds 100 RODS of strongest fence a day, 27 to 60 inches high. 7 to 12 cables. Easy to Build and Cheap. Thousands in use. Fence material at wholesale prices. Write for catalog.

CYCLONE FENCE CO., HOLLY, MICH.
Branches: Waukegan, Ill., Cleveland, Ohio. Toronto, Can. Melbourne, Australia.

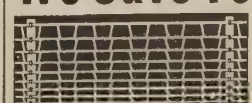


STEEL PICKET LAWN FENCE,

Field and Hog Fence with or without bottom cable barbed. M. M. S. Poultry Fencing. Lawn and Farm Steel Gates and Posts.

UNION FENCE CO. DeKalb, Ill.

We Save You Money



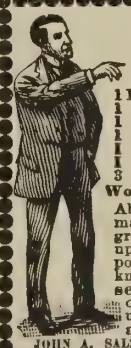
on every rod of fencing you buy from us. Why? Because we sell you the

ADVANCE FENCE

Direct from the Factory at Wholesale.

Dealers cannot buy it any cheaper than you can. We **save you the middle man's profit.** You get a **good fence at a low price. Beats a hand fence machine all to pieces.** No loose ends to unravel. All closely interwoven—cross wires cannot slip. Write at once for our **free circulars and special discounts.**

Advance Fence Co. 4003 Old St., Peoria, Ill.



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer

1 Pkg.	13 Day Radish,	10c
1 "	Earliest Red Beet,	10c
1 "	Long Lightn'g Cucumber	10c
1 "	Salzer's Best Lettuce,	15c
1 "	California Fig Tomato,	20c
1 "	Early Dinner Onion,	10c
3 "	Brilliant Flower Seeds,	15c

Worth $1.00, for 14 cents, $1.00

Above 10 pkgs. worth $1.00, we will mail you free, together with our great Plant and Seed Catalogue upon receipt of this **notice & 14c** postage. We invite your trade and know when you once try **Salzer's seeds** you will never get along without them. **Onion Seed 65c.** and up **a lb. Potatoes at $1.20 a Bbl.** Catalog alone 5c. No. 140

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

FIRE DRIED SEED CORN

Best varieties, both White and Yellow Dent. HENRY SHERMAN & SONS. Ft. Atkinson, Wis.

DON'T SWEAR

as you did last season that you will buy an Incubator and then not do it. Nothing like **starting right.** If you want to **start right and stay right** buy the

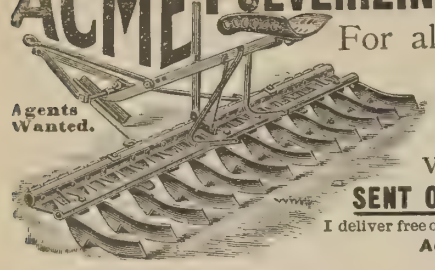


Reliable Incubator.

Made so the veriest novice can't fail with it. Light the lamp, the **Reliable** does the rest. We send a 224 page book for 10c in stamps that tells all about it and the **Reliable** Poultry Farm.

RELIABLE INCB. & BROODER CO. Box B 51, Quincy, Ill.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



Agents Wanted.

For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

PLEASE MENTION THIS PAPER.

THE FAMOUS KEYSTONE LINE OF SEEDING, PLANTING AND CULTIVATING TOOLS.



Victor Disc Harrow —greatly improved for '99. Oil tubes to the bearings from top of frame—positively exclude all dust or dirt. Steel scrapers, double adjustment levers—easy to place gangs at any angle. Ball bearing—no side pressure and easy draft. Made 4, 5, 6, 7 and 8 ft. wide, with 18 or 20 in. discs. SEEDER ATTACHMENTS are made for 6, 7 and 8 ft. disc harrows.



Keystone Force Feed Broadcast Seeder are made 8½ or 11 ft. wide. Sows broadcast all small grains in any quantity in the best possible manner. Mounted on low steel wheels. Made with or without grass seed attachment. Equipped with CULTIVATOR ATTACHMENT if ordered. Made with end wheels or middle wheels. Has the best force feed we know. Send for special Seed Circulars.



Keystone Rotary Drop Corn Planter —it's a whole hill drop, each hole in seed plate holds enough grain for a hill. It never skips or misses. Equipped with Automatic Wire Reel. Has a drill attachment. Gear throws out automatically at end of row. Always drops at even depth because of the shoe gage on each runner.



Keystone Potato Planter —sprung quickly into popular favor because it is a simple and effective machine for the purpose at a reasonable price. Fits the needs of the man who grows an acre or two of potatoes, but who is not regularly in the business. Plants 10, 14, 17 or 20 inches apart in rows. Send for circulars.



Keystone Walking Cultivator. This is clearly a leader among the machines of its class. It is made entirely of steel and iron except tongue, singletrees and neck yoke. Strong and well braced in every way. Steel braces and four soft center steel shovels. Full line of Riding Cultivators also. Send for circulars.

KEYSTONE MANUFACTURING CO., 39 RIVER STREET, STERLING, ILLINOIS.

The Anti-friction Four Burr MOGUL



Will Actually Grind 60 to 80 Bushels per hour Has four burrs nearly three feet in diameter grinding at once. Grinds **Four Times as Fast** as other mills; has no friction; all the pressure is on the grain. No gearing, no oil needed, and the lightest draft known. We manufacture the largest and best line of Feed Mills sold, including the famous Iowa Mill No. 2, for $13. Agents wanted. IOWA GRINDER AND STEAMER WORKS, Waterloo, Ia.

Be Fair with Your Fields

and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of **fine and coarse manure evenly;** it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. **Spreads lime, wood ashes, salt, etc.,** equally well. With the drill attachment **it puts the manure direct into the open drill.** Made in three convenient sizes. Ask the opinion of anybody that uses one. **Write for illustrated catalogue.**

Kemp & Burpee Mfg. Co., Box 46, Syracuse, N. Y.



DO YOUR OWN... GRINDING

With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

KELLY & TANEYHILL, Waterloo, Ia.



THE CROWN POINT GRINDING MILL,

With the Letz patent burrs, that don't dull when running empty. Grind all grain, damp or dry, as fine as desired, the oats so fine that it can be fed to pigs. Grind with less power than others, as they are made with roller bearing. A boy can operate them. Make no mistake—buy the best. Send for catalogue.

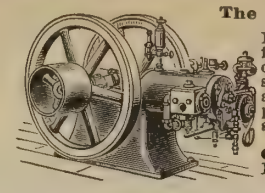
CROWN POINT MFG. CO., Crown Point, Ind.



KELLY DUPLEX GRINDING MILL

is made to grind all kinds of grain, cotton seed, corn and cob, shucked or unshucked, into coarse, medium or fine grist. Does it rapidly, cheaply, and with small power. Only mill made with **DUPLEX GRINDERS.** Don't buy a grinder until you get our free Catalogue, No. 16.

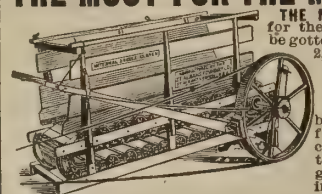
O. S. Kelly Co. Springfield, O.



The Lambert Is a success at grinding feed, cutting fodder, churning butter, separating cream, anything, it's so simple. Write for catalogue, prices, etc.

The Lambert Gas & Gasoline Engine Co., Anderson, Ind.

THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our 2, 3 and 4-horse **TREAD POWERS** because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

ST. ALBANS FOUNDRY CO., St. Albans, Vt.

POWER FOR THE FARM.

Nowhere on Earth can so much Power be obtained for so little money.

We make all kinds of **Sweep Horse Powers for 1, 2, 3, 4, 6 and 8 horses.** Prices ranging from $35. to $100. **Tread Powers, 1, 2 and 3 horse. Farm Engines, 2, 4 and 6 horse power.** Send for free circulars and prices.

Smalley Manf'g. Co. Sole Makers, Box 16, Manitowoc, Wis.

RIFE HYDRAULIC ENGINE



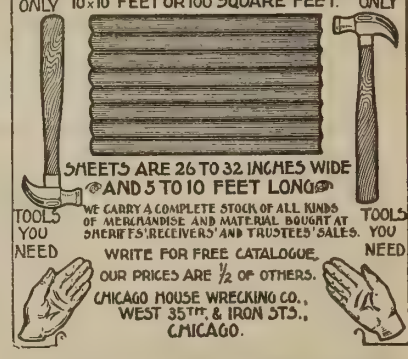
PUMPS WATER AUTOMATICALLY BY WATER POWER. Place this engine two feet or more below your water supply and it will deliver a constant stream of water 30 feet high for every foot of fall.

WITHOUT STOPPING. WITHOUT ATTENTION.

RIFE ENGINE CO., 126 Liberty Street, New York.

IRON ROOFING BRAND NEW

THESE ARE THE ONLY — $1.50 PER SQUARE. OF 10×10 FEET OR 100 SQUARE FEET. — THESE ARE THE ONLY



SHEETS ARE 26 TO 32 INCHES WIDE AND 5 TO 10 FEET LONG

WE CARRY A COMPLETE STOCK OF ALL KINDS OF MERCHANDISE AND MATERIAL BOUGHT AT SHERIFFS', RECEIVERS' AND TRUSTEES' SALES.

TOOLS YOU NEED — WRITE FOR FREE CATALOGUE. — TOOLS YOU NEED

OUR PRICES ARE ½ OF OTHERS.

CHICAGO HOUSE WRECKING CO., WEST 35TH & IRON STS., CHICAGO.

THE "BADGER"



A SPRING HOE SEEDER

which automatically adjusts itself to rough and uneven ground. The same "BADGER" which has commanded the trade for over 25 years, except that

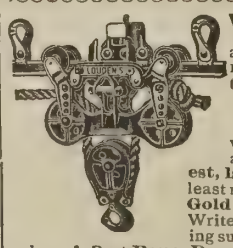
IT IS VASTLY IMPROVED.

Continuous steel frame and steel bars. Every advantage found in every other seeder and some exclusively its own. **The proof of its strength, durability and effective utility** is the fact that many are **in use to-day that we sold 20 years ago.** We make a 11-ft. Force Feed Seeder without bars also. Catalogue and circulars **FREE.**

Appleton Manfg. Co. 35 Fargo St., Batavia, Ills.



Mention Hoard's Dairyman.



WHY BUY! an old style **Hay Carrier** when you can get the **Latest Improved**

Louden

worth more than twice as much. The **strongest, lasts longest.** Takes least room, and **works best. Gold Medal** at Omaha. Write for "Pointers" showing superior merit. Also circular of Best **Barn Door Hanger** on **Earth,** "How to Build **HAY Barns,**" etc.

LOUDEN MACHINERY CO., FAIRFIELD, IOWA.

VAUGHN FLEXIBLE HARROW Pat'd



No Bolts to get loose. No Use for Wrench. Self Adjustable for Slanting Tooth. Send for circulars & price lists.

D. C. VAUGHN MFG. CO., JEFFERSON, WIS. Best on Earth

HUSKS, CUTS AND SHREDS,



and will work well with either **green or dry corn.** Is easy to feed. It has a capacity of about 30 bushels per hour.

THE CYCLONE CORN HUSKER

is the easiest running machine on the market. Runs with 3-horse tread or any power that will equal or give more. Write for circulars, &c., free.

ROSENTHAL CORN HUSKING MACHINE CO.

81st and Walnut Sts., MILWAUKEE, WIS.



Pressure between burrs in grinding is carried on chilled roller bearings.

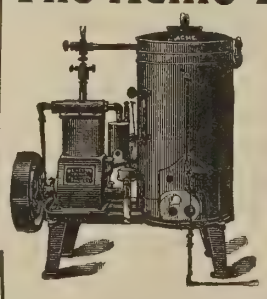
Large inside burr revolves twice to sweep's one. Ordinary length sweep

Sold under an absolute guarantee to do double the amount of work of any other mill of same size or money refunded. Write for circulars and prices.

DAIN MFG. CO., Carrollton, Mo.

ON THE MARKET TEN YEARS.

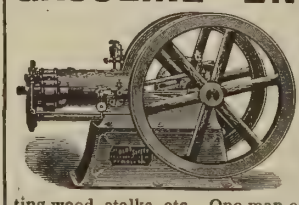
The Acme Engine Still LEADS



1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

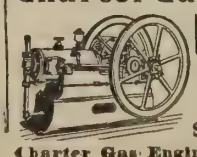
No. 9, Center St., Rochester, New York.

The OLDS GASOLINE ENGINES. Simple and Economical



Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc, One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**

Charter Gasoline Engine



USED Any Place By Any One For Any Purpose

Stationaries, Portables. Engines and Pumps.

State Your Power Needs.

Charter Gas Engine Co., Box 73, Sterling, Ill.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

FROM MAKER TO USER DIRECT AT WHOLESALE PRICES



BUY DIRECT AND SAVE MONEY.

"Money saved is money earned." We make a complete line of Surries, Phaetons, Buggies, Spring Wagons and Road Wagons, and sell them to you direct at wholesale prices.

Best Spring Wagon Made.

Two and three seat. Some styles

as low as $37.60

C. B. Mastellar, Milo, Kans., writes: "Received No. 928 Combination Spring Wagon in fine shape. Consider I saved $25.00 by dealing with you."

YOU are NOT too far away to do business with us and save money. Send for new illustrated catalogue—FREE. All prices marked in plain figures. Complete line of harness $4.80 and upward.

EDWARD W. WALKER CARRIAGE CO., 29 Eighth St. Goshen, Indiana.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MARCH 31, 1899. NUMBER 7

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

REFERENCES:—Ex-Gov. W. D Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill.

W. I. Young & Co., Wholesale Dealers in Fine Butter, Cheese and Eggs.

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—Irving Nat'l Bank. Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
151 Reade St., NEW YORK.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

WE SELL DIRECT TO THE FARMER.
Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.

Sulky Plows, $25. Riding Gang Plows, $35. 2-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.



Hard Steel Custer Coulter with Plow, $1.50 extra.

HAPGOOD PLOW CO., Box 196, Alton, Ill.
Only Plow factory in the United States selling direct to farmer.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE SAVOGRAN FOR CLEAN CLEANING INDIA ALKALI WORKS, - BOSTON.

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

WE MANUFACTURE . . .

Vats, Churns, Butter Boxes.

We BUILD AND EQUIP CREAMERIES. We are AGENTS for

SHARPLES CREAM SEPARATORS.

When ordering Vats or other creamery supplies, see that your local dealer furnishes those of our manufacture. Our name on the goods is a GUARANTEE of excellence. Send for catalogue.

HANEY-CAMPBELL COMPANY, - Dubuque, Iowa.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.



Do you Want Harness of any Kind?

If so, we can save you money. We sell direct to the consumer from our factory. We make 100 styles of single and double harness, each the best of its kind—all oak leather. Send 4c in stamps to pay postage and get our 148-page catalogue. KING HARNESS CO. 118 Church St., Owego, N. Y.

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Sharples Tubular Separator.

CLEAN SKIMMING.



When skimming at full claimed capacity, the SHARPLES TUBULAR SEPARATOR will leave from .000 per cent to .02 per cent in the skim milk, and the cream will be of such superior quality as to churn out more butter than can be obtained in any other way. .05 is the maximum limit of fat in the skim milk and if the Tubular fails to skim to full claimed capacity at its regular speed, we ask no one to keep it, and we put them in on trial guaranteed. Send for Catalogue No. 46.

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West Chester, Pa.

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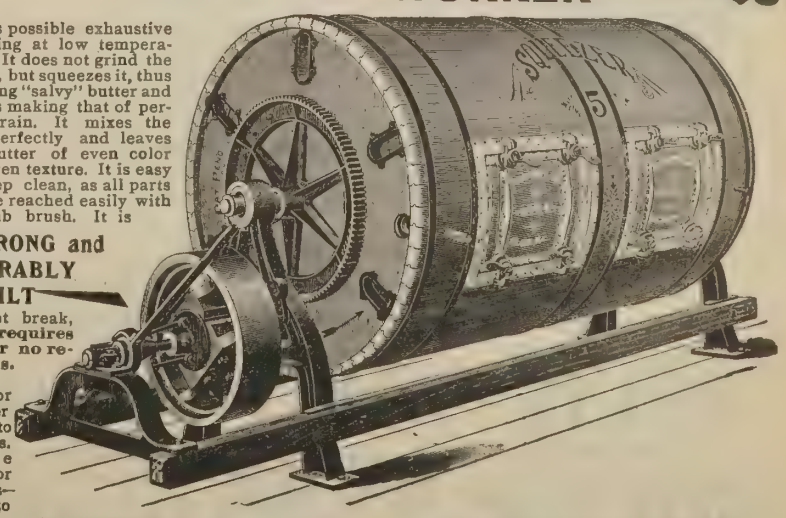
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



SEND FOR CATALOGUE NO. 40 giving Prices and Testimonials.

ELGIN MANUFACTURING CO., - - Elgin, Ill.

Success



THIS IS THE MAGIC WORD THAT MARKS THE LIMIT OF EVERY MAN'S ASPIRATION.

Men who *have* and men who *will* achieve success are those who take advantage of every facility which the world affords in their particular line.

THE DISBROW

...COMBINED...

Churn and Butter Worker

IS ITSELF A SUCCESS

And will promote the success of every man or institution which uses it. It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

OWATONNA MFG. CO.,

SOLE MANUFACTURERS. OWATONNA, MINN.

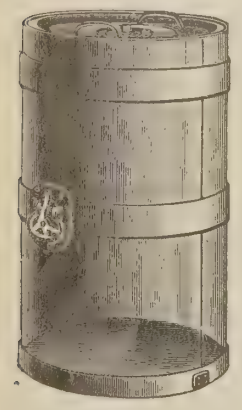
Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Submilate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— 1, 3 and 5 W. Washington St., CHICAGO, ILL.

Kansas City, Mo. Minneapolis, Minn.
Waterloo, Iowa. Omaha, Neb.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

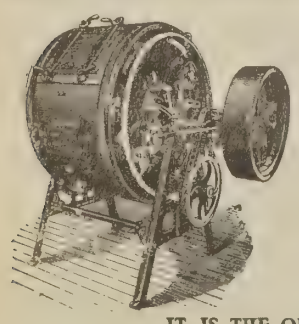
USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans.

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,

Sole Manufacturers. - - CATTARAUGUS, N. Y



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

PRINT BUTTER

SHOULD BE WRAPPED IN

GOOD PARCHMENT.

(Not the Cheap Kind.)

YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

DEPARTMENT H,

Paterson Parchment Paper Co., Passaic, N. J.

FACTS, NOT FICTION,

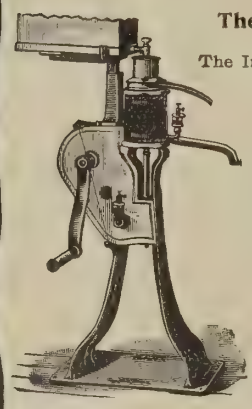
ABOUT

The Improved U. S. Triple Current Separators

They are the cleanest Skimmers on the market, as witness the reports from the State Experiment Stations and users the country over. They are also noted for their simplicity, ease of operation and durability.

A Few 1899 Experiment Station Reports.

Massachusetts,	average of 19 tests,	January 7th to 31st,	.033 of 1%
Ohio,	" " 19 "	" 10th to 21st,	.034 of 1%
Vermont,	" " 18 "	" 9th to Feb. 3d,	.038 of 1%
Wisconsin,	" " 17 "	" 2d to 19th,	.03 of 1%
An average from 73 tests of skim milk of			.034 of 1%



The U. S. Excels in Every Particular

FORESTVILLE, CONN., Feb. 18th, 1899.

The Improved U. S. Separator is giving excellent satisfaction. In comparing it with other makes, have found it to far excel in every particular—in thoroughness of skimming, ease of operation, design and finish, simplicity of construction, therefore easy to clean, and durability. Any one contemplating buying a Separator should investigate the merits of the Improved U. S.

WILLIAM F. KENNEY,
Buttermaker for J. Hart Welch.

The U. S. the Best on the Market

DEER PARK, MO., Feb. 25th, 1899.

The butter I exhibited at the St. Louis Fair scored 98½ points and won the Sweepstakes over the creamery butter from several of the best Creameries in the United States. It was made from cream separated by the No. 5 Improved U. S. Separator I have been using for nearly three years, which has always been in running order and given entire satisfaction. If I had to buy another it would be an Improved U. S., for I think it the best on the market.

NATHAN KING.

No Loss of Cream in the Skim Milk

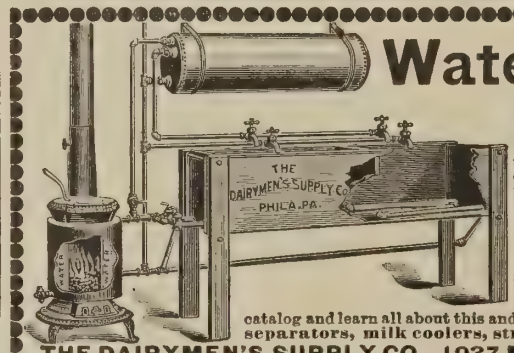
BROMPTON FALLS, P. Q., Jan. 31st, 1899.

The No. 1 and No. 0 Improved U. S. Separators purchased last spring are giving perfect satisfaction. They run smoothly and easily and take all the cream out of the milk. They are simple, durable, and not liable to get out of order.

A. MARTEL & CO.

Write for Illustrated Catalogues

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



Water MUST Be Hot

to properly clean and scald your milk cans, pails, strainers and bottles. With this Hot Water Stove, Circulating Boiler and Wash Box, you can have the water as hot as you want it, just when you want it. Little expense and no trouble to run it. The hot water stove, with pipes and fittings furnished separately. **Best and cheapest heater for greenhouses, hen houses or hog pens.** Write for free catalog and learn all about this and many other dairy necessities—**cream separators, milk coolers, strainers, scales and butter tools.**

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

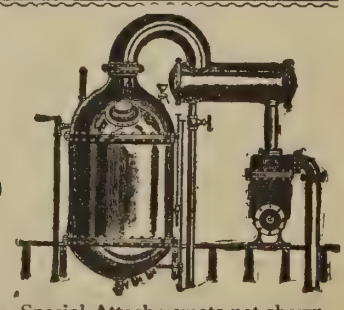
Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.

Condensed... Milk Factories

Built Complete By



Special Attachmemets not shown.

C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

In some of the towns in Manitoba, Can., the local merchants are so opposed to the establishment of creameries that they paid 17 cents for dairy butter last season, which they sold again at 12 cents. Those merchants ought to travel a little, or write to some of the merchants in Iowa or Wisconsin. Ignorance has some very curious ways of manifesting itself.

Last year the New York Milk Trust paid the farmers $6,000,000 for milk, and received $18,000,000. With such outrageous profit it is no wonder that the farmers have organized under the name of the Five States Milk Producers Association, which now controls 20,000 of the 25,000 cans of milk which daily go into New York city. The Association has been offered 2½ cents per quart, by a syndicate, whereas the Trust has been paying them only 1⅝ cents. Farmers must recognize that the only way to fight the devil is with fire. Organize against organizations.

WHAT SORT OF BREEDERS WERE THEY?

The Holstein-Friesian Register of Feb., in giving an account of the late meeting of the Ayrshire breeders in New York, says:

"It was brought out in the discussion that the amount of butter fat in a cow's milk varies widely at various periods of lactation; and *this was news to even some of the older breeders present.*"

It may be hardly fair to hold the Ayrshire breeders responsible for what the organ of a rival breed says, but nevertheless we have no doubt that some of them were surprised.

There is hardly a farmer in the land but knows that as cows approach the close of their period of milk giving, their milk increases in the percentage of butter fat. And yet we have seen breeders of Jerseys, Guernseys and Holsteins who did not know this fact.

When men start out to breed dairy cattle it is presumed they breed them for dairy purposes. Such breeders ought to be well posted dairymen and thorough students of the cow from the dairy point of view. That they are not, is clearly shown in the senseless stand Jenkins of the *Jersey Bulletin* takes on the Babcock test. While yet there were hundreds of thousands of farmers who were receiving their dividends by the test, the whole reaching into millions of dollars, the *Bulletin* couldn't see it and can't see it yet. The Ayrshire men should take heart of courage.

A Wisconsin Dairy Barn.

Ed. Hoard's Dairyman:—Complying with your request, I send you a photograph and ground plan of my barn, which I built last summer.

The size is 32 x 88 feet with 26 feet posts; also a leanto 16 x 48 feet. The first story is eight feet in the clear, and is used for stables, etc., as shown in the plan. The upper story is used for hay and fodder, except two feed bins 10 x 10 x 12 feet, each one on each side of the place where we drive in to unload hay, etc. Also water tank in loft 6 x 6 feet, holding about thirty-five barrels.

To unload the hay, we drive into the door shown at the end of the barn, and the hay is elevated to the track at the top of the barn, which carries it where wanted. We use a floor up through the roof. There are two of these, one on each side of the barn.

In regard to cost, it is as follows:

Lumber	$950.00
Hardware	175.00
Labor of carpenters, masons and painters	400.00
Total	$1,525.00

This includes board of carpenters, etc., but does not count my work or team work and work of hired man hauling lumber, stone, sand, etc.

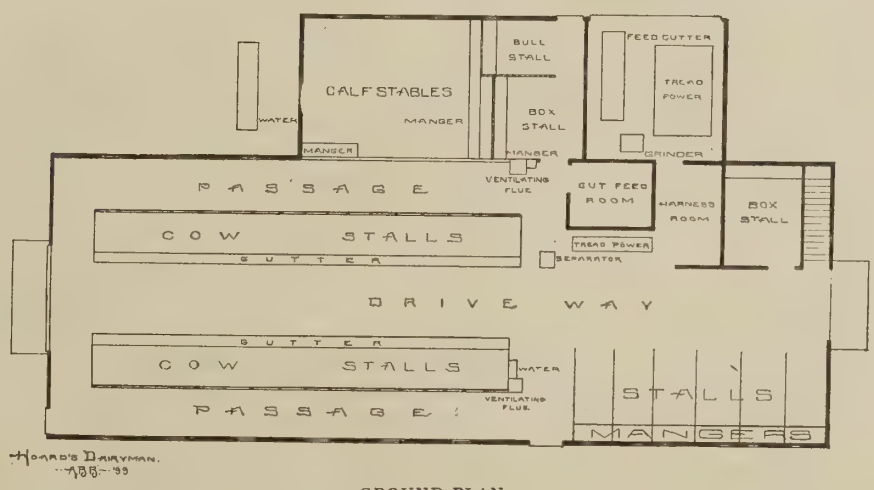
C. I. Morrison.

Jefferson County, Wis.



C. I. MORRISON'S DAIRY BARN.

Near Fort Atkinson, Wis.



GROUND PLAN.

returner on the car, which, as the load is discharged brings fork back to the load, without the hard work of the old way.

The space where we drive in with load is raised even with top of door 13 x 18 feet, which space is covered with trap doors when not in use.

The frame of the barn is a combination of the plank and large timber frame. Barn is covered with drop siding and lower story is lined with building paper and matched lumber. The doors are made double and the one shown at the end of barn, 12 x 13 feet, has an inside door hung on pulleys and balanced by two weights which raises door out of way when not in use.

In ventilating the stable, we have six openings seven inches square, three on each side of barn, about half way from floor to ceiling of stable. These open into flues 6 x 8 inches square, made of boards, which run to within six inches of ceiling. This carries the fresh air into the top of stable and prevents draft on the animals, also prevents the warmer air near the top from passing down and out of these openings.

The outlets for the foul air are twenty inches in diameter and run from near the

Succulent Feeds.

Sowing Oats and Peas.

Ed. Hoard's Dairyman:—Much has been said each season regarding the various kinds of soiling crops, but just as the shrewd farmer has an eye to the importance of some succulent feeds with which to carry his stock through the long, cold months, so common in these latitudes, so he ought equally to think of the long and protracted drouths which come with almost as much certainty as taxes.

Not long since, when in conversation with a prominent Canadian, relative to stock matters, he made this remark which impressed me very much. "The percentage of accidents or trouble experienced in various ways in relation to carrying stock through the winter season in our country (Canada), I believe to be much less than with you, particularly in relation to breeding animals." The gist of the whole deal is this:

While we are a corn producing people, and it is one of our strongest crops in a financial way, it is a fact that the abuse of, and not the use of corn in proper rations that causes serious trouble; while with our neighbors across the border are not privileged to produce corn largely, so are obliged to do the next best thing—which is to grow roots very extensively, and with this stock of succulent feed on hand, the whole matter is resolved into a simple problem, that of keeping breeding animals in a thrifty condition, with far less danger attended than when such carbonaceous foods are depended upon.

Not alone need this succulent feed be confined to the use of roots, but a liberal allowance of good bran is proving a boon to many a feeder. Many who have a surplus of timothy or blue grass hay are fast learning to exchange the same and make use of the last named feed, as amuch greater feeding value is obtained and at the same time more than double the manurial value, a prominent phase of the subject which should be considered when purchasing feed stuffs.

This succulent and profitable feed for the summer months should receive as much attention as the winter; because unless milkers are carried with a good flow through the drouth, a shrinkage is sure to follow which is hard or next to impossible to overcome later on. To those not using the summer silo, or depending too largely and unprofitably on pasture, we would advise sowing oats and peas. To grow this crop with the greatest profit, there is something to be learned usually, from observation in any section. Not one-half of bulk is grown that may be grown if land be liberally manured or otherwise enriched.

Next of importance is the early sowing. Choose an early site, if possible, plow and fit, just as soon as land is fittable, and a good, fine texture can be made.

Now for the seeding, and mighty little is generally sown. As to the possibilities of this crop, ignorance might have been bliss in my case still, had I not tumbled on to the truth, coming as nearly as all good things do, by accident.

With good, sharp drill points, weighted down with a large fence post over arms in front, you can place peas in the ground at an average of four inches.

Use two bushels of small field peas to the acre, wait one week or there abouts, depending somewhat as to how warm the weather is, then proceed and sow three bushels of good, clean oats to the acre. Harrow in well, with light weight harrow, and if season is running dry roll down immediately.

This plan we have been working on, and find that this one cutting will give us more feeding value and bulk than any other crop on earth, corn or alfalfa not excepted.

We also found after taking this enormous crop off the ground and from this heavy seeding, that our wheat showed up better from start to finish than under precisely the same conditions on land adjoining from which a crop of oats of 50 bu. has been harvested from two and one-half bushels seeding.

Note the eyeopener, leguminous plants. C. H. Whitcomb.

Niagara Co, N. Y.

In Regard to Cow Peas.

Ed. Hoard's Dairyman:—A subscriber from Southern Michigan wants to know about what variety of cow peas are the best. I would just as lieve answer what kind of pie I like best; they are all good. There are three kinds that come to the Baltimore market—a black pea with a white eye, a white pea with a black eye, and a clay pea. One year we tried all three kinds, side by side, and there was little difference, but still a little in favor of the black pea, and since we have stuck to the black.

How much of a crop they would make in Michigan I don't know, but here in Maryland I have seen them ripen a crop, and then when plowed under, the seed would make plants six or more inches high before frost touched them; so they can go a good bit further north. But remember that they are a bean, and do not plant too soon. In Virginia, their home, the farmers have a saying: "Plant peas every Saturday in May, and you will have peas to give away." P. B. Crosby.

Catonsville, Md.

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THE Supervising Committee of the experiment Farm at Southern Pines, N. C., have just issued a very valuable and important work on "Plant Food." The book is well printed and handsomely illustrated with many fine pictures. It would pay farmers to read this book, which, we understand can be obtained free by sending to the Director.—Experiment Farm, Southern Pines, N. C.

AN IMPORTANT QUESTION.

The creameries in Chester and Delaware counties, Pennsylvania, have done an admirable thing in organizing an association which meets regularly for the discussion of important topics, and especially for the promotion of right ideas of dairy management, among the farmers who are their patrons. There is sound sense in such a move, and much stimulus will be imparted by it to the patrons along the way of a better knowledge of dairy methods. At a recent meeting, the association discussed "the best method of disposing of the skim milk."

That this is a rich field for all dairymen to explore will be seen, when we state that in ordinary creamery work among average patrons there is a difference of from 10 to 15 cents a hundred in the return that is obtained from feeding skim milk.

This difference is in feeding to hogs alone, and is due to the difference in intelligence on this question among the patrons. In other words one patron will get from his skim milk 10 cents a hundred more than another when both feed it to hogs, and where it comes alike to both from the creamery. When fine grade heifer calves, with a registered sire, are fed with the milk, the profit is more than double than when fed to pigs. But this difference is not due to the patrons as in the other case.

It is difficult to get the average farmer to look into this question, and see for himself what a fearful waste of good money runs away, because he lacks good judgment on the skim milk question.

Every county where there are four or more creameries or cheese factories should organize an association for the purpose of educating the patrons to a better knowledge of dairy principles. The point is to get them to see where they are throwing time, labor and hard earned money away, right at the farm end of the business. It is greatly to the interest of both creamery and patron that this be done.

But few, comparatively, of the farmers of the country who send their milk to factories or creameries read dairy papers or put themselves in any current where these important economical questions are discussed.

The tendency of the creamery and factory is to make the patron indifferent to his own dairy education. He gets into the habit of measuring himself by the general average, not thinking that the bigger profit to him will come from being above the average. Before there was a creamery in Jefferson Co., Wis., there were about 1,500 farmers who made butter and consigned it to Chicago and other cities. They came sharply in contact with the merciless education of the market, and it made them keen to know everything they could that would help them make more out of their cows. There was much more study of the science of feeding, much more reading up on the questions of dairy breeding, and those especial questions which belong to the management of cows than there is to-day. The reason was that every man stood by himself, alone. He made his own butter and sold it, and he could see how the character of his cows, his manner of stabling, the way he fed, the kind of feed, in short the kind of a dairyman he was, all affected the returns he got.

All these things affect the creamery patron to-day just as they did when he was a private dairyman, but he don't see it. His mind is on the creamery, and he loses sight of how his own growth in dairy knowledge, and the many things that make up the dollar of profit to him at the farm end.

There is only one way that we can perceive that will make a large proportion of the patrons see the necessity of better dairy methods on the farm, that will induce them to take more interest in their own growth in dairy knowledge. That is, as we have said, for the creameries to form county associations for the discussion of live topics. The creameries must lead, but they must make the organization of large benefit to the patron.

Too many creamerymen and factorymen look with suspicion on every effort to enlighten their patrons. They are greatly mistaken in this view. It ought to be their constant effort, if they are wise unto their own success, to help the patron make every dollar he can out of his cows. But to do this, he must have right ideas about everything that affects that dollar. The use of the skim milk is an important item, but it is only one of many.

The patrons surely need better dairy education. Many will not spend a cent or an hour's time to get it. But their lack of it tells on their success, and that of the creamery or factory just the same. We believe well organized effort by counties will help increase the profit of both patrons and creameries or factories very greatly.

Calf Scours.

ED HOARD'S DAIRYMAN:—Would like to say one word in regard to calf scours. Have tried several different treatments but without success. I finally commenced using castor oil, four tablespoonfuls at a dose, and have never lost a calf that I treated that way. E. E. W., Ill.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc, and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

WHEN SHOULD MANURE BE DRAWN OUT AND SPREAD?

I plow manure under for corn. Which pays the best, to draw the manure out in the winter and spread it, or in the spring? In spreading manure on top, and leaving it three months before plowing it under, is there any goodness of the manure lost?

Brushton, N. Y. B. T.

It cannot be said that these questions have been definitely settled. Opinions differ very widely. Personally, we prefer to haul the manure directly from the stable and spread it. We do not think there is any appreciable loss, more especially if a little land plaster has been used in the stable to gather and hold the volatile ammonia. Certainly the loss in this way would be much less than letting it lie exposed in the open yard, as is the almost universal custom. Moreover, there is a saving of time and labor that will compensate for such losses as may occur, as it avoids one extra handling, and sensibly relieves the pressure of work in the spring.

A WISCONSIN RATION.

I would like a balanced ration from the following feeds: Cut corn stalks, clover hay; bran, $14 per ton; shorts, $14; fine middlings, $14.50; shelled corn, 38 cents a bushel; oil meal, $24 per ton.

We are now feeding per day in two feeds, 12 pounds cut corn stalks, 5 pounds bran, 7½ pounds corn meal, ¾ pound oil meal, with, at noon, what clover hay they will eat clean. Results from 74 to 77 pounds of butter per week from eleven cows.

Waukesha Co., Wis. C. S. L.

We do not see how the composition of this ration can be improved. As a matter of practice, we should omit the noon foddering next year. Cows need feeding at midnight as much as at noon.

FOR WISCONSIN SHORT-HORNS.

Please give me a balanced ration of the following feeds: Clover hay $6 per ton, corn stover, fodder corn, ground oats $20 per ton, wheat bran $15 per ton, corn and cob meal $11 per ton, linseed meal (old process) $1.50 per cwt. Cows mostly Short-horns, weighing about 1,100 pounds. Receive 20 cents per pound for butter the year round.

Waukesha Co., Wis. R. K.

Clover hay being much the cheapest of the feeds mentioned where prices are given, the cows should have a full allowance of this, rather than be crowded to eat the stover and fodder corn and buy bran or other protein feed to balance. We therefore suggest as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1 36	7.16	.34
8 lbs corn and cob meal	7.12	.51	5.04	28
1½ lbs. oil meal	1.36	44	.49	.11
Totals	25.42	2.31	12.69	.73

Give all the fodder and stover in addition that any cow will eat, and do not neglect regular salting.

FEEDING TURNIPS TO CALVES.

I find that calves from two to three months old are very fond of turnips. I make them fine with a root cutter. Do you think they will be harmful to feed these calves, say about one quart a day along with other feed.

Windon, Wis. M. S.

They are excellent feed if you will give sufficient other dry matter along with them to keep the calves growing. Remember that turnips are largely water and are low in protein. They should be fed as a relish and to give the calves the advantage of a succulent food.

CABBAGE AND CORN.

I have a dairy of fifteen cows and feed hay, ensilage made of the entire corn crop, and about eight pounds mixed grain a day to a cow. When marketing my cabbage this winter (which took about two months on account of cold weather), I fed the refuse from the cabbage to the cows in the place of ensilage. Usually it would last about three days at a time. I noticed that every time I made the change from ensilage to cabbage, the cows gained on their milk as much as one-half can a day, and fell back when I stopped. I noticed also that when fed on cabbage, they ate about as much again of hay.

I want to know what caused the change in the milk supply. Was it the cabbage, or was it because they ate more hay, or was it because the hay, cabbage and grain made a better balanced ration, or was the ensilage too sour? It looks like very fine ensilage.

Fabius, N. Y. G. H. G.

Cabbage contains from 50 to 100 per cent more protein than corn silage, and this fact may or may not explain the increase in milk. Cabbage, however, contains over 50 per cent less dry matter than corn silage, and is, therefore, deficient in carbohydrates and fat, and this is sufficient to account for the increased consumption of hay. The presumption is that there was too little protein in the ration when silage was fed.

FEEDING PRIOR TO FRESHENING.

Will you advise whether it is policy to feed more than 2 pounds bran and 2 pounds gluten meal to dry cows or heifers from six to eight weeks prior to calving? They would have all the hay and cut corn stover they could eat in addition. Also, advise whether they should not have, at least, from two to four hours exercise in an open lot on bright, clear days when so near calving? Our cattle have been well fed on a balanced ration, and the dry ones as well as the heifers have had as much as the fresh ones, resulting in their getting in a fat condition, and have been watered in the barn; no exercise. It seems we have no end of inflamed bags and trouble when our cows come in, and have lost one of our best pure breds. D. W. D.

Reading, Pa.

So far as the cows are concerned, if in good order, they will need little or no grain at such a time. We are not advocates of the "starvation theory" by any means, but at the same time plethora and a stimulated condition of the system are the active advance agents for milk fever. Bring about, as near as may be, a normal condition of all the bodily functions. This can, ordinarily, be done by attention to feeding. Often all that will be required is a warm "bran mash" properly salted. If this does not suffice, add some oil meal, and, in obstinate cases, laxative doses of salts. We do not practice ac-

tive purgation, and can see no justification therefor in any ordinary case.

Heifers, about to drop their first calves, should be fed rather more than generously, in order to develop their udders as much as possible. There is no danger of milk fever with them, and with proper care the greatly enlarged udder comes down to its proper size without serious trouble.

Exercise is of great importance, but may be carried to excess, especially if it subjects the expectant mother to ill usage by other cattle, or exposure to cold or storms.

SOILING CROPS.

1. What are the best crops for soiling?
2. When and how planted?
3. What is the best way to cut and handle it, *i. e.* what machinery is necessary?

Those having small farms will have to come to the soiling system, as land at $75 an acre is too expensive for pasture. An extensive and comprehensive view of the subject would be very instructive. Let us hear from many. F. S. HAUPT.

Minnesota.

The following table, taken from "Feeds and Feeding," and originally compiled by the Hatch Experiment Station of Massachusetts, gives crops and areas, which will be found necessary for a herd of ten cows, during the entire summer. It is easily seen that no one machine or method can be employed to handle such a diversified series of green feeds.

CROPS AND AREAS FOR SAME, FOR SOILING TEN COWS DURING THE ENTIRE SUMMER.

Crop.	*Seed per acre.*	*Time of seeding*	*Area.*	*Time of cutting.*
Rye	2 bushels	Sept. 10-15	½ acre	May 20—May 30
Wheat	2 bushels	Sept. 10-15	¼ acre	June 1—June 15
Red clover	20 pounds	July 15 Aug. 1	½ acre	June 15—June 30
Grass and clover	½ bu red top ¼ bu. timothy 10 lbs red clover	September	⅔ acre	June 15 June 30
Vetch and oats	3 bu oats 50 lbs. vetch	April 20	⅓ acre	June 25—July 10
Vetch and oats	50 lbs. vetch	April 30	⅓ acre	July 10—July 20
Peas and oats	½ bu. Canada ½ bu. oats	April 20	⅓ acre	June 25—July 10
Peas and oats	1½ bu. Canada 1½ bu. oats	April 30	⅓ acre	July 10—July 20
Barnyard millet	1 peck	May 10	⅓ acre	July 25 Aug. 20
Barnyard millet	1 peck	May 25	⅓ acre	Aug 10—Aug. 20
Soja bean	18 quarts	May 10	⅓ acre	Aug. 25—Sept. 15
Corn		May 20	⅓ acre	Aug 25—Sept. 10
Corn		May 30	⅓ acre	Sept. 10—Sept. 20
Hungarian	1 bushel	July 15	⅓ acre	Sept. 20—Sept 30
Barley and peas.	1½ bu. each	Aug. 5	1 acre	Oct. 1—Oct 20

Some two years ago we published a paper on "Soiling," read before a farmers' institute in Ohio, by D. C. Long, from which we copy several of the more important passages, as follows:

There is a long list of the so-called forage crops, but will only speak of those we have grown. Winter rye comes earliest in spring. If sown early in September will usually be ready to feed by April 1st. Prefer sowing rye broadcast at the rate of two bushels to the acre; grows a finer stalk and is more readily eaten. Sow again in October, usually after late potatoes; ground can be easily fitted with disk or cultivator. Harrow in rye and at the same time getting any potatoes that have been missed.

Crimson clover promises fair to fill a space here between rye and our common red clover. Have only sowed the crimson two seasons, but am inclined to think very favorably of it. The period when it is at its best, however, is comparatively short, but is fully three weeks earlier than the red clover. The common red clover is so well and favorably known, that it hardly seems necessary for me to speak of this. Usually two crops of this are cut from the same ground and in a season like the past one a very fair third crop could have been cut.

After clover, oats and peas are fed. Sow as early as possible in spring. Have tried different ways of sowing. Prefer plowing the ground, sowing peas at the rate of two bushels to the acre, broadcast, then harrow and fit the ground and drill in oats, two bushels to the acre, and roll in order to have a smooth, even surface. Two or three plats of oats and peas are sown at intervals of two weeks apart. Millet and Hungarian can also be sown and is usually ready to feed before the early planting of sweet corn, which should not be planted until the ground is warm.

Have tried different varieties of sweet corn, but none of them afford as much feed as Stowell's Evergreen. Last season three different plats were planted at intervals of ten days. Have had good success drilling in corn with grain drill by removing every alternate shovel and shutting off the feed by a circular tin cut to fit, which leaves the drills or rows sixteen inches apart. Just before the corn comes up, harrow thoroughly, and again after corn is three or four inches high, using a slant tooth harrow. If care is taken, horses may be made to walk between rows, and very little corn will be trampled. More quantity can be grown from a given area by sowing thick, but will be at the expense of quality. By using a liberal amount of barnyard manure, and if the work has been well done, you will not have any weeds and the corn needs no further attention. Have also planted the common field corn in the same way. Ensilage corn is also grown for late feed, but is drilled in rows three feet apart.

For convenience in cutting, all soiling crops are planted in long narrow plats, as all are cut with the mower, hand cutting being too slow and tedious.

Each day's feed is cut as early in the morning as convenient and while the dew is on, as it keeps more fresh than if cut in the heat of the day, excepting, however, we bring in enough the last thing Saturday evening for Sunday.

So far as can be done, we grow two crops from the same ground each season. For instance, after early plat of rye, oats and peas or sweet corn, and after first plat of oats and peas, millet or late corn, always aiming to manure each plat once a year.

Several years ago, three crops were grown from the same plat very successfully. Rye fed in April, followed with oats and peas, and again plowed and sown to millet, which was fed till frost came. What remained was cut and made into hay. The past year, ten cows were kept, producing 91,580 pounds of milk. The total area used for growing soiling crops did not exceed six acres.

LICENSING ENGINEERS.

J. H. H., of Westville, Indiana, asks us a series of questions about the licensing of engineers in different states, which we are unable to answer. We are of the opinion that very few states require engineers to take out license, and that there is little uniformity in the laws upon that subject. If it is desired to ascertain the special provisions, which obtain in some particular state, write to the attorney general of that state, for a copy of the law.

ACID WATER IN THE CREAMERY.

We have trouble with our creamery water. It is of a sulphur nature and it eats holes in the zinc, causing it to leak. We painted it with white lead and oil but water softens it and causes it to come off. L. S. C.

Shelbyville, Ill.

You will probably find it cheaper, in the long run, to change your water supply. The acid water could be corrected by the use of lime or other chemicals, but it would be considerable of a task, requiring special apparatus in the form of tanks, etc. If you can obtain your water supply from elsewhere it would be the easiest way out of the difficulty.

CHOOSING FEEDS.

With Chicago gluten feed at $21, best bran $18, cotton seed meal $23 per ton, which will produce the cheaper milk, the two former mixed half and half, or the latter, 2 to 4 pounds per day, with no bad effect to cows? Where manure is drawn directly from stable, all liquids saved by horse manure, used as an absorbent, how much would the value of same be enriched?

Fairland, N. Y. G. C. B.

Where all the feeds are so expensive, there is but little room for choice. Deducting the estimated available manurial values of these feeds, as given on page 84 *ante*, the feeding cost of bran would be $13.28; gluten feed $17.58; and cotton seed meal $14 64 Charging all this cost to the digestible protein in each, it would make the protein in bran cost 5.67 cents per pound; in gluten feed 4 2 cents; in cotton seed meal a fraction less than 2 cents. Unfortunately there is a limit to the amount of cotton seed meal that can be safely fed, having regard as well to the quality of the product as to the health of the animal. This limit may vary with different animals, but we place it at 2 pounds per day for an average, and then want it mixed with an equal amount of bran or some other light material to dilute and extend it. Ordinarily, bran is the best material for this purpose, but silage or any other cut feed (hay, straw or stover) will answer. Dried brewers grains, malt sprouts, oat dust, anything that is bulky, would do very well.

The following combinations of different feed stuffs would have approximately equal feeding value :

Cotton seed meal	2 lbs.	2 lbs	2 lbs.	2 lbs	2 lbs.
Corn and cob meal	4 lbs	4 lbs.		2 lbs.	
Brewers grains(dry)	4 lbs		4 lbs		
Bran		5 lbs.	2 lbs		2 lbs.
Gluten feed				4 lbs.	3 lbs

The second query is answered as fully as practicable on page 84.

SILAGE FOR STEERS.—EXPLANATION OF ANALYSES.

I would like for you to answer in your next issue the value of silage as feed for steers, that is, is it as good a feed as one can feed with the addition of corn meal, and will it pay to feed to steers?

I also notice in your paper where you advise feeding a balanced ration where 4 lbs. bran is equal to 3.52 dry matter, .50 protein, 1.54 carbohydrates and .12 ether extract. You certainly don't mean pounds and parts of same, and, if not, what do you mean?

This is my second year for the DAIRYMAN and I am better pleased with it every week.

Lima, Ind. G. W. D.

There is no question as to availability of silage as a part of the feed for fattening steers. In the earlier part of the feeding period, Prof. Henry says, as much as 40 to 50 lbs. may be fed daily, but when on full-grain allowance this amount should be reduced about one-half. Silage, like roots, tends to keep the system cool and the appetite vigorous, by aiding digestion, and withal is cheaper and more convenient to handle than roots. For best results some dry forage should be fed each day, and the corn meal should be mixed with a part of the silage.

The analyses of feeding stuffs as published show, for example, that there are 3.52 lbs. of dry matter in 4 lbs. of bran, and that this dry matter contains .50 of a pound of digestible protein, 1.54 lbs. of digestible carbohydrates and .12 of a pound of digestible ether extract or crude fat. In other words, there are in 4 lbs. of bran 2.16 lbs. digestible nutrients, 1.36 lbs. indigestible fiber, ash, etc., and .48 of a pound of water.

NOT ENOUGH PROTEIN.

Please give your opinion of following ration for 1,100-lb. cows: 60 lbs. ensilage (ear corn cut with it averaging about 3 bushels to ton), 8 lbs. wheat bran, all the corn stover they will eat during day. Cows in fine condition but not yielding much milk.

Rapidan, Va. J. W.

In addition to the silage and bran specified above, these 1,100-lb. cows will probably eat about 10 lbs. of the corn stover. Such a ration would tabulate as follows:

	Dry Matter.	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
60 lbs. silage	12.54	.54	6.78	.42
10 lbs. stover	5.95	17	3.24	.07
8 lbs. bran	6.85	1.00	3.09	.24
Totals	25.34	1.71	13.11	.73

The one element in feed without which milk cannot be made, is protein. Neither carbohydrates nor fat can be changed into casein, and without casein there cannot be milk. Protein also makes the lean meat, the muscles, the tendons, hair, etc. It has not been definitely determined as yet just how little protein in the feed will suffice for the milch cow in full flow of milk, but so far as experience has gone, it indicates that this minimum is about 2 lbs., and more rather than less. A goodly number of investigators place it at 2½ lbs.

This suggests the addition of some cotton seed meal to the above formula—say ½ lb. per day for the first week, a full pound for the second week, 1½ lbs. the third week and 2 lbs. the fourth week. After this it may be practicable to decrease the allowance of bran somewhat.

A MARYLAND RATION.

Please send ration for grade Jerseys, about 1,000 lbs., from following: Corn and cob meal $17 per ton, wheat bran $17 per ton, cotton seed meal $23 per ton. I am feeding clover hay in rack, and rough fodder in yard once a day. Also formulate ration for summer feeding. Pasture natural grass; run meadows. E. E. S.

Baltimore Co., Md.

At the prices named, we cannot advise the use of corn and cob meal, unless the price of hay is abnormally high. Clover hay at $10 per ton is as cheap as corn and cob meal at $17. There is more nutriment in a ton of corn and cob meal than in a ton of bran, but the bran contains twice as much protein. Bran at $17 is expensive feed, and we should be disposed to try the market for something cheaper, like brewers grains, or something of that kind. However, complying with our correspondent's request, we submit a formula, containing the feeds named, as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
10 lbs. corn stover	5.95	17	3.24	.07
4 lbs. bran	3.52	.50	1.54	.12
4 lb corn and cob meal	3.56	.26	2.52	.14
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	23.54	2.35	11.22	.68

It is impracticable to give a formula for summer feeding on pasture, because one cannot tell how much the cows can get from grazing. With good pasture, very little grain will suffice, but as pasturing declines, grain must increase. Watch for results and feed accordingly.

STABLE FIXTURES AND ARRANGEMENTS.

1. What kind of stall arrangement is considered the best?
2. What is the best arrangement for fastening dairy animals?
3. Is it advisable to use iron feeding boxes for feeding concentrated feed to dairy animals?
4. What mangers are considered the best?
5. Where should a silo be located?
6. What has been the experience with stave silos? W. P.

Woodbine, N. J.

Questions one and two have been answered to the best of our ability over and over again. No man is justified in saying that any specific stall arrangement or method of fastening is the best. There are many good ones.

The writer of this reply discarded feeding boxes and mangers of every description years ago, but he does not expect this to become the common custom. Where a feed box of any description is used it should be large, water tight and have no sharp or small corners. There is perhaps no valid objection to using iron for this purpose, but personally we should prefer something different.

A silo should be located with regard to greatest convenience in feeding, and this would vary with the infinite variation in the plan of the barn and the arrangements of the stables.

Stave silos are evidently growing in favor.

A CALIFORNIA RATION.

We are feeding at present alfalfa hay 20 pounds, oil cake 2 pounds, bran 4½ pounds, corn 4½ pounds (shelled corn ground, called here feed meal) oil cake $45, bran $23, feed meal $25. We must have a ration that pr-

duces the maximum amount of milk, even though it be not the cheapest, because if we do not get the required amount of milk, we shall have to buy it. M. S. N.

Santa Ana, Cal.

This appears to us an unnecessarily large ration, but the experience of M. S. N. may justify it. We certainly should try reducing the oil cake to one pound, and use more of the feed meal, (say one pound) and reduce the bran to 3 pounds. If some portion of the alfalfa could be cut quite fine (chopped), we should try to dispense with bran altogether. The 20 pounds of alfalfa hay, a part of it chopped as above, and mixed with 8 pounds ground corn, and enough oil cake added to keep the bowels in proper condition, would make a better ration theoretically than the one now fed.

LIMITATIONS IN FEEDING MALT SPROUTS.

In reply to A. McG., Claude, Ontario: We recommend limiting the amount of malt sprouts to not more than three pounds per day, because experience has shown that this is as much as most cows will eat from day to day. Cattle seem to grow tired of them and "go off their feed" when the malt sprouts are fed in excess or constitute too large a proportion of the ration. They are not thought to be otherwise injurious.

CHEMICAL DEHORING.

I have seen somewhere advertised some stuff to keep the horns from growing on calves. Was the stuff advertised in your columns? Is it all right to use? If so, where can I get it? I have eight yearlings. Will this stuff take off their horns, or will I have to dehorn them. O. H. M.

Du Page Co., Ill.

The "stuff" referred to was advertised in this paper, and both effective and safe for the purpose. Write to John March Co., 58 River Street, Chicago, Ill.

Caustic potash may also be used. Wrap some paper around a piece of it to keep it from the fingers, moisten the end and rub on just at the top of the young horn button. Use as soon as the horns begin to show, and be careful not to get it on the surrounding flesh. Two applications may be necessary.

You will have to use a dehorner on the older animals.

AGE FOR DEHORNING.

Is it advisable to dehorn calves with caustic potash or wait until grown up and use dehorner? "S."

Long Green, Md.

The sooner it is done the better. As soon as the embryo horn appears as a small button, remove with potash or knife. The smaller the horn and consequent operation, the better.

PASTEURIZING MILK.

I am thinking of pasteurizing milk for city trade. Does the operation change the taste, looks or chemical analysis of the milk?

New York. T. M. D.

If the milk is handled as it should be, there would be no change in taste, looks or chemical analysis.

The only change is, that the cream does not rise so well. Be sure that you have your apparatus and milk in the best possible condition before you attempt to market your product.

HUSKING CORN AND THRESHING OATS.

S. H. of Eau Claire, Wis., writes that he has no silo, and asks whether it is better to feed fodder corn without husking, or husk and grind the corn into feed. He also asks whether it is economical to feed sheaf oats to dairy cattle, or better to thresh and grind them. He does not state whether he is renting or is the owner of a farm. If the latter we do not hesitate to advise him to build a silo. There is great economy of labor in harvesting and taking care of the corn crop in this manner, as well as in feeding it out. Moreover there is no other way in which so much loss can be avoided, or the feed preserved in so palatable a condition.

Before the silo came into so general use, among the more prosperous dairymen, many of them were accustomed to feed the corn without husking, and claimed this was the more economical way. Hiram Smith followed this practice for years. He also contended that it did not pay to thresh oats, and only this last winter we heard Mr. Charles Thorp, of Burnett, one of Mr. Mc Kerrow's Farm Institute conductors, and a progressive and prosperous farmer in Dodge county, say that he did not thresh oats for either cows or horses. He has tried both ways and claims that threshing is not only a needless expense, but a positive damage.

The writer of this reply does not feed oats to cows, simply however, for the reason that he considers them more expensive than bran or some of the other by-products, which are rich in protein.

AERATING AND COOLING MILK.

We use the deep setting cans (4 gal. cans) for our milk. In the summer time we place the cans in a box lined with tin and filled in with three inches of charcoal. The water is pumped into the milk box fresh, twice daily. But notwithstanding this, in warm weather, the milk will sour in twelve hours.

Will an aerator stop this? We have no ice. Soulon, Ill. SUBSCRIBER.

Aerating will add decidedly to the keeping qualities of your milk, if a thorough cooling is used in connection with it.

We are not positive, but should judge that your water box does not hold enough water to cool the milk thoroughly. It takes quite a body of well water to cool four gallons of milk at 100° to 60°. It will take three cans of well water at 50° to cool one can of fresh milk to 60°. Are you using water in that proportion to cool your milk? And is your milk cooled to near 60° F?

ANTHRAX.

A California subscriber inquires if there is any known *sure* cure for anthrax. Veterinarians seem to be pretty well agreed that anthrax is incurable, but may be prevented, or animals rendered immune thereto by inoculation. It is probable that Prof. Russell will treat of this subject in his Plain Talks on Bacteriology as Applied to Farm Problems.

OLEOMARGARINE RULE IN THE SOUTH.

The *Southern Dairyman* copies a recent comment, made by this paper, on the prevalence of fraud and adulteration in food, and says:

"The South is in a pitiable condition regarding the tameness with which she submits to be the favorite dumping ground for all kinds of adulterated food products. Our people, individually, complain about the frauds practiced upon them in this matter, but there is little organized effort made in any quarter to put a stop to these evils. In some Southern states the influences of the cotton seed oil interests have, up to this time, been too strong to admit of legislation against adulterated and counterfeit lard and butter. While in Mexico, recently, we learned that the laws of that country were very strict in reference to the sale of counterfeit and adulterated food products of all kinds, and that the laws are seemingly enforced with more vigor than with us. There, oleomargarine and like products may be sold under their true names, but woe be unto the person or firm that dares to sell counterfeit for the genuine."

All this subservience to oleomargarine comes through politics. It is not found alone in Southern states. We know of states in the North where the head boss in the dominant party shields the guilty from prosecution by law, and defeats the passage of right laws. We will tell our readers how it comes to pass: The oleo manufacturers have long purses. They contribute several thousands of dollars to the campaign fund in both parties. Then the political bosses protect them. They tried and succeeded in their game for four years in Wisconsin; but the State Dairymen's Association was aroused and it told the "bosses" in plain terms what it would do. The result was we got the legislation we wanted.

All that is needed is a little old time political independence, such as the old farmers of fifty years ago used to manifest.

A dairy farmer who is afraid of a political boss, or who will not stand up resolutely and defend his home, his farm and his business against political slavery of this sort, is a coward that even a scrub cow should despise.

The Davidson bill in Congress will meet these big contributions by the oleo combine, and certain leaders there will try and smother it. But let the farmers fire in their postal cards on which is written plain talk, and the bosses will not be in it. The Southern farmers need to do some talking as well as those in the North.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, IX.

HYDROPHOBIA OR RABIES.

There is no animal disease to which humanity is also subject, that is associated with greater fear, than that of hydrophobia or rabies. The horrible results which often follow from the bite of a rabid animal are such as to invest the subject with peculiar terror, and yet, the number of cases among human beings is, practically, very small. Even the mortality in well defined rabies does not exceed about 15%. The disease is, invariably, of animal origin, and is usually confined to the canine race, although other animal species, as well as man, may acquire it through a transfer of the specific virus by means of bites.

Among domesticated animals, other than the dogs, cats and sometimes cattle, horses and swine, "take" the disease. Wild animals, such as wolves and deer are not infrequently affected. A large percentage of the cases of hydrophobia among the peasants of Russia, come from wolf bites.

The disease is one of the most peculiar of those produced by living organisms. It cannot originate without the transference of the virus from some animal already affected with the disease. This is transfered by means of bites, the saliva of the infected animal being the substance that contains the contagious matter. On the unbroken surface of the skin, the saliva from a rabid animal produces no effect, but when the protecting surface is broken or abraded, the diseased matter "takes", or is absorbed into the system.

A varying period of time elapses (the period of incubation) before the animal, or person bitten by the rabid animal, shows signs of the disease. This period varies so much that it engenders a feeling of insecurity in cases of animal bites, as to whether a wound caused by an animal, is from a case of rabies, or not. Cases have been reported, where the disease did not develop within a year, and in a few cases, a manifestation of the symptoms did not occur, until two years after the injury. The rapidity of the incubation period is largely determined by the character and location of the wound. Slight flesh bites on the extremities, develop the disease much more slowly than wounds of similar magnitude upon the face or body. Bites through the clothing are apt to dislodge much of the virus.

The appearance of the disease in animals is frequently unaccompanied with any visible lesion, and often the symptoms are so obscure as to render positive diagnosis difficult. The disease is characterized by marked changes in the nervous system, accompanied with constitutional disturbances. In animals, particularly in dogs, the symptoms may assume two phases. It may become suddenly and violently "mad", biting and tearing at any object within its reach. This type is known as "furious rabies." In the majority of cases, the development of the disease is

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more gradual, producing paralysis, at first partial, and later, more general. In the later type of the malady, known as "dumb rabies," the danger of transmission is lessened by the quieter condition of the affected animal, and its inability to move about.

There is one characteristic symptom in all cases of this disease, intense thirst, but the peculiar dread of water, from which the popular name of hydrophobia is derived, is confined especially to man. Many people are thrown into a state of terror from any wound caused by a dog.

It should be borne in mind that rabies cannot be transmitted unless the attacking animal is affected. In case of an accident of this kind, the first thing to be done, outside of the medical precautions, which should always be instituted, is to secure the animal that inflicted the injury. There is a current belief that if the animal is killed at once, the danger of infection, to the person bitten, is materially lessened. That such a course might allay the fears of the remainder of the community can be easily understood, but how the progress of the disease can be controlled in a person already inoculated, by means of the bite, is not so clear.

An animal suspected of rabies should not be killed, unless it is impossible to secure control of it in any other way. An animal may show strange and grave nervous symptoms, without being affected with hydrophobia, and it is of utmost importance to determine the fact. This can be done in two ways: First, by isolating the animal and keeping it under close inspection, until an accurate determination as to the character of the malady can be made. The second, and more accurate method, which can only be made by a trained expert, is to remove a small portion of the brain of the suspected animal, and introduce it beneath the brain membrane of a rabbit. This serves to carry over the virus of the disease from one animal to another, and if the animal is rabid, symptoms of the disease will manifest themselves in a few days. Notwithstanding the fact that this method enables one to transmit at any time the disease with certainty, the specific germ which causes the malady, which, of course, must be present in the inoculated material, has not, as yet, been discovered, although much labor has been spent by numerous scientists on the question.

Sometimes light can be thrown on the case by an examination of the contents of the dog's stomach. In a rabid animal, one often finds small sticks, stones, leaves and other things that have been swallowed by the animal during the furious outbursts.

The necessity of a correct diagnosis of the disease is rendered the more imperative from the fact that a cure for hydrophobia has been found that is almost always successful when taken in time. The treatment, however, is of such a character as to render its use unadvisable, unless the diagnosis is certain.

TREATMENT.

Some years since the great French bacteriologist, Pasteur, succeeded in modifying the virulence of hydrophobia material to such an extent that the inoculation of the weakened virus into a susceptible animal like a rabit, produced only a mild form of the disease.

By the introduction of different samples of the virus of gradually increasing potency, he found that it was possible to finally render an animal immune or refractory to the most virulent material. In this way the tissues became "acclimatized," so that the strongest virus that would invariably kill susceptible animals had no effect upon those thus immuned. This system of protective inoculation was first thoroughly worked out on animals.

On July 4th, 1885, the first experiment was made on a human being. A nine-year-old boy, who had been seriously bitten by a mad dog, was subjected to the treatment, and in the next ten days, thirteen injections were made. With each injection made on the child, a corresponding one was instituted on a rabbit. The earlier injections in the animal produced no effect, but as the strength of the vaccine was increased, the rabbits died, while the boy showed no symptoms of the disease whatever. This brilliant discovery was an eminent success, and from that time to the present, thousands of individuals have been cured at the Institute Pasteur at Paris, and in nearly every civilized country on the globe, similar hospitals have been established, where the beneficent results of this discovery can be made available to any one, suspected of having been exposed to the disease. The mortality rate of this disease has been reduced to practically nothing.

Last year the number of deaths that occurred at the Paris Institute, of persons undergoing treatment was only four out of nearly 2,000 cases. The treatment is practically specific, if applied in time. The value of the process lies in the fact that the period of incubation is quite long. Under ordinary circumstances, the disease does not begin to develop for several weeks after the bite, unless the wound is unusually severe, and on the hands, face, or neck.

If, therefore, the patient submits himself for treatment within a few days, he becomes "acclimatized" to the poison of the disease as a result of the protective inoculations, before the original virus has had time to develop in the system.

The whole success of the method lies in an early treatment. After the symptoms of the disease begin to manifest themselves no remedial methods are of any avail, for the poison of the virus has got in its deadly work. Besides a delayed injection of the protective vaccine, one other condition may defeat treatment, that is when the bite occurs from an animal afflicted with an unusually virulent form of the disease. In such cases, the incubation period is materially shortened by the more rapid development of the virus.

Upon the whole, however, the treatment is so successful that it should always be instituted as soon as possible after a positive diagnosis has been made. This treatmen has, to some extent, been employed among animals with very favorable results, but the difficulty and expense attendant upon its use, has precluded its use except in occasional cases in France.

Southeastern New York Farm Notes.

Planning for the Early Soiling Crops.—Garget.

ED. HOARD'S DAIRYMAN:—When the pastures become dry and short next summer, we will find it much more economical to supplement them with soiling crops, than to try to keep up the flow of milk by buying grain, and now is the time to plan for these crops, so that we shall have them when they are needed. For the earliest soiling crop, there is nothing better than oats and peas. If it is desired to feed them green, it is better not to sow the whole crop at one time, but to sow a part of the ground as early as it can be worked in the spring, then afterward make two or three sowings about one week apart.

It will be understood that only the Canada peas can be sown with profit so early in the spring, and these should be ordered in time so that they will be on hand by April 1st, so if the ground is in condition to work, they can be put in at once.

The peas, to make a good growth of vines, require a loamy soil, and it needs to be made quite rich. It will pay to give the ground a good dressing of stable manure, or if the supply is short to drill in fertilizer. You may read about growing this crop without much manure or fertilizers, but I have never been able to grow good crops of anything, without feeding them well, and especially has this been true in obtaining a large growth of peavines, either in the garden or in the field.

About two and one-half bushels of seed should be sown to the acre, mixing one bushel of peas to two of oats. Some claim to get good results from drilling in the oats and peas at the same time, but I would prefer to first drill in the peas quite deeply, then to cross drill the oats more shallow. I have a neighbor who has no drill, that sows the oats and peas by hand, then harrows them in and he gets good crops. There is little danger of sowing too large an acreage of oats and peas, for if the crop cannot be all fed green, it makes excellent hay, or it can be left until the oats begin to ripen, then cut and when dry, thresh, and feed the grain after grinding.

I notice that the conductors of the New York farm institutes, advise farmers in the east to feed ground oats and peas in place of bran, for the high freight rates make bran too expensive for our eastern farmers to feed with profit.

TIMELY PRECAUTIONS.

Some people in my vicinity are having trouble with the garget and caked udder. I have suffered considerable loss at different times from cows so affected, but I now believe these can be mostly prevented. One of my neighbors, who has some fine Jersey heifers, lately told his experience in having them all come fresh in milk, this spring, with no trouble with the udders, although they have been well fed all winter, and made up large udders. For about three weeks before calving, he fed them good clover hay, and each one a little bran, and took care to milk out the udders when they were too full.

He also fed them ocassionally a little saltpetre. He did not increase the grain ration until several days after the calves were dropped, and the result of his treatment is that all the heifers have healthy udders, and are now giving a good quantity of milk.

I call to mind Dr. Smead's talk about garget at the farm institutes. He said the garget was caused by a bacteria that lodges on the end of the teat. It works up in the teat and you have garget. The time to prevent it is at the first start. If you are afraid of garget, wash the udders occasionally with carbolated linseed oil, mixing one part of the carbolic acid with ten parts of the oil. If the garget has begun, in addition to this treatment, inject a tincture of sulphur in the teat.

I also remember the advice he gave to prevent milk fever: "If there is danger of milk fever, commence two weeks before the cow drops her calf to feed saltpetre and bromide of soda, these will help to thin the blood. Do not dry up the milk until it naturally dries up. If you do, the food that makes milk will go to make blood, and this may cause milk fever."

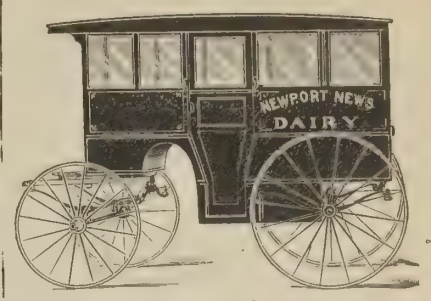
DEPRECIATION OF THE VALUE OF DAIRY FARMS.

Two farms have been lately sold in my locality at cash sales for less than the buildings on them cost. There has been a large shrinkage in the value of farms all over the state. But few wish to buy farms, they say that dairy products are so low that there is no money in farming. It is not because there is not plenty of capital to invest in farms, but it is because that the prices of produce are so near the cost of production, that with ordinary methods of farming, the margins are very small.

I recently talked with a man who owned farms that he rents, and he said that his tenants were paying him all they could afford to, and that he realized only three per cent on his investments. It is a deplorable condition of affairs, when that well improved farms will not sell for the cost of the buildings on them, and that people having capital to invest, even at these low prices consider them a poor investments. Unless our people can be taught better methods of farming that will reduce the cost of production, and the problem of a larger and more economical distribution of dairy products can be solved, thus giving the dairymen larger margins, the future of the Eastern dairymen does not look very bright. W. J.

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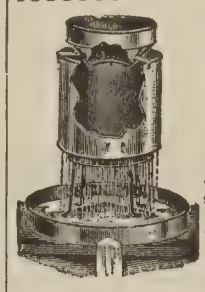
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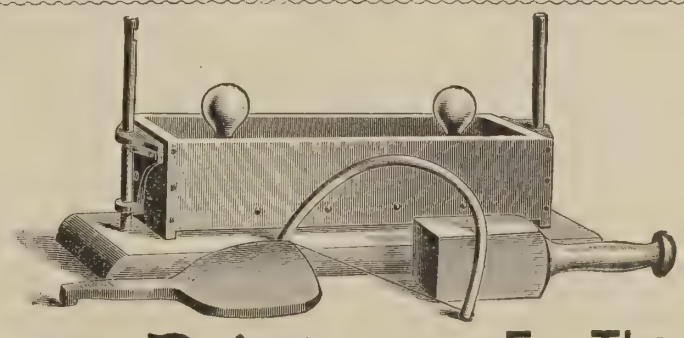
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SOME THINGS TO BE THOUGHT OF JUST NOW.

We make no doubt there are hundreds of our readers who are thinking of needed improvements on the farm. The farmer can never bring the good things together all at once, but he can start this year to begin.

Let us suggest a few things that it will be well to make a beginning on this spring.

1. Buy a good registered bull of some one of the dairy breeds. Don't satisfy yourself with a grade animal because you can get him cheap. You can buy log chains made of cotton yarn, and they will cost much less than if made of iron. But will they stand the strain or do the work? Don't breed from a grade bull, for he is as apt to throw towards the grade side as the other.

2. Set about building a silo. It is a great help in two ways; it will reduce the cost of cow food, and it will stimulate a larger flow of milk. Make a start this year towards building a silo.

3. Put in a piece of alfalfa this spring, if it is not more than two acres. Try it for yourself. We believe it can be successfully grown in thousands of localities where the farmers think to the contrary.

4. Make the determination to have better stalls and tie-up arrangements for your cows. Change over the old stable the coming summer, and put in two to four times as many windows as you now have. You will see how it will pay next winter when the sun shines in upon your cows, and they show increased vigor and thrift.

Correspond with the men who are advertising improved cow stalls. Drop them a letter and get their ideas. Lumber will not be any cheaper for years, and now is a good time to do some of these things. Be sure to get a small spraying pump, and with it whitewash the cow and horse stables thoroughly. With the spraying pump, one man can do as much as ten with the brush.

Many a man wants some of these improvements; all he needs is a jog on the elbow to start him along.

It is a better investment to lend your surplus cash to the farm and the cows, than on a note of hand.

AN OBJECT LESSON IN BREEDING AND ITS RESULTS.

Mr. H. C. Taylor of Orfordville, Wis., writes us that from Feb. 20th to 26th a twelve-year-old cow in his herd, Marine by name, and a daughter of Diploma and his full sister, Comlassa, (and hence a double granddaughter of old Combination) gave 248 lbs. of milk which yielded 16½ lbs. of butter after being properly salted and thoroughly worked. In addition to the ordinary disabilities incident to age, this cow had lost the use of one quarter of her udder, and it is only fair to assume that with a more favorable environment she might have done considerably better.

Cows of this character are object lessons in breeding; for dairy ability in this degree is not the result of catch-as-catch-can breeding, and more particularly so when similar capacity is not uncommon in the family. So far as known, Diploma, sire of Marine, had only eighty-five daughters, and, notwithstanding several of them were never tested, including some as promising as any that died of milk fever, Marine is the forty-fifth of these daughters to enter the 14-lb. list. In addition to this, fourteen sons and two grandsons of Diploma have produced record making daughters.

Such success as this stamps Diploma as a bull of wonderful potency and when it is added that it was his daughter, (Merry Maiden) that won the grand sweepstakes in the dairy contest at the World's Fair, it would seem as though the claim for him of first place among dairy sires might well nigh pass unchallenged.

It goes without saying that Diploma himself was well bred, and if his sire and dam had no other claim to recognition than this one son, it would suffice to demonstrate their dairy merit. But as a matter of fact he was one among many only less conspicuous than himself. His dam was Frankie's Lass with a personal record of 17 pounds 3½ ounces butter in seven days, and three record making daughters; and his sire was old Combination, with twenty-five record making daughters to his credit, and grand daughters by the score, including Brown Bessie, the champion butter cow at the World's Fair, as well as Merry Maiden.

Marine was not only intensely inbred herself, but her last calf (a solid color bull) dropped December 12, was by her own son, Goldie's Torment 5th(thus giving him 75 per cent of the blood elements of Diploma), and she was bred January 25th to Brown Bessie's son, Recorder.

From a Michigan Creamery.

What Variations in Tests are Permissible.—Ration Formula.

ED. HOARD'S DAIRYMAN:—I have been a reader of your excellent paper for nearly one year and have been thinking for a long time of asking you to formulate me a good ration for my grade Jerseys, weight about 900 pounds. Corn and cob meal, $10.50; bran, $15; oil meal, $28; cotton seed meal, $22. I have cow pea hay, oat hay and corn fodder. Two cows fresh in December, one in February and two last August.

We have been patronizing a creamery near us, which began running March 14th, 1898. It began with barely 1,000 pounds of milk; gradually increased during the summer to over 10,000 pounds, and is now receiving every other day, about that amount. There is a skimming station about five miles distant from the creamery, which sends in the cream from over 5,000 pounds of milk every other day.

Two silos were built last season and more will be built this summer. The company charges the patrons 3c per pound for making the butter and returns 80% of the milk to patrons.

Some patrons claim they can make more butter than the creamery, while others claim the reverse. They take samples of the milk each day and test twice a month. What variations in the tests should one expect, tested in that way, with same cows, amount of milk, care and feed? C. H. K.

Fawn River, Mich.

For the ration we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
6 lbs. cow pea hay	5.36	.65	2.32	.07
6 lbs. oat hay	5 47	.26	2.78	.09
6 lbs. corn stover	3.57	.10	1.94	.04
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. corn & cob meal	4.45	.32	3.15	.18
1 lb. oil meal	.91	.29	.33	.07
Totals	24.17	2.25	12.45	.60

It is impossible to say what variations may appear in these semi-monthly tests, without knowing all the conditions, and this is simply impossible. The exposure of cows to a cold storm, or continued cold or hot weather, or to flies, changing feed, rough treatment, or any other departure from the ordinary routine will cause the test to vary quite markedly. It can be stated with utmost confidence that the Babcock test itself is as accurate and unvarying as any weighing machine that can be had. But like scales, it must be properly handled, and the samples must be taken with care. If there is any question between the patrons and the creamery as to the tests, ask the most dissatisfied patron to come in and witness the whole operation. There should be the most open frankness on this as on all other matters. Make some daily tests and compare them with the semi-monthly tests, so as to be sure that everything is all right.

An Estimated Herd Yield.—Milking Paralysis.

ED. HOARD'S DAIRYMAN:—During '98 I milked the following cows, nineteen in all, and made milk and butter as follows:

Seven heifers dropped first calf at different times during the year and milked altogether thirty-two months, eighteen days. One heifer dropped first calf in December '97 and milked through the entire year. Two dropped second calf during the year. Of the remainder three were sold, April 1st, having milked eight months, twenty-four days of the year.

One was sold later having fattened two calves eight weeks, and milked six months, five days. The rest were here the whole year.

Only seven of the entire lot had dropped more than two calves prior to January 1st. '98.

The milk yield was 83,381 lbs. and an average of at least 10 pounds per day is used in house, besides considerable cream which would leave 79,731 lbs. milk skimmed, making no allowance for the cream used.

We made 4,410 lbs. butter and the cow that fed the calves eight weeks may fairly be credited with 64 lbs. butter for the time.

What do you consider was the average butter yield per head for the year?

If any others are troubled with milker's paralysis I would say that I obtained considerable relief by blistering the muscles of the arm between the wrist and elbow continuously for a week or more, with mixture of Croton oil and Iodine.

N. Y. A. D. MCBAIN.

From the above data, which would allow only a very loose estimate, we should judge that the yield was in the neighborhood of 366 pounds of butter per year. This may not be within twenty-five pounds of the actual yield.

Prof. Shaw's Figures Criticised.

ED. HOARD'S DAIRYMAN:—After reading Mr. Shaw's article in February 24th issue, I conclude his premises are very erroneous. He supposes he can get $31.50 for a skim milk calf from his cow at 1 year old, and $30.00 for the butter. We can't begin to do that well here. Have good cows, good feed, and good markets too.

He expects his skim milk beef to bring 4½ cents per pound; 3½ cents is as high as he should put it, and it will take a lot of good grain and hay to make it bring that, which he don't consider at all.

Nor can he get $30.00 for the butter, from such a cow. If she breeds regularly annually 9 months is as long as he can milk her and start a calf. So 125 pounds of butter from such a cow would be the limit, at 15 cents would bring in $18.75.

His calf account would also stand about as follows: In addition to the skim milk he must feed about as follows to get a fair 700 pounds annual at one year old: Linseed meal, $2.00,

Two or three customers can compel any dealer to keep Macbeth's lamp-chimneys.

Does he want your chimneys to break?

Get the Index.

Write Macbeth Pittsburgh Pa

INVESTMENTS.

The Linden Lawn Farming Co. will sell a limited amount of stock at par ($100.00 per share) for the purpose of extending and improving the cattle and poultry department. Every laborer invests 25 per cent of his wages in the Company. Receipts from the dairy alone in 1898, above $300 per month. Send for leaflet showing annual statement and our co-operative plan,

LINDEN LAWN FARMING CO.,
Lock Box 354, Olney, Ill

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.

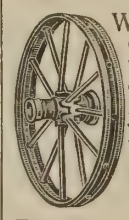
50,000 Free Sample Packages of Wilbur's Seed Meal Food

Will be given away. Readers of this paper, who own a horse, cow or pig that is run down, out of condition, needs toning up, can secure one weeks feed of Wilbur's Food, absolutely free of cost.

We have sold this food constantly for fifteen years and have never known it to fail. It supplies the natural craving for barks, roots and Nature's medical herbs which every animal instinctively secures for itself in pasture. It tones up the system, creates new appetite, and transforms a listless run down beast into a sleek, plump, bright eyed healthy and valuable animal. 12,000 dealers already handle and recommend Wilbur's Food, and to introduce the goods to new patrons we send free samples. Write immediately, get free sample booklet on care of your animals All sent postage prepaid.



Wilbur Seed Meal Company,
MILWAUKEE, WIS.



We are the largest manufacturers of steel wheels in America We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue,

HAVANA METAL WHEEL CO.
HAVANA, ILL.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to.

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

WIRE Stretchers 8 to 15, 90c. to $1.35 per 100 Weaver $1 00 Charges paid 3c. Circular free. Agents wanted. Fulton Supply Co, Box 28, Wauseon, O.



Special Prices on Stock Tanks. Write to-day.
C. E. Banta Mfg. Co., 32 A, La Salle St., Chicago, Ill.

corn, $3.00, hay or grass, $3.00, total, $8.00, which will bring the net income from his calf down to $23.50, or for the total from his dual-purpose cow, $32.25; no more than he gets from his "straight" beef cow and calf that take care of themselves and make no labor. Give us truth Mr. Shaw, not such visionary ideas. H. K. SMITH.

Putnam Co., Ill.

Cement Drop for Cow Stalls.

ED. HOARD'S DAIRYMAN:—The man who has a wooden drop hasn't a sweet smelling stable, I don't care how much straw, sawdust, road-dust, muck or plaster he uses; the odor is still there. If made of hemlock, it will last only a few years, and of pine it costs as much as cement. So why not make of cement and have one that will last a lifetime? Any mason knows how to build one, but for the benefit of those who wish to do it themselves, here's how, in detail:

For my 72 foot by 6x16 inch drop it took one barrel Portland cement, $3; two barrels Buffalo cement, $2; mason spreading, $1, a total of $6, or twelve feet for a dollar.

Now, where's the dairyman that can afford to be without one, at the above cost?

I dug a trench, three feet wide down to gravel or hard pan, and as long as I wished drop. Fill with stone, sledge them in, put on gravel and level it up. Have sleepers run parallel with drop. Set two plank on edge, two inches from sleepers. Tack on cross piece to hold in place. Take one part Portland cement, two parts Buffalo, four parts sand, four parts gravel; mix to a thin mortar and run in between sleepers and plank. In about six hours take away the plank and leave until next day. Then put in bottom, two inches thick. Let dry slowly for two weeks, and in years to come you will find it was the best investment you ever made. W. H. P.

Chautauqua Co., N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN.—The offering of butter on Monday's Elgin Board of Trade was 4,380 pounds, of which 4,020 pounds sold at 21 cents, all bids being at that figure. One lot of 360 pounds received no bid. The Quotation Committee announced the market steady at 20½c. The following sales were reported:

Factory	*Pounds*	*Price*
Shabbona	1,140	21c
Shattock's Grove	2,280	21c
Malta	400	21c
Total	4,020	

The sales for the corresponding week of the three preceding years were as follows:

Mch. 28, '98, 10,260 lbs. of butter sold at 18½c.
Mch. 29, '97, 14,820 lbs. of butter sold at 21@22½c.
Mch. 30, '96, 15,900 lbs. of butter sold at 21c.

The New York market was reported steady at 22 cents.

A letter from C. Y. Knight was read telling of the difficulties, in securing legislation against butterine in this state and the Board adopted the following resolutions:

WHEREAS, It is reported that an effort is being made in our legislature to repeal the anti-color law, therefore be it

Resolved, By the Elgin Board of Trade, representing thousands of farmers, that the anti-color law is most important for the dairy interests of our state and it should remain on the statute books and we condemn all efforts from any source looking to its repeal or modification. Be it further

Resolved That our Secretary be instructed to send a copy of this resolution to each senator and representative of our state.

Elgin, Ill., March 27, 1899 H. C. B.

ENTRIES for Volume 9 of the American Duroc Jersey Swine Breeders' Association, will close April 15th.

DAIRY MARKETS.

ELGIN, Ill., March 27—Butter—Steady at 20½c; offerings, 73 tubs,; no bids received for six tubes; call sales, 67 tubs at 21c; butter last week, 20c; one year ago, 18¾c.

CHICAGO, Ill., March 27—Butter—Creamery, extra, 20½@21c; firsts, creameries, 19@20c; seconds, 15@16c; Dairies, selections, 18c; extra ladles, 14c.

Eggs—Fresh, at mark, cases included sold at 11½@11¾c.

Cheese—Full cream, Twins, good to choice, 11½@12c; Cheddars, 11½@12c; Young America, 12c; Swiss, 11@13c; Limburger, 7@9½c; Bricks, 9@12½c.

Cattle--There was no quotable change in the general cattle market. The better grades were fully steady, while poor to fair kinds were weak, with instances of a slight decline. Most grades of beef cattle however, are 20@30c lower than a week ago. Exporters were free buyers, principally at 5.10@5.30. Native steers averaging 830@1,609 lbs. sold at 3.90@5.70, bulk 4.60@5.20; fed Western steers, 4.25@5.40; Missouri Texas 4.40@4 65; straight Texas steers, 929@1,211 lbs. 4.35@4.65; Texas oxen, 3.50@3.75; Mississippi steers, 746@799 lbs. 3.80@3 85; native cows, 2 25@4.35; heifers, 2 90@5; bulls, 2.80@3.90; stags, 3.60@4.50; feeding cattle, 3.25@4.65.

Bran—Scarce and in demand at 12.50@13 per ton.

MILWAUKEE, Wis., March 27—Butter—Creamery—Fancy prints, per pound, 20c; extras 19½@20c; firsts 18@19c; seconds 16@17c. Dairy selections, per pound 15@17c. Roll, fair to choice fresh, 11@13½c. Market strong, and everything coming in quickly taken.

Cheese—American Full Cream, October Twins 11½@12c; Brick, October, choice, 11¼@12c; winter made, per pound, 11@11½c; Limburger, Fall, choice, per pound, 9½@10c; winter made 9c. Swiss, Drum, choice 12½@13c; Block, choice, 10½@11c.

Eggs—Fresh, per doz. 11½@12c. Market declining under ample offerings for present requirements of trade.

NEW YORK, March 27—Butter—Creamery, Western extras 22c; firsts 21@21½c; state extras 21¼@22c; firsts 20½@21c.

Cheese—State full cream, large colored or white fancy, 12c; choice 11¼@11¾c; small fancy 12@12¾c.

Eggs—Western 13¼c.

BALTIMORE, Md., March 27—Butter—Market firm; creamery separator, extra 23@24c; creamery separator, extra firsts, 21@22c; creamery, first, 20c; ladle, extra 15@16c; Western store packed 11@13c.

Eggs—Market steady; strictly fresh stock 12@12½c; duck eggs, 23@24c per dozen.

PHILADELPHIA, Pa., March 27—Butter—Separator creamery extras, 22c; creamery firsts, 21c; seconds, 19@20c Imitation creamery, extras, 18c; firsts, 16c; seconds, 14c. Ladle packed, extras, 16c; firsts, 15c; seconds, 14c. Print butter, creamery, extras, 23c; firsts, 22c; seconds, 20c;

Eggs—Pennsylvania and near by, 13½c; Western, 13½c; Southwestern, 13¼c.

KANSAS CITY, Mo., March 27—Butter—Frm; creamery 14@20c; dairy 15c.

Eggs—Steady, with an uneven feeling; supplies well cleared up Saturday, but offerings to-day were equal to requirements; fresh Missouri and Kansas stock, in new cases, cases included, 10½c, cases returned, 10c.

ST. LOUIS, Mo., March 27—Butter—Steady; creamery 18@22c; dairy 13@17c.

Eggs—Lower; 10¼c.

CINCINNATI, O., March 27—Butter—Firm.

Eggs—Steady; 11c.

Cheese—Firm; good to prime Ohio flat, 11¼c.

NEW YORK MARKET.

NEW YORK, March 25.—Butter—Receipts for the week, 35,625 packages. Exports for the week, 2,179 packages. There has been a full supply of fresh creamery butter, in fact, a very large proportion of the receipts was made up of this grade and notwithstanding the scarcity of New York State dairy, fresh imitation creameries and good useful June freezer goods, receivers have found it hard work to maintain the price quoted early in the week, say 22c, and at the close there were freer offerings of Extras at the price; but stocks are light and holders are not disposed to cut prices on the top quality. So called firsts, which sold freely at 21½@22c are dropped to 21c with more sellers than buyers. Finest imitation creamery sells quick at 17@18c and there is not enough of it arriving to supply the demand. Fresh ladles scarce and prices firm. New York State Dairy arrives very sparingly and sells at 20@21c for selections and in entire lots at 17@19c. The stock of old butter is about used up and we note sales fine June Creamery at 18@20c, fair to good lots 15@17c and odds and ends of old stock at 12½@14c. We quote: Creameries, extra, 22c; medium 20@21c; poor, 16@18c. Dairies, extra, 20@21c; medium, 17@19c; poor, 13@15c.

Cheese—Receipts for the week, 9,269 boxes. Exports for the week, 6,285 boxes. The stock of fine cheese is small and in few hands; most of the trading is in early and very late makes at full prices. Business was less than last week, buyers taking only enough to supply their immediate wants, and prices are unchanged. We note the arrival of few parcels of new cheese which sold at 11@12c. We quote: Full cream, small, extra, 12½@13c; medium, 11½@12c; poor, 10@11c. Full cream, large, extra, 12c; medium, 11@11¼c, poor, 9@10c.

Eggs—Receipts for the week: 93,104 cases. Market opened at 14@14½c and closed at 13@13¼c. Receipts were heavy and demand good. We quote: N. Y. State & Pennsylvania, per doz., 13@13¼c; Northern & North Western, 13@13¼c; Southern, 12½@13c. DAVID W. LEWIS & Co.
117 Chambers St., New York.

BALTIMORE MARKET.

BALTIMORE, March 23—Butter Receipts of current make of separator creamery butter have been lighter than were to be expected at this time, and the demand has been equal to absorbing all lots that would grade satisfactory, and some that passed under pressure. The condition of this market is now, and has been for a few weeks, such, that it was ready to respond to any upward movement in prices, principally because the daily receipts were not quite enough to spread the daily bread, and had to be pieced out with held goods from the freezers; consequently if the advance, begun in the east, is sustained, a state of affairs which we dealers depreciate, our friends in the west will find us on the band wagon playing in the pocket stirring march along with the windiest of them. Our freezers are nearly empty, owing to the prompt response to the samples sent out last week, so the slim dependance placed upon the well-saved June extras has been taken away, and "it's pay the price or do without," says the receiver to the consumer. Gathered cream makes are not increasing, and they have shrunk to the lowest point known to the trade, the receipts being so light as to cut no figure in the transactions worth noting. It is still so with imitation creameries, and ladles are nearly as scarce. Blocks and prints are in freer receipt, and the demand being good, there is no accumulation. Rolls continue in light receipt, with a good demand for all sweet stock.

Creamery separator extras 22@23c, firsts 20@21c, seconds 18@19c; Gathered Cream, extras 19c, firsts 18c, seconds 17c; Creamery Ohio, extras 20@21c, firsts 19@20c seconds 17@18c; Roll, extras 14c, firsts 13c, seconds 11c; W. Va. Roll, extras 13@14c, firsts 12c, seconds 11c; Creamery Blocks (2 lb) extras 23@24c, firsts 21@22c, seconds 19@20c; Creamery Prints (½ lb), extras 23@24c, firsts 20@21c, seconds 18@20c; Md., Va. & Penn. Prints, extras 20c, firsts 18c, seconds 15@16c.

Eggs—While the receipts of eggs so far this week have been quite liberal, we are glad to note a good active demand, which has kept pace with the supply. All invoices have been promptly placed on arrival. Our market is in good shape, and firm at 12¼ cents. We advise liberal shipments next week for the Easter Holidays. Duck eggs are in more liberal receipt, and our market, like all others, is lower; our quotations are for large, clean eggs; small and dirty stock have to be sold lower.

Cheese—Receipts light; demand good; market firm as quoted.

N. Y. State Cheddars, fine 12@12½c, choice 11@11¼c, fair 9@10c; N. Y. State Flats, fine 12@12½c, choice 11¼@11¾c, fair 9@9½c; N. Y. State Small, fine 12¼@12¾c; choice 12@12½c, fair 9½@10c; Ohio Flats, fine 11@11½c, choice 10¾@11c; fair 8½@9c; Ohio Picnic, fine 11½@12c, choice 10@11c, fair 9½@10c; Swiss Cheese, fine 11@12c, choice 10c, fair 8½@9c.

FOREIGN MARKETS.

BOSTON, March 25—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as quiet but firm. Arrivals have been heavy for the past month, rather more than current consumption could take care of, which gave buyers the control of markets. With perspective diminishing receipts, holders are firm and with more seasonable weather, a better demand with a probable advance, is looked for in the near future.

Australia has still the controlling influence and will for a little while longer, regulate prices. The finest now is nominally 20½@21c with very good value to be had at 19@19½c. Very little Canadian in stock of arriving, and when fine, sells close up to Australian. American creameries continue a dragging sale, with prices ranging from 18@19c for the finest. Imitation creamery has only a moderate sale at 16@17c. The demand for ladles does not improve, what few sales transpiring take a range from 15c downwards.

Cheese markets continue active and firm. Importers have control of the market and are not free sellers of finest Septembers even at 11¼@11½c. Higher prices are confidently expected as the season draws to a close. Under grades are in very light supply and active request at anything from 11c downwards.

The "ALPHA" DISC Cream Separator Invention

The De Laval Company introduced the centrifugal cream separator of the "hollow-bowl" type in America in 1883. In 1891 it introduced the new and improved "Alpha" disc or milk-strata system into the bowls or revolving cylinders of its machines. The new system instituted at once the gradual revolutionization of centrifugal separation, just as centrifugal separation had of older creaming methods in the first place. Since then the disc system has been further perfected, and the intervening years of experience have demonstrated the "Alpha" improvement to be as great an advancement over other forms of the cream separator as was the centrifugal separator over gravity setting in the beginning.

The "Alpha" invention places in the separating bowl a system of circular discs or plates, which form a series of inclined sections or compartments, by means of which the milk in the bowl is divided into thin layers or strata. The milk is thus subjected to the centrifugal force generated by the revolving speed of the bowl *in thin sheets*, instead of in practically *solid bulk* as in all other machines. Each one of these different sections or divisions becomes, in a sense, a complete and distinct separating factor in itself. It makes of the whole a combination and concentration of from twenty to sixty contributory separating agencies, according to the size of the machine, into a single bowl. It practically makes the work of the bowl from twenty to sixty times more effective, and in attaining the same results under exactly similar conditions it would be found to actually possess such multiplied effectiveness.

Most of the "hollow-bowl" separator patents expired some years since and that type of separator is now made by a number of former gravity creamer manufacturers whom the DeLaval Company forced out of business in the making of such creamers. The "Alpha" disc system, however, is thoroughly covered by strong protective patents and its use is therefore possible only in the "Alpha" DeLaval machines.

The new 1899 catalogues—"Dairy" and "Creamery"—explain and illustrate the difference in separator construction in such detail as to be plain to anyone.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Guernsey Bulls—and bull calves for sale. The best blood of two Experiment Station tests. Prices from $35.00 up. WILLIAM BLACK, Box 357, Mt. Vernon, Ind. 6-2

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

Wanted—Position is wanted as manager of a stock or dairy farm, by an experienced man. Would board help. Address LOCK BOX, 724, Malone, N. Y. 5-4

Wanted—Ten Men; able to give $200 security. To canvas for memberships to the Veterinary Science Association of London. Apply in person or by letter to room 5. Sutherland block, Janesville, Wis. 5-3

For Sale—At a sacrifice, for proper reasons, large successful creamery. Best markets, cheap freights by water and rail at the door; 120,000 lbs. butter 1898; fast growing milk supply; perfect butter climate; no ice needed; spring water piped; green grass year round. Address at once, R. D. SANFORD, Coquille, Oregon. 6-2

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

Buttermaker wants situation; 8 years' experience. J. E. FORWARD, Mechanicsburg, Pa. 6-2

To Exchange—320 acres good Texas land, located 15 miles west of Beaumont, on So. Pac. Ry, and 3 miles from station. Will exchange land for Holstein cattle. Address A. R. CROUCH, Granada, Minn. 6-4

For Sale—Creamery outfit, very cheap. Write "DAIRYMAN," Box N, Hopkinsville, Ky.

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

The White Man's Burden is paying rent for a poor farm. Now is the time to secure a good farm on the line of the Chicago, Milwaukee & St. Paul Railway in Marinette County, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure soft water, land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. Rollins, Land Agent, 161 La Salle St., Chicago, Ill. 7-2

For Sale—The choicest located 160 acre stock and dairy farm in Southern Minnesota. Joins town site of Windom, County Seat of Cottonwood County and only 25 miles from Iowa. House is 30x16 and 14x16 all two-story with addition and stone wall cellar 16x16. Barn is 40x45, 10-ft. posts. Has also granary, corn crib, poultry house, good wells, etc., etc., and the Des Moines river flows through the pasture. 20 acres native timber on river, rest in field, pasture and tame grass. Creamery within one-half mile. The farm I advertised in this paper March 10th I sold to first party that came and looked at it. This is another decided bargain. Act quickly. Call on or write for prices and terms to THOMAS E. SIME, Windom, Minn.

Wanted—Position by a first-class butter maker, either in a factory or in farm creamery. Four years experience. First-class references. Wages reasonable. Address CHAS. E. DULLEA, Winthrop, N. Y. 7-2

For Sale or Trade—A creamery, as good as new, located in a fine dairy country in South Dakota. Will sell cheap, or trade for land, cattle or sheep. Address J. C. NIELSEN, Viborg, South Dakota. 7-2

Wanted—Near Milwaukee, an experienced dairy farmer, single man. Must be neat, kind to stock, and a first-class milker. References as to character and ability required. Address DAIRY FARMER, care of Hoard's Dairyman.

Keeping Check on Milk Drivers.

ED. HOARD'S DAIRYMAN:—Noticing that information is wanted as to how to keep check on milk drivers, I will try and explain my way of keeping tab on them. I have an account with driver who, each morning, receives, say, 200 quarts of milk in bottles, for which he gives a receipt on a printed form, which states exactly the number of quarts and pints of milk, quarts and pints of cream, and quantity of butter. On his return I check him off, and he has brought back, say, 25 quarts of milk, leaving 175 quarts to account for either in cash, milk tickets or charges to monthly accounts. In this way it is impossible to defraud employer, and by charging driver up with every shortage, he will very soon become as particular as his employer regarding the disposal of the produce.

So. Dak. D. C. LORIMER.

Hood Farm Pogis 40684.

The proprietors of Hood Farm herd send us the following:

ED. HOARD'S DAIRYMAN:—The superior breeding and grand individuality of Hood Farm Pogis, owned at Hood Farm, Lowell Mass., warrants his being used as one of the principal service bulls in this great herd. He was dropped Aug. 2, 1893. In color he is solid lemon fawn, is extremely long and very deep, with flat ribs, remarkably thin over the shoulders, and has exceptionally long rudimentaries, placed far apart. His general make up, style and finish, can be better shown by his picture, given herewith, than described. His sire is Oonan's Pogis, the sire of 5 in the 14-pound list, by Ida's Stoke Pogis, the sire of 29 inthe list, including Bessie Lewis, 32 pounds, 4 ounces. Oonan's Pogis is out of Oonan, test, 22 pounds, 2½ ounces, the dam of 6 tested cows with butter records over 14 pounds each, and 5 sons with tested daughters. Ida's Stoke Pogis is a full brother of Ida's Rioter of St. Lambert, the sire of 28 in the 14-pound list, and Exile of St. Lambert, with 68 tested daughters, is his full brother in blood. The dam of Ida's Stoke Pogis is Ida of St. Lambert, record 30 pounds, 2½ ounces butter in one week, 67 pounds milk in one day, a full sister of Allie of St. Lambert, 26 pounds, 12 ounces.



HOOD FARM POGIS.

Hood Farm Pogis won as a two-year-old the sweepstakes prize as the best bull at the New England fair, and headed the first prize herd. In 1897 he took first prize as the best bull, and headed the first prize herds at New England fair, Portland, Maine, and the Massachusetts State Grange Fair at Worcester. At both places his heifers won first and second in their class. He was shown in 1898 and headed the first prize herd at the New England fair at Portland, York County fair, Saco, Me., and Danbury fair at Danbury, Conn. At these three fairs a heifer by him won first as best yearling, and twice one of his bull calves took first prize.

A Nebraska Holstein and Her Progeny.

A Remarkable Record.

ED. HOARD'S DAIRYMAN:—Having renewed my subscription, I thought you would be willing to insert a short letter giving some of my experience, and as I was born on a farm over half a century ago, I have learned some things and can learn more.

On June 1st 1887, I bought a Holstein Friesian heifer, Dora Midnight No. 7,032, She was calved 11th of April, 1886.

From June 1st, 1887, to this date, I have raised from her and her descendants on this farm, 85 head of cattle. I sold 21 cows of her descendants which have had 16 calves. W. F. Black of Loveland, Colorado, bought sixteen of her female descendants last July. He wrote me last week that he had thirteen calves from twelve of her cows. This makes 101 thoroughbred cattle from one cow in eleven years, nine months.

I have the old cow now, yielding about five gallons of milk a day. She calved September 16th, 1898. She has given me nine heifers and two bulls. Have any of your readers had an equal experience? I have lived on this farm nearly nineteen years and have raised a good many cattle during that time. I have never lost a calf from scours in that time, neither have I ever had a cow to have milk fever, yet all my cows will yield from five to eight gallons milk per day, at maturity, when fresh.

It will make this letter too long to tell how I feed calves and cows and take care of them because I keep no drug store and will say here that I never gave a cow or calf a dose of medicine in my life.

Lancaster Co., Neb. JOHN C. DOUBT.

Cream and Butter.—Churning Temperatures.—Washing and Salting.

ED. HOARD'S DAIRYMAN:—I suppose "that woman" means myself. You know the old saying: "When the shoe fits, put it on;" so you see I come again in self defense. When I wrote the article mentioned, it was not instruction in butter making, but simply showing different ideas and different results of men's work. We find men all over, working not only with wrong ideas of life, but also wrong impressions of their work and its results. As to the man referred to, he was doing work a great deal harder than was necessary. He was aware of the fact that it was a failure, but he was neither willing to do differently, nor willing to admit that some other way was better.

In writing as I have, I do not mean any one to ever suppose that I think I know all there is to butter making. I only know this that the way I advocate is far superior to the old method. I have gone from the dash churn, and the pans on the top shelf of the kitchen cupboard to pans in the cellar and a five-minute crank churn, where one of us sat on the top to hold it down, when the other turned the crank and churned 3, 4, 6 or 8 hours instead of 5 minutes.

I have said in a number of other articles, if you churn with a power, churn at from 54° to 58° according to the season, but if you churn by hand, you must churn at a higher temperature, 60° to 64° must be used according to the season, consequently none of the butter fat is left in the buttermilk.

If you run a separator, as I am happy to say we have for six years, skim heavy, that is, turn your screw to leave as little milk as possible in your cream; churned at so high a temperature as 62° or 64°, such heavy cream is apt to come too quick; before you realize it you have too large granules, and as a result mottled butter. But if churned from 54° to 58°, it will come in fine granules, like small bird shot, and can be washed, salted and gathered in that condition, ready to put into your jars, direct from the churn, without even the use of a ladle, and you will have but little water to work out, and no mottled butter.

One of the most frequent causes of mottled butter is too large granules; then when the cold water and salt are put on, it hardens the outside, the salt does not penetrate, and when packed, the salted butter becomes more yellow and, consequently, white streaks all through the butter.

I often churn from one to two hours, or from 75 to 100 pounds of butter. I would rather do that than have it come in fifteen minutes. The horse is doing the work, and I know from experience it is better.

I think one of the difficulties of long churning is too thin cream or not enough acidity Keep the whole of your cream sweet, until 24 hours before churning, at a temperature of 45°, then warm up as high as you like. I use about 65°. Put in your ripener, or in summer, it will sour of itself, generally. Before churning, cool down to the desired temperature; your cream will be smooth and nice, and there is no difficulty in the churning. Churn only until the grains are like small shot or mustard seed. If it does not separate, throw in some salt and a little water; turn a few times, and your butter is all on the top.

Use warm water if you like for washing, but I do not think it is the best way, your granules pack too quick in gathering. In summer, I use water as cold as 40°, and I never, since doing this, have had soft butter, even on grass, and such butter will require no two workings, but can be packed direct into your jars. A second working is useless work, it can all be done in a barrel or box churn.

I think brine salting is misunderstood. Wash your butter carefully, drain off all the water, then carefully put your salt in, tipping from side to side to get it even. One quart bowl of salt to 15 or 20 pounds of butter. Turn your churn slowly at first to get the brine formed in this way all around the butter granules, then slowly begin to gather.

I think from what I have heard of Mr. Gould, this is his method of brine salting, also. But as I said before, your granules must be small to begin with. I am never without a market for butter made in this way, and for over a month, I have had to buy butter of other creameries to use on my own table, as I could not get ahead of my customers.

I have tried to make this just as plain as possible, but we must all remember that we did not learn our letters in one lesson, and it takes patience, time and work to succeed in anything, and hence the old motto: "Try, try again. FARMER'S WIFE

Dodge County, Wis.

New York Feeding and Breeding Problems.

A Question to Mr. Lighty and a Significant Postscript.

ED. HOARD'S DAIRYMAN:—I wish to know if my ration for cows is correct. I mix my grain, 150 lbs. bran, 100 lbs. corn meal, 50 lbs. buckwheat middlings, 50 lbs. Cleveland Linseed Oil Meal; feed four to eight pounds a day as I think they need according to size and time of lactation, 35 to 40 lbs. corn ensilage, all the clover hay they will eat at one feed, balance of roughage, corn stalks, and straw to eat what they want and the balance bed them.

Grade Jerseys weigh from 760 to 900 lbs. I weigh every milking, and test with a Bab-

TESTED BY THE MILK PAIL
Quaker Dairy Feed
SPECIMEN RATIONS.
The rations appearing in our larger advertisements are true and proved. No matter what your roughage, Quaker Dairy Feed can be profitably fitted in. And the same with your feed; it matters little what grain you have grown or what feed you have bought, Quaker Dairy Feed can always serve its purpose as a milk maker. It is profitable in every connection.
Sold only in sealed and branded sacks
MODERN DAIRY FEEDING,
an invaluable book, containing scientifically proportioned rations, including every form of roughage and variety of feed sent postpaid on request. *Scientific Advice on Feeding Free.* Address, Science Dept.,
The American Cereal Co.
1318 Monadnock Bldg., Chicago, Ill.
SCIENTIFIC ADVICE ON FEEDING

Gilt-Edge Butter
is the only money-making kind. But to make it, and the most of it, you must use the latest improved machinery. It is just this sort of product that has built up the demand for our
Empire Cream Separators.
They get all the cream from the milk and leave it in the best condition for churning. Lightest running and simplest in construction. Our catalogue will tell you why.
U. S. Butter Extractor Co., Newark, N. J.

$15.00 IN CASH PRIZES
will be paid for the best reason written why Cornish & Company should not join the CREAMERY TRUST. $5.00 will be paid to the first best answer and $1.00 to each of the ten next best.
The "reason" must not contain more than twenty-five words and include our name. The answer must reach us before April 1st. Sign your name, address and give occupation. Address us always CORNISH & COMPANY, otherwise mail wont reach us.
CORNISH & COMPANY, ST. PAUL, MINN.
CREAMERY MACHINERY.
BOYD CREAM RIPENERS.
SHARPLES IMPROVED SEPARATORS.

MILK IS 88% WATER
That shows the importance of having an abundant supply of water on the dairy farm. For this purpose nothing is superior to HALL STEEL TANKS.
This is our stock tank, but we make others for feeding pigs and calves, cooling milk, hauling whey—anything you want. Special price to *first inquiries* from *new territory.*
Circulars Mailed FREE.
THE HALL STEEL TANK CO.
64 North Ashland Avenue, CHICAGO, ILL.

ECLIPSE Cream Separators
SUPERIORITY over any other make GUARANTEED; they are
CLOSEST SKIMMERS
and Built DOUBLE AS STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Ag'ts wanted. Catalogue FREE.
C. L. Chapman Separator W'ks, ERIE, PA.

☞ When writing mention HOARD'S DAIRYMAN.

cock milk tester as often as I think necessary. Have Bidwell stalls with plank on cement floor.

I want to improve my herd now by the purchase of a registered sire and also get some other stock that I can register, but wish to know how I'll be able to determine whether the papers are genuine or not; also how I can get posted to know if the pedigree is worth what I'm paying or not. I want to study up the pedigree of all registered Jerseys but don't know where to begin or whom to apply to and I thought perhaps you might help me.

I soil my cattle through the summer. I was very much taken with Mr. Lighty's article on page 8, Feb. 17, and I wish to know how I shall set a drill for wheat to sow the right amount of cow peas and kafir corn.

From ten of my grade Jerseys, I made 96 lbs. of butter a week this winter, the cows being from all ages, two-year-old heifers to eight-year-old cows, and all stages of lactation. F. D. C.

Silver Creek, N. Y.

P. S.—I was without the DAIRYMAN one year and its return seems like meeting an old friend and I don't see how I can get along without it.

The grain mixture as above is certainly very good whether judged from the theoretical standpoint or by the results reported. The most that could be expected from any change would be a possible lessening of expense. Buckwheat middlings are frequently much the cheapest feed that can be bought. We should expect about the same results from a grain mixture of equal parts by weight of bran and buckwheat middlings, and if the cost would be appreciably less, it might be well to experiment a little, but only in a small way at first with cows that make 9.6 lbs of butter per week.

It would be an endless and useless task to investigate the pedigrees of all regis'ered Jerseys. Send to the American Jersey Cattle Club, No. 8. W. 17th St., N. Y., for the books, Butter Tests of Jersey Cows, and you will be able to get a pretty good insight as to the individuals and families which have proven their excellence. Breeders of registered cattle are, as a rule, honorable gentlemen and would scorn to give false pedigrees or substitute one animal for another. Naturally each thinks his s'ock is equal to the best, if not actually of superior merit.

Morals and Moralizing from Maryland.

Dual-Purpose Calves.

ED. HOARD'S DAIRYMAN:—Prof. Shaw's able defence of the dual-purpose cow reminds me of a case in my own experience, and an item that recently appeared in the *Baltimore Sun*, concerning Mr. Charles Councilman, of Baltimore county. By way of experiment, Mr. Councilman purchased a grade Hereford calf for seven dollars at two months old, and at the end of two years sold him for $75. When I was a boy my father kept Jersey cows, and bought steers in the fall to fatten. The idea struck me of raising the bull calves from the Jersey cows and have a steer to sell without buying him in the fall. My father pointed out the objections of fattening a Jersey steer, but let me have my own way.

When the steer was sold at three years, he weighed nine hundred pounds, bringing five cents a pound or $45. The steer paid me, for my father let me have the money, and charged me nothing for the feed; but could there be a better argument for the dual-purpose cow? Mr. Councilman's steer, at two years, brought $75 and mine $45, or there is thirty dollars to the credit of the dual-purpose cow, and can any straight dairy cow beat it? At least that is what the dual-purpose man says.

But let us begin at the beginning with the calf. My calf was worth five dollars and Mr. Councilman's calf cost seven, and the dual-purpose cow had nothing to do with the subsequent values of the two steers. It is true that the calf of the dual-purpose Hereford had within it the possibility of yielding for its feeder $75 against $45 for the straight dairy cow, but this possibility of extra gain is recognized in the extra two dollars that the calf brought when it was sold as a calf. Ridiculous, that a calf which can yield its feeder $75 against another's $45, only worth two dollars more! True, but it is a fact; cold hard facts are what we deal with, and not theoretical fancies.

It may be reduced to an algebraic equation. The yearly excess of value of and the beef end of a dual-purpose cow is equal to the excess of value of her calf over the calf of a straight dairy cow. But to offset this, we must take into consideration the excess of earning power in milk and butter of the straight dairy cow over the dual-purpose cow. So long as I can buy a beef calf for my milk calf and two dollars to boot, I will buy them and keep my straight dairy cows

What becomes of the fellow who raises the beef calf? Well, there is no law that I know of compelling him to raise beef calves

Catonsville, Md. P. B. CROSBY.

PLUCKY WOMEN.

The farmers' wives, who make butter in Sangamon Co, Ill., held a very successful exhibit last winter at Springfield.

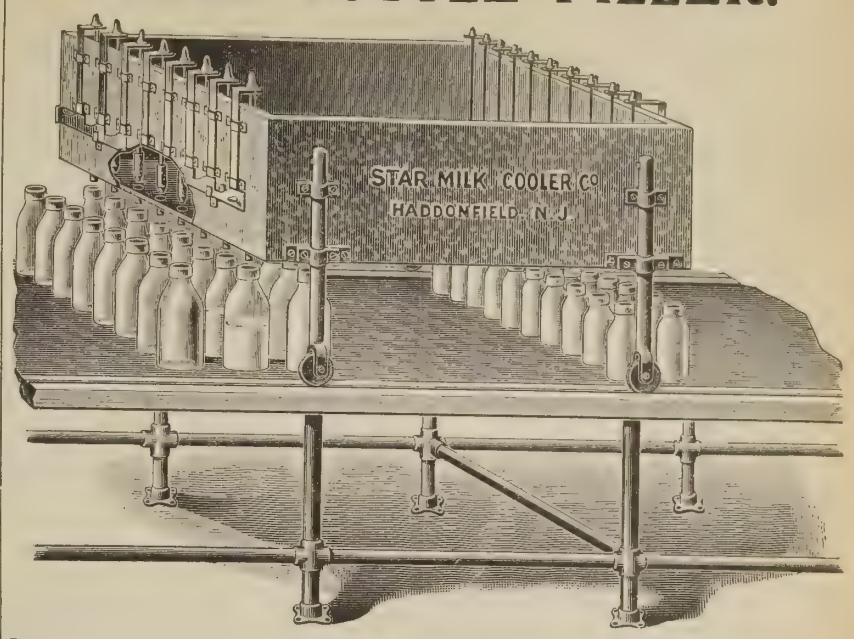
Mrs. Eva Springer is president of the association. We like this move, for it betokens energy and progress. If the wives of the country, who make butter, would take more interest in dairy education, it would help the cause wonderfully.

Cement for a Leaking Water Tank.

ED. HOARD'S DAIRYMAN:—During Oct., 1897, I had placed in the hay mow of my cow barn a water tank, six foot stave, eight foot bottom made of cypress lumber. It leaked as soon as I turned water in it, causing a nuisance in the first story of the barn, the water constantly dripping. After having the tank rehooped, and trying in many ways, for two months, I failed to stop it from leaking. I then emptied the tank, let it dry one day, got some Portland cement, made a wash about as thick as whitewash, and with a brush washed the tank inside, and let it dry during the night. The next morning washed it the second time, let it stand a few hours, then filled it with water. Have now been using it more than a year, and it has not leaked a drop. J. R HUSTON.

Dayton, Ohio.

STAR BOTTLE FILLER.



Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.

STAR MILK COOLER CO., Haddonfield, N. J.

IT DOESN'T BREAK DOWN. The Standard Babcock Tester



has the reputation of lasting for years. It is the machine that the sensible, go-ahead creamerymen would select.

It is Fitted with Ball Bearings.

It has a solid iron frame, uses the ordinary Babcock bottles, and is supplied with the famous "Glass Eye Speed Indicator." Farrington and Woll's new book on Milk Testing with each machine.

Send for Catalogue No. 85. Elgin Manufacturing Co. Elgin, Ills.



Victor

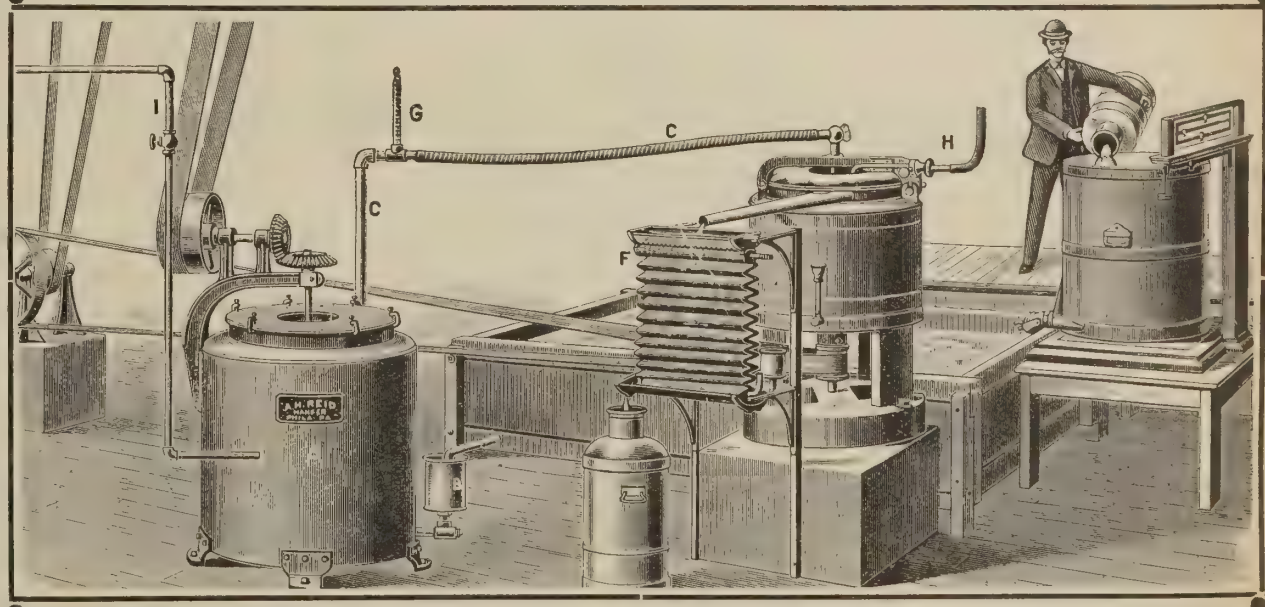
ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

Grass and Garlic

ARE NOT FOUND IN BUTTER MADE BY THE

Reid Pasteurizing and Separating System



Milk flows through supply pipe and regulating reservoir *B* from Receiving Vat into Pasteurizer *A*, is Pasteurized and raised through pipe *CC* into Separator. Cream flows over Cooler *F*, skim-milk passes out tube *H* to Skim-milk Vat. *I* steam supply pipe and regulating valve. *G* Thermometer.

STILL POND, MD., September 26, 1898.

MR A. H. REID, Philadelphia, Pa.

Dear Sir:—Early last summer we bought of you a Separator and Pasteurizer. We have found both machines give entire satisfaction. Every fall previous to this our customers have complained of butter tasting grassy. This season, notwithstanding the growth of weeds the pastures have had in them, we have not heard of a single complaint from our customers, and the demand for our butter now, is even greater than we can supply. We find the machine will do all you claim and we are very much pleased with it.

Very truly yours, STILL POND CREAMERY CO., JOS. W. HARPER, Treasurer.

A. H. REID, 30th and Market Sts., PHILADELPHIA and CEDAR RAPIDS, IOWA.

Michigan Feeding Problem Submitted and Discussed.

ED. HOARD'S DAIRYMAN:—The ration I am feeding is 4 pounds wheat bran, 4 pounds middlings, 4 pounds pea bran, 6 pounds clover hay and 30 pounds silage. Until recently we have fed about 35 pounds ensilage, 6 pounds clover hay and 6 pounds each of wheat bran and middlings. We continued the bran and middlings all through the pasture season, and after July 15th, also fed about 25 pounds clover ensilage. The rations were formulated without any knowledge of the constituents—simply guess work—and it is only of late that I suspected that my ration was not right. It was reading HOARD'S DAIRYMAN that caused me to have this idea, and I believe an investment of one dollar for HOARD'S DAIRYMAN will pay, at least, one thousand per cent.

I may say in regard to the cows, we have been culling out the poorest for the past five years, and adding others—some of our own raising, and others by purchase. Have had a Jersey bull at head of herd for some time, and last fall purchased Ida's Rioter of St. Lambert 21st, of Miller & Sibley. While I think the present herd may be better than an ordinary lot of farm cattle, I am quite sure they are not yet a money-making lot, notwithstanding the average yield of twenty-five cows and heifers, from April 8th, 1898, to March, 1899, was 6,408 pounds of milk, which sold for $60.39. The old herd are quite large cows, hence, the cost of keeping them is more.

I have ordered a lot of cotton seed meal. I had supposed it better than gluten meal, to go with clover hay and corn silage. I have also thought I might obtain a more profitable feed than wheat middlings, which cost $15 per ton, while bran cost $14.

St. Clair, Mich. C. F. M.

The ration now fed, set out in tabular form, shows the following figures:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
6 lbs. clover hay	5.08	.41	2.15	.10
4 lbs. wheat bran	3.52	.50	1.54	.12
4 lbs middlings	3.52	.51	2.12	.14
4 lbs. pea bran	3.56	.29	1.32	.03
Totals	23.60	2.10	11.33	.60

As compared with the standards, the above rations are more or less deficient in every item for cows of large capacity, and especially so in protein. The former ration, where the grain was limited to bran and middlings, was much better, as it contained fully 25% more protein. Unless the pea bran can be bought for about half the price of wheat bran, we would advise discarding it altogether. The cotton seed meal can be used to good advantage, and we would increase the clover hay by two pounds or more, unless there is other roughage available at less cost.

Compare the totals of the following formula with those given above:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs silage	7.92	.39	4.20	.21
8 lbs. clover hay	6.78	.54	2.86	.14
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. ground corn	3.59	.32	2.67	.17
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	23.62	2.49	11.61	.82

If any changes in the kind or amount of feed are determined upon, they should be made very gradually, and this especially in adding cotton seed meal.

We think it might be said in this connection, that an average cash income of $60 per cow ought to afford a fair margin of profit. If it does not we apprehend the reason is to be found in injudicious feeding—such as giving too much grain in summer, or to cows that do not make a proper return for it, either for lack of dairy capacity, or by reason of advanced lactation.

Ripening Cream in Winter.—Paper Butter Boxes.

ED. HOARD'S DAIRYMAN:—I notice you ask for methods of ripening cream in winter. I find no more trouble in winter than in summer, since I adopted the following plan:

I made a box 21 inches square by 2 feet 8 inches long, set on legs 12 inches long at one end and 13½ inches at the other end. This box is painted inside and out with floor paint. The inside is lined with galvanized iron, made water tight. The lining only comes up a foot, as that is as high as it is necessary for the water to come.

On each side or this box, near the top, there are six one-inch holes to let in air, and a thin piece of wood with a screw at one end that can be turned over the holes to keep out the air.

Inside of this box there is a tank for holding the cream, made 6 inches smaller then the box each way. A frame is made out of 1× 3 inch, the sides, just to fit length of box inside, and the ends are checked into the side pieces, 3 inches from the ends and nailed.

The cream tank just fits inside of this frame, and the top of tank is turned over and tacked down to this frame. The bottom of the tank is V shape, just enough to let the cream all run to the center when drawing it out. Three pieces of board are cut to fit the bottom of the tank, 2 inches wide in center; they are cut to fit inside of box, and on them the bottom of tank rests. A nail driven from outside of box into ends of frame holds the top of tank in place. A pipe at bottom of cream tank, with a syrup cock to draw off cream, and a cock for drawing off water, both at low end of box.

The cream tank is covered with cheese cloth, pinned over a light frame, this admits of air, but keeps out flies and dust. Over the box is a cover of one-inch lumber. When separating is done, and the cream is cooled, it is put in the tank in warm weather surrounded with cold water; in cold weather it will keep without, till time of ripening, when it can easily be brought to ripening temperature with warm water.

So much has been said about this matter of ripening, that I will not go into the details, but will just say the secret of the whole matter is to have control of temperature, and so far I know of no better plan than the one I have tried to describe.

This tank is larger than is required for the size of churn. I use No. 5 barrel churn; will hold two churnings. We have two of these tanks; they take up more room than a size that would just hold a churning, but are easily moved on casters, and otherwise are entirely satisfactory.

I was much pleased with the letter of Mrs. F. J. Peters. I admire the way she has kept improving and trying to save labor, but there seems to be one thing lacking in her dairy, that is the folding paper box for the prints. These boxes cost, laid down here, half cent each, and are a great protection to the butter. Keep the parchment paper close to the butter, and saves the butter from getting dinged when handling; printed with name and address. If Mrs. Peters will try these boxes, I think it will be a step nearer the top.

Assa, Can. A. N. LE CAIN.

Routine of Farm Work.—Criticism Wanted.

ED. HOARD'S DAIRYMAN:—I would like to have you, or some of your readers, discuss the best routine of work for taking care of a herd of cows on a farm, where a great deal of farm work must be done besides. I will give our method to be criticized, as I am not very well satisfied with it, though hardly see just how to do better.

We get up at 5 o'clock in the morning, and go at once to the barn. First thing, we feed the cows a light feed of sorghum hay, and then go to milking. We have thirty cows and three men. Our separator is in the barn and is run by treadpower. By the time we are through milking we are nearly done separating.

One man goes and feeds horses and other stock, one feeds calves, and the other cools and puts away the cream. By this time it is a little after seven o'clock, and we go to breakfast. Immediately after breakfast, the cows are fed ensilage and grain, and left quiet until 10 o'clock, when they are turned out to water and stables are cleaned.

If the weather is fine they are left out until feeding time at night, but if unpleasant are put back as soon as they seem desirous of going. This, of course, is watering but once a day in bad weather, but they will hardly drink oftener as they have to go twenty or thirty rods for water, which is always warmed in cold weather.

At 4 p. m., we commence feeding again. Feed ensilage and grain, and oat or clover hay. By the time this and our other feeding is done, it is 5 o'clock, and we go to milking again, which with calf feeding, etc., takes until 6:30 or a little later, when we have supper. This makes supper late, but as one of the men lives quite a distance from the

Farm Wagon for Only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

For Sale At lowest prices two Jersey Bull calves six and eight months old, and very well bred. For particulars Address
Samuel H. Marshall.
Madison, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ESTABLISHED 1890—500 Acres—Incorporated 1897. THE LINDEN LAWN FARMING CO., Olney, Illinois. Breeders of Jersey Cattle, China and Yorkshire Hogs, Wyandottes and White Leghorn Chickens, Pekin Ducks, Bronze Turkeys.
C. S. MACE, Mgr.

ST. OMER HERD
Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Locust Lane Stock Farm
. . . Service Bull . . .
BROWN BESSIE'S GRANDSON No. 34891.
State What You Want.
G. E. COLEMAN, Perry Center, N. Y.

Introduce Milking Jersey Stock
INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best Write for our "little book."
FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys For Sale—Fine young bull. Dropped Sept. 5, 1898. Solid color. Dam, Lady Mary of Glynllyn 2d, 25498, test, 15 lbs. 2½ oz., by Holyoke, the sire of Massey Palo, 30 lbs. 6½ oz., Matina of Riverside, 27 lbs. 13 oz., Inez of Riverside, 26 lbs. 1⅛ oz., 67 lbs. 14 oz. milk, and 5 others in 14 lb. list. 1899 Hood Farm catalogue, 128 pages, 72 half-tone cuts, sent on receipt of 10 cts. HOOD FARM, Lowell, Mass.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92). in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think genuine bargains. We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

FOR SALE! A Fine JERSEY Bull Calf
DROPPED IN SEPTEMBER.
The calf is from the richest butter stock we ever owned, a great-grand-son of the cow QUEEN FELCH, who was a daughter of Ike Felch, one of the five foundation Jersey bulls of America. This young bull will be sold cheap for cash.
W. D. HOARD,
Fort Atkinson Wis.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.
70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL,
Rochester, N. Y

High-Class Jerseys. DIPLOMA
Left behind him 85 daughters, 44 including Merry Maiden have records. 14 of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered Diploma stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire Combination, which in four years service left 73 daughters, 25 of them having records." The Jersey Bulletin says; "Great as doubtless Combination was, Diploma was greater." Service bulls, Recorder 29239, son of Brown Bessie, Champion Butter Cow at the World's Fair, and Diploma 2nd 36374, full brother in blood to Merry Maiden. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

BILTMORE FARMS' JERSEYS.
This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
Some Choicely Bred
BULL CALVES
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO F. WESTON, Supt., Biltmore, N. C.

The Lone Tree Jerseys.
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood
Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

DAIRY JERSEYS AT AUCTION!
FIFTY HEAD of Registered Jerseys, mostly cows in milk, will be sold at
INDIANAPOLIS, IND., April 12, 1899.
Send Postal for Catalogue to
THE JERSEY BULLETIN, Indianapolis, Ind.

barn, we do not see how it can be avoided very well. It also makes a long day's work.

Would it be advisable to milk an hour earlier at night, thus making the night two hours longer than the day? If we were to do so, I do not see how we could get anything at all done in the afternoon, as we would hardly get started before it would be time to feed, and all hands must be there to milk.

There are a number of objections to our method of feeding, such as feeding ensilage and hay just before milking, but if not fed until afterwards, it makes it that much later, and besides must all be done by lantern light, which is inconvenient and dangerous. Hope to get some light on the subject, as I always look to the DAIRYMAN for help in difficult places and generally get it too.

Calhoun, Mo. H. C. G.

Waste of Skim Milk.—Effect of Abortion.

ED. HOARD'S DAIRYMAN:—I would like your estimate of the loss to patrons of a creamery (nearly 100 of them) that handles over thirty thousand pounds of milk a day, and only one tank for skim milk, which is never empty, and, of course, can never be cleaned out. The milk gets terribly sour, and many hogs die and others run down so they are very poor and sick and almost die. Ought there to be two tanks, so that one can be cleaned every day?

I have had some trouble with cows aborting the past year and failure to breed, and one of our large dairymen says that he has practiced opening them up, that the womb entrance is so tight closed that the bull cannot serve them to do any good.

Does Dr. Horne think he is right in the matter? Two of my cows that aborted last had terrible itching about the tail, and a ring of skin, round the roots of the tail, came off after a while; what is the cause of it?

Vermont. AURELIUS SYKES.

A definite estimation of the loss that may result from such practices is, of course, impossible. The results from dead and sick animals, from other losses, due to deficient vitality of young, and slow growth of fattening animals are too indefinite to estimate with accuracy, although it is evident that in a year such losses must amount to a large sum. Taking the milk alone, the loss is sufficient to wonder why the patrons permit such a state of things to exist. Thirty thousand pounds at a feeding value of 20 cents per hundred is equal to $60 per day. This amount of milk is allowed to become worse than useless, in fact, dangerous, as a feed. The small expense that would be necessary to clean the skim milk tank daily, outweighs the value of the milk, which is allowed to become a constant source of loss to every patron of the factory. Of course, there should be two tanks for the skim milk.

The question of whose duty it is to keep the tank clean should not be discussed. If the operator of the creamery will not do it, the patrons themselves should make suitable provision, and see that the milk is kept in a proper condition for feeding. Such waste furnishes a very obvious answer to the complaint that, "dairying don't pay."

We know of no hundred patrons in this or any other locality that can afford to lose the above amount in skim milk, daily. It is just as much a direct loss as if the money was taken from their pockets, directly. And we will venture to assert that the majority of them "cannot afford" to take a dairy paper. If they did, the above conditions would be different.

Dr. Horn answers as follows:

All wombs should be closed, excepting at a certain time; opening has ruined hundreds of the best cows in the country. There are many causes, local and otherwise, for the scaling off of the skin, as named.

Model Cow Stall.

ED. HOARD'S DAIRYMAN:—In answers to your correspondant's call, for a plan of a good cow stall, I wish to break a lance for "Hoard's model stall." The last winter I spent in Canada, I originated a very similar arrangement for my young stock, and I concluded to change the cow stalls next season, improving upon the first attempt. However, I sold out.

In California I was only a renter; but on my last place I had to put up my own stalls, which I modeled, as closely as I could, to the sketch in HOARD'S DAIRYMAN. For reasons of economy I had to use inch boards for the rear foot plank, and, therefore, could not spike down the 2×3.

I sloped the whole barn floor, which gave my drop an even depth of three inches. At intervals I ran lateral drains, which successfully carried off the liquids. The walk behind the cows, and the stall floors were gravel and loam, and I had no trouble in keeping them dry. I had a permanent chain around my cows necks carrying a swivel ring at one end. A short chain with a plain snap hung from the center of the neck. The swivel was as convenient for holding a leading strap as well.

I saw the Scott stall used in a very fine barn, but I did not like it as well as the model stall. I intend, when building the next barn, to have a continuous feed trough under the rack, with a design similar to the Scott trough for feeding through. If necessary swinging shutters can be hung between the stalls to keep the cows from getting their neighbor's feed.

This trough can be made water tight, and cannot only be easily swept out, but the water can be run through it at will, to water the cows; thus thoroughly cleaning it. I never had a stall to please me as well, and with the strip nailed down it must be perfect. I had a window cut in the wall behind the cows—the manure was carted away—outside of which the star cooler hung above the milk can. Next to this was a shelf for scales, book and sample bottles, and as the milk was drawn, it was weighed and cooled ready for delivery.

I kept my cows in, almost every night in the year, and the good effects of a comfortable warm place and feed were very noticeable. Strange to say, I drew milk for a neighbor, who kept three fine Jerseys in a barbed wire fence lot of about 20×40 feet square. They had a kind of stanchion arrangement to feed through, and alfalfa hay *ad libitum* was all they got from one month to another. no shelter, no change, always there. They had a never failing supply of hay and water, but no other care or cleanliness, and yet they always looked well, and tested 5% month after month. Strange, passing strange, is it not?

Ruskin, B. C. DANIEL F. BOISSEVAIN.

Results of Six Years' Experience with the "Dairyman."

Herd of Twelve Cows, Five of Them Heifers with First Calf, Average over a Pound of Butter per Day in March.—The Breed and the Feed.

ED. HOARD'S DAIRYMAN:—I have been a subscriber to your paper for some five or six years, and I like it very much. Like it so well I could not do without it while keeping cows. At present we are milking 12 cows, 1 of which is ½ Jersey, the rest are ¾ and registered Jerseys. These 12 cows have made from March 1st, 1899, to March 20th, 265 lbs. butter salted and worked ready for delivery. Five of these cows are heifers with first calf, rest are older cows.

I use a U. S. Separator No. 5, a 20 gal. Boss Barrel Churn, and an Imperial Philadelphia Butter Worker, also a Eureka Printer. Deliver butter to private families at stated price the year round, also ship to Pittsburg by contract.

I am feeding at present 3 lbs. ground corn and oats, 2½ lbs. heavy winter wheat bran, 1 to 1¾ lbs. O. P. oil meal. This is one feed, not a day's ration; also feed all the hay they will clean up mor ing and evening. Hay is ¼ clover and coarse timothy.

I have my own engine and mill, do my own grinding, also some custom work. Otherwise I would have to haul my feed 5 miles to get it ground the way I want it and then pay 8 cents per 100 lbs. I grind 2 bushels shelled corn and 2¼ bushels oats.

Bran costs $15.00 per ton
Oil meal $1.45 per 100 lbs.
Corn is selling at $.40 per bushel
Oats about $.30 per bushel

Please tell me what you think of this ration, and suggest any change that might be for the better. How shall I feed during spring and summer? I have always fed during summer. Hoping you will see fit to answer this scratch of a letter through the columns of the DAIRYMAN, I must close. "Long live the DAIRYMAN" J. M. W.

Washington Co., Pa.

We are free to say that it seems to us that the man who can submit such a report as the above, has passed the point where specific advice as to kind and amount of feed is required. Making the usual estimate for heifers J. M. W. is milking the equivalent of 9½ cows and getting an average yield of something more than 1½ lbs. of butter per day, and, although feed is very dear, these cows are returning him fully twice as much as it costs to feed them. This cost might be cheapened somewhat, possibly, by substituting 1½ lbs. gluten feed for the 2½ lbs. bran and, unless necessary for dietetic reasons, we should feed less of the expensive oil meal. Do not let down too much on the grain until the cows get good pasture, and then taper off gradually until only the corn and oats mixture is fed and but little of that when the pasture is at its best We also advise giving the cows a good bite of hay every day through the summer. They relish a little dry fodder and this is sufficient justification for giving it to them, without inquiring too searchingly into the whys and wherefores.

An Explanation.

ED. HOARD'S DAIRYMAN:—In my article published in DAIRYMAN of March 1st, in saying, as I intended, that the dairy calf weighed 140 pounds, at three weeks old, I intended to convey the thought that the dairy calf is not necessarily light. While I admit that the calf mentioned was sired from a beef breed, yet the little heifer that brought it possessed those high maternal qualities, as taught by the DAIRYMAN, making her capable of bringing that kind of a calf, as well as of feeding it in the severest winter weather. To illustrate what I mean: A butcher in passing my cows (among which was this same little heifer) said to me: "I want your veal calves; your cows are of that open make that will bring good calves."

Ohio. N. E KIMBALL.

Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use

Eureka Harness Oil

on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

Made by STANDARD OIL CO.

FOR SALE! A very desirable, well improved farm, in Redwood Co., Minn. Located in one of the best counties in southwest Minnesota. Must be sold in 60 days. Address at once.
C. MURDOCK, Slayton, Minn.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

REGISTERED Holstein-Friesian cattle, Aaggies, Netherlands, Waynes. Pauline Pauls, De Kols, Pietertje families. **WM. O. JACKSON & SONS, South Bend, Ind.**

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle.
Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashion ble butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

Ten Choice Yearling
Holstein - Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

IMPROVE YOUR DAIRY HERDS
by using a butter-bred **Holstein-Friesian Bull.** We offer twelve young bulls ready for service at prices ranging from $75 to $200. The dams of these bulls are well tried and have authentic tests ranging from 18 lbs. to 32 lbs. 3 oz. butter in 7 days, and have yielded from 50 to 99 lbs. of milk per day. Seven are grandsons of Mechthilde, the "Butter Queen." No greater improvement can be made than by using one of these bulls upon the finest of dairy herds, for they have been bred for butter quality for the last five generations, and have inherited staying butter qualities which will breed on. KARLEN & CO., Monticello, Wis.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

Butter Questions Answered.

ED. HOARD'S DAIRYMAN:—Rose Seeley Miller requests practical makers to answer her questions on exact temperatures for churning and ripening cream: a difficult feat, and were I to offer to do so, it would be because "fools rush in where angels fear to tread". The rules laid down for butter making will not amount to much benefit, unless the principles underlying them are thoroughly mastered. It is a complicated industry; so many idiosyncrasies that it not only requires mere mechanical ability and skill, but also a broad comprehension of the process of fermentation, which involves a thorough grounding in bacteriology.

"Tell us just how to ripen the cream". The answer is in several chapters of "Woll's Modern Dairy Practice" and in "Russell's Bacteriology", two invaluable volumes, and no less is that of Prof. Farrington on Milk Testing, etc., which tells us *exactly* when the cream is ripe for churning. We sometimes are out-classed by wise men, who know beyond the peradventure of a doubt when the cream has developed the necessary amount of acid to aid in a uniform butter flavor, and for an exhaustive churning—a class that is causing us a national loss of millions of dollars a year, through churning at improper temperature and improper ripening of the cream.

The 66° stated, by W. C. Rockwood, for temperature of churning Jersey cream, gravity system of creamery, or 16 to 20% fat, is correct for cold weather, and for the viscid condition of the milk serum, generally met with in cows of advanced lactation. Such butter is harder, and can be worked at a higher temperature. Still it would not be an invariable rule, because what will happen one day may not happen the next.

We cannot churn 20% cream at 53°, but if churned at 60°, with ripened cream of .6 or .7 of 1% acid, you will have fair results in buttermilk. To improve on this and have a better body to the butter, not so soft or greasy, cool it down when ripe to 56°, for at least half an hour, and churn this kind of cream at a temperature and in a room of 60° and have good results. Were we to churn at 53°, it would be churn, churn, churn all day. With thick cream of 30 to 40% butter fat, ripened to .45 and churned at 52°, will give us thin butter milk. This is the temperature of the butter milk at the close of churning.

The best and safest rule I have is what I learned from Dr. Babcock, of your Experiment Station, to an audience of Wisconsin dairymen, when the question "What is the best temperature for churning?" was answered by the doctor as follows: "The rule I give you is to churn at as low a temperature as possible and have the churning completed in not less than 30 minutes".

Many times I have been consoled by that rule, because it is impossible to have the same churning temperature under all conditions; so many of them.

It changes with advancing lactation, because the liquid acid—those volatile fatty acids you mention in last issue—diminishes as the period of lactation advances, and a higher churning temperature is more necessary in winter than in summer.

Thus we learn some of the conditions that influence the time required to churn. Condition of cream, thick, thin, ripe, speed of churn, feeds, temperature, which are learned by actual experience. In churning sweet cream, we have to get the cream as thick as possible. The latitude of churning then appears as follows: HOARD'S DAIRYMAN, 48° to 54°; Prof. Robertson, 54° to 58°; Prof. Stewart, 55° to 65°; the Danes, 50° to 54°.

In raising the temperature to churning point, with evenly and properly ripened cream, we do not raise the temperature by adding hot water, as that reduces it to thin cream, and renders its churnability more difficult, and also slightly increases the loss of fat in the buttermilk, and increases the quantity of buttermilk. The conditions favoring high efficiency in churning are low temperature, slow motion of churn, ripe and thick cream, and right viscosity of serum; the objection to churning only 15 minutes is soft butter, rich butter milk, and a poor butter maker; in a factory of, say, 700 pounds of butter fat per day, as much as 30 to 40 pounds of butter fat is lost, if run by incompetent operators!

When are we to have a standard of examination for butter makers?

Brine salting: "Tell us how warm to make the brine." My practice was 40 to 45 degrees in hot weather, and 50 to 62 degrees in winter. "How strong?" That's a stickler which I cannot answer. My practice, however, was 5 pounds of salt to 13 gallons of water to suit the English taste of a very mild salted butter. That will not answer where 1¼ ounces per pound are demanded. I abandoned brine salting long ago, as impracticable, as it required more skill than I possessed to put in brine enough to give the right savor, and to retain the right quantity of water after it was washed, which should be 13%.

When the granules were very fine there was more of the brine incorporated with it, and if the granulation was coarse I did not get so much salt, and consequently amount of brine or the number of times it was applied required nice judgment to get a uniform salting from day to day. The granulation ought to have been the same size, and butter the same temperature. It created more work and required a much larger use of salt, besides the fact that it can only be salted to a slight degree and impracticable for those requiring more than 1 ounce to the pound.

Working the butter "once or twice?" I work twice with judgment. My churning is done right so that at the first working all superfluous butter milk is off, leaving sufficient, however, to dissolve the salt, and at the termination of 30 minutes, re-work for the necessary smoothness and solidity, and to print easily and firmly. There should be great importance attached to the solubility of the salt; there is a vast difference; they are pure enough, but some men, as Prof. Robertson, who work twice, are shrewd enough to pay great attention to the quality of salt. Where a hard, crystalized grain is used, not easily soluble, some 3 or 4 hours may elapse before it is sufficiently dissolved to be safe for second working.

Mr. Gurler employs artists who work but once. Some of the Danes work once, but I notice it is at the expense of grain, as they are just as much afraid of mottles and wavy lines as we are.

Judgment is used and the following conditions which influence the amount of working, are observed: Temperature, consistency of the butter, and amount of butter milk in the butter.

Tell us at what temperature butter keeps best and longest? intact Forty degrees F. and below; room should be clean and sweet, and the butter in good condition and properly made. THOS. DIXON.

New York.

A Massachusetts Milkman on the Wrong Track.

Submits a Series of Questions.

ED. HOARD'S DAIRYMAN:—As I am a new subscriber to your valuable paper, would like to bother you with a ration formula, and other questions. I know I could get this information in future issues, but as I am on the wrong track cannot wait.

Milk a herd of eighteen cows, and at present feed the following rations: Four pounds wheat bran, 4 pounds mixed feed, which consists of 4 parts corn and cob and 1 part rye by weight, ground together. This amount is fed to each cow per day, in two feeds, the strippers getting the same in quantity as the new milkers. For roughage feed timothy, herds grass, and rowen hay. Very little of it has a light sprinkling of clover. This is fed three or four time a day, about all they will eat clean. The last thing at night, we feed corn stover. We have on hand, cotton seed meal and gluten feed, but am afraid to use much of it, as we have two or three cows that occasionally have garget, thinking that too much grain may be the cause. Get a fair flow of milk, but it only tests from 17 to 18% cream, tested in glass milk tubes.

We run a milk route, and in the spring and summer, when our herd is in pasture, everybody praises the quality of milk, but in the winter complain of lack of cream. Our herd consists of scrub cows of good size.

QUESTIONS.

1. Formulate an average ration from the



Always Use the BEST.

The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

"THE KIND THAT HAS NO MUD."

BUTTER SALTED WITH

WORCESTER SALT

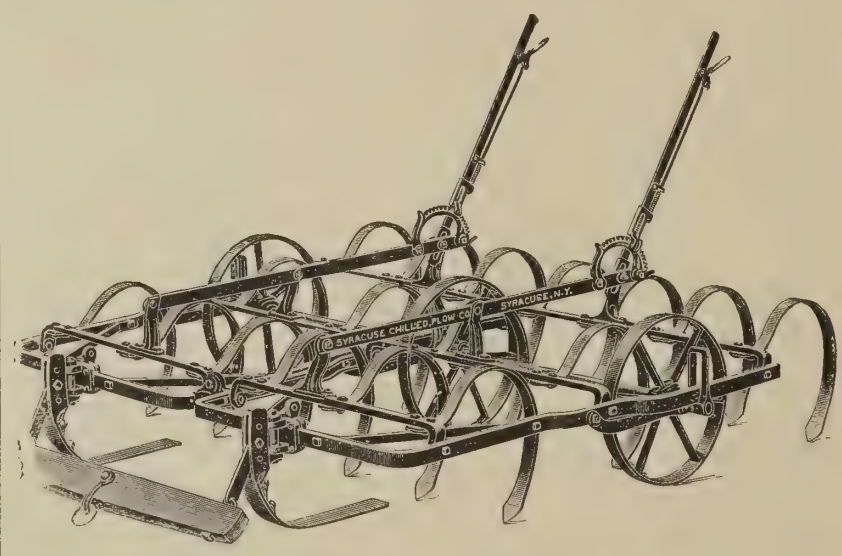


Captured **SWEEPSTAKES** at fifteen of the principal Dairy Conventions during the last year, including such leading dairy states as Iowa, Minnesota, Wisconsin, Illinois New York, Maine, New Hampshire and Vermont.

IT TAKES THE BEST TO MAKE THE BEST.

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.

ILLUSTRATION.



SYRACUSE HIGH FRAME SPRING TOOTH WHEEL HARROW.

The new Syracuse Wheel Spring Tooth Harrow, which is shown in the above cut without the seat attachment, has the following meritorious features:

1st—A Frame of channel steel carried at such height from the ground on high wheels as absolutely to prevent loading.

2nd—Adjustable Spring Steel Teeth of improved shape, which while having good suction, do not accumulate trash.

3rd—Broad Faced Steel Wheels with dirt proof bearings, and so made that by the removal of two bolts, new hubs with removable boxes can be quickly substituted. The wheels are so placed that there are no wheel tracks.

4th The entire weight of the driver, together with nearly all that of the Harrow, is carried on the Wheels which greatly reduces draft. The Frame works independent of the wheel axle, which is hinged in the centre and so allows the Harrow to conform to the uneven ground.

5th Cast Steel Shoes adjustable to depth, placed in front, which move always along in the line of draft, steady the running of the harrow and also prevent it from working downward when used on sidehill or rolling land. The Harrow is quickly and easily turned at corners without buckling, making it unequalled for transportation or use in the field.

6th—More or less weight can be carried on the front Shoes by raising or lowering the draft clevis.

7th—Easy and adjustable Spring Seat with convenient foot rest, furnished when ordered.

8th—The Levers are within easy reach of the driver, and the harrow can be dumped with the freedom of a horse rake without dragging the load.

9th—Additional sections can be added at any time, making an extra wide harrow, or a single section with nine teeth can be used as a one-horse Harrow.

2 Section Harrows with 15 and 17 Teeth.
3 Section Harrows with 22 and 25 Teeth.
With Plain or Separate Points.

SYRACUSE CHILLED PLOW CO., SYRACUSE, N. Y.

following feeds: Roughage; timothy, herds grass and rowen hay and corn stover; grain; mixed feed composed (four parts corn cob, one part rye by weight, ground together) wheat bran, gluten feed, cotton seed meal.

2. Formulate a ration of as many of the above feeds as you wish, with oil meal.

3. How high priced oil meal per ton, would you consider most advantageous for feeding, or rather, the highest price one could afford?

4. We raise 300 or 400 bushels rye. Would you feed it or sell it for 45 cents per bushel, which is all we can get?

5. Just tested a can of milk brought back from route, and only shows 11% cream. Same tested before it went out 18%. Is this due to milk being chilled?

6. What is the best way for exterminating lice from cows?

7. Will hen lice flourish on cows?

Mass. RATION.

If this "new subscriber" had considered the relations between an editor and some thirty thousand or more readers, he would have realized the impracticability of propounding so many queries in one communication, with the expectation of having them answered with anything like satisfactory fulness.

Timothy and herds grass are only different names for the same thing, unless there may be some local distinction. Rowen is of such variable quality that it can not be set out in a tabulated ration with any certainty.

We incline to the opinion that an allowance of 4 pounds bran, 4 pounds corn and cob meal, 1 pound gluten feed, 1 pound cotton seed meal and 1 pound oil meal—11 pounds in all—would be none too much grain for the fresh milking cows, if of fair dairy capacity. With such cows, the more you can get them to eat, within reasonable limits, the more profit will they yield. In connection with the grain, give them all the hay and stover they will eat. The amount of grain fed to strippers should be decreased from time to time, as they fall away in yield. When a cow commences to turn her feed away from the udder, it is time to give her less.

There is hardly any limit to the amount one can afford to pay for oil meal, if the condition of the cow seems to demand it. Oil meal is a gentle laxative, and when the bowels are semi-costive, the droppings hard and dry, enough oil meal, or other laxative feed should be given to overcome these conditions.

Rye at 45 cents per bushel will cost $17 per ton when ground, and would be worth less than bran for feeding with timothy hay and corn stover for roughage.

Cream will not rise readily or thoroughly on milk that has been stirred or otherwise agitated. The milk is probably just as rich in winter as in summer, but the cream is not as yellow, and does not separate as readily. It is, therefore, less noticeable.

For lice on cattle see extract from a Kansas Bulletin, elsewhere in this issue.

Newspaper Farming.

A Successful Dairyman Gives His Views.

ED. HOARD'S DAIRYMAN:—I was much interested in the article "The Kind of Farming That Does Not Pay", found in HOARD'S DAIRYMAN of February 3d, page 1,035. A similar failure occurred under my personal observation; in fact, the most noticeable failures among farmers have been those who had help from their fathers, so thought it not necessary for them to work and plod the slow ways their fathers did. Because of these failures, some older farmers call it newspaper farming, and say it does not pay.

The early settlers, who cleared their farms and received the benefit from decayed leaves and wood that had fallen for centuries did not need to read to know how to grow crops. Heavy hay could then be cut by sowing a little grass seed upon the ground, whether plowed or not. Sometimes, even without sowing any seed, as grass was a natural product of this soil. Now we are obliged to cultivate and fertilize often and thorough, which compels us to study ways and methods.

Allowing that all farming, not done in the old way, is newspaper farming, even then it is not the fault of the writer as much as those who read.

Many are endeavoring to follow certain plans, without considering the difference in soil, distance from market and personal fitness for that particular work.

A man located near a railroad, selling milk at 3 cents per quart or butter at 25 cents per pound, or keeping blooded stock, calves selling at $25 to $100 each, can afford to buy plenty of bran and grain, while a farmer situated so as to haul bran 11 miles, with team, and sell butter at average of 17 cents per pound, and cows $25 to $30 apiece, must raise most of his feed upon the farm.

Eight years ago I bargained to pay money rent for a farm near my small one. I began with the theory that considering the distance from railroad, and only one mile from a good co-operative creamery, owned and managed by strictly honest and reliable men, also having poor soil to deal with and a personal liking for cows, that I would depend upon them for my yearly income. The first two years I bought considerable bran, hay and meal; the third spring it cost me $80 to get my cows through to grass, for hay alone. By thus doing, I soon found with large quantity of stable manure, using some commercial fertilizer, having less land in pasture and following more thorough tillage, could keep more stock, feed liberally all the year, and have hay left instead of buying.

Am now keeping ten head more cattle, and two more horses than the first year, with ten tons more hay than will feed, besides raising 600 bushels potatoes more than the first year, but with twenty acres more ground.

My plan of soiling in connection with pasturing, is to feed cows hay during the spring, as long as they will eat it, then cut early grass followed by timothy and clover, oats and peas, millet, Hungarian grass and corn fodder, fed each night in stable. An early piece of rye to turn into is helpful during June; then plow the ground for fodder corn. Ensilage would be more convenient to feed during busy season for those who have silos.

I am often asked, "does it pay"? and some remark, "he is trying newspaper farming and it does not pay". Well, I cannot boast of large surplus, having made improvements and purchased new machinery to the amount of $500, and lost $200 worth of stock, with hired help costing about $300 per year for the eight years, meanwhile paying rent on land. Yet I fully believe in farming as a science. We must read and study, if we as farmers expect to succeed.

The Chautauqua course of reading in Agriculture, furnished by this state is a very helpful source of knowledge, with but little expense. As farmers, we should put into practice the thought that life does not consist entirely in the number of dollars saved, but by intelligent tillage of the soil, by kind treatment to the animals on the farm, by honest dealings and pleasant words for our neighbors, establish character that will last longer than money in a bank.

Orwell, Pa. INGERSOLL.

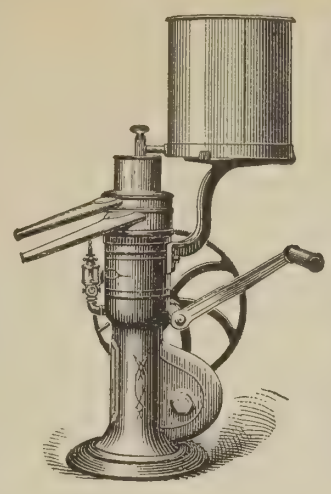
Skim Milk Worth 40 Cents per Hundred.

ED. HOARD'S DAIRYMAN:—An experiment at the Kansas station, completed February 24th, with three lots of pigs of six each, shows excellent returns from feeding skim milk, as compared with alfalfa and cotton seed meal.

They were fed all the ground kafir corn they would eat in addition to the other feeds. The skim milk lot ate 40 per cent more grain and gained 2.43 pounds per day each, against .88 pounds for the alfalfa lot, and .95 pounds for the cotton seed meal lot.

In twenty-two days, lot 1 ate 629 pounds ground kafir corn and 250 pounds alfalfa; lot 2, 588 pounds kafir corn and 93 pounds cotton seed meal; lot 3, 860½ pounds kafir corn and 1 685 pounds skim milk. Placing the cost of alfalfa at $6 per ton, this makes cotton seed meal worth $27.80 per ton and skim milk 40 cents per hundred.

At the ordinary price of alfalfa, $3 per ton, skim milk would be worth 20 cents per hundred. This experiment was in process during the extreme cold weather of February. ED. H. WEBSTER.



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
Perfection of Skimming .	The NATIONAL is the Bes
Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

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NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



— THE —

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PRICE - - - $65

Still at the Head, Receiving First Premium and Diploma At The ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

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S M. BARRE, Winnepeg, Man.

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Put Your Nose Over It.

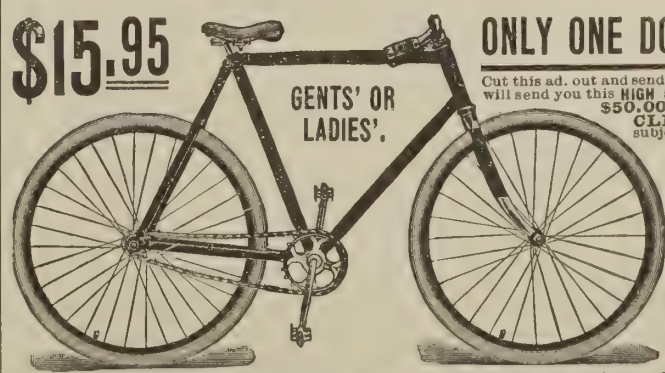
Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

PERFECTION MILK COOLER AND AERATOR

it would smell sweet, be sweet and remain sweet. It takes out all animal heat and with it all bad odors of animal, stable or food. Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated catalogue and prices on Farm and Dairy Supplies.

L. R. Lewis Mfr., Box 10, Cortland, N. Y.

$15.95



ONLY ONE DOLLAR DOWN

Cut this ad. out and send to us with $1.00 and we will send you this HIGH GRADE 1899 MODEL $50.00 VICUNA BICYCLE by express, C. O. D., subject to examination. Examine it at your express office and if you find it a genuine 1899 model HIGH GRADE $50.00 VICUNA, the grandest bargain you ever saw or heard of and you are convinced it is worth $10.00 to $15.00 more than any wheel advertised by other houses up to $25.00, pay your express agent the balance, $14.95 and express charges.

THE VICUNA IS COVERED BY A BINDING GUARANTEE. Frame is 22 or 24 inch, made from best seamless tubing, finest two-piece Denton hanger, finest full ball bearings, Mason arch crown, enameled black, green or maroon, highly nickel finished, Delhi padded saddle, up or down turn handle bars, best Doyle pedals, HIGH GRADE GUARANTEED REGAL PNEUMATIC TIRES, fine leather bag, complete with all tools and repair outfit. ORDER TODAY. YOU CAN MAKE $50.00 EVERY MONTH SELLING THESE WHEELS AT $25.00. (Sears, Roebuck & Co. are thoroughly reliable—Editor.) CATALOGUE FREE.

SEARS, ROEBUCK & CO., CHICAGO, ILL.

Keeping Milk in Summer.

During the summer of 1898 the milk from the college herd of thirty cows was sent to the Manhattan Creamery. Our object in sending the milk to the creamery instead of making butter was to test how cheaply milk could be handled and yet be delivered in good condition, and how few and cheap things could be used to keep milk sweet for a sufficient time so that Saturday night's and Sunday morning's milk could be delivered in good condition on Monday. Many creamery patrons are unable to keep milk sweet longer than eighteen hours, and either feed the milk of Saturday night and Sunday morning or else set it and make butter for family use. They are not properly equipped for making butter and most of them do not secure nearly all the butter fat from the milk; while at the same time, as it only comes once a week, the work is a nuisance.

If milk can be kept sweet at a reasonable cost from Saturday night until Monday morning, those who live at a distance from creameries can hold their milk and deliver every other day, saving half the expense of hauling. Creamery men told us that if we could make alternate-day delivery of milk practicable for farmers with little money, a large amount of milk could be secured for creameries and skimming stations in the newer dairy distrtcts where the amount now secured is not sufficient to make the business profitable.

The Manhattan Creamery is one and a half miles from the college dairy, and our milk was hauled to the creamery by a neighboring farmer who handled a milk route, the college milk receiving exactly the same treatment while on the road as that given the milk from the neighboring farms.

We had a creamery room which cost us $100 and was fitted with a cement floor and ice box; but farmers who had difficulty in keeping their milk said that they no had such a place and that the average farmer could not afford such an expense. At the beginning of hot weather we therefore abandoned this room and built what one of our farmer boys called an "every-farmer-can-afford-it" milk house. We set some posts and nailed to them old fence boards making a room 10×10×10 feet, with a dirt floor. As the old boards could not be set close enough to keep out either sun or rain, we covered them with building paper. This building, if made of new material, would not have cost over $10 and did not cost us over $5. The room was built around a well. We had a windmill, but did not use it as we wanted to keep milk under conditions where a farmer could not afford one. For tanks in which to set the cans of milk we used oil barrels, sawing them in two. We also took a half barrel and boxed it in, packing the spaces with wheat chaff. This box was covered with quilts made from bran bags.

In handling this milk the care was taken that previous experiences had taught us was necessary for keeping milk under any conditions. Every utensil, touched by the milk was thoroughly washed, and then sterilized with scalding water. If even a small quantity of dirt is left in the seams or corners of pail, strainer or can, it supplies an abundant source of the bacteria which cause milk to sour. No matter how clean the milker's hands seemed to be, they were washed in hot water just before milking to destroy all milk-souring germs, that might be in the dust or dirt on them. The sanitary milk pail was used. This pail has a cover into which a 6-inch opening is cut. In this opening fits a removable strainer. The milk is milked directly into the strainer, and the cover keeps out of the milk the fine dust which falls from the cows body during milking. This dust is full of the bacteria which sour milk. When the milker sat down to milk, he wiped the cow's udder with a damp cloth, to remove as much dirt as possible and dampen the rest so that it would adhere to the udder and not fall into the milk. The milk was strained into forty-quart cans, and as soon as a can was filled, it was taken to the milk room, where it was immediately cooled to 60° to 62° by passing over a milk cooler. The cans containing it were then placed in the half barrels and these barrels filled with freshly pumped water and barrels and cans covered with bran bags. The water was changed morning and night. With this treatment, and without ice, milk was kept and delivered regularly through our hottest weather in good condition to the creamery when forty hours old, the time required to hold Saturday night's milk for Monday's delivery at the creamery; and much of the time we were able to keep the milk in a good condition fifty-two hours, the time required when Saturday morning's milk is kept for Monday's delivery.—H. M. COTTRELL, in the *Industrialist*.

Short Course in Agriculture, University of Wisconsin, Madison.

Prizes and Medal Awards.

The following prizes and medals were awarded recently by the College of Agriculture to the students showing the greatest degree of proficiency in various lines of agricultural work in accordance with announcements in Short Course circular and elsewhere:

Ogilvie Gold Medal—Value $75. Awarded to the Second Year student attaining the highest average in all classes of live stock judging; given by R. B. Ogilvie, Trevor, Wis.; won by Sylvester Lynch, Augusta, Wis.

Hoven Gold Medal—Value $100. Awarded to the Second Year student showing the greatest proficiency in judging fat stock; given by M J. Hoven, Madison; won by J. M. Wagner, Hillsboro, Wis.

Hoven Silver Medal—Value $10. Awarded to the Second Year student showing the greatest degree of proficiency in judging fat stock; given by M. J Hoven, Madison, Wis.; won by James Bagnell, Pewaukee, Wis.

HOARD'S DAIRYMAN Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging dairy cows; given by HOARD'S DAIRYMAN, Ft. Atkinson, Wis.; won by J. M. Wagner, Hillsboro, Wis.

Everett Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging beef cattle; given by C. H. Everett, Beloit, Wis.; won by William C. Miller, Center, Wis.

Briggs Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging horses; given by H. A Briggs, Elkhorn, Wis; won by Eugene Holston, Ashland, Wis.

McKerrow Silver Medal—Value $10 Awarded to the Second Year student showing the greatest proficiency in judging sheep; given by George McKerrow, Sussex, Wis; won by A. G Main, Appleton, Wis.

Jones Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging swine; given by Hon W. A. Jones. Washington, D. C.; won by P. V. Becker, Glasgow, Wis.

Wisconsin Agriculturist Silver Medal—Value $10. Awarded to the First Year student showing the greatest proficiency in plant life; given by the Wisconsin Agriculturist, Racine, Wis.; won by Willard Abbott, Appleton, Wis.

Hill and Gillett Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging Guernsey and Holstein cattle; given by Geo. C. Hill & Son, breeders of Guernsey cattle, and W. J. Gillett & Son, breeders of Holstein cattle, Rosendale, Wis.; won by A L. Andrews, South Wayne, Wis.

Scribner Silver Medal—Value $10. Awarded to the Second Year student showing the greatest proficiency in judging Jersey cattle; given by F. H. Scribner, breeder of Jersey cattle, Rosendale, Wis.; won by H. J. Lassell, Orfordville. Wis.

Complete Set of Works on Book-keeping and Commercial Law—Value $6. Awarded to First Year student showing the greatest proficiency in book-keeping; given by J. N. McCunn, President, and E. O. Folsom, Secretary, of the Green Bay Business College, Green Bay, Wis.; won by Roy Gordon, Mineral Point, Wis.

Ten Dollar Gold Piece—Awarded to Second Year student showing greatest proficiency in veterinary science; given by Henry Riedberg, Stone Bank, Wis.; won by Chas. Seaberg, Brodhead, Wis.

Five Dollar Gold Piece—Awarded to Second Year student showing the second greatest degree of proficiency in veterinary science; given by Henry Riedberg, Stone Bank, Wis.; won by A. L Andrews. South Wayne, Wis

Ten Dollar Gold Piece—Awarded to the Second Year student showing the greatest degree of proficiency in feeds and feeding; given by Prof. W. A. Henry, Madison, Wis.; won by H. F. Ross, Hinsdale, Ill.

Five Dollar Gold Piece—Awarded to the Second Year student showing the second greatest degree of proficiency in feeds and feeding; given by Prof. W. A. Henry; won by R. G. Griswold, West Salem, Wis.

Ten Dollar Gold Piece—Awarded to the First Year student showing the greatest proficiency in feeds and feeding· given by Prof. W. A. Henry; won by H. C. Bell, Leitersburg, Maryland.

Five Dollar Gold Piece—Awarded to the First Year student showing the second greatest degree of proficiency in feeds and feeding; given by Prof. W. A. Henry; won by Herman Hanchett, Sparta, Wis.

CONCERNING OUR ADVERTISERS.

That a large infusion of Jersey blood in the dairy herd will greatly increase its butter producing capacity, cannot be gainsaid. But it is generally difficult to secure, except by private contract, at prices beyond the average man's pocket-book, the kind of Jerseys, in performance and breeding, that will exert this influence on the herd. However, we wish to remind our readers that the public auction sale, advertised on another page, to be held at Indianapolis, Ind., April 12th, will present an opportunity to name your own price on a well bred bunch of fifty head, including seven cows with weekly butter tests up to twenty pounds. The breeding is strictly first-class and is shown up in a pedigree catalogue, which will be mailed to any reader applying to The Jersey Bulletin, Indianapolis. Ind. The contributors to the sale are reliable Hoosier Jersey Breeders, who credit their offerings with "dairy performance, dairy breeding and dairy form", three features consistent and essential in a profitable dairy animal.

Mr. A. G. Elliot, senior member of the firm of A. G. Elliot & Co., paper dealers of Philadelphia, died suddenly on the morning of February 25th at his home in Germantown, Pa. He was one of the most successful business men operating in his line in the east, and had established a trade extending to all parts of America. He was the originator of the plan of putting up butter in parchment paper packages, and his parchment paper has been used in nearly every creamery and in every butter-making district in North and South America, facilitating the preparing and shipping and general handling of this article. He recently made a tour through a large part of South America for the purpose of acquainting himself with the growing trade of that section, and as a result was an enthusiastic expansionist. He believed in extending the American trade to the remotest corners of the civilized globe.

The death of Mr. Elliot is a serious loss to the commercial interests of his city and is a great bereavement to his family and friends.

The paper business will continue under the management of Mr. Elliot's sons, who have ably assisted him for some years.

DON'T THROW AWAY AN OLD ACME HARROW.

"It is an implement that never wears out, viz: only the coulters wear, and they can be replaced at small cost,"

The Manufacturer will furnish Extra Parts for any "Acme" Harrow made since the beginning of the world, and at very reasonable prices. See advertisement in another column.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FROZEN JOINT:

What can be done for a three-months old calf that had joint of hind leg, just above hoof, frozen about one month ago. It has been rubbed twice a day since it was frozen with extract of witch hazel, and afterwards wrapped in cotton batting and woolen bandage. Have left the batting off when dress-

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 130 Quincy, Ill. for their catalogue; which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers. etc.



Parted In A Dream—(New) A beautiful song, very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also the complete words of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) A very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with words of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Very pretty and extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts. and with it the complete words of PARTED IN A DREAM and DARLING LENORE.

For 4 cts. I will send the complete words of the three songs with miniature page of music of each. Address the author,

HALBERT L. HOARD, Fort Atkinson, Wis.

How to Find Out.

Fill a bottle of common glass with your water and let it stand twenty-four hours; a sediment or settling indicates an unhealthy condition of the kidneys; if it stains your linen it is evidence of kidney trouble; too frequent desire to pass it, or pain in the back, is also convincing proof that the kidneys and bladder are out of order.

WHAT TO DO.

There is comfort in the knowledge so often expressed, that Dr. Kilmer's Swamp-Root, the great kidney remedy, fulfills every wish in curing rheumatism, pain in the back, kidneys, liver, bladder, and every part of the urinary passage. It corrects inability to hold water and scalding pain in passing it, or bad effects following use of liquor, wine or beer, and overcomes that unpleasant necessity of being compelled to go often during the day, and get up many times during the night. The mild and the extraordinary effect of Swamp-Root is soon realized. It stands the highest for its wonderful cures of the most distressing cases. If you need a medicine, you should have the best. Sold by druggists in fifty-cent and one-dollar sizes.

You may have a sample bottle of this wonderful discovery and a book that tells more about it, both sent absolutely free by mail, address Dr. Kilmer & Co., Binghamton, N. Y. When writing mention that you read this generous offer in HOARD'S DAIRYMAN.



YOUR LIFE and that of your family may depend upon the quality of your buggy and harness. When you buy a buggy, buy one that won't break. **This buggy is Guaranteed for 5 Years.** Every stick in the gear is hickory, tough as whale bone; every forging, best Norway iron. **Handsome as it is strong.** Trimming and painting, highest art known to buggy building. **An agent or dealer** would ask you $75. for one not as good. **OUR PRICE, $44.10.** **WE HAVE NO AGENTS** but sell direct to you at lowest prices. Shipped subject to your approval without any money with order. **Our line comprises:** Buggies, Road Wagons, Phaetons, Surries, Runabouts, Stanhopes, Spring Wagons, Road, Speeding and Breaking Carts, Farm Wagons, all kinds of Harness and Saddles. We issue the largest vehicle catalogue ever printed. Write us for it now. **IT'S FREE.**
Marvin Smith Co., 55-57-59 N. Jefferson St., N 18. Chicago.

BABCOCK Milk Testers.

Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. **J. J. ANGUS, Plymouth, Wis.**



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

AN HONEST MAN is known by the company he keeps; His butter can be depended upon as pure and healthful, of full weight and free from any deleterious substance. He wants to make it look attractive by using

AN HONEST COLOR,

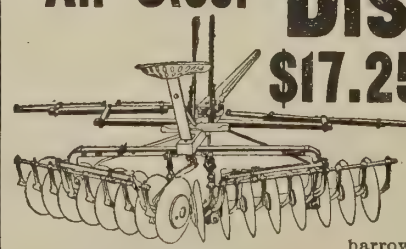
one that will not injure its texture, and will give it the delicate tint of fresh June butter.

THATCHER'S ORANGE BUTTER COLOR

is made from pure vegetable substances. It is used by the best men in the business—men who have by a lifetime of hard work built up a trade of which they are proud, and which pays them above market price. Send for sample and also free circular.

THATCHER MANUFACTURING CO., - Potsdam, N. Y

All Steel Disc Harrow



$17.25

Buys an all steel, double lever, disc harrow, with three horse equalizer, movable pole, adjustable pressure bars. Has case hardened boxes, absolutely dust and dirt proof, easily oiled, improved scrapers. Practical use has demonstrated that our harrow is the simplest, strongest, lightest draft, does better work, and weighs more than any other harrow made. Sent "C.O.D," subject to "examination" on deposit of two dollars, to be returned if not absolutely the best machine ever sold at this low price. Send your order at once. Ask for catalogue of our full line of Farm Implements and Carriages.



JOHN DORSCH & SONS, 223 Wells Street, Milwaukee, Wis.

No. 50 Buggy $36.50.

ing for past two weeks. The trouble now is in the joint, which is swollen and very painful. It hurts so badly that the calf can't bear to touch the foot to the ground.
Howel, Mich. J. M.

ANSWER.

Keep off the cotton and other wrapping, excepting a cotton bandage soaked in strong oak bark solution, and kept wet with it, if out of reach of frost. To each quart add half a pint only of acetic acid. Keep bowels constantly open with epsom salts, about two ounces, and a dram of good ginger; give warm when the inflammation is gone, not before. Paint over the joint with Gombault's Caustic Balsam, three or four times a day, for a while. When scab appears carefully wash it off, after being well soaked and softened. Then cover with clean hog's lard, until sore is gone. Then repeat, if needed, etc.

ABORTION.

We are troubled with abortion in cows in this neighborhood. I have lost fourteen calves and many of my neighbors have lost all. I think it is catching. Some say shock corn causes it; and others say salt, where they have free access to it. W. J. A.
Warren, Ill.

ANSWER.

You seem to have formed your opinion concerning cause and effect. Such conclusions are wrong. I have lately concluded to recommend some one of the advertised remedies. See the DAIRYMAN and use your own judgment in relation. This is the most rational and best course for you, as the components for abortion are dangerous and powerful medicines in the hands of the laymen, or any body else not thoroughly acquainted with drugs.

TUMOR.

I have a cow five years old. A few days ago, I noticed a bunch apparently as large as a hen's egg, in the vagina. It appeared to grow larger until yesterday I called in a veterinarian, who cut it out. He said it was a fibroid tumor. It was hard and should think would have weighed two pounds. The cow is due to calve soon. Will her milk be safe to use and will her calf be fit for veal? In other words, is or is not her system full of poison to cause the tumor? L. G. R.
Fortsville, N. Y.

ANSWER.

In all cases of constitution subject to tumefaction, there is a cause, which is not an indication of a pure, healthy organism, and though, perhaps, the milk may be much better than much sold on the market, it will not be equal in health to milk from an uncontaminated fountain. If hard as you say, you had not a case of fibroid tumor, but of an indolent tumor. Yes, the calf will be fit for veal so far as that is concerned.

OBSTRUCTION IN VAGINA.

We have a young Jersey cow, fresh with her second calf last November. She has been coming in heat irregularly ever since, sometimes going as long as five and six weeks between heats. She has taken the bull every time, but has failed to get in calf thus far, though we do not think it is any fault of the bull—a two and a half-year-old. At the last period, suspecting something wrong, one of us inserted his hand, and found the tube at end of passage seemingly obstructed by what appeared to be a fold-like growth. The cow otherwise seems in good health, has appetite and gives good flow of milk. H. G.
Sedalia, Colo.

ANSWER.

Get a practical person, who knows all about such organs; none other should, under any circumstances, attempt such dangerous practices. I expect the passage, as you term it, is all right. You have a chronic subject of nymphomania, sure. See ads for remedies.

FEED AND HEALTH.

I have a Jersey cow that dropped calf on February 23rd, and on the 8th day she refused to eat; gave her dose of physic. She appears to be stiff, held her head as high as she could carry it; gave her two more doses of physic. She appeared to get better, took her feed, but to-day she refuses to eat. We feed cotton seed hulls, a few cotton seed, a little cotton meal, ground oats with pea-vine hay. Run out in day time, in good weather.
Her milk has a bad smell, like as though she was feverish. J. S. M.
Easonville, Ala.

ANSWER.

From your description, you have one general cause for the conditions you name. I don't like your food. There is not a warm blooded mammal upon earth that can remain in health so fed—cotton seed hulls, cotton seed and cotton seed meal. I believe if you change the food, you will change the conditions permanently. Whilst so fed, I can't prescribe any likely remedy. Physicking, as you have proved, is good, so I can't see as you can do better than resort to it again.

WEAKNESS IN WETHERS.

I have a 3-year-old heifer that never had a calf but is due the first of April. When she lies down, her wethers come down.
Antwerp, N. Y. W. B.

ANSWER.

Get at once a person who understands such conditions. Inversion of the womb is difficult to manage. According to my experience, such cows are not fit to breed. I have had all sorts of conditions of inversion, partial and full, occasional and persistent, all of which were hardly worth the trouble and expense attending a doubtfull ending.

EPILEPSY

I recently purchased three shoats—a cross between a Berkshire and Chester White—and almost every feeding time one of them, just before putting feed in trough, rolls over on side and has, what seems to me, a fit. It lasts about one minute; then it gets up and rushes to the trough and eats greedily. I feed them corn meal and shorts made into a mash twice a day. I do not over feed. Has the shoat worms?
N. Bridgewater, N. Y. JAS. H. McD.

ANSWER.

You seem to have a clear case of epilepsy. There is but little to do in these cases. Rub in over the loins common turpentine, two teaspoonfuls each morning for a few days. Keep clean, plenty of sunlight and pure air. Give salt and charcoal, hard coal and screenings in plenty. Worms do, quite often, cause fits.

FAILURE TO BREED.

How shall I get a Jersey heifer to breed? She is 32 months old, has been six months in milk, is apparently healthy, good size and a good feeder. Comes in heat quite regularly, say about 19 days after service. Was served by an aged Jersey bull that was very fat on Dec. 13th and again January 27th, but failed and I blamed it on the bull. In February was again served by a young bull, and again by same March 15th. Am very anxious to get her with calf as she is a valuable heifer.
Dr. Horne would probably direct me to your advertising columns. I can easily send for a remedy for nymphomania or use some of the remedies he prescribes to deaden sexual desire but if I do how shall I get her to breed if she does not come in heat?
VISION.

ANSWER.

I have answered similar queries many times in the last two years, recommending various remedies. Lately I have made up my mind, the best thing is to get a proper special remedy, for which see ads in DAIRYMAN.

FAILURE TO BREED.

A thirteen months old Jersey heifer was served March 20, 1898 by a Jersey bull that rarely fails getting cows in calf with one service and has been served at the following intervals since: 39, 40, 22, 20, 62, 52, 29, 38, 19 and 20 days. The last time was March 14th.
A four year old cow, calved Sept. 16th, 1898,—second calf. Has never been in heat since. At intervals of three to four weeks, about one-half part of the while, glutinous matter comes from her vulva, is apparently in good health, feeds well and keeps up a good flow of milk. S.
Warrenville, Ill.

ANSWER.

Remedy same as above. I know of nothing as good under any circumstances. She is a chronic nymphomanic.
You need an emmenagogue. This is the antipode of the above. Wash out the vagina with one part Tilden's Bromo Chloralum into eight of warm water. About four ounces each morning for three times. Then wait and if needed repeat, etc. See ads for medicine to bring the heifer to heat. These are almost certain to succeed.

FOUNDER.

We have a horse that seems to be foundered all over, principally in chest and one leg. Seems to almost lose control of it at times, and his feet trouble him. Have always had to be particular about shoeing him. He has a poor appetite and looks poor although we tempt him with bran, oats, etc. He is 14 years, Antire breed, and always a restless nervous horse and always wanted to travel faster than you wanted him to go.
Rocky Run, Wis. E. C. F.

ANSWER.

Pamper him all you can. Rub in oil of cedar 4 oz., sulphuric ether one oz., 4 ffs. ammonia 4 oz., fish oil 14 oz. To be well shaken at each dressing, kept tightly corked and out of the sun and heat. Shake hard each time immediately before using.

OPENING TEAT.—FISTULA.

I have a cow that had a stoppage in one teat. A neighbor used a teat opener on it; as he withdrew the instrument she kicked, slitting the end of the teat so that it sprays, and throws a large stream and is inclined to leak. Can anything be done for it now, as it is entirely healed up?
I have a large mare 8 years old last fall. She had a bunch come on the top of shoulder, which we thought would be a fistula, but it never broke. Her neck became stiff so that she could not eat below a level of her breast, not turn her head either side. At present she can eat at a level with her knees; can turn head either side a little; the muscles of the neck are hard. The top of the neck breaks out with what appears to be boils, discharge a little, then dry down. She is in apparently good physical conition, eats and drinks well, carries good flesh.
Preble, N. Y. A. L. P.

ANSWER.

If the teat is healed up, it will have to be opened, and a stitch or two put in. Dress with compound tincture of myrrh and aloes, liberally. You will need a plug to keep the end of the teat open. See ads. in DAIRYMAN.
You can't have a fistula if the swelling has never broke open. She may be forming a fistula. You can't doctor such a case by correspondence. The case is too serious for such; you need a practical veterinary surgeon, and he will have his hands full. Gombault's caustic balsam will be a good application, long continued, outside, and 70 to 80 grains of iodide of potassa, from three to six weeks inside. Get the veterinarian; this is your best plan.

HOLE IN SIDE OF TEAT.

How can I heal the teat of a cow that has been cut so that the milk comes out at the side? She will be dry in about three weeks. O. W. L.
Los Angeles, Cal.

ANSWER.

Do exactly as advised above for similar injury.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for FREE $2 trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One galion will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

ROBERTS' ANTI-ABORTION SERUM

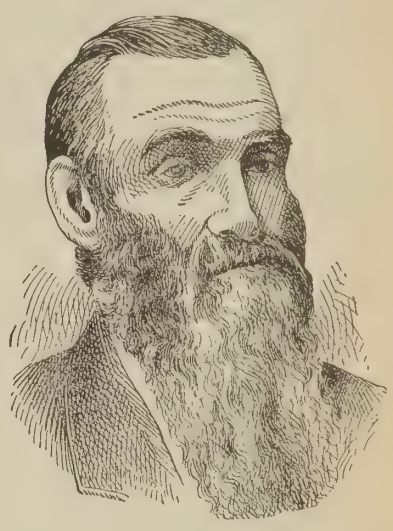


Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, Waukesha, Wis.

RUPTURE CURED.

SUFFERED THIRTY-THREE YEARS AND NIGH TO DEATH.

Remarkable Experiences of a Citizen of Riceville, Iowa.



WM. T. BLANDIN.

One of the best known men in Mitchell County, is rejoicing in the fact that after suffering thirty-three years with a dangerous rupture, was finally cured by the system invented by Dr. W. S. Rice, Adams, N. Y. Mr. Blandin is never so happy as when relating the story of his cure. For the greater part of his life he was laid up in bed; his rupture being so large that he could not find a truss to hold it until he learned of the Dr. Rice method. Mr. Blandin tells of a near neighbor of his who was also ruptured, and for whom Mr. Blandin sent for the Rice treatment. The day it arrived his neighbor was suddenly stricken with a strangulated hernia; two doctors and a half dozen men held him down, the pain being so intense that he was out of his mind. Mr. Blandin arrived on the scene just in the nick of time and a few minutes after the patient had revived from a powerful dose of chloroform, the Rice system was put on, they had him up and dressed and he walked out to his barn. The circumstances of these two cures attracted wide attention throughout the state. Dr Rice has recently prepared a book, giving a full description of his method. It is a home cure at a very small cost and best of all it cures without pain, danger, detention from work or inconvenience of any kind. Readers should send for this book and mail it to anyone they know to be ruptured. Such an act of kindness will be worth a great deal to those who suffer from rupture. Write to Dr. W. S. RICE, 553 Main St., Adams, N. Y.

Trade Mark



LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis

From a Vermont Dairyman.

Some Cow Figures.—Testing Cows.—Utilizing Manure.

ED. HOARD'S DAIRYMAN:—Will you allow me to speak of the practice of dairymen in Vermont? The larger part of them keep cows that will make 125 pounds of butter per year. We will reckon for ten years at 20 cents per pound, which gives us $250. The calves are valued at $10 each, and this added to the proceeds from the butter gives $350. Another dairyman keeps cows that makes 275 pounds or more a year at 20 cents, giving $550.

This cow's calves are selling for $15 per head in my neighborhood, which makes $150 for ten years, and added to the amount the butter sold for gives $700. Take $350 from $700 and there remains $350, made on one good cow. On ten good cows, $3,500, on thirty, $11,200.

How many mortgages would be standing on farmers' homes, had they bred the best dairy stock for twenty years, and used common sense in other matters?

It is not necessary to have a Babcok tester to know what your cows are doing. Get a tin pail twenty inches high and seven inches in diameter, with dash and cover. Milk a cow three days, and churn the cream in the improvised tester, and you have the quantity and quality of butter produced. It seems to be more natural to make good butter or cheese from good cows, and it is impossible to make good butter and cheese from poor, pale milk.

Another immense waste is in the application of the manure. The cheaper they get rid of it the better. Some farmers put five times as much on an acre near the barn as is necessary, and let the more remote pieces go without enriching. It would be on the same principle as feeding all the grain to one horse, that should be divided among four or five. Four of them would flourish just like the grass and grain without nourishment.

I have used a manure spreader for sixteen years, and it has spread about four hundred loads a year. Often one man has (between chores) put out 25 loads a day, which has fed more plants than three men could have done with the ordinary wagon The farmers that take no pains to do business in a skillful manner are the ones that talk hard times. They raise but little and have but little to sell. Their bank account foots up against them every time. E. B. DOUGLAS.

Addison, Co., Vt.

$30 Per Cow.

Dairy Statistics From Maine.—Average Return Per Cow.

The returns from twenty creameries show that they have received the milk or cream from 22,680 cows, and that they have paid the farmers $682,000 for milk or cream, making an average of about $30 per cow. In some instances the returns have been as high as $50 per cow, and in others as low as $20 These same creameries last year paid to their patrons $10,000 less than they paid this year. This indicates that we have not lost ground, but advanced. A few of the smaller creameries have dropped out, but we have three or four new creameries this year that promise well. From all the data accumulated I conclude that we have, engaged in associated dairying in the state, about $900,000, as the amount paid for the product of the cows. The total number of cows in the state is 135,000, and thus we see that there are more than 100,000 cows, whose milk is being disposed of in some other way. We do not know just what that large number of cows are doing, but probably we may say that the income from the cows of Maine is but little less than $4,000,000. A large amount of private dairying is being done, much of which is of very good quality; also about our cities and villages many men are engaged in the wholesale and retail milk business, and of these 100,000 cows engaged in private work, a large number are furnishing milk for sale as whole milk, and you know that the returns from selling whole milk are much larger than those from the sale of milk or cream for butter making purposes.

Still another class of cows that we have never taken into account is the family cow. As we look over our state, we hardly find a family, except the very poor, that is not keeping a cow, and that cow largely feeds the family, provided it is a poor family without other means of support. What the product of these family cows has been it is impossible to tell or even conjecture.—*N. E. Farmer.*

Removing the Placenta.

ED. HOARD'S DAIRYMAN:—In issue of DAIRYMAN, March 3rd, D. J. DeL. asks for instruction for removing placenta. I will give a remedy which has never failed for me and I have used it on cows that have aborted in my neighborhood, with as good success as with cows that go the full time.

Pour boiling water on four quarts oats and feed while hot as cow will eat them. Two doses is generally sufficient, 12 hours apart.

My remedy for caked udder is five drops poke root extract every three hours in either feed or water. C. I. HUNT.

N. Y.

The War on Oleomargarine.

The Minneapolis *Tribune* says: "The campaign is being directed by the National Dairy Union, which led the fight in Congress which resulted in the passage of the filled cheese law. It is said that its officers have been working quietly for several months enlisting the co-operation of the various butter interests in this one supreme effort to land a knock-out blow upon "oleo." They are confident that the high tax will prevail, inasmuch as 283 of the 356 congressmen and 60 of the 90 senators represent states which have declared against oleomargarine colored so as to resemble butter. The 30 states which prohibit the sale of the yellow butterine contain between three-fourths and five-sixths of the nation's population.

The color laws adopted by the various states do not, it is claimed, furnish full protection to the farming and dairy interests, as the yellow bogus product is shipped from the unprotected states, and sold direct to consumers in the original packages under the protection of the interstate commerce decisions, and then it is claimed that the law requiring the oleo and butterine to be properly stamped is practically evaded by printing the label in small letters and making it so dim as to escape notice in the majority of cases.

If the national legislation asked for can be obtained, it will enable the makers of genuine butter to read their title clear to the American markets, as against any imitation article of the least merit. No imitation butter can stand a tax of ten cents a pound. If the dairy interests secure this legislation they should be compelled to give the public a good article for the genuine."

Lice on Animals.

These wingless insects are found parasitic on all animals. Cattle are unfortunate in being the most common victims of lousiness Sheep are rarely affected. We meet with this disease most frequently during the winter months, in neglected, half-starved, dirty animals. Young animals are especially liable to be infected. Sometimes, however, even well-kept cattle suffer severely.

So-called lice are either true lice (Hæmatopinus) or bird lice (Trichodectes). The former have a slender, often spindle-shaped body, a pointed head, grayish blue color, and suck blood. The Trichodectes are broader, have a squareish head, brown color, and have biting mouth parts, living on hair and epidermal scales. Trichodectes are usually found on neglected, unthrifty animals with long shaggy hair and a dirty scaly skin. They usually disappear as soon as the animal's condition improves. True lice, on the other hand, occur also on thrifty animals.

Every species of domestic animal has its own specific louse, or lice (horse louse, ox lice two kinds, pig louse, goat louse, dog louse, etc., and Trichodectes of the horse, ox, sheep and dog). The louse of one species of animal can not exist permanently on another species. * * *

The remedy which has given the most satisfactory result to the writer is kerosene emulsion, made as follows: Kerosene, two gallons; common or whale oil soap, one quarter pound; water, one gallon. Heat the solution of soap and add it boiling hot* to the kerosene; then churn the mixture for ten minutes. Dilute the emulsion with twenty gallons of water and apply with a spray pump. If no spray pump is at hand, drive the animals, if many are to be treated, into a narrow chute and apply the emulsion with a common watering can, being careful to treat all parts of the body.

Select a mild, sunshiny day for the operation. In the course of four days or a week repeat the application in order to destroy those lice that have, in the meantime, emerged from the nits. Where the animals have been kept in stables or pens, do not neglect to give these places the same treatment; they are just as lousy as the animals, and if not treated they will soon reinfect the animals. Finally, avoid conditions favorable to future infection, by giving animals proper care and keeping them in a vigorous, thrifty condition. For long-haired animals (calves), shearing might be recommended. Weak, run-down animals may require special nursing to recover completely from an attack of lousiness.—*Press Bulletin*, Kansas Experiment Station.

*NOTE—Be sure to have the water boiling hot when you add it to the kerosene, and churn it thoroughly, otherwise you will have trouble in making a good emulsion; which, when made right, should have a creamy appearance.

Transfers of Guernsey Cattle from Feb. 15 to 28, 1899.

BULLS.

Admiral Stonecrest 5771, A. S. Apgar to David Jones, Ridgefield, Conn

Burglar 1786, Izett & Morgan to J. A. Baker, Snohomish, Wash.

Banard's Choice 5823, James Lawrence to Joseph Barnard, Hopkinton, N. H

Colonel Pierce 5790, A. H. Ricker to Henry Koehler, Norfolk, Neb.

Earl of Greenwood 5839, D O. Newhall to H. K. Herrick, Blandford, Mass.

Gov. Wentworth 5813, John A. McDonald to Edwin H. Lord, Wolfboro, N. H.

Interstate 5553, L. B. Risdon to George Hildebrecht, Trenton, N. J.

Jeweller's Mikado 5793, E. T. Gill to Wilbur Hazzard, Wickford, R. I.

Lord Barrington 5830, J. Arthur Jones to A. B. Locke. Barrington, N. H.

Red Hill 5176, John D. Bates to W. M. Pippard, Plymouth, N. H

True Blood 5829, Joseph Barnard to George E. Barnard, Hopkinton, N H.

Tacoma J, 5827. J. Arthur Jones to Canterbury Shakers, East Canterbury, N. H.

Von Moltke of Woodlake 2d 5808, C. B. Cottrell & Sons Co. to Langworthy Brothers, Westerly, R. I.

Williston 5809, Wm. M. Paul to T. R. Wills & Co. Marlton, N. J.

Yellow Boy 5795, E. T. Gill to Retreat for the Insane, Hartford, Conn.

COWS.

Baby Sweetheart 2d 10154, John D. Bates to Edwin H Lord, Wolfboro, N. H.

Barnard's Beauty 11327, Lady Barnard 11325, Joseph Barnard to J. Arthur Jones, West Hopkinton, N. H.

Choice Duchess 9779, Hirda 3210, Miss Helen C. 7112, Nancy C. Lee 6237, Narkeeta 8514, Our Non 6781, Wahconah's Duchess 8518, Est. J. E Cowles to H. M. Cowles, Farmington. Conn.

Drusa 3d 6943, Moylan 7467, Swathmore 8849, Est. Alexander Scott to I. R. Scott, Concord, Pa.

Dolly B. 11345, Jennie's Spot 11340, May Barnard 11339, Ramona B. 11360, Young Jennie 11329, Joseph Barnard to George E. Barnard, Hopkinton, N. H.

Hazel K 8037, S. G. Howd to M. B. Frazier, Pleasant Valley, Conn.

Hannah Dustin 11320, Sarah A. Dustin to Henry D. Dustin, Hopkinton, N. H.

Hannah Dustin 11320, Henry D. Dustin to J. Arthur Jones, West Hopkinton, N. H.

Hulda of Canterbury 11351, Lily Bell of Canterbury 11352, Martha J. 2d 11350, Pink of Canterbury 11354, Violet of Canterbury 11353, J. Arthur Jones to Canterbury Shakers, East Canterbury, N. H.

Jones's Buttercup 2d 11356, Maud Spofford 2d 11357, J. Arthur Jones to A. B. Locke, Barrington, N. H.

Lady Kay of Pellston 11295, Wm. Atkin to Abel Kay, Pellston, Mich.

Lady Dustin 11314, Joseph Banard to Sarah A. Dustin, Hopkinton, N. H.

Lady Hutchins 11318, Joseph Banard to Cyrus Dustin, Hopkinton, N. H.

Lady Hutchins 11328, Cyrus Dustin to Stilson Hutchins, Washington, D C.

Lady Hutchins 11328, Stilson Hutchins to J. Arthur Jones, West Hopkinton, N. H.

Lady Spofford 11333, Est. S. Alfred Spofford to J. Arthur Jones, West Hopkinton. N. H

Priscilla Alden 11296, H. A. Rider to C. E. Jenkins Rochester, N. H.

Pride of the Lake 8565, J. A. McDonald to W. M. Peppard, Plymouth, N. H

Sweetheart's Maggie 10153, John D. Bates to W M. Peppard, Plymouth, N. H.

Young Lily 11323, Joseph Banard to S. Alfred Spofford, Hopkinton, N. H.

Peterboro, N. H. WM. H. CALDWELL, Sec.



Among all the mocking horrors of chronic indigestion and liver complaint, none is more unbearable than that dreadful sensation of giddiness in which the whole world, indoors or out, seems to swim around before the sight in the most sickening and nauseating manner until one's entire being becomes faint and wretched with indescribable misery.

"I was suffering with what the doctors called chronic indigestion, torpid liver, and vertigo," writes Mrs. Martha E. Barham, of Newville, Prince George Co., Va. "The doctor did me no good. My symptoms were giddiness in the head, pains in the chest and an uneasy feeling all over. I also suffered with female weakness.

"I was all run-down and could not do any work at all without suffering from nervous attacks. I wrote to Dr. R. V. Pierce, of Buffalo, N. Y., for advice. He advised to use Dr. Pierce's Golden Medical Discovery and 'Favorite Prescription.' I did so, and used five bottles of each, and I cannot express the benefit I have received from these medicines. I gained in health and strength. When I commenced to use the medicines I weighed only 112 pounds, now I weigh 140 pounds. I thank God and Dr. Pierce for my recovery. My husband and friends all thought I would die but to-day I am a well woman."

The wonderful effects of this great "Discovery" are genuine and permanent; they are not due to any false or alcoholic stimulus for it contains no alcohol. Real substantial healthy musuclar strength is built up; the stomach and liver are toned; the blood is purified and vitalized; the nerves are steadied; the entire constitution is rejuvenated and renewed.

In case of constipation, there is nothing quite so effective as Dr. Pierce's Pleasant Pellets. They act comfortably though surely; they do not gripe; you do not become a slave to their use. Their effect is lasting. There are countless substitutes; but nothing else is like them.

GASOLINE ENGINES
FOR DAIRY AND OTHER WORK.
Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. N. DIRIGO ENGINE WORKS, Portland, Me.

BUY "DIRECT FROM FACTORY" BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year.....$1.50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year..... 1.65
HOARD'S DAIRYMAN and National Stockman and Farmer, both one year..... 1.85
HOARD'S DAIRYMAN and Michigan Farmer, both one year..... 1.50
HOARD'S DAIRYMAN and Practical Farmer, both one year..... 1.65
HOARD'S DAIRYMAN and Farm Journal, both one year..... 1.10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year..... 2.00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year..... 1.50
HOARD'S DAIRYMAN and Orange Judd Farmer, both one year..... 1.75
HOARD'S DAIRYMAN and American Agriculturist, both one year..... 1.75
HOARD'S DAIRYMAN and Farm Poultry, both one year..... 1.75
HOARD'S DAIRYMAN and Guernsey Quarterly, both one year..... 2.25

Six Tools in One.

Remove one bolt from the "PLANET JR." No. 4 Combined Drill, and in a minute you can have a perfect Wheel-hoe, a Cultivator, a Rake, or a Plow, as you please. The drill drops in hills at any distance apart, or sows perfectly in drills, as desired. SIX TOOLS IN ONE—and each the best tool of its kind made.

This quick adaptation to the work is the great feature of all the "PLANET JR." tools—hand-drills, wheel-hoes, horse-hoes, and two-horse tools. The swiftness and cheapness of their work are the secret of farming success.

The new "PLANET JR." Catalogue for 1899 not only describes all these wonderful tools, but includes also SIXTEEN FULL PAGES of fine photographic views—interesting field scenes in France, New Zealand, etc., showing the different crops and methods of cultivation with the "PLANET JR." tools at work. Write us for a copy; it's sent free.

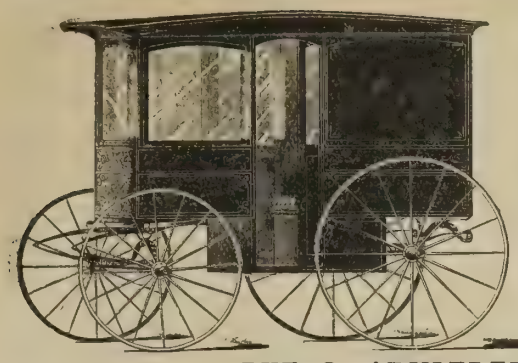
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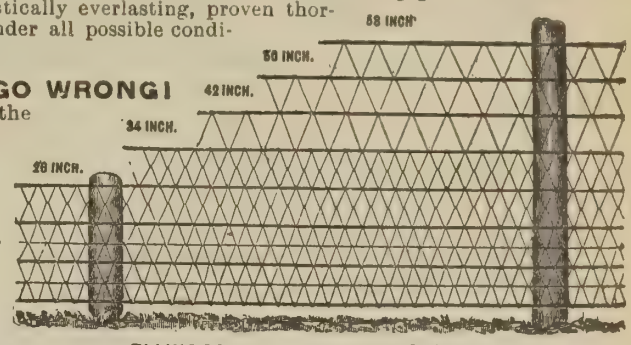
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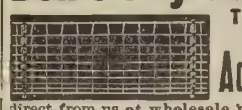
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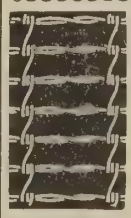


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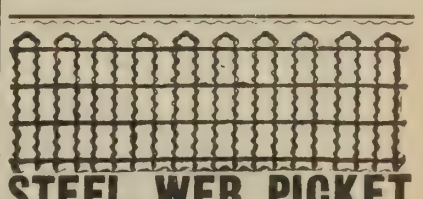
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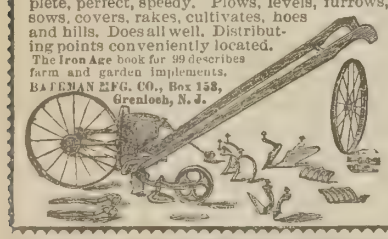
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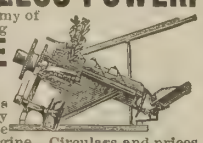
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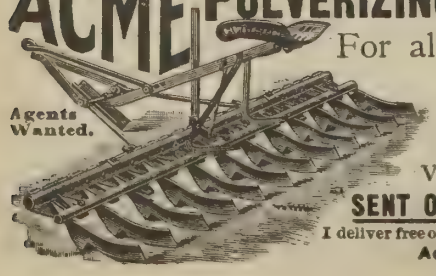
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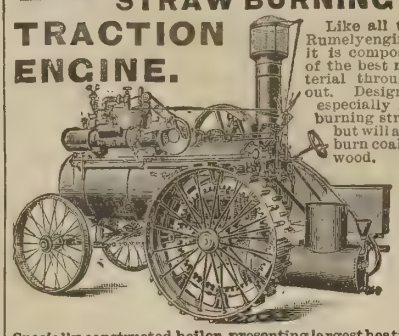
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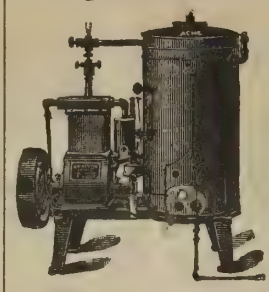
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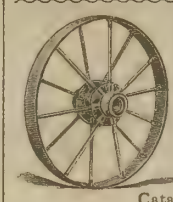


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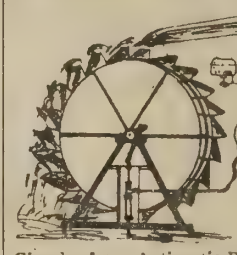
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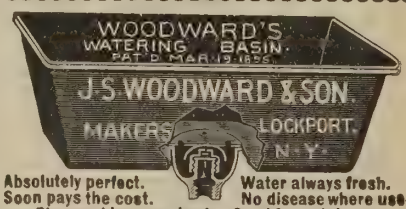
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Contractors and Builders of BUTTER & CHEESE FACTORIES

And Manufacturers of Machinery, apparatus and Supplies for Cheese and Butter Factories, Creameries and Daries.

303, 305, 307 and 309 Lock St., Correspondence Solicited. SYRACUSE, N. Y.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896. I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried. E. A. GREEN, Sec'y, Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

PITCH CHEMICAL COMPANY, Bay City, Michigan.



— THE —

Willard Knapp Cow Tie

Still the Dairyman's Ideal.

Mr. DAVID ROBERTS, Breeder of Jersey Cattle, Moorstown, N. J., Writes Us:

"I have given your ties a fair trial and am **very favorably impressed.** If the **cows** could talk, I believe they would **shout for joy** and say **delightful.** I write to know your best price on twenty more."

All orders reaching us through the HOARD'S DAIRYMAN until May 1st will be DISCOUNTED 10 PER CENT to introduce our Ties in a new field.

SEND FOR FREE CIRCULAR.

WILLARD H. KNAPP & CO., BOX R, **Cortland, N. Y.**

The Sharples Tubular.



The bowl alone revolves.
It spins on air.
It is a hollow bowl.
Its cream is superb.
Its skimmilk without fat.

It is made in three sizes—2,500 lbs. per hour, 4,000 lbs. per hour and 6,000 lbs. per hour.

Mr. Sears owned disc machines. First, he bought one *Tubular*. Second, he bought two *Tubulars*. Third, he bought three *Tubulars*. Fourth, he will buy a lot more.

BEDFORD, QUEBEC, August 12, 1898.

P. M. SHARPLES, West Chester, Pa.

Dear Sir:—The No. 25 Tubular Separator which I purchased from you is doing fine work. I have tested the skim milk repeatedly and never found it to contain over .05 of one per cent of fat, and often less. I find that it does not take anywhere near as much oil to run the Tubular as it does competing machines, and that the cream comes away smooth and fine. I am well pleased with the work the Tubular is doing.

Yours truly,
EUGENE SEARS.

More leading features in catalogue and circulars. Send for Catalogue No. 46.

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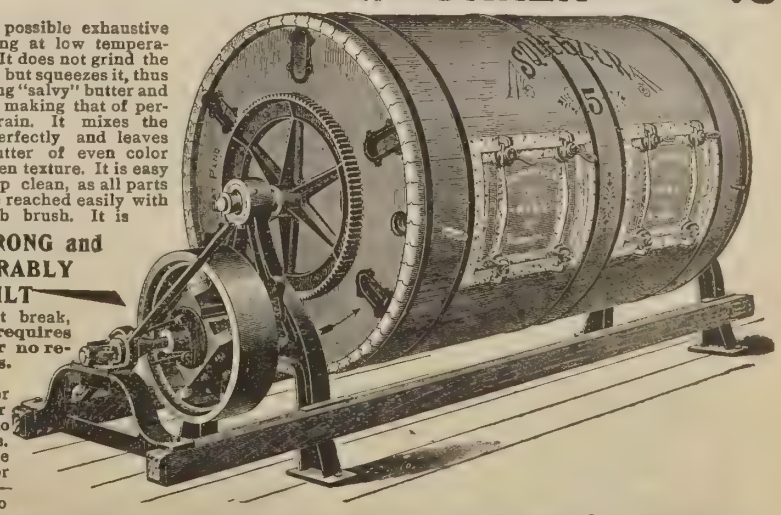
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—5 to 150 gallons.



SEND FOR CATALOGUE NO. 46 giving Prices and Testimonials.

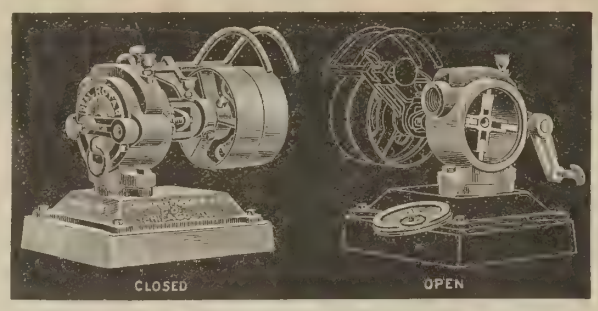
ELGIN MANUFACTURING CO., - - Elgin Ill.

We have made some IMPROVEMENTS in

— OUR —

IDEAL

Rotary Milk Pump



Which was thought to be already perfect by large numbers of our customers. We have simplified the construction without changing the general lines. It now has only one thumb screw to loosen to take off cylinder head. It has LARGE CAPACITY. Is VERY DURABLE. NO TROUBLE TO CLEAN. Made in THREE SIZES.



...A... SANITARY **Milk and Cream Ticket.**

A coupon milk and cream ticket is the only milk or cream ticket that complies with all sanitary requirements, and is also the only milk ticket by which a complete check can be kept on both customer and driver. We would like to send you a sample.

We have a large up-to-date and complete line of Milk Dealers' Supplies. Everything you need. Our Ideal Milk Jars and Caps are the best on the market. Write for sample.

Our latest Milk Dealers' Price Current contains new ideas and new apparatus. May we send you one?

Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— Kansas City, Mo. Waterloo, Iowa. Minneapolis, Minn. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.

FACTS, NOT FICTION,

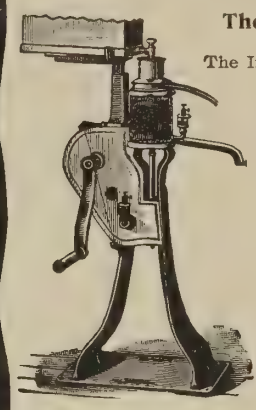
ABOUT

The Improved U. S. Triple Current Separators

They are the cleanest Skimmers on the market, as witness the reports from the State Experiment Stations and users the country over. They are also noted for their simplicity, ease of operation and durability.

A Few 1899 Experiment Station Reports.

Massachusetts,	average of 19 tests,	January 7th to 31st,	.033 of 1%
Ohio,	" 19 "	" 10th to 21st,	.034 of 1%
Vermont,	" 18 "	" 9th to Feb. 3d,	.038 of 1%
Wisconsin,	" 17 "	" 2d to 19th,	.03 of 1%
An average from 73 tests of skim milk of			.034 of 1%



The U. S. Excels in Every Particular

FORESTVILLE, CONN., Feb. 18th, 1899.

The Improved U. S. Separator is giving excellent satisfaction. In comparing it with other makes, have found it to far excel in every particular—in thoroughness of skimming, ease of operation, design and finish, simplicity of construction, therefore easy to clean, and durability. Any one contemplating buying a Separator should investigate the merits of the Improved U. S.

WILLIAM F. KENNEY,
Buttermaker for J. Hart Welch.

The U. S. the Best on the Market

DEER PARK, MO., Feb. 25th, 1899.

The butter I exhibited at the St. Louis Fair scored 98½ points and won the Sweepstakes over the creamery butter from several of the best Creameries in the United States. It was made from cream separated by the No. 5 Improved U. S. Separator I have been using for nearly three years, which has always been in running order and given entire satisfaction. If I had to buy another it would be an Improved U. S., for I think it the best on the market.

NATHAN KING.

No Loss of Cream in the Skim Milk

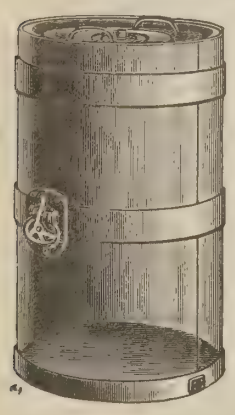
BROMPTON FALLS, P. Q., Jan. 31st, 1899.

The No. 1 and No. 0 Improved U. S. Separators purchased last spring are giving perfect satisfaction. They run smoothly and easily and take all the cream out of the milk. They are simple, durable, and not liable to get out of order.

A. MARTEL & CO.

Write for Illustrated Catalogues

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,

Sole Manufacturers. - - CATTARAUGUS, N. Y

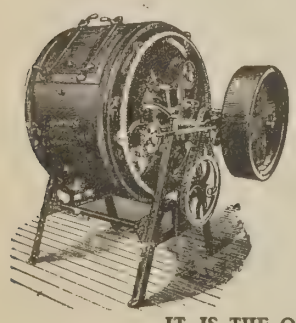
LIKE A SNOW FLAKE

Did you ever watch a snowflake dissolve in your hand? Then you know exactly the process by which "the salt that's all salt" permeates the butter so thoroughly, so easily. This soft, flaky nature of

DIAMOND CRYSTAL SALT

is one of its best recommendations—but not the most important. Its purity is its strongest point. You can rely on it absolutely, and all the time. It's the salt butter makers use who want to be sure of success. Book sent free.

DIAMOND CRYSTAL SALT CO., St. Clair, Michigan.



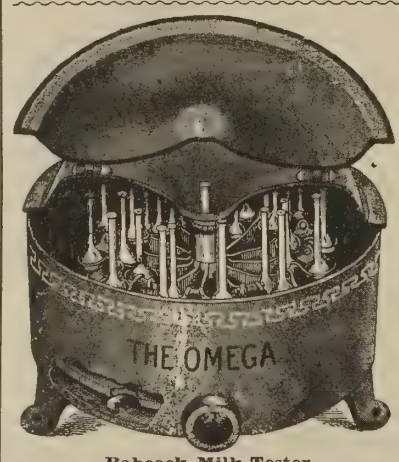
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.

PRINT BUTTER

SHOULD BE WRAPPED IN

GOOD PARCHMENT.

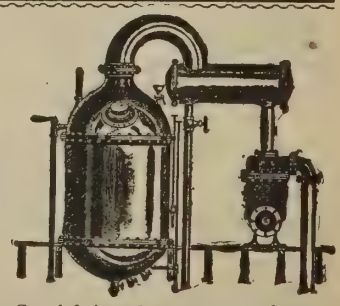
(Not) the Cheap Kind.)

YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

DEPARTMENT H,
Paterson Parchment Paper Co., Passaic, N. J.

Condensed... Milk Factories

Built Complete By



Special Attachmemets not shown.

C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the Dairyman is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

JUST WHAT HE WANTED.

A great many of our subscribers appreciate the splendid line of advertisements carried by this paper. Here is one which is a sample of many letters we received:

Ed. Hoard's Dairyman:—I received a sample copy of your paper. I think it the finest dairy paper I ever came across. I found an advertisement in it that I wanted, and when I was writing to them I stated that I found their ad. in Hoard's Dairyman. Enclosed find $1.00 for Hoard's Dairyman

Renfrew, Ont. Jas. Breen.

We consider the advertising pages of the Dairyman of great advantage to all enterprising dairymen.

An Irish gentleman had a fine cow which was, however, so bad a kicker as to be utterly worthless. He told his hired man to take her to the fair and sell her but not until he had told the buyer all about her.

The man returned, but with so large a price as to surprise the owner, and the following colloquy ensued:

"Are you sure, Pat, you told the buyer everything concerning the cow?'

"Bedad, I am, sir," said the herdsman. "He axed me if she was a good milker. 'Begorra, sir,' says I, 'it's you that will be tired milking her.'".

Separator Experience Wanted.

Ed. Hoard's Dairyman:—I intend putting in separator and want to know of my brother dairymen what kind they like best from actual experience.

I want a machine that can run with tread power and by hand also. Let me hear from the readers of Hoard's Dairyman.

Does skim milk from separator make as good butter milk as that made by churning whole milk? We sell all our butter milk and want good quality. W. A. Johnson.

Mississippi Co,, Ark.

We cannot undertake to open our columns to a general report by users as to their opinions in regard to rival separators. Write to the advertisers and they will furnish opinions and testimonials by the score.

There is a difference of opinion in the successful manufacture of butter milk from skim milk. One correspondent reports complete success, while others state that the flavor is not so good—the difference, probably, being in the methods, time and temperature used in ripening the skim milk.

Plank Frame Barns.

We copy from the *Ohio Farmer*, plans and specifications as follows:

By J. H. Fisher, Jefferson Co., Ohio.

Herewith I send you drawings of a barn which may be called a "sky scraper," and one I know will stand, and there is nothing whatever to interfere in any way, from the barn floor to within a few feet of the comb; that is, if you use a 20-foot studding you will have about 38 feet of space in which to store your crops. In these drawings, or in

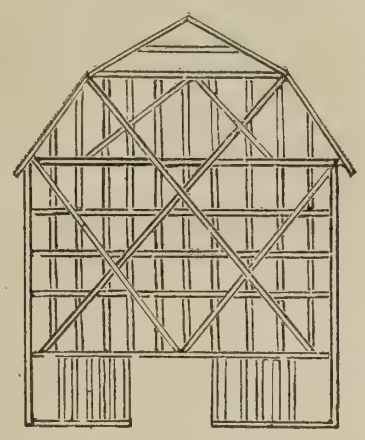


Fig. 1.

building a barn of this kind, I would advise using heavier lumber for the under story, say 2x8s. The rafters need not be any heavier than 2x6, for as both sets, upper and lower, are of the same length, and the lower set being placed at an angle of 45°, and well spiked to both plates, the weight on their middle is not nearly so great as when placed at a lesser angle. And the upper set placed at an 8 or 9 inch pitch, with a truss, as shown at A Fig. 2, and these tied together by a 1x6 or 1x8 is sufficiently strong to resist the pressure from above. The long brace running from the end of the short collar beam to the heel of the rafter, and there being notched over the plate, and spiked to both the rafter and purline plate, will prevent the barn from spreading, from the outward thrust of the roof, for the weight is

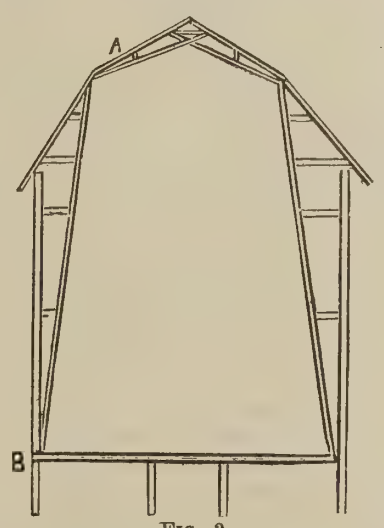


Fig. 2.

pulling from the opposite side of the roof, if there is any pulling at all. I firmly believe by this means of bracing, it is almost an impossibility for the barn roof to give down or the barn to pull apart. The rafters just over the purlines of the lower set, are tied so as to prevent it from a giving way; thus the roof itself is a support to the sides of the building. As the purline posts are set in such a position, the weight of the entire upper portion of the roof rests upon the ground sills. They are so constructed to rest upon a block of 2x8, set between two of the lower set of studding, and passing up between the cross sills, and having a shoulder resting upon the same above at B, Fig. 2.

Any carpenter can build a barn from these drawings, and after it is completed the owner cannot help but be pleased, for he has an abundance of room to store all his crop in one place. The truss of the upper tier of rafters need not be under each of them. If the space between the spans be equally divided into three spaces, it would be sufficient; and then on each set of rafters, not having a truss, I would place a collar beam, so the lower edge would come on a level with the cross of the truss braces, and then nail a 1x8 perpendicularly from the comb to the collar beam. This gives a good chance to fasten the hangers for a track or any kind of hay sling.

Now, I think any one building a barn of this kind will not make a mistake if it is room he wants above. And so far as the objections to girders and weak points, all these have been removed, and the barn will stand almost a West India hurricane. Of course the height can be reduced by using a shorter studding and still have more room under the same roof than in an ordinary barn.

A barn of this kind will cost more money, but when you have it completed you have plenty of rooom. The difference in the roof is about seven squares. But to anyone who can see his way clear I would advise to pay the difference.

To anyone who may wish to find out the strength of the material in this frame, I will give a rule to make the test. Multiply the square of the perpendicular of any stick in inches by the horizontal in inches, and this by 600, and divide the product by the length in feet, and from this subtract the weight of the timber and you will have the number of pounds any stick of timber will safely bear up when supported at each end and the weight applied directly in the center. Example: How much will a 2x8 joist, 16 feet long hold up when supported at each end and the weight applied to the center? 8x8x2 equals 128x600, equals 76,800; divide by 16, equals 4,800 pounds—88 pounds for its own weight, equals 4,712 pounds. So we find that one joist will hold up over 2¼ tons This rule applies to good oak timber, free from knots and imperfections.

By John L. Shawver, Ohio.

Assuming it is for general purposes, we give a plan (Fig. 3) that will be very convenient, affording a large grain bay, 16x38x 20 feet; a threshing floor 14x38, with decks above for feed bins or storage of light materials of any kind; stable room for four horses and seven cows, with a good wide feeding alley between, and the entrance doors protected by a wide canopy.

It is difficult to give itemized cost of such a barn, because prices of materials and labor vary so much in different localities, but we will give an itemized bill of materials.

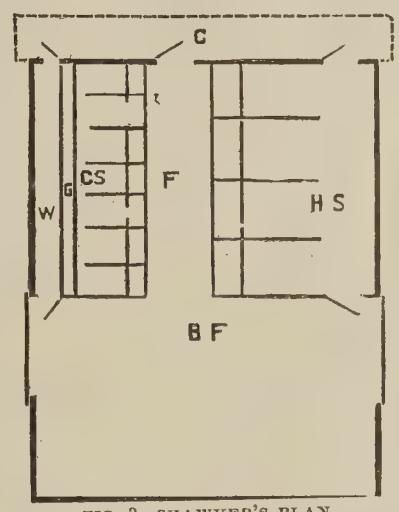


Fig. 3—Shawver's Plan.

C, canopy 6x38; W, walk; G, gutter; C S, cow stalls: F, feed alley, 8x24; H S, horse stalls; B F, barn floor; G, grain bay. Barn is 38x54 ft., 20 foot posts; gable roof ⅓ pitch.

Counting on good foundation walls all around, and pillars in interior for plank floors, we have need of three mud sills 8x10x30, and two mud sills 8x10x24. If cement floors are used the above are not necessary. For the two end bents,—4 sills, 2x8x38 (18 and 20 lengths); 4 beams, 2x8x38 (18 and 20 lengths); 20 posts 2x10x20, 4 purlins, 2x10 x30 (18x12 lengths); 16 nailers, 2x6x19; 4 braces, 2x4x22; 8 braces, 2x6x12; 10 fillers, 2x6x20; 6 stiffeners, 3x6x20; 2 ties, 2x8x20; 4 saddles, 2x10x3; 3 joist bearers 2x10x38 (19x19 lengths).

For the three interior bents,—6 sills, 2x8 x38 (19 and 20 lengths); 3 sills, 2x8x14; 6 joist bearers, 2x10x38 (19 and 19, or 14 and 12); 8 joist bearers, 2x8x10; 12 posts, 2x10x20; 4 posts, 2x10x30 (16 and 14); 8 posts, 2x10x22; 4 fillers, 2x10x12; 16 fillers, 2x10x8; 6 roof supports, 2x10x25; 6 sub supports, 2x6x18; 6 collar beams, 2x12x5; 6 ties, 2x10x9; 6 ties 2x6x7; 6 ties, 2x6x6; 2 ties, 2x6x5; 6 braces, 2x6x9; 12 stays, 2x4x4.

For side timbers,—2 sills, 2x8x16; 2 sills, 2x8x14; 4 sills, 2x8x12; 8 nailers, 2x6x16; 4 nailers, 2x8x14; 2 nailers, 2x6x14; 16 nailers, 2x6x12; 2 nailers, 2x8x12; 2 nailers, 2x8x18; 4 plates, 2x8x16; 4 plates, 2x8x14; 8 plates, 2x8x12; 8 cap plates, 2x10x14; 4 purlin plates, 2x10x16; 4 purlin plates 2x 10x16; 8 purlin plates, 2x10x12; 64 couplings, 2x10x6; 4 couplings, 2x10x4; 4 braces, 2x6x12; 12 braces, 2x4x6; 6 intermediates, 3x8x20; 12 braces, 2x6x22; 4 braces 2x6x12; 2 stays, 2x8x8

For the floor—32 joist, 2½x8x19; 12 joists, 2½x8x14; 1,140 sq. ft. of floor laid double; 336 sq. ft. of floor laid single.

Mows—6 joist, 2½x8x16; 40 joists, 2½x8 x12; 912 ft. of mow boards.

Decks—12 joists, 2x8x14 ft; 288 sq. ft. of floor.

Siding—4 300 ft. net, 20 ft. length.

Roof—56 rafters, 2x6x16 ft; 56 rafters, 2 x6x11; 3,000 sq. ft. sheathing; 30 squares roof felt; 30 squares slate, net; 220 lineal ft. cornice.

Stables.—40 studs, 2x4x8; eighteen studs, 1½x4x8; 700 sq. ft. in. boards; 300 ft. 1½ in. boards.

Canopy.—2 plates, 2x8x20; 2 plates, 2x 6x20; 20 rafters, 2x5x8; 320 ft. of sheathing. 3½ squares roof felt; 3½ squares slate.

Hardware.—2 truss rods, 1x39 with turn buckles; 36 bolts, ½x6½, with washers; 100 lbs. No. 60 spikes; 100 lbs. No. 40 spikes; 300 lbs. No. 20 spikes; 300 lbs. No. 9 nails; 300 lbs. No. 8 nails.

This frame can be made ready for raising by four carpenters in two and a half days, and should not cost over $600 or $700. One of my neighbors, Mr. B. F. Howard, built 40x60, last May. He sawed the timber upon the farm and used pine siding tongued and grooved, and painted up in nice shape at a cash outlay of less than $500.

By D. D Maxwell, Ross Co., O.

I send you a sketch of a middle bent (Fig 4), showing a self-supporting roof, and post braces, instead of purlines.

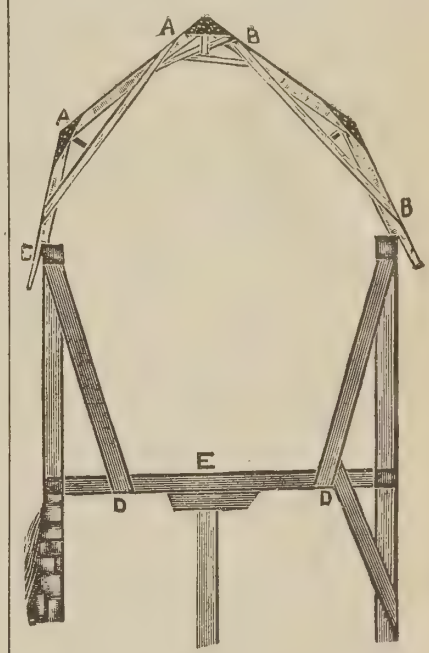


Fig. 4—Self-supporting roof.

At A, A, A, in barn rafters, you will see the joists are reinforced by inch boards nailed on each side; also at B, B, B, B, are boards nailed on each side, and at A a piece of 2x4 is cut in between the boards and under the rafters, as the rafters will be two inches thick and in width according to the size of barn; up to 20 feet, 2x4 is heavy enough. But if the barn is 40 or 50 feet wide, 2x6 should be used. I always put rafters 2 feet to centres. I prefer solid timber for posts, plates and sills. At C to D, I spike (or on large barns, bolt,) plank the same width as posts. At E, I put a post in bank barns, and stone in common barns. I do not send plan of girts, as for drop siding, they should run one way, and for barn boards, the other. For braces, nail fence boards on inside of studding or girts, from lower corner to opposite upper corner. It makes no difference whether you use studding and drop-siding or girts and barn boards, the board brace works the same, and there is no use of using both studding and girts.

It is somewhat amusing, to note to what extent partizanship will carry a man in the claims he makes for his favorite breed of cattle.

There lies before us a little pamphlet on the "Red Polled Cattle", by that noted advocate of *general-purpose* breeding, J. Mc Lain Smith, of Dayton, O. On page 26 he speaks of the peculiar richness in solids, not fat, of the milk of Red Polled cows and says: "It is in other words, preminently like the cow herself, a general-purpose product."

The milk of any breed of cattle is a general purpose product. It is composed of various food elements. It is designed by nature for one purpose alone, that of the support of offspring. The milk of the Red Polls is no more so than any other breed, and is just as much so.

Where is the argument?

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M. W. EGGABROAD, of Aurora, Ill., reports the sale of $661 worth of butter, alone, from 12 cows, for the year ending Februrary. This is a butter yield of $55 per cow, aside from the skim milk values. When we consider the low price of butter the past year, it is evident that Mr. Eggabroad has mixed brains and good care with his feed to his cows.

THAT was an eye opener that E. B. Douglass, of Vermont, worked out on page 142, last issue, concerning the difference in money earned in ten years by the cow that makes 275 pounds of butter a year, or 125 pounds, which he declares is the average for a great many Vermont farmers. It amounts to $350, counting butter at 20 cents a pound.

Is it any wonder so many farmers groan with a fearful pain in the pocket, while they persist in working with such a miserable tool as a hundred and twenty-five pound cow?

AN OLEOMARGARINE THREAT.

"Pshaw! Why, we have $40,000,000 behind us in Chicago, and dead loads of political influence besides. We'll make these butter men and pure food cranks, who are trying to fight us, look sick."

That was the boast made by a prominent dealer in oleomargarine in Baltimore, in the presence of a reporter of the *Washington Star*, recently.

The above boast can be taken as a clear indication of the usual boasts by these oleomargarine conspirators against the farmers and consumers of the land. Money and "dead loads of political influence."

That "influence" reaches Tom Platt, in New York, and paralysis is at once prevalent among all of his followers. It reaches into the Attorney General's office in Washington. It has long been an inmate of the United States Revenue Department.

It is seen in Ohio, in Illinois and in every state, where they do not have a live, fearless, independent Dairymen's Association to stand up and defy this influence.

But the farmers of the land are watching this underhanded game, that is being played by the high officials they have trusted.

We suggest that a plank, charging up this iniquity, would make very interesting reading in a national political platform about 1900. Lots of evidence of this knavery can be had, and we hope will be had.

TYPE AND BREED.

We present this week some more pertinent and valuable matter from Prof. C. L. Beach, in connection with the year's test of the Storrs College herd of cows. We most earnestly urge our readers to a thorough study of the principles and facts brought out here. They are the same conclusions that HOARD'S DAIRYMAN has been vigorously contending for, for years. Prof. Beach has confirmed, under scientific methods, and with a careful keeping of accounts, what all special-purpose dairymen have believed in for many years.

But it is worth a great deal to have this Connecticut lesson emblazoned on the gate posts of our memory, so that as we go out and in with our daily work, we may see it constantly.

We must become saturated with our conviction, if it ever amounts to anything as a guide in our conduct.

Take this statement that Mr. Beach makes, for instance:

"*The type however is still the determining factor in the economical production of milk as well as in the production of butter.*"

What type does he allude to? Not an Ayrshire breed type, or a Jersey type or a Holstein or Guernsey type, but a distinctive *dairy* type. There is where the essence of all these breeds lie. That is the distinctive object of their breeding. That is to be taken as the outer measurement of their inner power, their economy as agents and forces on the dairy farm. It is what the *Breeder's Gazette* contemptuously calls "The Wisconsin idea" of a cow.

Well, she seems to demonstrate herself as the best money maker, whether in Minnesota or Connecticut or elsewhere.

Now the lesson is as important to the breeders of dairy cattle of all breeds, as it is with the ordinary dairyman when he takes it with him to measure the cow he wishes to buy. This great idea of the *dairy type*, is where the great mass of breeders and dairymen are so sadly lacking. They have notions but not *judgment*. They have breed fancies, and ideas of breed characteristics, but not clear, clean cut understanding of the physiological relation between Temperament and its resulting Form, and the relation that both Temperament and Form have to Function. When the breeders of all our dairy breeds of cattle have a clearer idea of these basic principles, then will we see them producing a larger number of dairy cows that fulfill the dairy purpose. It is this perfection of type or dairy form that all should breed for, on the theory that we will thus reinforce the specific purpose or function that we wish to see embodied in our cattle. And whether it be in the brain of the breeder or the man who is buying cows for dairy purposes, there should be but little place for any of these dual-purpose ideas, if either wish to secure a cow that shall bring the largest profit.

THE EFFECT OF THE FIRST IMPREGNATION ON FUTURE PROGENY.

Not long since, we heard a very successful breeder of Holsteins declare that he deemed the first impregnation of his heifers the most important of any, and that he would subject himself to greater expense, to secure for them a valuable and potent sire than at any other time in their subsequent history. His claim was that he had noticed that if the first calf was from a very superior sire, the cow would show the influence of that sire in all subsequent progeny.

This theory has been stoutly contended for, and as stoutly opposed, for years. Yet, nearly all the leading naturalists of the world have believed it to be true. In HOARD'S DAIRYMAN, of May 2, 1890, Mr. Thos. M. Harvey, the noted Guernsey breeder, of Pennsylvania, gave a very interesting and extended article on the above named subject.

In this article, he cited various eminent authorities, in proof of the soundness of the theory. Of these he quoted Dr. Manley Miles as saying:

"The influence of the male in the process of procreation is not limited to his immediate offspring, but extends also through the female that he has impregnated, to her offspring by another male. Paradoxical as this statement may appear, there are many well authenticated cases on record, that cannot be satisfactorily explained on any other hypothesis".

The close observing Darwin remarks:

"Many well authenticated facts have been published, and others have been communicated to me, plainly showing the influence of the first male on the progeny subsequently born by the mother to other males".

Prof. Agassiz and several eminent physicians contribute their experience in confirmation of the theory.

Mr. Harvey gives a very interesting instance relating to the first importation of Guernseys, into the United States, by Nicholas Biddle. He says:

"When I first visited Judge Biddle's herd, at Andalusia, some sixteen years ago, I saw there a fine Guernsey cow, without horns, a muley. This excited my curiosity, as I had not heard of any muleys among Channel Island cattle before. Upon inquiring, I learned the history of her about thus: The Biddle's first importation consisted of three cows only, no bull; in this extremity, they were compelled to let one of them (Jennie Dean) be served by a neighbor's scrub bull. Not anything strange that the calf came to be a muley.

But to illustrate our subject; the same cow in after years, when served by a thoroughbred Guernsey bull, having horns, produced some calves without horns, clearly showing how she had been affected by the muley scrub. See our Guernsey Herd Book, No 8. Muley was the dam of No. 10 cow June, the muley I saw. In a letter from Judge Biddle, received last week, he says my statements that I had referred to him were about correct, and they are detailed above. He also informs us that Prof. Gibson on examining this case, said he saw no muleys on the Island of Guernsey, and our neighbor, S. C. Kent, reports the same."

The obvious lesson from the above facts is, that every farmer, and particularly the dairy farmer, should pay particular attention to the *quality* of the bulls they place at the heads of their herds. A most foolish notion prevails with many that a cheap animal is as good as any other. Do they stop to think that the quality of all our dairy breeds can only be raised by breeding always from the best? We have seen lots of farmers scale down the quality of their herds in a few years by their indifference to the kind of bull they used. Then again, we have seen a wise one, here and there, scale the herd up by the opposite course.

There are any quantity of male calves that should never be permitted to breed. A certain Jersey breeder recently told us that he turned all his refuse males over to the farmers, who would not pay more than $25 to $50 for a bull. We asked him what would be the result of that policy on their fortunes. His reply was significant: "Well, I am not seeking their fortune. They had rather buy a failure for $25 than a success at $100, and I am willing to let them have their own way." When we consider the long time influence of the male on the heifer, is he a wise man who buys a poor cheap bull in preference to a good one, even though the price for the latter is greater?

COW TREATMENT.

Mr. Geo. A. Martin of New York, in the *Orange Judd Farmer* gives the following description of the way certain men under his observation used their cows.

It seems passing strange that there exists such a host of men like the first two described, and so few like the last. And all this too, when every man with a thimble full of brains, if he will use them, knows that the best profit from the cow follows the better treatmemt.

But here is what Mr. Martin says:

I have in mind two cows kept near me. The owner of one of them has repeatedly been seen to stop with his team, at evening, near the pasture gate, lead out the cow, tie her by a rope around her horns to the rear end of the wagon and start off at so brisk a pace, as to keep the heavy uddered cow on a trot all the way home. The other cow has good usage in summer, but generally comes through the winter "spring poor" and plastered from hip joints to heels with stable filth. Fully one half of the usefulness of any cow is destroyed by such treatment. On the other hand is a farm laborer whose yearly compensation includes the "keep" of a cow. He has a grade Jersey, whose place in summer is in green pastures. In cold weather she has a snug, well-bedded stall, with plenty of food and water and the daily application of curry comb and brush. She not only supplies the family with milk and butter, but in addition there is, for half the year, a surplus of butter which brings an extra price.

An Iowa Patron's Record.

ED. HOARD'S DAIRYMAN:—After reading article on page 84 from Maquoketa, record of amount of money received by a Mr. Roher, I thought I would give you the figures of one of our patrons. His five cows and one heifer all came in in September, and we paid him for October, 6,136 pounds at 75 cents, $46 02; November, 1,996 pounds at 75 cents, $14.97, and 3,771 pounds at 80 cents, $30.16; December, 5,676 pounds at 85 cents, $48 25; January, 5,263 pounds at 90 cents, $47.36; an average of $31.12 each, for four months, for milk alone. In February, they were doing as well, but owing to his health, he made an auction, sold his cows and rented farm. The cows, by the way, brought him over $40 per head. So you see all Iowa cows are not classed in the $30 list for 12 months work. We have many patrons whose cows pay them over $45 per year for milk alone. H. D. WHITE.

Charles City, Ia.

Sow Alfalfa.

[Kansas Experiment Station Press Bulletin.]

Every Kansas farmer who has fed alfalfa recognizes it as a good feed, but a great many have not as yet begun to realize its full value, and do not know what they are losing by not having it as one of their main feeds. The results from giving alfalfa to dairy cows and fattening steers, as a part of the feed, compare very favorably with those from such expensive feeds as oil meal, cotton seed meal, and bran, and in fact takes the place of those feeds in the ration. The Kansas Experiment Station is demonstrating also that alfalfa is an invaluable hog feed. A pound and a half of alfalfa a day per hog used with kafir corn produces gains very nearly equal to a feed of one-fifth soy bean meal and four-fifths kafir corn. And now is the time to begin preparing to sow alfalfa. A deep, loose seed bed is not what you want; but it needs to be moist, and for this we may have the required rainfall and we may not. However, the ground is wet now, and if you can keep that moisture there until the plant gets the good of it, there is enough, even without another rain before the first of June, to give alfalfa the best kind of a start. The ground to be put in alfalfa does not need to be plowed deep, but the surface three or four inches must be kept in the best of tilth. Disc or cultivate as soon as possible, and then harrow every week or so; or at least after every rain, to keep up a good earth mulch until it is time to seed. If at that time the surface three or four inches of soil is loose and moist, and there is a solid bed of moist soil underneath this loose surface, then it doesn't matter much, say many extensive alfalfa growers, how you proceed to get the seed under the ground. We have had the best results on the Agricultural College farm by using a press drill, and mixing the seed with an equal weight of wheat bran. But the principal thing is to sow alfalfa, and sow it until you get a field.

J. H. HANEY.

Kansas Agricultural College.

WHY SHOULD DAIRYMEN SUBSCRIBE FOR THIS PAPER?

1. Because a live dairyman needs such a paper.
2.—No other paper in the world bestows as much labor and expense to set the best dairy ideas, methods and facts before its readers.
3.—A dairy farmer with a herd of cows who has not enough interest in his own welfare to spend a dollar a year for his instruction is standing in his own light.
4.—Because the DAIRYMAN has been the foremost defender of its age against the fraud oleomargarine. Every dairyman should have interest enough in this feature alone to keep the paper on his table constantly.
5.—Because fifty-two numbers of this paper contain over 4 000 separate subjects on dairying. At the close of the volume an index telling the page of every subject is printed and furnished every subscriber. This makes it the finest and largest book on dairy matters for the money, ever published.
6.—Because there is not a single number but what contains something of great value to every reader.
7.—Every man who has to do with cows should have such a friend and adviser at his elbow constantly.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc, and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

DISTANCE OF BOILER AND ENGINE FROM THE BARN.

How far or close to a barn and stable would it be advisable to set a boiler and engine for the purpose of running a milk separator and churn. Our buildings are now twenty-three feet apart. Fire is all we are afraid of. E. J. R.

Bothell, Wash.

It will depend considerably upon whether your boiler is provided with spark arresters, etc., and also whether the exhaust from your engine discharges into your boiler stack or not. Unless provisions are made for arresting sparks, a boiler would be dangerous anywhere within working distance of a barn or stable.

We should consider that a gasoline engine would be much safer for work in or near a barn. The waste heat from the engine can be made to heat water for the dairy.

CHURNING RICH CREAM.

Can cream of richness of 35 to 40% be churned and is it good practice, without addition of water? We will presume that the temperature is low enough and that the churn is not filled more than one-third with cream.

San Francisco, Cal. H. C.

If you can secure the proper churning temperature, it is an advantage to churn rich cream. With 35% of fat the temperature of the buttermilk should be 50° to 52° when the churning is ended. Under above conditions you will not only have a better quality of butter, but there will be less buttermilk and a smaller per cent of fat left in it. If, however, you intend to handle such rich cream, be sure that your churning temperatures are correct or you will lose more fat in your buttermilk than you can afford.

SILO QUESTIONS.

I am going to build a silo this spring and would like to know which would be the best place to build it, and the cheapest. I can build it in the barn or I can put it on the outside. Which is the best, and how large a one do I want to hold enough silage to winter twenty-five head of cows, all well bred up in the Jersey line. Would you feed it twice a day or only once? A. B. W.

Coryland, Pa.

The best place for a silo will depend much on the local conditions. As a general thing, the silo is put just outside of the barn so that it can be filled from the outside and have the feeding doors open directly into the barn. The cost will depend on the style of silo and kind of wood used and will be from $1.00 to $1.25 for every ton of silage it contains. A hundred ton silo will cost from $100 to $125, depending on plan and method of construction. For twenty-five cows, you will require ninety tons of ensilage, which will require a silo 16x25 feet deep, if the silo is round. Feed your Jerseys twenty to twenty-five pounds of ensilage per day, in two feeds, night and morning.

ACID FOR BABCOCK TEST.

In testing milk with a 4 bottle Ideal Babcock tester, is it best to use chemically pure acid or the commercial acid, and of what strength? An answer to the above questions in your paper, will greatly oblige a reader.

Salem, Ind. O. B.

Use commercial sulphuric acid of the correct strength (specific gravity 1.82 to 1.83). The important point is to get the acid of the correct strength, and see that it is kept in closed bottles, so that it will not deteriorate.

WILL A COW LAST AS LONG?

An Albany county (N. Y.) reader asks whether a cow fed a balanced ration to her full capacity will last as long as she would if fed less.

This is apparently a fair question, but none the less it raises a false issue. We do not keep cows for length of years, but for the profit we can get out of them. If by feeding a cow a balanced ration and to her full capacity, she will yield us more profit in 10 years than she otherwise would in 12 or 15 years, then it is better to do so. The fact is, however, that there does not appear to be any shortening of the period of a cow's usefulness by feeding a balanced ration, and crowding her to a reasonable maximum of production.

Some cows have been permanently injured and their lives shortened by unduly forcing them to the extremest limit of milk giving, but it still remains that the great majority of cows are under fed.

FOR AN OHIO MILKMAN.

It is now about six months since we commenced taking HOARD'S DAIRYMAN. It has been worth several times the subscription price and the only regret is that we did not commence taking it several years ago, when we first started in the dairy business. It would have helped us out greatly on the feeding question, for we consider that one of the main parts to profitable dairying.

We now feed and have fed for several months, 30 pounds silage, 3 pounds bran, 1 of linseed meal and all the hay they will eat. Instead of bran, we sometimes feed brewers malt. Do you consider the malt a good feed? Does it produce good and wholesome milk and what change would you recommend in our feeding system?

We sell milk in the city; have a good trade and endeavor to sell the very best, and in the very best condition possible, and seldom have any complaints, excepting during this time of the year, we have had trouble for three successive years, of milk not being as good a quality as at other times. We are unable to find the cause. We feed exactly the same and give them the same care. Now we will be very gratetul if you can help us out of this trouble.

Fremont, Ohio. J. G. S. & SON.

The 3 pounds bran and 1 pound oil meal must be the amount given at each feed; and the daily allowance at least double these amounts. Brewers malt, if fresh and sweet, is an excellent feed for dairy cows, as a part of their ration, and produces good and wholesome milk—Boards of Health or other officials in cities to the contrary notwithstanding. There is a difference between brewers grains and malt sprouts, although neither are objectionable, if given in limited quantities.

The alleged objections to the milk are probably not well founded, if they go only to the question of richness, or amount of cream that will rise. The milk is as rich in fat at this time of the year as any other, but it has less color, and color is the test usually applied to determine quality. But color is a very misleading test for this purpose; in fact no test at all.

On the other hand, if the objections are based upon the keeping quality of the milk or the presence of unpleasant odors or flavor, the trouble may come from lack of proper ventilation in the stable or care of the milk, but not from the feed. More generous feeding would probably increase the quantity of milk, and we would advise adding 3 to 4 pounds of the malt per day to the allowance mentioned above, or, if the so called malt is in fact the wet grains, add 15 to 20 pounds. It pays best to feed good cows liberally.

TERMS EXPLAINED. A VERMONT RATION.

What do you mean by corn stover, corn chop, stover, etc? This may be plain to some people, but the farmers here are of different opinions about it?

I wish, also, to find the best ration formed from my crops on hand. Ensilage in one silo, corn and stalks all cut together. No. 2 silo, stalks from husked corn, corn and cob meal, rye meal, ground oats and bran at $18 per ton. Can you formulate a ration from this. Of course we have plenty of hay. If you will answer this through your paper, you will greatly oblige ESEK BUSSEY.

Vt.

Corn stover, sometimes called "stover" for short, consists of the dried stalks of corn from which the ears have been removed; corn fodder consists of the entire plant, either green or cured. Corn chop is more or less of a local term used to signify ground corn, or unbolted corn meal, and usually not very finely ground.

We often regret the necessity for using technical terms, but it seems indispensible to do so. Most of them, if not all, will be found fully defined and explained in any of the modern dictionaries, and no house can be considered well furnished, that is not supplied with an up-to-date dictionary, placed convenient for reference, and the habit of consulting it should be diligently cultivated.

It is simply impossible to give a satisfactory ration formula from the feeds named, or one that it will be profitable to feed. We should certainly exchange the corn and rye, and possibly the oats for gluten feed, or cotton seed meal, or both, and if the cows are fresh, or nearly so, would feed for an average about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	26	2.80	.14
10 lbs corn stover	5.95	.17	3.24	.07
6 lbs. hay	5.15	.29	2.38	.10
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. gluten feed	1.84	.41	.97	.06
2 lbs cotton seed meal	1.84	.74	.34	.18
Totals	23.58	2.37	11.27	.67

Our correspondent, as we judge from his penmanship, is a man well advanced in years, and, probably, not without very considerable experience in former years, in feeding cows. He has broken away from the old traditions so far as to build a silo, and we trust will not hesitate to take the further step, at least, in an experimental way, of supplying some feed for his cows better adapted for enabling them to make milk, than corn and rye.

If the gluten feed specified in our formula cannot be conveniently obtained, try some kiln dried brewers' grains or buckwheat middlings.

AYRSHIRES.

Will you please state:

1. The special characteristics of the Ayrshire breed of cattle, as compared with other dairy breeds?
2. Where most numerous in the United States?
3. Why not more generally introduced in the west? W. W. S.

Waverley, Iowa.

The best answer to the first inquiry above is to refer the inquirer to the article by Prof. Beach on page 152. We have not the data at hand for saying where they are most numerous, but would suggest that information in this line could probably be obtained from Mr. C. M. Winslow, Brandon, Vermont, Secretary, Ayrshire Breeders' Association.

Ayrshires were not uncommon in the west a few years ago, but breeders insisted on developing towards show points, rather than keeping to the true dairy type, with the result that the western representatives of this breed became unprofitable at the pail. A decided reaction has taken place in recent years, and we look to see Ayrshires become once more popular as dairy cattle in Wisconsin and adjoining states.

KAFIR CORN, PEAS, ALFALFA FOR NEW YORK.

1. Will kafir corn thrive and mature in this section, to be used for ensilage?
2. If not, would you advise to use it as a soiling crop?
3. Answer same question in regard to cow peas?
4. Also on alfalfa for ensilage, hay, or soiling crop. E. W.

Oswego Co., N. Y.

We do not know of any experiment on siloing kafir corn, but know no reason why it could not be used for silage, with as much success as sorghum. The great question would be as to its adaptibility to your climate and soil. It is a semi-tropical plant, and as such, requires an abundance of heat to mature.

Canada peas and oats should do well with you for a soiling crop. You are probably too far north for the cow pea, which requires a rather, warm, dry climate.

Alfalfa is reported to do well in New York, but requires special preparation of the land, and good seeding to get a good stand.

A NEW YORK RATION.

Will you kindly give me a balanced ration for cows from 900 to 1,200 pounds. Clover and timothy hay, good, at $15 per ton; barley sprouts, at $14 per ton; gluten, $17 to $18 per ton. I think cotton seed is about $26 per ton, but have not used any in a year

or so. I want this ration for quantity of milk. I have the hay but have to buy the rest. Would say that I have a plenty of ensilage. I am feeding now to twenty-two cows, about 80 pounds of barley sprouts and about 80 pounds of gluten per day. I wet the sprouts, or soak them about twelve hours before feeding. I feed ensilage twice a day, night and morning, and hay at noon, all they will eat. I put the sprouts and gluten on the ensilage, when I feed, and shake it up.

Carsville, N. Y. G. H. B.

With plenty of good clover and timothy hay on hand, we should be disposed to increase the amount and feed less silage, provided the latter is in condition to be kept until next July and August, to tide over the customary drouth and short pasturage. If it cannot be kept for this purpose, it will be advisable, of course, to apportion the daily allowance so that it will simply hold out until grass comes. We are of the opinion, also, that it would pay to add, at least, one pound of cotton seed meal per day for each cow. We estimate that the present ration furnishes less than two pounds of digestible protein per day, and this is believed to be less than cows in good flow of milk can profitably use.

PHOSPHATE OF LIME FOR ABORTION.

Seeing the suggestion of F. C. Baker, in regard to bone meal for abortion in your paper of Feb. 24, 1899, I concluded to act on the suggestion, as nearly all my cows are troubled with the disease. Would like to know in what quantity it is to be given.

Weber Co., Utah. P. A.

Use a heaping teaspoonful three to five times a week. Mix it with salt and sprinkle on the feed.

FEEDING SILAGE THE WHOLE YEAR ROUND.

Would like to feed ensilage the whole year round. Some people tell me that it will soon wear my cows out. I want to keep them in the stable all the year; let them out in the morning, and give them about two hours exercise in the lot.

They have water before them all the time. A light and well ventilated stable. I want to feed about 30 pounds of ensilage, 10 pounds of clover hay, 3 pounds of wheat bran, 3 pounds of gluten, 2 pounds of cotton seed, to a 1,000 pound cow.

Do you think that a cow that is fed ensilage the whole year through, will yield as long and as much butter as one that is fed enough corn stover and clover hay and grain to make a balanced ration in winter time and left out on pasture in summer time?

We breed our heifers from our best cows, and then we keep all those heifers that yield a profitable amount of butter, and those that do not, we fatten and sell. So we want our good cows to last as long as profitable.

Montgomery Co., Pa. F. M. L.

So long as you keep your cows in a comfortable, well lighted stable, and feed your ensilage as part of a balanced ration, there is no danger of your cows wearing out in consequence of the silage. It is much more wearing to a cow to pick up a living from a dry pasture where she is tormented by flies and heat; or getting nourishment from poorly cured corn fodder in a cold barn, than can possibly come from good shelter and a good quality of silage; and the yield of milk and butter will be less. Yet the men who are down on the silo, do not hesitate to use the other two methods of feeding.

RENTING LAND ON SHARES.

Will you or some of your readers give us a plan in which both lessor and lessee are fairly dealt with, where land and part of the cows belong to lessor, and all the labor is to be done by lessee. Milk or cream hauled to creamery. J. I. A.

Corvallis, Ore.

Much will depend upon what method is pursued in dividing the crops—that is, whether the stock is to be fed from the undivided hay and grain, or whether the tenant is to furnish all the feed.

When the whole energy of the farm is devoted to dairying, and only the surplus hay and grain (if there should be any) is divided or sold, it is usual, we believe, to divide the proceeds equally, share and share alike between the owner and the tenant, each being also at one-half of all necessary expense for extra feed.

CREAM CURDLING WHEN WARMED.

What will make cream curdle in hot drinks long before it has any signs of being sour? The cream seems to do this more when the weather is a little warm than at other times. Sometimes the curded cream will settle to the bottom of the cup. O. W. L.

Los Angeles, Cal.

Old cream will frequently curdle on heating before it shows any signs of separation of the casein. In this condition it is just on the edge and will curdle, if left standing, in a few hours.

Aeration of the milk and keeping the cream as cold as possible will remedy the trouble.

MODIFICATION OF A NORTH DAKOTA RATION.

Prairie hay $3 per ton, bran $8, corn 37 cents per bushel, oil meal $30 per ton. I am feeding at present 4 pounds corn meal, 10 pounds bran, 2 pounds oil meal, and what prairie hay they will eat. If you do not consider this profitable, please form one for me. Bran and shorts, equally mixed, may also be added to the list at $10 per ton.

Havana, N. Dak. H. E. A.

Profit is determined by the return each cow makes for the feed she eats. We estimate that cows fed as above will eat about 12 pounds of hay, and such a ration would tabulate as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. prairie hay	10 50	.42	5.02	.17
10 lbs. bran	8.81	1 26	3.86	.30
4 lbs. corn	3.56	.32	2.67	.17
2 lbs. oil meal	1.82	.59	.65	.14
Totals	24.69	2 59	12.20	.78

The price of oil meal is much in excess of its feeding value, and unless needed for its hygienic effect should be materially decreased, if not dispensed with altogether. If one pound of oil meal were taken away there would remain sufficient protein and fat, for average feeding. The corn is also relatively expensive, costing over $13 per ton, and might be exchanged with profit for middlings. The present ration costs about 11½ cents; 20 lbs. of hay, 5 lbs. each of bran and middlings, and 1 lb. oil meal, only 7 cents, and we incline to the opinion would be found more profitable. Some changes in this direction, at least by way of experiment, would seem to be advisable.

AN ARKANSAS RATION.

Please form me a balanced ration of the following foods for common stock milk cows, have only three, and these for family use: Cotton seed meal $18 per ton, wheat bran $17 per ton, corn meal $19 per ton, ship stuff $17 per ton, clover hay $14 per ton, timothy hay $14 per ton, Bermuda and swamp grass hay $10 per ton, cotton seed hulls $2 per ton.

Helena, Ark. H. G.

Allow 6 lbs. bran and 2 lbs. cotton seed meal to each cow per day, with 10 lbs. clover hay, and as much other roughage as she will eat, only do not let too much of it be the cotton seed hulls.

MILKING A HEIFER BEFORE CALVING.

I have on my Dakota farm four nice grade two-year-old, this spring, Guernsey heifers. They are all due to calve the last of this month. My foreman wrote me last week that their udders were very large, and he was milking them once a day. I wrote him that I thought he had made a mistake, but that he would have to milk them until calving, but not to do so again, unless HOARD'S DAIRYMAN recommended it. I got a letter from him yesterday saying he was now milking them twice a day. Now, I have never milked a cow before calving, and it has always been my belief that it was harmful to the cow, especially a heifer with her first calf. What do you say, am I right, or does my foreman know more about than I do?

Many years ago Gov. Hoard said so much in favor of the Guernsey stock, that I bought a full blood bull. I have not been disappointed in their milking qualities. But if the heifers have to be milked before they have calves, and it is not possible to dry them up afterwards, what is a fellow to do? My foreman writes that he can't dry up the old cows.

Painville, Ohio. A. E. F.

Having once commenced to milk there is no other safe way except to continue milking. It sometimes happens, that heifers will make up very considerable udders for a time and if left to themselves the swelling will go down, as there is, in fact, no milk secreted. Just a little manipulation, however, will start the secretion, and after that, as said above, there must be regular milking. The same conditions are observed in cases of abortion. Very frequently, if the udder is not touched, no milk will be formed and the udder soon resumes its normal condition, but, in any case, when milk is elaborated it should be drawn. And we may add, contrary to a very wide spread belief, this milk is perfect in every respect, and good for any purpose.

AN ONTARIO RATION.

Please form me a balanced ration of as many of the following feeds as you think will give the best returns for money expended, for cows of 1,000 pounds. Mixed clover and timothy $6 per ton, oat straw $3 per ton, good corn silage, bran $14 per ton, oats 30 cents per bushel, corn chop $18 per ton, cotton seed meal $23 per ton, gluten feed $18 per ton, germ meal $14 per ton, oat dust $8 per ton. M. R. & SON.

Caledonia, Ont.

At the prices given, we should select as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. clover hay	8 47	.68	3.58	.17
6 lbs. oat dust	5.61	.53	2.30	.30
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	22.52	2.28	9.72	.83

Add to the above whatever of good oat straw any cow will eat.

Germ meal contains only 9% of digestible protein, which is less than half as much as gluten feed carries, but is somewhat richer in fat. If the cotton seed meal is not fresh, clean and sweet, do not use it, but substitute 3 pounds of the gluten feed.

Hominy chop is a by product of the mills where hominy is made, and contains 7.5% digestible protein.

A NORTH CAROLINA FEEDING PROBLEM.

Will you please formulate me a ration, for my Jersey cows, of peavine hay, shredded corn fodder, (shuck and stalk,) wheat bran, at $17.50 per ton; corn meal, $22.00 per ton and cotton seed meal, $18 50 per ton. The grain ration I have to buy; the hay and stover I have on the farm.

I make butter that nets me 21 cents clear of express charges. J. F. C.

Davidson, N. C.

If to 10 pounds of the peavine hay and 10 pounds shredded corn stover, there be added 4 pounds of wheat bran and 2 pounds of cotton seed meal, there will be sufficient digestible protein for a day's feed. The carbohydrates and fat would be rather low for our northern climate, or the higher altitudes in North Carolina. This deficiency would be best supplied by adding some ground corn, the amount to be determined by circumstances.

FEEDING FOR A BIG RECORD.

I have a cow that has given seventy-two pounds of milk in one day. This season I want to push her for a bigger record. What would you advise me to feed? She will be fresh April 1st. I have bran, oil meal, corn

"Want of Watchfulness Makes the Thief."

Many cases of poor health come from want of watchfulness. But if you keep your blood pure no thief can steal your health.

The one effective, natural blood purifier is Hood's Sarsaparilla. *It never disappoints.*

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Catarrh—"Disagreeable catarrhal droppings in my throat made me nervous and dizzy. My liver was torpid. Hood's Sarsaparilla corrected both troubles. My health is very good." MRS. ELVIRA J. SMILEY, 171 Main St., Auburn, Maine.

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Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for GLUTEN FEED. This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address CHAPIN & CO., Milwaukee.

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Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes. Send for catalogues.

R. W. FENNER, South Stockton, N. Y



Year After Year Creamery and Cheese Factory owners are duplicating their orders for CHAMPION Milk Coolers, supplying every new patron they take on—won't take milk that is not aerated and cooled they say—can't afford to.

Are you using them at your factory? Why not? Ask for our free book "Milk."

CHAMPION MILK COOLER CO., 67 Main Street, CORTLAND, N. Y.

and oats ground, clover hay and corn fodder. I don't care what it costs, but want to get as big a flow of milk as possible.

Bedford, Iowa. H. L. E.

We are not much in favor of this extreme "pushing" for the largest possible record. Many a first-class cow has been ruined by such treatment. We give below what we consider a formula for a good ration, that will enable a dairy cow to do excellent work, continously for months, and leave her, in condition to do equally well next year:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay....	12.70	1 02	5.36	.26
5 lbs. bran.....	4.40	.63	1.93	.15
2 lbs. corn.....	1.78	.16	1.33	.09
2 lbs oats.....	1.78	.18	.94	.08
1 lb. oil meal.....	.91	.29	.23	.07
10 lbs. stover.....	5.95	.17	3.24	.07
Totals.....	27.52	2 45	13.13	.72

With such a ration as this for a basis, (and this much should not be fed at the beginning) one may increase gradually as the cow will eat, and take care of what she eats, until the grain allowance is doubled, meantime decreasing the roughage, especially the corn stover, to make room for the grain. We would commence the increase with the oil meal and oats, then follow by increasing the corn. This will bring the grain up to 15 pounds. What to feed next, by way of increase, will depend upon the condition of the cow. If the bowels are not too loose, add to the oil meal, and follow again with oats and corn.

Give salt in moderation every day, and whenever the cow leaves any of her feed uneaten, remove it at once, and give her fresh feed for the next meal. Whenever she exhibits the least reluctance to eat, you may be sure, the limit has been passed, at least, for the time being, and the amount placed before her should be reduced.

HEMLOCK FOR SILOS.

J. M., of Addison, Vt., writes:

1. What shape or form is the best in use up to date?

2. Would hemlock be durable in a tub silo, or would you recommend pine at $4 00 per thousand more?

3. Is planing necessary?

4. How much would a silo 15 feet in diameter and 25 high hold?

5. How would you joint the staves, provided they were 12 and 13 feet long, and would it be necessary that they be full two inches thick?

We submit replies as follows:

1. Circular.

2. Hemlock is preferable to pine.

3. Planing is desirable, but not indispensible.

4. Eighty tons.

5. This is best and cheapest done by running them through machines made for that purpose. Otherwise, let a carpenter do it with a plane. Do not bevel the edges. Two inches is better than less, and 4 to 6 inches wide.

MUCK LAND FOR CORN.

Have purchased a farm, on which there is about 20 acres of muck land, that has not been worked for 10 to 15 years. This was cedar and black ash swamp. Would you advise me to plant the whole to corn, or half of it, and take ten acres of hard land? I intend to raise twenty acres of corn, so I have no meadow this year. Would you advise me to try some millet on a part of this muck? Is it good feed for milch cows? This land raised good crops when it was worked. I can run the surface water off, but it will stop in the ditch, about 8 inches to a foot from the surface for a while.

Addison, Vt. J. M.

There is an old proverb about not putting all one's eggs in a single basket, but this was before the days of the modern egg cases and carriers, and is somewhat out of date as to eggs. The advice was good in its day, and the principal of it may be applied to the case submitted; hence we would not deem it prudent to trust one's entire crop of corn on this low ground. Millet makes good hay for cows, if cut before the seed forms, but when left too long it is practically worthless, and sometimes dangerous.

BEAN PODS.

I am feeding my cows a balanced ration or nearly so. There is one item however, of which I am in doubt, and that is 5 lbs. bean pods. I could not find an analysis of them so put them in the same as corn stover. However, as beans are rich in nitrogen and as the pods seem to be a very rich, heavy feed, and very laxative, and all kinds of stock seem eager for them, it has occurred to me that this item in the ration might "spoil the combination," as it were. Kindly help me out.

Ontario Co., N. Y. F. B. A.

The principal effect of the bean pods would be to increase the amount of digestible protein in the ration. The only analysis we have found shows them to contain digestible nutrients as follows:

Protein..... 7.83 per cent.
Carbohydrates.....79.38 per cent
Crude fat.....1.02 per cent.

If this is correct these pods have a feeding value practically equivalent to shelled corn, instead of corn stover. The pods can be fed, however, much more freely than ground corn, because they are so much lighter.

ACREAGE OF CORN FOR FILLING SILO.

How many acres of corn will it take to fill a silo 20 feet in diameter and 34 feet high; also what is the best variety of corn to plant? B. F. McM. & Bro.

Marathan Co., Wis.

To fill a silo of the above size will require 225 tons of green corn. The average yield of corn per acre at the Maine Experiment Station, was 34,761 lbs. for dent corn and 22,269 lbs. for flint corn. Taking the above figures it will require about thirteen acres of dent corn and twenty-two acres of the flint. To raise dent corn so far north would require an early variety, such as the eight-row. Unless you intend feeding a large herd of cattle, it would be better to build two smaller silos, —say 18 by 24 each—than the one large one.

Allow for six square feet feeding surface per cow per day.

A HALF SCORE OF NORTH CAROLINA QUERIES.

1. Does a cow that has tuberculosis shed off?

2. Does she fatten easily when dry?

3. How does the disease affect the eyes?

4. Does tuberculosis show in its worst form in winter or summer?

5. Does a cough always accompany this disease?

6. Will a cow that has been gorged badly on concentrated feed get over it?

7. Do you consider cotton seed hulls injurious to cows? I notice you never put them in a ration if you can get something else.

8. Are Jerseys more liable to tuberculosis than Holsteins?

9. Does a straight face not dished at all detract from a dairy cow?

10. Would you advise mixing Holsteins and Jerseys? J. L. A.

Rockingham, N. C.

1. Yes, unless the disease is very far advanced.

2. Same as above.

3. Not at all.

4. Seasons make no particular difference.

5. No.

6. No, unless properly attended to at the time.

7. Not injurious, but of no great value. They are difficult of digestion, and yield comparatively little nutriment. In the absence of other roughage they serve a good purpose in properly distending the stomach.

8. No.

9. The dished face is, of itself, unimportant, except as indicative of large prominent eyes, and these in turn betoken nerve force.

10. No.

Warm vs. Cold Water for Cows.

At an experiment in England they found that a herd of 30 cows gave a profit of $15 per week more when the temperature of the barn was kept at 63° than when it was kept at 52°. If this is so, we wonder what the profit would be, or if there would be any, in a barn where the temperature fell below 32°, so that the manure froze behind the cattle. We believe it would be a loss, and if the time when it is so cold lasts but a few days, it is not easy to bring the cows back to giving as much milk as they did before the shrinkage began.

A writer in the *Dairyman* reports an experiment made with cows which had free access to water from a spring in the side hill, piped into a tank which never freezes. Four of them were given, after supper, as much warm water as they could drink, and they took from one to three gallons each, after having had what they wanted at the tank. The daily gain in milk was from 29 to 32, 25 to 26, 26 to 28, and 20 to 21½ pounds, respectively, or 8½ pounds for the four cows. The gain was kept up as long as the warm water was continued. What would have been the gain if all their water had been warmed? We think it would have been more than twice as much, as some years ago we reported results in a dairy where all the water at the troughs was heated, and the results, as we remember them, were that the record of milk sold was some two or three quarts per day, as an average for each cow, more than the same herd had given the winter previous. As the milk was all sold the record was easily shown by the monthly receipts, and with a herd of 20 cows it was an important item. It more than paid for the fuel, and the day's wages of the man who kept up the fires, though it took but a little of his time twice a day.

These three experiments are all given together, because we do not believe the use of warm water would give such results, if the barns had been so cold that water would freeze in them, though it might prove of some benefit. Make the barns warm first, and then try warming the water. The increased profits will soon be enough to pay for a new barn if there is a good market for milk or milk product.—*Ex.*

Experience Wanted.

Ed. Hoard's Dairyman:—What is the cheapest and best rough feed a dairyman can raise on upland soil, when he has no clover hay to make. I find it expensive to buy clover hay, even as cheap as it has been this winter.

I will have to buy my next winter's rough feed, and would like to have the experience of others as to some crop I could raise this spring, that would take the place of clover hay. I have no silo. Would like to hear from someone that has raised oats and peas for hay and their mode of raising same.

Marion, Ind. A. D.

The Oleomargarine Law.

The partisans of oleomargarine do not plead their case fairly. The law does not forbid any one who pleases selling oleomargarine as oleomargarine. What it does object to is the sale of oleomargarine as butter, to those who want butter and pay for butter. —*Louisville Courier-Journal.*

Put Your Finger on Your Pulse

You feel the blood rushing along.

But what kind of blood? That is the question.

Is it pure blood or impure blood?

If the blood is impure then you are weak and languid; your appetite is poor and your digestion is weak. You cannot sleep well and the morning finds you unprepared for the work of the day. Your cheeks are pale and your complexion is sallow. You are troubled with pimples, boils, or some eruption of the skin. Why not purify your blood?

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will do it. Take it a few days and then put your finger on your pulse again. You can feel the difference. It is stronger and your circulation better. Send for our book on Impure Blood.

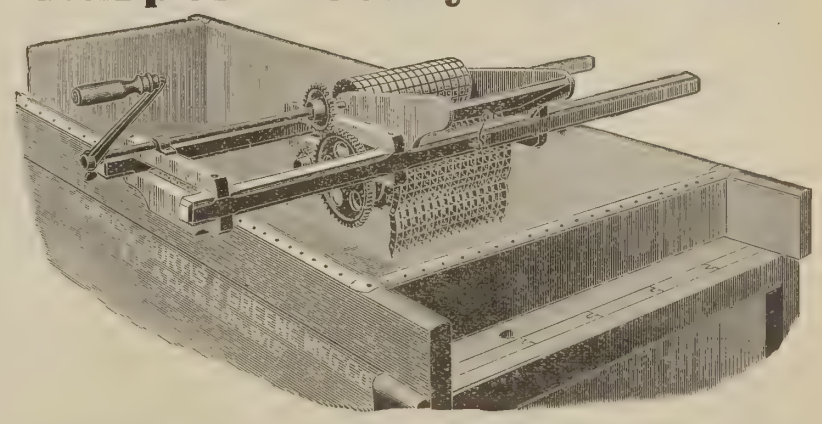
If you are bilious, take Ayer's Pills. They greatly aid the Sarsaparilla, They cure constipation also.

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Write them freely all the particulars in your case. You will receive a prompt reply, without cost.
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For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for DE LAVAL ALPHA SEPARATORS.

THE contract prices for milk at the New Berlin, N. Y., milk condensory for the next 6 months are as follows: April $1 per 100 lbs.; May 80 cents; June 70 cents; July 80 cents; August 90 cents; September $1.10.

These prices are just about what the milk nets the patrons in first-class creameries, *provided* the patron is an intelligent feeder of the skim milk, and provided further the creamery returns the milk in the highest feeding condition. There is still an advantage to the creamery not yet spoken of, that of keeping up the fertility of the farm. It is simply astonishing how quickly those farms in the eastern states have lost their producing power, where the whole milk has been constantly taken from them, either for city use, cheese making, or in condensory work. We know of hundreds of farms in New York that will not to-day produce one-half the grass or grain, without the use of expensive fertilizers, that they would forty years ago. These farms have been used as dairy farms, either in cheese making or milk shipping, almost continuously for all those years. In the butter making districts of Delaware and other counties the soil shows much better. Yet there are a vast number of farmers in that and other eastern states who seem to possess but little, if any, idea of the feeding and fertilizing value of the skim milk.

Type More Important Than Breed in the Production of Milk as Well as Butter.

ED. HOARD'S DAIRYMAN:—Since the report of the record of Storrs College herd appeared in the DAIRYMAN of March 24th, I have been asked several times if the type was more important than breed in determining the profit for milk, as well as in the production of butter. It is good practice I believe, not to attempt to demonstrate too many things in one experiment, and so I confined my attention to a sing'e proposition.

However, the data are at hand for a comparison of the types and breeds, as to the cost of milk per one hundred pounds, as well as net profit from sale of same, as milk. Anyone with pencil and paper could easily make the comparisons themselves. I have done so in the accompanying table for the benefit of those who have not already made this comparison:

	(1) No of Cows.	(2) Cost of food one year.	(3) Milk Produced one year, lbs.	(4) Cost of 100 lbs. milk. Cents.	(5) Net profit with milk at $1 per 100 lbs.	(6) Net profit with butter at 18 cents per lb.
For entire herd	25	$40.80	5,655	72	$15.75	$15 50
AVERAGE OF BREEDS.						
For Ayrshire	4	$40.65	6.166	66	$21.01	$ 7.22
For Jersey	4	43.35	5,982	72	16.47	23.47
For Grade	14	39.37	5.523	71	15.86	16.46
For Guernsey	3	41.39	5,140	80	10.01	11 46
AVERAGE OF TYPES.						
For typical dairy type	2	$46.67	8,511	54	$38.44	$4: 62
For dairy type	14	40.94	5,859	69	18.00	18.62
For lacking digestive capac'ty	5	39.83	5,322	74	13.39	8 28
For beef type	4	38.59	3.918	98	loss .59	loss .55

In the above table, column one gives the number of cows in each breed or type; column two, the average cost of food for one year; column three, average pounds of milk yielded; column four, the cost of 100 lbs. of milk in cents; column five gives the net profit from sale of milk at $1 per one hundred pounds; and column six, the net profit from sale of butter at 18 cents per pound.

It will be noticed that there is a transposition in the relative position of the breeds. The Ayrshires stand at the head in the amount of milk produced, cost per 100 lbs. of milk, and in net profit from sale of milk.

The type, however, is still the determining factor in the economical production of milk, as well as in the production of butter.

In comparing breeds with types:

1. In the food cost of each 100 pounds of milk, the Ayrshires charge 66 cents per cwt., while the Guernseys charge 80 cents per hundred, or a difference of 14 cents. The variation due to type is 44 cents.

2. In a similar way the range in net profit between the breeds from the sale of milk is $11, while the range between the types is $37.89.

3. In the amount of milk produced the Ayrshires lead with 6,166 pounds; the Guernseys produce 5,140, or a difference of 1,026 pounds. The range between the types in amount of milk produced is 4,593 pounds.

C. L. BEACH.

Storrs Ag'l College, Storrs, Conn.

Some Michigan Comments and Queries.

Mammary Veins on the Bull.—Stable Floors.—Soiling Crops.—Buckwheat Middlings for Swine.—Ration for Light Weight Jerseys.—Roots.

ED. HOARD'S DAIRYMAN:—I firmly believe in a special-purpose cow, and a special-purpose paper. In the DAIRYMAN we have the paper, and we are breeding for the cow.

I seldom write for publication, but have some questions which may seem foolish, but the wise need no teacher.

I have been interested in the discussion on the bull, (had a lively experience with one a few days ago).

1. You very wisely require large and tortuous milk veins in the dairy cow. Now, do breeders of dairy stock pay any attention to those veins in the bull? Are they ever, or should they be large and tortuous, so the same should be transmitted, etc?

2. Is the milk of a young heifer with first calf as rich in butter fat, as when fully matured?

3. I intend to build a cow stable. Which would be preferable, to make the whole floor of cement, or make a cement gutter, and a plank floor with the ends of plank just reaching over the edge of the gutter?

4. Am short of pasture, want to sow for this summer; which would be preferable to sow, corn, oats, millet, or a mixture, and if mixture, what?

5. If "a streak of lean" is desirable, and if protein is a lean flesh producer, why would not buckwheat middlings mixed with corn meal, make a good feed for the porkers?

6. Please formulate a ration for light weight Jersey cows of the following: Corn stover for roughage, corn meal at $16 per ton; buckwheat, middlings $12 per ton; wheat bran at $15 per ton; beets, golden tankard, and sugar beets at about $5 per ton. How would you balance these feeds, omitting the wheat bran?

I have no silo but raise several hundred bushels of carrots and beets, and feed beets to cows, horses, hogs, sheep, and hens, and our rats like them too. I have no use for turnips or "bagas", for butter production, unless I want the butter as white and tasteless as March snow, but I believe that carrots and sugar beets, or golden tankards are usually underestimated as stock feed. Potatoes make more milk per bushel than any other roots, unless it may be artichokes. Cabbage is also quite a milk producer, but I cannot speak as to the quality of milk from cabbage or potatoes.

J. E. K.

Michigan.

Mammary veins and well developed rudimentary teats are accounted "good signs" when selecting a bull, although there is something more than a suspicion that the veins, even in cows, have been given undue credit, and this more especially with aged animals, when they have become varicose and thereby unduly enlarged.

It is with stable floors as with everything—many men are sure to be of many minds. Personally we do not favor cement floors unless they can at all times be covered with plenty of bedding. This may be prejudice, insensibly engendered by reading about the "cold stone floors" in dungeons and otherwheres. What we do know is, that one of the surest ways to get cold feet is to stand on a stone floor, and we argue from this that the

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition,—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

O. DOUGLASS BUTTER CULTURE.

ST. GEORGE, MINN., Feb. 20, '99. O. Douglass Butter Culture Co., 81 Austin St., Charlestown, Mass. Dear Sirs:—In the Genesee Salt contest I scored 97½; at the State Fair, Minnesota, I scored 95½; at Sioux Falls Convention I scored 95; being a money winner at each. I used your culture in all of the above. C. H. CLEVELAND, St George, Minn.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin St., Charlestown, Mass.

PROVE IT. PROVE IT.

It is very easy for a butter maker to prove whether his butter is colored with an analine color or with

Thatcher's Orange Butter Color.

If you believe your butter to be colored with a poisonous analine dye, as fully one-third of the butter on the market is colored, then write us for the Davis Test, and we will send it to you free of charge. Any butter maker or butter user can apply it, and it will not cost him one cent to do so

The Thatcher Color is the best, the purest, the healthiest vegetable color on the market.

THATCHER MANUFACTURING CO., - Potsdam, N. Y

The St. Louis Journal of Agriculture says, editorially, as follows: "Much of the utter failure or want of complete success which attends the efforts of many farmers is traceable to the absence of business methods in the conduct of his operations on the farm and in his home. In these days of low prices and small profits it is only the exercise of economy and thorough knowledge of the details of his expenditures that will enable the farmer or business man to come out on the right side of his balance sheets. 'The Farmer's Record,' an account book intended exclusively for the use of the farmer, is certainly the best devised means we have seen to enable him to do this, and see his financial standing at a glance. The work is divided into several headings for all the items of income and expenditure on every branch of farm work, and also for the household. The farmer can keep a detailed cost of every crop he raises, and on the same page the income derived from its sale. There is also a record for mortgages for those who are encumbered with that incubus, with its date, amount and date of interest payable and the date of renewal of final payment. Altogether, the book is without a rival, and will prove invaluable to those who may possess it. There will be no excuse for the farmer who uses it to plead ignorance of his momentary affairs, for a few minutes devoted to posting up his 'Record' will always afford him a key as to how he stands financially."

The above books can be had by mail, post-paid, on receipt of $1.00.

J. T. NELSON, Brookings, S. D.

Land Plaster

NATURE'S FERTILIZER. The great stimulating element to the growth of cereals, plants, and all vegetation. In use for over one hundred years. The good results obtained from the use of **LAND PLASTER** have only to be understood to make it fully appreciated.

Michigan Land Plaster

IS NOT EXCELLED IN THE WORLD.

Farmers of WISCONSIN and MINNESOTA can obtain Fine Fresh Ground **Michigan Land Plaster** by the car load of **15 tons** and upwards, loaded on the cars at the Mills, Grand Rapids, Mich.

In bulk	**$ 1.00** per ton.
In American A grain bags	2.45 " "
In Stark A grain bags	2.70 " "

Shipping via car ferry at Muskegon a freight rate of **5 cents per 100 lbs.** can be obtained to Milwaukee, so that the plaster can be shipped in bulk and the expense of bags saved if desired. The railroads make special plaster rates from Milwaukee, which consignees should arrange for in making up a through rate to their station.

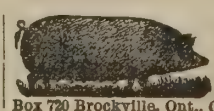
We have a large stock and can ship promptly at all times.

☞ **CASH MUST ACCOMPANY ORDER.**

MICHIGAN & OHIO PLASTER CO.,

401 Pythian Temple. GRAND RAPIDS, MICH.

DO YOU KNOW that when you buy of the Whitewater Poultry Ass'n, you are sure of getting standard birds, because every bird is inspected by our Inspector before sale. Every breeding pen is mated by him, therefore we guarantee our eggs. Send stamp for Cat' g. Whitewater, Wis.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY, Box 720 Brockville, Ont., Canada.

cow that stands or lies down upon a cement floor has a cold as well as a hard platform.

The soiling problem was answered last week in reply to another correspondent.

Buckwheat middlings are good feed for swine.

Beets at $5 per ton are fully twice as expensive as corn silage. Every trial that has been made shows that more nutriment can be raised per acre and at less cost with corn than with beets, and we venture to say, without making any estimate that the silage can also be stored cheaper.

About the only combination that we can suggest for a ration from the feeds named would be the following.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. corn stover	11.90	.34	6.48	.14
30 lbs. beets	4.05	.33	3.06	.03
4 lbs. corn	3.56	.32	2.67	17
6 lbs. buckwheat middlings	5 24	1 32	2.00	.32
Totals	24.75	2.31	14.21	.66

It would not be advisable to feed the grain as above without mixing it with the beets or some cut stover.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 8,100 pounds. All bids were at 20½ cents, and the entire offering was quickly sold at that figure. The Quotation Committee declared the market steady at 20½ cents. The sales reported were as follows:

Factory.	Pounds.	Price
McConnell	1,080	20½ cts.
Red Clover	960	20½ cts.
Shattock's Grove	2,220	20½ cts
Malta	600	20½ cts.
Shabbona	1,140	20½ cts.
Belvidere	2,100	20½ cts.
Total	8,100	

The market for the corresponding week of the three preceding years were as follows:

April 4, '98, 1,320 pounds of butter sold at 22 cts
April 5, '97, 34,380 pounds of butter sold at 20 cts.
April 6, '96, 34,500 pounds of butter sold at 18 cts.

The New York market Monday was reported steady at 21 cents. H. C. B.

Elgin, Ill., April 3, '99.

Feeding Skim Milk to Cows.

Have any of your readers had experience in feeding skim milk from the separators back to the cows? Would I derive as much benefit from it as I would to feed it to pigs or calves? A. G. W.

Onondaga Co., N. Y.

The following extract from an article on dairying, by Mr. Menzo Wilcox, was published in the DAIRYMAN in 1897:

The feeding of all the skim milk and butter milk back to the cows that gave it, has been, in many respects a success with me. The skim milk contains nearly all the elements of whole milk, minus the fat, and with a proper grain added to supply this deficiency, can be converted into whole milk with less cow energy than any other food known. It is a perfectly healthy food and enables the cow to put in long years of usefulness with a much less amount of grain. It causes an increased and more continuous flow of milk through the entire year, so that many good cows cannot be dried off until it is taken from them. It does not have to be purchased, neither do you have to sow, reap or provide barn room for it. The cow furnishes it herself, it is always at hand, and will if rightly fed add to your dairy receipts more than if fed to anything else, except it be some highly pedigreed calves or pigs that can be sold at very fancy prices.

Too Much Oleo.

Recently the writer made a shipment of butter to Tampa, Florida, to a reliable commission merchant. While the butter netted a fair price, the merchant wrote as follows; "There is so much oleo here and it is so low, that it's a hard matter to sell good butter."

What is true of Tampa, is true of almost every large town in the South. There are no effective laws to keep the stuff out of our markets, or to compel the sellers to dispose of it under its true name. Thus it is that the southern dairyman is operating all the time under disadvantages, competing in price with a counterfeit article. Something surely must be done to protect the legitimate dairy interests of this country from the injury done by the sale of oleomargarine under the name and in the semblance of genuine butter.—*Southern Dairyman.*

A Water Refrigerator.

ED. HOARD'S DAIRYMAN:—I have a good flowing well at my creamery and would like some information about a water refrigerator. Could you or some of the subscribers give such from their own experience or that of others? Could spare an inch full all the time. S. H.

Wabash Co., Ind.

Alfalfa for Milk.

[Kansas Press Bulletin.]

Mr. C. Carlson, a patron of the Manhattan Creamery, milks three cows. Up to the 20th of February he had been feeding these cows one ton of alfalfa every 30 days, and had been sending to the creamery an average of 54 lbs. of milk per day, besides what was needed at home for the use of a large family. At this time, which was during the severe cold weather of February, his milk was testing 4 6% and butter fat was worth 17c a pound; we will estimate the skimmilk at the low price of 15c per 100 lbs; for 30 days this would amount to $14.84 or $4 94 per cow per month.

DAIRY MARKETS.

ELGIN, Ill., April 3.—Butter—Steady, 20½c. All offerings, 135 tubs, sold.

CHICAGO, Ill., April 3.—Butter—Creamery, western extras 21½c; firsts 20½@21c; state extras 21@21½c; firsts 20@20½c.

Cheese—State, full cream, large colored or white fancy 12@12¼c; choice 11¾@11¾c; choice 11¼@ 13¼c; small fancy 12¾@13c.

Eggs—Western 13@13¼c.

Cattle—Desirable grades of native and Texas cattle sold 5@10c higher, and good cows and heifers sold about that much higher. Trade was active and the commoner grades were steadier. Receipts hardly reached expectations, and "good" cattle were scarcer than any previous Monday this year. The top was $5.60, with two loads at $5.50. Strictly prime 1,400@1,500 beeves would bring $5.70@6.00; common to choice 920@1,565-lb steers sold at $4@5.45; bulk $4.70@5.30; fed western steers 1,060@1,521 lbs. $4.30@5 45: bulk $5@5.25; straight Texas steers 935@1,505 lbs. $4.30@5.10; native cows $2.30@4.50; heifers $3.25@4.90; bulls $3@4.25; stags $3.70@4 75; calves $4.56@6 75; and feeding cattle $3 60@4.70. A load of 1,822-lb. distillery-fed oxen sold at $4.60.

Bran—In moderate request sold at $11.50 per ton.

MILWAUKEE, Wis., April 3.—Butter—Creamery—Fancy prints, per pound, 20½c; extras 20@20½c; firsts 18@19c; seconds 16@17c; imitations, 15@16c. Dairy—Selections, per lb 16@18c. Roll—Fair to choice, fresh 13@14c. Prices unchanged, trade being fair and there is no accumulation.

Cheese—American full cream—Oct. Twins 11⅝@12½c. Brick—Oct. choice 12@12½c; winter made 11½@12c. Limburger—Fall, choice 9½@10c; winter made, 9c. Swiss—Drum, choice 12½@13c; block, choice, 10½@11c. Limburger weak, but other kinds are scarce and salable.

Eggs—Fresh, per doz. 11@11½c. Market ¼@1c lower, under heavy offerings, receipts amounting to 815 cases, largely Southern. Trade is quiet.

SHEBOYGAN FALLS, Wis., March 29—Cheese—At the second weekly meeting of the new Call Board here today, all the offerings, comprising 240 boxes of cheese, were sold as follows: 196 cases Young Americas at 10½c; 14 Daisies at 10¾c; 30 boxes Twins at 11¼c. Next meeting, Wednesday, April 5.

ST. LOUIS, Mo., April 3.—Butter—Steady; creamery, 18@22c; dairy, 13@18c.

Eggs—Firm; 10½c.

KANSAS CITY, Mo., April 3.—Butter—Steady; dairy, 16c; creameries, 14@19c.

Eggs—Steady; fresh, 10c.

CINCINNATI, O., April 3.—Butter—Firm.

Eggs—Quiet; 10c.

Cheese—Firm; good to prime Ohio flat, 11½c.

PHILADELPHIA, Pa., April 3.—Butter—Solid-packed separator, creamery extra, 22c; creamery firsts, 21c; creamery seconds, 19@20c; imitation creamery extra, 18c; firsts, 16c; seconds 14c; ladle packed, extra, 16c; firsts 15c; seconds 14c; print butter, creamery extra, 23c; firsts 22c: seconds, 20c.

Eggs—Pennsylvania and near-by, free cases, 12½c; do returnable cases, 12c: Western, 12½c; Southwestern, 12½c; Southern, 12c.

BALTIMORE, Md., April 3—Butter—Market firm; creamery separator, extra, 23@24c; creamery separator, extra first 21@22c; creamery firsts 20c; ladle extra 15@16c; Western store-packed 11 13c.

Eggs—Market firm, strictly fresh 11½@12c; duck eggs 15@17c per doz.

BALTIMORE MARKETS.

BALTIMORE, Md, March 30.—Butter—The receipts of separator creamery have been remarkably light since our last issue, with, however, a few of the best marks showing a slight increase; the shortage being clearly attributable to the diversion of floating lots that often come here, but occasionally are drawn off by reason of finding purchasers on the track at the primary points of shipping. The palpable inadequacy of the current make to meet the demand for this variety of butter drives some of the active dealers from the eastern cities to trespass upon the country at large, so for a time our supply of high grade creameries will be limited to the regular lots, unless our merchants exert themselves to overcome the efforts of their active competitors. Receipts of gathered cream products have been growing smaller and alarmingly less in volume week after week for some time, and the demand for them has been increasing steadily as the saved goods have disappeared from time to time; there are no lots of moment left in the freezers. Imitation creamery is in very light receipt, and with a brisk demand that is capable of absorbing more than comes on the market, sales are in the receiver's favor, and at the best quotations. There are very few ladles arriving, and those few are taken up promptly at fairly good prices, considering their defects in quality. No recent sales to exporters, for the reason that home traders need it all. Blocks and prints in moderate receipt, and find ready sale on arrival. Rolls are exceedingly scarce—receipts light; demand good. Creamery separator, extras, 22@23c; firsts, 20@21c; seconds, 18@19c. Creamery, gathered cream, extras, 19c; firsts, 18c; seconds 17c. Creamery Ohio, extras, 20@21c; firsts, 19@20c; seconds, 17@18c. Roll, extras, 14c; firsts, 13c; seconds 12c; W. Va. Roll, extras, 13@14c; firsts, 12c; seconds, 11c. Creamery Blocks (2 lbs.) extras, 23@24c; firsts, 21@22c; seconds 19@20c. Creamery prints (½ lb), extras, 23@24c; firsts, 20@21c; seconds, 18@20c. Md. Va. & Penna. prints, extras, 20c; firsts 18c; seconds, 15@16c.

Eggs.—The receipts continue quite liberal, but there is a good, steady demand, and all arrivals have been kept well cleaned up; at times the demand has exceeded the supply; our market today is steady at 12 cents. Duck eggs are in more liberal receipt, and the market is easy at quotations. Goose eggs are in fair supply: all full sized clean stock is promptly placed on arrival.

Cheese—Receipts light; demand good; market firm as quoted. N. Y. State—Cheddars, fine, 12@12½c; choice, 11@11½c; fair, 9@10c. N. Y. State Flats, fine, 12@12¼c; choice, 11¼@11¾c; fair, 9@9½c. N. Y. State, Small, fine, 12¼@12¾c; choice, 12@12½c; fair, 9¼@10c. Ohio Flats, fine, 11@11½c; choice, 10½@11c; fair, 8¼@9c. Ohio—Picnic, fine, 11½@12c; choice, 10@11c; fair, 9¼@10c. Swiss cheese, fine 11@12c; choice 10c; fair, 8½@9c. G. M. LAMB & BROS.

301 Exchange Place.

FOREIGN MARKET.

BOSTON, April 1.—Cable advices of this date from the principal markets of Great Britian to George A. Cochrane give butter markets as dull and entirely in buyers' favor, who are taking only for immediate wants. Although arrivals are moderate stocks appear to be ample for the demand. American creameries continue a dragging sale, little or none here good enough for the shilling cut, and to meet the demand for the ten penny cut means a loss for importers, who are not prepared as yet to meet this as better markets are looked for shortly, by some holders. Imitation creamery has had a good sale at 16@17c, and there is more doing in ladles at 15c downwards. Australian butter is pressed for sale, the finest of which is to be had at 20@21c, with very good value offering at 19@20c.

Cheese markets are all firm, but the keen edge is off for the moment, buyers resorting to purchases for immediate wants only. Finest Septembers are held at 11¼@11½c. Under prime cheese is very scarce and in good demand from 11c downwards.

A Good Cream Separator

THE BEST OF FARM INVESTMENTS.

McEwensville, Pa., Dec. 26, 1898.

"The 'Alpha-Baby' separator which I purchased about two months ago is giving perfect satisfaction. When the agent told me that we were losing a pound of butter to the cow each week by our crock system, I did not believe it. I am now inclined to say, like the Queen of Sheba when she viewed the riches of Solomon, that the half has never been told, for he never told me of one-half the actual benefit which the use of the separator would bring. This I discovered after one week's trial. People would hardly believe me if I were to give the entire truth of what the separator has done for me. I had been selling from 12 to 14 lbs. of butter per week before using the machine. There has not been one week since that I have not sold as much as 25 lbs. My records are very carefully kept and I have the figures to show for it. This certainly goes to show very decidedly that a cream separator is the best paying machine on the farm. It is like money drawing interest; it works rain or shine, Sundays and every other day. It pays a higher rate of interest on money invested than anything else in which a farmer can invest. It gives a clean profit every day in the year, while any other piece of machinery is only used for a couple of days throughout the whole year. It saves time, labor and money. There is no carrying or repeated handling, storing away or replacing of crocks and pans, no long and tedious washing of utensils, no fires to keep up for warming skim-milk for calves, and no sick calves on account of having fed them sour skim-milk. One more point is this, it will soon tell you which cow is a boarder and which is paying for her keep."

Very respectfully, T. F. MENGES.

Send for new 1899 "Dairy" catalogue.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO.

GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK.

Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Son of Exile, dropped May 6th, 1895, good size, solid color and gentle. Tested dam and grandam. Bull calf six months, good per cent Exile blood, solid color, tested dam. A. D. McBAIN, Brockport, N. Y.

Wanted—Position by an all round dairyman. Can make cheese and butter. J. HEILKEMA, Holyoke, Ohio. 8-2

For Sale Cheap—Four richly bred Holstein bulls from one to twelve months old. R. L. WALLACE, Box 851, Knoxville, Tenn. 8-2

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale—A very desirable and good paying dairy, consisting of 20 head, or more of Holstein graded cows; average milk sales of two hundred dollars per month. C. H. ELLIS, Waxahachie, Texas. 52-tf

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

The White Man's Burden is paying rent for a poor farm. Now is the time to secure a good farm on the line of the Chicago, Milwaukee & St. Paul Railway in Marinette County, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure soft water, land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. Rollins, Land Agent, 161 La Salle St., Chicago, Ill. 7-2

To Exchange—320 acres good Texas land, located 15 miles west of Beaumont, on So. Pac. Ry, and 3 miles from station. Will exchange land for Holstein cattle. Address A. R. CROUCH, Granada, Minn. 6-4

Wanted—Position by a first-class butter maker, either in a factory or in farm creamery. Four years experience. First-class references. Wages reasonable. Address CHAS. E. DULLEA, Winthrop, N. Y. 7-2

For Sale or Trade—A creamery, as good as new, located in a fine dairy country in South Dakota. Will sell cheap, or trade for land, cattle or sheep. Address J. C. NIELSEN, Viborg, South Dakota. 7-2

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

Wanted—Position is wanted as manager of a stock or dairy farm, by an experienced man. Would board help. Address LOCK BOX, 724, Malone, N. Y. 5-4

Wanted—At once, position on stock or dairy farm. Single. Experienced. Seven years at last place. References. Address F. R. R., care of Hoard's Dairyman. 8-2

For Sale—100 acres of land one mile from town of Crewe, Virginia. Crewe has 3,000 inhabitants. Norfolk & Western R. R., has its shops there. Also will sell milk route with farm. No competetion in milk business. $1,500 for both. Further information apply to T. O. SANDY, Burkeville, Va. 8-2

Wanted—20 bu. Cow Field Peas. Also 1 and hand tread power—1 h. p. W. S. CLARK, Ancona, Ill.

Position Wanted—By competent butter maker. 7 years experience in separator creamery. Can handle 9,000 lbs. of milk daily alone. Can keep books if wished. 6 years with one employer. Address L, care Hoard's Dairyman. 8-tf

Mistakes in Dairying.

[Paper read before the Kane Co., Ill. Institute, by H. B GURLER.]

Many of us are so constituted (unfortunately) that it is a source of satisfaction to talk to others of their mistakes. At the same time we dislike to talk about our own.

In what I shall say to you, this afternoon, nearly all the mistakes I shall talk about I have made myself, during some part of my experience in farming. I believe we can profitably talk about our mistakes. Opportunities are more interesting to talk about than mistakes, though they may not be as profitable.

Our mistakes are cold facts. Our opportunities may, and usually do, have some theories and considerable anticipation woven into them.

It is a mistake to keep a dairy that will not make an average of 300 pounds of butter per cow annually. Two hundred and fifty pounds should be the individual danger line. The cow that does not reach that point should be made to serve us in a line that she is evidently better fitted for, i. e., beef.

I believe $35 to be a fair estimate of the cost of feeding a cow a year. Now she must produce 220 pounds of butter to pay for this. When intelligently fed to calves and pigs, the skim milk will pay for the labor, or if labor is not taken into consideration, we may deduct its value from the cost of food. The skim milk from a cow that produces 300 pounds of butter, is worth $10. The average cow that reaches the 300-pound mark will produce 6,600 pounds of milk containing 4% fat. There will be 6,000 pounds of skim milk which, at 16⅔ cents per 100 pounds, will amount to $10. Deducting $10 from the cost of keeping, we have $25 left. The average price of butter for 1898 at Elgin was a small fraction of a cent under 19 cents. We will deduct 3 cents per pound for making, and we have 16 cents per pound net. It will require 156 pounds of butter at 16 cents per pound to equal the $25 balance against the cow for feed. Or, in other words, it requires 156 pounds of butter, and the skim milk to pay for the food. It will take 75 pounds more butter to pay for labor. This added to the 156 pounds makes 231 pounds. I believe this is a fair business basis.

Now I know it is entirely practicable to have our dairies produce 300 pounds of butter. Many dairymen have done as well and many have done better.

The Illinois Experiment Station selected a dairy in that vicinity that produced 300 pounds per cow for the year's work, and that is not a dairy section.

The 300-pound cow leaves us 70 pounds for profit which, at 16 cents per pound, is $11.20. A 350-pound cow leaves 120 pounds for profit, or $19.20, and the 400-pound cow leaves 170 pounds for profit, or $27.20; a 475-pound cow would make a profit of $41. There are cows that are making that amount. I have had grade cows pass the 500-pound mark.

I believe if we will set the boys to work testing the cows, giving them half that they can increase the butter production of the dairy as their pay, that we will make something ourselves, the boys will make something, and they will learn to respect the business and want to stay on the farm.

When we apply the trained thought and business sense to the farm that the manufacturer does today, it will pay, and we are going to give more and more thought to our various lines of work on our farms.

It is a serious mistake not to provide a palatable food for our cows. To secure this we must harvest our crops at the proper time, when they contain the most digestible nutriment. The palatability of food attracts my attention more frequently than any other in the management of my dairy. When the cows do not like their food, they will not consume as much as they should, and our profit is immediately reduced. Corn is the king of crops and clover is queen. These crops succeed each other most admirably in growing. A clover sod will produce 10 or more bushels of corn per acre than timothy sod. This extra 10 bushels of corn is clear gain, and it may represent all the profit there is in growing the crop.

Our queen of crops—clover—adjusts herself to the king—corn—more perfectly, if possible, in feeding than she does in growing. Corn is a highly carbonaceous or fat forming food, and clover is a nitrogenous food, and the best results are obtained when we feed a properly balanced food. Clover balances food to perfection. Our soil produces both of these crops successfully and profitably. Many of us make the mistake of letting our clover become too mature before we cut it. It should be cut when in full blossom.

It is a mistake to feed any kind of unsound food. Moldy hay, or corn fodder, or ground feed, decayed ensilage, all will cause trouble with the milk. I am confident that the greatest stumbling block with the silo has been from having too much surface exposed for the number of cattle being fed from it. Eight feet of surface, per cow fed, is the limit or danger line. Ensilage is a moist food, and will commence to decay when exposed a sufficient time, and we must feed fast enough to keep ahead of decay. Six surface feet per cow is sufficient to have exposed in the silo.

With this amount of exposure, and reasonable care, there will be no trouble from decayed ensilage. To illustrate this point, we will suppose a dairyman has 40 cows, 6 surface feet per cow would make 240 feet, or a space of 15x16 feet; in other words, 15x16 feet area is as much as should be exposed when feeding 40 cows. If a round silo is used (and a round one is preferable) 18 feet in diameter should be the limit for 40 cows. My latest silos are built circular and are plastered with Portlant cement inside. They cost me to build $1.50 per ton of contents. They are 20 ft. in diameter and 38 ft. deep.

Don't allow the cows to drink stagnant or impure water. It will affect the milk. I am confident it pays to warm the water in cold weather.

I formerly confined my cows in stanchions. I do not any more. I use the Bidwell and Drown stalls, in which the cows are not tied but held in a stall by a chain or rope across the rear. In these stalls the cows are lined up on the gutter and keep clean. They are much more comfortable than when in stanchions. The front of the stall is adjustable to the length of the cow, so she can be easily kept lined up on the gutter or drop. I use a continuous cement manger—the adjustable stall front hanging above the manger.

It is a mistake to be irregular about the hours of feeding or of milking, as it causes the cows to become restless and uneasy for which neglect we pay, commencing at the next milking. When the cows are allowed to shrink in their milk it is next to impossible to get them back to their former flow. It can only be accomplished by better care or better feeding than they received previous to the time they were neglected and allowed to shrink in their milk flow, and in case they are brought back by better care or better feeding, it is simply proof that we were not doing as well as we might have done previously, not doing as well as we knew how.

Never feed ensilage so that it is in the mangers at milking time. It is best to feed it after milking, and then there is no danger of the milk absorbing the odors from the ensilage.

The danger there is of milk absorbing odors is very poorly understood. I have known milk to bring the ordor of the hog pen to market with it and I was able to detect it and have the trouble corrected. If any one wishes a demonstration along this line, I advise them to set an open vessel of milk in some filthy place, allowing it to remain in that atmosphere about two hours. Then warm it to a temperature of 120° F., and try what your nose will find in it. I knew of a case in Vermont where a skunk had been disturbed in the vicinity of the milk room. Butter was made from this milk and sent to Boston to a commission house where the skunk was detected in the butter.

I am positive it is a serious mistake not to raise the heifer calves from our best cows. Here is where one of the benefits come from knowing each cow individually. The record of a cow's, and of her ancestors', work, as milk and butter producers, is just as valuable—yes, more valuable—than a record as a beef producer. We do not buy any other farm stock for breeders without looking up their ancestry, and the time is at hand when the record of dairy animals and their ancestors is looked very carefully after. We probably shall not be so anxious to trace every animal to its imported ancestors as we have been in the past—as we are awaking to the fact that we have improved on the original stock to that point that we now have in many cases better stock than that from which it descended—if not better than the stock of the countries from which we have imported in the past.

By this process of breeding from the best—from such as are profitable for a few generations—we can increase the profit to a surprising degree.

The manufacturers of this Congressional district (and we have many of them that we are proud of) are looking closely after all the details of their business—much more closely than we farmers and dairymen do. I think we have more opportunities to improve on our present methods than any other business I know anything about.

Dairy calves should be raised on skim milk—in fact I think all calves should be. I am positive we will secure the best cows from calves raised on skim milk. It will require more care and better judgment than when they are allowed to run with their dams. The calves must have this skim milk sweet—it must be as warm as the mother's milk (or 100° F.) and they must not be fed too much There are more calves injured by being fed too much skim milk than when one is not fed enough. Most of us understand the necessity for the young calf having the first milk from its mother. The calves can be worked gradually onto the skim milk—making it their entire food by the time they are from two to three weeks of age. Four quarts of skim milk twice per day is sufficient for the first month. Use flax meal to take the place of the cream.

We cannot afford to keep poor milkers. I have found a difference between my best and poorest milkers sufficient to pay a milker's salary when he milked 15 cows. Some men cannot milk well if they try, but there are more that do not try. When the cows have fallen off in their milk, it is less labor to milk them. I have given prizes to my milkers and secured very good results.

We cannot afford to have the cows unkindly treated. I get suspicious of a man when I discover that the cows are afraid of him. Remember that a cow is hurt or frightened when she kicks. Not one cow in a thousand kicks from ugliness, and this one I will guarantee has had the ugliness cultivated and developed in her by some ugly attendant. The cow is not to blame. I think a man that is ugly to cows should be compelled to fight it out with the male of the bovine family. Let him vent his ugliness on something of his own sex, that is, or soon will be, as ugly as himself. I have seen cases when I would really enjoy an entertainment of this kind.

Many dairy writers advocate feeding a grain ration when cows are on full feed of grass. I believe this would pay at the time, but I do not believe it would pay to feed a profitable cow in this way, one that we wish to keep in the herd for the double reason of her profitable work and for her offspring.

A cow should have no grain food during the time she is not giving milk or previous to parturition, as it gets her system in condition to cause milk fever. Feed her all she wants of some succulent or nutritious coarse food. A plenty of grass or ensilage is the best food at this time.

Cow stables should be well ventilated and well lighted. An English authority claims that cows will produce 50 cents each, per week, more in stables kept at a temperature of 63° than when kept at 52°. Many of us Americans will not believe this, but must remember that a cow that is giving milk is much more susceptible to cold than a fat steer. My belief is that we can use artificial

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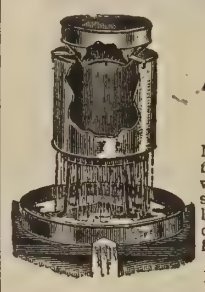
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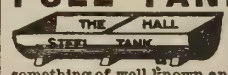
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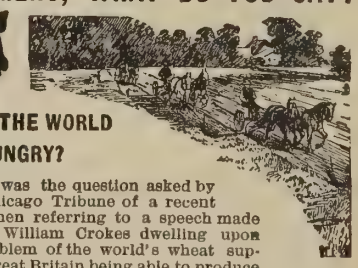
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FARMERS, WHAT DO YOU SAY?



WILL THE WORLD GO HUNGRY?

This was the question asked by the Chicago Tribune of a recent date, when referring to a speech made by Sir William Crokes dwelling upon the problem of the world's wheat supply, Great Britain being able to produce only a small percentage of what she consumed.

REPLY:

WESTERN CANADA WILL PREVENT IT.

With millions of acres of excellent wheat lands in Western Canada awaiting the husbandman's efforts there is no fear of an exhausted supply. These lands owned by the Government are given free to settlers; near railways, schools, churches, &c. Particulars can be had on application to Supt. Immigration, Ottawa, Canada, or to

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STEVENS POINT, WIS.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$1.50
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HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1.50
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HOARD'S DAIRYMAN and Farm Poultry, both one year	1.75
HOARD'S DAIRYMAN and Guernsey Quarterly, both one year	2.25

heat to advantage when we use it for the double purpose of securing warmth and aiding ventilation. I think here is a field for our experiment stations to work in. Who knows what is the temperature that gives best results in our cow stables?

As we have been talking of our mistakes we have been looking backward. Now let us change front and look forward, trying to see what opportunities there are as farmers and dairymen to do a more intelligent and profitable work. This will be largely a review on a different view of the same field. I am sure we have great opportunities along the following lines:

Applying the individual test to our cows and weeding out the unprofitable ones.

More intelligent work in crop growing.

Grow 100 bushels of corn per acre. Some have done this and more can do it. I tried and failed but consider my failure a success, as I produced 96 bushels per acre.

Grow more clover. Grow it for hay, for pasture, grow it to fertilize our land and fit it to produce 100 bushels of corn per acre. Remember that Queen Clover is the running mate of King Corn, and that while she is small in growth in comparison with King Corn, she produces nearly as much per acre of the most valuable nutritive element (nitrogen) as King Corn, and when we take into consideration the nitrogen secured in the crop and what she has stored in the soil for her lord and master King Corn—I am sometimes nearly persuaded that the Queen is of more service to us than the King. She is much underestimated, without doubt.

Study the feeding problem—how to prepare a properly balanced ration.

Send to University of Minnesota for their bulletin on feeding dairy cows, by T. L. Haecker. Address, St. Anthony's Park, Minn.

Study the question of palatability of stock food. This will pay you well.

Supply pure water. Fence the stock away from the stagnant and impure water.

Provide plenty of light and fresh air for the stables. If you have no system of ventilation—put in one. It need not be expensive.

Demand and secure a high grade of work from your milkers. Discharge a man that persists in being unkind to the cows.

Secure a pure atmosphere about milk, cream and butter.

Establish a business-like system about all the work.

Feed ensilage after milking.

Don't have the hog pen too near the cows as its aroma at times is alarming.

Raise the heifer calves from the cows that produce 300 to 500 lbs. of butter annually.

Don't forget that a better dairy calf can be grown on skim milk than on whole milk, and at much less cost.

Remember that the greatest cause of scours in young calves is over feeding, and that boiled milk will check it if taken in time.

When we are weeding out the unprofitable cows let us do the same to the milkers.

Remember it pays to treat a cow like a lady.

Get rid of the cows that cannot be cured of kicking, as they contaminate the whole stable.

An Interesting Letter From Nova Scotia.

Criticism, Report, Inquiries.

ED. HOARD'S DAIRYMAN:—I have been a reader of the DAIRYMAN for a little less than a year and have gotten a great many ideas as my eyes have glanced over the dairy types and points for a good milker, the balanced ration, the veterinary column and also the general remarks in reference to dairying and the care of the stock; but I have not seen many items from Nova Scotia, so I thought you would put up with one more inquiry, coming, as it does, from a place not often heard from in these columns, but doing good work all the same in the production of fruit, agricultural and dairy products.

We have a combined butter and cheese factory in the town about half a mile from where I live, that is run the year round and turns out a superior article, due in a large part, to our competent and obliging manager, Mr. F. M. Logan, who, by the way, is one of our own men and as competent as any one we could import, even from our cousins across the line.

You Americans, Mr. Editor, judging from the general tone of your newspapers, are inclined to think that you are rather smarter and a good bit ahead of all others, which perhaps is all right in your own country, but when that sentiment crosses the boundary we, if we swallow it at all, do it under some protest.

But pardon me, we are off the subject. The factory is owned by the patrons, and manufactured into butter and cheese, during 1898, between 700 and 800 tons of milk which sold for $14,821.00. The patrons received for last quarter, 16¾ cents per pound for butter fat.

I have no doubt the general run of our cows might be vastly improved but some of us are trying to learn.

We are at a disadvantage as to feeding stuffs, some of which have to be imported or shipped a good distance which adds too much to the cost. And just here comes in the inquiry for the cheapest and best balanced ration from the following feeds:

Plenty of good clover, timothy, and daisy hay, mixed or separate, at $7 per ton, oats (ground) at $24, buckwheat or barley at $22, bran $20, corn meal $23, cotton seed meal $25, middlings, about $21, also plenty of turnips and mangels.

Please throw out whichever of these you think are too expensive for profit. The cheapest balanced ration is what we want.

Now, Mr. Editor, this letter is already too long but perhaps you will hear from me again. C. S. FITCH.

King's Co., N. S.

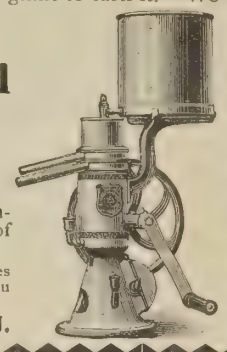
We take no exception whatever to our friend's good natured rebuke of our national pride of opinion. If it is a vice at all, it is one leading very preceptibly to virtue's side, and is not without its benefits and blessings. There is one characteristic which we think obtains more universally in the United States than in any other country on the globe, and that is a willingness to learn from others, and adopt foreign methods of proven excellence. We have learned a good many good things from Canada, and expect to learn many more, as the years go by. And Can-



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

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to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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you want one that will do absolutely correct work very rapidly, The

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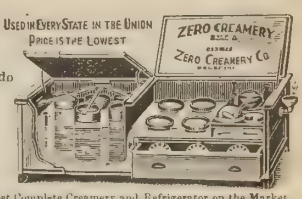
which is almost entirely automatic in every respect and has a speed indicator which will show you at a glance the proper speed, will fulfill all requirements. It is made entirely of cast iron, steel and brass, wearing parts are easily replaced when worn, and it has special glassware which is very easily cleaned and filled. HOT WATER IS ADDED WHEN THE MACHINE IS AT FULL SPEED. Exhaust steam from the motor keeps the bottles hot. All glassware guaranteed correct.

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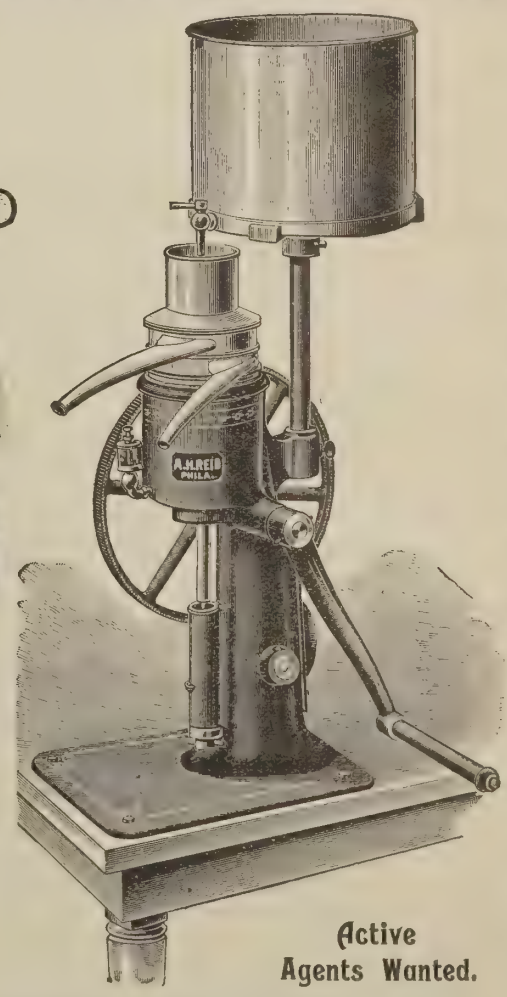
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New? Yes, entirely so.

We have waited a long time simply to get the best No one can doubt our statement after operating the machine. Our Separators are sent out under a thorough guarantee. Why say more?

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Active Agents Wanted.

A. H. REID, 3000 Market Street, Philadelphia, Pa.

ada has the good grace to admit that many good things and ideas come from this side of the boundary line,—for example, the Babcock test and the special-purpose dairy cow.

We should certainly omit from the list of feeds given, the oats, barley, buckwheat, middlings, and possibly corn. Clover hay and cotton seed meal are the cheapest of the feeds, and we should place main reliance upon them, using the bran mainly as a diluent for the cotton seed meal. If the roots can be pulped, and the grain fed in connection with them, we should say equal parts by weight, of the bran and cotton seed meal, but if not, then 2 pounds bran for each pound cotton seed meal. The roots may be used up to 25 to 30 pounds per day; the grain from 4 to 8 pounds, according to the ability of each cow to respond, and all the hay any cow will eat.

Mr. Wheaton's Canadian Dairy Notes.

Success in Dairying.—Low Prices.—Canadian Cheese Trade.—Shrinkage in Production.—Fodder and Fresh Grass Cheese.—Feed and Care of the Calf.—Foreign Markets.

ED. HOARD'S DAIRYMAN:—The farmer who once launches out into dairying, and sticks to it, year in and year out, is sure to make a success of the business. When low prices come, many dairymen often become discouraged and contemplate engaging in some other calling, but if they would only have patience for a year or two, a reaction is sure to take place, followed by good prices and a brisk demand for the product. No other branch of agriculture drops in price and recovers again so quickly as dairying, and especially the cheese making branch of it. A year ago at this time, the prospects for the coming season were gloomy, and the outlook for fair prices not at all bright.

This year almost the very opposite conditions prevail, and the dairyman, who last summer was discouraged and felt like giving up the business, has a prospect before him that should guarantee good prices for cheese the coming summer. And so the man with patience and a determination to stay in the race is sure to have his reward in due time.

This has been characteristic of the Canadian cheese trade, ever since it started, so our oldest dairymen tell us. This fluctuation, or a season of low prices, followed by one of high prices, has taken place a number of times, to the benefit of the man who makes a business of dairying and is not a dairyman for the moment. One may ask why this is? Dairy products, more than anything else perhaps, are governed by the law of supply and demand. When the supply is large, and there is an overproduction, the price will fall the same as with any other product. But there are not many products that will recover so quickly. Dairy products are perishable products and must be consumed within a reasonable time, or else they will deteriorate very quickly in value.

The goods must be sold whether or no, and when they are put upon the market at a low figure or at slaughter prices, the consumption quickly increases, and the supply as quickly decreases, bringing about a normal condition of affairs with its accompanying good prices. So we say to the dairyman, do not become discouraged when the clouds appear and prices get near the profit line. The clouds are sure to disappear and the sunshine of good prices to return very soon.

This can not be better illustrated than by a reference to the Canadian cheese trade. As most of the readers of the DAIRYMAN know, all our surplus cheese finds a market in Great Britain. That country imports annually about $25,000,000 worth of cheese, of which Canada supplies about 64% or $16,000,000 worth. And this is about all we can supply without forcing the market too much and causing a falling off in price.

When we produce very largely, as was the case in 1897, we have more than the market can take, and consequently have to pass through a season of low prices, as was the case in 1898. But as every dairyman well knows, on account of the low prices of 1898, the make in the factories fell off considerably, with the result that at the present time we are about 250,000 boxes short in our shipments, as compared with 1897, and with a better outlook for prices at the opening of the season, than for some years back.

The shrinkage is not all in Canada however. The shipments from New York show a decrease of over 300,000 boxes, making a total decrease from Canada and the United States as compared with a year ago, of fully 550,000 boxes. This shortage in the make of one season, connot help but decide the situation in favor of the producer.

Last week, March 25th, at Montreal, 11 cents was offered for cheese and refused, and dealers who are so fortunate as to have a good supply on hand, though the number cannot be very large, will emerge from the season's trade with good bank accounts to start next season's business with.

But there is a feature of the situation that it would be well to draw attention to just here. This bright outlook will, undoubtedly, induce many of the factories to open up earlier, than they otherwise would, and to produce a large supply of fodder cheese. Even if the price is good, this may not be the best thing for our dairymen to do.

This early cheese, which from the conditions prevailing in the way of fodder feeding and factories not properly fitted to make or cure the product, must, of necessity, be inferior in quality to that made when the cows are on fresh grass, and when sold in Great Britain as Canadian cheese, will injure the sale of the better quality later on.

If our dairymen would come to some definite understanding in this mattter, and keep the market clear of this early fodder stuff, they would have as much money at the end of the season, and there would be no danger of the market being interfered with before the better quality was ready to be marketed.

Even if there were no danger of this early stuff injuring the sale of the later made stuff, we think it would pay our dairymen to continue on making butter till about the middle of May, at least. Even if the price of cheese is as high as it is likely to be this spring, it will pay the dairyman better to make butter, and have his skim milk at home to feed his calves, than to send the whole milk to the cheese factory, and attempt to raise his calves on other foods. The feed and care the calf receives during the first few months of its existence is usually the making of the future cow.

It matters very little about the breeding if the feed and care of the calf in its early days are neglected. The advice given to dairymen to-day, to build up a dairy breed is to select his best cows, and breed these to a good bull of the best known dairy strains,

More light from your lamp, whatever lamp you use; and almost no chimney expense, no breaking. Use the chimney we make for it. Index.
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For Sale At lowest prices two Jersey Bull calves six and eight months old, and very well bred. For particulars Address
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GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.
For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

ENTIRE HERD OF
Jersey Cattle
—PROPERTY OF—
Mr. Thomas R. Proctor,
AT AUCTION
At Bragg's Hotel Farm, UTICA, N. Y., TUESDAY, April 25th, 1899, commencing at 10 o'clock a. m. No postponement on account of weather.
PETER C. KELLOGG, Auctioneer.

Will sell to the highest bidder this entire registered herd of over fifty animals, which have for several generations been systematically bred for milk and butter production by the present owner, who has neglected no precaution to obtain bulls of deep producing strains, preferably Bunker, Stoke Pogis and Pedro, which blood permeate the animals to be sold, individuals among which have shown butter tests ranging from 14 pounds to over 23 pounds per seven days.

This herd, which is in excellent health and working condition, has won gold medals at the New York State Fair in 1887, 1888, 1889, 1892 and 1893, as well as several hundred premiums, may be inspected at any time.

For Catalogues, ready April 18, address:
PETER C. KELLOGG,
107 John St., NEW YORK.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Locust Lane Stock Farm
. . . Service Bull . . .
BROWN BESSIE'S GRANDSON No. 34891.
State What You Want.
G. E. COLEMAN, Perry Center, N. Y.

Introduce Milking Jersey Stock INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best Write for our "little book."
FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys For Sale—Inbred Combination Bull. Dropped May 27, 1898. Solid color, full black points, fine, lean head, straight back, deep body. Will do to show. Sire, Brown Bessie's Son, sire of six. Dam, Tremona, 17 lbs. 2 oz., by Chromo, sire of eight. 2d dam, Josephina, 14 lbs. 1 oz. when 2 yrs. 2 months old, by Diploma, sire of 42 tested cows Address
HOOD FARM, Lowell, Mass.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92) in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.
70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. **P. J. COGSWELL,**
Rochester, N. Y

MILLER & SIBLEY'S JERSEYS.
Ida's Rioter of St. Lambert heads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lb. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. Lambert; also cows in calf to his sons
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shrop hire Sheep. **224**
Franklin, Venango Co., Pa.

High-Class Jerseys.
DIPLOMA
Left behind him **85** daughters, **44** including **Merry Maiden** have records. **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

BILTMORE FARMS' JERSEYS.
This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
Some Choicely Bred
BULL CALVES
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO F. WESTON, Supt., Biltmore, N. C.

The Lone Tree Jerseys.
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

DAIRY JERSEYS AT AUCTION!
FIFTY HEAD of Registered Jerseys, mostly cows in milk, will be sold at
INDIANAPOLIS, IND., April 12, 1899.
Send Postal for Catalogue to
THE JERSEY BULLETIN, Indianapolis, Ind.

and raise the calves. But how can the dairyman raise these calves successfully, if the whole milk goes to the factory to make cheese.

While the cheese factory is and has been of great benefit to the Canadian farmer, we believe it has been detrimental to the raising of good dairy stock in this country. For this reason we welcome the winter creamery, and the combined cheese factory and creamery that enables the farmer to get home a most valuable part of the milk in the early spring, which, if properly handled and supplemented with other foods, enables him to raise in the best way, cows for replenishing his dairy breed.

If none of our factories would make cheese till May 15, and would close promptly on October 31, of each year, we would not find the market over loaded in any year, and we would have a better quality of dairy cows in this community.

The butter situation continues favorable to the producer with a prospect of prices being well maintained for some time. For the past month or two we have not been depending so much upon the British market for an outlet for our surplus butter as will be the case later on. The local market has taken the bulk of the winter creamery, and at Montreal, last week, (March 25) 20 to 21 cents was freely paid by the local trade, figures which exporters could not afford to reach up to for fine, fresh creamery butter.

There has been, however, in spite of these favorable local conditions, considerable butter going forward. Every winter the number of persons engaged in the export butter trade increases. Many of the regular buyers in the cheese trade, during the summer, devote their energies, during the winter, to exporting winter butter. A couple of years ago all the winter creamery butter had to go forward on commission, the factories getting what remained after paying expenses of selling, etc. This year it is different.

The buyers and mostly those in Western Ontario, buy the butter outright from the factorymen, and send it forward at their own risk. Though there may not be any more money in this plan for the dairyman, than by sending forward on consignment, it certainly indicates a healthy state of affairs, and that those in the trade have confidence enough in the quality of the goods to invest their money and to run the risk of being reimbursed when the product arrives in Great Britain. J. W. WHEATON.

Toronto, Canada.

Would Like to do Better.

Thirty-eight Pounds of Butter Daily from Thirty-four Cows.—Capacity of Farm Doubled.

ED. HOARD'S DAIRYMAN:—Will you kindly formulate a balanced ration for grade Jersey cows weighing 850 lbs. from the following feeds: Plenty of corn ensilage from corn well eared, mixed clover and timothy hay in abundance, coarse wheat bran at $16 per ton; old corn meal at $16.50 per ton; cotton seed meal at $21.50 per ton.

I am milking 34 cows; of these, three are 2 years, and four are 3 years old, with first calf. Four others have not been fresh since last April and May. Four more fresh since Jan. 1, 1899, and all of the rest were fresh last Sept., Oct., and Nov. I am making from these 34 cows, 38 lbs. of butter a day; and would like them to do better if I can get them to by more judicious feeding. By the use of silos I am keeping 65 head where I formerly kept 35 head of stock. My limited success I owe to the teachings of HOARD'S DAIRYMAN. A. L. F.

New York.

No one yet knows what are the possibilities of production or profit from a herd of good dairy cows, but when such a herd as our friend describes is producing the amount of butter stated, the evidence is well nigh conclusive that there is no radical defect in care or feeding, and that further improvement must be looked for in a careful study of each animal and her performance, and adapting general principles to their individual capacities. This is something that only the owner or herdsman can do, and he, intelligently, only when he keeps a daily record of the feed and its results.

When we learn, as we do, from the reports of carefully conducted experiments that one cow will yield $40 profit, while a stable companion, with equal opportunities will yield only $20, or $10, or sometimes not pay for her feed, it is plain that no man is wise enough to suggest a ration that can be fed without variation to all the cows in a herd. It does not follow that ration formulas are therefore useless; far from it. Unless we discard the voluntary testimony of thousands of our readers, the formulas we have given in the last six years have been of incalculable help, both directly and indirectly. Some have been followed to the letter with benefit quite beyond our reasonable expectations; others have awakened a spirit of inquiry and study and a determination to adapt means to ends, which have made the feeding of dairy cows a science when it had formerly been only a chore.

Had we such a herd as our friend reports we should expect to feed each cow about 30 lbs. of silage and 10 lbs. of the mixed hay daily; to this we should add grain according to the ability of the individual to respond, having regard to age, natural ability and stage of lactation. The average would probably be the equivalent of about 6 lbs. of bran and 2 lbs. of cotton seed meal. If in any case, it seemed desirable to feed more grain than this we would use the corn meal up to 3 to 4 lbs. and beyond that, corn meal and bran in equal amounts. In reducing the grain we would first cut down on the cotton seed meal, dropping off gradually until it was reduced to less than one pound and then commence on the bran.

The price quoted for cotton seed meal suggests that it is relatively very cheap or of inferior quality.

Hand Separators.—Raising Calves.

ED. HOARD'S DAIRYMAN:—On page 95 of Volume XXX in HOARD'S DAIRYMAN, R. M. G. asks for information regarding the use of a hand separator. My experience with milk, taken to a factory to be separated, is precisely as R. M. G. says; it returns sour and unfit for calves.

I have used a separator over three years, and my practice is to skim the milk immediately after milking, before it becomes too cool, and the calves are fed the warm skim milk in which there is not a trace of fat visible. It is a thing of beauty and a joy forever, to see the calves; not much like sour factory milk fed calves.

This milk from the hand separator has its natural warmth left, which is different from artificial heat. I can say from experience, that calves do much better on this separated milk, with its natural warmth and not a trace of butter fat, than they would on sweet skim milk artificially warmed with as much as 1% of fat left in it.

I consider that my herd of twenty cows, which consists of registered and high grade Jerseys, paid for my separator in less time than a year, on extra value of dairy calves raised.

Perhaps a word of my experience, in raising calves for the use in my dairy, would not come amiss. I have always been very particular in keeping in my mind the words I so often heard Prof. Henry express, while attending college, and reviewing feeds and feeding with my class. Every now and then the Professor would say; "Don't get a calf you intend raising for the dairy, fat;" and then he would remind us that there was no feed that would take the place of whole oats, for a calf drinking milk. It seems to be something the calf's stomach needs to keep it healthy.

With these two things in view, I have been very successful in raising choice dairy cows from my heifer calves. I have small stanchions, with a tight manger in front for feeding. When the calves hear the buckets, from which they drink, taken from the shelf, they are all anxious for their share, and each calf finds its way into one of the stanchions, and all there is to be done is to close it, and put a peg in to hold it in place.

I have each calf tied for the time being, and each one gets its share of milk. When they are through drinking, they get a feed of whole oats, which they learn to eat while very young, from their place of confinement. When they have this nearly cleaned up, I give them whatever they are to have in the line of coarse feed, which, usually, is second cutting of clover hay.

They have forgotten that they just drank milk, and will commence munching down the hay; then they can be loosened, and never a calf will think of such a thing as sucking noses or ears, and thus allow the larger and stronger ones to get full benefit from the hay, while they are thus enjoying themselves to no good. Anyone accustomed to feeding calves in an open way, will readily see the benefit derived from feeding in stanchions.

As I always have my calves come in the fall of the year, I feed them through the winter, and in the spring turn them out to pasture; thus they are one year old at the beginning of their second winter. If it would benefit anyone, I would gladly give my experience and practice with them up to the time I have mature cows, giving me a herd test of from 6 to 8% butter fat. C. D. B.

Tomah, Wis.

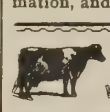
We should be glad to have C. B. D. give us more of his experience.—Ed.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm Stahl Quincy, Ill., and get his catalogue describing twenty one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

REGISTERED Holstein-Friesian cattle, Aaggies, Netherlands, Waynes. Pauline Pauls, De Kols, Pietertje families. **WM. O. JACKSON & SONS, South Bend, Ind.**

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland. **L. F. JUDD & CO., Bloomington, Wis.**

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. R. GATES, Ripley, Jefferson Co., Wis.**

Bargains in Bulls McGEOCH HERD Holstein-Friesian Cattle.
Lake Mills, Wis. We offer six young bulls three to six months old, of DeKol, Pietertje, Clothilde, Mechthilde and Tritomia families. They are growthy, well marked, well bred, and will be sold cheap. Address H. B. DAGGETT, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,
THE NATIONAL WAGON CO., Chillicothe, Ohio.

Ten Choice Yearling
Holstein-Friesian Bulls FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

IMPROVE YOUR DAIRY HERDS
by using a butter-bred **Holstein-Friesian Bull.** We offer twelve young bulls ready for service at prices ranging from $75 to $200. The dams of these bulls are well tried and have authentic tests ranging from 18 lbs. to 32 lbs. 3 oz butter in 7 days, and have yielded from 50 to 99 lbs. of milk per day. Seven are grandsons of Mechthilde, the "Butter Queen." No greater improvement can be made than by using one of these bulls upon the finest of dairy herds, for they have been bred for butter quality for the last five generations, and have inherited staying butter qualities which will breed on. KARLEN & CO., Monticello, Wis.

GUERNSEYS AND **POLAND-CHINAS.**
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

Florham Guernseys.
I offer at attractive prices **TEN BULL CALVES** from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., **MADISON, N. J.**

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass.

AYRSHIRES Finely Bred and from the very best families. Stock young and old for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

Cow Peas.

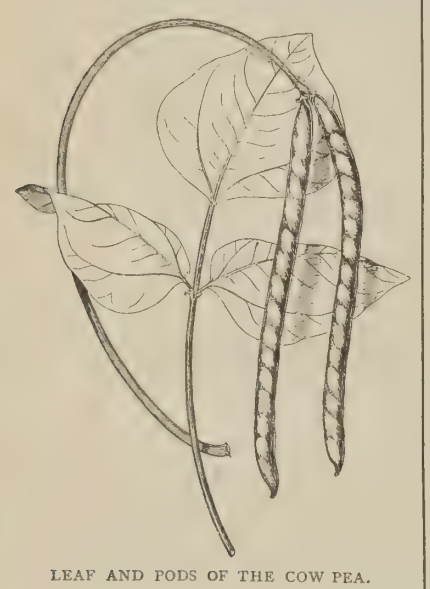
The cow pea is to the South what alfalfa is to the West and red clover to the North—a forage plant well adapted to the needs of the region. The cow pea has been cultivated in the South for at least one hundred and fifty years. It was probably first introduced on plantations in South Carolina, the seed having been brought from India or China. From this original introduction and from subsequent importations its cultivation has spread to almost every farm and plantation in the Southern States.

Cow peas are in their relationship and habit of growth really beans and not peas, as the name would indicate. They are annuals, belonging to the genus *Vigna*, the members of which are largely represented in South Africa and are closely related to the lablab, lima, and haricot beans of our gardens, as well as to numerous cultivated or half-wild garden sorts common in tropical Asia and America, but little known to us.

VARIETIES.

There are a very large number of named varieties of this forage plant. New forms are constantly arising, due to variations in the habit of growth, color of leaf, stem, and pod, and the shape and color of the seed. Variations from any chosen type are constantly appearing, and as one or another of these sports or forms gains sufficient local reputation a new name is applied, and sooner or later the supposed new variety is placed upon the market. In this way one variety of cow pea may be cultivated in a dozen different localities under as many names, or a dozen different peas may bear the same name.

Cow peas occur in every gradation of habit, from a compact, stocky, upright bush having single stems a foot high with very short lateral branches, to those with trailing runners growing as flat upon the ground as sweet potato or melon vines, the prostrate stems 15 to 20 feet in length. The pods vary from 4 to 16 inches in length, and the peas are of every imaginable shade of white, yellow, green, pink, gray, brown, red, purple, and black, of solid colors or variously mottled and speckled, and of varying sizes and forms, from large kidney-shaped to little round ones smaller than the garden pea.



LEAF AND PODS OF THE COW PEA.
(*Vigna Catyang*)

There is a like variation in the length of time the different forms require to ripen seed, some requiring eight or nine months, a few ripening in sixty days from the time of planting.

There seems to be a somewhat constant relation between the time required for attaining maturity and the habit of growth. The bush varieties ripen in a shorter season than the trailers, but a bush variety taken from Tennessee or Virginia will, in the course of a few seasons, assume the trailing habit, and lengthen out its period of growth, when removed to the Gulf States. Also, a runner or creeper requiring six to eight months for reaching maturity in Louisiana will, if planted each year a hundred miles farther north, gradually accommodate itself to the shorter season and at the same time shorten its runners, approaching more and more to the upright or "bush" habit of growth. No definite line of separation can be drawn between bush peas, trailers, and runners. The best varietal character is probably the color of the seed. It is quite probable that more than one species is in cultivation. The "red" and "black" varieties are closely allied; the round "lady" peas form a separate group; the large "black-eyed" and "purple-eyed" are typical of another, and the variously mottled and speckled "whip-poor-wills" are only a degree removed from the solid-colored yellow, pinkish, and light brown ones, and together would naturally be taken to constitute one species or variety. The black peas pass through various shades of red before maturity. The red varieties sometimes carry their change of color in ripening so far that they can not be distinguished from the black. The "black-eye" and "purple-eye" are of the same ground color, differing only in the color of the ring surrounding the eye. The various "crowders", yellow and white, the whip-poor-will, clay, and "yellow-eye" forms have numerous crosses and so-called hybrids in which the fundamental yellows and browns form varying mixtures.

COW PEAS FOR FORAGE.

There is no forage plant better adapted to the needs and conditions of Southern agriculture than this rank, free-growing annual. It will thrive luxuriantly upon the rich, swampy, cane lands of Louisiana. On the driest and most sterile worn-out uplands it serves the admirable purpose of supplying a larger quantity and better quality of forage than any bean or clover. And whenever a crop of cow peas has been taken off a field, the surface soil is left richer by a good many pounds of that most costly of all plant foods, nitrogen. The roots of the cow pea enter deeply into the soil, opening and loosening it far down for the benefit of the roots of the succeeding crops of corn, cotton and tobacco. It has been found by experiment that the fertilizing value of the roots and stubble of the cow pea are very considerable, but not as great as that of the hay removed from the field. The best and most economical use of this forage crop is, then, to cut for hay, feed to stock, and return the stable manure to the soil. Plowing the whole crop under is less remunerative, because there is much needless waste of the muscle-making and fat-forming constituents of the plant which would bring more profit if turned into beef, pork, wool, cheese or butter.

METHODS OF CULTIVATION AND HARVESTING.

Cow peas are planted broadcast or in drills, very commonly between the corn rows, after the crop is laid by. The amount of seed used varies from four quarts to two bushels per acre, the average amount being, perhaps, about three pecks. If sown in drills, eighteen to thirty inches apart, less seed is required then when sown broadcast. The seed will stand being covered to the depth of two or three inches, but care must be taken to plant when the ground is neither too wet nor too cold, as the peas rot very rapidly under such circumstances. In regard to excess of moisture, cow peas behave like beans, and in the early stages delight in a warm, mellow seed bed. Much of the failure that has attended the attempted introduction of cow peas into the Northern states is due to planting before the ground is warm enough. It must be remembered that this plant originated in the Tropics, and that when transplanted to higher latitudes, it makes its best growth in the hottest weather. It is even more susceptible to cold and wet than is corn. Hence, proper delay in planting will permit economy in the use of seed. Where the vines are grown for hay, the yield will be larger if the seed is planted in drills, and cultivated a time or two. The yield of peas is also larger when only a moderate amount of seed is sown, and the vines have more space, and light, and air between them. It is also heavier from late-planted vines than from the very early ones. In tests to determine the relative value of different named varieties, it has been found that, as a rule, those which make the heaviest yields of vines also bear large crops of peas.

The vines should be mowed for hay when the peas are well formed, and the leaves and pods are first beginning to turn yellow. After wilting on the ground, or in windrows from twenty-four to forty-eight hours, the hay is placed in small, thin piles or cocks, and allowed to cure for several days, when it may be carted to the barn, or stacked under sheds. The hay making process is a difficult one, requiring more care and attention than in the case of red clover, because the broad leaves and thick stems contain a larger amount of water. The hay must be placed in cocks before the leaves become brittle, and the piles must be small enough to allow free circulation of air to the center of each. Bright cow pea hay, clean and well cured, is worth as much as the best red clover hay, and there is no good reason why the Southern farmers and planters should buy the Northern grown article for their working stock, or for fattening their cattle. Every ton of hay used on the farm should be grown there. Another method of curing hay, is to stack the vines in a pen, or rack of rails, or poles so arranged as to allow the air to enter every part of the pile. This stacking over poles is best, where the vines are pulled, or where the trailing and creeping sorts are



Always Use the BEST.

The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

"THE KIND THAT HAS NO MUD."



Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

$15.95



ONLY ONE DOLLAR DOWN

Cut this ad. out and send to us with $1.00 and we will send you this HIGH GRADE 1899 MODEL $50.00 VICUNA BICYCLE by express, C. O. D., subject to examination. Examine it at your express office and if you find it a genuine 1899 model HIGH GRADE $50.00 VICUNA, the grandest bargain you ever saw or heard of and you are convinced it is worth $10.00 to $15.00 more than any wheel advertised by other houses up to $25.00, pay your express agent the balance, $14.95 and express charges.

THE VICUNA IS COVERED BY A BINDING GUARANTEE. Frame is 22 or 24 inch, made from best seamless tubing, finest two-piece Denton hanger, finest full ball bearings, Mason arch crown, enameled black, green or maroon, highly nickel finished, Delhi padded saddle, up or down turn handle bars, best Doyle pedals, HIGH GRADE GUARANTEED REGAL PNEUMATIC TIRES, fine leather bag, complete with all tools and repair outfit. ORDER TODAY. YOU CAN MAKE $50.00 EVERY MONTH SELLING THESE WHEELS AT $25.00. (Sears, Roebuck & Co. are thoroughly reliable—Editor.) CATALOGUE FREE.

SEARS, ROEBUCK & CO., CHICAGO, ILL.

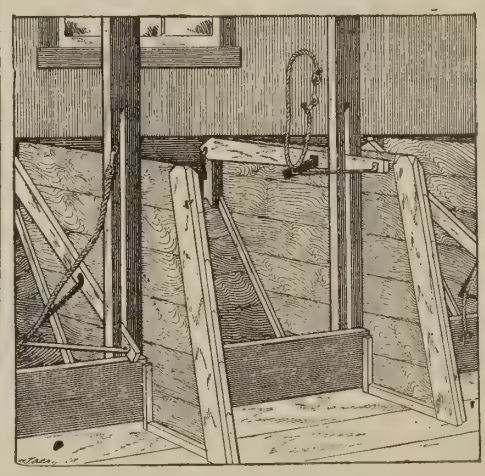
For $1.00 we furnish a Gas Lamp, the exact same lamp as is now being widely advertised as a premium with a bicycle as a Regular $4.00 Acetylene Gas Lamp, but we do not guarantee or recommend it.

ILLUSTRATION.

This new device for hitching cows is creating no little talk among dairymen, and we take pleasure in furnishing our readers a description of it.

ORIGIN AND HISTORY.

Mr. Willard H. Knapp, of Cortland, N. Y., first constructed it in his barn, in December, 1897, as an experiment. For several years he had been especially interested in the breeding of registered Jersey cattle and the proper care of stock, and fastening same in stables. The old-time, stock-like stanchions were inhuman, and he consequently decided to discard them. In considering devices of a more humane nature, the idea represented in the accompanying cut suggested itself. It was constructed and put in actual use. The appearance of the herd in the barn was greatly improved. The cows gained in flesh, and the quantity of milk increased. Mr. Knapp was well pleased with the experiment.



As will be seen by glancing at the cut, the device consists of one short and one long upright, with an elongated opening in the latter. A horizontal arm, pivoted to the short upright, passes through the opening. To that arm is fastened an angle iron, to which is attached a strap, rope or chain. It will readily be seen that when a cow is standing, she is pushed back to the gutter, and when lying, drawn forward; thus conducing to the cleanliness of the animal.

The partitions are an important feature. There is no farmer, who would knowingly feed all cows alike, no matter what might be their physical condition or work. No dairyman should feed all cows alike. One animal will require a different food from that of her neighbor. Again veterinarians have oftentimes stated that germs of disease are spread among cattle on account of their securing each others food.

In the "Willard Knapp Cow Tie", the partitions so divide the feeding trough, that an animal eats only the food designed for her, and can in no way reach for and secure that designed for her neighbor.

If one prefers, the partitions may extend back as far as the gutter, in order to prevent the cows from injuring one another.

Much is being said at agricultural meetings, and written in the agricultural press, regarding the cruelty of fastening cows in the old stock-like stanchions. We are in sympathy with whatever has been said against the stanchions. Farmers are fast realizing the importance of discarding the old time stanchions, and using humane, comfortable, up-to-date devices. It will certainly pay the readers of HOARD'S DAIRYMAN to investigate the question of fastening cattle.

The "Willard Knapp Cow Tie" is a humane, inexpensive, practical and durable device. It promotes cleanliness, comfort and health.

Mr. Knapp had no thought of putting his device upon the market, until urged to do so by many prominent agriculturalists, of New York state, who saw in it a long felt want.

Willard H. Knapp & Co., Cortland, N. Y., manufacture the frame work for this device. Circulars with up-to-date testimonials, from up-to-date men, will be mailed free upon application.

used. The bush varieties are the best for hay, because of the greater ease with which they may be mowed and handled. They also hold their leaves better than the ranker trailing sorts. The yield of hay varies according to the fertility of the soil upon which it is raised, whether it is grown on rich lowlands, or on the drier and more sterile uplands. In the Gulf States, cow peas will probably give an average yield of two to three tons per acre, while four to six tons are not uncommon. Farther north the average will range from 1½ tons in Ohio to 2½ tons in Arkansas, Missouri and Tennessee. As with other crops, the time of planting, the character of the soil and of the cultivation, and the amount of rainfall have much to do with the yield. Along the Gulf it is one of the best hay crops. North of the latitude of the Ohio river it is chiefly valuable as an addition to the list of drouth-resistant, soiling crops, and as a crop that will yield a considerable amount of forage on soil too sterile to grow red clover. The commercial value runs from $6 to $20 per ton, being governed by the relative abundance of other grades of hay and fodder. Its feeding value is equal to that of the best red clover, and the hay ranks high in palatability and digestibility.

HARVESTING THE SEED.

The majority of farmers harvest only enough seed of cow peas to plant again the next season. The ripe pods are picked by hand and are stored in barrels until needed, or are thrashed out by machine or with flails on the barn floor during the winter. Sometimes, if the crop is heavy enough to render it profitable, the vines are run through an ordinary threshing machine from which the concaves and alternate teeth of the cylinder have been removed. But a machine breaks and bruises more of the seed than when the pods are first picked off by hand. Fully 95 per cent of the seed placed upon the market is hand picked. The yield per acre varies according to the variety and the method of cultivation. Eight to twelve bushels is a fair average of the amount that can be obtained when the peas are planted in the corn rows. Sown alone, broadcast or in drills, yields of from twenty to thirty five and even in rare cases, fifty bushels are obtained. The Black, Unknown, Red Ripper, Clay, and Calico varieties are all heavy seed bearers. Lady and White Crowder are good for table use and also yield well. The Black-eye, Red Crowder, and Whip-poor-will, or Speckled, are very widely cultivated and find ready sale. Those which make the larger growth of vines for green manure, as a winter soil mulch, for hay or soiling are the Unknown, Red Ripper, Southdown, and Clay. Whip-poor-will, Black-eye, White, and Red Crowder ripen in from twelve to fourteen weeks, and hence are adapted to cultivation farther north than the very late, but ranker growing, Unknown, Wonderful, Red Ripper, Black and Gourd varieties The New Era and Lee ripen seed in from six to eight weeks, and hence are the ones to recommend for summer soiling crops in the upper prairie region of the Mississippi Valley or any where else that an early maturing cow pea is required. This is one of the species of cultivated plants which is very readily modified by change of habitat. Early and late maturing forms may be found of every strain that has been in cultivation for any considerable time.

THE FEEDING VALUE OF COW PEAS.

The feeding value of cow pea hay is very high, as shown by feeding tests and chemical analyses. Berckmans states that the well cured hay is more nutritious than any hay produced from grass, millet, or any other plant used for the purpose, and that one ton of it will last as long as a ton and a half of the best timothy. One hundred pounds of the green vines contain 16.4 pounds of total dry matter, of which ten pounds are digestible. One hundred pounds of the hay contain 89.3 pounds of the total dry matter, of which 50.7 pounds are digestible. The digestible crude protein in the hay amounts to 10.79 pounds in comparison with 10 58 for alfalfa, 10.49 for crimson clover, 6 58 for red clover, and 2 89 for timothy. The digestible carbohydrates and fat amount to 39.91 pounds in every 100 pounds of cow pea hay, 38.71 for alfalfa, 39 42 for crimson clover, 37.01 for red clover, and 45.15 for timothy. The average nutritive ratio of cow pea hay is 1:3.9; of alfalfa, 1:3.8; of crimson clover, 1:3 9; of red clover, 1:5 9; and of timothy, 1:16.2. The green cow pea vines are more succulent than red clover or any of the grasses, containing less dry matter per total weight.

The feeding value of the hay is shown by the nutritive ratio which represents the relation of the digestible crude protein to the carbohydrates and extract matter. Thus, for every pound of digestible crude protein in cow pea hay there are 3.9 pounds of digestible carbohydrates and fat. In order to insure uniform growth of an animal and get the full feeding value of all the constituents of a forage, the ratio must be properly balanced. The nutritive ratio of cow pea hay is narrower than can be properly utilized by the animal, and to get the full benefit of all the crude protein in the plant, hay or coarse fodder containing an excess of the carbohydrates must be added to the daily ration. A practical farmer, writing from Southern Mississippi, says that excellent results were obtained through feeding two parts of cow pea hay to one part of crab grass or timothy, and when using this ration very little grain was required, especially when the hay contained much of the pods. If cow pea hay be fed without the admixture of some coarse forage or grass hay, a portion of the protein will be wasted through inability of the animal to digest and assimilate the whole amount. Cow pea hay is used on many of the Southern sugar and rice plantations for the horses and mules, and it is found that work stock keep in excellent condition upon it, requiring very little grain.—*Farmers' Bulletin, No. 89, United States Department of Agriculture.*

Gasoline Engine for Separator Work.

ED. HOARD'S DAIRYMAN:—I am contemplating putting in a gasoline engine to run cream separator and churn. I noticed in issue of March 17, of the DAIRYMAN, page 93, an article by Mr. McKinnon rather against the gasoline engine for separator work. I would be pleased to hear from other parties on this subject, as I do not wish to make a mistake in purchasing. We make butter the year round and I would prefer the gasoline in preference to steam in this cold climate, provided the gasoline would do good work. W. D. BLOUNT.

Oswego Co., N. Y.

The use of gasoline engines for separators has been favorably spoken of by several correspondents, in the back numbers of the DAIRYMAN; no objection having been found to them on the score of irregular motion. The only objection urged is to the want of hot water and steam in the dairy where they are used, but this is easily obviated by the use of a small heater. Or the water can be heated by the waste gases from the engine.

When a mother thinks she is going to die and rather wishes she could, what happens to the child? Where else shall the child get the love, kindness and care that is to ripen it into useful, happy maturity?

Where is the husband to turn for the comfort of home—the sympathy of wifely affection—the support that only a strong, cheerful, healthy help mate can give?



Who is to be pitied most? Mother—father—child?

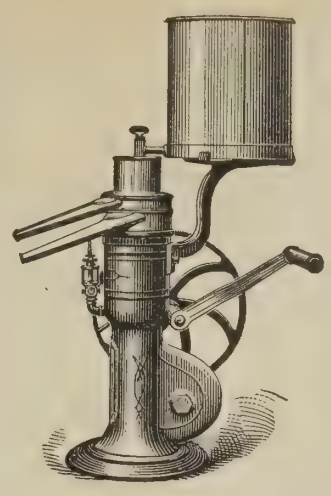
Whose fault is it?

Nobody's maybe — certainly not the child's. Either the mother or father can write to Dr. Pierce and receive medical advice free. Thousands have done it. Thousands of homes have been made happy by it. Thousands of weak women suffering with the pains and debilitating drains of a diseased condition of the distinctly feminine organism have followed Dr. Pierce's advice and become again blooming, vigorous, loving, cheerful and loved.

Dr. R. V. Pierce is chief consulting physician at the world-famous Invalids' Hotel and Surgical Institute, at Buffalo, N. Y., and during his thirty years' practice here developed his great family medicines—Dr. Pierce's Favorite Prescription, Dr. Pierce's Pleasant Pellets, Dr. Pierce's Golden Medical Discovery.

Mrs. Claus Nelson, of Pico Heights, Los Angeles, Cal., Box 31, writes: "I send you my picture taken with my little boy. I do not look so sad now as I do in the picture; I was sick then and I thought my days would not be long, but your kindness and medicine would not let me die. You have my heart-felt thanks for your kindly advice to me in my sickness; also for your book which I received two years ago, and which I could not do without. It is all the Doctor I have had since I got it. I had female trouble, and Dr. Pierce's Favorite Prescription, together with the advice given in his book, cured me of five years' sickness."

The book Mrs. Nelson mentions is Dr. Pierce's 1,000 page "Medical Adviser," the most useful "doctor book" published. A copy in stiff paper-covers sent on receipt of 21 one-cent stamps to pay expense of mailing *only;* in cloth-binding ten stamps extra. Dr. R. V. Pierce, Buffalo, N. Y.



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
Perfection of Skimming .	The NATIONAL is the Bes
Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



THE

AMERICAN

Cream Separator

PRICE - - - $65

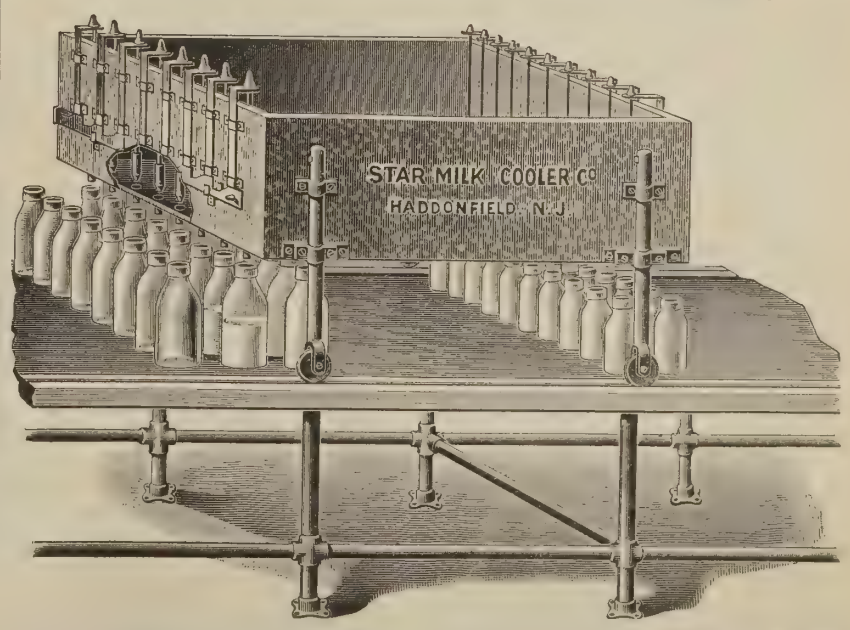
Still at the Head, Receiving First Premium and Diploma At The ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER,
St. Marys, Ont., and
S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y

STAR BOTTLE FILLER.



Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.

STAR MILK COOLER CO., Haddonfield, N. J.

Building up a Dairy Herd.

Good Selection. Good Feed.—Good Sires.

ED. HOARD'S DAIRYMAN:—I send you the record of our dairy for 1898. It is not a phenomenal record, but it is a very fair illustration of the work of building up from common stock a good working herd by breeding, selection, and care.

The dairy consists of eleven grade Jerseys. The record includes nine, as it was expected to dispose of two of them during the year.

Name.	*Age.*	*Milk lbs.*	*Test.*	*Butter fat.*
Tilly.....	11	65 9	4.90	320
Blackie....	5	4675	5.25	245
Bessie 2d...	5	6024	4.70	283
Queen.....	12	4285	5.40	231
Bessie.....	11	6 35	4.39	259
Matilda.....	3	3808	5.50	209
Grizzle.....	11	6481	4.10	266
Thankful..	3	4181	4.80	201
Dotty.....	5	4668	4.70	2 9

The same strain of cows has been in the family for fifty years. The original cow, from which the herd descended, was brought on to the farm as a part of a weedding dowry. How long the same breed of cows had been in the grandfather's family, no one knows. The cow was a native with good form, vigorous constitution, and large milking qualities.

For many years the raising of steers was foremost and the production of butter secondary. When, however, horses largely took the place of oxen, this kind of farming became less profitable and the dairy was gradually increased.

About twenty years ago the last remaining descendant of the original stock was bred to a Jersey bull. The result was a heifer calf which, as a mature cow, produced over 500 pounds of butter in one year. This cow brought us seven heifer calves, never having any others and dying of milk fever when eight years old. All of these calves were grown up to mature cows and proved to be good. They made a good foundation for a dairy. Two of them still remain in the herd.

Ever since beginning to breed to the Jerseys we have practiced weighing each cow's milk occasionally. Before the Babcock test was invented we tested the quality of each cow's milk at intervals by setting the milk for a day and churning the cream.

In making the record given above, we weighed the milk from each cow the first and the fifteenth of each month, averaging these with the first of the following month. Each cow's milk was tested twice during the year by the courtesy of our local creamery. The tests represented composite samples of four consecutive milkings.

Some of these tests are very interesting when it is remembered how closely related these cows are and how many generations they represent. The two cows above referred to, although own sisters, test on an average, one 4.30%, the other 5.40%.

Four cows, all about the same length of time in milk, tested as follows: The daughter of the first cow that was bred to a Jersey 4%; the granddaughter 4.2%; the great granddaughter 4.4%; the great great granddaughter 5.2%. Whether this latest candidate for dairy honors can be brought up to a generous flow of milk, remains to be seen. In all of these cases there were no abnormal conditions making the milk richer or poorer. It was simply the difference in the cows.

In grading up the herd, the plan has been to use as good sires as could be had at moderate expense. We have not practiced inbreeding, but when it has been necessary to change, have tried to do a little better each time. The present head of the herd is out of a cow which was claimed to have made two and one half pounds of butter a day for one-hundred consecutive days. The cow has a good line of ancestors reaching back to the famous Jersey Queen of Barnet, in Vermont.

Our cows are fed twice a day and watered once. Their feed in winter consists of ensilage, night and morning, and timothy hay with much too small a proportion of clover. Their grain ration at present is made by mixing 100 lbs. of bran with 50 lbs. of cotton seed meal and 25 lbs. of Chicago gluten meal. Of this mixture from 2 to 4 lbs. a day is fed according to the length of time a cow has been in milk, her condition and performance at the pail.

In summer some corn meal is substituted for some of the more nitrogenous meals and only about half the quantity is fed. Short pasture is supplemented during the flush of feed by hay and later by rowen, sometimes peas and oats, and when mature enough, by corn.

We are aware that the grain ration is small, not sufficient to balance properly the roughage. But situated as we are, four miles from the railroad and in a hilly country, we have bought less concentrated feed and depended more upon home grown fodders. We have usually found that the cows respond more generously to good pasture and early cut hay than to an increase in their concentrated feed.

A "Baby" separator No. 3 is used to skim the milk. The separator milk, while still warm, is fed to pigs and calves. All of the latter are raised—the heifers to be grown up into cows, the males for beef when eight or twelve months old. The cream is taken twice or three times a week to a co-operative creamery. The past year the creamery has paid its patrons 20½ cents per pound for butter fat.

Washington Co., Vt. A. N. BLISS.

A Nebraska Holstein Record.

ED. HOARD'S DAIRYMAN:—Seeing almost weekly representatives of the Holstein-Friesian cow as a milk and butter producer, I thought it might interest some of the DAIRYMAN readers to see a record of a thorough-bred Holstein-Friesian cow, 5 years old, owned by me. Her record of a ten-months' milk and test, as taken from a record taken up by the superintendent of the creamery station here, is as follows:

The record is from October 1st, 1897, to July, 1898. Milk, 16,300 pounds with an average test of 4 per cent fat, by the Babcock test. This is from three milkings daily, after having been fresh for two weeks, before selling my milk at the creamery. I got an average price of 16 cents.

I do not feed rations; my cows have all the millet hay they wish, when out in the lot, and all the alfalfa hay they wish when taken in for the night. I feed 14 pounds of corn and cob, ground, per day. This cow is a hearty eater, and will show extra feeding in the milk pail. I think the Holstein-Friesian cow the best for making dairying profitable, and improving other breeds. For milk quantity there is no equal, as I have some mixed grades besides my thorough-bred that give 50 pounds of milk daily.

Lancaster Co., Neb. H. F.

THE COW AND HER PROFIT.

A number of years ago Hon. J. H. Walker of Mass., made the following calculation:

"If butter be worth thirty cents per pound and it costs $35 to keep a cow, the farmer or dairyman paying:

	In ten years.
$ 30 for a 200-lb. cow realizes.....	$182.87
125 for a 300 lb. cow realizes.....	354.78
250 for a 400-lb. cow realizes.....	483.49
350 for a 500-lb. cow realizes.....	654.17
450 for a 600-lb. cow realizes.....	811.69

It will be seen that the highest priced cow pays very much the largest profit and the chances of her doing business ten years is probably about as great.

THE SCRUB BULL.

A correspondent of the *Nebraska Farmer* describes the scrub bull in the following quaint verse:

"His sire was mean and mean his dam,
And damned to all Eternity
By neighbors sad and neighbors mad,
Whose damns meant not maternity."

IOWA STATE DAIRY ASSOCIATION.

The executive committee of the Iowa Dairymen's Association have voted to hold the next Annual meeting at Mason City, Nov. 15, 16 and 17, 1899. Persons interested in this event should make a note of the place and date.

CONCERNING OUR ADVERTISERS.

"IT HAS NEVER FAILED YET."

WHITEWATER, Wis., Dec. 1, 1898.

The Lawrence-Williams Co., Cleveland, O.:

I have been using your Gombault's Caustic Balsam for ten years, for different ailments. It has never failed for me yet; also used it for human ailments. Can you furnish me with Caustic Balsam direct from you? If so, please write me prices and terms. DR. HIGLEY, V. S. D.

Note the ad in this issue of Drown Stall Co, Madison, Wis. This stall has been spoken of very highly by HOARD'S DAIRYMAN many times in the past and we know of none on the market to day that has met with more hearty approval by users than this stall. Those who use it have the most to say for it. We receive a great many letters making inquiry in regard to cow stalls and we are free to say to all that no better reference can be given than to the Drown cow stall.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

HYPODERMIC TREATMENT FOR ABORTION.

Do you think the hypodermic method a good treatment? If not, what objection to it? I keep from 70 to 76 cows; have had abortion in my dairy, more or less, for quite a number of years. For about three years have stopped buying; raising my own calves; since which time my old cows seem to be free, or nearly so, from abortion, and my heifers nearly all abort with first calf on third to seventh month. I use some disinfectant and syringe for some weeks after abortion, and nearly all come right the next year. I have studied abortion for more than ten years, many cases of my own and my neighbors have come under my notice. Have also noticed for some years the articles in HOARD'S DAIRYMAN on this subject. Have used treatment of Fuller & Co., Lowell, Mass., with some good results. Heifers run in a back pasture, away from my cows, and are served by a separate bull, a yearling. Heifers are stabled in an ell to main barn, but more or less passing back and forth from main barn, so are not entirely exempt from any air odors, etc., one barn to the other, although the young cattle are yarded separately. Most of the abortions have occurred in barn, one or two each for the past two years in pasture, where young cattle were. R. A. W.

Poultny, Vt.

ANSWER.

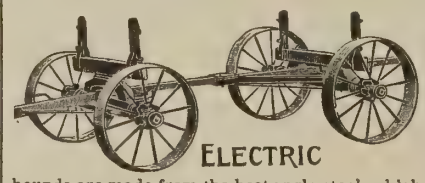
From your own statement you seem to be doing well. Hypodermic injections are fallacious. They are not a remedy for abortion.

SPINAL MENINGITIS AND SILOS.

Since last Christmas I have lost three good farm horses with spinal meningitis (generally called putrid fever or putrid sore throat), one of them, our family horse that my wife and children could drive anywhere. It seems to be a disease which the veterinary surgeons have not mastered, and do not positively know the cause, although the different ones I have consulted think it is caused by germs taken into the system in the feed or water. Since the inclosed clipping appeared in two papers, read generally through this section, the *Philadelphia Record* and *Doylestown Intelligencer*, a great many think that my silo caused the death of my horses. My silage is taken into the entry about twenty feet from the nearest horses, but none of it fed to them, although two cows, kept in the horse stable, were fed on it. I cannot see how it could effect them, for there is none of this deadly gas spoken of, in my silo, but a sweet pleasant smell that men like. The feed and hay I have fed appears to be as sweet and clean as it could be, and the horses were watered

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned whiteoak. The front and rear



hounds are made from the best angle steel, which is neater, stronger and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130 Quincy, Illinois., for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.

SEED TIME

is going to be late this season. Cold, frosty weather has held on longer than usual and when the proper time comes it will be necessary to get seeds into the ground in a hurry.

The "PLANET JR"

Seed Drill will be found the fastest and most effective.

Drills all kinds of garden seeds evenly and perfectly. The entire line of "Planet Jr" goods—**Hand Drills, Wheel Hoes and Horse Hoes** are unequaled in material and quality of work. Don't buy until you get our new catalog—free.

S. L. ALLEN & CO., Box 1107 D, Philadelphia.

POLAND CHINA... BREEDERS

can secure a sample pair of our

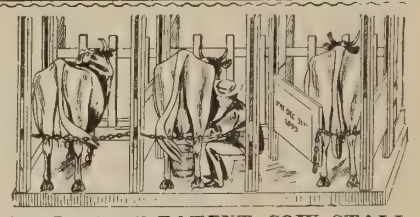
Famous O.I.C. Hogs

ON TIME, and agency if they will write at once. **2 weighed 2806 lbs.**

L. B. SILVER CO.

227 Summit Street, Cleveland, Ohio.





The DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food No Ties It costs more to not have than to have it. Send for information. DROWN COW STALL CO., H. C. DRAKE, Ag't, Madison, Wis,

Golden's White Wonder

Will remove grease spots, milk stains or dirt from clothing, where everything else has failed. Receipt and full directions for making and using this Great Chemical Discover. for **25c** This is absolutely indispensable in every household. Send to-d y, you will never regret it Address J.C. GOLDEN, Martin, Tenn.



$17.50

5 TONS...

We guarantee this harness to haul 5 tons **and no break.** Made of extra heavy **Oak Tanned** leather. **Traces** 3 ply. 1½ in. wide, 6 feet long. **Pads** heavy, well stuffed, with hook and terrets. Pole and breast straps 1¾ in. **Lines** 18 ft. long. Equal to any harness retailed for $26.

Our Price with two hitch straps **$17.50.** All kinds of Farm, Light Double and Single Harnesses. **82 styles to select from.** Shipped subject to examination without any money with order, to **be returned at our expense if not satisfactory.** Also Buggies, Phaetons, Surries, Spring Wagons, Speeding and Breaking Carts. **DON'T BUY** until you see our 164-page **Harness and Vehicle Catalogue.** Write us for it now. **We will save you money.**

Marvin Smith Co. 55-57-59 N. Jefferson St. HD 18, Chicago.

BABCOCK

Milk Testers.

Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. **J. J. ANGUS, Plymouth, Wis.**

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Pronouuced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts. and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.

For 2 cts. I will send one miniature page of each of the three songs. Address the author,

HALBERT L. HOARD, Fort Atkinson, Wis.

PLOWING MADE EASY

MORRISON MFG. CO.—*Gentlemen:* I will say that I have used your **HEEL PLATE** for controlling the running of the walking plow and I find that it has a good many advantages. It will keep a plow running level. If my plow wings over one way or the other, I can fix it in three minutes so it will run alone. It will also keep the plow share sharp a considerable length of time. It is a very simple improvement and is all you claim for it.

Yours truly, FRANK WENKE.

A postal card will bring a **Beautiful Illustrated Catalogue Free.**

Address, **MORRISON MFG. CO., Ft. Madison, Iowa.**

at the spring where the family supply has been obtained for the last 100 years, I know. If you could throw any light on this subject, I am sure it would interest many dairymen in the east, as the disease is quite common, and fatal, nearly always. W. A. T.

Wycombe, Pa.

ANSWER.

It is hardly possible to conceive of a more vapid or shallow reason to be assigned for spinal meningitis, than the one you say the veterinarians give in charging it to the use of ensilage.

The veterinary profession is "cussed" with a lot of addle pated quacks, without education, ability, observation or reading, who jump at any baited hook as a conclusion, that is flung to them.

Spinal meningitis in men and animals is a very deadly disease. The cause of it has baffled the most learned investigators, although there seems to be some evidence accumulating, which would indicate that it is of germ origin. It quite generally appears in an epidemic form. W. D. H.

LOSS OF MILK FROM SORE TEATS.

I am having trouble with my cows' udders. The trouble starts in the end of the teat and goes on up in the udder, then the flow dries up, and she is no good after that. I have given salts and ginger every three days and spirits of niter every day, and never cured one yet. G. R. K.

Balto Co., Md.

ANSWER.

I really can't understand the cause of your trouble with the cow's teats, but I have strong suspicions it is the result of milking by some hard squeezing, hard jerking milking.

TREATMENT FOR COW POX.

I don't get good results from the use of your cow pox remedy. It don't seem to do my cows any good. If you have any other remedy, please give it to me. M. B. P.

ANSWER.

Safety, easy milk tubes are to be used in all cases of sore teats. Here is where you fail to cure, I presume, by this hand milking. I don't know of any better treatment for cow pox. You are to blame somewhere, I believe.

INVERSION OF THE WOMB.

I have a cow that dropped her calf the 17th day of February last. Since then, when lying down, her womb will protrude a little, also when she passes water and dungs. It has never come out as I have seen it in some cases. E. P.

Middlebow, Mass.

ANSWER.

Inversion of the womb is always a bad condition. Recurrence is a rule. This always requires extra care and attention. Let her lie in position, slightly inclining forward, so that there will be much less pressure behind.

A compress of any kind of old soft rags will do. Soak this in Bromo Chloralum, one to eight of cold water. Soak and replace twice a day; leave a small opening at the bottom to allow the passage of urine.

FAILURE TO BREED.

I had a heifer drop her second calf the first of December, '98, and has not come in heat since. She looks well and gives a good mess of milk. G. T. K.

Vt.

ANSWER.

Read the ads. in the DAIRYMAN. They are the best, cheapest and most reliable, and easily given. Select for yourself.

SORE TEATS.

I have a Jersey cow that has sore teats. A small scab came on one of her teats, and spread over one-half of it. Two of her other teats, also, have scabs on them now; they seem very painful. G. S.

Charter Oak, Iowa.

ANSWER.

Always use a milk tube of the correct pattern, when the teats become sore, and give a full dose of physic to each cow. Dress the scabs with spermaceti and almond oil, half and half, and one dram to the ounce, of pulverized gum myrrh to be mixed with this. Always stop hand milking just as soon as the soreness appears.

FAILURE TO WORK IN TREAD POWER.

I bought a one horse tread power for which I use a bull to run it. I have very much trouble to make this bull run that power, for as soon as I lead him on the lag, which is even or smooth, he will slip, which makes it impossible for him to run it. I tried to prevent this slipping by nailing on some cleats, but had to take these off again on account of him hurting his hoofs. F. G.

Debri, Mich.

ANSWER.

Don't know what to say to you. If the bull can't work the tread power without slipping or hurting his feet by the cleats, fix some sort of soft material over the cleats, or protect his feet.

Cow flatus pipe and probing should read, a six foot section—not a six inch section, as printed last week,—of garden hose, of good quality.

FEEDING SULPHUR TO COWS.

What effect has sulphur on cows? Would you advise feeding it, what proportion, how often? MRS. WM. MCC.

Helena, Ark.

ANSWER.

Sulphur is one of the very best drugs for many diseases. It is, also, one of the most dangerous to trifle with, at all times, but especially during damp, cold weather. It will kill all lice of every kind, and not do harm if carefully and knowingly given; but there are safer drugs for all the diseases, for which it is good. It opens every pore of the body, and permeates all and everything, even to the nails upon the fingers and toes.

RETENTION OF AFTERBIRTH.

I have a cow that has failed to clean herself of part of the afterbirth. She calved last Wednesday, and I think the calf came about a week to soon. T. B. B.

Oakhurst, Ga.

ANSWER.

Get an experienced person to remove the remaining portion. There is no medicine likely to be of any use. The best is one ounce dose of fluid extract of cotton root, until she begins to strain, then is the time to help her, pulling at each strain upon the end of the placenta which is found. One ounce first, in two hours another ounce, in three hours one or more, then stop; give no more.

PAPULOUS TUMORS.—EATING WILD PARSNIPS.

I have a yearling heifer whose belly and teats are covered with warts, not the dry seedy warts so common on cow's teats, but large soft fleshy excresences, which bleed freely on being excised; the animal is in excellent health and condition. I have also got a cow which acts strangely; from being one of the liveliest foragers agoing, then suddenly becomes dull and shiftless and loses her appetite; her eyes generally bright and full of life become dull and heavy; occasionally acts as though in pain, throwing up her head and shaking it vigorously; gets up and lies down, and is generally uneasy; while she does eat some, it seems to be only under compulsion; her milk will dry up for a few days, or nearly so, and then as suddenly return to her normal condition. Would eating the leaves of wild parsnips cause this?

Templeton Ore. O. B

ANSWER.

1. I don't believe the cow to be troubled with warts, they are papulous tumors. Paint them over with strong tincture of iodine, only a few at a treatment, and 70 grains of iodide of potassa for 10 to 30 days.

2. Yes, wild parsnips is the cause. They are a deadly poison to all warm blooded mammals; the papers are continuously reporting deaths of children, cows, etc., from eating wild parsnips. Immediate full dose of physic and repeat in five days with a smaller dose, in six after, a third dose.

PROBABLY BOT FLIES.

Have a Jersey heifer four years old; she is with calf about five months; about three weeks ago, when brushing her, I felt some small pimples, like elevations of the skin, which commence near the spine, and spread down about 5 inches on each side. They have grown to the size of an English walnut since then. There are about 25 or 30 of them on each side of spine. It irritates the cow, when I touch them, but there is no change in her milk production as to quantity.

Rhode Island. C G. M.

ANSWER.

The situation is just where the bovine bot fly punctures and deposits its ova. If so, squeeze out the grubs. If not, these, then don't know exactly what form of tumors you may have. Cut off the hair close, and paint them over with *strong* tincture of iodine, a saturated tincture. You can quite easily find out if there are grubs inside the tumors by a close examination.

SMUT POISONING.

My cows seem to get stiff and tender on their feet. I have three or four that way now, but one of them lost all use of hind quarters; I applied blister to her spine and gave nux vomica and she got better again, but got a relapse and is now totally unable to move, and has lost her appetite and looks very poor. The local veterinary surgeon says the trouble is caused by a very small insect in the top of fodder, but I have fed a great deal of fodder every winter and never had any trouble before. R. H.

Carlyle, Ill.

ANSWER.

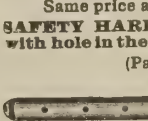
I suppose your veterinary surgeon alludes to smut. I think he was right, the symptoms indicate smut poisoning. You had better let your veterinary surgeon attend to the cows, as the disease is bad to manage, always; it is of a deadly nature. You have largely over fed and that may have something to do with conditions named. Other winters have nothing to do with the present, by any means. A thorough physicking will be good. Put one dram of nux vomica in the full dose of physic for a full grown and full sized cow.



FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for FREE $2 trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to **H. W. KELLOGG COMPANY, Ripon, Wis**

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One galion will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent post-paid for 50 CENTS. Will send as premium for

ONE NEW SUBSCRIBER

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

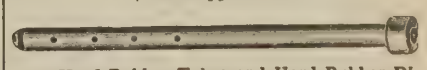
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SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis,

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

What Shall We Do?

ED. HOARD'S DAIRYMAN:—I am one of you twenty-five cent subscribers, but you can count on me for a dollar as soon as my time expires. I can see you paper is just what a man needs who wants to make cows profitable. But I am a little puzzled as to what to do. I am a patron of a creamery and have sixteen cows, and they are dual-purpose cows, like all of my neighbors'. We get from the creamery about $22 a year per cow, and until I commenced reading HOARD' DAIRYMAN I had supposed we were making some profit. I now see that when feed and labor is taken into account, I have been working for my cows at a loss.

I also see that there are dairymen who write for your paper who make double and some of them three times what I do from their cows in clean profit. I am not satisfied with this general purpose talk. My wife says, "HOARD'S DAIRYMAN is right," and she asks, "If you are going to keep cows, work for cows, and take their milk to the creamery, why not have cows that will bring a good profit?" But then, she is always asking uncomfortable questions of me. I think the woman is right, however. Now, what course would you advise me to follow to put myself in a different situation where I can get a fair profit from my cows. Yours thankfully. E. C. W.

DuPage Co., Ill.

Our friend is where a great host of farmers are, who have gone into the business of dairying. They have become patrons of a creamery, and now they find that they must be to the same expense in every particular with cows that yield only $22 a year, that other men incur who have cows that yield $50. As in his case, until a ray of economic light shines in, from their reading a paper that discusses such questions, they supposed they were doing well, and yet, somehow, their pocket-book keeps telling them all the time that they were wrong.

Our friend asks, "What shall we do to get out of this situation?

If he expects to continue as a patron to the creamery and wants to get the best reward for his labor, we would advise him to take the following steps:

The first thing is to find out about your herd, so you can weed out the unprofitable ones and make no mistakes, and to do this you should know by day and by month just what each cow is doing. It takes but little time to do this and the knowledge is worth a great deal. So we say:

(1) Get a good spring balance that will record down to tenths and weigh twenty-five pounds. Take a sheet of stiff manilla paper, say nine inches wide and a foot long, and rule it off in the following manner, to represent thirty-one days. Have a sheet for each month:

March.	*Morning.*	*Evening.*	*Remarks.*
1			
2			
3			
4			

Tack up in the stable behind each cow a sheet of this ruled paper. When you milk a cow, hang the pail on the spring balance, get the net weight of milk and set it down in the place ruled for morning or evening for the appropriate day.

We can furnish these sheets ready printed from this office at trifling cost, if desired.

(2) Select a registered bull one year old from some one of the following breeds: Guernsey, Jersey, Holstein or Ayrshire. Select as good an animal, with a long line of well performing mothers behind him, as you can. Don't haggle over a few dollars in the price. You need a bull with strong dairy potencies in him, and such a bull is worth good money to you or any other man. Breed him to your best cows. Save his heifers and bring them up rightly, feeding them on skim milk, bran and oats, in such a way as to develop the dairy quality and keep down the beef tendency. When these heifers are fifteen months old, breed them to their own sire. They will calve when two years old. The resulting heifers, as you will see, will have the blood of the sire in double quantity in them. Keep the old sire to breed to his daughters as long as you can, but breed the granddaughters outside to a sire, if possible, of the same family as the first sire—a first, second or third cousin, say.

This will give you a herd of cows in a few years that will have merit and profit, provided that all the time you keep weeding out the unprofitable ones.

When you have a chance to buy a likely young grade cow of the same breed as your sire, do so.

Proceed on the principle that it is better for your pocket-book to have five good cows alone, than five good ones with five more poor ones to eat up all the first five can produce.

In the mean time strive to read and improve your mind and judgment on all sides of this dairy question—the breeding side; the feeding side; the stabling and handling side; the care of the milk; the growing of crops fit for dairy food, and many other sides.

On all these sides, any farmer needs access to the best dairy reading in books and papers he can get, for it is a big question.

Thousands have followed out the steps we have noted and have brought their herds of cows up from 150 lbs. to over 300 pounds per cow. The price of butter cannot get so low that they will not make some profit, whereas with their former cows, former ideas and former practices, all on the same dual-purpose, not dairy-purpose grade, high prices for butter rarely brought them any profit.

Avoiding Bitter Cream.

How shall we keep cream from getting bitter in winter? Mainly by preventing its suffering from the effects of the prevailing low temperature. Milk or cream does not get bitter when it is maturing naturally at a proper temperature. Butter with a bitter flavor, coming from small home producers is of frequent occurrence. It is usually from farms where the house-wife with poor facilities but good dairy instincts refrains from setting her milk in the hot kitchen pantry and puts it in a room far too cold for it. In the latter place, where the temperature is usually a little above freezing, the milk will remain sweet for several days, tardily casting up its cream, and then without any acidity developing, a fermentative change takes place resulting in the characteristic bitter flavor.

The natural end of healthy milk is to get sour in at the most from two to three days. Before the limit of that time in from 24 to 36 hours, and while the milk is perfectly sweet, the butter fat should all be extracted therefrom and stored in a separate vessel to mature. I think it better that the ripened cream be churned in 12 hours after skimming, or at least in 18 hours at the longest. I mean by this that the cream should be kept at a warm enough temperature to ripen within that period, so as to be fitted for churning. To avoid any bitter fermentation during cold weather, milk should be set for creaming in an apartment having a uniform temperature of 50 degrees. Then, the milk being skimmed within 24 or 36 hours, the cream should be matured at 65 degrees.

Avoid the hot kitchen pantry with its mixed odors of cookery on one hand and a cold room on the other. The atmosphere of the dairy room must be pure as well as of a mild, equable temperature, or foreign flavors will displace the natural one in the butter. The house-wife who wishes to make a few pounds of butter per week throughout the winter and can find a ready sale for it at a maximum price should carefully observe the above principles. Another thing: Most small winter butter makers do not color their product uniformly. The average consumer, although he is fully aware that the butter he is eating is artificially colored, likes to see it of a natural hue. It really tastes better to have it so, which proves how much the eye acts as a guide to the palate The worst mistake is in coloring the butter too highly, which is almost as bad as not coloring it enough. A happy medium is in striking a shade of the natural color of the June product. With small makers this compels the greatest accuracy in measurement, and the employment of a perfectly reliable brand of butter color.—*American Agriculturist.*

THE NEW METHOD OF BLOOD PURIFYING.

What the New Discovery in Medical Science Has Accomplished.

The Prompt Way to Cure Yourself When Symptoms Show That Your Blood is Out of Order.

THE EMINENT SPECIALIST'S FREE OFFER TO ALL READERS OF "HOARD'S DAIRYMAN."

For a great many years it has been the custom for sick people to say: "My blood is out of order. It needs purifying. I feel all used up. My skin needs clearing. My brain feels tired."

They are right but do they act right?

They generally go and get a laxative (bowel-cleaner) to purify their blood.

Does their blood run through their bowels?

Science has to-day furnished proofs that all the purifying that your blood needs, in fact, all that can be done must be done by your kidneys.

All the blood in your body passes through your kidneys once every three minutes.

The kidneys strain or filter out the impurities in the blood—that is their work.

Purifying your blood is not a question of taking a laxative or physic.

Does your blood run through your bowels?

What the bowel-cleaner does is to throw out the poisons confined in your bowels ready for absorption into your blood, but the poisons which are already in your blood, causing your present sickness it leaves there.

There is no other way of purifying your blood except by means of your kidneys.

That is why bowel-cleaners fail to do their work—they fail to help the kidneys.

When you are sick then, no matter what you think the name of your disease is, the first thing you should do is to afford aid to your kidneys by using Dr. Kilmer's Swamp-Root, the great Kidney Remedy.

In taking Swamp Root you afford natural help to nature, for Swamp-Root is the most perfect healer and gentle aid to the kidneys that is known to medical science.

Dr. Kilmer, the eminent physician and specialist, has attained a far-famed reputation through the discovery and marvelous success of Swamp-Root in purifying the blood, and thereby curing chronic and dangerous diseases, caused by sick kidneys, of which some of the symptoms are given below.

Pain or dull ache in the back or head, rheumatism, neuralgia, nervousness, dizziness, irregular heart, sleeplessness, sallow complexion, pimples, blotches, skin troubles, dropsy, irritability, loss of ambit on, obliged to pass water often during the day, and to get up many times at night, and all forms of kidney, bladder and uric acid troubles.

Swamp-Root is sold by all dealers in fifty-cent or one dollar bottles. Make a note of the name, SWAMP-ROOT, Dr. Kilmer's Swamp-Root, and remember it is prepared only by Dr. Kilmer & Co., Binghampton, N. Y.

The great discovery Swamp-Root has been tested in so many ways, in hospital work, in private practice, among the helpless too poor to purchase relief, and has proved so successful in every case that a special arrangement has been made by which all readers of HOARD'S DAIRYMAN, who have not already tried it, may have a sample bottle sent absolutely free by mail, post-paid. Also a book telling more about Swamp-Root and containing some of the thousands upon thousands of testimonial letters received from men and women who owe their good health, in fact, their very lives, to the wonderful curative properties of Swamp-Root. Be sure and mention HOARD'S DAIRYMAN when sending your address to Dr. Kilmer & Co, Binghampton, N. Y.

THE NEW BOOK
Feeds and Feeding

By Prof. W. A. HENRY.
Wisconsin Experiment Station.

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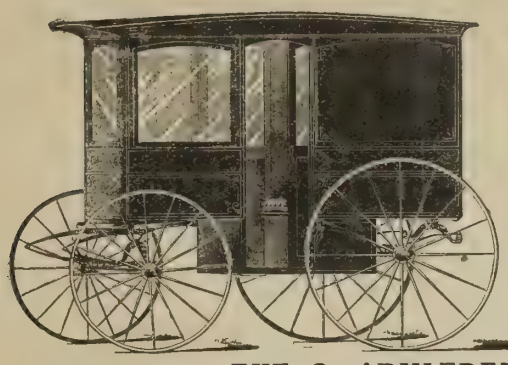
Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price $2.

A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

We make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

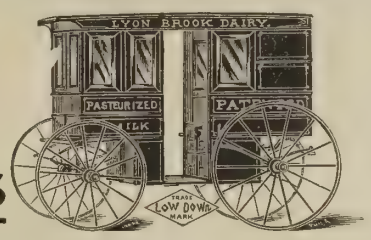
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Don't Pay Three Profits

No. 3034 Buggy. Price $37.25 With Leather Quarter Top.

If you are going to pay for a carriage why not pay the least you can for the best vehicle? Get all you can in material and workmanship—pay as little as you can for handling and "extras."

You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

THE COLUMBUS CARRIAGE & HARNESS COMPANY, COLUMBUS, O.

DID YOU

Ever walk behind a plow all day and toward evening experience that soreness of arm and shoulder because you had a plow that persisted in winging over? If you want to know what will cure **the plow,** drop us a postal card. The heel plate will do it; it weighs but 8 ounces, but it's a wonder worker.

MORRISON MFG. CO., Ft. Madison, Iowa.

Be Fair with Your Fields

and they will be fair with you..... Listen a moment.



Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

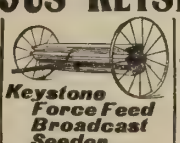
It spreads all kinds of **fine and coarse manure evenly;** it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. **Spreads lime, wood ashes, salt, etc.,** equally well. With the drill attachment **it puts the manure direct into the open drill.** Made in three convenient sizes. Ask the opinion of anybody that uses one. **Write for illustrated catalogue.**

Kemp & Burpee Mfg. Co., Box 46, Syracuse, N. Y.

THE FAMOUS KEYSTONE LINE OF SEEDING, PLANTING AND CULTIVATING TOOLS.



Victor Disc Harrow —greatly improved for '99. Oil tubes to the bearings from top of frame—positively exclude all dust or dirt. Steel scrapers, double adjustment levers—easy to place gangs at any angle. Ball bearing—no side pressure and easy draft. Made 4, 5, 6, 7 and 8 ft. wide, with 18 or 20 in. discs. SEEDER ATTACHMENTS are made for 6, 7 and 8 ft. disc harrows.



Keystone Force Feed Broadcast Seeder are made 8½ or 11 ft. wide. Sows broadcast all small grains in any quantity in the best possible manner. Mounted on low steel wheels. Made with or without grass seed attachment. Equipped with CULTIVATOR ATTACHMENT if ordered. Made with and wheels or middle wheels. Has the best force feed we know. Send for special Seed Circulars.



Keystone Rotary Drop Corn Planter —it's a whole hill drop, each hole in seed plate holds enough grain for a hill. It never skips or misses. Equipped with Automatic Wire Reel. Has a drill attachment. Gear throws out automatically at end of row. Always drops at even depth because of the shoe gage on each runner.



Keystone Potato Planter —sprung quickly into popular favor because it is a simple and effective machine for the purpose at a reasonable price. Fits the needs of the man who grows an acre or two of potatoes, but who is not regularly in the business. Plants 10, 14, 17 or 20 inches apart in rows. Send for circulars.



Keystone Walking Cultivator. This is clearly a leader among the machines of its class. It is made entirely of steel and iron except tongue, singletrees and neck yoke. Strong and well braced in every way. Steel braces and four soft center steel shovels. Full line of Riding Cultivators also. Send for circulars.

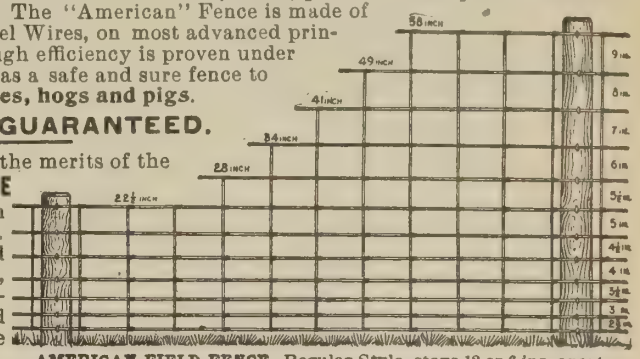
KEYSTONE MANUFACTURING CO., 39 RIVER STREET, STERLING, ILLINOIS.

THE FENCE THAT FENCES.

"AMERICAN" ALL STEEL WOVEN WIRE FIELD FENCE.

Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

EVERY ROD GUARANTEED.



INVESTIGATE the merits of the **AMERICAN FENCE** at our agency in your nearest town. If you can't find such an agency, write us for complete catalogue and we will see you are supplied.

AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

AMERICAN STEEL & WIRE CO. General Offices: CHICAGO, ILL.

ECONOMY IS THE KEY TO WEALTH.



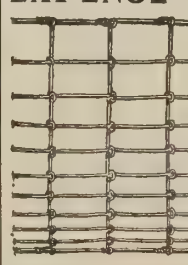
You can save money by buying your woven wire fence from us.

WE SELL DIRECT TO THE FARMER At Wholesale Prices.

We use only the best quality of steel wire, all galvanized; no small wires used; it's all interwoven; the stays can't slip. Write to-day for circulars and prices.

ADVANCE FENCE CO., 4004 Old St., Peoria, Ill.

EXPENSE OF REPAIRS.



The repairs of an inferior article soon make it cost more than the first price of a good article. When you buy

PITTSBURG WOVEN WIRE FENCE

you stop all repair. It doesn't need repairs. It is **strong, durable** and **lasts indefinitely.** We want an agent in your locality. First order secures township agency. Terms and circulars free.

Pittsburg Woven Wire Fence Co. 17 Penn. Av., Pittsburg, Pa.

Keeps him in. Keeps others out.



HORSE-HIGH

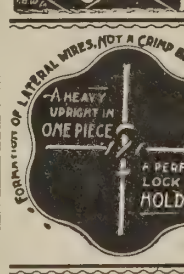
With our **Duplex Automatic Fence Machine** you can make 100 styles of fence at the rate of 60 rods a day. Every rod of it will possess the three leading attributes made prominent in this ad. Makes a perfect general purpose fence at 18c. per rod. Poultry fence 19c. per rod. Rabbit-proof fence

BULL-STRONG

for nurseries, orchards, etc., 16c. per rod, and a good hog fence for 12c. per rod. Plain, coiled spring and barbed wire to farmers at wholesale price. Get our free catalogue before buying wire or fencing.

KITSELMAN BROS.,
Box 57, Ridgeville, Ind.

PIG-TIGHT



SOME SHARKS

will offer to sell you air, earth or sky along with the right to twist wire. If we get your trade, 'tis on the merits of the goods and the fair treatment you receive.

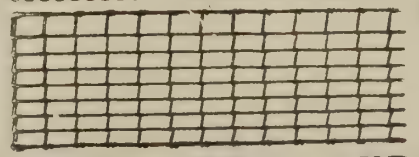
LAMB WIRE FENCE CO.
Adrian, Mich.



SURE THING!

If there's nothing in coiled springs, why not make mattresses of straight wire? But there is, you know, and the coil is ours.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

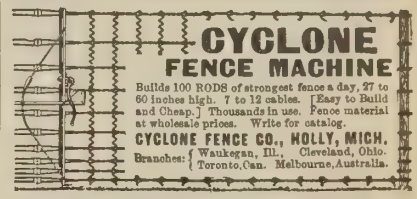


CABLED FIELD AND HOG FENCE

With or without lower cable barbed. Cabled Poultry, Garden and Rabbit Fence, Steel Web Picket Fence for lawns and cemeteries, Steel Gates and Posts.

DE KALB FENCE CO., 22 High St., DE KALB, ILL

CYCLONE FENCE MACHINE

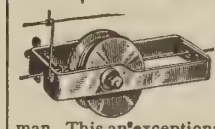


Builds 100 RODS of strongest fence a day, 27 to 60 inches high. 7 to 12 cables. [Easy to Build and Cheap.] Thousands in use. Fence material at wholesale prices. Write for catalog.

CYCLONE FENCE CO., HOLLY, MICH.

Branches: { Waukegan, Ill., Cleveland, Ohio. Toronto, Can. Melbourne, Australia.

Price $3.50. Make Your Own Fence.



In various styles, costing from 10 to 20 cents per rod, with the most durable and easiest operated machine on the market. Exclusive sale in counties given a reliable, hustling man This an exceptional opportunity. Write for circulars and full particulars to the **Wilmarth Fence Machine Co., Detroit, Mich.**



We are the largest manufacturers of steel wheels in America We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue,

HAVANA METAL WHEEL CO.
HAVANA, ILL.

ENSILAGE COMBINATION

A complete balanced feed for milch cows, without the addition of grain or other purchased feed. Composed of Corn and Early Soja-Beans; the latter (*the richest vegetable substance known*) supplies the protein and fat in which the corn is deficient. **Will save four-fifths of the feed bill.** No large dairy can be profitably operated without a silo, and every silo should be filled with two parts Corn to one part Early Soja-Beans. Details cannot be given here, but full particulars in Henderson's American Farmers' Manual, free on application to those who state where they saw this advertisement.

PETER HENDERSON & CO.
35 & 37 Cortlandt St., NEW YORK.



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer

1	Pkg. 13 Day Radish,	10c
1	Pkg. Early Ripe Cabbage,	10c
1	" Earliest Red Beet,	10c
1	" Long Lightn'g Cucumber	10c
1	" Salzer's Best Lettuce,	15c
1	" California Fig Tomato,	20c
1	" Early Dinner Onion,	10c
3	" Brilliant Flower Seeds,	15c
Worth $1.00, for 14 cents,		**$1.00**

Above 10 pkgs. worth $1.00, we will mail you free, together with our great Plant and Seed Catalogue upon receipt of this **notice & 14c** postage. We invite your trade and know when you once try **Salzer's seeds** you will never get along without them. **Onion Seed 65c.** and **up a lb. Potatoes at $1.20 a Bbl.** Catalog alone 5c. No. 140

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

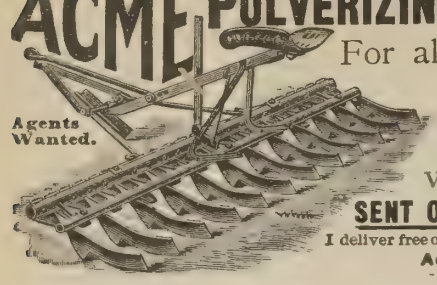
FIRE DRIED SEED CORN

Best varieties, both White and Yellow Dent.
HENRY SHERMAN & SONS. Ft. Atkinson, Wis.

FOR SALE! A very desirable, well improved farm, in Redwood Co., Minn. Located in one of the best counties in southwest Minnesota. Must be sold in 60 days. Address at once.

C. MURDOCK, Slayton, Minn.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points.

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

PLEASE MENTION THIS PAPER.

JANNEY MANUFACTURING CO. OTTUMWA, IOWA.

BUILD THE LARGEST, BEST AND MOST COMPLETE LINE OF CORN PLANTING MACHINERY IN THE MARKET



OUR MOTTO "GOOD GOODS" "GOOD SERVICE" "MODERATE PRICES"

Mention Hoard's Dairyman.

GASOLINE ENGINES FOR DAIRY AND OTHER WORK.

Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. **N. DIRIGO ENGINE WORKS, Portland, Me.**

WE SELL DIRECT TO THE FARMER.

Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.

Sulky Plows, $25. Riding Gang Plows, $35. 4-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.



Hard Steel Caster Coulter with Plow, $1.50 extra.

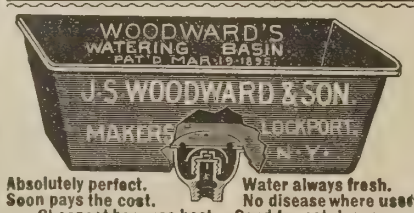
HAPGOOD PLOW CO., Box 196, Alton, Ill.

Only Plow factory in the United States selling direct to farmer.

Water in the Stable a Necessity.

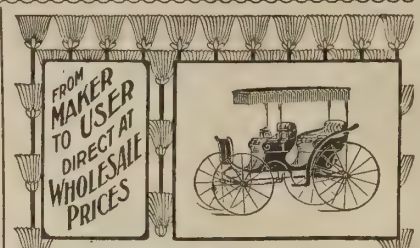
It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. No disease where used. Send for catalogue.



THE BEST WAY

to make money is to save it. We can save you money on everything in the vehicle line. We make a full line of Surries, Buggies, Phaetons, Spring Wagons, Road Wagons.

WE SELL DIRECT TO YOU From Our Factory At Wholesale Prices.

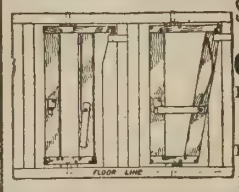
We have Surries at $51.00; Top Buggies, $35.00; Spring Wagons, $37.60; Road Wagons, $25.00.

Excellent Quality Guaranteed.

We Make Every Vehicle We Advertise.

We fully guarantee every vehicle we make from the lowest priced up. GOOD GOODS always. An excellent harness as low as $4.80. Large illustrated catalogue FREE. All prices marked in plain figures. Address,

EDWARD W. WALKER CARRIAGE CO. 29 Eighth St. GOSHEN, INDIANA.



Scott's Perfect Swinging And Self Closing **Cow Stanchion**

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT, 83 Beach Street, Bridgeport, Conn.



Newton's **COW TIE** Improved Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO. Batavia, Ill. Catalogue Free



Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.

C. H. DANA, 55 Main Street, WEST LEBANON, N. H.

STANLEY'S CORRUGATED STEEL HINGES



are not like other hinges; they are better. Why? Well, because they are corrugated, which is just like so much re-inforcing; makes them at least 50% stronger, just as angle steel is stronger than flat steel. Are so made they can't bind on the pin even if hinge gets rusty. Are ornamental too. Don't be satisfied till you know all about them. Ask your dealer or send to us for circulars, &c.

THE STANLEY WORKS, Box 12, NEW BRITAIN, CONN.

IRON PIPE AND FITTINGS

ONE INCH BLACK WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

TWO CENTS Per Foot.

Write for free catalogue of merchandise for ***HOME, FARM and FIELD***—from **Sheriffs' and Receivers' sales.** Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., **at HALF PRICE.**

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

EVERY SUCCESSFUL

farmer who raises fruits, vegetables, berries or grain, knows by experience the importance of having a large percentage of

Potash

in his fertilizers. If the fertilizer is too low in Potash the harvest is sure to be small, and of inferior quality.

Our books tell about the proper fertilizers for all crops, and we will gladly send them *free* to any farmer.

GERMAN KALI WORKS,
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WE MANUFACTURE HARNESS — VEHICLES — GALVANIZED STEEL TANKS CATALOGUE FREE

Special Prices on Stock Tanks. Write to-day.
C. E. Banta Mfg. Co., 32 A, La Salle St., Chicago, Ill.

Binder Twine

Our famous "Blue Label Brand." Prices and samples ready April 20th. Write now and we will send when ready: Prices will be lower than you think. We deliver from Chicago Omaha or St. Paul, as desired. **MONTGOMERY WARD & CO., CHICAGO.**

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

8000 BICYCLES



Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10; Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance

EARN a BICYCLE by helping us advertise our superb line of '99 models. We give one Rider Agent in each town **FREE USE** of sample wheel to introduce them. Write at once for our special offer.

MEADE BICYCLE CO., 290 Ave. S., Chicago, Ill.

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased greatly.

Get a Binder

now for the present volume and preserve the copies in handy form for reference and reading.

BINDER BY MAIL POSTPAID, 75 CENTS



BRABAZON'S POULTRY CATALOGUE FREE! It's a beauty; over 50 colored plates. Illustrates and describes fine Turkeys, Geese, Ducks and chickens; gives prices of fowls & eggs. Finest Buyer's Guide published. Inclose 10c. for postage, etc. **J. R. Brabazon, Jr. & Co., Box 58, Delavan, Wis.**

DO YOUR OWN... **GRINDING**



With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

KELLY & TANEYHILL, Waterloo, Ia.

THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our ft, 2, 3 and 4-horse **TREAD POWERS** because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

ST. ALBANS FOUNDRY CO., St. Albans, Vt.

If You Want More Power

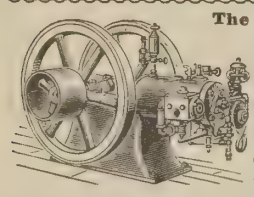
than you can get from a SMALLEY TREAD POWER then buy one of these

SMALLEY FARM ENGINES



They are the newest and best known to the engine building art. A new LOCK VALVE makes them explosion-proof. Made in three sizes—2 to 6 H. P. It is constructed from our intimate knowledge of the needs of the users of light steam power. Everything — material, design and workmanship are the best. They ARE CHEAP, quality considered. Don't think of buying until you get our FREE CATALOGUE on FARM POWERS.

Smalley Mfg. Co., Box 16, Manitowoc, Wis.



The **Lambert** Is a success at grinding feed, cutting fodder, churning butter, separating cream, anything, it's so simple. Write for catalogue, prices, etc.

The Lambert Gas & Gasoline Engine Co., Anderson, Ind.

RIFE HYDRAULIC ENGINE

Will pump more water than any hydraulic ram.

Pumps 30 feet high for each foot of fall. Minimum fall, 18 inches. Maximum elevation, 575 feet.

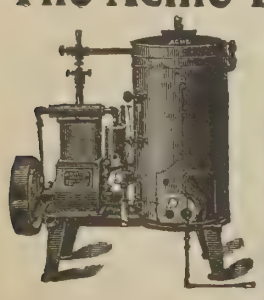
WON'T WATER LOG. NEVER STOPS.



RIFE ENGINE COMPANY, 126 Liberty St., New York.

ON THE MARKET TEN YEARS.

The Acme Engine Still LEADS



1 TO 6 Horse Power. For all Dairy and Farm work, of general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to

Rochester Machine Tool Works

No. 9, Center St., Rochester, New York.

GOODHUE



Self-oiling, Best Governed, Acknowledged to be the most powerful and durable made. We have everything the farmer needs in this line.

Towers, Tanks and Pumps, Cutters, Grinders, Shellers, etc.

Galvanized Steel

POWER AND PUMPING MILLS

Catalogue, full of valuable points, free.

Appleton Mfg. Co.

35 Fargo St. BATAVIA, ILL.

LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

WRITE FOR CIRCULAR 108

THE AMERICAN WELL WORKS

AURORA, ILL. – CHICAGO. – DALLAS, TEX.

WELLS

If you want the best machinery for making wells, to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

F. C. AUSTIN MFG. CO., Harvey, Ill. (Chicago Suburb)

BOOM BUSINESS!



Don't be satisfied with poor results, You can **hatch thousands** of chickens with the

PRAIRIE STATE INCUBATOR

without a possibility of failure. That is best attested by its 200 first premiums in all kinds of competitions with all kinds of machines. Get our 168-page catalogue with supplement.

PRAIRIE STATE INCUBATOR CO., HOMER CITY, PA.



THE IMPROVED VICTOR Incubator

Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE.

GEO. ERTEL CO., QUINCY, ILL.

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

L. A. BAKER,
Care of Manufacturers Bank,
New Richmond, Wis.

WANTED—Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

Exp't Station

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., APRIL 14, 1899. NUMBER 9

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

REFERENCES:- Ex-Gov. W. D Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
151 Reade St., NEW YORK.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** In the New York Market. Up-to-date work, good trade connections and promptness are at your service.

WE SELL DIRECT TO THE FARMER.
Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.



Sulky Plows, $25, Riding Gang Plows, $35. 8-in. Wagon, $39. 1000 other articles. Big catalogue free. Write now and get ready for spring work.

Hard Steel Caster Coulter with Plow, $1.50 extra.

HAPGOOD PLOW CO., Box 196, Alton, Ill.
Only Plow factory in the United States selling direct to farmer.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

Building A Creamery

Is easy work when you have a good set of plans and good machinery to put in it.

WE LOAN YOU THE PLANS.
WE SELL YOU THE MACHINERY.

Send for our catalogue or come and see us. We have an immense stock of VATS, COMBINED CHURNS, SHARPLES TUBULAR and FARM SEPARATORS, BUTTER TUBS, BUTTER WORKERS, ENGINES and BOILERS, Etc.

HANEY-CAMPBELL CO., - Dubuque, Iowa.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

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This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

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"It spins on air."
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No rubber rings. Clean skimming.
No metal bearings. Fast skimming.
No spindles. Superb cream.

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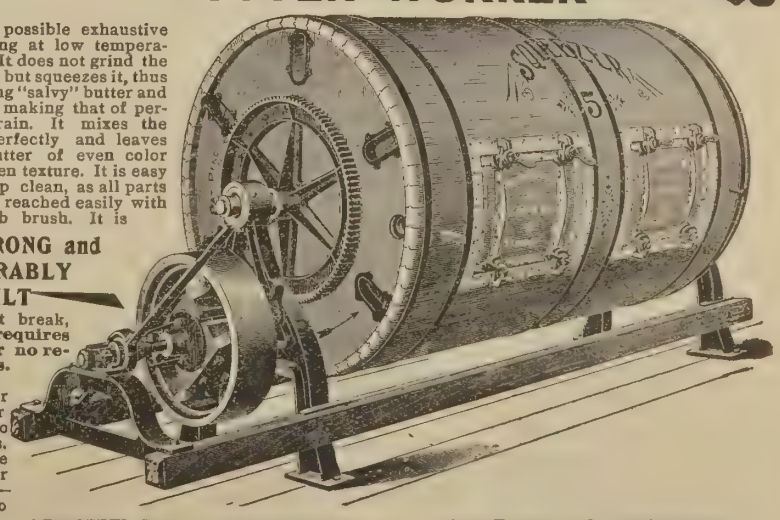
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COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

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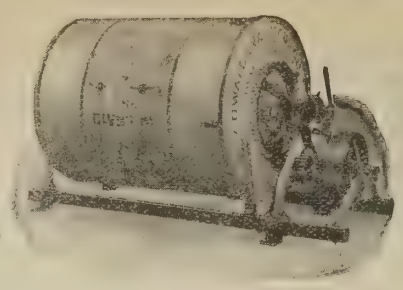


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Hard Times



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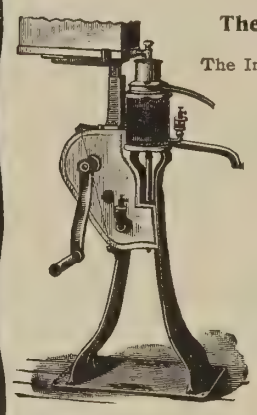
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They are the cleanest Skimmers on the market, as witness the reports from the State Experiment Stations and users the country over. They are also noted for their simplicity, ease of operation and durability.

A Few 1899 Experiment Station Reports.

Massachusetts,	average of 19 tests,	January 7th	to 31st,	.033 of 1%
Ohio,	" 19 "	" 10th	to 21st,	.034 of 1%
Vermont,	" 18 "	" 9th	to Feb. 3d,	.038 of 1%
Wisconsin,	" 17 "	" 2d	to 19th,	.03 of 1%

An average from 73 tests of skim milk of .034 of 1%



The U. S. Excels in Every Particular

FORESTVILLE, CONN., Feb. 18th, 1899.
The Improved U. S. Separator is giving excellent satisfaction. In comparing it with other makes, have found it to far excel in every particular—in thoroughness of skimming, ease of operation, design and finish, simplicity of construction, therefore easy to clean, and durability. Any one contemplating buying a Separator should investigate the merits of the Improved U. S.
WILLIAM F. KENNEY,
Buttermaker for J. Hart Welch.

The U. S. the Best on the Market

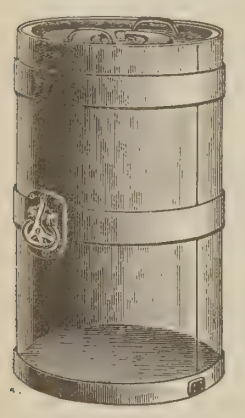
DEER PARK, MO., Feb. 25th, 1899.
The butter I exhibited at the St. Louis Fair scored 98½ points and won the Sweepstakes over the creamery butter from several of the best Creameries in the United States. It was made from cream separated by the No. 5 Improved U. S. Separator I have been using for nearly three years, which has always been in running order and given entire satisfaction. If I had to buy another it would be an Improved U. S., for I think it the best on the market.
NATHAN KING.

No Loss of Cream in the Skim Milk

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USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

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Sole Manufacturers, - - - CATTARAUGUS, N. Y

BUTTER SALTED WITH

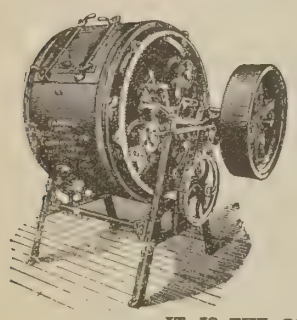
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Captured **SWEEPSTAKES** at fifteen of the principal Dairy Conventions during the last year, including such leading dairy states as Iowa, Minnesota, Wisconsin, Illinois, New York, Maine, New Hampshire and Vermont.

IT TAKES THE BEST TO MAKE THE BEST.

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



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Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

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GOOD PARCHMENT.

(Not the Cheap Kind.)

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HIGH GRADE WORK ONLY. Haddonfield, N. J.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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WORTH $100.

Here is what a leading dairyman, one of the proprietors of the Minerva creamery, at Minerva, Ohio, thinks of the Storrs College report, we published a short time since:

ED. HOARD'S DAIRYMAN:—I consider the tables in your paper of March 24th in regard to the Storrs College herd worth $100, or more, to every farmer. It is just what I have wanted to find out. I wish every farmer in the country would study it all, and then act. It will be worth thousands of dollars to them every year. F. E. BOOTH.

Minerva. Ohio.

EMBALMING MILK.

"Freezene."

Running a close second to the borax compounds as a milk preservative is "freezene". Letters which we receive indicate that it is being widely advertised throughout the country, and its use is pressed on the dairyman at every opportunity. The name is a stroke of genius; it makes one think of ice, refrigeration and cold, but the properties of the article hardly follow its name.

Freezene is manufactured from wood alcohol; its chemical name is formic-aldehyde.

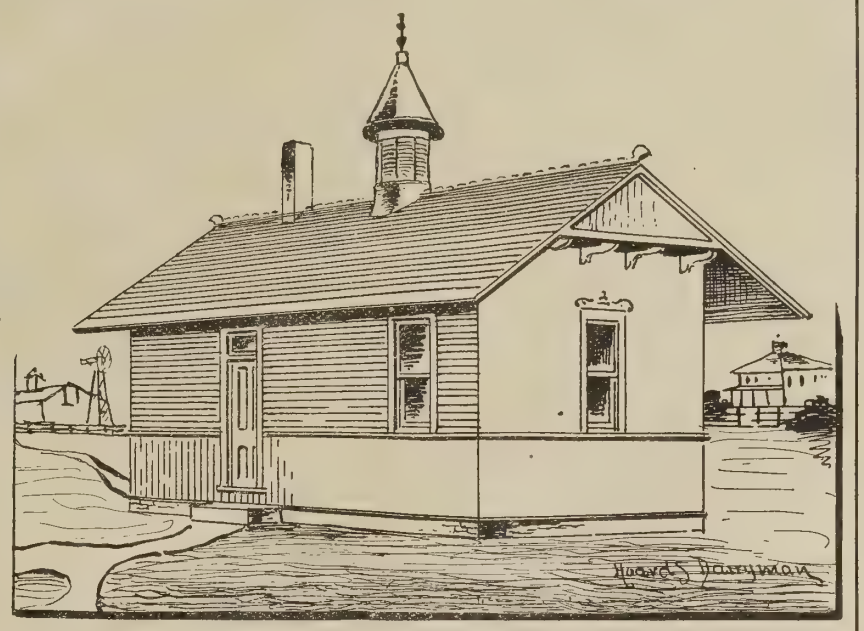
It is a gas, soluble in water to form a 40% solution. It possesses the property of forming a compound with gelatin and rendering it insoluble. In the same way it kills the bacteria and spores by uniting with the material of which they are composed and thus preventing their growth. It is a powerful poison to all animal and vegetable life. When applied to the skin it destroys its life and causes it to be thrown off as dead matter. Even in dilute solutions it has this effect if applied to a delicate skin. It is a thorough and efficient destroyer of life in all and every shape. A small amount of this chemical, when added to milk, will keep it from souring for a number of days, even in warm weather. It acts by killing the bacteria and thus preventing the formation of lactic acid.

The question is: How much of the above chemical compound does a man want to take into his stomach and how much of the claims for the innocence of this compound can be believed?

Can a substance be a powerful poison outside of the body and an innocent compound in the stomach, when it is used in sufficient quantities to destroy a life principle, so tenacious of life as bacteria cells? Can a compound kill the skin on the hand when used in dilute solutions, and cause it to peel off as a dead layer, and yet have no effect on the delicate mucous membrane of the stomach? We doubt it; and we also doubt the testimonials of doctors and professors, who laud it as a perfectly innocent, innocuous poison; one that will kill the weeds and spare the grain, sure death to bacteria, but harmless to children.

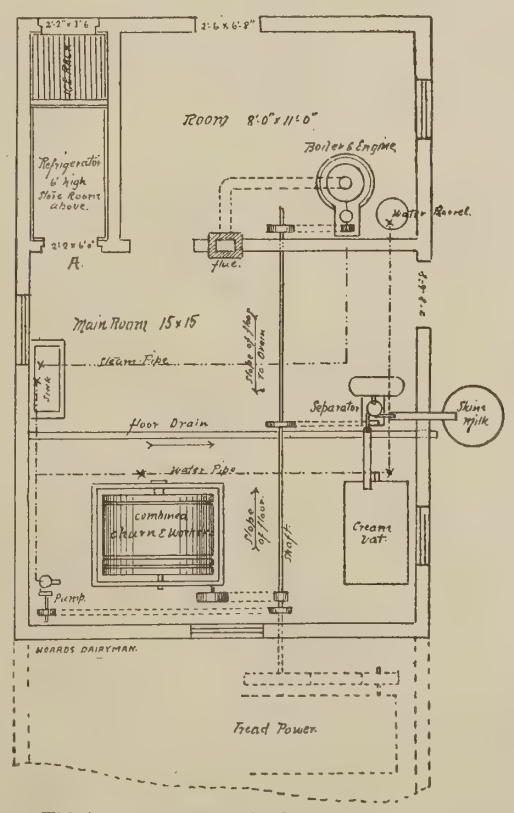
A FARM CREAMERY.

In response to recent requests for plans for building a farm creamery, we reproduce here cuts and description published in February, 1897, nothing better adapted to the purpose having come under our observation since that time.



It is not to be expected that any one plan, in all its details as to size and arrangement, will be equally acceptable to every intending builder. These, however, can easily be modified to correspond with personal preferences.

The main points in the accompanying plan are a workroom (15×15) A, containing all the machinery and supplied with cold and hot water pipes, drains and shafting. In the rear, and separated from this by a substantial partition, is the power room and place for cold storage. This provides for all that is indispensible.



Our original description and comments were as follows:

The main building is 16×24 feet, outside dimensions, and the cut shows wide projecting eaves in order to protect the sides from the excessive heat of the sun in summer. We think this feature of the plan worthy of attentive consideration. The extra cost will be inconsiderable and the resulting benefit quite perceptible.

The ground plan is fully self explanatory. The draughtsman has specified one of the combined churns and butter workers as this is the "latest" demand for our progressive butter makers. It is by no means indispensible, and separate machines for these purposes may be substituted.

In the matter of construction, regard should be had to keeping out the cold in winter and heat in summer. To this end it is well to provide, at least, two dead air spaces, and every mechanic, worthy of the name, knows how to do this by using building paper. This may be done without increasing the thickness of the walls, but we should prefer to curtail the inside dimensions somewhat and make the outside walls ten inches instead of six.

We believe it better to have a separate building for an ice house. These structures go to decay very rapidly and are never quite free from filth.

Build a fireplace at the bottom of the flue, opening into the main room and also leave an opening near the ceiling to which fit a register, that may be opened or closed at pleasure. This will, in a measure, obviate the necessity for building the cupola. The latter, however, adds to the symmetry of the building, and if connected with the room below by a flue leading to it, will not be wholly unservicable.

DEGENERATION OF DAIRY INTELLIGENCE.

What is it in this dairy business that seems to act like a demoralizer of the minds and judgment of the farmers in the older dairy districts? To illustrate: Go into the old cheese making districts of New York and Ohio, where they have made cheese for forty years, and it will be found that the farms have declined in fertility until they will produce but little, if any, more than half the cow food they did when dairying was commenced. Another: Let a cheese factory be started in any community and it will be found that for the first year or so it will take from one to three pounds less milk to make a pound of cheese than it does after the factory has been running several years. In other words, the farmers seem to progress towards poorer milk as well as poorer soil.

Another: Go into any of the old dairy districts in the west where there is a large cow population, and there seems to be less real disposition among many farmers to improve in knowledge, in their methods, in the quality of their cows, in the neatness and cleanliness of their stables and in all those things that make up real dairy progress, than was exhibited twenty years ago. There seems to grow into their thought and practice the idea that there is more profit for them in being less and less a dairyman in the best sense of the word.

There is a departure on the part of many from those sound doctrines of faith and practice that build up the business in the first place.

In his interesting letter on the "Dairy Outlook in Northern Wisconsin," on page 103 of this volume, Prof. Henry speaks of the way the farmers of Barnett county care for their cows, in the following significant manner:

"In this particular they are ahead of some other sections in the state that I visited, where, while more cows are kept, the farmers are more careless as to their care and management."

Three things exist which should nerve every dairy farmer up to "eternal vigilance" in mind and method.

1. The sure prospect that without it the farm will steadily decrease in fertility, just as it has in many older dairy sections. If we do not keep up the bank account we cannot draw from it in times of emergency.

2. If we do not keep our mind and purpose alive to the study of our business, our cows will naturally decrease in quality and in profit. We will cease to produce good cows, and depend on the haphazard, brainless breeding of others, who know even less about it, and who make it a matter of mere accident.

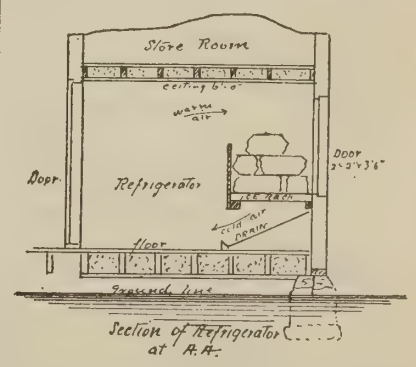
3. As we increase in cow population in any district, so do we increase the hazard of infectious diseases. So do we increase the danger of carelessness and indifference. When there were but few herds and few in a herd, abortion and other diseases were almost unknown in the west. How is it now?

This fact alone should teach the dairy farmer in such districts that he cannot afford to be indifferent to his own intelligence and the saving effects of good, progressive study and care in stable sanitation.

But we recur to the question asked at the head of this article: "What is it that makes so many farmers in the old dairy districts more indifferent to dairy progress than they were when they started in business?" Can they afford it in these times of low prices, when it is good thought, good sense, and the wisest of methods, only, that will bring a profit?

It is a Fraud.

We struck an anomaly the other day in Chicago. At the wholesale houses fine creamery butter could not be bought for less than 21 cents a pound. At the retail houses it was offered freely at 15 cents. There are two possible explanations for this. The butter offered at retail for 15 cents was bought just before a big rise. That is one. The other is that it is a lie and a fraud through and through. It was not creamery butter at all,



but decderized packing stock or butterine. But it looked all right. Choice dairy butter was also offered at the same price, but choice dairy butter sold at 19 cents wholesale at the same time, and the 12 cent dairy butter was also a fraud. But it did look fine! It was printed and stamped beautifully, colored to a lovely straw color, was in appearance above reproach, but it was a fraud. No wonder genuine butter is cheap, when compelled to sell in competition with lard, tallow and cottonseed oil compounds, as well as rank dairy butter with the stink chemically neutralized. E. C. BENNETT.

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THE legislature of Vermont has enacted a law which requires that all operators of the Babcock test at creameries and cheese factories should have a certificate for competency in handling the test.

COLORADO, naturally a good dairy state, spends $150 a year for dairy teaching. In the 20th Annual Report of the State Board of Agriculture and the State Agricultural College, not a line is given to any record whatever of dairy work. How can such things be?

THE SHEBOYGAN DAIRY BOARD OF TRADE.

AT the annual meeting of the Sheboygan Dairy Board of Trade, held March 29th, A.D. De Land, a former president of the Wisconsin Dairymen's Association, was elected president; Henry Weaver, secretary; and Henry Blouke, treasurer. It was resolved to meet every Wednesday afternoon during the coming season.

THE proposed big milk trust of Philadelphia, has gone to pieces under the determined opposition of the small dealers, who united under the leadership of a plucky woman, to the number of 150. Everywhere can we see that all other classes, even the most ignorant laborers, can organize and unite for their mutual defense except the farmers. They will lie down and let the oleomargarine swindle and all kinds of frauds and monopolies ride rough shod over them. And if there are farmers in the state legislatures, they will stand up for the old fraud as many did in Kansas. It is very evident in these days of trust, monopolies and frauds of all kinds, that the average farmer needs a good deal of education as to the most common principles of self defense, self culture and self improvement.

A MILK EMBALMER.

The almost criminal greed for gain that would swindle the consumer with the counterfeit stock yards butter, on the plea, Judas like, that it is "for the poor," finds a natural outcome in the furnishing "embalmed beef" for our soldier boys, through the use of chemicals. Is there anything these men will stop at in their mad haste to pile millions of dollars on top of millions? The sentiment of the public is being aroused to the danger that exists when a departure is made in the preparation of food from natural sources and methods. When these oleo men can put paraffine and diseased fats, like the oil tried from dead horses, in their counterfeit butter, as has been proved, why should not the milkmen dope their milk with the deadly formaldehyde? One is no worse than the other and both are swindlers and law breakers of the worst type.

A TRIUMPH OF ORGANIZATION.

For two years a few public spirited men in New York have been trying to organize the milk producers of that and adjoining states into what was called the Five States Milk Producers Association. The object of the association was, by close organization, to force the milk dealers of New York city, who have formed a syndicate or trust, to pay a fair price for their milk.

The plan followed was to visit the different localities sending milk to the city, and have the farmers sign articles of agreement and give power of attorney to the committee chosen for that purpose, which articles gave the committee the power to make a contract with the syndicate for the sale of the milk of all members of the association for the term of three years.

The committee have finally secured the contract at three cents a quart for six months and two cents a quart for the balance of the year. This means an average of $1.17 per hundred for the year. At present the producers are receiving obout 80 cents a hundred pounds by the year, while their milk retails from 8 to 10 cents per quart.

This is a most notable instance of the value to farmers of fighting the devil with fire. One of the leading men in this work of organizing the milk producers has been Mr. Ira L Snell, of Kenwood, N. Y.

MICHIGAN CREAMERIES.

The Michigan creameries the past year, seem to have been very successful as business concerns.

The Martin Creamery company of Allegan county has made nearly 35,000 pounds of butter the past year, and paid a dividend of 10% to stock holders.

A 20% dividend has been declared by the Hillairds Creamery company of Allegan.

The Vermontville creamery has distributed over $13,000 the past year in that vicinity, 14% dividend.

At the annual meeting of the Beaver Dam Creamery company, Ottawa county, a dividend of 90% was declared.

Overisel Creamery, Ottawa county, 22%.

Dorr Creamery, Allegan county, paid patrons nearly $13,000 in 1898.

Drenthe, Ottawa county, 55%.

Grass Lake, Jackson county, 17%.

Freeport, Barry county, 13%.

Litchfield, Hillsdale county, 35%.

Jerome, Hillsdale county, 7%.

Kellogg, Allegan county, 7%.

Woodland, Barry county, 10%.

Twenty-four creameries show an average of 20% dividend.

Denmark, in order to preserve its export butter trade, has passed a law making it a misdemeanor to use salicylic acid, formaline, or any "preservative" of any kind, in milk or its products.

It Gave Him a Definition.

ED. HOARD'S DAIRYMAN:—I was talking with one of my patrons today. About three years ago I had hard work to get him to subscribe for the DAIRYMAN. Today he said:

"The DAIRYMAN has been worth hundreds of dollars to me and I expect will be worth hundreds more. For the first time in my life I began to get a square definition of things. Nowhere else in this land that I know can a man have the company of as many bright, successful dairymen as in the DAIRYMAN. Such men are worth a mint of money to any man who knows enough to know what he needs to know."

I thought I would send you this little tribute as a sort of encourager to you.

Keep right on fighting the poor cow, oleomargarine, ignorance and carelessness—the four devils that are roasting the life out of the dairy farmers of this country. Yours as ever. T. C. L.

Bremer Co., Iowa.

There are thousands of acres of abandoned farm lands in Indiana, according to the official declaration of its Governor. Wearing out farms is a bad thing, and the practice is working west. It will never pay us to spoil our farms in that way.—*E. C. Bennett.*

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids.*

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc, and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat.* Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

HOW OFTEN SHOULD COWS FRESHEN?

Will you kindly advise me through your valuable paper, how long a mature cow should be milked before being served? Upon inquiry among dairymen in this section, I find that the majority of them have their cows come in fresh about every eighteen or twenty months, and one party advised me every two years was often enough. I have not had much experience in this business, and would like to have the advice of your paper.

Norfolk, Va. W. G S.

Under ordinary circumstances, cows should freshen once a year. For special reasons the interval may be increased or decreased, and in exceptional cases, may be extended indefinitely.

COW PEAS FOR MISSOURI.

Will you please inform me which kind of feed to grow for milk cows for winter use of the following varieties: millet, cow peas and oats, (sowed together,) or sweet corn for fodder.

I am a new beginner in the milk business, and never did raise any kind of feed. I am breeding A. J. C. C. Jersey cattle.

If there is any one in this part of the country that ever raised cow peas, I cannot find him. Please tell me how to plant and what kind of peas that is sown with oats; if these will do well in this section, and about how many acres for nine cows. T. A. W.

Maryville, Mo.

It is never wise to put one's sole reliance upon a single crop of any kind. If we were living in Missouri, we should certainly raise some of these cow peas, and should try some without any other crop, and some with oats or sorghum or both. We should also raise corn and oats and try some alfalfa.

For directions as to the manner of raising the cow peas, varieties and amount of seed per acre, see page 158.

AS TO MANGERS AND FEED BOXES.

In the DAIRYMAN of March 31, 1899, page 129, in answer to W. P., Woodbine, N. J., you say "the writer of this reply discarded feeding boxes and mangers of every description years ago"

Will you please give us your method of feeding hay, grain and silage. We have had trouble with all the feed boxes we ever used, or rather with their corners.

Menominee Co., Mich. C.

The plan followed by the writer is to have a smooth, level floor in front of the row of cows, and the grain, silage, hay or other coarse fodder is simply placed on this floor, within convenient reach of each animal. Of course some of this is scattered and pushed out of reach, but it is a very small chore to go along in front with a broom and sweep it back into place. We are well aware of the standing objection, that without some sort of a partition, one cow may rob her neighbor, but our experience is that this occurs only to a very limited extent, if at all.

We have so far modified the above plan, in front of one row of cows, as to introduce a common V shaped continuous trough, in which to give the cows water, and the feed of all kinds is put before the cow, the same as when the trough was not there. We have the feeding floor raised somewhat above the platform on which the cows stand, and the edges of this trough are even with the floor. We like this arrangement very much.

WILL IT PAY TO FEED GRAIN IN CALIFORNIA?

Can I feed grain at the following prices per ton: Oil cake $32 50 per ton, cocoanut cake $25.00, middlings or shorts $21.00, bran $20.00, corn meal $24.50, rice meal $18.00? If I can, please give me a ration for grade Jerseys.

Present feed, pasture (Italian rye grass, 18 to 21 inches long, and white clover), some carrots and all the oat hay they will eat clean at night.

I send my milk to a creamery, average price 80 cents per hundred for 4 per cent milk.

Is it necessary to scald bran?

Cal. H. Mc C.

With pasture of the character indicated, we should feed little or no high priced grain. A pound or two each of the cocoanut meal and bran would not be amiss for cows that are at the height of productiveness.

Experience has shown in the few cases where it has been tried, that cows fed some dry forage when on pasture seem to do quite as well as when given grain.

It is not necessary to scald or wet bran for feeding. It is better to feed it dry, unless some special object is to be obtained.

TO KEEP UP THE FLOW OF MILK.

Will you please formulate for me a ration, if you can, out of corn and cob meal, bran, clover hay and cut fodder. Our ensilage will be gone in about a week, and we would like to keep up the flow of milk. The cows are most all Jerseys, some fresh last fall and some fresh now. J. F. McM.

Wilmington, Ohio.

We fear you have made a mistake in curtailing the daily allowance of silage so as not to make it hold out until you can turn the

TO MEN WHO PRODUCE MILK FOR CITY USE.

If there is a cow keeper on earth who needs the best information on the science of feeding cows, it is the city milk producer. Do you know that it is a demonstrated fact in hundreds of cases that HOARD'S DAIRYMAN has given advice that has reduced the cost of feeding from 25 to 50 per cent? This means just so much added to the revenue.

Don't throw this paper down with the idea that there is no science of feeding. Don't think that the scientific investigators are all wrong and you are all right.

"Verily, friends," as the Hoosier preacher said, "there's a heap to learn." HOARD'S DAIRYMAN devotes more effort and space to this feeding question than any other paper on earth. It will pay you to take the paper and look into it.

cows to pasture. When we come to the first of March and our silage is getting so low that it will not last, if the full allowance is given every day, we reduce the amount by a half or a fourth as may be necessary to make it hold out. It is, of course, too late now to remedy this mistake, if it was one, and therefore you must do as best you can. We suggest the following as the minimum daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay.....	12.70	1 02	5.37	.26
6 lbs. corn stover.....	3.57	.10	1 94	.04
6 lbs. bran.....	5.29	.75	2.32	.18
4 lbs. corn and cob meal.....	4.45	.32	3.75	.18
Totals.....	25.96	2.19	12.79	.66

Very likely you may have difficulty in getting all the cows to eat the amount of roughage specified, but in any event we would not let down on the grain. If at all practicable to get some linseed oil meal, we would advise feeding at least a pound a day to each cow.

WINTER AND SPRING WHEAT BRAN.

Is there any difference in feeding value for cows, between spring wheat bran and winter wheat bran? I am feeding grade Jerseys for butter, and find your paper very valuable, but I cannot find anything pertaining to the above question. There is a difference in price here, and I wish to know which is better. A. H. B.

Pittsford, N. Y.

There is less difference in the average of all analyses of winter wheat bran and spring wheat bran, than there is between different samples of either. Such difference as there is in the averages, favors the spring wheat bran, but it is so trifling that it ought not to make any material difference in the price.

A MICHIGAN RATION.

Will you kindly formulate a ration for grade Jersey cattle with a few thoroughbreds? Rye bran, per ton, $15; rye middlings $15; buckwheat $13; linseed oil meal $25; timothy hay $10. We cannot get wheat bran very often, and are out of corn stover. We deliver the milk and cream in town from about thirty-five cows and want a large quantity of good rich milk.

Niles, Mich. C. W. H.

We expect the time will never come, in our day at least, when the greater number of dairymen will come to a thorough belief in the proposition that the feed given to the cow has no effect upon the quality of the milk, except as it may affect the flavor and color. Numerous experiments have been carefully conducted with the view to ascertain whether the per cent of fat in the milk could be changed by changing the feed. In some of these experiments, a very slight change has been noticed, but whether caused by the feed or other circumstances, is, of course, undetermined; but in the great majority of the experiments, there has been no perceptible change in the per cent of fat, either increasing or decreasing with the change in the feed. The quantity of milk may be greatly modified by the feed, increasing or de reasing as it increases or decreases, and thus the *total* amount of fat may be changed.

But we ought to say, in this connection, that sound feed tends to the production of sound milk, whereas unsound, moldy, off-flavored feed will make itself manifest in the milk. Hence, producers of milk for city consumption, more than any other class of dairymen, ought to be exceedingly careful in regard to the quality of feed they give their cows. We suggest to our friend for trial, the following, as a minimum:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
17 lbs. timothy hay....	14.76	.48	7.48	.24
5 lbs. rye bran.....	4.42	.58	2.52	.10
4 lbs. buckwheat middlings.....	3.49	.88	1.34	.21
1 lb. oil meal..... ...	.91	29	.33	.07
Totals.....	23.58	2 23	11.67	62

In addition to the above, don't forget to give the cows a little salt every day, or better yet, with every feed. Salt is not only an excellent appetizer, but it materially assists in the digestion and assimilation of the feed, particularly of the protein elements.

HAS TO BUY ALL FEED.

Would you please formulate for me a balanced ration out of some of the following feeds: Wheat bran and middlings, 75 cents per cwt.; corn bran, 70 cents per cwt.; sugar feed, 66 cents per cwt, Quaker oat feed, 70 cents per cwt.; oil meal, $22.50 per ton; corn meal, 75 cents per cwt. I have plenty of corn stover for roughage. I have to buy all my feed, so I would like to have as economical a ration as is consistent with good results. W. C. W.

Dayton, O.

Where one has only corn stover for roughage, he should expect to feed quite liberally of grain, and especially of those kinds carrying a high per cent of protein. We are unable to find any analysis of "sugar feed" as such. We are inclined to think, if it is thoroughly dried, sweet and clean, it might be a profitable feed in this case, but the amount must be determined by circumstances. If used at all we should substitute it pound for pound for bran in the following formula, until we were feeding half bran and half sugar meal. We omit it from the formula, because we find no analysis of it, and suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn stover....	14.90	.43	8.10	.18
10 lbs. bran.....	8.81	1.26	3.86	.30
2 lbs. oil meal.....	1 82	.59	.65	.14
Totals.....	25.53	2.28	12.61	.62

WEIGHING MILK.

I often seen it stated in your valuable paper about using scales and milk sheet. Now will you please copy a sample milk sheet in your paper for a milk shipper? And is weighing milk two days in the week enough to ascertain the amount of milk a cow will give in a year? H. H.

Albers, Ill.

The information as to form of milk sheet has already been given. The weighing of milk for two days in each week will give a very close approximation to the actual yield, and so far as that is concerned will answer all practical purposes. There are, however, some other considerations which make a record of each milking desirable. There is no other so sure way of keeping well advised as to the health of the cow and finding out whether each milker is doing what he ought to do.

A SOUTHERN CALIFORNIA RATION.

Will you kindly formulate a ration for me from following: Alfalfa hay $16 per ton; heavy bran (wheat) $23; whole corn ground fine $23; middlings $26; shorts $24; light bran (wheat) $23 I am not supposing that you will select all of above, but I submit them as a list.

Am feeding 25 cows, half of them Jerseys, quarter Jersey grades, and balance Holsteins and mixed grades. Am retailing milk and feed for good milk. This is our second dry year. Your advice and suggestions will be carefully noted by myself and many other suffering dairymen in this locality.

Los Angeles, Cal. S. P.

Alfalfa hay and ground corn supplement each other most admirably—the former being highly nitrogenous, and the latter carbonaceous. But it is not profitable to feed so highly concentrated material as corn without mixing it with something to greatly increase its bulk. This is accomplished in part by grinding the cob with the kernels, but even corn and cob meal is more concentrated than we like. Hence we often advise mixing bran with the meal, as well for its mechanical effect upon the other feeds as for its own nutritive properties, and this is one of the reasons why the light, flaky bran is to be preferred. Alfalfa hay cannot be said to be very cheap at $16 per ton, but it is much cheaper than bran at $23, and, if it is at all practicable to do so, we would recommend cutting 6 to 8 lbs. of hay and mixing it with an equal amount of ground corn, and then giving all the long forage each cow will eat. Otherwise we can do no better than suggest the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa hay....	18.34	2.20	7.92	.24
3 lbs light bran.....	2.64	3.81	1.16	.09
6 lbs. corn.....	5.34	.47	4.00	.26
Totals.....	26.30	3.05	13.08	.59

A GEORGIA RATION.

Please give me a ration from the following feeds: Cotton seed meal $17 per ton; shorts, $21.50; corn meal $19; hulls $7.50.

Paschal, Ga. J. B. G.

This is not a very satisfactory list of feeds, either in variety or price, from which to suggest a ration formula. The cotton seed meal is cheap enough, but all the others are excessively dear. Moreover, hulls do not make of themselves alone very satisfactory roughage, and we do not much wonder that in another part of his letter, our correspondent refers to one of his cows being seriously out of condition.

Happily our friends in Georgia are, by this time, in the full enjoyment of newly growing pasturage, and this will go very far in modifying the feeding problems for the present. But now is the time to prepare for next winter, and we urge upon every reader of HOARD'S DAIRYMAN in the South the necessity of growing some appropriate and nourishing roughage for their cows. Many of the native grasses there, heretofore regarded as noxious weeds, make excellent hay, and there is the cow pea which should not be neglected on any Southern farm, or plantation.

We suggest to our friend that he mix cotton seed meal, corn chop and shorts in equal quantities by weight and feed from 6 to 10 lbs. of this mixture daily, as each cow seems to require, mixing each feed with an equal quantity, also by weight, of the hulls, and then feed whatever other roughage the cows will eat.

A MICHIGAN RATION.

Will you kindly formulate a ration of the following: Gluten feed, wheat bran, oat and corn meal, timothy hay, corn fodder and wheat and oat straw?

Gluten feed is a new thing for us, and we wish to give it a good trial, but do not wish to overfeed our cows. They are fair sized, and will weigh from 800 to 1,200 pounds.

We have plenty of oats and corn, and if the gluten feed is just as good fed with them would prefer to feed some, if not, will feed bran. F. W. S.

Belleville, Mich.

When one can get 2,300 pounds of bran for 2,000 lbs. of ground oats, it will pay to make the exchange. With timothy hay, corn stover and straw for roughage, there is not much opportunity for using corn in the ration for a milch cow. We are therefore of the opinion that more profit will follow if the corn and oats are sold, and bran and gluten, or other feeds rich in protein bought. When there is neither silage nor roots, we consider it a good plan to have some linseed oil meal on hand for use as may seem expedient. At present prices, one cannot afford to feed this oil meal simply for its nutritive value, but it has the virtue of putting the digestive tract in good order, and thus supplying the place of succulent fodder. With the near advent of spring pasturage, it may not be expedient now to go to any considerable trouble or expense to get oil meal.

Subject to the universal rule of making all changes gradually, whether in kind or quantity of feed, we submit the following formula, as about the least that one could expect to provide for an 800-lb. cow in fair flow of milk:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. timothy hay...	8.68	.28	4.34	.14
10 lbs. corn stover...	5.95	.17	3.24	.07
5 lbs. bran.....	4 41	.63	1.93	.15
5 lbs. gluten feed....	4.61	1.22	2.42	.25
Totals....	23.65	2.30	11.93	.61

CORN AFTER CORN.

Will you tell me through your paper, whether it will answer to raise three crops of corn in succession, if well manured with barn yard manure? Last year was the second year, and I had a better crop than the first year. I have but little good corn land, and would like to use that as long as I can in succession. J. B. W.

Courtland Co., N. Y.

Yes; but we would recommend sowing crimson clover in the corn each year, at the last cultivation, and plowing it under the next spring. This will add both nitrogen and humus to the soil.

COST OF MILK—PRICE OF PASTURAGE.

Since reading your paper, I have failed to see where any of my brother farmers have said what it cost them to make one hundred pounds of milk. Would like to hear from as many as possible. Have been doing some figuring in that line myself this winter and will report later.

Also would like to know what it is worth to pasture a cow during the pasture season.

Fond du Lac, Wis. W. S. W.

It would be excellent business sense for every farmer to adopt some system whereby he could know just what it costs him to produce milk. There is, probably, not one in a thousand who can answer this question. If dairymen generally had this information about their cows, there would be greater discrimination in buying and keeping dairy stock. It pays to keep and feed a good cow, and the better the cow the better it pays; but it does not pay to keep poor cows.

It is practically impossible to estimate the value or cost of pasturage. The price of land, its productiveness and other items make it very expensive in some localities, and very cheap in other places. By reference to his report, as published elsewhere, it will be seen that Prof. Smith, of Michigan, charges at the rate of 25 cents per week.

BUTTER IN FLORIDA.—CHEESE FROM ONE COW'S MILK.

We are trying to make Jersey butter in this land of sunshine and flowers, and as far as the making is concerned, we are succeeding very well. But it is the keeping qualities that is troubling us now. We have but one cow, period of lactation about six

months, gives eight quarts of very rich milk per day, from which we can make nearly one and one-half pounds of butter, but it will not keep more than a week before it will get strong, and we are as careful about cleanliness as we know how to be. The milk is strained at once through four thicknesses of cheese cloth and a wire strainer besides, cooled and aerated, and when the temperature did not go higher than 70° F. for weeks our butter would not keep. As soon as churned, we placed it on the shelf in the cellar, wrapping each roll by itself in parchment paper. Our feed is clover hay, Quaker oat feed, wheat bran, salt about an ounce in each feed night and morning. Cow has fresh artesian water by her all the time, and yet our butter will not keep satisfactory. This I should not think strange if it was confined to our efforts only, but since we have been making inquiries, we find that everyone in our neighborhood has had the same experience, and many are old butter makers in the North.

Others, it seems, were either ashamed to have it known, or believed it was in the climate, and no help could be had. I am confident we are at fault in some way, and I have no doubt but either the editor or some of the readers can and will come to our rescue. It was my intention to go into the dairy business more extensively, but as there is only sale for the milk during the tourists' season, we must depend on butter making for nine months of the year, and if we can not make a success of it, dairying will not be profitable.

One other question: Will it pay to make cheese from one cow? A SUBSCRIBER.

Florida.

It is possible that the temperature at which your butter is kept is the cause of your trouble. For keeping butter the temperature should not go above 50° F., and the lower the better. In a climate like that of Florida, it is not advisable to keep butter without ice. As a rule, the sooner you use your butter the better.

It is also possible that there may be some species of bacteria in your neighborhood that cause the butter to go off flavor. If you care to experiment, try pasteurizing the cream and add a little pure culture for a starter.

It will depend on the quality and size of cheese your market calls for. If large Cheddars are in favor, you could not hold the milk long enough to get sufficient for a cheese; if you can sell a small fancy cheese, it might pay.

A WISCONSIN RATION.

Please give me a ration out of the following feeding stuffs: silage, good corn stover, bright marsh hay, corn and oat meal, bran and linseed meal. L. A. M.

Almond, Wis.

Where one has only such roughage as is mentioned above, he must expect to feed more liberally of the expensive concentrates. The following combination would make a fairly good ration, much better than the great majority of cows are fed, but not as good as good cows deserve, when fresh or nearly so:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbo-hydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. stover	5.95	.17	3.24	.07
6 lbs. marsh hay	5.30	.12	1.50	.05
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. linseed oil meal	1.82	.59	.80	.14
Totals	25.43	1.90	12.40	.66

Here are 10 pounds of grain, but as no prices are given, we cannot estimate the cost We should much prefer to substitute 5 pounds bran and five pounds gluten feed, and we judge there would not be much difference in the cost.

TEST QUESTIONS.

Am having trouble with my tests. At times they are clear and pretty, and again they are just the opposite. A thick cloudy substance, resembling somewhat the "mother" in vinegar rises with the column of fat and intermingles with it. I use a preservative in samples when they are kept a day or two. Could using too much of this, cause the trouble. W. F. D. B.

Abilene, Tex.

You are probably using a weak acid. It should have a specific gravity of 1.82 to 1.83. When you buy it have the seller guarantee the correct strength. Keep it in a tightly corked bottle, as otherwise it will take up water from the air and become too weak. Do not try to read a test that is not clear. If it contains undissolved casein, as is probable in your case, you cannot read accurately. Bichromate of potash is the only preservative that is apt to cause trouble. It sometimes causes the casein to become insoluble in the acid.

FAIR PRICE FOR MAKING BUTTER.

Please give me what would be a fair price to pay a farmer's wife for the labor per pound on making butter. She does the work of taking care of the separator and working the butter on a butter worker. She has a man to do the lifting of cream, churning, and in fact all the other labor. The milk is separated by the man. Her labor consists of washing butter, tools and separator, and working butter, only. G. W. W.

New York.

We do not see how it is possible to give a satisfactory answer to the above question. The price to be paid per pound would depend partly upon the quantity of butter made each day, as it would take practically as much time to do the work for 20 pounds as it would for 50 pounds or more. Another element in the problem would be the degree of skill possessed by the butter maker. If she is capable of making an article that will command an extra price, her services would be more valuable than would those of one who was less competent. We think payment by the hour or the week, having regard of course, to the amount of work done, would be more satisfactory to all concerned.

A NEW JERSEY RATION.—CAPACITY OF SILO.

Will you please balance me a ration from corn meal, wheat bran, cotton seed meal, and dried grains, with corn fodder and timothy hay; cows weigh 800 to 1,000 lbs.

I am putting up a silo 12 feet in diameter and 24 feet deep, is that about what I want for 15 cows? J. R. B.

Allentown, N. J.

The following is about the minimum allowance for cows of the weight given and not yet commencing to shrink:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbo-hydrates	Ether Extract
10 lbs. timothy hay	8.68	.28	4.34	.14
10 lbs. corn stover	5.95	.17	3.24	.07
3 lbs. bran	2.64	.38	1.16	.09
3 lbs. dried grains	2.75	.47	1.09	.15
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	21.86	2.04	10.17	.63

The first addition we should make to the above, providing there was no choice as to price, would be a pound and then two pounds of corn meal. After that, if we still wanted to increase the grain we would add a little bran or grains or gluten feed.

The grains should be thoroughly soaked and swollen before feeding.

A silo 12 feet in diameter and 24 feet deep will hold from 45 to 50 tons of silage and this will suffice for 15 cows 200 days, after making ample allowance for waste.

FERTILIZERS FOR CORN.

Will you also answer in the columns of your next paper your opinion of sowing the largest red clover in corn field just before running the weeder the last time, where you have manured about ten good loads per acre, broadcast and want to seed next year? I shall also use about two or three hundred pounds of fertilizer per acre.

Will you also give your opinion as to using kainit at $18 per ton delivered at our station, for corn, and use ten to fifteen loads of good manure per acre broadcast, or would it be better to use some other kind of fertilizer? My soil is of a heavy clay, and is capable of growing from three to four tons of hay per acre. How many tons should I grow of the Pride of the North, or some other large silo corn, grain and stalks?

Brushton, N. Y. B. M. O.

We can unhesitatingly recommend sowing clover as suggested, but if the crimson clover seed can be as readily obtained we should be disposed to try it, at least on a portion of the ground. There is some question about the necessity for using the commercial fertilizers in addition to the clover and barnyard manure. Kainit, or common land plaster (gypsum) can be used to great profit in the stable to fix and hold the nitrogen and thus serve the double purpose of conserving fertility and increasing the wholesomeness and sanitary condition of the premises. A pint each day per cow in the trench and on the floor and under each horse will be a good investment.

PRICES FOR MILK.

In this locality we sell our milk principally to cheese factories so our interest is centered in that direction. As it is now about the time that the milk is contracted for the season would like the prices given throughout the state if it is possible to obtain the figures.

The quotations would give us a better idea how to contract for the coming season.

Lamont, Wis. G. W. S.

We do not know where such a list could be obtained. The prices vary greatly according to location. For the prices at Elgin see page 115.

A NEW YORK RATION.

Would you give me a balanced ration for Jersey cows (fresh), weighing from seven to nine hundred pounds, from following feeds: Bran, corn and cob meal, oats, peas and barley, (mixed crop) weighing 58 lbs. to the bushel (mostly oats), hay, red clover, alsike and timothy (mixed), oil meal.

Stow, N. Y. L. L. G.

It is difficult to determine the exact feeding properties of mixed hay and grain, but we are of the opinion that a ration modeled substantially after the following formula, will give good results:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbo-hydrates	Ether Extract
18 lbs. hay	15.34	.86	7.13	.29
4 lbs. corn and cob meal	3.56	.26	2.52	.14
4 lbs. oats, etc.	3.56	.40	2.00	.16
2 lbs. oil meal	1.82	.59	.65	.14
Totals	24.28	2.11	12.30	.73

It is extremely probable that some of these cows could, profitably, be fed more. At all events, it is well worth trying. If you do not weigh your milk, commence to do so at once and keep a correct record, and increase the feed just as long as the increase in milk will justify it.

ALFALFA SEEDING.

Will alfalfa clover grow if sown in the wheat this spring, same as any other clover seed? Please advise me when to sow or if not to sow at all. E J. B.

Chester Co., Pa.

Sow alfalfa, without a nurse crop, in April, at the rate of twenty pounds of seed per acre. Alfalfa needs a fine seed bed, in ground free from weeds. The ground need not be plowed deep, but the upper three or four inches must be in fine tilth. Cultivate as soon as possible and then harrow every week or so until it is time to seed.

The soil should be free from weeds. Good

"A Word to the Wise is Sufficient."

But some stubborn people wait until "down sick" before trying to ward off illness or cure it. The wise recognize in the word "Hood's" assurance of health.

For all blood troubles, scrofula, pimples, as well as diseases of the kidneys, liver and bowels, Hood's Sarsaparilla is the effective and faultless cure.

Poor Blood—"The doctor said there were not seven drops of good blood in my body. Hood's Sarsaparilla built me up and made me strong and well." SUSIE E. BROWN, 16 Astor Hill, Lynn, Mass.

Dyspepsia—"We all use Hood's Sarsaparilla. It cured my brother-in-law and myself of dyspepsia. I owe my life to it." M. H. KIRK, 607 Franklin St., Philadelphia.

Hood's Sarsaparilla Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Gilt-Edge Butter

is the only money-making kind. But to make it, and the most of it, you must use the latest improved machinery. It is just this sort of product that has built up the demand for our



Empire Cream Separators.

They get all the cream from the milk and leave it in the best condition for churning. Lightest running and simplest in construction. Our catalogue will tell you why.

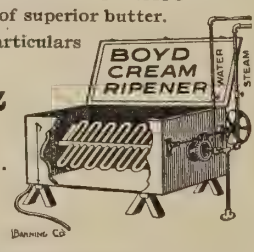
U. S. Butter Extractor Co., Newark, N. J.

BOYD CREAM RIPENERS stand ready to aid you to fortune with fame as a maker of superior butter.

Write for full particulars at once.

CORNISH & COMPANY, ST. PAUL, MINN.

Creamery Machinery, Sharples Improved Separators.



HAY STOCK COAL COTTON U.S STANDARD OSGOOD SCALES

Any sized platform; single, double or combination beam. SPECIAL PRICES where we have no agent.

OSGOOD SCALE CO., 91 Central St. Binghamton, N. Y.



Write now.

Advertise Aerated Milk,



Mr. Milkman, and your trade will increase rapidly—you will get new customers, your old customers will buy more milk—give you a better price for it, too, if you ask it. If you want to know how to do it, write us and we will help you.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

results are reported by using a press drill and mixing the seed with an equal weight of wheat bran. Be sure and use enough seed.

A MILK TICKET SUGGESTION.

Can you suggest some better substitute for enclosed milk ticket? S. A.

Sheridan, Wyo.

If you prefer single tickets like the enclosed, there is but little chance for improvement.

Many dealers however, seem to like a ticket from which the record of the amount taken can be punched out.

The following ticket, originated by Mr. D. Seyster, was published in the DAIRYMAN in 1898:

SEYSTER'S DAIRY,
Maryville, Mo.

WRITE YOUR NAME AND DATE ON BACK OF TICKET WITH INK WHEN PURCHASED.

1	GOOD FOR	6
2	10 Pints	7
3	25 cts.	8
4	When this No.	9
5	is punched.	10
11	GOOD FOR	16
12	10 Pints	17
13	25 cts.	18
14	When this No.	19
15	is punched.	20
21	GOOD FOR	26
22	10 Pints	27
23	25 cts.	28
24	When this No.	29
25	is punched.	30
31	GOOD FOR	36
32	10 Pints	37
33	25 cts.	38
34	When this No.	39
35	is punched.	40

WHAT KILLED THE CALF.

Some time ago I lost a fine heifer calf about six weeks old. She had begun to eat hay, bran and corn stover, nicely; was still giving her about four quarts of milk twice a day, (milk had been heated to near the boiling point) was all right at night, in the morning we found her dead, badly bloated, little blood at the mouth, rectum looked as though she had been straining a great deal.

Elmer, N. J. H. W.

The most skillful veterinarian in the world could not answer this question. Some less skillful might attempt to do so, for fear an admission of not knowing everything would be regarded as evidence of incapacity. Too many doctors, and especially those who append M. D. to their signatures, jump at conclusions. For example: because they cannot assign any other cause for some unusual sickness among children, they will claim that it results from something fed to the cows which supply them with milk, and if it happens that silage is used, they will forthwith condemn silage, apparently oblivvious of the fact that milk from silage fed cows has been proven over and over again, in hundreds of thousands of instances, to be wholly innocuous.

Their reasoning is like this: If feeding silage to the cows did not cause this sickness I do not know what did; therefore it was silage. Conclusions based npon ignorance are not very reliable.

So in the case of this calf, one might hazard a score of opinions and still be far from the real cause of death. It is quite within the range of possibility that it ate too much of the hay and stover and got a mass of matter in the stomach that it could not dispose of and a stoppage was occasioned some where in the intestinal tract. It is also within the range of possibility that somewhere and somehow the calf picked up a nail or a piece of wire or something else which caused a perforation of the stomach. There are other possible causes of death, and, as we said in the beginning, no one can answer the question satisfactorily.

QUAKER OAT FEED.

We have been feeding corn silage, 20 pounds; wheat bran 3 pounds, and what clover hay and corn stover cows would eat. This is a wide ration, but the cows were doing well until we changed the bran for Quaker oat feed, when after about ten days the cows all went off feed, and scoured badly.

New Castle, Pa. F. E. M.

The sample of the feed did not come to hand. We can only say, that Quaker oat feed, as it leaves the mills, is an entirely wholesome and healthful feed, and well calculated to keep good and sweet. If this particular lot caused the trouble, it is one of the very rare exceptions, and most likely was damaged while in transit, or in being stored somewhere in great bulk.

CHURNABILITY OF CREAM. POOLING POOR MILK.

Do you consider that if the cream is properly handled in every respect, that one will always obtain all, or nearly all of the butter it contains? I have heard of at least two cases, on good authority, where persons kept only one cow, which, if the cow had been in a herd, it would seem probable they would have obtained no butter at all.

The first case was a minister who bought a cow out of a herd, and he could not get a pound of butter from her milk, churn as long as they would.

The other case was of a veterinary, with whom I was talking the other day. He said he bought a Red Polled heifer and kept her a year and sold her because the butter was either so slow in coming, or did not come at all, I can't tell which; but anyway, he said he had churned two and three hours on it.

It seems to me that when these cows were in their respective herds, it is probable that whatever butter fat was in their milk was lost. Do you think that in such a case as this it is probable that, with ordinary care of cream, etc., that they would get any butter from the milk of these two cows? If not, unless these cases are so rare as not to be taken into account, it would seem to me that the churn was really a more accurate test than the Babcock.

I have read in the DAIRYMAN, the inquiries in regard to the best breed of cattle, and your answers to them, but I am going to ask one just the same. Do you not think that where one had no very strong prejudice for any breed, that there is some breed that would have decided advantage over others, for certain purposes. For instance, would not the Holstein be far ahead of a Jersey for taking milk to a station where there is no account made of the quality, only that it must be up to the state standard?

Taylor, N. Y. E. B. C.

Much depends on the meaning of the term "properly handled."

A cow far advanced in lactation will give cream which is frequently impossible to churn by the usual methods of handling. With such cream it is frequently impossible to obtain butter, no matter how long the churning is kept up, and special methods must consequently be used for such cream.

There are also cows whose milk is sufficiently abnormal, either from the size of the fat globule or an excess of albumen, or from both, to yield but a small part of the fat in the form of butter. Such cases are not at all common, and in creamery practice such milk is diluted by the large mass of the other milk, and its vicosity removed so that it churns readily. A butter maker who understands his business, should know how to handle hard churning cream and get the fat out of it.

That there are men who do not understand such work, is no reason for taking a backward step, and using the churn for a test, especially when the rarity of such cases is considered.

If you want to consider only the present, without regard to your future profits, and if you are certain that milk will be always taken by weight, regardless of quality, then a herd of cows that will give a large amount of thin milk will be the most profitable.

But are you certain that such conditions are going to continue?

A WASHINGTON RATION.

Bran and shorts being my principal grain feed, with all the well cured oat hay the cows will eat, please give best proportion of shorts to bran. C. O. C.

Colfax, Wash.

Mix the bran and shorts, equal parts by weight, and feed 8 to 12 pounds daily.

This correspondent wrote us a long letter in regard to feeding, farm creameries, and other matters, some time ago. That was the trouble. We do not need to say that the past winter has been a universally busy one for this department, and it has been simply impossible to keep abreast with the demands. Both time and space have been wanting, and the long letters have necessarily been the first to suffer delay; but we give, in another place, a farm creamery plan, for his benefit, and that of others among the thousands of new names, which have been enrolled upon our subscription books since January 1st.

FEEDING IN NEW JERSEY.

I feed from 20 to 25 pounds silage daily, (fairly well eared, though not heavily) all the good mixed hay they will clean up, (it is hardly half clover, rest timothy,) and plenty of good corn stover. Now how should I mix bran and corn meal for best results? Can sell corn at 43 cents a bushel; bran will cost me $18.50 per ton, though what I have on hand cost $16.25; can buy Buffalo gluten meal at same price as bran, but never used any of it. Would it be cheaper than bran? H. W.

Elmer, N. J.

Corn at 43 cents per bushel when ground, will cost fully $17.50 per ton, and would be cheaper than bran at $18.50, but unfortunately one cannot feed all corn. Buffalo gluten feed has a much higher feeding value than bran, but, here again, we meet with the objection that it is not best to use gluten feed exclusively. We would advise mixing, and always by weight, five parts gluten feed with two parts each of the bran and corn, and feed from 6 to 10 pounds of this mixture daily, with the silage, hay and stover.

The new Sharples tubular separator has a bowl only four and one-half inches in diameter, and it revolves twenty-two thousand times a minute.

Catch Cold Easily?

Are you frequently hoarse? Do you have that annoying tickling in your throat? Would you feel relieved if you could raise something? Does your cough annoy you at night, and do you raise more mucus in the morning?

Then you should always keep on hand a bottle of

Ayer's Cherry Pectoral

If you have a weak throat you cannot be too careful. You cannot begin treatment too early. Each cold makes you more liable to another, and the last one is always harder to cure than the one before it.

Dr. Ayer's Cherry Pectoral Plaster protects the lungs from colds.

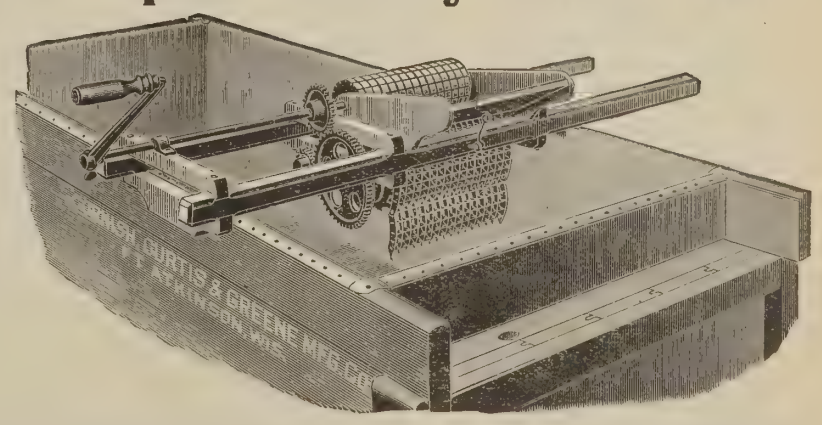
Help at Hand.

If you have any complaint whatever and desire the best medical advice you can possibly obtain, write the doctor freely. You will receive a prompt reply.

Address, DR. J. C. AYER, Lowell, Mass.

BUY "DIRECT FROM FACTORY" BEST
MIXED PAINTS
At WHOLESALE PRICES, delivered FREE For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for DE LAVAL ALPHA SEPARATORS.

The Appeal of the National Dairy Union to the Dairymen.

The cause for being alarmed right now is the fact that during the past eight months the production of oleomargarine has more than doubled over the same eight months of previous year.

In eight months ending March 1, 1898, there were made in Chicago, 50-pound tubs of oleomargarine to the number of.....270,249

In eight months ending March 1, 1899, there were made in the same city, 50-pound tubs to the number of 534,434

What is the National Dairy Union?—It is an organization composed of those who are interested in dairying, and was the outgrowth of the necessity of some kind of an influence to check the inroads of fraudulent imitations which threatened a few years ago, as they threaten now, to displace so much pure butter as to make the keeping of cows unprofitable. Through the efforts of this organization the National Filled Cheese law was secured, and many state laws were obtained forbidding the sale of oleomargarine when colored to resemble butter.

Who are the officers who will handle this money? Ex-Gov. W. D. Hoard, of Wisconsin, publisher of HOARD'S DAIRYMAN, the best known of all dairy papers in the world, is president, and he succeeded to this position, the late congressman Hatch, of Missouri, who was father of the original bill which was passed in Congress in 1886, taxing oleomargarine 2c per pound.

The vice president is Hon. W. K. Boardman, late dairy commissioner of Iowa, president of the National Creamery Buttermakers' Association, president of the Iowa State Dairymen's Association, and one of the best known creamerymen in the country.

The treasurer is Hon. H. B. Gurler, of DeKalb, Ill., one of the oldest and most progressive dairymen in the famous Elgin district, and author of "*American Dairying.*"

The secretary is Charles Y. Knight, editor of *Chicago Dairy Produce*, a paper devoted to butter making and the butter trade, and is known to practically every buttermaker in the west and the entire butter trade of the country.

All the officers give their time free of charge to this work, and aside from this the secretary's paper has subscribed $1,000 cash to the fund now being raised.

It will cost the leaders hundreds of dollars in cash besides their time to fight this battle in order that you may be protected from fraud. If they, who have looked into the matter, are willing to risk *hundreds of dollars*, shouldn't you who are going to profit, be willing to risk fifty cents or a dollar?

Why is money needed?—Because in order to secure congressional action upon any question, Congress must be convinced of its importance to a large number of deserving people. Hundreds of thousands of letters must be sent out to farmers in all parts of the United States in order to get them awakened and interested enough in this movement to circulate petitions and write letters to their congressmen and senators. Probably $5,000 will be spent in postage alone, besides the enormous amount that will be needed to pay for printing, and expense of representatives who must go to Washington and appear before Congressional Committees to argue this cause.



Money Talks, is an old and true saying. But in this case the *farmer's* 50c or $1 contributed, says to his congressman and senator:

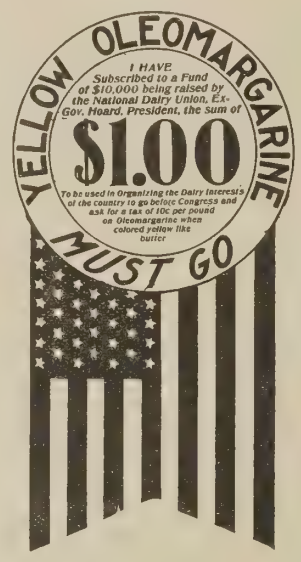
"I want this law bad enough to go down into my pocket and help pay the expense of organizing to get it."

When they see the farmers that much interested they will know they mean business and will feel that the congressman and senator have done something for them if they vote for it.

Object of 10c tax—The object of the 10c tax on yellow oleomargarine is to make it cost the manufacturer so much to produce the outlawed counterfeit that he cannot afford to sell it to the retailer at such a low price that the latter will be tempted to palm it off as butter because of the big profit he can make selling it at butter prices. Unless there is a big profit the retailer won't run the risk of evading and defying our state laws. Now he can make as much as $6 a tub profit, selling oleomargarine for butter.

No escaping the tax—There is no such thing as escaping the tax if it is levied by Congress. Large establishments and capital are required to manufacture oleomargarine. Violation of the internal revenue law forfeits these factories to the government. There are only fourteen in the country, and they are not difficult to keep under surveillance.

What oleomargarine costs—Oleomargarine can be made at a cost as low as 5c a pound for a low grade. Paying a 2c tax raises the cost that much. The materials which take the place of butter fat are oleo oil (made from kidney fat of the steer), lard and cottonseed oil. Cottonseed oil costs about 3c per pound; oleo oil from 10 cents down; lard and grease from 6c down according to quality. These are mixed in different proportions and churned in skim milk, as a rule, and the whole colored like butter and put up in rolls and prints like butter. The cost of the finished product depends entirely upon the proportions and quality of materials used.



The manufacture and sale of yellow oleomargarine is now prohibited in 31 states with five-sixths of the population of the country; yet four fifths of all that is sold is sold in these same states in defiance of their laws. If your state prohibits the sale of yellow oleomargarine by law, why shouldn't your congressmen and senators vote to aid in enforcing these laws by placing a 10c tax upon the outlawed article? *They will if you will ask them to. But the farmers themselves must ask this.*

State laws are not enforced because the counterfeit is of such a character that it can not be detected except by chemical analysis. You might as well look for a needle in a hay stack as to endeavor to prevent oleomargarine being sold for butter so long as there is the inducement of a big profit in it.

The sale of oleomargarine is so damaging because it goes right to the market centres where our surplus butter should find sale, and there depresses the price of butter by being offered largely *as butter*, but at lower prices than we can produce butter from milk. While only a very small proportion of the butter made in this country is *consumed* in Chicago, New York, Boston and Philadelphia, it is those markets which *set the prices* for the entire country. When Chicago is filled up with oleomargarine, and large quantities are sold in Philadelphia and other markets where creameries might otherwise ship, they are compelled to flood New York and Boston with butter, which drives prices downward in every market in the country. Thus the overloading of the New York market alone will depress prices everywhere, as when New York drops every other market must do the same.

What this means to you—If you send the milk of five cows to the creamery, and they average 200 pounds of *butter* a year:

You are losing $30 per year or $2.50 per month if butter is lowered 3c per pound by this competition.

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

You are losing $20 per year if butter is lowered 2c per pound.

You are losing $10 per year if it is lowered 1c per pound.

What this means to patrons as a whole—If we are losing 3c per pound as a result of this competition, we are losing $1 80 per tub, and $180 per week, or $9,000 per year, if we make 100 tubs a week; $4,500 per year if we make 50 tubs per week, or $2,250 if we make 25 tubs per week.

If we lose only 1c per pound it would amount to $60 per week on 100 tubs; $30 per week on 50 tubs, or $15 per week on 25 tubs.

Don't you think, therefore, it is very important that we should become interested and aid this movement?

Oleomargarine manufacturers are protected against foreign competition by a tariff duty of 6c per pound, and an internal revenue tax of 15c per pound, a total protection aggregating 21c per pound. We are only asking for a 10c protection against a *counterfeit.*

Your name will be published if you subscribe. It will go in a report that will be placed in the hands of our congressmen and senators, showing them who are interested in this movement, and to what extent.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, X.

TETANUS OR LOCKJAW.

This disease is more familiarly known as lockjaw, but this appellation refers generally to only one phase of the malady, that in which the muscles of the throat and jaw are affected. The disease manifests itself by spasms, the muscular contractions often remaining rigid, rendering locomotion difficult, and at last impossible. The stiffened attitude assumed by the affected parts of the body, the legs, head, or ears, at once indicate the character of the disease. The eye is generally retracted, while the "haw" or third eyelid, i. e., the fold in the inner angle of the eye, is usually protruded. This disease is common to both man and beast. In the horse, donkey and mule, it often occurs; in cattle and sheep it is less frequent. It had long been noted that the disease generally bore some direct relation to injuries from wounds, but causal relation between it and a specific microbe was not definitely determined until recent years.

The phase which occurs in connection with wounds or bruises, is likely to be acute, and is generally most severe. It may arise as the result of almost any wound, but serious consequences are more likely to happen from those that are deep seated, such as punctures. The reason of this is evident, when the character of the germ causing the disease is known. The tetanus bacillus is an organism that cannot be grown in the air. It is what is technically known as an anaerobe, i. e., it grows under conditions where free oxygen of the air is not present. This explains why, in deep wounds, the chances of introducing the germ under more favorable conditions of growth are largely increased.

It may seem peculiar to learn that the germ is abundant in the superficial layers of the soil, but under such conditions, it is not in a vegetating, growing state, but a latent, spore form. The only way of access into the system is through the medium of wounds, generally external, but not necessarily so. Anything which pierces the skin, breaking its continuity, permits particles of dirt bearing the spores of this germ to be introduced, should they happen to be present in the soil.

The injection of a pure culture of tetanus spores is not usually accompanied with any serious results, but if foreign matter is simultaneously introduced, a development of the peculiar symptoms occurs. This is particularly true with matter that may contain pus-forming bacteria. Generally a rusty nail, or a pitch fork wound, unless quite severe, attracts but little attention, but it is just in this way that the germs of tetanus are often introduced. The significance of these dirt particles, then, is considerable.

The disease not infrequently follows castration, where the failure to properly dress the wound, affords an opportunity for the introduction of the specific germ.

The germ of lockjaw does not spread throughout the body, but its growth is confined to the point of invasion. Here it develops the poisons which are so potential. Already several distinct poisonous substances have been isolated from cultures of the tetanus bacillus. Some of these when injected into the animal system act in a manner comparable to strychnine. As most of these virulent products are soluble, they become diffused through the system. So powerful are they that a twentieth of a drop suffices to kill a mouse in little over a day. It is possible to render animals immune to the action of these toxines by continued injections under proper conditions, and the blood of such animals made refactory to the disease may possess in itself, the power to neutralize the action of the chemical poisons. This is really the basis of the so-called antitoxin treatment, now so successfully used in diphtheria in man. This system of treatment has been instituted in tetanus, but not so successfully, doubtless for the reason that it is rarely applied until symptoms of the disease have begun to manifest themselves, at which time the effect of the poisons is such that the counter treatment cannot overcome them. It is not improbable that the method of treatment may be so perfected in the future as to render it more efficacious.

At the present time the most practical treatment is that which concerns itself with the destruction of the tetanus microbe. In as much as this is found solely at the point of invasion (usually an external wound), it teaches the importance of speedy antiseptic measures in the treatment of wounds. The liberal use of carbolic acid wash (5%) or Creolin will effectually destroy not only the tetanus germ, but the pus producing bacteria that are invariably found in this class of wounds.

Reading to Profit.

Experience of a Maine Milkman.—Some of the Old Ways.—Questions of Pasteurization and Feeding.

Ed. Hoard's Dairyman:—It has been 17 months since I received a copy of the dairyman's friend, the Dairyman, and I can say, honestly and truly, it has been a revelation to me. I generally get it Saturday night, in the last mail, so I have a good chat with it on Sunday. I do not retain the whole paper but clip and paste all of interest in my scrap book, so I am getting a book of ready references.

Now I do not want to write a lot of nonsense to take up your valuable time, but I am in hopes you may be pleased to hear from me, for I have gotten all tangled up. When I first commenced to read the Dairyman I never dreamed there was such a lot of things about the dairy business, so I started in to know what there is to know through books and bulletins. The Director of our experiment station has been very kind to me in suggesting what books to get. Following his advice I have "Gurler's American Dairying," "Milk and Its Products," by Wing,

"Stewrt's Feeding Animals," "Breeding," by Miles, and Farmers' Bulletins, from the United States Department of Agriculture. In addition, I have the DAIRYMAN, which beats them all.

As you see, I am getting on the full armor, and if I am spared, and ever get started in the business, I expect to make some of the miserable wretches of milkmen, that are peddling cob webs and cow manure, either get out, or offer an article that is fit to use. What do you think of a man selling twelve 8-quart cans of milk a day from 13 cows, and having to buy half of this at the milk depot, where they claim to sterilize it, but is really only skimmed down to 3%, and some kind of coloring added. Then Mr. Man takes this milk to his home, and there it is mixed with his cob webs and cow manure, and he is feeding sour, moldy silage. He sells it for 7 cents per quart. I say such men are criminals and what is worse, if possible, these fellows do not know any better. If they did their conscience would condemn them. But I have not gotten at what I am writing you for.

First. I am studying as best I can the pasteurization of milk. I believe, from what I have lately read, that it is the coming process for preparing milk for immediate consumption. They say 155° F kills most all germs, but what are we going to do about the flavor it imparts to the milk? Will you give us some time, when you can spare the space, a few items in the DAIRYMAN as to the best practice of doing this?

Second. Suppose a cow weighing 1,000 pounds can use 2½ lbs. protein, per day, and she is fed 5 lbs., does the 2½ lbs. go off as waste, or is it used as carbohydrates, or lost?

Third. Can I obtain copies of the Wisconsin Dairymen's reports for 1895 and 1896? If so, where?

Fourth. Do Directors of Experiment Stations object to sending bulletins to others than those in their respective states?

Maine.

We do not much wonder that our friend finds himself somewhat "tangled up." Nevertheless, it still remains that "in the multitude of counsellors there is wisdom." It is not always possible at once to evolve one straight forward plan from these diverse suggestions, but a little patience and consideration will generally bring one out upon the high road. The books which our friend has secured would make a valuable addition to any dairyman's library. They make excellent general reading, and by a proper use of the indexes are invaluable for subsequent reference.

We should be much disappointed, if by referring to these indexes our friend could not find his first and second questions fully answered in these books, and, therefore, we reply in this place very briefly.

1. Pasteurization, when properly conducted, does not impart any bad flavor to the milk. The main point to be observed is, that no part of the milk treated should be heated above 155° F. This is very likely to happen, unless the milk is frequently stirred.

2. The extra protein in the case supposed would be used as carbohydrates, if it was needed, or there was not, otherwise, any excess of heat producing feed.

3. Copies of the reports of the Wisconsin Dairymen's Association for 1895 and 1896 can be had by addressing Secretary G. W. Burchard, Fort Atkinson, Wisconsin, and enclosing ten cents per volume, to cover postage and wrapping.

4. Bulletins are published primarily, for the residents of the state in which the station is located, but Directors do not usually object to responding to requests for copies from other states.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Board of Trade aggregated 9,840 pounds. All bids were at 20½ cents, and 1,380 pounds were withdrawn with this offered. The sales, aggregating 8,460 were all at 20½ cents, which was declared the market price with a steady market. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
McConnell	720	20½c
East Burlington	780	20½c
Shattock's Grove	2,460	20½c
Shabbona	1 800	20½c
Malta	1,800	20½c
Keystone	900	20½c
Totals	8,460	

The sales for the corresponding week of the three preceding years were as follows:

April 11, '98, 5,700 lbs of butter sold at 20c.
April 12, '97, 22,620 lbs. of but er sold at 16½@18c.
April 13, '96, 40,800 lbs. of butter sold at 16@17c.

The New York market Monday was reported steady at 21 cents. H. C. B.

Elgin, Ill., April, 10, 1899.

DAIRY MARKETS.

ELGIN, Ill., April 10—Butter—Steady, 22½c. All offerings, save 23 tubs withdrawn, were sold. Sales 141 tubs.

CHICAGO, Ill., April 10—Butter—Creamery, extra 19½@20c; firsts, creameries, 18@19c; seconds 15@16c; dairies, selections, 18c; No. 1, 15@16c; No. 2 12@12½c; extra ladles 14c.

Eggs—Fresh at mark, cases included, sold at 12½c.

Cheese—Full cream, Twins, good to choice, 11¾@12¼c; Cheddars 11¾@12c; Young Americas, 12@12¼c; Swiss, 11@13c; Limburger, 8½@10c; Bricks 11@13c.

Cattle—Receipts were estimated at 21,000, the largest run in five months, and nearly 5,000 beyond general expectations. Less than 1,000 straight Texas numbered among the arrivals. The proportion of choice to fancy native beeves was very small, considering the size of the receipts. Strictly prime steers would sell at 5 80@5.90, yet only one lot sold above 5 65. Fifteen 1,346-lb steers sold at 5.70, the highest sale reported. The general market was weak at 10@15c decline. Both Natives and Texas declined that much, while the best lots of cows and heifers were nearly steady. Most of the native beef cattle sold at 4.65@5 25; fed Western steers principally 4 60@5.15; straight Texas steers 4.10@4.25; Mississippi steers, 603@905 lbs, 3.75@4.12½; Missouri fed Texas, 1,190 lbs, 4.70; distillery bulls, 942@1.358 lbs, 3 90@3 95.

Bran—In fair request, but offerings very light and trading confined to 1 car, billed through at 11.50 per ton.

MILWAUKEE, Wis., April 10—Butter—Creamery, fancy prints per lb, 20c: extras 19½@20c; firsts 18@19c; seconds 16@17c; imitations 15@16c. Dairy selections, per lb., 16@18c; lines 14@15c. Roll, fair to choice, fresh, per lb, 13@14c. Market declining under increasing receipts, which are 10,200 lbs, while trade is moderate.

Cheese—American Full Cream, October Twins 11½@12c; Brick, choice 11½@12c; winter made, per lb, 11½c. Limburger, fall, choice, per lb, 9@10c; winter made, 8@9c. Swiss, drum, choice, 12½@13c; block, choice, 10½@11c. Market quiet and easy, with receipts of 20 boxes and 5 500 lbs.

Eggs—Fresh, per doz, 12@12½c. Market slightly higher, the demand being fair and receipts moderate; packers reported to be operating in the interior. Receipts, 872 cases.

NEW YORK April 10—Butter—Creamery, western, extras, 21@21½c; firsts, 20½@21c; state extras 20@21½c; firsts 20@20½c.

Cheese—State, full cream, large, colored or white, fancy 12¾@13c.

Eggs—State, Pennsylvania and Western, 13@13¼c.

ST. LOUIS, Mo., April 10—Butter—Firmer; creamery, 18@22c; dairy, 14@19c.

Eggs—Firm, 12c.

KANSAS CITY, Mo., April 10—Butter—Firm: creamery, 14@21c; dairy, 15c.

Eggs—Supplies light, market firm, though an increase of receipts is looked for this week Fresh Missouri and Kansas stock in new cases, cases included, 11c; cases returned, 10½c.

BOSTON, April 10—Butter—Creamery, extra, 21@21½c; western extra, 20½@21c; dairy, extra, 17@18c; imitation creamery, 15½@16c; western ladle, 14@14½c; print creamery, 21½@22c; box creamery, 21½@22c.

Eggs—Fancy near by, 14c; choice, fresh, 13@13½c; Michigan, extra, 12¾@13c; western, 12½@12¾c.

CINCINNATI, O. April 10—Butter—Steady, 21½c.

Eggs—Firm, 10½c.

Cheese—Good prime, Ohio fiat, 11½c.

NEWARK, N. J., April 10—Market steady, 21½c for best western, extra. Roceipts more liberal.

DETROIT, Mich., April 10—Extras, slow, 22c. Fancy dairy scarce, 16½c.

Eggs—Firm, 12½c.

Cheese—Firm, 13½c.

WASHINGTON, D. C., April 10—Market firm, extras, 22c; firsts, 21c, choice imitations, 18c.

NEW ORLEANS, La., April 10—Butter market quiet, 21½c.

BALTIMORE, Md,, April 10—Butter—Market firm; creamery separator, extra, 23@24c; creamery separator, extra firsts, 21@22c; creamery firsts, 20c; ladle, extra, 15@16c; ladle western, store packed, 11@13c.

Eggs—Market firm; strictly fresh stock, 12c; duck eggs, 13@14c.

PHILADELPHIA, Pa, April 10—Butter—Solid packed, separator creamery, extra, 22c; creamery, firsts, 21c; seconds, 19@20c; imitation creamery, extra, 18c; firsts, 16c; second, 14c; ladle packad, extra, 15c; firsts, 14c; seconds, 13c. Print Butter—Creamery, extra, 23c; firsts, 22c; seconds, 20c.

Eggs—Pennsylvania and near by, 13c; western, 13c; southwestern, 13c; southern, 12½c.

LIVERPOOL, April 10 Butter—Finest United States, 88s; good, 65s.

Cheese—American finest, white and colored, 52s, 6d.

BALTIMORE MARKET.

BALTIMORE, April 6—More activity has been noticed among receivers of, and dealers in, butter during the past week, and the cause is the very small quantity of goods arriving, and the almost entire depletion of accumulations of fresh lots and freezer stocks, and the desire of the buyers to secure enough for their daily demands out of the very little from which supplies can be obtained, and so there follows that the receivers, alive to their advantage, are very firm in asking slightly advanced prices, and the buyers in running around trying to find some receivers less obdurate than their fellows, multiply a moderate want into something larger than the reality, by being many times repeated. But apart from artificialities, such as just mentioned, it appears that a larger demand exists than can be satisfied by the regular receipts, and the most satisfactory solution to the trouble is for all who read this inducement to send forward liberal consignments of all varieties and grades, and they can rely on prices being maintained for several weeks at the present figures, or possibly higher. There is not a single lot of creamery left in the freezers, and very little of the other kind—ladles, not good but high priced. Blocks and prints of current make are in light supply, and are promptly placed at higher quotations. The receipts of rolls have fallen off to such an extent, that practically, they amount to nothing; the demand is active, and sellers could get a premium over quotations for all table grades.

Creamery Separator, extras, 22@23c; firsts, 20@21c; seconds, 18@19c. Creamery Gathered Cream, extras, 19c; firsts, 18c; seconds, 17c. Creamery Ohio, extras, 20@21c; firsts, 19@20c; seconds, 17@18c. Roll, extras, 14c; firsts, 13c; seconds, 12c. W. Va. Roll, extras, 13@14c; firsts, 12c; seconds, 11c. Creamery Blocks, (2 lbs.) extras, 23@24c; firsts, 21@22c; seconds, 19@20c. Creamery Prints, (½ lb.) extras. 23@24c; firsts, 20@21c; seconds, 18@20c. Md. Va. & Penn. Prints, extras, 20c; firsts, 18c; seconds, 15@16c.

Eggs—Are in fair receipt. We are glad to note that up to the present time, that the demand has kept pace with the supply; so far all receipts have been sold promptly on arrival. With a continued good demand, we write our market in good shape at 12 cents. Duck and goose eggs are in liberal supply, and the general tone of the market is quiet at greatly reduced prices from our last report. It is only a matter of short time that duck eggs will bring no more than hen eggs, if as much.

Cheese—Receipt light; demand good; market firm.

N. Y. State Cheddars, fine, 12@12½c; choice, 11@11¼c; fair, 9@10c. Flats, fine, 12@12½c; choice, 11¼@11¾c; fair, 9@9½c. Small, fine, 12¼@12¾c; choice, 12@12½c fair, 9½@10c. Ohio Flats, fine, 11@11½c; choice, 10½@11c; fair, 8½@9c. Picnic, fine, 11¼@12c; choice, 10@11c; fair, 9½@10c. Swiss cheese, fine, 11@12c; choice, 10c: fair, 8½@9c.

Pertinent Considerations

IN THE BUYING OF

A CREAM SEPARATOR

When you buy an "Alpha" DeLaval cream separator you know you have got the best that money and skill can produce; that you have got all that can be found in any other make or style of separator, and the all important advantages resulting from the use of the "Alpha" disc system in addition; that while you have paid a good fair price for it, you have something that is going to earn and save you money every time you put milk through it, and that if you ever want to sell it you can easily find a ready market for it at very little less than it cost you.

When you buy anything else in the shape of a separator, you know and everybody knows that you are buying something second-class at best, and something which whatever may be said of it, no one pretends to be the equal in all respects of the "Alpha" disc machines; you know that every time you put milk through it you are losing in a half dozen ways little considerations that an "Alpha" machine might save you; and if you don't know it already it won't require much investigation on your part to ascertain that if you should want to sell such a machine you will find it worth from $10.00 to $75.00, or very much less indeed than you paid for it, when you thought you were getting something possibly "cheaper" than an "Alpha" machine and made the purchase on that account.

It you would know more of the many differences between the "Alpha" disc and other cream separators, you will find them in complete detail in the new 1899 DeLaval catalogues—"Dairy" No. 279 and "Creamery" No. 509.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Ten Guernsey Cows. Send particulars DUNHAM CO., 1392 Amherst St., Buffalo, N. Y. 9-2

Wanted—At once, a situation as butter or cheese maker. Five years experience. Understand all creamery machinery. Attended Dairy School in 1894. Good references furnished. CLARENCE WOOLCOCK, Platteville, Wis.

Wanted—At our dairy, near here, a thoroughly posted dairyman and milker, for position of foreman. Wages $35.00 to $40.00 per month and house rent free. Address, with full particulars of experience and references, MERAMEC HIGHLANDS CO., St. Louis, Mo. 9-2

For Sale Cheap—Four richly bred Holstein bulls from one to twelve months old. R. L. WALLACE, Box 851, Knoxville, Tenn. 8-2

Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

Wanted—Position by an all round dairyman. Can make cheese and butter. J. HEILKEMA, Holyoke, Ohio. 8-2

Position Wanted—By competent butter maker. 7 years experience in separator creamery. Can handle 9,000 lbs. of milk daily alone. Can keep books if wished. 6 years with one employer. Address L, care Hoard's Dairyman. 8-tf

For Sale—100 acres of land one mile from town of Crewe, Virginia. Crewe has 3,000 inhabitants. Norfolk & Western R. R., has its shops there. Also will sell milk route with farm. No competetion in milk business. $1,500 for both. Further information apply to T. O. SANDY, Burkeville, Va. 8-2

Wanted—At once, position on stock or dairy farm. Single. Experienced. Seven years at last place. References. Address F. R. R., care of Hoard's Dairyman. 8-2

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

To Exchange—320 acres good Texas land, located 15 miles west of Beaumont, on So. Pac. Ry, and 3 miles from station. Will exchange land for Holstein cattle. Address A. R. CROUCH, Granada, Minn. 6-4

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

Wanted—A position by a first-class butter and cheese maker. Graduate of the O. A. C. Dairy School. Best of references as to character, etc. Correspondence solicited. O. D. LOCKWOOD, E. Coudersport. Pa.

Dairy Farm For Sale or Rent—First-class dairy farm for sale; 200 acres in grass; paying dairy already in operation, near town of 7,000 population, has only two dairies. Would take good man in as partner, or sell the outfit and rent farm. Address Box 691 Mexico, Mo.

Haunts in the Wild Woods and gay places for summer outings. Either or both, can be found along the lines of the Chicago Milwaukee & St. Paul R'y in Wisconsin, Minnesota, Northern Michigan, Iowa and the Dakotas. Among the many delightful summer resorts are Delavan, Waukesha, Oconomowoc, Elkhart Lake, Marquette, Madison, Kilbourn, Minocqua, Star Lake, Lakes Okoboji, Spirit Lake, Clear Lake, Big Stone, Frontenac, White Bear and Lake Minnetonka. In the north woods of Wisconsin, in the forests of Northern Michigan and Minnesota, and in the far stretches of the Dakotas true sportsmen can fish and hunt to thier heart's content. For pamphlet of "Summer Tours," and "Fishing and Hunting," apply to nearest ticket agent, or address with two cent stamp, GEO. H. HEAFFORD, Gen'l Pass, A't., 555 Old Colony Building, Chicago, Ill. 9 3

Experience with Cow Peas.

ED HOARD'S DAIRYMAN:—I notice quite a number of inquiries in the DAIRYMAN regarding cow peas. Now, as the cow pea has helped me out of many a tight place, I may at times be singing its praises too loudly, but before I start I will say, don't try to make cow peas take the place of corn or clover, in the corn belt.

This may seem to many an unnecessary caution, but I have too often seen men abandon good old stand-bys, and fly off on a tangent after some novelty, that some good catalogue maker lauded to the skies.

I have in mind just now, a man who, some years ago, got hold of a catalogue that boosted teosinte with words and pictures, as the forage plant of the age; our man planted his corn field with teosinte, and when harvest time came, he cursed all catalogues, all seed men, in fact, he cursed every body and every thing except himself, but he was very short on feed, and there was a sulphurous odor in the neighborhood of his farm for a spell that fall.

I recall another one who planted quite a field with sachaline or giant knot weed. He is as yet trying to get rid of the weed, and I have not seen a smile on his face for 36 months. No; corn and clover are our great stand-bys; that is, they will stand by us if we stand by them, but there is with them, generally, a place for some other good plants and the cow pea is one of them.

If our editor has the patience and the space in his paper, I will give a few bits of my experience with the cow pea, and incidentally will give my method of seeding and harvesting. Some years ago I purchased a worn out farm; some of the land was utterly abandoned and considered absolutely worthless. Nothing would grow on it, not even the weeds. I took an 11 acre field that was not farmed for many years and badly gullied. The last crop harvested from it, years before, was 17 shocks of rye, making less than 1 bushel per acre.

I dislike to make this matter so personal, but I wish to impress on the reader's mind the condition of the land, so as to more fully appreciate the value of the plant I am speaking about, and also the possibilities of apparently worn out soil. When I purchased the farm at public sale, it brought less than the buildings and improvements were worth, but the neighbors laughed at my "greenness" and kindly told me they pitied me, as I must surely starve on such God-forsaken land.

But to the field I was speaking about! I first plowed it very shallow, about three inches, and then made a very good seed bed, by the use of the roller, cultivator and harrow. I pulverized those three inches thoroughly. I now applied about 200 pounds of South Carolina rock, dissolved, carrying 28 pounds of available phosphoric acid, and 25 pounds of muriate to the acre, at a cost of about $1.50 per acre. I now sowed cow peas at the rate of six pecks to the acre, at a further outlay of $1.50 per acre. I sowed the peas broadcast by hand, and harrowed them in with the cutaway harrow.

The peas grew all summer, wet or dry, and when it was dry and hot they appeared to grow best, and by frost time in the fall, there was a mass of vegetation over that field, that astonished all beholders. I had planned, during the early summer, to plow the peas under, and seed the field to winter grain, but by September I had no heart to tackle that mass with a plow, and again I wanted it to grow to the last day.

The winter put it in a condition to turn under. In the spring I plowed the soil about six inches, and was astonished to see the change in the sub soil. What was formerly a tough, hard, unyielding mass was now broken up and pliable, easily plowed and readily put in good tilth with the cutaway harrow. I thoroughly incorporated the partially decayed vegetable matter with the soil, and planted the field to corn.

The yield was equal per acre, to land in the same vicinity that sold at public sale, for $40 to $50 per acre.

The following wheat and clover crops were good, and successfully and profitably grown. That field with proper management, feeding and cultivation has given me profitable returns ever since.

I feel conscientious when I say, those cow peas were worth to me $5 per peck, or in other words, the cow peas enabled me to start my soil on a career of usefulness, which enabled me to prove that my good neighbors prophesies were not always fulfilled.

My friend, if you have any such useless soil, or if your neighbor has any, it would certainly be worth the while to invest a few dollars and give the matter a trial, even though you are rather far north.

The plant grows very rapidly, during the hot months, and if it has a little potash and phosphoric acid to start on, it will take its nitrogen from the air, and get more mineral food by breaking up the soil particles, and thus makes plant food available for succeeding crops.

So much for a soil renovator! But while growing the cow pea to improve the soil, I discovered that it would fill a gap in my soiling crops that no other plant would. My early crops, including clover, Canada peas and oats would all ripen up or be cut for hay, while the corn crop, though planted early, would just be making its growth, and being very watery, was very unsatisfactory as a feed. I cut and fed some cow peas and immediately the milk flow increased.

The peas were very hard to cut, being a heavy mass close to the ground, vining and spinning over each other. I looked around for some plant to help support the pea vines, oats, wheat, rye, corn, etc., were tried, but all were smothered out very soon.

Sorghum did fairly well, but kafir corn fought its way up through, and stood up well above the pea vines and gave them a splendid support, making it much easier to cut the vines, and the cattle relished the kafir corn very much with the peas.

I use from a bushel to a bushel and a half of peas, and 3 to 5 lbs. of kafir corn per acre. Sow by hand and harrow in with the cutaway, or sow with the grain drill, though I prefer the former as being the quicker way. *I always want a fine, warm, loose seed bed, and not sow until the ground is warm and all danger of frost is past.*

I often sow the cow peas as a catch crop, after the strawberry crop is picked, or after the peas and oats are cut for soiling, or some other crop is removed. It not only makes me a lot of good feed, but holds all the fertility of the soil, and gathers some more from the air, and puts it altogether into a more available condition.

It makes good silage, especially if mixed with corn or kafir corn, as cut into the silo. Making hay of it is sometimes a little troublesome, as it is rather difficult to dry. The hay is excellent for stock. I stored some a few years ago that was only well wilted, but entirely free from dew or rain moisture, and it came out in fine shape. If the weather is very dry and the sun hot when we cut the vines, the leaves are apt to scorch, and we will lose them, if not careful in handling.

Experience will soon teach us the best methods of securing the crop.

A friend of mine sowed a small field for soil improvement, and when the first beans began to ripen, he turned in a lot of pigs, and in 8 weeks time they came out hogs. Yes, he said they grew like mushrooms, but when you came to handle them they were as strong as tigers, and the resulting pork was the finest he ever ate. Another neighbor of mine sowed some cow peas for his cows, but on account of a very wet season he did not need them for forage, but as soon as the beans began to ripen, his fowls started harvesting them, and from that time until late in the fall, while the hens of the country at large, were on a vacation and getting ready their winter clothes, his hens laid every day and the eggs sold at a very good price.

He told me not long ago that he never raised a more profitable crop and he proposes to repeat it.

Of course you all know the secret of the good flow of milk, of the good quality of the pork and of the abundance of eggs on the diet of cow peas. They furnish the protein out of which the animal can manufacture milk, lean meat or eggs.

I am not writing to recommend some novelty or boost something for some individual's benefit, but speak of a plant well known in many parts of the country, but not as well as it should be, and not appreciated as it should be in a large section. By the use of this plant we can improve our soil, increase our dairy products and cheapen production. Yes, it helped me to solve the problem, "How to make the farm pay."

Adams Co., Pa. L. W. LIGHTY.

A Word or So on Dual-Purpose Breeding.

ED. HOARD'S DAIRYMAN:—Perhaps nowhere has the general-purpose, or as the latter day saints have it, dual-purpose theories been more tested than right in this county, Oxford. And to-day, advocates of such breeding are as scarce as hen's teeth.

About 25 years ago, when Short-horns were first introduced, the cows were then all natives and crossing with the Short-horns did give in many instances good dairy cows, and part of this was, no doubt, due to the fact that the Short-horn of that day had some dairy qualities. I believe, however, a cross or two of any of the beef breeds, or native dairy stock, would in many instances improve their dairy production by giving to the grades so bred more vigor, and thrift, ability to assimilate food, but after a few crosses the predisposition to beef overcomes that for milk, and the further this method is pursued the worse the dairy qualities become. It will thus be seen that such breeding is a delusion and a snare. And so have our farmers found it here, until now, dual-purpose theories have no power to charm or ensnare.

It is true that the great majority, even among our dairymen, here prefer an animal of good size but this is not because of dual-purpose belief, but because our dairymen find that it is necessary to turn to beef some cows every year. In any dairy herd, this is always necessary owing to the many causes which make it desirable that some should be sent to the block; unfortunately dairymen have their troubles as well as others. We need only look to the veterinary column to see that. It will be noticed in a recent report of Mr. Tillson's herd his high average has only been attained by sending the less profitable ones to the block. Many small cows are retained too long because they will bring so little for beef, but even in this case first loss is best loss. When, however, a dairy cow is large enough to bring a good price for beef, there is a double chance that she will be sent to the block, when she becomes unprofitable in the dairy. Not that we believe in keeping a poor cow simply because she will bring $10 extra for beef, but rather do we believe in keeping a large cow that will make $10 more every year of her life and $10 more at death.

The difference in value of a small cow for milk and her value for beef is a very great tax upon the dairyman, because, in many instances a cow's usefulness is very short indeed. We had a cow get hurt only recently and it was necessary to make beef of her; she dressed 700 lbs. beef; such cows are worth something, dead or alive. But this does not prove that our cows are dual-purpose cows.

Prof. Shaw defines such, as an animal that does not excell in any one thing; and our cows do excell in the dairy as tests show.

Not only is there a great difference in the structure of the dairy and beef cow, but the rearing and developing animals for beef or dairy require different methods.

Beef breeds have attained their high excellency, by keeping the calves when young fat, and never let them lose the calf fat. This treatment for years gives the animal a predisposition to make beef, and turn all food into (beef) fat and growth.

An animal, intended for dairy purposes, requires quite different treatment. In this case, we don't want the predisposition to turn food into (beef) fat, but rather to make growth and build up a good constitution. And the heifer intended for the dairy is bred early, else upon attaining her growth, she may get the habit of putting the fat on her back, instead of in the pail.

It will thus be seen that the high standard reached by our dairy and beef breeds are both artificially reached by radically different methods. And being artificial requires constant care, or the work of 100 years may be lost in ten years; yes, five years.

We know a good dairy cow, bred as indicated, will make one third more milk and butter on same feed than another cow with the dairy qualities not so highly developed.

We also know now that a beef bred steer will make a larger gain than one not so bred. The difference in dairy profit in feeding a

TESTED BY THE MILK PAIL

Quaker Dairy Feed

Quaker Dairy Feed is made entirely of grain — principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.

Sold only in sealed and branded sacks.

OUR FEED EXPERT.

We wish to come as close to the consumer as possible, and freely offer the personal services of our Feed Expert in assisting in the solution of feeding problems. While our "Modern Dairy Feeding," which we will send postpaid on request, covers the ground as thoroughly as possible, farm conditions vary so greatly that special information will often be of immense value. Our facilities for giving such information are the best and we gladly invite your correspondence. Address

Science Department,
The American Cereal Co.
1348 Monadnock Bldg., Chicago, Ill.

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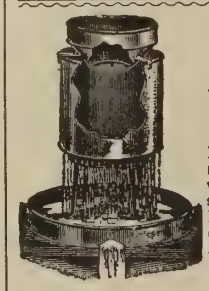
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ERIE, PA.

☞ When writing mention HOARD'S DAIRYMAN.



The YOUNG AERATOR
And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

W. H. YOUNG,
Box 135, Aurora, Ill.

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Pronouuced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent postpaid for 25 cts.. and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.

For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year..... $1.50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year..... 1.65
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good dairy cow or good beef steer will just be about one-third more.

It has been said by dual-purpose advocates that such large production by special dairy cows will lower prices until there is no profit. Well, large producers are admittedly the cheapest producers. We may easily see that the man with the dual-purpose cow will in time of low prices have no profit at all, must eventually be starved out. I don't see in that much to encourage a man to breed dual-purpose cattle. The same with beef; we know some will put on beef much faster and more economically than others, and will also from their superior qualities bring a cent or more a pound.

What farmers want is not dual-purpose stock, but the unprofitable cows should be culled out. A man will not get rich producing dairy products at a loss, even if he supplements his work by producing stockers also at a loss. There are too many doing this very thing. Feeders from this section buy, from outside, steers to fatten every fall; these are bought for from $20 to $25 at two and a half years old. No steer can be raised until two and a half years old for $20 or $25 and show a profit. Yet it is these sort of farmers the plea is made for on behalf of the dual-purpose animal.

I see in report of a meeting out west the speakers that advocate the dual-purpose idea said the farmers were not educated up to use special-purpose animals. The country has established experimental stations in every state and province on this continent to educate the farmers, and all professors and the press should use their utmost endeavor to educate the farmers in the right direction, and not as some are doing, try to pull down what others are building up.

Not only is there profit in doing work above the average, but there is pleasure also. I can myself take as much pleasure in pulling the milk from a great milker, as some can pulling the lines over a fast horse. And when I was a boy at home, and had the care of our beef cattle, we could always take pleasure in those of superior quality.

So as we lift our work up it becomes interesting and a pleasure. And it is in such a position I would like to see the farmers of this land rise to the dignity which their calling deserves, and not be "hewers of wood and drawers of water" for the rest of creation.

GEO. RICE.

Curries Crossing, Ont.

EFFECT OF PASTEURIZING SKIM MILK.

The question of some economical device for pasteurizing the skim milk at creameries, before it is delivered to patrons, is occupying the minds of many people, both creamery managers and patrons.

There is no denying that there is a most evident necessity for something of this sort. Skim milk, as it is received from a majority of the creameries, and as it is handled after it gets to the farm, is in many instances very distressing to the digestion of young animals, especially calves of tender age.

It is this fact which has given such an impetus to the idea of farm separators, and the cream taken to the creamery instead of the milk.

We believe this matter is of the utmost importance to the creamery interest, because it is of such great interest to the patron. Every well managed creamery will guard the patron's interest, all it can.

On this question of the greater keeping and consequent feeding value of the pasteurized skim milk, the following conclusions from the Fifteenth Annual Report of the Wisconsin Experiment Station may be of interest:

1. Two lots of skim milk taken from the separator at the same time, the one pasteurized kept sweet from twelve to twenty-four hours longer than the unpasteurized.
2. It was found that the attempt to use the exhaust steam from the creamery boiler was no more economical, than direct or live steam, and the latter is often more efficient.
3. The machine used was the Reid Continuous Pasteurizer.
4. It is absolutely necessary, in all cases, that the milk be at once cooled down to normal temperature, as fast as it leaves the pasteurizer.
5. The machine can be cleaned easily, and by using a very little care in turning off the heat when the supply of milk stops, the milk does not burn on the hot tin.
6. The greatest annoyance was the foam, which rises on the pasteurized skim milk, especially in hot weather, when such treatment is most needed. The milk residue, left from this foam, is very hard to clean from the tanks or floor, as it sticks very tenaciously, when the air escapes from the foam.

A Self Made Cow.

ED. HOARD'S DAIRYMAN:—A little more than a year ago I bought a common cow to furnish milk for the infantile Jerseys. Her owner "guessed" she was about half Jersey, but although she was of good dairy type, I concluded from her general make up that she must be a mixture of Short-horn, Ayrshire and scrub. At any rate, her origin was of so plebian a character that there was no family tree in evidence on which she might hang a phenomenal record.

At Sunny Peak Farm we earnestly strive to be impartial. Therefore, this cow was given a name and the same food and treatment accorded to her more aristocratic sisters. Her milk was as carefully weighed and her records as faithfully kept; she has never been "curried with a milking stool," but has received the same kindly care and daily brushing as the balance of the herd.

A short time since, in figuring up her milk record for the year, I found she had given a little over 132 cans of milk, testing fron 4.2% to 4.8%. As I have never received less than $1 per can for milk, and have been paid as high as $1.10, it will be no difficult task for any one to figure up the profit from this cow. Allowing $32 for food and care, you will, no doubt, readily see she has returned a good rate of interest on the original investment, which was $42. Had one been disposed to haggle a bit, I think she could have been bought for $38. However, what I want you to tell me is, how can I afford to part with Dame Dottie? MRS. ADA F. HOWIE.

Waukesha Co., Wis.

We confess to the same stress of mind that evidently bothers Mrs. Howie. Dame Dottie is evidently a "self made" cow, and did not need much help in the making. Stick to Dottie, for she is a money maker of the "purest ray serene" from the business side at least.









THE DAIRY COW.

In response to requests from new subscribers we republish the accompaning cut, giving outlines and location of the more important points to which reference is frequently made.

In examining the outline of a dairy cow, the first thing to attract notice is, that there are many points in which there is a decided deviation from the even and rounded outline of the beef animal. The central points of the dairy cow are her reproductive and milk generating organs, for it is from these that profit comes, and to them all other parts should pay tribute that they may be strong and well nourished.

For this purpose the typical dairy cow should have a strong jaw and large nostrils, for she must be a good feeder and deep breather; a full prominent eye, indicating large nervous force; the back bone large and strong, holding a large spinal cord, which is the conduit, if not the seat of vital force; a large and deep barrel, with ribs well sprung out to give room for storing and digesting large quantities of cheap and bulky feed; a strong abdominal wall to support the large and heavy digestive organs and their contents, indicated to some extent by its firmness, but more plainly by the depth and size of the navel, showing whether the fœtus was nourished through a strong, large, umbilical cord and thus born with a well developed, robust constitution.

Having these accessories, the special-purpose of the dairy cow is more strongly expressed in the rear third of the body. Here she needs to have the large, symmetrical udder, rising high behind and extending well forward, with milk veins, large, tortuous in shape, and elastic to the touch. That the udder may have room, and not be cramped either in growth or activity, the flank should be arched at the side, and the thigh decidedly thin and incurving from the rear. If, to this enumeration, there be added a roomy pelvis, wide over the hips, and the back bone rising into an arch between them and towards the tail, the more distinctive points of a good dairy cow will be scheduled.

It happens quite opportunely that we are able to present, in connection with this illustration, Prof. Beach's carefully thought out modification of the scales of points for judging the dairy cow. A frequent reference, back and forth, from the article to the illustration, will bring out the salient features of each to better purpose than columns of comment.

The Creamery Product of Freeborn Co., Minn.

The annual reports of the various co-operative creameries are now being made, and they show interesting figures. The creameries at Geneva village, Hartland, Clarks Grove, Albert Lea, Alden, Riceland and Poplar Grove, seven in number, received 32,987,724 pounds of milk during the year just closed, and out of this milk, 1,410,977 pounds of butter was manufactured, showing that for the year it required about 23½ pounds of milk to make one pound of butter, the milk being a little better than 4 per cent. The total gross receipts of these creameries were $245,992.01, and the patrons who furnished the milk received $217,616.26, showing the total expense of operation, sinking fund, etc., for the seven to have been only $28,375.75, or a little over 10 per cent of the gross receipts. Of course, these figures do not include the buttermilk and skimmed milk the farmers have for feed, and which is estimated to be worth 15 cents per hundred pounds.

There are nineteen other creameries in the county, but several of them are small; still the gross receipts of the twenty-six will reach nearly three-quarters of a million dollars for the year just closed, and the net amount paid patrons will be not far from $600,000.—*Minneapolis Journal.*

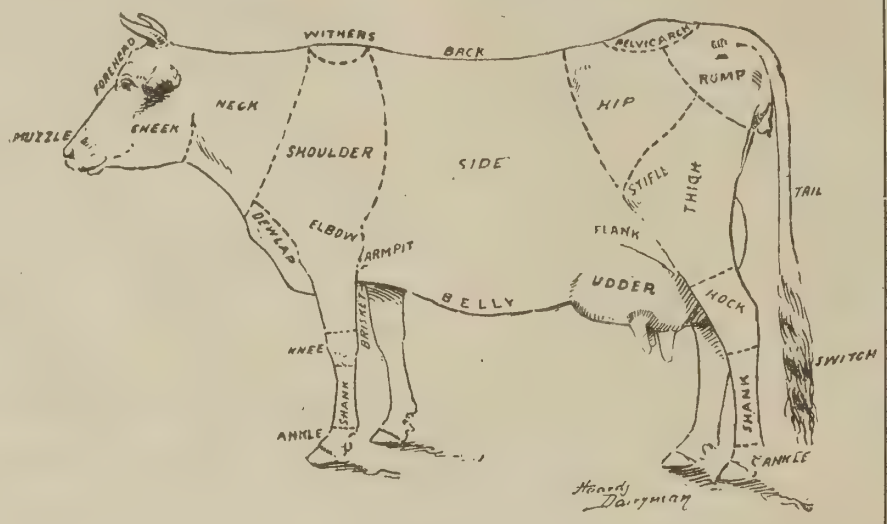
A New Scale of Points for Judging Dairy Cows.

ED. HOARD'S DAIRYMAN:—It is fair to assume that the breeders of the various dairy breeds are each striving to produce an ideal dairy cow. In a study of the types of the various dairy breeds by means of their official score cards, respectively, the student is confused by the disagreement and lack of harmony in the respective scales of points.

This lack of harmony is manifest:

1st. By an absence of any system in arrangement of points.

2nd. By different values assigned to the same structural development.



OUTLINES AND POINTS FOR JUDGING AND SELECTING THE DAIRY COW.

3rd. The different score cards are at variance as to the points or structure which should constitute a typical dairy cow.

To illustrate: The Holstein score card allows 12 points in one hundred for a perfect udder, the Guernsey 26 points, the Ayrshires 30 points, and the Jersey 34 points.

For a perfect escutcheon the Holstein and Guernsey allow 8 points, the Ayrshire 3 points, and the Jersey nothing.

For the color of skin, texture, and fineness of hair the Jersey and Ayrshire allow 5 points, the Holstein 10 points, and the Guernsey 30 points.

To avoid the confusion which must arise in the mind of the student from an acceptance and application of these various standards, the following score card has been adopted with us and used (irrespective of breed) in our study of dairy cows. This score card is based on some knowledge of the physiology of the cow, as well as on a comparative study of the form of typical dairy cows. An attempt has been made to incorporate the few following ideas:

1st. The dairy cow must have a large digestive capacity, and hence a long, deep and well sprung barrel.

2nd. Milk is a manufactured article, and the need of roomy laboratory or udder is apparent.

3rd. Milk is secreted in the udder from the blood, and hence the size of the milk veins becomes an indication of the amount of blood that can be carried through and away from the udder.

4th. The digestion of a large amount of food and its subsequent manufacture into milk must class the dairy cow as a hard-worked and wonderfully active animal. The need of a well developed nerve system to guide, superintend and control the functions of the highly developed organs of digestion and secretion is imperative.

5th. The dairy cow must then be spare, depleted of all superfluous flesh, in order to be an economical and persistent milker.

In designing this score card, we have adopted the suggestion of the editor of the DAIRYMAN of dividing a cow into three portions by drawing two perpendicular lines, one just behind the withers, and one in front of the udder. To the front portion we assign 13 points; to the middle, 20 points; to the rear, 34 points; and in addition, we allow 33 points for indications of a persistent milker.

Many dairymen are excellent judges of dairy cows. My father used to think he could go into a neighbor's herd, and pick out his best cow. I believe he could do this, but I am equally sure he never taught me the secret, nor was the gift inherited. This

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 130 Quincy, Ill. for their catalogue; which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.



St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

For Sale. Two yearling bulls ready for service, out of tested dams. A few bull calves, some out of tested dams. All sired by Maquilla's Major 40804, a son of Maquilla's Violet. 31 lbs 1 oz. Write for prices. W. R. THOMAS, Bellmore, Ind.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs. Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Locust Lane Stock Farm

. . . Service Bull . . .

BROWN BESSIE'S GRANDSON No. 34891.

State What You Want.
G. E. COLEMAN, Perry Center, N. Y.

Hood Farm Jerseys Bull For Sale—Solid color, dropped Dec. 13, 1898. Sire, Pedro Signal Landseer, a half brother of Eurotisama, 27 lbs 11½ oz. in one week, 945 lbs 9 oz. one year. Dam, Louis Emerson, 18 lbs., milked 44 lbs. 3 oz in one day, won second prize to her dam at the Inter State Fair, 1895. Write for price.
HOOD FARM.
Lowell, Mass.

Introduce Milking Jersey Stock
INTO YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

We Have Sold

SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92). in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

FOR SALE!

DOUBLE GRANDSON OF
Exile of St. Lambert
13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL,
Rochester, N. Y

MILLER & SIBLEY'S JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455⅛ lbs. milk, 30 lbs. 2⅛ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. **224** Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

High-Class Jerseys.
DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records. **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO F. WESTON, Supt., Biltmore, N. C.

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and breeding stock always** in supply. **Especial attention given to furnishing foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood
Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

Park Farm Jersey Dispersal Sale, April 26, 1899

Of **25 Registered Jerseys and five Grades.** At head of herd and for sale, Butler Stoke Pogis, 27290, a son of Ida's Rioter of St. Lambert, 13656, sire of 29 tested daughters; also a grandson of Stoke Pogis 5th, sire of 24 tested cows and over 120 tested granddaughters. Also 4 tested cows and their descendants, about 18 head; and 2 cows of Stoke Pogis 3rd, sire of 27 tested cows; Regina, 20 lbs. 4 oz.; Miss Porter, 16 lbs. 6 oz.; Violet 3rd imp., 15 lbs. 8 oz.; Coomassie, 16 lbs. 11 oz.; and Old Noble breeding. Two first-class yearling bulls, dams, tested cows, three grand-sons of Ida's Rioter of St. L. 13656, and some heifer calves same sire. Send for catalogue to the JERSEY BULLETIN, Indianapolis, Ind., or EVERETT G. CAMPBELL, Kiesters, Pa.

score card is an attempt to give expression to our common knowledge of the dairy cow, and put in teachable form our knowledge of the structural points.

No claim is made to originality in treating this subject. My intenre interest in this study of the form of the dairy cow has been pr mpted almost entirely by the reading of HOARD'S DAIRYMAN. This subject has been discussed many times in its columns, and scarcely an issue appears that does not treat of or illustrate and emphasize some of the points of the dairy cow.

STRUCTURAL POINTS FOR JUDGING THE DAIRY COW.

Indications of a Large and Economical Producer.

FRONT. 13	Wide between eyes. Eyes prominent and bright. Wide juncture of brain and spinal cord.	6	
	Muzzle wide.	1	
	Shoulders light and sharp withers. Fine neck and head. Brisket V not U shaped.	6	
MIDDLE. 20	Barrel long and deep, with well sprung ribs	10	
	Milk veins prominent, extending well to front, eyelet large.	4	
	Backbone prominent. Crops scant. Ribs and vertebræ wide apart	4	
	Chest deep.	2	
REAR. 34	Udder: Extend well to front and up behind, must not be too fleshy teats even and squarely placed.	17	
	Deep from h'p bone down.	4	
	High arching flank and cat ham.	8	
	Hips broad and pelvic arch prominent	4	
	Long slim tail.	1	
		67	

Indications of a Persistent Milker.

Lean, spare, light front and rear quarters, scant crops, lacking superfluous flesh.	33
Total	100

Our Short Course Dairy students have just finished scoring the college herd whose record appeared in the DAIRYMAN of March 24. These students had no previous experience in judging animals, and the averages below are the result of their first efforts.

The practice in scoring was preceded by a few talks or lectures on dairy form and the physiology of the cow. Usually, four cows, stable companions, were scored at a time, each day, and the scoring continued until the whole herd had been gone over.

Column one gives stable number; column two, the net profit based on prices and credits given on page 113 of the DAIRYMAN; column three gives rank of individuals, according to net profit; column four gives rank according to average score; columns five, six and seven give average, maximum and minimum score by students.

Stable No. of Cow.	*Net Profit for 1 Year.*	*Rank according to Net Profit.*	*Rank according to Score.*	*Average Score.*	*Maximum Score.*	*Minimum Score.*
2	42.82	1	1	92¼	94	86
1	40.42	2	2	87.7	89	84
3	25 64	3	6	76.6	79¾	70
4	24.59	4	4	85.	90	80
5	23.02	5	5	83½	88½	78
7	22.11	6	15	71.4	79¾	65½
12	20.62	7	17	70¼	78	65¼
11	20.44	8	8	73.	77	69
6	19.61	9	9	72.6	71¾	69¼
13	19.28	10	14	70.5	73½	65¼
9	18 86	11	10	72½	73¾	70
8	17.66	12	12	71.6	75¾	67
10	16.75	13	7	75.6	78	70½
14	15.88	14	11	71.8	77½	66¼
17	13.17	15	13	71.6	75¾	62
18	10 81			Sold.		
19	10.21	16	18	67.	72	57
15	8.89	17	3	81.	84½	77½
16	7.36	18	16	70.4	71¾	69
22	5.49	19	19	61.9	66½	53¾
20	4.92			Sold.		
23	3.47	20	22	55.	59½	49½
21	2.32	21	20	60.	64½	55
24	−2.66	22	21	58.9	65	56
25	−4.09	23	23	50.	54½	43½

Cow No. 15 injured her udder, and as a result, her record for this year is 120 pounds of butter less than last year. On this account her rank in the herd is lower than the score.

Blood does not always tell. No. 23, on her sire's side, carries in her veins the blood of Stoke Pogis, Lord Lisgar, Orloff and Lilly, Lucy and Cheerful of St. Lambert. Her dam was of an imported standard cow, and yet she made only a profit of $3.47 for the year.

No. 20 came from one of the oldest and most noted herds of the kind in this country. With one exception she cost the most money of any animal in the herd, and yet made a profit of only $4.92.

No. 25 holds the highest record for pounds of milk for one day, of any cow in our herd. She came to us with the reputation of a heavy milker, and yet her record for the whole year shows a loss of $4.09.

We are constantly judging cows by false standards—breed, pedigree, reputation of breeder, records for one day or one week.

As dairymen, we must become better judges of the cow, by studying her form, by studying her physiology, by studying her individuality. C. L. BEACH.

Storrs' Agricultural College, Storrs, Conn.

Comments on Former Issues.

Milk Trusts and Skim Milk.

ED. HOARD'S DAIRYMAN:—On page 103 (March 24) HOARD'S DAIRYMAN makes some good suggestions as to how farmers should guard themselves against being the toys of the milk trusts. I think it exactly the correct thing for farmers to unite and establish a well arranged creamery, at least, at some of their best shipping stations, so that, whether trust or no trust, they never are compelled to overflow the city market with their surplus milk, when the city does not need it.

Besides every farmer, or rather collection of farmers, who possess such a creamery, will soon find that who ever may be the receiver of their milk, they will be able to secure far better terms and prices, if they can agree, within certain reasonable limits, of course, to furnish more or less milk or cream on short notice, as the demand may be. And this they can only do without serious loss of the surplus, by having a well arranged creamery.

As to the utilization of the skim milk, when a surplus of milk is at hand, and the price for butter is favorable, I would suggest that all such creameries should be arranged also for making cheese, and be provided with proper curing room. It is still one of my hobbies that a well made, well cured skim, or partly skim cheese is far more palatable than a badly cured full milk cheese.

We should always keep in mind that many of the high priced, imported foreign cheese, like Parmesan, Gouda, Edam, etc., are made either of partly skim milk, or of milk containing only 2½ to 3 per cent fat, as most milk in Holland does; and even then, often the cream is taken off the night's milk before it is used with the morning's, thus absolutely being only equal to a half-skimmed 4% milk, such as we generally have.

I am sure that at such a shipping station creamery, especially where one day all milk has to be shipped, and on another we may have quite a surplus, it will pay better to make a partly skimmed cheese than feeding pigs and calves, as such are badly served by getting plenty of milk one day, and possibly none the next.

BUTTER MILK FROM SKIM MILK.

On page 104, Mr. Taylor Stratton, of Tennessee, claims that it is impossible to make a "good, old Southern butter milk" from separator skim milk. Now I can assure Mr. S. that I have done so right along, and had many customers in Tennessee and Kentucky, who absolutely preferred such buttermilk that was made from skim, to the genuine; the whole secret is in the ripening. Ripen just as carefully as you would cream, and churn when the milk has barely clabbered, and don't wait till it thickens too hard, and you will have as smooth, thick and fine flavored butter milk as any one can desire; but if it stands too long and warm before churning, the curd will separate from the whey and will sink to the bottom, and you have a watery, poor looking butter milk, no matter how much you stir it afterwards.

I know both breeds only too well from experience. Try it again.

Pasteurized skim milk, ripened with a good sour skim milk starter, will make a smoother and finer butter milk than any other.

WHIPPING CREAM.

On page 108, HOARD'S DAIRYMAN answers a question as to why separator cream would not whip. Of course it was too thin; but I guess it was a slip of the pen when HOARD'S DAIRYMAN states that it should contain 20% fat; here in Washington, D. C, no cream is allowed to be sold with less than 20% fat, and what here is called "whipping" or "double" cream should contain, at least, 40% fat; 20% cream sells here at 30 cents per quart, and "double" cream, 40% fat or even 45%, at 60 cents per quart.

SALTING AND WORKING BUTTER.

On page 114, Mr Rockwood gives such a queer method, certainly not up to date, as to this work. Now, while he may succeed in producing an article which pleases his customers, still I would advise other farm-dairy buttermakers to be very careful in adopting that method. I am sure most will succeed in having mottled or overworked butter. Any experienced, up-to-date buttermaker will agree with me that the directions do not agree with modern methods. As to the adding of salt before finishing churning, it seems to me very objectionable to ruin all your buttermilk by so doing, and you can make just as perfect butter without putting any salt into the churn.

WHY CREAMERIES DO NOT PAY.

Mr. Scott's remarks on that point, on page 120, have my fullest endorsement. I have always thought that an individual owner of a creamery, especially if a practical butter and cheesemaker himself, is far more liable to make the business a paying investment, than a stock company.

The one difficulty in the way seems to me to be, that whenever a buttermaker buys a creamery, many patrons are so selfish and short sighted, that they try in every way to cut down his profit, being afraid he will "get rich" too fast. The better off he gets, the more sure they ought to feel that he will stick to the job, and do the very best he can, and that his profit always, finally, will mean their profit also; his loss is sure to mean their loss. Can't you see it?.

Washington, D. C. J. MOLDENHAWER.

You will get a new notion of what a lamp-chimney can be, when you use a Macbeth; and of what it can do, when you get the right one.
Get the Index.
Write Macbeth Pittsburgh Pa


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

REGISTERED Holstein-Friesian cattle, Aaggies, Netherlands, Waynes. Pauline Pauls, De Kols, Pietertje families. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland. L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale. C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN BULL
A BARGAIN.
In Letta Wit's Jewel we offer you one of the best of the breed. He was dropped Aug. 18, 1898, nicely marked, straight on back, deep well ribbed barrel, thin neck, fine head, rich golden skin, large mammary veins and teats, and a dairy animal of the highest order. He is sired by Mechtchilde Jewel Henry Colantha 22153, and out of the imported Aaggie cow Letta Wit 368. She has a milk record of 84 lbs., 2 oz. in 1 day, and a butter record of 22 lbs. 4 oz. in 7 days. He is backed by the greatest prize winners of the breed as well as the greatest milk and butter cows. He traces to Mechtchilde, 112 lbs. milk 1 day, 39 lbs. 10½ oz. butter in 7 days. Jewel, 100 lbs. milk in 1 day, 31 lbs 3½ oz. butter in 7 days. Colantha, 89 lbs. milk in one day, 31 lbs. 7 oz. butter in 7 days. Teetje Janzen, 30 lbs butter in 7 days. Oude Empress, 114 lbs. milk in 1 day. Empress, 109 lbs. milk in 1 day. Mantado, 95 lbs. milk in 1 day, and a large number of others of great merit. In short, there are 20 cows in his pedigree that average over 100 lbs. milk in 1 day, and 30 cows that average over 90 lbs milk in 1 day. If you want him write at once. Price $50 00.
Wis Live Stock Association, Appleton, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

Ten Choice Yearling
Holstein-Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

BLOOD WILL TELL.
To intending buyers of Holstein-Friesian Bulls, who wish to obtain the highest possible results in dairy line, we say: "Get the blood direct from the foundation of the greatest butter families." Then success can be assured. "Valley Mead" is headquarters for H.-F. cattle, an therefore is able to give you a larger per cent of blood of all the greatest butter families of present and former days than can be procured elsewhere. Address,
KARLEN & CO., Monticello, Wis.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

M. D. Cunningham,
KANSASVILLE, WISCONSIN.
Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

Florham Guernseys.
I offer at attractive prices TEN BULL CALVES from one to seven months old. Most of them were imported in dam and are of the best English and Island strains.
J. L. HOPE, Farm Supt., MADISON, N. J.

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection.
ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass.

Preparing for Another Season's Crops.

More Attention to Clover Seeding and Make Calculations for a Crop of Oat Hay.

ED. HOARD'S DAIRYMAN:—As the DAIRYMAN circulates so largely throughout the United States, the writer who would adapt his articles to the conditions of this extensive territory, must be "instant and in season" in order that the greatest number may be benefited.

Of course the wide-awake, observing farmer has largely perfected his plans for the season's work, but such are ever on the lookout for any suggestions that will be of benefit to them.

The DAIRYMAN has always taken a very decided stand in favor of the production of clover for hay, and I think as farmers come to know more of its value from practical experience, the better they will like it.

Last year the clover was good and it was secured in excellent condition, thus making it of the best quality as fodder. We have found this fine quality of hay, when fed in connection with ensilage and a moderate amount of grain, composed of bran, gluten and cotton seed, to produce excellent results, as good as could be expected from the best summer pasturage. A trial of one feed a day of clover hay and one of timothy resulted in such a decrease of milk and butter that the timothy was dropped, and after a time the yield began to regain. The clover is much preferred to timothy by the cows, which is pretty good evidence of its greater palatibality and value.

One difficulty will be in raising sufficient clover hay on many farms for the use of a winter dairy. This will require a shorter rotation than is usually practiced by farmers. Where corn is grown largely for the silo or to cure, this will render a more frequent seeding for grass necessary, and thus help to accomplish the object sought.

In our experience here, we find that a mixture of red and alsike clover and timothy make a good combination for hay of best quality, superior to that from red clover alone, and is not nearly as difficult to cure.

In the West and South where alfalfa and crimson clover are so successfully produced, it is possible to have a greater variety of fodder plants, as well as a larger yield.

Here we usually seed to grass in spring along with a crop of grains, now largely oats or barley, as wheat is little grown in Vermont.

The earlier this seeding can be properly done the better it will be. Three pounds of alsike, six or eight of the red, and enough of the timothy to make half a bushel in all, is sufficient for an acre. This makes a liberal seeding and under favorable conditions, should be followed with good crops of the best quality of hay, particularly as the timothy will be secured at an early stage of growth. Another thing, the first season the proportion of timothy to the clover will usually be comparatively small, but will increase the second and third years, when it will finally take the place of the clover; hence the necessity for a shorter rotation in order to secure more of this valuable fodder.

On the average farm there is generally a considerable amount of grain raised, and in my own state, this is getting to be largely oats.

If the greatest benefit is expected from a dairy of cows the less of straw that is consumed, the better it will be. Where winter dairying is practiced, it should have no place as a fodder, but may be liberally used as bedding for the stock, the compensation, therefore, being in increased comfort and cleanliness of the animals and the larger amount of manure made.

Experience is proving that it will be more profitable for the farmer to harvest a part of his oat crop as hay, instead of allowing it all to mature and be threshed. Calculation for this should be made at sowing, as some pieces or fields might be more desirable for this purpose than others, and it might be better to sow more thickly than were the crop to be threshed. Last season one piece was harvested quite early for hay. The growth of straw was tall and large, the yield being heavy. Naturally the quality of this would not be as good as a shorter and finer growth, yet it was eaten and relished by the cows, there being practically no waste Only one feed a day was given and while it lasted, which was about two months, the cows appeared to do as well as when fed with hay.

I think where a considerable acreage is devoted to this grain, it will be found more profitable to make a portion into hay, as experience is proving this to be the case from year to year.

As with this practice the crop does not remain as long on the land as when allowed to ripen, there will be a better chance for the grass seeding, and particularly if care is taken not to cut the grain too low.

Franklin Co., Vt. E. R. TOWLE.

A Year's History of a Grade Short-Horn Herd.

Some Exact Figures and Conclusions Therefrom.

ED. HOARD'S DAIRYMAN:—Allow me some comment on Bulletin 166, which I send you herewith. It is the history of a grade Short-horn dairy herd, hastily gotten together in September and October 1897, and properly cared for and fed for a year, keeping a strict account of the cost of care and feeding. Of the twenty-nine animals purchased, one was seriously injured on arrival at the college, another was condemned as tuberculous in the spring of 1898, and a third gave bloody milk to so great an extent, as to prevent the use of her product in the dairy, and she was forced to veal the calves of her mates in the herd. Misfortunes of this kind are bound to happen occasionally, and the accounts with these three unfortunates were included in the financial statement.

It costs us five cents a day, per cow, to get the milking done, except for the cows milked by the regular herdsman. The average cost of the labor involved, and the butter making, milking and caring for each cow was $21.19, an amount inordinately large, undoubtedly, owing to the expense of milking. The cost of the feed per cow was $35.96, which includes the pasture. The net profit for the herd, as a whole, was $277.58

The milk was made into butter in the fall, and the butter sold at prices varying from 20 to 22 cents. During the winter the milk was sold to the college dairy at the price paid for milk from outside sources, $1.20 per hundred. During the summer of 1898 the cream was sold, as far as the markets would take it, at 60 cents a gallon, except some at retail, which went at 80 cents. The milk not needed for this cream trade was worked up into butter, which sold at from 15 to 22 cents per pound.

The summarized account is as follows:

THE GRADE HERD.—DR.

29 cows at $39.51	$1,145 69
Care and milking	520.51
Making and selling 2,302.5 lbs. of butter at .03	63.08
Salt	6.43
Green clover	.96
105,807 pounds of silage	119.74
94,310 pounds of hay	266.54
42,427 pounds of bran	270.87
31,068 pounds of corn meal	236.98
57,705 pounds of beets	72.10
21,279 pounds of corn stalks	25.13
4,400 pounds of linseed meal	40 31
2,250 pounds of cotton seed meal	34.23
574.1-7 weeks pasture	143 54
Pigs, $51.00	
Middlings, 3,410 pounds $21.89	72 89
Service of bull	25.00
	$3,050 06
Profit	277.58
	$3,327.64

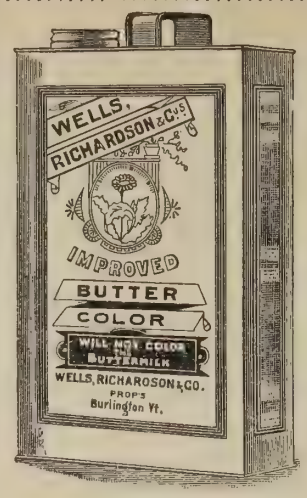
THE GRADE HERD.—CR.

By calves sold, 2,272 pounds	$ 100.22
Pigs sold, 3,665 pounds	126.51
Butter, 2,302.5 pounds	466.09
Cream, 703.69 gallons	428.56
Milk, 75,414.1 pounds	789 89
Skim milk, 43,465 pounds	65.20
Three cows sold during the year	103.27
Excess of receipts over expenses in September, 1897	16.68
Inventory October 1st, 1898	1,231 14
	$3,327.64

Owing to the variation in prices of the feeds bought I cannot give a stated price per ton.

This net profit is not the only benefit accruing to the farm from the herd. The manure hauled from the barn was weighed on several successive days. The average weight was 1,600 pounds, indicating a gross yield for the winter months alone of one hundred and fifty tons.

Turning to the yields of individual cows we note that throwing out the cow hurt at the beginning of the record and giving us milk for but a few days only, and the cow



Always Use the BEST.

The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

"THE KIND THAT HAS NO MUD."

PREMIUMS ARE EASY TO WIN

WHEN THE BUTTER MAKER USES

Thatcher's Orange Butter Color.

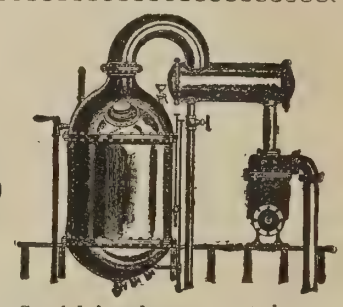
At the recent Amherst, Massachusetts, Butter Makers' Convention, the Springfield creamery entered a tub of butter which scored the highest of anything at the convention. It was colored with Thatcher's Orange Butter Color.

DO YOU WANT TO KNOW whether the butter you are using is colored with poisonous analine dye? If so, write to us and we will send you a tester free of expense. It costs you nothing to make the test.

THATCHER MANUFACTURING CO., - Potsdam, N. Y

Condensed... Milk Factories

Built Complete By



Special Attachmemets not shown.

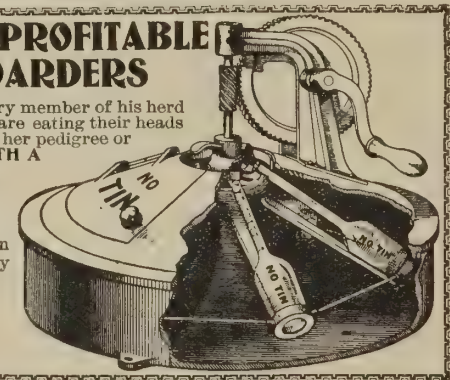
C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

DON'T KEEP UNPROFITABLE BOARDERS

Unless the dairy farmer has had every member of his herd tested he unquestionably has some that are eating their heads off. He can't tell by the shape of the cow, her pedigree or the color of her milk. HE CAN TELL WITH A

NO-TIN BABCOCK TESTER.



This will solve the problem for him in an hour. He should test each cow frequently to see whether she is paying her board.

Send for Catalogue No. 85.

ELGIN MANUFACTURING CO.
Elgin, Illinois.

Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

$15.95 **ONLY ONE DOLLAR DOWN**



Cut this ad. out and send to us with $1.00 and we will send you this HIGH GRADE 1899 MODEL $50.00 VICUNA BICYCLE by express, C. O. D., subject to examination. Examine it at your express office and if you find it a genuine 1899 model HIGH GRADE $50.00 VICUNA, the grandest bargain you ever saw or heard of and you are convinced it is worth $10.00 to $15.00 more than any wheel advertised by other houses up to $25.00, pay your express agent the balance, $14.95 and express charges.

THE VICUNA

IS COVERED BY A BINDING GUARANTEE. Frame is 22 or 24 inch, made from best seamless tubing, finest two-piece Denton hanger, finest full ball bearings, Mason arch crown, enameled black, green or maroon, highly nickel finished, Delhi padded saddle, up or down turn handle bars, best Doyle pedals, HIGH GRADE GUARANTEED REGAL PNEUMATIC TIRES, fine leather bag, complete with all tools and repair outfit. ORDER TODAY. YOU CAN MAKE $50.00 EVERY MONTH SELLING THESE WHEELS AT $25.00. (Sears, Roebuck & Co. are thoroughly reliable—Editor.) CATALOGUE FREE.

SEARS, ROEBUCK & CO., CHICAGO, ILL.

slaughtered because tuberculous, the average yield per cow, for the year was 7,009 pounds of milk, and 304.89 pounds of estimated butter, the yield of fat being on the average 259.91 pounds. The largest yield was given by a cow evidently tracing to some Holstein ancestor. It was 10,310 pounds of milk and 344.14 pounds of fat, in forty-four weeks, the period of lactation being incomplete at the close of the year. Another cow had 9,135.5 pounds of milk to her credit, although her yield of fat is not up to that of four other cows each of which gave over three hundred pounds of fat in the year. One cow gave, in her full milking period of sixty-three weeks, 451.25 pounds of fat.

The significant lesson which the history of this herd teaches me is that while, as far as breeding is concerned, the herd is no better than dozens of others in the state, their yield of milk and butter is far larger than the average and this superiority is due, practically, entirely to continuous good care and continuous full feeding. Not that breeding is to be neglected, nor proper selection of cows dispensed with, but the farmer need not wait until all his cows conform to a given type or belong to a given breed before hoping to get adequate returns from the money invested in good feed and care.

It seems probable too that the chief fault, if faults can be compared, with the average dairyman, lies rather in insufficient feeding than in poor selection of his cows, for I insist that from the way these cows were picked up, one here and another there, wherever cows were offered for sale, they could not have been better than the average cows of the country. If all the estimates about the poor returns from the average cow be true, if it be true that the average cow gives but three thousand pounds of milk and scarcely over two hundred pounds of butter per year, and it be admitted that the cows of our herd are but average cows, then to what a conclusion does the work of our herd point as to the value of continuous, even, good care? No extra skill in the management of this herd is claimed; nothing was fed that was out of the possibility of the ordinary farmer, nor were results reached that he can not hope to duplicate.

Five hundred pounds of butter per cow per year is not a goal to breed up to, but a goal that he may start from and breed up to far better performers.

C. D. SMITH, Director.
Michigan Agricultural College.

Increasing Fat in Milk by Feeding.

ED. HOARD'S DAIRYMAN:—At every farmer's institute and dairy convention I have attended this winter, the following question has been asked: Can you affect or change the butter fat in milk by feeding? Various have been the replies which seem to have resulted from differences of opinion, and yet I have not heard any definite answer.

Nearly all milk producers know that the fat varies and the question is, it not feed, what does cause it? E. J. W. D.

Downers Grove, Ill.

The DAIRYMAN has frequently in the past stated the fact, that careful experimenters have been unable, by any method of feeding, or combination of feeds, to make a permanent increase in the per cent of fat present in the milk.

This has been the universal experience where careful and systematic feeding and milk testing have been done. The number of these tests is large and constantly increasing and they all point to the same result.

On the other hand, there are numerous dairymen, who without taking any pains to weigh food, and weigh and test milk, are convinced that they can easily change the composition of the milk. It is a question of exact science against inexact guessing, and our correspondent can judge for himself which side is the most liable to be correct. The reason for such a condition may, perhaps, be best expressed in the words of Clinton D Smith, Director of Michigan Experiment Station. Speaking of the results obtained at that station, he says:

"A study of many other cows in the college herd, shows that, while by continuous, judicious feeding, we have been able to develop animals with records approaching the incredible in total annual yields, we have not succeeded in either temporarily or permanently influencing the quality of the milk.

Each cow seems constructed to yield milk of a certain composition, and by no treatment can she be made to deviate materially from that quality."

As to what causes the variation of fat in a cow's milk, from day to day, we can say briefly, that anything that affects her physical condition, will cause changes in the per cent of fat. Heat, cold, wetness, indigestion, noise, flies, pain, or sickness of any kind, and the thousand and one things that may cause a change in her nervous condition are reflected in the milk pail, often at the expense of the owner.

Transfers of Guernsey Cattle from March 1 to March 15, 1899.

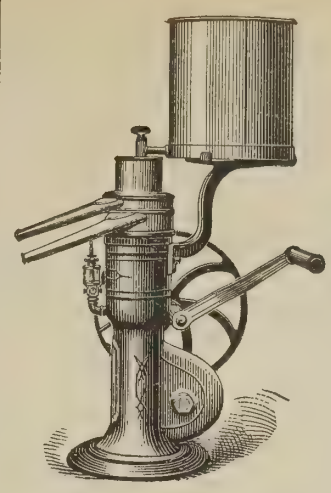
BULLS.

Ben. B. 4916, E. L. Mackeys to Charles J. Mangeot, Fulton, N. Y.
Billy Marshall 5262, Ezra Michener to George Jonas, Bridgeton, N. J.
Bud of Charleston 5840, S. B. Perkins to H. E. Burlington, N. J.
Imp. Best Policy 5705, H. McK. Twombly to King & Pratt, Buskirks, N. Y.
Count Fantine 5530, Geo. C. Hill & Son to W. H. Taylor, Saugatuck, Conn.
Captain Stonecrest 5605, A. S. Apgar to F. W. Trow, Buckland, Mass.
Chimes 5842, C. Morton Smith to Ezra Michener, Carversville, Pa.
Count Landenberger 3435, M. M. & E. J. Hollingsworth to H. E. Henderson, Buena Vista, Pa.
Count Wasteland 5456, M. M. & E. J. Hollingsworth to D. C. Long, Fairlawn, O.
Divan 5846, Lee S. Clymer to Ezra Michener, Carversville, Pa.
Dreyfus of Riverside, 5350, James Forsyth to G. N. Dickinson, North Hatfield, Mass
Edwey Marigold 5851, H. McK. Trombly to J. N. Wilson, Windsor, N. J.
Four Hundred 5700, H. McK. Twombly to J. E. Bertolette, Athol, Pa.
Fayette of Bonnie Brook 5856, W. S. Stevenson to J. A. Gregg, Butler, Pa.
Fayette 2nd 5855, W. S. Stevenson to R. L. Patterson, Butler, Pa
Fill Pail des Ruettes 2nd's son 5520, James Forsyth to Miss Isabel S. Wilhelm, Harrisburg, Pa.
Fernwood's Son 5858, Fred Clausing to A. & N. M. Jackobson, Saukville, Wis.
General Washington of Elm Place 5844, G. B. Tallman to E. E. Sharp, South Greece, N Y.
Giltedge of Wasteland 4704, Thomas K. Jefferys to Edgar Darlington, Avondale, Pa.
Hans McGregor 5559, Ezra Michiner to Edward Briggs, Woodbourne, Pa.
Hecassyle 5401, Levi P. Morton to Nat Wallis, M. D., Fitchburg, Mass.
Homer of Ellerslie 5729, Levi P. Morton to Arthur L. Smith, Sempronius, N. Y.
John Nolan 5801, Ezra Michiner to A. J. Snyder Plumsteadville, Pa.
Jerome Eddy 5803, Henry H. Leatherman to Ezra Michener, Carversville, Pa.
Lew Marshall 5551, Ezra Michener to W. W Conever, Copper Hill, N. J.
Lady Hodgson's Jeweler 4995, Emma C. Kent to Dennis W. Lynch, West Grove, Pa
Meika's Bob 5843, N. Sagendorph to Wm. W. Witherel, North Brookfield, Mass.
McIlrath 4942, N. K. Fairbank to G. A. Cobb, Lake Geneva, Wis.
Magnet G. 5636, Wm L. Bray to Edies & Son, Oskaloosa, Ia.
Nashotah Boy 5854, Chas. Solverson to Geo. D. Telfer, Fort Atkinson, Wis.
Pat Hugo 5793, Ezra Michiner to T. T. Eastburn, New Hope, Pa.
Prince of Sullivan 5540, P. R. Pelton to John E P Cox, Thompsonville, N. Y.
Sir Oliver 5337, Corydon Peck to E. L. Mackeys, Onondaga, N. Y.
Stanford's Savoy 5861, J. B. Duke to James Kelty, Reaville, N. J.
Stanford's Chief 5860, J. B. Duke to A. Tiger, Chester N. J.
Stanford's Wonder 5565, J. B. Duke to University of Wisconsin, Madison, Wis.
Stanford's Dewey, 5566, J. B. Duke to Louis McLane, Cockeysville Md.

COWS.

Alice K. 6163, J. H. Hunter to King and Pratt, Buskirks N. Y.
Adelia 11428, Triff 11429, Est. Roswell Brown to Daniel C. Brown, Mystic, Conn.
Avis B. 11427, Est. Roswell Brown to Chas. R. Heath, Mystic Conn.
Belle of Fairview 2nd 11416, R. J. Wood to G. L. Kelly, Baldwinsville, N. Y.
Cazenovia Belle 11378, Helen 2nd of Willow Bank 7047, Helen 3rd of Willow Bank 9009, Victoria V. 11377, Est. John Stebbins to J.J. Bixby, Norwich, N. Y.
Daisy Brodhead 11389, A. F. Pairs to J. O. Dewalt, Butztown, Pa.
Ezalia 16505, May Butler 10401, Ezra Michiner to Geo. Jonas, Bridgeton, N J.
Emma Butler 10507, Ezra Machiner to William F. Gable, Altoona, Pa.
Hattie Fernwood 2nd 10005, Stella P. 9502, P. Powers to Chas. Solverson, Nashotah, Wis.
Louis of Onondaga 11137, E. L. Mackyes, Jr. to Chas. J. Mangeot, Fulton, N. Y.
Little Nancy 11031, Maggie Hastings 10503. Maggie of Frederick 10403, Deputy's Christable 10494, Primrose Curry 11140, A. J. Snyder to Ezra Michiner, Carversville, Pa.
Lady Charmer 11049, Chas. Solverson to George D. Telfer, Fort Atkinson, Wis.
Mariposa 10738, Tampa 10736, A. J. Snyder to Wm. F. Gable, Altoona, Pa.
Mary of Bernards 11060, Abraham Tiger to E. H. Schley, New York City, N. Y.
Miss Washington 7144, O. F. Woodward to G. B. Tallman, Perry, N. Y.
Polly of Rosendale 10276, Geo C. Hill & Son to H. B. Stehman, Chicago, Ill.
Rob's Lady 11390, Robert Gardiner to The Charles Parker Co., Meriden, Conn.
Rose of Chester 5163, A. J, Cassatt to A. A. Golder, Chester Valley, Pa.
Rose of Chester 5163, La Rosebud 11418, A. A. Golder to A. J. Caseatt, Berwyn, Pa.

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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
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CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

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NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



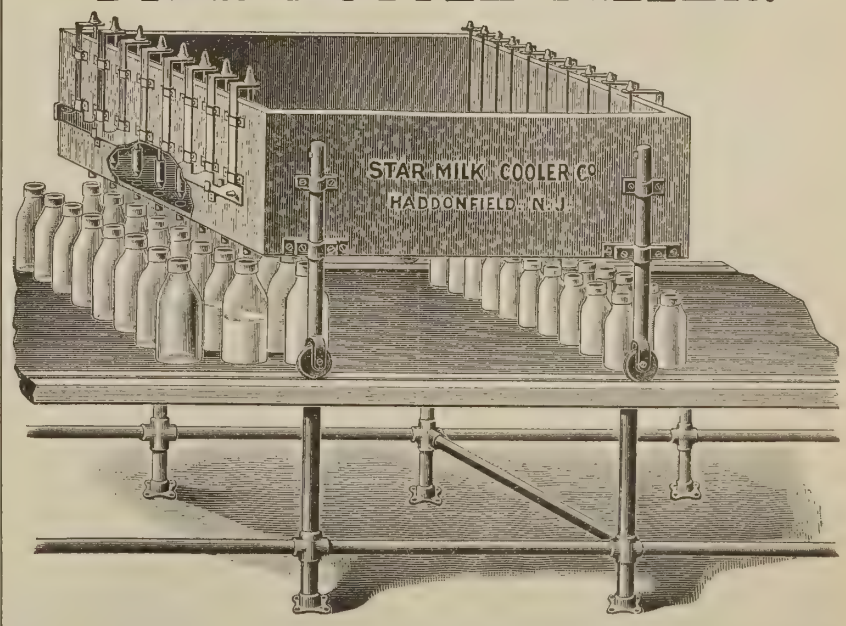
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BEST CREAM SEPARATOR
For FARM USE. . . .
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STAR BOTTLE FILLER.



Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.
STAR MILK COOLER CO., Haddonfield, N. J.

H. C. WATSON, of Kearney, Neb., proposes to have a 1,000 cow dairy. He has lately purchased of the Iowa Agricultural College, at Ames, a car load of fine cows. The man who has the ability to multiply himself to the extent that he can manage *profitably* 1,000 cows, is and always has been, a rarity.

An Oregon Dairyman.

S. M. Douglass, proprieter of the Springfield dairy, near Eugene, keeps a careful memorandum of the yield of milk and butter from individual cows. By this method he is enabled to get rid of unprofitable milkers. Below is a sample of his work, the time noted being one year with each cow:

	Milk pounds.	*Butter pounds.*
Cow No. 177	9,224	445
Cow No. 178	6,884	443
Cow No. 68	8,206	439
Cow No 58	9 268	405
Cow No. 60	8,810	384
Cow No. 14	6,797	375
Cow No. 98	6,879	379
Cow No. 95	6,777	374
Cow No. 91	6,167	354
Cow No. 80	5 349	356
Cow No. 50	7,561	347
Cow No. 29	7.967	357
Whole number of cows		39
Pounds of butter		11,903
Average pounds per cow		305

CONCERNING OUR ADVERTISERS.

P. J. Coggswell recently shipped to Mr. David Roberts, of Moorestown, New Jersey, a double grandson of Exile of St. Lambert, sired by Exile's Successor 42716, and by Ophi of St. Lambert 49004 (14 pounds 10½ ounces.) In ordering an "Exile" bull, Mr. Roberts writes: "The best cow in my herd, Belle of Deleware 58331, is a granddaughter of Old Exile. When she had been fresh three months, we weighed her milk for a week, during which she gave not less than 40 pounds daily, and as high as 50 pounds some days. She is due to calve in a few days, and I hope to give her a butter test."

With this experience with Exile blood, we cannot wonder that he looks for more of the same to put in his herd.

The O. Armleder Co., Cincinnati, O., report that they are having a very heavy demand for their wagons this year. Their sales f r '99 are greatly in excess of any previous year. They are selling honest wagons at honest prices. This method of doing business will bring an increase to any concern, who follows it. The people are now finding out that it pays to buy a quality of work that will give satisfaction.

Armleder wagons give the best of satisfaction, wherever sold. It will be to the interest of any wanting a wagon, to correspond with this progressive concern.

DEWEY LET US HAVE THE FIBRE.

When Admiral Dewey destroyed the Spanish Navy in Manilla Harbor there were lying in the harbor six big ships laden with Manilla fibre for the Deering Harvester Co., of Chicago. By a special order from the Navy Department Dewey was permitted to release these ships. Their cargoes reached the Deering Twine Works in Chicago in due course, and that twine will be used to bind the sheaves of this season's harvest all over the world.

Low down, broad tire wagons are all "handy", but to get a good, serviceable wagon of that kind is the question. The Havana Metal Wheel Co., of Havana, Ill., without doubt, make the best all steel wheels and steel handy wagons made in the United States, being one of the first to put on the market a low down handy wagon. They have passed beyond the experimental part.

Their wagons and wheels have been sold in every state in the Union, and have given the very best satisfaction, as they have thousands of letters, every one of which is a testimonial to that fact. No farmer should be without one of those low down, broad tire, handy wagons. Send for catalogue, and do not stop until you have one on your farm.

Everything is guaranteed to be as they represent it to be. They also make all sizes of truck wheels for farm wagons, any size, any width tire, to fit any old wagon or new.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

TOO LATE TO CURE.

About three months ago had a cow, after eating herself full, would raise her head, grunt and move backward. Doctored her for indigestion, but it did no good. She finally got so she could not get her hind quarters along, especially her left quarter. As she was stuck last fall for lucerne bloat, and appeared to be tender in that part (left side,) concluded there was an abscess which pressed against the left kidney when she was full. Made an operation by opening a triangle; everything all right. She got so bad she had to be helped up. She now appears to be getting better, but in moving her hind quarters, she drags her feet, and in setting them on the ground they appear very weak, and look as though they would double up. She walks with kind of an elephant shuffle, and stands and moves all humped up. She has a good appetite, but has become very lean, and has lost two-thirds in milk. C. J.

Utah.

ANSWER.

You have come too late to the DAIRYMAN. You have done the business. Cow sticking for bloat, belongs to the sorry past, as well it ought. All I would give for the animal, would be the hide's value. She is not worth doctoring.

WORMS IN HEAD.—DRYING UP COW.

1st. What is the disease that causes our lambs to die? First two weeks do well, get fat, then all of a sudden won't eat; hump up throw head back, act dizzy; live about 12 to 15 hours after taken; trouble seems to be in the head.

2nd. Is it injurious to a cow's udder to lie out doors on clover and high ground during the summer nights?

3rd. Is it necessary to blanket a cow for a week after she drops calf, providing she is in a warm box stall and not used to being blanketed?

4th. One or our cows was dried up two weeks before she calved. Two weeks previous to this she was giving 30 pounds of milk a day. She dropped calf, November 17th, '98, and since has only given from 20 to 25 pounds a day. She gave 45 pounds of milk a day last year. She is a well bred Holstein, three years old. Was she injured by being milked too long?

Will she recover from those injuries?

Howell, Mich. H. R.

ANSWER.

1st. Your lambs died from worm in the brain. This is called sturdy—turnside—goggles—vertigo—gid—staggers, etc. Generally fatal; remedy quite obvious.

2nd. No.

3rd. No.

4th. She might or might not. Don't know; some are dangerously sick from not being milked; some again are injured by too close milking. Differ under different circumstances.

ITCH.

I have a three year old pure bred Jersey bull that has a breaking out on one side of neck in patches, from about the size of a quarter to a silver half dollar. To-day I found the same around the eye of a Jersey heifer. The hair comes out and leaves the skin very dry. It very much resembles sheep scab. R. M.

Poolesville, Md.

ANSWER.

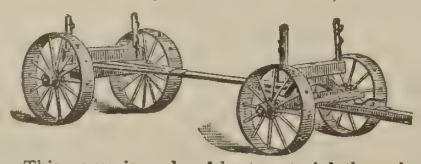
You have mange, or scabies or itch, either one. They are the same. Wash in tar soap suds clean, then rewash with Tilden's Bromo Chloralum, one to eight of water; when quite dry, rub in gently, fish oil ten parts, oil of tar, two parts; rub to the very bottom. If warm weather, put in just a pinch of sublimed sulphur. Be careful of your hands or you will spread the disease.

BUNCH ON JAW.—CHANGING TO FALL COW.

We have a pure Jersey heifer calf nearly five weeks old. About a week ago, it seemed to be affected with a sort of distemper. Its nose has been running. It holds its head on one side, frequently shaking it. The calf has a good appetite and its bowels are all right, but the sickness has weakened the little animal considerably. A small swelling on the side of the lower jaw comes and goes within twelve hours. The swelling is

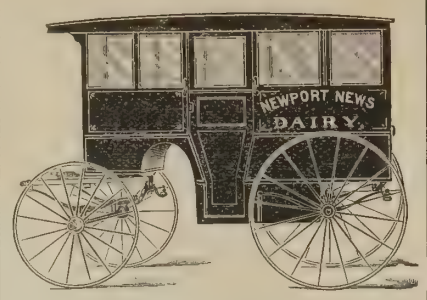
Farm Wagon for Only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19 95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with a 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

BABCOCK Milk Testers.

Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. J. J. ANGUS, Plymouth, Wis.



FENNER'S
Revolving Six-sided CHURN.

Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes.
Send for catalogues.
R. W. FENNER,
South Stockton, N. Y

IDEAL Galvanized STEEL TANKS
Shipped subject to your Inspection.



Double locked seams, with no black iron to come in contact with water and galvanizing, causing rust. Angle braced on the outside—makes them extra strong. Being made of best material—they last. Catalogue FREE.
Star Tank Co. Box 102, Middlebury, Ind.

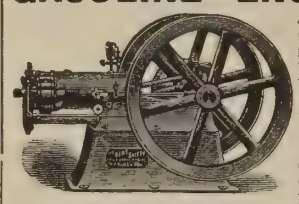


Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale. R. G. STRAOY, Box 720 Brockville. Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

HOME GROWN SEED CORN
Best kind. YELLOW DENT. tested seed.
FRANK B. FARGO, Lake Mills, Wis.

The OLDS GASOLINE ENGINES! SIMPLE AND ECONOMICAL



Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS**, Box 419, **Lansing, Mich.**



WHY Can we Save You Money on a saddle, harness or vehicle?



Because we have no agents.

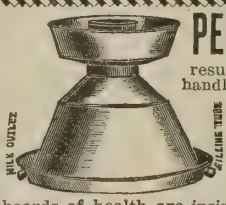
Can we really do it? **We say yes. Can we prove it** without cost to you? We can. **How?** We will ship you a harness, saddle, or vehicle, without you sending a single cent, and let you look it over at your freight house and if you don't find we have given you the **biggest bargain** you ever saw or heard of return the goods to us at our expense. **We give with each vehicle a 2-years iron-clad guarantee** protecting you against poor material and workmanship. Our vehicle catalogue describes the largest line of **buggies, road wagons, phaetons, surries, spring and farm wagons, carts, harnesses and saddles** ever shown in one book. **It's free. Send for it.**
Marvin Smith Co. 55-59 N. Jefferson St. X 18 Chicago, Ill.

HARVEY'S ANTI-SUCKING BITS
For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent post-paid for **50 CENTS.**
Will send as premium for
ONE NEW SUBSCRIBER

PEAS FOR HOGS
FIELD PEAS
FOR HOGS AND DAIRY COWS
"EQUAL TO CORN AND SIX WEEKS EARLIER"
THE ALBERT DICKINSON CO.
GRASS AND FIELD SEED MERCHANTS, CHICAGO, ILL.



PERFECT FLAVOR IN BUTTER AND CHEESE
results from perfect milk. Perfect milk is that which has been properly handled from the moment it left the cow until it reaches the finished product.
THE PERFECTION MILK COOLER AND AERATOR
makes a perfect milk. It takes out all animal odors and those arising from stables or feed. It retards **loppering and souring;** prevents the **cowy odor** in butter and **deleterious gasses** in cheese. City boards of health are insisting on milk that is properly cooled and aerated. This machine is **simple, quick** and **effective.** Made in sizes from 1 to 200 cows. Send for free catalogue of Farm and Dairy Supplies.
L. R. Lewis, Mfr., Box 10 Cortland, N. Y.

FINE FRESH GROUND
Michigan Land Plaster
SPECIAL LOW PRICES TO
WISCONSIN AND MINNESOTA FARMERS ONLY.

In Bulk	$1 00	per Ton.
In American A Grain Bags	2.45	per Ton.
In Stark A Grain Bags	2.70	per Ton.

Farmers may combine and order together.

Loaded on cars at our Mills at Grand Rapids, Michigan. Fifteen tons the least that can be shipped. Special Freight by Car Ferry to Milwaukee of **Five Cents per 100 pounds.**

Our large stock enables to ship promptly. Cash must accompany order.

MICHIGAN & OHIO PLASTER CO.,
401 Pythian Temple. Grand Rapids, Mich.

about the thickness and length of a man's forefinger.

We also have a heifer due to freshen July 1st. I wish to make her a fall cow. Would you advise me to keep her from the bull as long as December 1st, or would she be too hard to get with calf? W. T. S.
Lincoln, Va.

ANSWER.

I have no idea what the cause can be, if not an accident. Rub with strong camphorated spirits six parts, common turpentine two—only—parts. Rub once a day for a few days. If this does not reduce, paint over the swelling with strong tincture of iodine, once a day for a while, three to five days.

As to the heifer, you can keep her off until December if you are so inclined. Sometimes long deferred service does interfere with the breeding. Still, it is a common practice to hold them off for a purpose.

INJURY TO TEAT.

I have two cows that got their hind teat bruised, or what it may be. The teat is somewhat shrunken, or thinner at the lower half of the teat. I get milk out of them, but it comes only in a very thin stream and with pain to her. I think the cows must have stepped on it themselves by getting up, as there was a little white spot at the end of the teat. There is no inflammation in them. I greased them but it did not improve it.
Lancaster Co., Neb. H. T.

ANSWER.

By using the best and easiest milk tube and dilating plugs. See ads in DAIRYMAN.

It is a matter quite impossible for me to say how or when the teats were injured. It might be from frost. Rub in fish oil and lard, 2 ounces each; pure alcohol, 4 ounces, to be thoroughly mixed. Rub twice a day for a few days. Must have the tubes and plugs to be successful.

ITCH.

I have a cow that has a white scab around one eye. It commenced with just a little spot, but now it has grown so it is around the whole eye. It is hard and white and seems to get larger and larger. W. J. M.
Westby, Wis.

ANSWER.

Scabies, itch, mange, and other forms of disease of the cuticle quite often center around the eyes. Wash with Tilden's Bromo Chloralum one to eight parts of cold water. Let this be well applied four to six different times. Then dress with oil of tar one dram, pure clean lard twelve drams, to be well mixed. Put one dram of sublimed sulphur in this. Thoroughly mix.

INFLAMMATION OF OVARIES.

A neighbor had a Jersey cow die with the following symptoms: constipation, fever, eye staring, apparently mad, straining, apparently in heat for 4 days and nights, bellowing repeatedly till she died. Fed clover hay, corn chop and bran. T. A.
Dodson, Mo.

ANSWER.

Inflammation of the ovaries, causes numerous. In this case I am quite unable to form any idea of the cause. In extreme sexual irritation and excitment I have known and seen such subjects go raving mad before relieved by death.

SCROFULA.

A neighbor has a cow that has been ailing all winter, off feed. Of late swellings have come under jaw and on brisket, and almost all over body; in a few days has two more break out with swellings on body from nose to tail, but on different parts. C. H., Jr.
Lykers, Mont. Co., N. Y.

ANSWER.

I don't believe the cow is worth doctoring. She appears to be thoroughly impregnated with scrofula. I would not use the milk from such a subject, nor would I attempt to breed from such a contaminated animal. Let some good veterinarian see and examine her.

WART ON TEAT.

I have a two-year-old heifer that has a wart on one of its teats, about the size of a half of a peanut. The heifer will calve in about two months. P. T.
Marinette, Wis.

ANSWER.

Touch all the wart with butter of antimony, morning and evening, for two days; then change to nitric acid two days; then the butter of antimony for the same, if needed, only keep the acids from touching any other portion of the teat. Use a small piece of pencil sized stick and cotton batting, tied tightly to the end, kept clean. Rub the wart a little each time. You must change the cotton batting each day, as the acid eats it too tender, and it will not perform the job.

POOR FLOW OF MILK.

I would like to know what to do for a cow that came in one week ago to-day. I have not been able to get more than one pint to one quart of milk to a milking, milk has some chunks in it, did not get her entirely dry before she came in. H. A. C.
Pompey, N. Y.

ANSWER.

Immediate full dose of physic and repeat in 4 or 5 days; each morning give 2 teaspoonfuls of nitre. Do this for 10 to 20 days, if needed. Stop the corn for a little while and put in more oats and bran, make this sloppy, and give new milk warm for a while; give 2 drams of fluid extract of blue flag in 3 oz. of old whiskey and 5 of water. This is to be apart from the physic, give as soon as the physic is over. There are all sorts of freaks regarding the milking qualities of cows, which no man, but a layman, can account for, only upon the peculiar idiosyncrasy of the subject.

HYDROCEPHALUS.

On the morning of March 25th, I noticed one of my full blooded Jersey heifer calves two months old, acting droopy and refusing to come to the bucket for its morning milk. It lay around all day very droopy; at 6 p. m. it got up and commenced running around, getting faster all the time, running against the picket fence so hard as to break the pickets, then running against the side of barn, almost breaking the barn boards. At 7 p. m. it fell and kept its legs moving, same as it would if still running but in a few moments was dead. A. F. P.
Topeka, Kans.

ANSWER.

You had a clear case of hydrocephalus, water on the brain. Cure not worth attempting as the disease is fatal in 90 per cent of cases in calves.

CALF DISEASE.

We lost a calf the other day which seemed to be almost bloated. It was fed about half milk and half water and oil meal, cooked, was added to the milk, besides getting ensilage, ground feed, corn and oats and hay. The calf was three months old.

We had another calf fed just like her, and she seemed to become the same way as the one that died. But we gave her, immediately, Epsom salts and ground ginger, which has made her scour now. But she seems to be quite full yet in her belly, as though she was bloated a little. K. AND W.

ANSWER.

Ensilage is not a calf food. Epsom salts as per head of this column, is the calf and cow physic—not pills of any kind. I believe the cause to be the silage.

WEAKNESS IN CALVES FEET.

I have a choicely bred Jersey calf that is 12 days old. Has seemed hearty up to this time and took her milk promptly. I have been putting a handful of corn meal into pail with the milk, for a few days, which she licked up and enjoyed, but as it seemed to physic her, I dropped it and have been feeding twelve-hour-old milk with cream removed (as we are rather short of whole milk). Tonight I noticed that her hind feet are turned back under her and she walks on her ankles.

I have another 5 days older, that I have been feeding just the same. She too was physicked in the same manner by the meal, so I quit feeding at the same time I did the other but she is all right. J. M.
Serena, Ill.

ANSWER.

Bandage the joints or use splints for a while, removing them intelligently once in a while. Soak the bandage in strong oak bark solution, tea. To each pint add 2 ozs. of acetic acid. Keep the bandages soaked in the solution.

GARGET.

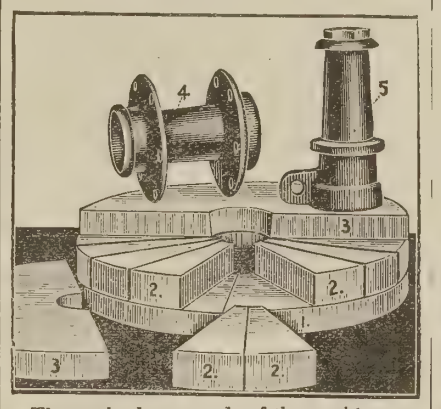
One of my cows came fresh in May, all right, and in good shape, but in November she commenced to have garget in one half of her udder, and I bathed it with salt water and gave her saltpetre; but she got worse, and I dried her up January 1st. After three months the swelling is coming back again, and is inflamed. She will be fresh in six weeks. J. J. S.
Winneconne, Wis.

ANSWER.

Full and continued physicking. Rub the gargety parts with strong tincture of camphor, six parts, and common turpentine one only part. Rub hard and long once a day for awhile, say four to six days; then use pure lard and alcohol, half and half; rub in well. One of the best things for chronic garget is massage, persisently followed up by kneading and squeezing, and gently rubbing, etc. The continued physicking is the sheet anchor. You may give, apart from the physic, two drams of poke root once a day, every other day up to four doses, and you may rub the fluid extract upon the udder, also.

ILLUSTRATION.

There are three old and true sayings, viz.: that a chain is not stronger than its weakest link, and that the life of a wagon is gauged by the durability of its wheels. This being true it is wise for any farmer to look to the durability of the wheels on any wagon he proposes to buy, and as there is nothing but what may be injured, it is well to keep in mind the ease with which a wheel can be repaired. There has probably never been a more durable wheel made than the one shown in this cut.



These wheels are made of thoroughly seasoned white oak, dressed on both sides and edges. The pieces marked No. 1 are keyed tightly together and then the wedges or spokes (No. 2) are fitted in. These wedges are all cut with the grain running lengthwise, and form a solid series of spokes from the iron hub (No. 4 to steel tire not shown). After the last wedge is driven in tight, the planks marked No. 3 are placed on top with the grain running crosswise of the grain in layer marked No. 1. The wheel is thoroughly bolted by ten bolts, which pass through all three layers. The hub (No. 4) and skein (No. 5) are made from high grade Lake Superior iron with smooth wearing surfaces. The box is made with a wide flange on each end, and these fit up on each side of the wheel and are drawn up tight to it by bolts which reach through the wheel from one flange to the other. There is a wide sand band on each end of the box to keep the sand out.

The tires are made of steel, and are given a draft that would crush any open spoke wheel.

After the foregoing description we need say nothing more about the strength and durability of these wheels. Neither arid nor wet climes have any effect on them, as the grain of white oak cannot shrink endwise. When the tires are shrunk on, the end grain of the middle layer cannot be compressed, and the tire therefore has a slight crown in the center: and to slip off either way the tire would have to climb this ridge. It is absolutely impossible to start these tires with blows from the heaviest sledge.

The patents on these wheels are owned by The Farmers Handy Wagon Co, of Saginaw, Michigan, and are used only on their famous farm trucks.

MICA AXLE GREASE

It's easy to haul a big load up a big hill if you grease the wagon wheels with

MICA Axle Grease

Get a box and learn why it's the best grease ever put on an axle. Sold everywhere. Made by

STANDARD OIL CO.

WE SELL OUR GOODS TO YOU AT LOWEST WHOLESALE PRICES ~DIRECT~ FROM OUR FACTORY

WE MANUFACTURE HARNESS — VEHICLES — GALVANIZED STEEL TANKS CATALOGUE FREE

Our No. 190 Chain Plow Harness with Collars $16.75. Middlemen would ask $25.00 for same grade. Write TO-DAY.
C. E. Banta Mfg. Co., 32 A, La Salle St., Chicago, Ill.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for **FREE $2** trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

That Lame Horse

GREENLEAF SALVE WILL CURE HIM.

In Use 10 Years. Uueqaled for Sprains, Bruises, Sore Shoulders, Wounds, Stiff Joints and Scratches. Send 25c for a sample box. **Greenleaf Company,** 1230 Caxton Bldg., **Chicago, Illinois.**

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LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis

ROBERTS'
ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

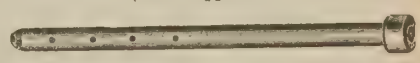
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

Horse Owners! Use

GOMBAULT'S

Caustic Balsam

A Safe Speedy and Positive Cure



The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

Southeastern New York Farm Notes.

Milk Trusts and Milk Shippers.

ED. HOARD'S DAIRYMAN:—As a matter of news, those who are acquainted with the history of the "Five States Milk Producers' Association,"—an association of milk shippers that supply New York City with milk—will wish to know what was accomplished at the recent meeting in New York city. Before this the milk dealers and the officers of the F. S. M. P. A. were unable to make a contract for the reason that the latter could not guarantee a definite amount of milk. The milk shippers were then induced to sign a contract in which they gave their officers the powers of attorney in the disposal of the milk.

The latest report is, that the expected contract between the F. S. M. P. A. and a New York syndicate of milk dealers, has failed. The attorneys of the Consolidated Milk Company, the name of the syndicate that was to purchase the milk, informing the committee of the F. S. M. P. A that under the laws of New Jersey the trust or combination could not be formed, because the powers of attorney claimed and included in its provisions had no reality. The committee at once offered to buy shipping stations along the routes to overcome the difficulty, but the proposition was rejected.

As the matter now stands, it places many farmers who signed the powers of attorney in a dilemma, for they do not know what to do with the milk. In my locality, there are several condenseries that make contracts for milk the first of April. The farmers who signed the powers of attorney were unable to make contracts with the condenseries, and they must now make the best disposal of their milk possible.

THE MILK SHIPPERS' SITUATION.

In Southeast New York, the most of the farmers either ship their milk direct to New York, or deliver their milk to creameries that ship milk and cream. The farmers have been so long established in this custom, that they think they can do nothing else but sell milk. In the last few years, the production of milk has been so large that in the summer the price has fallen to about one cent per quart.

This is but little more than the cost of production. Few farmers have the facilities and the ability for making the kind of butter the market demands. The farmer who takes his milk to the butter factory and pays for making and marketing it, realizes but little more than the milk shipper. Only the few well-to-do farmers are making a good living. The majority are either making a very meagre living, or are going behind.

It is evident that something must be done to widen the margin of profit, or the milk shippers cannot make a living. Selling milk has not been a way to better farming in this locality, but rather the cause of its decline. Too much of the farmer's time has been occupied in delivering his milk to the milk station or creamery, and drawing grain from the feed stores. The farmers must now face the fact that they are coming to a place where a new order of things must be put in opperation.

THE PROBLEMS TO BE WORKED OUT.

There are two problems with which the milk producers have to deal—cheaper distribution and cheaper production. The former means reducing the profits of the middle men, and the latter a better system of farming. To increase the price that the producer gets for his product when there is a surplus, is always difficult, but it will be understood that the purpose of the F. S. M. P. A. is not to make the consumer pay more for the milk, but to obtain for the farmer a reasonable part of the money the consumer pays.

Much of the milk that the farmer gets but 1 or 2 cents per quart for, is retailed in the city for 6 to 8 cents per quart. If the F. S. M. P. A. may be called a trust, it, unlike other trusts, does not seek to make the consumer pay more for the product to enrich a few individuals, but rather to furnish the consumer better milk at a less price, and thereby increase the consumption, to take care of whatever surplus there may be, and to give the farmer his share of the price of his milk, when that price is regulated by the law of supply and demand.

The F. S. M. P. A. has succeeded in a very difficult undertaking, that of uniting a large number of farmers, and this recent instance of a failure to make a contract with a combination of milk dealers is not an evidence that it will not accomplish its purpose. The facts are, the farmers are compelled to unite, and demand a better price of the middlemen, but not from the consumers.

While this problem of a more economical distribution of dairy products is being worked out, the one of cheaper production should also be studied. We must expect low prices in the future. No combination or legislature can save the producer from the natural results of large production and increasing competition. There is no possible way to maintain prices for a very long time above those which are made by the supply and demand.

As long as so much milk is produced the price will be low, and the only way to make a living profit with low prices is to institute better methods of farming. In a word, the majority of farmers need converting, that they may adapt their farming to suit the times. The means of their salvation are better cows, soiling crops, or to stop buying so much grain, and growing the food on the farm, and saving carefully all the manure that they may enrich and build up their farms.

Delaware Co, N. Y. W. J.

One Hundred Per Cent Gain.

A Texas Dairy—Texas Weather—Texas Feeding.

ED. HOARD'S DAIRYMAN:—Below I give the ration we are feeding and I wish you would comment on same and tell us what improvement could be made. We are milking twenty-two cows (a majority have been milking for six months) and are making twenty pounds of butter per day.

We are feeding 4 quarts bran, 4 quarts corn meal and 6 quarts cotton seed per cow a day. Some that are nearly dry don't get this amount. Bran is worth $16 per ton, corn 35 cents per bushel, (we grind it ourselves), cotton seed $7 per ton. We have about eight tons on hand. I know you do not favor cotton seed, except in small amounts.

We have had the coldest winter in forty years, so the old inhabitants say. Cold weather is not welcomed by us, though HOARD'S DAIRYMAN always is.

We have been running a dairy four years. When we commemced could not make a half pound per cow, but HOARD'S DAIRYMAN showed us the way. Of course it is far ahead of us now, but we have it in sight and are still following. C. M. R.

Elmendorf, Texas.

We cannot judge as to the elements in a ration without knowing the weights of its several constituents. We can estimate fairly well as to some kinds of grain, but bran is very variable, and cotton seed we are unacquainted with. But a ration that produces good results must be a good ration. We account the yield reported very satisfactory, and if the amount of cotton seed fed does not affect the quality of the butter unfavorably, there is no reason for discarding it, either in whole or in part. We aim to be reasonable in all things, and when we are without personal experience, must be guided by the experience of others. Several of the experiment stations in the South have studied the cotton seed question very thoroughly, and all agree that while it furnishes, in whole seed, meal and hulls, a valuable and cheap addition to the ration, it needs to be fed with care and not to excess. Three pounds of the meal is accounted the maximum limit where butter is made, and less is recommended as the general rule. For the whole seed four to five pounds per day is as much as should be fed, and we think even less than this would tend to an improvement of the product.

The Value of Dairying to a Community and State.

The Views of an Eastern Man Expressed in Oregon.

The *Oregonian*, the leading paper on the Pacific coast, prints the following forcible presentation of the dairy question in its relation to the prosperity of the state:

"You people out here don't realize the importance of your dairying industries," said a man from Wisconsin yesterday, as he leaned back in a hotel chair.

"Why, back where I came from, the dairymen would be rolling in wealth, every one of them, if they had your advantages in the way of mild climate, abundance of grass, etc. Of course they have the benefit of larger markets there, but I am sure the dairymen of Oregon and Washington will never lack for a good market as long as it is necessary to import dairy products from the East to supply the local demand.

The point is just this: Increase the output of your dairies, not by adding more cows, but by replacing ordinary 'scrub' cows with those breeds which experience has shown to be best adapted to the particular line of dairying in which you may be engaged. These dairymen's institutions should be held oftener, and should have the attendance of every man engaged in the business. The time when a man can afford to drivel along in the same way his father did, is past. He must make a study of his business, and must profit, not alone from his own experience, but from the combined experience of the most successful men in it. The value of this is recognized in the East, but out here they seem slow, very slow, to take advantage of opportunities afforded them. I attended the association meetings, and was highly pleased to hear some of Oregon's leading dairymen speak; but the need is not for a few well-informed leaders, but for a universal information reaching all. Of course, the leaders come first, and without them there is no progress, but the people should not be content to be led all the time.

"You boast of your mineral resources, of your bodies of timber, and great fields of wheat, but you pay little attention to the development of your dairies. Within them lies the richest resouce of all, the one most easily within the reach of the poor man. When these great farms, whose acres are numbered by the hundreds, shall have been replaced by small tracts that are farmed from center to circumference; when every tillable acre is under cultivation, yielding the largest crops that skilled and systematic labor will produce; then you will see the truth of my criticism, and wonder why in the early days of 1899 the farmer did not grasp the importance of dairying, rightly conducted."

RETURNING YOUTH.



"I am seventy years young," said Oliver Wendel Holmes when they asked his age. True enough. He was young because his heart was young; his step was firm; his eye was bright; his laugh was clear and merry; his appetite was good, and above all — so was his digestion.

No man should be old before his time because of a weak stomach, sluggish liver, shaky nerves and flabby muscles. There is no need of it. Dr. Pierce's Golden Medical Discovery cures these things. It brings back youth to the feeble because it brings back keen appetite and good digestion. It tones up the liver, puts oxygen and life into the blood, and solid strength into the flesh and muscles. It contains no alcohol to inebriate or create a morbid appetite or craving for stimulants.

"I have never felt better in my life than I do now," says Charles Hunwick, of Lenox, Macomb Co., Mich., in a remarkable letter to Dr. R. V. Pierce, of Buffalo, N. Y. "I have taken Dr. Pierce's Golden Medical Discovery right along. I can now walk quite well with a cane and hope to throw even that away before long, and as I have had to use crutches for nearly two years, I think I am doing fine. I do not cough now and I can eat and sleep like a school boy. I think I will have to change my mind about 'Patent Medicines,' as I never had much faith in them; but you must know that I have been treated in two hospitals and by three doctors besides, and received no benefit; so I think your medicine is the only medicine for me."

There is nothing in the world for constipation like Dr. Pierce's Pleasant Pellets. They should be taken in conjunction with the "Discovery," whenever any disease is complicated with that dangerous condition. Nothing else that may be offered in their place will accomplish what they will. And their relief is permanent. Write to Dr. Pierce for free advice.

PARSNIP COMPLEXION.

A majority of the ills afflicting people today can be traced to kidney trouble. It prevades all classes of society, in all climates, regardless of age, sex or condition.

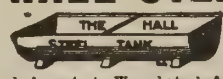
The sallow, colorless-looking people you often meet are afflicted with "kidney complexion." Their kidneys are turning to a parsnip color, so is their complexion. They may suffer from indigestion, bloating, sleeplessness, uric acid, gravel, dropsy, rheumatism, catarrh of the bladder, or irregular heart. You may depend upon it, the cause is weak, unhealthy kidneys.

Women as well as men are made miserable with kidney and bladder trouble and both need the same remedy. Dr. Kilmer's Swamp-Root, the great kidney, liver and bladder remedy, will build up and strengthen weak and unhealthy kidneys, purify the diseased, kidney-poisoned blood, clear the complexion and soon help the sufferer to better health.

The mild and extraordinary effect of Swamp-Root is soon realized. It stands the highest for its wonderful cures of the most distressing cases, such as weak kidneys, catarrh of the bladder, gravel, rheumatism and Bright's Disease, which is the worst form of kidney trouble. It is sold by druggists, in fifty cent and dollar sizes. You may have a sample bottle by mail free, also pamphlet telling all about it. Address Dr. Kilmer & Co., Binghampton, N. Y.

When writing please mention reading this generous offer in HOARD'S DAIRYMAN.

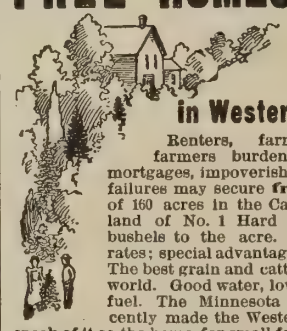
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are the best for supplying water for live stock. Being made of galvanized steel they cannot rust, rot, burst from freezing, fall to pieces from drying out, etc. We make tanks for all purposes. Also troughs for feeding calves and pigs, cooling milk, hauling liquid manure, etc. Write for what you want. We will make it. Special price to *first inquiries* from *new territory*. Circulars and price list mailed free.

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FREE HOMESTEADS



in Western Canada.

Renters, farmers' sons and farmers burdened with taxes, mortgages, impoverished soil and crop failures may secure free homesteads of 160 acres in the Canadian West, the land of No. 1 Hard Wheat, 25 to 35 bushels to the acre. Lowest railroad rates; special advantages to prospectors. The best grain and cattle country in the world. Good water, low taxes, abundant fuel. The Minnesota editors, who recently made the Western Canada trip, speak of it as the home for small farmers. The official report says: "To the small farmer seeking a new home Western Canada offers great inducements. While it seems a long way north the Canadian Pacific Railway line is far south of Edinburgh, the climate is that of Northern Minnesota, and the land raises splendid and sure crops."

For maps and full information apply to Supt. Immigration, Ottawa, Canada or to

T. O. CURRIE,
Canadian Government Agent.
STEVENS POINT, WIS.

160 ACRE FARMS IN WESTERN CANADA FREE

Couldn't Recognize Them....

Calverton, Md., Nov. 14, 1896.

Gents: Wilbur's Food is the best food for hogs that can be used. We are not able to recognize them as the same animals after two weeks' feeding. I also give my unqualified endorsement of it for the milch cows.

Yours, F. B. HENRY.

Forty feeds of the Food and sample of White Rock Hoof Packing for 50 cents, if your dealer doesn't keep them. Booklet free.

Wilbur Stock Food Co.
179 2d Street, Milwaukee, Wis.

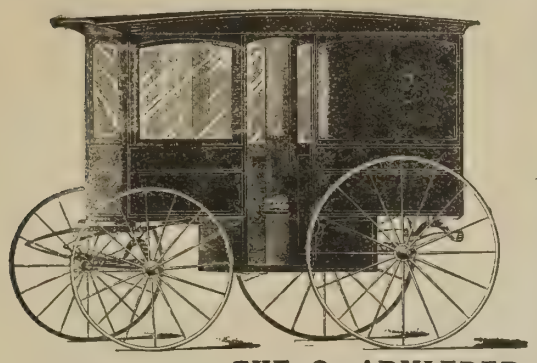
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Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

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A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



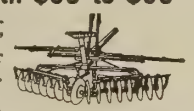
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$36.50 Buys this Handsome Leather Quarter Top Buggy

Heavy 16 oz. cloth or leather trimming, panel spring back, Brussel carpet, storm apron, boot, best second-growth hickory gear, Norway iron clipped, ¾, ⅞ or 1 inch wheels, body 24x52 swell panel, thoroughly screwed, plugged and glued. Neatly painted, striped and varnished. This buggy is made strong and durable and is

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Sent C.O.D. subject to "approval" on receipt of $2, to be returned if not absolutely the best buggy ever sold at such a low price. Send for our Carriage and Implement Catalogue.



12 16 inch. $17.25.

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This Double Buggy Harness, $20, as good as sells for $30.

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ELKHART
Carriage and Harness Manfg. Co.,
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This Extension-Top Surrey with double fenders, complete with side curtains, aprons, lamps, and pole or shafts, for $72.
Just as good as retails for $110.



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Feeds and Feeding

By Prof. W. A. HENRY. Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premum.

or

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Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price $2.

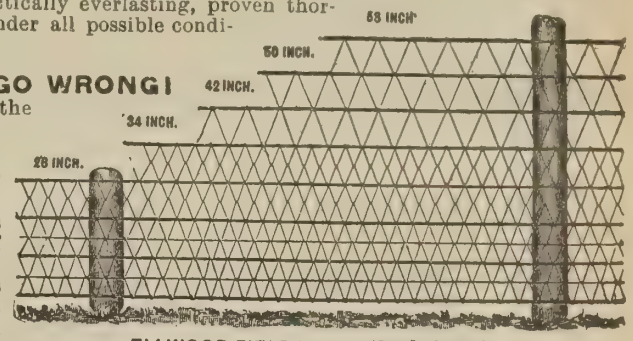
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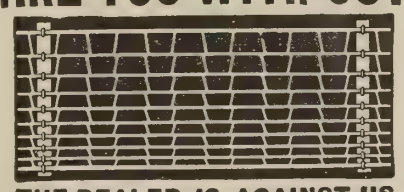
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because we sell you wire fence direct from the factory at wholesale prices.

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direct from us just as cheap as the dealer can. That makes a saving that will amount to something nice. A postal card will bring you circulars and prices.

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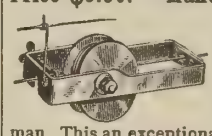
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In various styles, costing from 10 to 20 cents per rod, with the most durable and easiest operated machine on the market. Exclusive sale in counties given a reliable, hustling man This an exceptional opportunity. Write for circulars and full particulars to the **Wilmarth Fence Machine Co., Detroit, Mich.**

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PITTSBURG WOVEN WIRE FENCE.

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We wish to gain this year 200,000 new customers, and hence offer

1	Pkg. 13 Day Radish,	10c
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1	" California Fig Tomato,	20c
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Worth $1.00, for 14 cents,		**$1.00**

Above 10 pkgs. worth $1.00, we will mail you free, together with our great Plant and Seed Catalogue upon receipt of this **notice** & 14c postage. We invite your trade and know when you once try **Salzer's seeds** you will never get along without them. **Union Seed 65c.** and up **a lb. Potatoes at $1.20 a Bbl.** Catalog alone 5c. No. 140

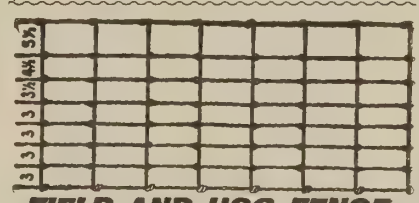
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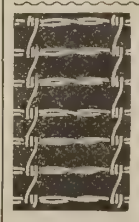
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we told you there was something in **the coil of The Page.** As the mercury rises watch the fence and see about it. Does it sag?

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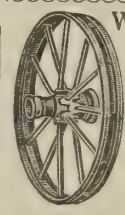
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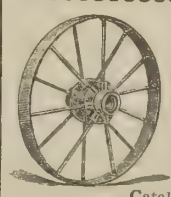
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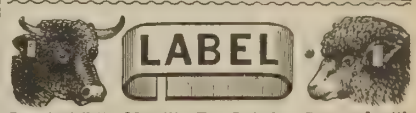
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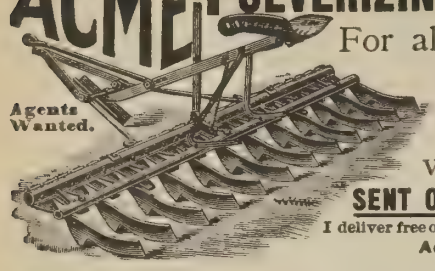
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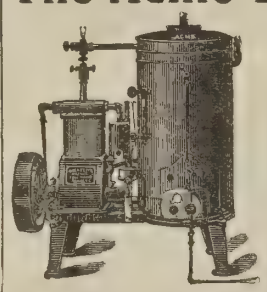
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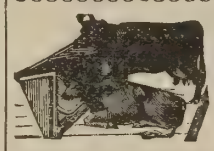
if you are going to build a barn or other out building see to it that your contractor or builder uses the



STANLEY Corrugated Steel Hinges.

They are stronger than any other. They do not bind on the pin no matter how rusty they become, and they are neat and handsome. We make both strap and T hinges, usual sizes. Send for free book on hinges.

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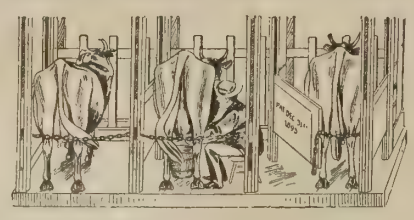
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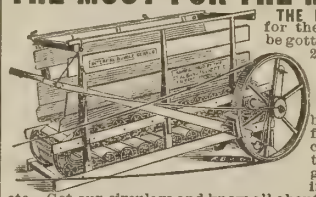
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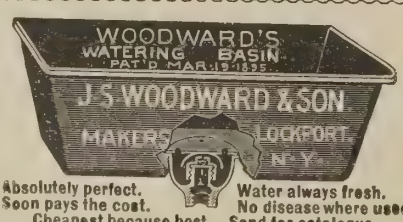
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It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to

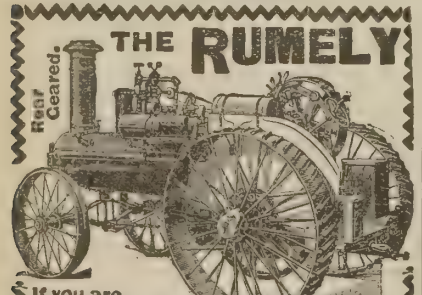
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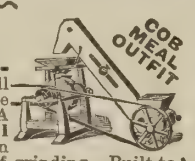
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to do your own **grinding** if you have a mill that does not take the profit for repairs. A **French Buhr Mill** is the only mill to use on the farm for all kinds of grinding. Built to last. Do fine work. Large capacity. Less power. Easiest to take care of. Better get one. It will pay. Send for new book on Mills and sample meal.

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Cotton Seed Meal carries a red tag showing guaranteed analysis to be not less than

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., APRIL 21, 1899. NUMBER 10

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WE SELL DIRECT TO THE FARMER.



Hardened Steel Landside Double Board Plow, hard as glass, 16-in. $9.
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100 other articles.
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Hard Steel CastorCoulter with Plow, $1.50 extra.
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Only Plow factory in the United States selling direct to farmer.

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Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES for Dairying Given to Users of CHR. HANSEN'S LABORATORY

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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

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Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

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The bowl alone revolves.
It spins on air.
It is a hollow bowl.
It is a simple bowl.
It weighs but 30 pounds.
It skims two tons per hour from .05 to nothing.



This is the first Tubular ever sold and has been running over one year and not a cent for repairs.

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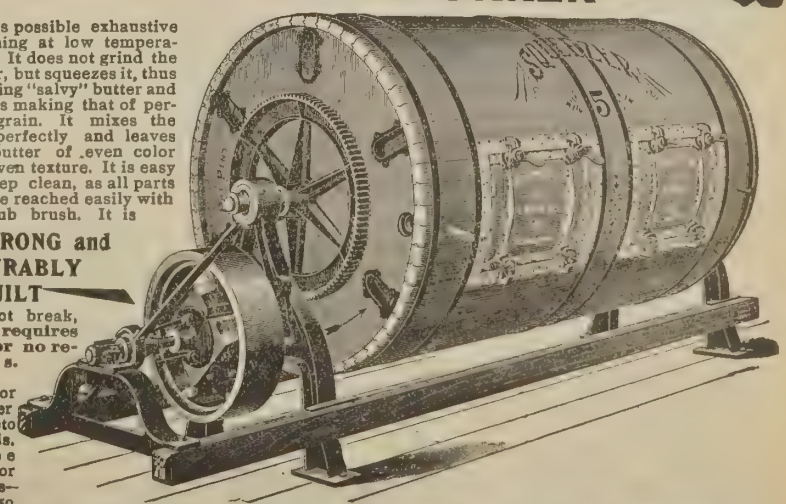
The "SQUEEZER"

COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

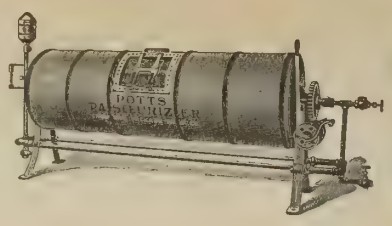
will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



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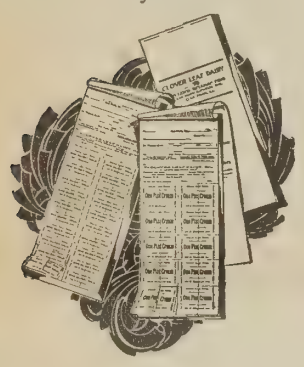


We will not attempt to predict how general this process will become. We do know that our

Potts Pasteurizer

IS THE MOST SATISFACTORY MACHINE FOR THIS PURPOSE ON THE MARKET.

We have made a number of improvements in it since last season. Cream will rise on milk pasteurized in this machine as readily as when not put through the process. Write us for full information with prices.



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Our latest Milk Dealers' Price Current contains new ideas and new apparatus. May we send you one?

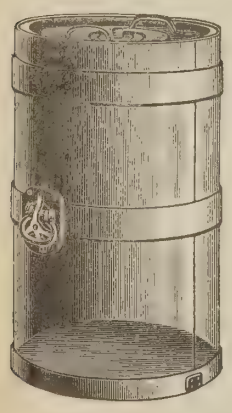
Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Submilate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

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We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

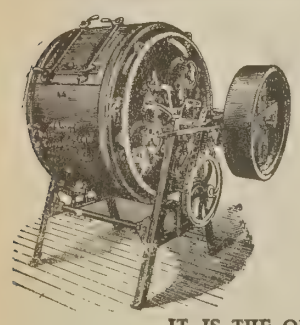
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OPEN TOP UNION and EMPIRE STATE Factory Cans.

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,

Sole Manufacturers. - - CATTARAUGUS, N. Y



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

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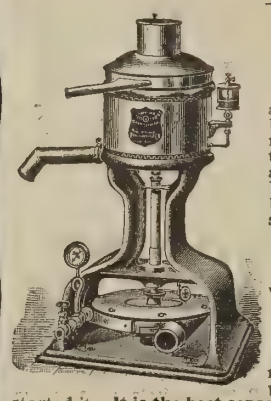
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U. S. Triple Current Separator

PROVES ITS SUPERIORITY EVERYWHERE.

AT THE STATE EXPERIMENT STATIONS.
Read a Few 1899 Reports.

Massachusetts,	average of	19	tests,	January 7th to 31st,	.033 of 1%
Ohio,	"	19	"	10th to 21st,	.034 of 1%
Vermont,	"	18	"	9th to Feb. 3d,	.038 of 1%
Wisconsin,	"	17	"	2d to 19th	.03 of 1%
An average from 73 tests of skim milk of					.034 of 1%



IN THE FACTORY.
The U. S. Takes the Cake.

POYNETTE, WIS., Jan. 20th, 1899.

Have been running U. S. Separators since 1892, and can cheerfully say that the new No. 1 Improved U. S. Separator takes the cake. When the skim milk is tested it shows only a trace of fat. I won the sweepstakes and three other first prizes, amounting in value altogether to $115.00, at the 1898 Wisconsin State Dairymen's Association, and all because my No. 1 U. S. Separator makes such smooth, perfect cream.

R. M. BUSSARD, Prop. Bussard's Creamery.

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Very Durable, Very Easy to Operate, Never Out of Order.

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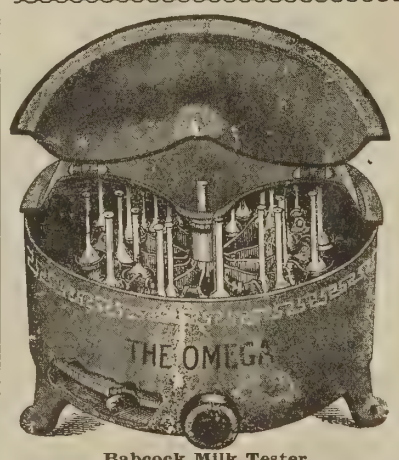
is found to be worth a cent a pound more than butter salted with any other salt." It's not can you afford to use Diamond Crystal Salt, but can you afford not to use it? Send for our book *"The Salt that's all Salt."*

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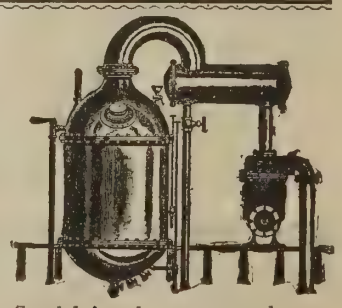
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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NOW IS THE TIME TO PREPARE.

There is no denying that a great many dairy farmers will not buy bran, oil meal, cotton seed meal or gluten meal, as long as the prices remain as high as they are at present. What makes the prices high is the fact that there are enough other farmers, both in this and foreign countries, who will buy these protein feeds. But that does not help out the first class. They grow an abundance of corn, oats and timothy hay, but those are carbonaceous foods. What they lack is the very protein that is found in the by-products they must purchase. Even if they are convinced that it would pay to sell some of their corn and oats, and buy bran, oil meal, cotton seed meal or gluten, the fact remains that they are very loth to exchange their grain at low prices for the other products at high prices.

Hoard's Dairyman, a number of years ago, started the cry about growing the Canada field peas, as a substitute for those costly protein feeds one must buy. We have never since seen occasion to regret our work in that particular.

Now is the time, however, to act on this matter, if we are to sow peas. Select a high, dry piece of ground, one that can be worked the earliest possible in the spring. It should also be of good fertility, and stubble or last year's corn ground is preferred to sod. As soon as practicable, either plow or disk it thoroughly; harrow once and sow on two bushels of the small Canada field peas. Then plow them under *not less than four inches deep*. Harrow once, and let lie for about a week; then sow a bushel and a half of the White Schonen oats, or some other of the stiff strawed variety of oats, and harrow in well. By sowing early, we get ahead of the hot, dry weather in July, and the peas fruit more abundantly. If they are wanted for hay, cut just as the peas have passed well out of the boiling stage. Cure in the cock with hay caps.

If the grain is wanted, be sure to cut rather green, before the pods will open and shell. It is better to cut too early than too late. Thresh in the loose straw and grind the oats and peas together. This constitutes a rather heavy feed, and each farmer should experiment on his cows to know just how much each individual can take safely and respond at the pail. The oat and pea straw is nearly as valuable as clover hay, and it will be found that cows will relish it well if it is kept bright and sweet.

In this way the farmer can provide himself with an abundance of desirable protein food.

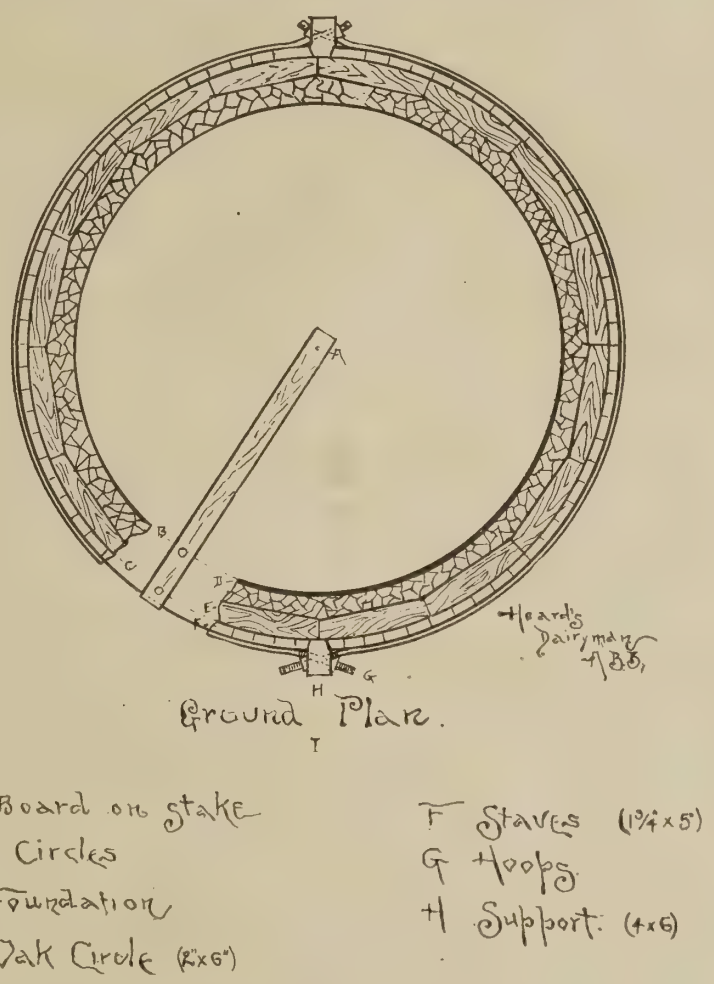
To help in the same direction, he should grow an abundance of clover, for clover and alfalfa are among the richest of the protein coarse fodders.

By all means try the experiment of sowing a patch of alfalfa this spring, if it be no more than an acre. Look into the matter and study it well, for it will pay any milk producer to give it study and patient experiment.

There are altogether too many farmers succeeding with alfalfa from Massachusetts to Oregon, to dismiss it with a half thought, and it is one of the finest milk feeds in the world.

BUILDING A STAVE SILO.

Many of our new subscribers are asking for information as to the methods and material for building a stave silo. For their benefit we reproduce cuts and description of the Purdue University Silo.



Attention is specially called to the use of wire fencing for an elastic hoop, as described by John Gould, in the last volume of the Dairyman. This was not used in the university silo, but as the suggestion seems to be exceedingly valuable, as a method of keeping the silo staves in place when the silo is empty, we include it in the description.

Laying Out.—In the center of the silo, a stake was driven and sawed off at the height the foundation was wanted—in this instance, three inches above the ground.

On top of the stake, one end of a board was held by a nail. Five feet, ten inches from the nail a hole was bored, and 14 inches farther a second one. With a sharp stick two circles b and c were marked on the ground. The space between was dug out 2 feet deep for the foundation.

Foundation.—Small stones were used for the grouting underground; a layer of them was placed in the bottom of the ditch, then mortar made of one part lime, two parts Louisville cement and nine parts fine gravel was poured in and distributed with a hoe; after that a second layer of stones put in place, care being taken to have them rest firmly in place. This alternating process continued till level with the ground. For the top few inches below the ground Portland cement and no lime was used. Above ground, which was sloping, the wall was three inches high on one side, and 18 inches on the lower side. Large stones laid (in Portland cement and sand one to three) by a mason completed the foundation (d). On it an oak circle (e) (of 2 inches by 6 inches) was bedded in cement. It was made of one inch stuff cut in segments of a circle. These sections, breaking joints, were nailed together, giving the desired thickness.

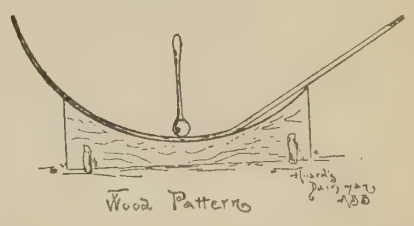
Staves—(f) are white pine, dressed on two sides; and edges beveled 1-16 inch, leaving the finished stave a scant 1¾ inch by 5 inches. Twelve and 16 foot pieces make the desired height of 28 feet, breaking joints when put up. In the end of the stave at joint is a galvanized iron strip 2x5 inches. Notches for these sawed at the mill.

Hoops.—(g) Ten in number, of ⅝ round iron, with ¾ inch ends threaded 8 inches, threaded ¾ inch lugs welded on to the ⅝ rods. Cost $1.00 per hoop. Each hoop in two pieces to facilitate tightening. As a support for the hoops (h) when not tight, a 4x6 was substituted for a stave on opposite sides of the silo. Through the projecting portion holes are bored for the ends of the hoops, making both a support and tightener. The hoops should have the same curve as the foundation. It may be secured by a plank sawed to the proper curve, lay on hoop and bend with a maul, used like an old churn dasher, straight up and down.

In place of solid iron hoops, it has been suggested to use a band of 52-inch wire fencing cut of sufficient length, so that each end is wrapped about a 4x4 inch oak scantling, and that when put round the silo the end pieces will come within about ten inches of each other and are tied together with two one-inch bolts with double burrs. The "pull" of this band is simply immense, and the coil of the wire takes up all slack, when the silo shrinks when empty; and expands when the staves swell, so pull all of the time. The bands are placed far enough apart, so that three man-holes are sawed in between the bands.

Erection—(f) The 12 foot 4x6 first put in place, plumbed and braced securely by board nailed to a stake. The braces so placed as to leave one side clear to work on. The top and bottom hoops put in place and the center supported temporarily by a stave. After tarring the ends and edges of the staves, they are placed in position and held by a nail driven just under or over the hoop and bent around it. This hoop was firm enough to lean a ladder against; 12s and 16s were put up alternately, till the space was full, then that side drawn up. Similarily the other half was put up.

Pieces resting on the 12s and between the 16s made a scaffolding on which to work. The 16 feet 4x6 was placed against the silo with the upper end resting between the same staves as the twelve feet. A hoop was put in next the top hole, then two men at each timber raised them, hoop and all, up to their place. A brace to the barn, with one large nail at each end, allowed the pieces to be raised without tipping over. The bottom hoop for the top timber was now put in, but not drawn tight. The staves were now put



up, a 12 foot on a 16 and a 16 on a 12 and fastened to the upper hoop same as the lower ends, using a ladder leaned against the hoop and standing on the scaffold. It was found more convenient to put the strip of iron in the bottom of the top stave and then guide it to the place in the top of the bottom stave. It would be less trouble to build a scaffolding inside the silo, which would not have to be moved to make room for the upper stave.

When putting in these upper staves, the top hoop of the bottom section must not be tight or the upper staves cannot be crowded into place.

Tightening.—After all the staves were in place and the four hoops drawn tight enough to hold them securely, the remaining hoops were put on. With one man on a ladder inside to drive back any stave which was too far in, another one tightened up the hoops. Before drawing too tight the hoops should be moved up or down so as to be equally distant on all sides and held by large staples.

Doors.—Four are cut by sawing four staves at an angle of 45 degrees, long side of stave inside. When the place was reached where rows of doors should come, one stave was sawed nearly through in the proper place for each door, and a narrow board tacked on to prevent breaking in handling. When complete, remove board, and saw as many staves as desired for width of door.

Roof.—For the present, none will be put on.

Cost.—

Staves	$70.70
4×6 bored for hoop support	5.20
Circle for sill	3.10
Hoops (10)	10.00
Lime and cement	5.00
Mason's time	2.80
Staples and nails	.30
Total	$97.10

Returns from a Hand Separator.

Ed. Hoard's Dairyman,—I notice in your issue of March 17th, R.M. G., of Iowa, asking about hand separators. I have a De Laval Baby, No. 2, and here it is in a nut shell on herd of 10 cows:

Milk from 10 cows one year 70,000 lbs.	
Cost of hauling when hired at 10c per cwt.	$ 70.00
Cost of separating at creamery	40.00
Total	$110.00
Cost of separator	125.00
Only lacking	$ 15.00

Of paying for machine in one year, and so far as I can see the machine is good as ever.

If I had to haul the milk myself, the figures would be as follows:

Cost of hired man at $15 per month for 10 months	$150.00
Cost of separating	40.00
Total	$190.00
Cost of separator	125.00
Balance in favor of hand separator	$65.00

Then there is hired man's board which I have not counted; and again, I have my milk always warm and sweet, when feeding time comes.

Taking everything into consideration I think it foolishness for any creamery patron living more than one mile from creamery, to do without a hand separator. M. L. D

Edgerton, Kansas.

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HAULING MILK TO THE FACTORY AND CREAMERY.

One of the most expensive parts of the creamery business is that of getting the milk to the central manufacturing point. Everyone recognizes its great expense, but in that, as in many other things, we are bound by custom. One of the methods taken to reduce this expense was related in a farm institute by Mr. M. A. Brown, the well known creameryman, of Rockford, Illinois. He stated that on one of his milk routes, eight farmers united in taking turns, in carrying the milk to the creamery. They kept a special rack, for hauling, with springs, which saved the jamming of the cans. This rack was left every night at the farm of the patron farthest from the creamery. Whosoever turn it was to carry the milk drove to this farm with his own rig. By this system it cost five cents per 100 pounds to deliver the milk.

ALFALFA BUTTER.

The history of dairying in the United States, if it could be written, would show a constant breaking down of false standards, false hopes, false notions of what is the truth. Only a few years ago, within easy memory, it was thought there was a dairy belt in this country, where for all time pretty much all of the food, butter and cheese would be made.

Among other false notions, was the one that alfalfa would not make good butter. On that point our Pacific contemporary, the *Western Creamery*, says:

"Until 1897 it was commonly believed that alfalfa would not make good butter, but when ten California tubs of butter were sent to the National exhibit, at Owatonna, Minnesota, and alfalfa secured the highest score of the lot, it dawned upon our people that they might be mistaken. When again, at Topeka, Kansas, the alfalfa butter secured the highest score of the four tubs sent from California, an impression was made upon the trade, and with the intrinsic merit of such goods to sustain the reputation there gained, alfalfa butter has since stood in the first place in our markets."

KEEP A RECORD.

A New York farmer who has kept a record of the product of his dairy for three years past, weighing each day's milk and testing it twice a month or oftener, reports that last year the product of thirteen grade Jersey cows was 4,557 pounds of butter, which, at 20 cents a pound, gave an income of $911.40, or a fraction over $70 per cow. The best cow, 8 years old, produced 474 pounds of butter, worth $94 80. Three others produced over 400 pounds each, three others over 375 pounds, four between 300 and 350 pounds each, one 269 pounds and one 2-year-old, only 127 pounds. The ten best averaged 376 pounds each, or over $75 worth per cow. One 2-year-old made a record of 377 pounds, and one 3-year-old made 414 pounds. These are good heifers to keep, but if the two that produced less than 275 pounds do not soon get into the hands of the butcher or some one else, we shall think it strange.

By virtue of keeping a record on those cows, the owner had the chance to discriminate, intelligently, when he disposed of any of his cows. A great many farmers believe that they know well enough which are the poor cows in their herd, without going to the trouble of keeping a record which, after all, is very little trouble.

A few years ago the writer had occasion to purchase a cow. He applied to a thriving dairyman in this vicinity and was offered two cows, one a three-year-old grade Jersey for $25, and the other a large grade Short-horn for $60.

We looked over the two carefully, and asked the farmer what was the reason of his low price on the Jersey heifer. He replied, "She is all right, but she does not give milk enough." "How much does she give?" "O about 12 quarts a day." "Have you ever tested the milk?" "No! I can't fool away my time testing cows." "How much does the big Short-horn give?" "Well, she will fill a ten quart pail twice a day, and I tell you she's a good one."

We concluded to buy the heifer, much to the disgust of the farmer, who said he "thought we were a better judge of cows than that come to."

We found that it took only 15 pounds of the little cow's milk to make a pound of butter. A test of the big cow showed that it required 33 pounds to make a pound of butter. When we finally convinced the farmer that he had sold the most profitable cow in the herd for $25, *all because* he "couldn't fool away his time testing cows", he said he had received new light on the subject. His subsequent history showed that from that time he put in practice better methods of dairy management. It will pay to do it.

CAN WE IMAGINE IT?

The wonderful advance in dairy methods, in creamery and cheese factory machinery, which have come in twenty years, leaves us with but imperfect recollection of how things were managed before that time.

In 1878 at the International Dairy Fair held in New York City, the first public exhibition of a centrifugal milk separator (the Danish-Weston) was made. That marks the beginning of the era of a most wonderful progress in the mechanics of dairying. Mr. Gilbert W. Lathan, in his address before the National Butter Makers' Convention, asks this: "Can we for a moment imagine ourselves in an age where the separator is unknown, and the 732,000 cows of neighboring Iowa have their annual milk product of two billion, two hundred million pounds of milk set in shallow or deep pans, and make 90,000,000 pounds of butter, instead of 100,000,000 pounds."

This march of improvement has affected every part of this great dairy system, much more than it has the man on the farm. Yet he is the "man behind the gun" after all. Every step in the handling of milk, has been cheapened and rendered more effective, yet there are thousands of farmers who are producing milk just as expensively as ever. This should not be. The farmer should be just as keenly alive to the *economy* of better ideas and methods, as any man in the line.

He must do his part in the march of progress, or he will not get his share of the reward.

A clear idea of what we mean can be obtained in every creamery. The creamery receives so much per pound for the butter made, whether from the patron who makes a profit on his cows, or the one who makes a loss.

The one who keeps cows at a loss is usually a man who don't believe in improved cows or improved ideas. It is said in Holy Writ, "For he that hath, to him shall be given; and he that hath not, from him shall be taken even that which he hath."

The first man is one who improves on his opportunities; who is teachable; who gathers unto himself wisdom (knowledge), and by use of wisdom gathers riches and comfort; "to him shall be given." That means profit.

The second man is one who refuses to absorb knowledge; refuses to believe in his own progress; refuses to make of himself, his dairy and his farm, a part of the dairy progress, that is going on all around him. "From him shall be taken (in the necessary cost of handling his milk) even that which he hath. That means loss.

Who is to blame? Is it the creamery or cheese factory? No. It is the man who thinks he cannot afford to know more and do better.

The Farm Separator.

ED. HOARD'S DAIRYMAN:—Thinking that my experience with a hand separator might be of some use to R. M. G. I take pleasure in giving it.

We tried selling milk, and found it unprofitable. The milk brought back was unfit to feed anything. We found we could make more money by selling butter than cream. The item of buttermilk was an object.

We have a rather poor butter market here, usually. We generally sell the butter fresh from the churn. Taking these things into consideration, together with the fact that we had no ice, and pumped water by hand, would have a tendency to make the results from a separator show up better than if we had had better conveniences for handling milk.

The use of the separator since May, shows that they will pay for themselves in a number of ways, inside of a year's time. They will increase the yield of cream or butter from 15 to 25%, and in some cases even more.

The advantage of having the milk warm and sweet, without cooling, and then heating, is worth something to the calves.

If the milk and cream are handled properly, a separator insures clean butter. I think it much easier to clean a separator, if not too complicated, then to wash the necessary cans connected with handling milk any other way.

A separator should be cleaned after each run, to insure perfect work and a clean product. A few people imagine that they clean a separator by running hot water through it. My experience has been somewhat limited, regarding different machines, although I have discovered that the best way to find out which machine skims the cleanest, is to skim carefully, an equal number of pounds of milk in each machine, ripen the cream and churn. The scales will tell the story.

Some of the newer and cheaper machines do the work as well, and will last as long as the old and high priced ones. Easy running qualities, together with extreme simplicity, should guide a man to considerable extent. That the cream from one separator is possessed of greater churnability, than that from another, is a myth. A machine that will not do satisfactory work, under unfavorable conditions, is to be avoided. E C. H

Harvard Co., Iowa

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series, XI.

GLOSSARY.

Collodion, a mixture of gun cotton and ether that dries quickly in a thin transparent film.

Peptone, a soluble nitrogenous product that is readily assimilated by living animals and some vegetable cells.

CONTAGIOUS PLEURO-PNEUMONIA.

The interest in this disease in the United States is not so great as some years ago, because it has been practically exterminated by the vigorous efforts of the National Department of Agriculture. Pleuro-pneumonia is widely spread over the European continent, and was introduced into this country from Europe about the middle of the present century. Strenuous endeavors were made at various times by several of the eastern states to prevent its spread, but so long as no concerted action was taken, all their efforts in checking its progress were unsuccessful. The attitude of some of the European governments in excluding cattle from American sources because of the existence of the disease in the United States, brought the subject into such prominence that the government authorities were impelled to inaugurate severe measures to wipe out the disease, and thus protect our exports. As a result, this country is now free from the disease, and so long as proper care is observed in the importation of cattle from infected regions, there will probably be no trouble in the future.

One of the difficulties that attended the eradication of the disease was the fact that the germ causing it was unknown, and hence, the life history of the germ, how it acted outside of the body of the animal, and the manner in which the contagion was contracted were not perfectly understood. For years, strenuous endeavors have been made by numerous investigators to find the organism that was the cause of the contagion. The germ theory of disease has now been so thoroughly established in connection with most diseases of this class that the presumption is always in favor of the view that a communicable disease of this character is caused by some kind of a parasite. In a considerable number of maladies the most persistent and exhaustive studies have failed to reveal the causal germ. In some cases it is probably because the methods of investigation have not been directed in the proper channel; in others, because the appliances are insufficient. In the case of pleuro-pneumonia, the failure to find the specific germ was due to the latter fact, for within the past year it has been discovered. This important advance in our knowledge of animal diseases was made by Nocard, the director of the French National Veterinary College, at Alfort.

He had noted the fact that the disease germ evidently existed in the clear yellow exudate that was found in the lungs of an affected animal, but no amount of research rewarded his efforts to detect the specific microbe. At last he hit upon a method that proved successful. Taking small capsules of collodion filled with beef broth, he inoculated some with the virulent liquid from the lungs. These were then sealed, and introduced into the body cavity of rabbits and cows. While these porous sacks permitted the passage of the body fluids in and out, they obstructed the passage of either the animal cells or the supposed organism of the disease. The removal of these capsules after a while, showed that the fluids had become more albuminous and cloudy. A microscopical examination revealed in them highly refractive motile bodies, so small that their form could not be determined, even after they were stained.

These structures he later proved to be the causal organism, which had been able to grow in the animal body, although isolated from the cells of the blood by the collodion membrane. Uninoculated sacks filled with beef broth, and inoculated sacks heated to a degree sufficient to kill the germ failed to show any of these refractive granules when incubated in body of animal. This germ possesses the unique distinction of being the smallest one yet discovered. Indeed, the perfection of our microscopical instruments

DON'T BE AFRAID about this Dairy Business being overdone. There are less cows in proportion to the number of inhabitants in these United States than ever before. There are two things it is safe to borrow money for to purchase, A GOOD COW and A YEAR'S SUBSCRIPTION TO HOARD'S DAIRYMAN. Thousands of witnesses will so testify. And think of it, "O, ye of little faith!" less than 2 cents a week, or the price of a postage stamp. The price of a cheap cigar will send you the DAIRYMAN for two weeks and a half. It will give you new ideas; new and better methods. It will show you where you are losing money, yea, many times the cost of the paper. Subscribe for it. Read it. Digest it. Follow its suggestions as far as you can. It stands in the front of all other journals in the land on this question. You cannot afford to be without it. Think of it.

at the presen time does not permit an accurate determination of its form and size. It possesses another peculiarity—the difficulty with which it can be cultivated on artificial media. Nocard has finally succeeded in finding a substance on which it will grow (peptone and blood serum from rabbits.)

This long and arduous piece of scientific research has at last given us the connecting link between the causal organism and the disease as it exists in cattle. It is quite probable that this step will prove to be of more than merely scientific interest, as it will afford a solid and substantial basis for future investigation. The next advance will doubtless be the immunization of animals with the products of the disease germ. When this is accomplished, the disease can be more easily prevented. This course is more than probable, as it is already recognized that under natural conditions, animals sometimes acquire an immunity from the original attack.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc, and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

WHAT TO GROW FOR MILCH COWS IN KENTUCKY?

What is best to sow or plant with which to feed 8 head of Jersey cows next winter? I am located in about the center of the blue grass region of Kentucky. P. H. T.

Donerail, Ky.

First of all, corn, especially for silage. It makes no difference whether one is in Kentucky, Georgia or Wisconsin, there is nothing that can be produced from the soil better adapted for feeding to milch cows, as a part of their daily allowance in winter, and to supplement the short pastures of summer, than corn silage. In Wisconsin we advocate growing clover to feed with silage. In Kentucky we can also advocate clover, and in connection with that, cow peas to be cured as hay.

CREAM FOR MARKET.

I keep eight cows and take pretty good care of them. Have been making butter, but in the summer it gets pretty low in price, sometimes. I put it up in one pound prints.

I have ordered a U. S. separator and would like to sell cream in the summer, if I can. Now, in selling cream for ice-cream is it valued by the amount of butter fat in the cream, or not?

What per cent of fat should good cream contain, and price? How should I handle it. I live five miles from town and would have to haul it in wagon. W. S.

Fayette Co., Pa.

The price you can get for your cream will depend largely upon your market. It may bring anywhere from 20 to 40 cents, per quart retail, for 20% cream. Perhaps as good a plan as any is that proposed by the Wisconsin Experiment Station, of charging 1 cent for each per cent of fat present in the cream. This would do for the average city trade, but you may have to modify it to suit your conditions.

Separate your cream, cool well, and for family trade, put up in pint and half pint bottles. Keep it on ice until ready to deliver. Keep bottles and surroundings perfectly clean and sweet, and remember that cream will take up a taint with great readiness. Twenty per cent fat is a good average to begin on, but you may find that part of your trade will want a richer article.

A MICHIGAN RATION.

I have timothy hay at $9 per ton, corn meal at $15 per ton, wheat bran at $17, oil meal from Chicago at $1.35 per cwt. I can get gluten feed at $17.50, but have not used any. Would like to know which is the cheaper feed to use, corn meal at $15, or gluten feed at $17.50, or should both be fed?

My cows give from 8 pounds to 16 pounds of milk at each milking. They are mostly grade Jerseys, and I want to feed for cream.

Grandville, Mich. F. B. R.

The relative value of feeds depends largely, if not altogether, upon the uses to be made of them, and the results desired. For the purpose of simply maintaining the animal economy, that is, to supply the food of support, corn meal is much more valuable than bran or gluten feed, or almost any other grain that can be mentioned. Corn meal is also one of the best feeds to supplement alfalfa hay. On the other hand, if one has timothy hay for roughage, he can hardly afford to use corn meal, even though it were offered him as a gift. Timothy hay furnishes an excess of those elements which predominate in corn meal. It is low in protein and high in carbohydrates and fat. Therefore, one can much better afford to pay $3 or $4 a ton more for bran or gluten feed than for corn meal. As will be seen in the following formula, gluten feed is much richer in protein than bran, and hence if no regard was to be given to other considerations, it could be used to the entire exclusion of bran, but experience seems to have established the conclusion that it is not prudent to rely exclusively upon any one kind of feed, and that there is a limit with many feeds beyond which it is not safe to go. With cotton seed meal this limit is two to three pounds, with gluten meal it is three to four pounds, with gluten feed perhaps it would be five to six pounds, with malt sprouts four to six pounds. There are various reasons for these limitations; some have regard to quality of resulting product, some to the health of the cow and others to the maintenance of her appetite.

A cow will relish certain feeds, if given in limited quantities, but soon tires of them if the quantity is much increased. This is particularly true of malt sprouts, and measurably so of gluten feed. The secret of money making with the dairy cow is to stimulate her appetite in all legitimate ways, getting her to consume the largest amount of feed consistent with health. The dairyman's profit comes exclusively from the amount of feed his cow eats over and above that required for her daily maintenance. It stands to reason that cows giving 16 pounds milk a day, require less feed than those giving 32 pounds per day. It is, therefore, impracticable to submit a single formula, with the idea that it will be equally well adapted to all the cows in the herd. What we aim to do, is to suggest what will probably prove a fair average, giving some cows more, and some cows less, according to the varying ability to make profitable use of it. To the cow that gives 30 pounds of milk a day, increase the allowance of grain, to the cow that gives only 16 pounds a day, reduce the allowance of grain. Used in this way the following formula ought to produce satisfactory returns:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
18 lbs. timothy hay...	15.62	.50	7.90	25
5 lbs. gluten feed.....	4.61	1.02	2.42	.25
5 lbs. bran.....	4.41	.63	1.93	.15
Totals.....	24.64	2.15	12.25	.65

BEVELING STAVES FOR SILO, ETC.

1. Would like to know why you recommend not to bevel or dowel a stave silo.

2. How should the staves be placed in the foundation?

3. If the inside is tarred or whitewashed, should the outside be painted? R.

Mich.

1. The only reason we can give for the advice above referred to, lies in the fact that scores of our readers have reported to us that they have found beveling and doweling of staves entirely unnecessary. We have had no personal experience with stave silos, but we can readily see that the bringing together of the two inner corners of adjoining staves, with sufficient tension on the hoops, would result in making a joint absolutely air and water proof, and that is all that is required in the construction of silos. It is of course quite possible to accomplish this when the staves are beveled, and we can readily understand how dowel pins would help to keep the staves in place. There is, therefore, no particular objection to beveling the edges or inserting dowel pins, but if credit is to be given to the testimony which reaches us, these things are not absolutely necessary.

2. So many inquiries are coming to us, as well from old subscribers as from new, we have deemed it expedient to republish directions for building stave silos, and the same will be found in another part of this issue.

3. The question of painting silos is largely a matter of taste with each individual. Of course ordinary paint should not be put in the inside, and we have some doubt as to whether it would be expedient to use coal tar or any other surfacing on the inside of the stave silo. In any event the lumber should be thoroughly seasoned, through and through, before paint of any kind is applied to its surface.

TESTING MILK AND CREAM —INSURANCE.—KEEPING MILK OVER SUNDAY.

Will you please answer these questions:

1st. How to give a fair test where some of the milk is separated at home and some at the factory.

2nd. Where can we get a reliable insurance on the building and machinery at a reasonable rate? We are now giving 3% for one year.

3rd. How to manage the milk if we do not run Sundays in hot weather.

Brown Co., Kan. N. P. E.

1st. If you have the necessary apparatus you can test both the cream and milk, and credit the patron with exactly the amount of fat furnished. It must be remembered, however, that cream, from its greater per cent of fat, requires more care in testing, or costly mistakes are liable to be made. The proper apparatus and method must be used, and these being provided, there will be no difficulty in the testing and division of the proceeds.

2nd. Apply to the Dairy Mutual Insurance Co., Lisbon, Iowa.

3d. If you have plenty of cold water (below 50°) and a double tank arranged so as to allow the water to flow constantly around the milk, you can keep it without difficulty. The milk must be well stirred till the whole body is down to 50° before it is allowed to stand. Keep it well covered, so that the surface of the milk will not get warm from being exposed to the air, or that part will sour. If you have not a good supply of cold water, it would be best to make provision for pasteurizing the cream, at least. The pasteurzing of a large body of milk without special apparatus, is slow and expensive, and should not be undertaken without the proper apparatus.

A CONNECTICUT RATION.

Is a properly balanced ration consisting of mixed hay, bran, fine middlings and cotton seed meal all right and economical, or would better results be obtained by using some hominy chop or corn meal? Cows are part fresh and part milked 5 to 6 months.

Chop and middlings cost 95 cents per 100 pounds, bran 85 cents, cotton seed meal $1.15, old process linseed meal $1.40. J. E. P.

Moosup, Conn.

There seems to be an impression that middlings are a far better feed for milch cows than bran, and there are any number of dairymen who are convinced that such is the fact. When one talks with them, they pretend to fall back upon their experience, but cross examination proves that they have never weighed the feed given their cows, and therefore, never made intelligent conclusions as to the relative value of these feeds, pound for pound. They are accustomed to go to the bin of feed, take the measure, and because bran is light and bulky they think a measurefull of it a large allowance. If the bin contains middlings, they fill the measure half full, and looking at it conclude that it is "stingy" to put so little feed before a good cow, and then they dip a second time. The result is that when feeding middlings, they actually feed from 50 to 100 per cent more in weight than when feeding bran, and under such circumstances it is not at all surprising that they get better results.

The best answer we can make to the above inquiry, is to submit the following formula, which shows the selections we would make, having regard to the analyses and prices of the feeds named:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay....	17.16	.96	7.92	.32
6 lbs. bran.....	5.29	.75	2.32	.18
1 lb. cotton seed meal	.92	.37	.17	.09
1 lb. linseed meal...	.91	.29	.33	.07
Total.....	24.28	2.37	10.74	.66

A MICHIGAN RATION.

Clover hay is out of the question here, timothy being the only kind to be had for love or money; am out of corn stover; have some corn ensilage left; am milking eleven grade Jerseys. What can I feed to keep up

flow of milk? Bran $16, oil meal $24, corn meal $16; have plenty of rye and wheat straw, but don't count on that, though it is bright and nice. Do not know what gluten meal and gluten feed can be bought for. Can I make up a good ration of the above named articles? And at what price can I afford to buy the last named feeds?

Hudsonville, Mich. W. W.

We give below two formulas, either one of which makes a fairly good minimum ration for cows not too far advanced in lactation. A comparison of them will indicate which feeds will be most profitable to purchase:

NO. 1.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. timothy hay	8.68	.28	4.34	.14
2 lbs. oil meal	1.82	.59	.65	.14
2 lbs. corn meal	1.78	.16	1.33	.09
8 lbs. bran	7.05	1.09	3.09	.24
Totals	24 6	2.29	12.21	.75

NO. 2.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	3.28	.26	2.80	.14
10 lbs. timothy hay	8.68	.28	4.34	.14
2 lbs. oil meal	1.82	.59	.65	.14
2 lbs. corn meal	1 78	16	1.33	.09
3 lbs. bran	2.64	.38	1.16	.24
3 lbs. gluten feed	2.77	.61	2.45	.15
Totals	22.87	2.28	11.73	.75

In the above, 3 lbs. gluten feed takes the place of 5 lbs. bran.

CANADA PEAS COMPARED WITH COW PEAS.

Do you think the Canada pea is just as valuable, if cured, for milk cows, as the so-called cow peas? To what soil are they best adapted? Could they be raised successfully on marsh land? Could one expect to get a good crop, if cow peas are sown about June 15th to the first of July, in this region??

Watertown, Wis. M. R.

We would not venture to sow any considerable acreage of cow peas in Wisconsin, at present. As we have said before, doubtless some early maturing variety will be produced which can be successfully grown in this latitude, but at present it would be extra hazardous to put one's main reliance upon them.

Cow pea hay carries 9.3% digestible protein, while that of Canada peas has only 7.6%. The former is, therefore, the more valuable for milch cows. A mixture of Canada peas and oats has proved a very successful and profitable crop in Wisconsin. Sow the peas as early as the land can be worked. Plow them under 4 inches deep and then in a week or ten days sow oats over the land broadcast, and harrow them in. Use from 1½ to 2 bushels of peas per acre for seed, and the same quantity of oats. Harvest and cure for hay before the peas are ripe enough to shell.

We think it very doubtful whether the Canada pea would do well on marsh land, partly because of the difficulty of getting in the seed early enough, and partly because this ground is not drouth resisting. The cow pea would probably do better on such ground than the Canada pea. We should be glad to have this inquirer try both, and report the results.

BALANCED SILAGE.

A Connecticut reader writes as follows: "A prominent seedsman advertises the soy bean in connection with silage as making a complete ration without grain. Is it practicable?"

We think the combination of soy beans with corn would make excellent silage, but not by any means a complete ration. Soy bean silage contains 2.7% digestible protein; corn silage 1.3% digestible protein. If these were combined in equal quantities the mixture would contain 2% digestible protein. In order therefore, to secure the needed amount of protein for each day, it would be necessary for the cow to eat over 100 pounds of the silage; but this of course is quite impracticable, if not impossible. This combination silage would, however, very materially, lessen the demand for the high priced by-products, and is in line with the suggestion made some years ago by Prof. Robertson, of Canada, for growing corn, horse beans and sun flowers for silage.

CLEVELAND LINSEED MEAL FOR CALVES.

Is the steam cooked linseed meal, advertised in your columns by the Cleveland Linseed Oil Co., good for feeding to calves? Is it as good as old process oil meal, and how does it differ from it? J. F. B.

Spring Hill, Penn.

We have never used this Cleveland meal for calves, but should judge from its appearance that it would prove quite satisfactory. It differs from old process meal by having a little more protein and not quite so much fat. Some time ago we discarded the use of oil meal entirely for calves, using, when anything was used, simply ground flax seed. Quite a goodly number of successful dairymen use neither, but substitute whole oats, commencing with small allowances when the calves get to be three or four weeks old, and gradually increasing as the calf gets older.

COWS COUGH.

Several of my cows have a slight cough, especially noticeable when feeding. Feed is timothy hay, and two parts bran, two parts meal and one part cotton seed meal. Cows have good appetites and are sleek and in good dairy condition.

The DAIRYMAN is a welcome visitor and one which I do not care to get along without.

Huntington, Conn. D. H.

We do not think you need to worry about the cows, at least for the present. The probability is that when they get out to pasture they will be all right. If not, it might be wise to call in some expert.

SILO BOTTOM.

I understand that the concrete bottom should be joined to the staves in such a manner that there will be no chance for the air to get to the silage. How is this best accomplished? W. L.

Utica, Pa.

Make a little trench and set the staves in it; fill inside and out with cement. Dish the dirt inside so that the center is a little lower than the sides and then floor with cement or well tramped clay. On another page, you will find a more elaborate foundation described.

FIRM BUTTER IN WARM WEATHER.

Can you tell me how to keep butter firm in warm weather? T. J. F.

Temperature, of course, is the most important factor, but this can be assisted by feeding.

Cotton seed meal has a very decided effect on the melting point of butter. Fed in reasonable amount, cotton seed and its by-products produce a butter which is firmer and will stand up better in warm weather. When ice is scarce, feeding two to three pounds per cow, per day, will materially assist the butter to "stand up." If you have any means for keeping your butter at 50° F. or below, you can dispense with the cotton seed meal, but as ice is not always to be obtained and as cotton seed meal is a comparatively cheap source of protein, it may be fed to the advantage of both the cow and the butter.

A SILO FOR FIFTEEN COWS.

I keep from 12 to 15 cows. Will it pay me to put up a silo and fill with a tread power? Will a two-horse tread (Chief) be power enough to fill a 60 ton silo? W. H. G.

Medford, Minn.

Fifteen cows will need about 54 tons of ensilage to carry them through. If the experience of others is any proof, it will certainly pay you to put in a silo.

A good two-horse tread will cut and put in silo from 12 to 20 tons per day. A few days' work in filling a silo is a saving to yourself, your cows and your fodder.

AMOUNT OF ACID FOR TESTING MILK.

A certain buttermaker claims that milk testing 6% requires about ⅓ more acid than the test calls for and poor milk correspondingly less. Can you tell us what effect such usage of acid would have on the measurement of the test. W. H. R.

Luana, Ia.

You should not make any change in the amount or quality of the acid used for the test. It was found by long continued experiment, the exact amount to be used and success in testing depends on following the directions exactly. Use the same amount of acid for all milks.

SALTING BUTTER IN THE CHURN.—USE OF PARCHMENT WRAPPING PAPER.

Several writers advocate salting butter in the churn and not working it. How would they manage it and peddle week's out-put once a week in pound prints? Would not the papers be soaked with moisture? I want the simplest and easiest way, but so far all who advocate it speak of putting the butter in jars. Even when I work as much as I dare without spoiling the grain, my papers get soaked and when dried are salty, and I salt only one ounce to a pound. What kind of paper do creameries use, and what do they do to the butter to keep the papers so dry? D. SKELTON.

Connecticut.

The matter of putting butter in jars or molding it into bricks or prints will not affect the manner of working and salting; the only difference is that in the one case the butter is removed from the churn to a jar and in the other from the churn to the table where it is made into rolls, or prints, or such shapes as may be desired. Creameries use parchment paper for wrapping their prints, and if wrappers become more or less brine soaked no harm results. If one was particularly anxious they could omit wrapping the prints until the time for distribution came and then put the wrappers on fresh.

COWS TOO FAT.

Would you please give balanced ration for 25 head of cows, few fresh, others milking from 3 to 7 months, weighing from 800 to 1,000 pounds. Cows are entirely too fleshy; have been feeding about 30 lbs. of well eared ensilage with 3 lbs. cob meal, 4 lbs. bran, 4 lbs. middlings, with clover hay at noon. Ensilage will not last longer than 15th of this month. Have bran at $16 per ton; middlings at $16; cob meal of our grinding. Would you advise gluten feed or cotton seed meal? Have clover hay, also timothy, and cut corn stalks. Want a good ration that will put more in the pail and less on their backs. M. S. S.

We can hardly account for the excess of flesh reported from the ration as fed. There seems to have been the proper allowance of protein and very little, if any, surplus of carbohydrates and fat. Unless there is some mistake in some way in estimating the feed or otherwise, one can hardly escape the conviction that possibly the fault is more with the cows than the feeding. The only thing to do, however, under the circumstances is to try what a change in feed will bring about, reducing the carbohydrates and fat very materially, and leaving the protein where it is, or increasing it. This is the general rule to be followed in all cases. When a dairy cow is increasing too much in flesh, the indications are that she is receiving too much of the flesh forming material, and possibly too little of the milk forming material. Individual cows differ in these respects and the intelligent feeder adapts himself to their pe-

"Winter Finds Out What Summer Lays By."

Be it spring, summer, autumn or winter, someone in the family is "under the weather" from trouble originating in impure blood or irritated condition of the system.

All these, of whatever name, can be cured by the great blood purifier, Hood's Sarsaparilla. *It never disappoints.*

Abscesses—"I am past 54 and my good health is due to Hood's Sarsaparilla and Hood's Pills, which purified my blood and healed the ugly abscesses that troubled me." MRS. BRITTON C. ESTELL, Southard, N. J.

Dyspepsia—"My husband doctored a long time for dyspepsia with only temporary relief. The first bottle of Hood's Sarsaparilla helped and the second cured him. It cured my sick headaches." MRS. MARY A. CLARK, Wilmington, Vt.

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Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes. Send for catalogues.

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CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

culiarities. When the first-class dairy cow is giving a large flow of milk and running down in flesh let her have some corn meal in addition to the bran and gluten feed, or cotton seed meal, or other highly nitrogenous feeds. In line with the suggestions above submitted we append the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
5 lbs. timothy.....	4.34	.14	2.17	.07
5 lbs. corn stover.....	2.98	.09	1.62	.04
5 lbs. bran.....	4.41	.63	1.93	15
2 lbs. cotton seed meal	.94	.74	.34	.18
Totals.....	22.14	2 28	9.64	.61

DISCIPLINE OF NEGLIGENT PATRONS.

If a patron in a gathered cream factory sent cream testing only 8% to 12% fat, also 212 spaces, or 22.2 gallons, only churned out 22½ pounds butter, what would you do, take it, or keep him out, as he has been notified twice? Also one patron is slovenly and sends manure in his cream, and no dairy commissioner to see to it. I don't care for such patrons, and the owner of the factory is away and I cannot see him for some time yet. F. W. C.

Maine.

An employe should be extremely cautious about assuming responsibilities not specifically delegated to him by his employer. In this case, it would seem to be the proper thing to write to the owner of the factory and get his instructions in the premises, especially in regard to the patron who delivers low testing cream. The other case, if flagrant and repeated, scarcely permits of delay. No butter maker is justified in receiving filthy cream from any patron. The best manner of procedure is, first to call the patron's attention to the condition of his cream. Show him wherein it is at fault —explain to him that such cream is not only bad in and of itself, but when mixed with other cream injures the whole lot. If he still persists in neglecting his cream, and you do not feel like rejecting it in total, receive it—keep it by itself and make it up into butter by itself, but under no circumstances mix it with the other cream.

PACKING BUTTER TO KEEP.

I wish to pack about 600 pounds butter at the rate of about 50 pounds per week for use in boarding house during August, September and October. Will some one with experience tell me how to do it? I have a separator and grade Jersey cows and have been churning and salting butter very much like W. C. Rockwood describes in March 24th issue of DAIRYMAN. Have been told that butter packed in May will keep better than that packed in June or July.

Morrow Co., Ohio. E. L. B.

It may well be questioned whether it would not pay better to sell the butter made in May and June and "pack" the money received and use it for purchasing fresh made butter in August, September and October. Times change and we change with them. Butter which would have been accounted extra a few years ago, would hardly pass above seconds now. Rapid transit has brought the consumer so much nearer the producer that he demands that not only butter, but everything else, should be brought to him fresh.

However, if our friend concludes to try the experiment in packing butter, to keep for several months, we advise him to get the old-fashioned firkin, have it thoroughly well soaked, rub the sides well with salt, put his butter down. When full, replace the head, having previously put a three-fourths inch hole through same, and then keep the surface of the butter well flooded with strong brine. Store in the coldest room possible; a freezing temperature is best, therefore get as near to it as possible.

The only reason why May butter will keep better than that made in June or July is that weather conditions of the former month are usually more favorable for the production of the higher class article. We used to think that it was wholly a question of temperature, and indeed, in a way it is, but later investigations show that the warmer months are more favorable to the multiplication of bacteria and hence greater care must be exercised to keep them in proper subjection.

Having given our own views as above, we shall be very glad if others will recount their experiences for the benefit of the inquirer.

IS BULL PERMANENTLY INJURED?

Have I spoiled my young Jersey bull? I used him a number of times on heifers when less than a year old and he has not gotten them with calf. He is strong and good size, and am feeding four quarts a day of bran and oil meal with timothy hay. I know I ought to have known better but wanted the heifers to be served and there is no small bull of any merit around here. Will he come right again? D.

Conn.

We do not think the animal is injured—at least not permanently. We suspect he is being feed too high, and suggest that oats be substituted for the bran and oil meal, the amount to be determined by his condition. Do not feed so much as to fatten.

SEPARATOR WORKS IRREGULARLY.

Why does my separator give me cream of different degrees of thickness when conditions are exactly alike? Sometimes it will be thick in the morning, and then again it will be night when it is thick, and perhaps run several days uniformly. — —

Connecticut.

This seems to be a case demanding the personal attention of an expert, and we apprehend such an one would discover that the conditions are not exactly alike. We can do no more than guess that in some way, during the washing or handling of the separator, the adjustment of the cream screw gets changed, and a slight change of this screw will produce very marked changes in the cream.

FEED FOR SHOTES.

Prescribe best ration for shotes weighing 150 to 175 pounds alive, in order to fit for killing the middle of May. Been fed skim milk and middlings during the winter, but at present have no milk. Now being fed 2 pounds middlings, 2 pounds hominy chop and 1 quart corn, each, per day.

Conn. J. E. P.

The amount to be fed to swine during the fattening period must be determined, from day to day, by the intelligence of the person in charge. They should have all they will eat, and not leave any to be wasted. There is so much difference between different animals in regard to the amount, that it is utterly impracticable to attempt an estimate. We cannot say that the mixture now used is not well adapted for the purpose, but we do not find in any of the books on swine feeding, the record of any experiment where hominy chop formed a part of the feed. From the analysis we should be inclined to question whether they are the most appropriate food for this period in feeding, but in the absence of practical experience it would be very foolish in us to condemn them altogether. The corn, if at all dry and hard, should be either thoroughly soaked and softened, or else ground into meal. If ground, it should be thoroughly wet in connection with the middlings, thus making a good substantial slop.

A DIMINUTIVE YIELD OF MILK.

What can be done to a fresh cow to bring her to the full flow of milk? The cow was milked up to the time of calving, once a day, for the last two weeks. She seems perfectly healthy, eats and drinks heartily, but gives only about a pint of milk per milking, twice a day. Have given her one teaspoonful of ginger, one teaspoonful bi-carbonate of soda, and ½ teaspoonful of common salt, twice a day. What would you advise?

Watertown, Wis. SUBSCRIBER.

Our judgment is, that there is no form of medication that can reach difficulties of this character. It is possible, that if you persist in milking, there will be an increased yield, but the chances are, that the cow will never regain her full capacity. This drying off of cows, or milking them at long intervals during the two or three weeks preceding freshening, seems to bring about some decided change in the mammary glands that only time can overcome. We have one cow in our herd, and have other cases reported to us, where persistent milkers have been forced dry with the result of doing them permanent injury. The one thing to be done, in this case, is to wait for results, and be guided accordingly, either in keeping this cow or fattening her for beef.

WHERE TO GET RED POLLS.

Would like to know the address of some breeders of registered Red Poll cattle.

Alsen, S. Dakota. A. S. A.

W. H. Forbes, Clifton, Ohio, in current issues of the DAIRYMAN advertises Red Polls for sale. S.A. Converse, Cresco, Iowa, J. W. Martin, Richland City, Wisconsin, and V. T. Hills, Delaware, Ohio, are among those who have previously advertised these cattle in our columns.

SILAGE FROM CORN AFTER REMOVING EARS.

Which would you consider better, to plant yellow dent corn and put it in a silo with corn on, or plant sweet corn and pick it for a factory, and then put poor corn with stalks in silo? We will take $30 as the average amount received for sweet corn per acre, and to make up this deficit in feed have got to haul grain 12 miles and pay the following prices: Bran $20 per ton, cotton seed meal $24 per ton, oil meal $27 per ton, gluten $27 per ton.

Corn factory 3 miles from farm, and have to take a $35 share or can't plant sweet corn. J. T.

E. Corinth, Me.

Experience has been abundant showing that silage made from corn, after the ears have been removed, is nearly as valuable as when ears are left upon the stalks. This seems hardly possible, but the chemists tell us that fully one-half of the feeding value of the corn crop is in the stalks and leaves. It is not meant that the residue, after removing the ears is worth as much as the entire crop, but that the feeding value per ton is not materially diminished. It would seem, therefore, if one could be reasonably sure of getting $30 per acre for the ears, that this would be more than he could expect from them, or the half of any other corn crop when made into silage.

And in any event he would need some of those protein feeds, and at the prices quoted cotton seed meal is much the cheapest. But with so long a haul, and prices so high, it would seem that our friend ought to set about growing protein feeds like clover and peas.

The matter of taking stock in a canning factory for the purpose of securing a market for the sweet corn, is a business proposition that we cannot advise about.

Have You Been Sick?

Perhaps you have had the grippe or a hard cold. You may be recovering from malaria or a slow fever; or possibly some of the children are just getting over the measles or whooping cough.

Are you recovering as fast as you should? Has not your old trouble left your blood full of impurities? And isn't this the reason you keep so poorly? Don't delay recovery longer but

Take Ayer's Sarsaparilla

It will remove all impurities from your blood. It is also a tonic of immense value. Give nature a little help at this time. Aid her by removing all the products of disease from your blood.

If your bowels are not just right, Ayer's Pills will make them so. Send for our book on Diet in Constipation.

Write to our Doctors.

We have the exclusive services of some of the most eminent physicians in the United States. Write freely and receive a prompt reply, without cost.

Address, DR. J. C. AYER, Lowell, Mass.

WE SELL OUR GOODS TO YOU AT LOWEST WHOLESALE PRICES ~DIRECT~ FROM OUR FACTORY

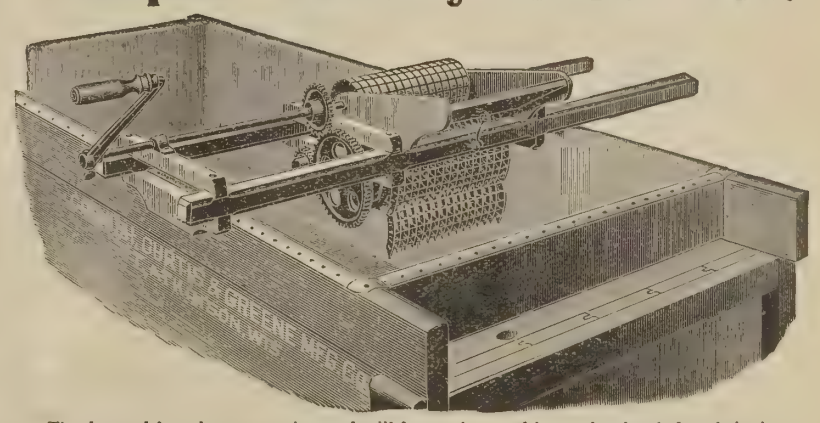
WE MANUFACTURE HARNESS — VEHICLES— GALVANIZED STEEL TANKS CATALOGUE FREE



Our No. 190 Chain Plow Harness with Collars $16.75. Middlemen would ask $25.00 for same grade. Write TO-DAY.

C. E. Banta Mfg. Co., 32 A, La Salle St., Chicago, Ill.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

Holstein Tests.—A Correction.

ED. HOARD'S DAIRYMAN:—Mr. VanValzah asks for an explanation of the mistakes that appear in list of official tests of Holstein-Friesian cows recently published by you.

The mistakes were made in copying. I failed to review the work. They are as follows: Sadie Vale Concordia should have been credited with 20.965 lbs. butter instead of 18.405 lbs; Zady Bergsma with 16.223 lbs. instead of 12.210 lbs. The age of Mutual Friend 2nd's Pauline should have been 2 years, 13 days, instead of 3 years, 17 days.

Yorkville, N Y. S. HOXIE.

Some Nuisances in the City Milk Supply.

ED. HOARD'S DAIRYMAN:—What I here shall mention are things which I personally have had ample opportunity to notice over and over again, and many of which are constantly noticed by numbers of people who are themselves interested in getting good milk for their family use. That those who furnish the large cities with milk and cream, or at least a large majority of them, do not care to exert themselves to produce an extra article either as to purity or richness, is not surprising at all as long as they receive so very slight an encouragement for such efforts.

The fact is, that a very poor and impure article of milk at somewhat lower price in most cases gives both producer and dealer a larger profit than an extraordinary pure and rich article at the higher price

Now there are in every city, two parties who have it altogether in their power to compel the retailer of milk to furnish only a pure and fairly rich article, the Health Department and the consumers.

That the latter class is so indifferent, at least generally, is, to a great extent, simply the cause of ignorance as to the danger which is at all times lurking in impure milk. Nothing less than an epidemic of some contagious disease, proven to have spread through the disease germs in some dairyman's milk, will arouse the average consumer from his carelessness on this important subject.

Yet surely prevention is a great deal better and cheaper than cure. I hold that nothing can be done to arouse public indignation against the many outrageous nuisances committed by so many milk producers and even more so by the retailers and drivers, except just so far as the people are stirred up and educated by their respective health officers and family physicians. Therefore, the only steps which can cause any cure will be improved dairy laws and regulations for delivery of milk in the cities, and their strict enforcement.

It has been a great wonder to all that thus far almost all regulations of the health departments of the various cities of the Union are entirely and only directed against adulterations of some kind, the principal points being that all milk sold must contain a certain percentage of solids and of fat, the latter being generally put altogether too low.

Common sense tells us, that while we do not wish to pay full price for a partly skimmed or adulterated article, still a child or feeble person is exposed to a far greater danger from milk which, while ever so rich, may contain dangerous disease germs; either caused from sickness of the cows, or from unclean milking and handling by careless and untidy persons, from the producer to the retail driver.

I shall try to show some of the most common nuisances, and also how they may be avoided and prohibited.

There are two distinct classes of nuisances connected with the dairy business, especially as applied to city milk supply, which have to be treated separately. I shall first mention those connected with the place of production.

Among these the first is:

THE COW STABLE AND COWS.

The fact is, that while here in Washington, as well as in other cities of the Union, we have laws demanding that milk must only be brought into the city for sale from farms where the stables and cows are kept in a clean and sanitary condition, still a large number of farm dairies are so dirty and nasty, that if the consumer but once took the trouble to look and smell inside of such, he would absolutely quit using milk produced there, especially as a drink, or as the principal nourishment for his children.

The cow's limbs and sides, yes, even their udders, will be found covered with old and dried up manure, which during milking will scatter as a fine dust into the milk pail, and never can be removed again, no matter how fine strainer cloths may be used. The customer, though, will find it by and by at the bottom of his milk jar or pitcher, if left long enough to give it a fair chance to settle. But I guess the majority of city users have become so accustomed to this, that they think it really belongs to milk.

THE FLOOR OF THE STABLE.

No matter whether simply of hard dirt or of planks, is so thoroughly soaked through with urine and manure, that any kind of thorough cleaning is made impossible. The strong smell is always there and can never be removed, and during milking the milk daily absorbs its share, especially as it generally is left in the stable until all cows are milked.

THE HAY AND OTHER FEED

is often kept in the same barn above the cow stable, and has a most excellent chance to absorb its share of these perfumes and must necessarily pass them on into the milk, which then afterwards is called "cowy,"—altogether too nice a name.

The butter makers and cheese makers of our factories also know some of their troubles from these "cowy" perfumes! In winter the stables are often so cold that the cow's feet freeze, and the water is given ice-cold; all of which, of course, causes a decided decrease in the milk yield, as well as in the richness of the milk, and just at the very time when we least can spare it.

In order to get the milk away from the farm, early enough mornings to reach the city breakfast tables, the milking is rushed through too hurridly. The cows are not milked clean; they are handled roughly and harshly by impatient and ill-humored milkers, all of which certainly does not improve matters.

The milk pails and shipping cans have generally been only carelessly cleaned, if it is fair to call it cleaning at all, as at night the milkers wish to get through as quickly as possible. The insides are often washed with only luke warm or cold water, and afterwards rinsed out with cold water, often supplied from some questionable well or cistern.

Hot water or steam is out of the question, and the outside of the cans—well, the part you see may look salable, but please look under the bottom once! Oh, my! It is absolutely an exception that they are washed, (mark it, I speak from what I have observed at railroad depots), and when you keep in mind that these old manure collections are constantly carried into the different city dairies, you can understand where the splendid variety of bacteria came from, which is found in most city milk.

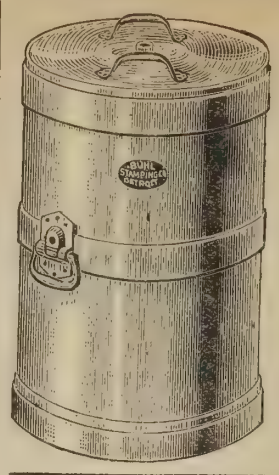
If the milk is cooled at all, it is simply by setting the shipping cans in cold water (often not cold at all) what little time is to spare before it is put in the wagon; the water often only reaches half way up on the can, and if stirred at all it is done very indifferently and insufficiently. Result—the milk retains as much as possible of the "cowy" flavor, and sours very rapidly.

The milkers themselves are as dirty as the cows, of course. How can you expect any man or woman to put on clean clothes to sit down in a manure pile under a filthy cow? No, indeed! On the contrary, they have some old dirty overalls, or overskirts, hanging in the stables, by which they protect themselves, and when these outer garments are washed I don't know. I have never seen them clean in such places as I have spoken of.

If some cow has a bad cough or otherwise shows signs of tuberculosis, or other disease, she is rarely separated from the rest, and often milkers are employed who have consumption and will expectorate on the feed of the cows, and cases have been found where in this way a cow became tuberculous.

HOW MAY WE REMOVE THESE EVILS.

First, by strict dairy laws, and by a more numerous and efficient corps of dairy inspectors. The present force is entirely insufficient, and there is no prospect of having a generally fair milk supply in our cities un-



The Best Factory Cans.



The strong points of the Buhl Factory Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Hadles.

Look for the Milk Can Trademark.

This Can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders.

Capacity 15, 20, 30, 40 and 50 gallons.

Refuse imitations. We make all patterns and sizes of Milk Cans, and will gladly mail you our hand-book free.

THE BUHL STAMPING CO.,
Detroit, - - - Mich.

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.

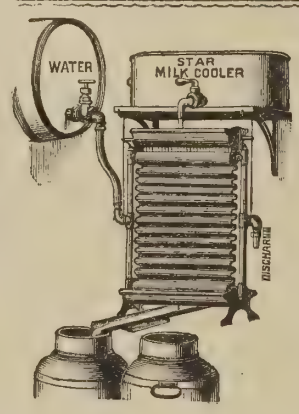
KANSAS CITY, MO., March 15, 1899.

MORRISON MFG. CO., GENTLEMEN:—With regard to your Heel Plate, we would say, it is increasing the sales on your plows very materially. It is easy to appreciate that it is a decided improvement in walking plows. It is the greatest advance made in walking plows for ten years, and that is saying a great deal. Yours truly. BUFORD & GEORGE MFG. CO.

It makes Share last longer, cures winging over, holds the Share sharp twice as long.

A postal will bring a beautiful catalogue.

MORRISON MFG. CO., Fort Madison, Iowa.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

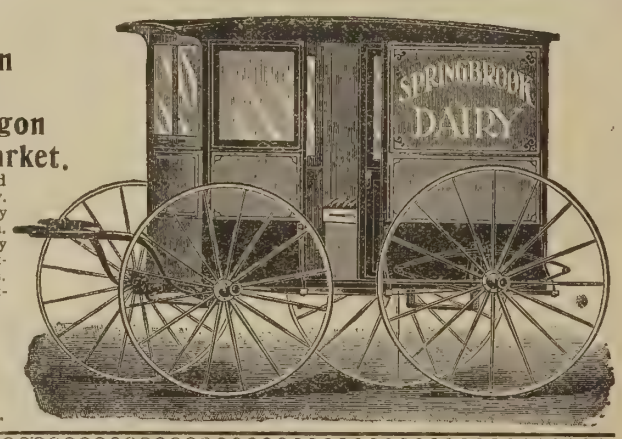
STAR MILK COOLER CO., Haddonfield N. J.

THE ONLY LOW-DOWN

Short Turn
Straight Bottom
Short Coupled
Light Draft Wagon
on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

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At **WHOLESALE PRICES,** delivered **FREE** For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.



BRABAZON'S POULTRY CATALOGUE FREE! It's a beauty; over 50 colored plates. Illustrates and describes fine Turkeys, Geese, Ducks and chickens; gives prices of fowls & eggs. Finest Buyer's Guide published. Inclose 10c. for postage, etc. J. R. Brabazon, Jr. & Co., Box 58, Delavan, Wis.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

W. H. YOUNG,
Box 135, Aurora, Ill.

til the system of inspection is carried on more vigorously and more intelligently.

Too often men are employed who know nothing about cows and milk, or the treatment of either, and such inspection is simply ridiculous. But all this means more money to be paid by somebody; and yet, it is a very sure thing, that every dollar spent intelligently for the improvement of our city milk supply, will be a paying investment, as it will save far more from disease and even death, than can be counted in cash.

J. MOLDENHAWER.

[*To be continued.*]

The Influence of the Sire.

ED. HOARD'S DAIRYMAN:—I was very much interested in the paper, "Mistakes in Dairying," read before the Kane Co., Ill., Institute by H. B. Gurler, and published in the DAIRYMAN of April 7th.

I believe the article to be very practical and right to the point. Among the many good suggestions made, he urges the dairymen to raise the heifer calves from their best cows.

I was somewhat surprised that he said nothing in this connection relative to the sire used, for I believe it is just as important to use a sire whose ancestors, for several generations back, on both sides, have proven large producers, both in quantity and quality of milk. With a long experience in breeding and dairying, I am fully convinced that the sire has as much, or even more, influence on the future usefulness of the offspring, than the dam; and I would say to dairymen, use great care in selecting your sire. Choose from the breed you prefer. Be sure that his ancestors are large producers and of the most desirable families.

The bull is half the coming herd. Then, as Mr. Gurler suggests, choose heifer calves from cows that have the qualities you wish to predominate in your herd. Then you will have every reason to expect you can grow up a herd that will excell their dams.

Lacona, N. Y. H. S.

THE RECORD OF BAD JUDGMENT.

Our readers will remember that in November last we published the record of the Meriden creamery, in Kansas, or rather the record of many of its patrons. It was there shown that some of the herds produced as low as only nine dollars per cow for the year.

Here is a ray of light let into the reason of such low, unprofitable work, by one of our Kansas exchanges:

Out of eighty-two patrons of the Meriden Creamery from which we have reports for 1897, there were only nineteen, or twenty-three per cent, that were using pure blood sires; and two of these had Herefords, and one an Aberdeen Angus, animals that as a breed are unfit for profitable production of milk. This leaves seventy-seven per cent that bred to grades or common bulls of no particular breed. Some of those bred to any kind of a bull they could find to get fresh cows. One man bred to a Red Polled because he was working for red color. Another man did not know what kind of a bull he had last year, but said he had a fine one this year. When asked the breed, he replied: "Don't know, guess he is a Red Polled." Right here lies the secret of many of the low yields of our Kansas cows. Our farmers little realize how extravagant they are in using a common or ordinary bull. Their short sighted policy leads them to believe that because a good animal costs $100, it would be money thrown away to invest, when in reality it would be money in their pockets. A dairyman can much better afford to pay $100 for a good bull, than to accept a poor one as a gift.

DAIRY MARKETS.

ELGIN, Ill., April 17—Butter—Steady; offerings 164 tubs, all sold at 19c. Official market 18½c.

CHICAGO, Ill., April 17—Butter—Creamery extra, 18½c; firsts, creameries, 17@17½c; seconds 14@15c; dairies, selections, 17c; No. 1, 13@14c; No. 2, 12@12½c; extra ladles 14c.

Eggs—Fresh, at mark, cases included, sold at 12½c

Cheese—Full cream, Twins good to choice, 11½@12c; new Twins, 11@11¾c; Young America, 12@12¼c; Swiss, 10½@12½c; Limburger, 8½@9½c; Bricks 11@12¼c.

MILWAUKEE, Wis., April 17—Butter—Creamery, fancy prints, per pound, 19c; extras 19c; firsts 17@18c; seconds 15@16c; imitations 15@16c; Dairy, selections, per pound, 14@15c. Roll, fair to choice fresh, per lb, 12@13c. Market weak and tending lower, under liberal accumulations as trade is limited to small lots; receipts 9,755 pounds.

Cheese—American Full Cream—October Twins 11¼@12c; new, per pound 10½@11c. Brick; October supply exhausted; new, per pound 10½@11c; Limburger, fall, choice, per pound 9@ 0c; winter made 8@9c. Swiss, Drum, choice 12½@13c; block choice 10½@11c. Market quiet and easy, with receipts of 2,7c0 pounds. Swiss alone is firm.

Eggs—Fresh, per doz. 11c. Market unchanged, with ample receipts, 517 cases; trade is fairly active.

SHEBOYGAN FALLS, April, 12—336 boxes of cheese were placed on the board. All were sold. 35 boxes Twins at 11¼c, 175 cases Young Americas at 10¼c, 60 cases at 10⅝c, 35 Daises at 11⅞c, and 10 cases Longhorns at 10½c.

SHEBOYGAN, Wis., April 12—The sales reported to-day were 100 boxes Twins at . 11½c, and 150 csaes Young Amercias at 11c.

PLYMOUTH, Wis., April 11—The Plymouth Dairy Board held its first sales of the season to day. Market active with sales of 147 boxes Twins at 11⅝c, and 50 boxes Americas at 10⅞c.

PHILADELPHIA, Pa., April, 17—Butter—Solid packed separator creamery, extra, 19½c; creamery, firsts, 18½@19c; seconds, 17@18c; imitation creamery, extra, 17c, firsts, 15c; seconds, 13c Ladle packed, extra, 16c; firsts, 15c; seconds, 14c. Print butter, creamery, extra, 21c; firsts, 20c; seconds, 18c.

Eggs—Pennsylvania near by 13½c; western, 14c; southwestern, 13½@14c; southern, 13c.

ST. LOUIS, Mo., April 17—Butter—Firm; creamery, 18@22c; dairy, 14@19c.

Eggs—Lower, 11c.

KANSAS CITY, Mo., April 17—Butter—Lower; creamery, 14@17c; dairy, 15c.

Eggs—Steady; fresh, 11½c.

CINCINNATI, O. April 17—Butter dull.

Eggs—Firm; 11c.

Cheese—Firm; good to prime Ohio flat, 11½c

NEW YORK, April 17—Butter—Creamery, western extras, 18½@19c; firsts, 18@18½c; state extras, 19c; firsts, 18@18½c.

Cheese—State full cream, large colored or white fancy. 12@12¼c; choice, 11¼@11¾c; small, fancy, 12¾@13c.

Eggs—State, Pa. and Western, 14@14½c.

BALTIMORE, Md., April 17—Butter—Market firm; creamery, separator, extra, 22@23c; extra firsts, 21@22c; creamery firsts, 20c; ladle, extra 15@16c; western store packed, 11@13c.

Eggs—Market firm; strictly fresh stock, 12½@13c; duck eggs, 12c per dozen.

NEW YORK MARKET.

NEW YORK, April 15.—Butter—Receipts for the week, 35,658 packages. Exports for the week. 495 packages. There was less trade from all quarters the past week, arrivals were quite liberal, prices heavy and market closed with a decline of fully 2c per pound on all grades of fresh butter, except ladles, which held their own. Complaints were quite general from retail buyers that quality of fresh creameries was not up to the standard; a good many of the Western marks showing lack of good feeding, poor body, and when exposed to the air on the counters for retailing, went off in quality very quickly. Extra Creameries are selling at 19c and under grades at prices ranging from 16@18c. New York State Dairy selections wanted at 18c and fair to good quality sells slowly at 15@17c. Ladles are in light supply and sell on arrival at full prices. We quote: Creamery, extra, 19c; medium 18@19c; poor, 15@17c, Dairy, extra, 18c; medium, 16@17c; poor, 14@15c.

Cheese—Receipts for the week, 6,623 boxes. Exports for the week 2,188 boxes Exporters are entirely out of the market and will be until the new make arrives in quantity enough to materially reduce quotations. Old cheese are in small compass and only hand to mouth business doing; sales are reported of fancy small sizes colored cheese at 13c and large at 12@12½c. White cheese selling at 11¼@12½c; new cheese are in light supply with prices weak and very irregular. We note sales in the interior of the state of about 300 boxes small colored at 11½c. We quote: Old cheese, small, extra, 12½@13c: medium 11½@12c; poor, 10@11c. Old cheese, large, extra, 12@12½c; medium, 11@11½c; poor, 9@10c. New cheese, small, extra, 11½@12c; medium, 9@10c; poor, 5@7c. New cheese, large, 10½@11½c; medium, 9@10c; poor, 5@6c.

Eggs Receipts for the week, 63,931 cases. Prices have been well maintained, receipts all taken and market closes firm. We quote: New York and Pennsylvania, per doz, 14@14¼c; Northern and Western, 13¾@14c; Southern, 13@13½c.

D. W. LEWIS & Co.
117 Chambers Street, New York.

BALTIMORE MARKET.

BALTIMORE, April 13—The receipts of separator creamery butter for the past week has been light, and the quality disappointing; the defects in the favorite marks from the gilt edge districts of Illinois, are particularly noticeable and annoying, because so much is expected from them in points of flavor and finish. Latterly, when the salesmen expose these silk stocking lines for sale, as salesmen will talk, begin to sing their praise before smelling the samples on the triers, the expressions on their faces are studies for physiognomists and actors; the something hoped for and expected is not there, and to change the chagrin at not finding it to an affected satisfaction at the displeasing condition, overtaxes the skill of the many, and emphasizes the skillfulness of the few. Where the perfume of new milk has been lost in the manufacture of to day, that was so eagerly awaited during the winters of not very long ago, and was so welcome and grateful when it arrived in the full new milk product? Has the present method of advanced art, robbed us of that charm of spring, when the house wife's fancy lightly turned to butter, new? Gathered cream, imitation creamery and ladle packed goods all are in quite light receipt, and generally meet with prompt sales on arrival, and relatively good prices. The floors are in the same bare condition noticed last week. There is the usual distributive business in blocks and prints of creamery butter, and some little doing in other varieties and lower grades; rolls are scarce; all good to choice is in quick demand.

Creamery separator, extra, 22c; firsts, 20@21c seconds, 18@19c. Gathered cream, extra, 19c; firsts, 18c; seconds, 17c. Ohio, extra, 20@21c; firsts, 19@20c; seconds, 17@18c. Rolls, extra, 15c; firsts, 13@14c; seconds, 12@13c. W. Va. Roll, extra, 13@14c; firsts, 12c; seconds, 11@12c. Creamery Blocks, (2 lbs.) extra, 23@24c: firsts, 21@22c; seconds, 19@20c Creamery Prints, (½ lb.) extra, 23@24c, firsts, 20@21 c; seconds, 18@20. Maryland, Va. and Pa., extra, 20c; firsts, 19c; seconds, 18@20c.

Eggs—Our market rules very firm, under continued light receipts; the trade is showing less hesitancy in taking hold, consequently our receivers, so far, have been able to keep all receipts of hen eggs well cleaned up from day to day. Duck eggs—as we predicted in our issue of last week, it was only a matter of a short time, that they would bring any more than hen eggs; well, that time has arrived, and now hen eggs have the preference, at the same price. The season on duck eggs is virtually over. Hen eggs are not only firm, but active at 12½ cents.

Western Md. and Penn., per doz. 12½c. Eastern Shore, (Md. and Va.) 12½c. Virginia, 12½c. Western and W. Va. 12½c. Southern, 12c. Duck eggs near by 12c. Duck eggs, Western and Southern, 12c. Goose eggs, 18@ 0c.

Cheese—Receipt light; demand good; market firm.

New York State Cheddars, fine, 12@12½c; choice, 11@11½c; fair, 9@10c. Flats, fine, 12@12½c; choice, 11¼@11¾c; fair, 9@9½c. Small, fine, 12¼@12¾c; choice, 12@12½c; fair, 9½@10c. Ohio Flats, fine, 11@11½c; choice, 10½@11c: fair, 8½@9c. Ohio Picnic, fine, 11½@12c; choice, 10@11c; fair, 9½@10c. Swiss Cheese, fine, 11@12c; choice, 10c; fair, 8½@9c.

301 Exchange Place. G. M. LAMB & BRO.

FOREIGN MARKET.

BOSTON, April 15.—Cable advices of this date from the principal markets of Great Britain to George A. Cochrane give butter markets as less active. Seasonable weather and increased receipts of Continental and Irish give buyers an advantage, which they are pressing for all it is worth, and they have established a decline of 2@3s on all grades. While arrivals from Australia, America and Canada are light, there are sufficient stocks to prevent holders from obtaining any advantage. Finest Australian is selling at 2⁰@20½c, with very good value to be had at 19@19½c A little fancy fresh Canadian in boxes is selling in the northern markets at 21@22c. American butters meet with a very indifferent demand. Creameries in tubs are offered from 17@19c, but clearances are not being made as fast as holders would like to see. Imitations are selling at 16@17c Ladles continue a dull sale at 15c downwards.

Cheese markets are fairly steady. Stocks are being gradually reduced, but little or no advance on present prices is looked for as high prices have checked the consumption Finest Septembers and Octobers are held at 11½@11¾c with occasional sales of something extra fancy in the way of Canadians at 12c. Anything from 11c downwards is much wanted and in light supply.

ALL ABOUT
CREAM SEPARATORS

Why the improved and patent protected "Alpha" disc machines are as much superior to the older types of separators first made by the De Laval Company and now by several imitators as are such older pattern machines to gravity setting.

Send for new March, 1899 De Laval catalogue.

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GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK.
Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Fifteen h p. boiler and 15 h. p upright high speed engine nearly new, also 6 h. p engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 10-3 □

Buttermaker wants position. Can give good reference. Understands running all kinds of machinery. Address P. A P, 2d Flat, 266 Sedgwick St., Chicago, Ill.

For Sale—One No. 2 De Laval Turbine separator. Has been used but four months. It is in first-class order and good as new. Will be sold at a reasonable price. Address LANCASTER CREAMERY CO., Lancaster, Pa.

For Sale—In vicinity of Tampa, Fla., 15 miles by water from street car line, a 255-acre farm, ½ mile bay front, good wharf with beach extending to house Well fenced in and divided by a netting into a field and two pastures 20 to 40 acres clear, rich sandy loam underlaid with clay, fixed for irrigation, crops growing. Nice two-story residence. Launch with 3 h. p. gasoline engine, 2 mules, 21 milch cows, 1 Jersey bull, calves, hogs, poultry, ducks, building material, etc. Farming tools, cream separator, buggy, etc. For further particulars, address P. O. Box 133, Tampa, Fla. 10 sp

For Sale—Six full-blood and three high grade Guernsey cows. Also one two-year-old bull for $500.00 if taken at once. Address L. A. SPRAGUE, Marshall, Minn.

Dairyman Wanted—Married man; must be first-class butter maker and have had experience with Jersey or other dairy cattle. Must be able to furnish good references as to character and ability. Wife must be willing to take some boarders. Address with full particulars, W. G. APPLEBY, Fillmore Farm, Bennington, Vt.

Wanted—Ten Guernsey Cows. Send particulars DUNHAM CO., 1392 Amherst St., Buffalo, N. Y. 9-2

Wanted—At our dairy, near here, a thoroughly posted dairyman and milker, for position of foreman. Wages $35.00 to $40.00 per month and house rent free. Address, with full particulars of experience and references, MERAMEC HIGHLANDS CO., St. Louis, Mo. 9-2

Haunts in the Wild Woods and gay places for summer outings. Either or both, can be found along the lines of the Chicago Milwaukee & St. Paul R'y in Wisconsin, Minnesota, Northern Michigan, Iowa and the Dakotas. Among the many delightful summer resorts are Delavan, Waukesha, Oconomowoc, Elkhart Lake, Marquette, Madison, Kilbourn, Minocqua, Star Lake, Lakes Okoboji, Spirit Lake, Clear Lake, Big Stone, Frontenac, White Bear and Lake Minnetonka. In the north woods of Wisconsin, in the forests of Northern Michigan and Minnesota, and in the far stretches of the Dakotas true sportsmen can fish and hunt to thier heart's content. For pamphlet of "Summer Tours," and "Fishing and Hunting," apply to nearest ticket agent, or address with two cent stamp, GEO. H. HEAFFORD, Gen'l Pass, A't., 555 Old Colony Building, Chicago, Ill. 9-3

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

Position Wanted—By competent butter maker. 7 years experience in separator creamery. Can handle 9,000 lbs. of milk daily alone. Can keep books if wished. 6 years with one employer. Address L, care Hoard's Dairyman. 8-tf

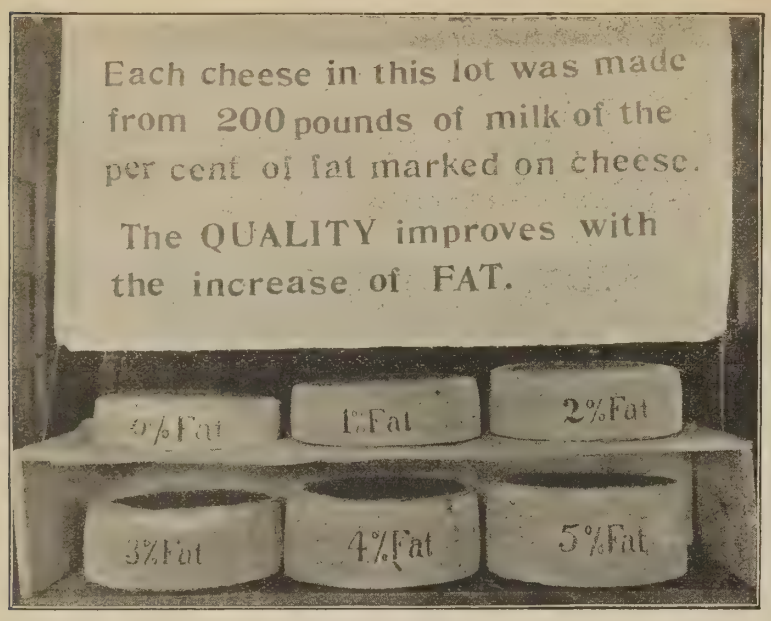
Hermanville Tamworths, Cross-heds, etc. J. A. MACDONALD, Hermanville Farm, P.E.I., Can. 32-52

An Entire Carload—Of high graded Jersey cows and heifers are in my hands for sale immediatley. F. H. MERRELL, Portage, Wis. 52-tf

For Sale or Rent—The Portage creamery, Portage, Wis. Immediate possession. Liberal terms to good party. WILLIAM FULTON, Prop. 5-tf

Relation of Fat to Cheese Production.

[Press Bulletin.]



The cheese represented in the above cut were made by Mr. Decker, instructor in cheese making at the Dairy School of the University of Wisconsin, to show the influence of fat upon the production of cheese.

As the same amount of milk was used in each case, the difference in size is due entirely to the difference in per cent of fat contained in the milks.

The improvement in the qualtity of cheese as the fat in the milk increases is nearly as marked as is the increase in size.

The proportional loss of fat in the whey is less from rich milks than from poor milks, showing the greater economy, when properly handled, of rich milks over poor milks for cheese production.

These statements do not apply to milk to which cream has been added.

The pooling of milk, by weight alone, in cheese factories is as unjust to the producer of rich milk as it is in creameries. Careful tests conducted at a number of experiment stations confirm the above results and show conclusively that the per cent of fat is as true a measure of the value of milk for cheese production as it is now universally acknowledged to be for butter.

S. M. BABCOCK,
Chief Chemist to the Wisconsin Agricultural Experiment Station.

Note and Comment.

Ohio Maple Sugar.—The Growing Demand for Cream. Its Effect on Prices.

ED. HOARD'S DAIRYMAN:—After twenty weeks wandering up and down the states, east and west, in attendance at the institutes and conventions, we find ourselves once more at home and find it a pretty—in our opinion—good place to be at. Although it is now the 8th of the month, there is a good deal of winter lingering in the lap of spring, and maple sugar making is in full boom; and so little warm weather has there been, that the sugar is about as fine as in middle March. As winter dairying is the thing about here, we are literally possessors of "a land flowing with milk and maple lasses", both selling at about the same price.

The great northeastern dairy section of Ohio is also the greatest maple producing section of like size in the U. S., and in the spring, to care for the dairy, go to creamery or train with the milk, and look after a sugar bush, does not give the farmer much time to look into the needs of the Phillipinos; consequently he is content to let Admiral Dewey and Otis look after our far away wards (?); though we did hear a man say recently that if we could get our newly acquired citizens of the Pacific sea to eat a few U. S. skim cheese, by the time they got it digested, they would have a pretty comprehensive idea of the stable character of one American industry, at least.

In the particular section in which the writer lives, a new element has appeared to disturb the old order of things, which was to let one man set the price of milk, month by month, and then all the rest pay his prices. There are really two factors in the innovation; the rapidly increasing demand for cream from Pittsburgh, and Cleveland, and also noticed in a degree in the smaller cities like Akron, Youngstown, and those of lesser size, and creameries by the dozen are now having to hustle to supply the demand.

As this cream is not dependent upon Elgin for butter prices, or Little Falls for cheese quotations, the price for milk for cream, and for cheese or butter has been parting company gradually, and this spring in this section they are not "keeping company" at all, and this is the disturbing element in the matter.

The creameries, some six or more of them in this immediate section, are paying $1.10 per 100 pounds for milk and the cheese factory men were paying $.80, but for April advanced their prices to $.90.

To get milk in the vicinity of some of the cream shipping concerns, the cheese men are having to pay $1.10, which is not pleasant to patrons, at distant concerns, out of cream circles, to be obliged to take up with two and three cents less per gallon.

It is disturbing the city milk buyers, who are buying 8½ pounds for eight cents, the shipper paying fifteen cents for transportation for 85 pounds, so nets him only a trifle over eighty cents per 100 pounds.

It was said that the cream business would be speedily overdone, but one cream dealer had an order, in addition to all his previous trade, of about 60,000 gallons, which compelled him to go out and lease cheese factory concerns, and turn them into cream concerns. This only adds to the interest, and there are now some pretty long milk routes springing up right through cheese territory, to deliver milk to cream shippers.

***

The building of six, and irons being laid on four more electric lines, radiating from Cleveland, most of them running out fifty miles into dairy territory, not reached by the steam lines, is having its effect in more ways than one on the milk trade of the city. The freight rates of the trollies are much lower, the car stops anywhere there is a can of milk in sight, and much the same way, where market stuff is carried. Anything that can be carried by hand, and is accompanied by the owner, goes free, and it is having an economic side in the farmer's methods, and is already producing marked changes, and seemingly to his advantage, though the country produce dealer is calling out that he is being "pinched," and the country merchant is having troubles of his own.

Northern Ohio is in a period of rapid transition. There is the great growth of Cleveland, where the great ore and steel industries seem to be rapidly centering, causing a rapid change of population incident to the re-adjustment of our industries; trolly lines are built, building, and being projected in all directions; no place in the United States is so netted over with telephone lines, connecting farm and village in like degree; dairying and its methods are being changed, and re-systematized; even the school methods are being revolutionized, and in a score of towns on the Western Reserve, the district school has gone, and the centralized graded and high school has combined all in one building at the township center, and is up with the times in educational porgress. All more than of passing interest.

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My travels in the different states the past winter, were most pleasant routes, and in the dairy sections the interest was good; but I am compelled to say that the inquiries were more along the lines of cheaper produced dairy rations, better combinations of foods, than about better cows, for along the latter there should be a far greater "hungering and thirsting after dairy wisdom." The two should go together.

The dairy banner should have inscribed upon it, "A better cow, more cheaply fed." Oats, peas, corn, silage, soiling crops, silos, barns and how to ventilate them, have been inquiries constantly, and evidently made with purpose to be benefited by them. The silo question seems one of the topics that is perennial, freshens yearly, and is always to be talked over, and up; always just opposition rumors enough in the air to start a fresh breeze of testimony in its favor.

In my opinion, as many, if not more, silos were built in 1898 as in any other one year before, and by the tide of letters I get from all sections, I should say that 1899 was to be a record breaker. A new feature that is commending the silo, is the testimony of those who are summer feeding silage in lieu of soiling crops. The trend of this testimony is to the effect that it is a better supplementary ration, takes the place of the summer grain ration, holds the cows up to their milk better because constant in amount and quality, which a variety of green crops at all stages cannot be. Silage is always at hand and, more, a pretty sure crop, for it now seems demonstrated that corn planted on sod land, cultivated shallow so as not to destroy roots, and frequently enough so as to keep a dust mulch on the land to prevent evaporation of soil moisture, will, nineteen times out of twenty, bring a full crop of corn, if the summer fall of rain is not abundant, even in the drouth territory. This puts the dairyman in a position to be independent of mills, or millers' combines; brings feed from land to cow direct, without paying duty to elevator, broker, freight, tolls, commissions, and adulteration in transit, and must always be a great factor in profitable dairying.

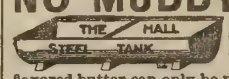
I was greatly impressed with the sound, practical doctrine, preached by the institute force of New York, from governor, down. Always instructive, helpful, and, as I saw it, up-to-date. The help of Profs. Jordan, Roberts, Van Slyke, Wing, Smith, Hall, from the station crews, was always timely and instructive. No more helpful book was ever issued than that of Prof. Stone, of Cornell, Bulletin 154, wherein he has figured out the elements, and their proportions, in all the cattle foods, and forages, green and dry, from 1 to 20 pounds, so that if a man will weigh the amounts of food he is feeding his cow, he can, by turning to this book, figure up the amount of protein, starch and fat, without getting confused, or in the end blessing(?) the man who invented feeding tables and balanced rations. If the farmers will practice half what they have heard the past winter, New York will soon regain her old time prestige of being the banner dairy state, and Iowa will have to play second tin horn in the dairy orchestra.

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It was thought to be a great innovation in New York dairying when the milk trains of Philadelphia and New York came up into and beyond the Binghamton settlement, but this winter, milk is being sent from Northern New York, close to the St. Lawrence river, and cream as well. One firm, that of H. E. Cook & Bro., of Denmark, is shipping cream to New York city, red hot, starting it at a temperature of 160°, sending it in jacketed cans, and with the best results—a plan adopted by the French Bros. of Cincinnati, O., last year for their long distance cream, in hot weather.

Up in this northern region, vast amounts of fancy and high priced cheese is made, the full equal of any imported from Europe. The demand is fast increasing, and additional

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is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.
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In the Agricultural districts of
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and lands for sale by the Canadian Government and various railroads, may be had on application to any Government agent. Located a short distance from **Railways, Markets, Schools and Churches.** Head of a family and men over eighteen years of age entitled to **160 acres free.** Other lands in the great wheat belt may be had at low prices; terms easy. Excellent climate. Taxes and railroad rates low. The Minnesota editors' official report says: "We are most impressed by the great agricultural wealth of the vast empire reaching from the base of the mountains eastward to Winnipeg. This vast and rich agricultural area offers the greatest possible inducements to homeseekers and is destined to become one of the richest sections of the North American continent." Information can be had on application to Supt. Immigration, Ottawa, Canada, or


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Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.
Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.
Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.
For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

These Offers will prove a Saving
To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$1.50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year	1.65
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HOARD'S DAIRYMAN and Farm Journal, both one year	1.10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2.00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1.50
HOARD'S DAIRYMAN and Orange Judd Farmer, both one year	1.75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1.75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1.75
HOARD'S DAIRYMAN and Guernsey Quarterly, both one year	2.25

concerns are being organized to supply it, though it is doubtful if the patrons realize the full importance of this new creative industry. JOHN GOULD.

Ohio.

DAIRY RETURNS PER COW IN MAINE.

The returns from twenty creameries have been taken, and, like all previous attempts at the taking of a cow census, the figures disclosed show a rather low state of profitableness. The milk and cream of 22,680 cows were consumed at these twenty creameries, for which $682,000 was paid. This makes an average return of $30.60 per cow. In some dairies as high as $50 per cow was paid, in others as low as $20 per cow, making the difference, as one can see, over 100 per cent. Wherever any intelligent attempt is made to get at the real state of affairs with creamery patrons, it is always found that there is difference enough in cow profit between them to show that indifference and disregard of good dairy teaching is a losing business.

It is the farmer in Maine, and every other state, who makes his cows earn only $20, who is keeping the dairy industry down. As we have said before, there would be no low prices if the product of these poor cows, and poorer owners, could be kept out of the market. It is the cows that make butter at a loss that overload the market with a surplus.

Another View of Milk Trusts.

ED. HOARD'S DAIRYMAN:—In your number of 3rd inst, you give the views of a farmer on the milk trust. For all but the final conclusions I agree with the writer, who makes matters very plain. The trust is the logical outcome of a more correct conception of economics put into practice, and thus the trust often greatly serves the consumer. The trouble, that it is not yet an unqualified good, lies in the fact that to-day this concentration of management, and this economy of labor (production) is practically applied almost entirely by the wealthy for the sole purpose of adding to the wealth—that is, in the matter of industries.

Their object distinctly is not "to serve", but "to enrich themselves", making the most of their special opportunity. That they incidentally and accidentally do "serve" a *portion* of the people is quite a secondary consideration, all their asseverations to the contrary notwithstanding.

The "rich" see that competition means fighting, war; and war entails suffering and death, and thus, in their shortsightedness, and in spite of their shrewdness they attempt to overpower competition by monopoly. This is just the way a brutal man abuses a nervous cow. He licks her into subjection, and opposing brute force to brute fear, thinks he has vanquished his cow and is ruler in his domain. What are the facts? By his unbridled choler he has injured his manhood, he has caused himself the heaviest of hard work and must ever after maintain a strict watch, for he is dealing with an enemy sure to catch him unawares. Besides, he has a cow that will give less milk of a poorer quality than her capacity calls for, and she is more liable to attacks of nervous diseases and accidents.

Set in juxtaposition the case of the "gentleman" (clothes and calling have nothing to do with this qualification of man), who has gained the confidence, and affection of his cow. Words are unnecessary to illustrate these extremes. The nervous cow is a good thing if rightly handled. So also is the Trust.

Supposing that instead of Leiter, the consumers of Chicago consolidated themselves into a body and followed the plans of the combine; why, they would benefit themselves far more than you ever could or would. But further, let these combined citizens make common cause with their employes from the first to the last, treating all their help with all the care and cunning they give to their finest cows, only giving them accordingly more consideration, as a man is higher than a beast.

Would not the result be proportionate with those noted in the case of the cows? Municipal ownership in Glasgow as in American cities, answers, "Most certainly!" Faint hearted ones and doubting, say, "As yet it cannot be, the time is not ripe, it will take generations." Blind they are to the fact, that there are numbers of men in our midst today who saw the first railroad built in America; and but few of us who read this paper that have not seen electricity first used as motive power or for lighting purposes.

Abolition was scarce dreamed of at the opening of the war. "Men shall dwell together as brethren," and though we go on deceiving ourselves by being "hearers of the word only" that decree has gone forth and *shall be accomplished.* Let those who dread advance struggle as they like, the change is even now upon us.

We may languish for "grandad's" cows or fear the deluge of milk, visions and nightmare cut no swath. Open your eye to the fact that the trust, the pool, the monopoly is as far ahead of the one-horse concern as the binder is of the cradle and you will soon find the means to get on the "inside", and like sheep, the rest will follow.

Then will we have a production managed along lines of true science, and America, this grand country of sunshine and possibilities, will have grain and milk for all her children. Rent, profit and interest will no longer suck the life blood from the American toiler, and the whole fruit of his labor shall be his. When the American Sampson slays his lion, (the trust for greed) he shall surely find honey in the carcass. D. F. B.

Ruskin, B. C.

To Prevent Silage From Spoiling.

ED. HOARD'S DAIRYMAN:—There appear to be numerous complaints about silage spoiling in a square silo, and for the benefit of those, like myself, who are obliged to build a square one, I would like to give the experience of a neighbor of mine, who last year built one 15x18 feet and 20 feet deep. He made it one foot smaller at the bottom, drawing in each side and end three inches, and as the silage settled, it became so tight in the corners, that he has not lost a pound.

I used the balanced ration you were kind enough to make out for me, and my cows are doing better. E. M. B.

Croton Falls, N. Y.

Land Plaster

NATURE'S FERTILIZER. The great stimulating element to the growth of cereals, plants, and all vegetation. In use for over one hundred years. The good results obtained from the use of **LAND PLASTER** have only to be understood to make it fully appreciated.

Michigan Land Plaster

IS NOT EXCELLED IN THE WORLD.

Farmers of WISCONSIN and MINNESOTA can obtain Fine Fresh Ground **Michigan Land Plaster** by the car load of **15 tons** and upwards, loaded on the cars at the Mills, Grand Rapids, Mich.

In bulk	$ 1,00 per ton.
In American A grain bags	2.45 " "
In Stark A grain bags	2.70 " "

Shipping via car ferry at Muskegon a freight rate of **5 cents per 100 lbs.** can be obtained to Milwaukee, so that the plaster can be shipped in bulk and the expense of bags saved if desired. The railroads make special plaster rates from Milwaukee, which consignees should arrange for in making up a through rate to their station.

We have a large stock and can ship promptly at all times.

☞ **CASH MUST ACCOMPANY ORDER.**

MICHIGAN & OHIO PLASTER CO.,

401 Pythian Temple. GRAND RAPIDS, MICH.

PEAS FOR HOGS

FIELD PEAS

FOR HOGS AND DAIRY COWS

"EQUAL TO CORN AND SIX WEEKS EARLIER"

THE ALBERT DICKINSON CO.

GRASS AND FIELD SEED MERCHANTS, CHICAGO, ILL.



AN ERA OF

Better Machinery

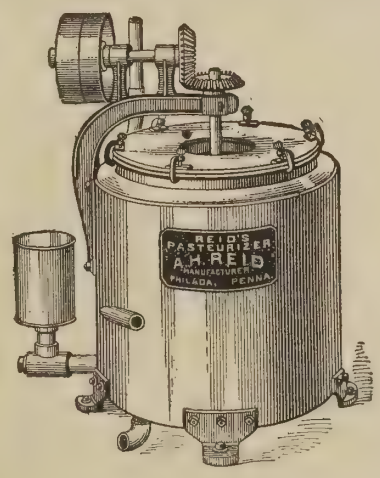
Hard times and rattletrap machinery are of the past. Creamerymen have found out that it is more profitable to own a good

STANDARD BABCOCK TESTER

that will last for twenty years than it is to buy one of the ordinary, noisy kind, that must be replaced every year or two. The Standard has a cast iron frame and cover, a steel spindle and brass bottle holder. **It is well built and is acid proof.** The new book of Farrington and Woll, on Milk Testing goes with the machine.

Send for Catalogue No. 85.

Elgin Manufacturing Co., Elgin, Ills.



Is Pasteurizing A Success?

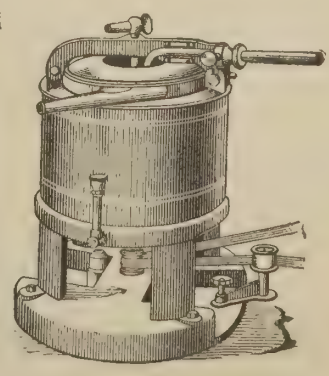
Ask the creamerymen who are making pasteurized butter and the butter men and retail dealers who are selling it. Ask them how it compares with other butter—if it doesn't command better prices—if it isn't preferred by consumers. Read what Philadelphia's largest commission merchant says about the rapidly growing demand for pasteurized butter:

PHILADELPHIA, March 1, 1899.

Dear Sir:—In reply to your inquiry regarding the merits of pasteurized butter, would say that we are receiving it from a number of creameries who have adopted your system of pasteurization, and the only difficulty we find is, we are unable to supply the demand. Pasteurized butter makes its own way in the market and commands a far better price than the average good creamery butter. We are always ready to pay a good price for pasteurized butter and buy as much of it as we can get.

Water and Market Sts., Philadelphia. JOHN JAMISON.

The only machine that has satisfactorily and practically solved the problem of pasteurization is the



REID PASTEURIZER.

Write for detailed description and complete information. Ask for the Reid 1899 Separator book.

A. H. REID, 30th and Market Sts., PHILADELPHIA, And CEDAR RAPIDS, IOWA.

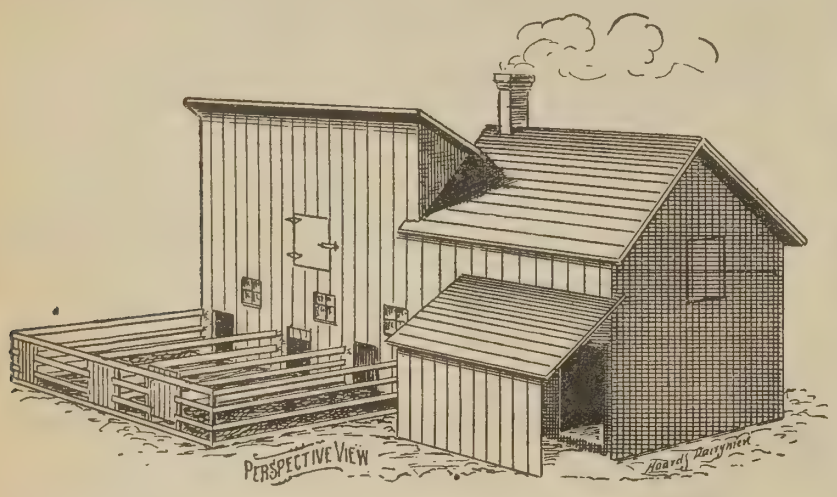
A PLAN FOR A HOG HOUSE.

There is much interest this spring in plans for hog houses. In response to inquirers, we publish the plans and description of the house used by that veteran breeder, Theo. Louis. It goes without saying that a hog house, planned by one with so wide an experience in hog raising as Mr. Louis, must be both practical and economical, and as such we recommend it to our readers:

ED. HOARD'S DAIRYMAN:—The cut accompanying this article gives an exact representation of the house that we have in use, as protection for sows against overlying pigs.

G. G. Front yard to hog house, with a permanent fence built 20 feet distant from building. A drive gate is left on each side of this yard, and the yard itself is divided with movable fence panels made out of common fencingof 14 foot and 7 foot lengths, bolted together in the lap, and held in place by two 2 x 4s on each end forming a slide. This forms, in breeding time, a yard for each sow 7x20 feet. When not needed, panels are removed, and have yard free as a drive way for wagon to gather manure.

K. K. are up and down slide gates 2x2½



save that the roof is here made to slant altogether one way—to the rear. We consider that an improvement on our own, but could not avoid this, as we have on the north side (as will be seen in ground plan) a corn crib attached, and, therefore had a hip roof to gain pitch. It is preferable to have no water shed from roof in yard to soak them and create, in rainy seasons, an unhealthy condition, besides causing much loss of valuable manure.

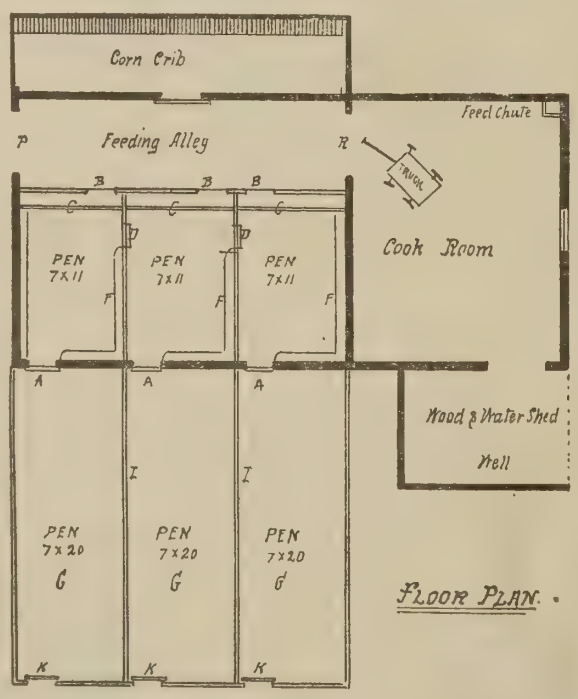
The dimensions are as follows: Width 16 feet, height should be no less in front than 14 feet for reasons hereafter given; length of building (of hog house proper) depends upon the number of hogs to be kept; width of feeding alley 5 feet; size of pens 7X11, size of doors (A) 2X3 feet. On each side of door is a studding, between which, the door slides up and down. Underneath the upper floor is a home-made pulley over each door. A cord passes through this from door to alley, so that door can be operated to close or open at will.

B B are doors, the height of partitions, and are 20 inches in width, hung on hinges. These are fastened to a 2X6, standing flat-wise to the alley, and supported upon floor joists, one on each side of door, to which partition boards are nailed. Partitions are 3 feet 10 inches in height. The door is fastened with a stick or bar made out of a 6-inch board, a little above the center. This proves effective.

C C are troughs made out of 2X6 and 2X8, whole width of each pen. The door extends down to this only, and not to the floor, and swings above a threshhold nailed to trough and partition. This avoids climbing over partitions, and if a scale is arranged in alley, it is but an easy matter to educate one's self in the art of feeding, by passing hogs out and in.

D D are doors to slide up and down, supported by two 2X4's in each stall, so as to transfer sows, or to leave open, and close one of the outside doors, and use one pen for sleeping, the other for feeding. This makes separation possible in winter, larger and smaller sows to be fed together.

F F are fenders in each pen, securely fastened, made out of 2X6 or 2x8, and set from 8 to 10 inches from floor, fastened edgewise



feet, fastened with pin above, or to be raised so only pigs can enter.

The lower room in hog house is 6½ feet in clear between joists. The upper floor is supported by using 2x6 three and four feet apart and floored with inch boards, simply nailed so as to avoid any danger of slipping. The loft is used for bedding and filled each fall after threshing. This keeps the house warm from above, and bedding is always dry and always plenty so as to be used as an absorbent when cleaned out of pens.

Over each pen and directly above the fender, is a board so fitted as to let down straw, and serve as ventilator. The loft is filled through door opening into yard, and these doors should correspond in number to length of house. To ascend to loft from inside of alley, a permanent step ladder is adjusted from the top of the partition in a slanting position near center of building with trap door to close. The slop boards on troughs through partition are nailed to troughs and are the whole length of trough with the exception of doors B B.

Each pen has a half window of 7x9 glass, directly over the fender, which slides on girt sideways, so the house is well lighted, and warm sun rays go in each apartment, and one is not groping his way in darkness.

Size of feed and cook house, 14x16, with 12 foot studding—14 would be better. The loft is used for ground grain and is divided into two bins. This floor needs to be well supported with 2x8 joist. Grain is elevated

The Index to lamps and the chimneys for them will save you money and trouble.

We want you to have it.

Write Macbeth Pittsburgh Pa



Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale. R. G. STEACY Box 720 Brockville, Ont., Canada

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

POLAND CHINA... BREEDERS can secure a sample pair of our **Famous O.I.C. Hogs** ON TIME, and agency if they will write at once. 2 weighed 2806 lbs. **L. B. SILVER CO.** 277 Summit Street, Cleveland, Ohio.



BABCOCK Milk Testers.

Geared machines. Whirling parts nicely encased. Guaranteed accurate. Plain directions. Anyone can use successfully. Four bottle size $4. 8 bottle $5.50. Sent by freight or by express as ordered. **J. J. ANGUS, Plymouth, Wis.**

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. **N. N. PALMER & SON, Brodhead, Wis**

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested. **JOS. T. HOOPES, Bynum, Md.**

GREEN PLAIN HERD

POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inqurles promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to **J. E. TYRRELL, Marysville, O.**

For Sale. Two yearling bulls ready for service, out of tested dams. A few bull calves, some out of tested dams. All sired by Maquilla's Major 40804, a son of Maquilla's Violet, 31 lbs. 1 oz. Write for prices. **W. R. THOMAS, Bellmore, Ind.**

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock INTO YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys Great Dairy Bull from prize winning stock. One that will do to show. Solid light fawn. Dropped July 9, 1898. Sire, Hood Farm Pogis, winner of many first prizes. Dam, Figgis, test 14 lbs. 10½ oz., 40 lbs. 6 oz. milk in one day. First prize cow at Danbury, Conn., and Saco, Me., 1898, by Sophie's Tormentor, sire of 14 in 14 lb. list. Address HOOD FARM, Lowell, Mass.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Locust Lane Stock Farm
. . . Service Bull . . .
BROWN BESSIE'S GRANDSON No. 34891.
State What You Want.
G. E. COLEMAN, Perry Center, N. Y.

We Have Sold

SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92). in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. **P. J. COGSWELL, Rochester, N. Y**

MILLER & SIBLEY'S JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. **224** Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

High-Class Jerseys.
DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records. **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO F. WESTON, Supt., Biltmore, N. C.

The Lone Tree Jerseys.

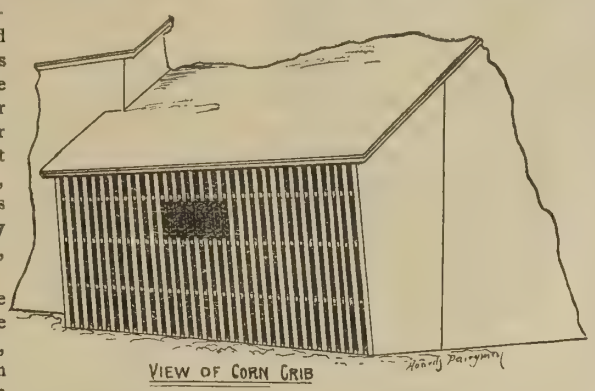
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

through door in end, which comes down level with floor. Grain descends through feed chute. Chamber is reached with a ladder adjusted between two joist in centre of building under the upper alley way. The ladder is hung on an iron rod which goes through both joist and ladder and is swung up between joist when not needed.

The opening from cook-room to shed is provided with a slide door. Truck is a simple platform with large double table casters for wheels, and will hold four large pails or a tub. It saves time and labor. P, door at end of alley. Hogs may be loaded here by having a step board. R, door into alley.



VIEW OF CORN CRIB

If a corn crib is to be attached under the same roof, as shown in diagram, it should (in a northern state) be no wider than 3 feet at the bottom and 4 at the top, as the side wall of hog house would prevent circulation. Ours is full length of hog house and holds 2,000 bushels of ear corn. It is slatted up and down; and holes left every six feet, by nailing strip on slats firmly underneath where they are to be cut.

When put back in place the upper end of slats rests against plate and horizontal strips against uncut slats inside; when crib is filled to its full capacity with corn, they can not be opened from outside. The doors on inside, opening into alley are slide doors. There are two in 70 feet.

The foundation is a stone wall, and should be at least two feet high, one foot beneath the surface, so that hogs will not undermine it, laid in lime mortar, but at intervals boxes four or five inches square should be inserted next to the sill, with open wire netting nailed on the inside so as to permit circulation of air. During the season when cold drafts will be injurious to sows and pigs, they can be closed, but when opened in summer, will keep it dry and healthy.

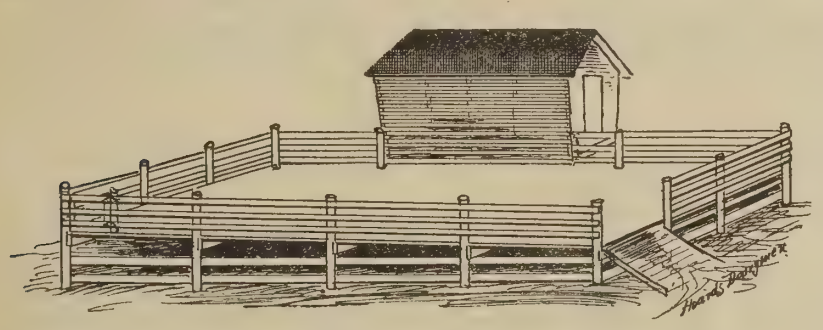
The sills are 2 x 8 doubled by breaking joints and coal-tarred. Ours are now nearly eighteen years old and in good condition. They too should be bedded in mortar. The joists are 2 x 8, three feet apart and cross-bridged in center. The floor is pine plank all of one width, so they can be replaced in front of troughs, where they give out first.

If kept clean, as they should be, their duration is at least eighteen to twenty years. I prefer them to cement floors and to boards on cement, as they become contaminated beneath and are always damp. The floors run lengthwise of the building.

The frame is built of 2 x 6, seven feet apart, the width of pens. An inch board nailed to these studdings to receive the upper joist; and girts of 2 x 6, four feet apart, inserted to hold siding. The building is double boarded with wide boards, and had paper been in vogue at the time of building, we should have had the paper between.

The entire structure, eighty-six feet long, with lumber at $9.00 per 1,000, shingles at $1.50, stone furnished by ourselves and also most of the labor, required a cash outlay of $165, and thousands of pigs raised in it never told the doleful tale of contamination, and we still think it a place of comfort, more so when winter approaches; a source of economy of feed and labor.

THEO. LOUIS.


Feeding Floor.

FOREIGN BUTTER MARKETS.

Dowdall Bros., of Manchester, England, send us the following "Butter Review" It is interesting from several points. It shows that the dairymen in this country are not the only ones to suffer from unseasonable weather. That frost and snow plague the European as well as the American dairyman. As the market immediately shows the effect of such weather, the relation of cold to butter fat production must be also as important a factor to the European dairyman as in this country. We note that Russian, Friesland, and Argentine butter competes with the French, Australian, and New Zealand article—an interesting comment on the cosmopolitan nature of the English butter market.

The bitterly cold weather, with snow storms, which has prevailed for the past week, has steadied markets, which had been inclined to droop, and a firmer feeling began on Wednesday, which has since hardened into a very good demand for butter to-day. In Denmark, very severe winter weather set in just as they were preparing for spring. Snow is covering the country, and the windows are blinded with ice, even in heated rooms. The frost now will have the effect of retarding vegetation very considerably.

British markets were fairly firm at unchanged rates, if not slightly lower than the previous week. Both Newcastle and Manchester had increased arrivals, and although not quite brisk, cleared fairly well, the tendency of buyers being to act cautiously Copenhagen had sufficient orders to cover supply and justify the official top quotation being unchanged. The Danish quotation is still 5 kroner higher than last year at the same time. The Hamburg market is firm at unaltered top price, but independent f. o. b. prices are 2 shillings dearer. It is said that in Ireland, grass is several weeks behind, because of recent frosts, when there was no snow to protect the soil. Yet, advance lots of creameries have been marketed this week, and show wonderfully good texture and flavour. It is always refreshing to sample these butters in the Spring. Russian and Finnish butters are on the increase. Frieslands show excellent quality. Imports of butter for February are in excess of last year, the United States contributing 24,899 cwt. more than in 1898 New Zealand also sent 5,199 cwt. more, but Victoria sent 10,254 cwt. less, and France 7,777 less. A heavy shipment of Argentine butter arrives next week. The weather has turned milder, wind changed, with heavy rain. In margarines and mixtures, fair business is doing. Margarine arrivals via Hull, 11 427 packages, and via Grimsby, 5,845 packages.

Steam in Dairy.

How a Dairyman Uses It.

ED. HOARD'S DAIRYMAN:—It is indispensible. Here follows what I do with a two horse boiler.

1. It runs an engine, and the engine runs a squeezer combined churn and worker, and a grindstone.

2 A Little Giant separator.

3. A sterilizing outfit, that can sterilize cream as it comes from separator. Also used for heating milk, etc.

4. A steam connection, which runs up through washing table, over which we turn cans, etc., for steaming.

5. A connection with two movable joints which can be lifted into a can, pail, or any other vessel for heating water.

6. Turn steam into a coil of pipe in cream ripening room.

7. Can turn steam into my house heating system, to augment that, in case of emergency.

8. When I find my water pipes in adjoining kitchen frozen up, I attach a long hose pipe, and in five minutes Jack Frost's work is undone.

9. Last, but by no means least, a connection runs into a tank of water, which can be made scalding hot in five minutes.

I use five cream cans, each holding ten gallons. These are made of crockery ware and lined with a chemically prepared enamel. They are set in a tin jacket, air tight, and water is let in through a spout and pipe, with an overflow on opposite side. Hot water is kept flowing through till cream is warmed to desired temperature. In hot weather, when I desire to cool the cream, cold water is kept running through same pipes.

Peekskill, N. Y. F. H.

Preserves

—fruits, jellies, pickles or catsup are more easily, more quickly, more healthfully sealed with Refined Paraffine Wax than by any other method. Dozens of other uses will be found for

Refined Paraffine Wax

in every household. It is clean, tasteless and odorless—air, water and acid proof. Get a pound cake of it with a list of its many uses from your druggist or grocer.

Sold everywhere. Made by STANDARD OIL CO.


THE IMPROVED **VICTOR Incubator**

Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE.

Catalogue 4 cts.

GEO. ERTEL CO., QUINCY, ILL.

Seed Corn Fire dried and tested choice varieties of White Pearl Dent and White Flint.

White Shoepen Oats.

C. EUGENE WARD, Fort Atkinson, Wis.

HOLSTEIN-FRIESIAN CATTLE

Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.

Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland. L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale. C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.

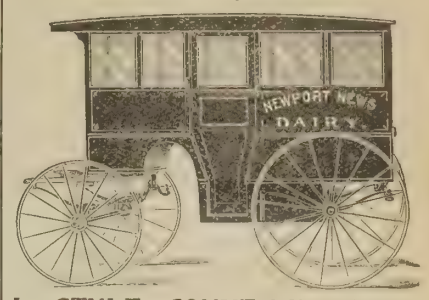
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO., Chillicothe, Ohio.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

REGISTERED Holstein-Friesian cattle, Aaggies, Netherlands, Waynes. Pauline Pauls, De Kols, Pietertje families. WM. O. JACKSON & SONS, South Bend, Ind.

Ten Choice Yearling

Holstein - Friesian Bulls FOR SALE!

Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.

A. H. WEGEMANN, Lake Mills, Wis.

BLOOD WILL TELL.

To intending buyers of **Holstein-Friesian Bulls**, who wish to obtain the highest possible results in dairy line, we say: "Get the blood direct from the foundation of the greatest butter families." Then success can be assured. "Valley Mead" is headquarters for H.-F. cattle, and therefore is able to give you a larger per cent of blood of all the greatest **butter families** of present and former days than can be procured elsewhere. Address,

KARLEN & CO., Monticello, Wis.

GUERNSEYS AND **POLAND-CHINAS.**

Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

M. D. Cunningham,

KANSASVILLE, WISCONSIN.

Has for sale two male Guernsey Calves; one dropped April 1st, 1898 and the other Sept. 8, '98. Excellent animals.

Riverside Guernseys.

CHAMPION HERD

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

GUERNSEYS.

225 Pure Bred Guernseys,

Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection

ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

MILLWOOD FARM

Guernseys!

Guernseys of All Ages and Sexes For Sale.

Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.

N. I. BOWDITCH, Framingham, Mass.

Mr. Wheaton's Canadian Dairy Notes.

Spring Cheese and Butter—Looking Forward in the Dairy Business—Money Making Cows—Building up a Herd. The Scrub Bull—Irregular Breeding—Canadian Dairy Schools.

ED. HOARD'S DAIRYMAN:—Notwithstanding the advice given on all sides, and the repeated warnings against making early spring or fodder cheese, we hear of many factories doing so. Of course it is hard to get people to adopt a line of practice when they feel that in doing so they are losing a temporary gain.

Such is the outlook for the cheese trade at the present time. That early cheese is likely to bring 10 cents or more per pound, and with a good demand at that. With this prospect before them, it is difficult to get dairymen to keep on making butter till the grass season opens up.

It is a question, however, if calves are to be raised, whether it will not pay better to make butter at 19 or 20 cents per pound, and have the skim milk returned, than to make fodder cheese at 10 or 10½ cents per pound.

We are all a little too much inclined to seize hold of the smaller thing which is at hand, rather than reach out for the more comprehensive plan which would make things better for the future. The seeming rush on the part of factories to make early cheese, while perhaps giving the dairymen a good return at the time, may, before the season is over, cause an increased supply that will bring the price back to what it was last year.

Speaking of working and living for the present, we question whether the half of our dairymen ever look beyond that point in connection with their business. How often do we see dairymen going along, year after year, with the same old unprofitable cow and the same old careless and slipshod methods of feeding and caring for them.

Such persons must live only in the present for they never act and plan as if they wished the future to bring better results than the past.

In this dairy business it is not the man whose cows give a large flow of milk in June when the grass is plentiful, and then dry up in August, because he has not seen far enough into the future to sow some peas and oats or other grains to provide supplementary feed, who makes the most money out of dairying.

The dairyman who is making money out of his cows every year, and every day in the year, is the one who looks ahead and so plans for the future, that his cows have all the good, succulent food they require at all times, and are given that care and attention necessary to make them produce to their utmost capacity.

This latter may be an ideal condition, but still there are many dairymen in Canada and elsewhere, who, from definite plans formed, it may be years ago, and which they have followed intelligently and wisely, are today reaping a rich harvest.

There is one phase of the dairy business, which, if the dairyman does not plan for the future he cannot possibly hope to succeed in, and that is building up a dairy herd. It is really a matter of surprise, considering the amount of preaching and teaching that has been given on this subject, to find so many poor and unprofitable cows, even in the older dairy districts of this country. We may well ask, why is this?

If a dairyman reads any kind of an agricultural paper, attends an institute or dairy meeting, or makes any comparison of his own cows with his neighbors, he must surely learn enough to know that there are good cows and poor cows. And knowing this, why don't he get rid of his poor cows, and keep only those that are profitable?

The answer to this problem is, we think, that a large number of dairymen live and work only in the present. To breed and build up a good dairy herd, a dairyman must look ahead. He must have his ideal dairy cow in his mind, and bend all his energies and skill in the direction of producing, or reaching up to that ideal. This cannot be done in a day. With the kind of cows that many of our dairymen have at the present time, it may take a generation to reach the highest point in the way of a dairy cow, and then with some cows as a foundation stock, such a thing is almost impossible. But still the goal is worth reaching up to, and if the dairyman's cows are of such an inferior kind that it would be only a waste of time to attempt to build up a good dairy herd from them, then the whole lot should be discarded, and better ones got as a sort of "starter," from his more successful neighbors.

But nearly every dairyman will have some good, or fairly good cows among his herd. Then let him take these and breed them to a good dairy bull, whose ancestry have a record as large milk producers. Such an animal can usually be found in every dairy district, if a little trouble is taken to look for him.

One of the drawbacks, and a positive check to good breeding, is the "scrub" bull. That kind of an animal that would be ashamed of his ancestry, if brought to light, and who owes his existence to the fact that there are plenty of dairymen and farmers who require his services because they are cheap.

This is the type of animal that many dairymen take even some of their best cows to, and expect to raise a good cow from his progeny; just because there are some good milking qualities on the maternal side of the combination. But it is absurd to expect good results from such a line of procedure.

To raise good cows, a regular and systematic line of breeding must be followed. Particular attention must be given to the sire, and he must have more reason for his existence than being merely a "getter of calves." There must be continuity in the system.

It will never do to jump around from one line of breeding to another, without any good reason for doing so. One of the reasons why so many fail to produce good stock, who seemingly start out right, is that they do not stick to the one line of breeding long enough to make a success of it, and obtain permanent results.

A wise selection, a continued effort, and an intelligent application of methods are essential to all good breeding, and to none more than breeding good dairy cows.

The Provincial Dairy School, of Guelph, closed its seventh session on March 25th. There has been an attendance of 115 students, during the term, the majority of whom remained for the three months' course. Among this number were sixteen ladies. Forty-four candidates were successful in passing the examination, and in obtaining certificates for general proficiency.

The new dairy school building, at Sussex, N. B., is completed, and the school in full blast. The attendance is now twenty-five, with more to follow, which is a pretty good showing for a comparatively new dairy district.

A new school has been started at Woodstock, N. B., which is in the western part of the province, and in the center of the best farming district. These two schools should give ample accommodation to the dairymen of the maritime provinces.

The cheese market continues strong and active. Last week (April 8th) holders of old stock, held at Montreal, were asking as high as 11½ cents, with the prospect of probably 12 cents being reached before the season is over. The English buyer could have had this cheese a month ago at under 10 cents but he would not accept, believing that there were large quantities on this side still to go forward. He had not, however, summed up the situation carefully, and consequently will have to fork over a cent or two more a pound, in order to get the goods.

There are comparatively few cheese in store on this side, which makes it all the clearer, that before the bulk of the new goods reaches Great Britain, there would be very little old stock in its way.

The creamery butter situation, on the whole is weaker, and prices during the week dropped from 1 cent to 1½ cents at Montreal from top prices, 19½ to 20 cents being the ruling figures for choice fresh creamery. Should the bulk of the combined factories that are now making butter change to cheese making, there may be a reaction in the butter market that would mean better prices. There is not so much butter put into cold storage, as was the case a few years ago, which makes the butter trade more of a hand to mouth business.

J. W. WHEATON.

Toronto, Canada.



Always Use the BEST.

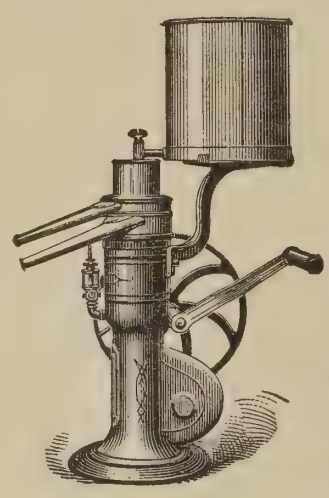
The temptation to try a cheaper article in manufacturing high grade goods is such that the experiment is often undertaken and results generally in producing an inferior article.

High grade butter needs the best of appliances and skill and particularly the best Color.

WELLS, RICHARDSON & CO.'S IMPROVED BUTTER COLOR

has maintained its reputation as the best. It is always reliable and gives the true June shade.

"THE KIND THAT HAS NO MUD."



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
Perfection of Skimming .	The NATIONAL is the Bes
Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

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CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



THE

AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**

At The ST. LOUIS FAIR, as the

BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

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ZERO CREAMERY

Uses either water or ice. Does its work perfectly. Possesses desirable features found in no other. Send for Circular, free, to learn all its merits. Efficient, inexpensive, clean, low temperature.

ZERO CREAMERY CO., PERU, IND.



Water alone will do the work. Money saved.

The Most Complete Creamery and Refrigerator on the Market

Starting in Right.

Inquiries as to Acid Test for Cream—Salting Butter in Churn.—Growing a Balanced Ration.

ED. HOARD'S DAIRYMAN:—I am making butter and want to know what and how to use that acid test I see mentioned in the DAIRYMAN for testing cream, to know what temperature to ripen at, when to churn and what temperature to wash at.

I have a U. S. separator and Davis swing churn, also Eureka worker, but am going to try salting and working in the churn tomorrow as mentioned in the DAIRYMAN last week.

I don't understand about what to grow to make a balanced ration. I have corn stover and corn and cob chop. Now will oats and peas make a balanced ration without buying any kind of feed? Are they to be threshed and ground together and is it Canada field peas that is meant?

I am putting in steam to run our dairy machinery and do the washing. I think that will be just the thing.

My cows are poor compared to those mentioned in the DAIRYMAN but I am trying to get better. I have a mixed Jersey and Guernsey bull which I am breeding from.

Do you think I can make it go making fifty pounds a week from ten cows, getting one cent above quotation, paying a hired man $12 a month and giving one third as rent for the farm? J. W. S.

Quakertown, Pa.

The writer of the above is one of those young men who are starting in right and will be pretty sure to come out right. He proposes to make his brain help his hands, and in whatever business men engage only those who subordinate physical force to mental force gain the highest rewards. If our young friend will address a letter to the Wisconsin Experiment Station, Madison, Wis, asking for h copy of the bulletin which deals with the acid test for cream, we think he will get more and better information on the subject he inquires about than it would be possible for us to give in reply here.

We do not remember having noticed any experiments made with salting butter in the swing churn. We cannot say that it would not be successful, but our impression is that this method is only practicable when some form of revolving churn is used. We would be glad to have J. W. S. report the result of his experiment with the swing churn.

We very much doubt whether it is practicable on the average farm to grow a sufficient variety of crops to make a profitably balanced ration. One can frequently sell corn and oats or some other farm crop and purchase some of the by-products or millfeeds with great advantage. We think the ideal ration is composed of silage, clover hay or oat and pea hay, a little corn stover, corn and cob meal, bran and gluten feed or cotton seed meal. In the absence of silage or roots we would include in the list of grains, a little linseed oil meal. The following formula will show about the proportions that we think it necessary to feed where there is neither silage nor roots:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. oat and pea hay	10.18	.72	5 19	.18
10 lbs. corn stover	5.95	.17	3.24	.07
4 lbs. corn cob meal	3.56	.26	2.52	.14
2 lbs. bran	1.76	.25	.77	.06
1 lb. oil meal	.91	.29	.33	.07
1 lb. cotton seed meal	.92	.37	.17	.09
Totals	23.28	2.06	12.21	.61

The above should be considered the minimum allowance. It should be increased by adding more of the oat and pea hay if the cows will eat it, and if not, increase the grain allowance for the cows which have the capacity to make good use of it.

Rennet Test Questions Answered.

ED. HOARD'S DAIRYMAN:—Will you please answer the following questions?

1st. At what rennet test (Marschal's) would you consider it best to set milk in spring and what quantity of rennet to be used per 1,000 pounds milk, in ounces? (Chr. Hansen's Dannish rennet.)

2nd. How long from the time rennet is added should the vat stand until cut.

3rd. How low rennet test would you consider it safe to take patrons' milk? Would you advise taking a patron's milk that would not run over two test, Marschal's, or how low?

Having had very good success in the cheese factory so far, yet I still look to HOARD'S DAIRYMAN for advice, and should be very glad to see more articles on cheese making.

Enterprise, Kan. A. H. D.

Mr. D., like a good many other cheese makers, is being mislead by the Marschal rennet test. The divisions on the Marschal cup may be the same in different pieces of apparatus, but the holes in the glass outlets are not alike. In fact they vary 150 per cent in size. The result is that with one cup the milk will curdle at the 1½ mark while with the same milk in another cup it will not curdle till it reaches the 3½ mark.

It is not intended that a maker shall go arbitrarily by the marks, any way. He should set his milk by the rennet test so that in two and a half hours from the time he sets the milk, he will have one-eighth of an inch of strings on the hot iron, and can get his cook or scald by that time. When he knows what rennet test is required to get the curd to work off in this length of time, he can ripen his milk to the same point each day and his curd will take acid in about the same length ot time. Knowing this, he can get a uniform cook, and a uniform cook means a uniform cheese.

Use enough rennet to curdle the milk at this ripeness at a temperature of 86 degrees in twenty minutes.

We would advise the use of the Farrington tablet solution as described on page 146 of the Fourteenth Report of the Wisconsin Agricultural Experiment Station. Most of the readers may not have access to a copy of this and will give a short description of the method as follows:

Get a package of Farrington tablets which can be procured of any supply house. Take a bottle, and for each ounce of pure water—soft water preferred—in the bottle, add one tablet. Of course, the water should be carefully measured. When the tablets are dissolved, the solution is ready for use. It should not be used after the day that it is made. Take a No. 10 brass cartridge and solder a wire handle to it. This is to be used as a measure. Take one measure of milk from the can and pour it into a tea cup Then take two measures of the solution and and add to the milk in the cup, and stir them together. If the color remains pink, the milk can be accepted; but if the pink color disappears, there is more than two tenths of one per cent of acid in the milk, and the same should be rejected. The patron cannot say that the maker is mistaken. The acid test tells the story.

Madison, Wis. JOHN W. DECKER.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

DID YOU GET UP WITH A LAME BACK?



KIDNEY TROUBLE MAKES YOU MISERABLE.

Dr. Kilmer's SWAMP-ROOT is the Great Remedy for Kidney, Bladder and Uric Acid Troubles.

By Special Arrangement Every "Dairyman" Reader to Prove For Themselves the Wonderful Merits of this Great Discovery, May have a Sample Bottle Sent Absolutely FREE by Mail.

Well people have healthy kidneys.

You are in no danger of being sick if you keep your kidneys well.

They filter your blood and keep it pure and free from disease-breeding germs.

Your other organs may need care, but your kidneys most, because they do most.

If you are sick, begin with your kidneys, because as soon as they are well they will help all the other organs to health.

The treatment of some diseases may be delayed without danger, not so with kidney disease.

Swamp-Root is the great medical triumph of the ninteenth century; discovered after years of untiring effort and research by the eminent kidney and bladder specialist, Dr. Kilmer, and has truly wonderful healing action on the kidneys and bladder.

It will be found by both men and women just what is needed in all cases of kidney and bladder disorders, lame back, dull pain or ache in the back, gravel, catarrh of the bladder, rheumatism, sciatica, neuralgia, uric acid troubles and Bright's Disease, which is the worst form of neglected kidney trouble.

Swamp-Root corrects inability to hold water and promptly overcomes that unpleasant necessity of being compelled to go often during the day and to get up many times during the night.

If your water when allowed to remain undisturbed for twenty-four hurs forms a sediment or settling, or has a cloudy appearance, it is evidence that your kidneys and bladder need immediate attention.

The way to be well is to look after your kidneys. To take Dr. Kilmer's Swamp-Root when you are suffering from clogged kidneys.

This prompt, mild and wonderful remedy is easy to get at the drug stores in fifty-cent and one-dollar bottles. Make a note of the name, SWAMP-ROOT, Dr. Kilmer's Swamp-Root, and remember it is prepared only by Dr. Kilmer & Co., Binghampton, N. Y.

Swamp-Root has been tested in so many ways, in hospital work, in private practice, among the helpless too poor to purchase relief, and has proved so successful that a special arrangement has been made by which all readers of the DAIRYMAN, who have not already tried it, may have a sample bottle sent absolutely free by mail. Also a book telling more about Swamp-Root and containing some of the thousands upon thousands of testimonial letters received from men and women who owe their good health, in fact, their very lives, to the wonderful curative properies of Swamp-Root. Be sure and mention HOARD'S DAIRYMAN when sending your address to Dr. Kilmer & Co., Binghampton, N. Y.

ARE YOU PROUD OF IT?

Are you proud of the butter you are making? Has it good grain? Has it the delicious June tint? Is its flavor all right? **Will it stand the Fuller's Earth test for analine dye?** Remember this test can be made in five minutes by any housekeeper, and also remember that if she finds analine dye there, her custom is gone from you forever.

Thatcher's Orange Butter Color

Will give every desired quality to butter that is otherwise all right.

IT PLEASES THE EYE, AS GOOD BUTTER DOES THE TASTE.

It is made from pure vegetable substances, and is healthful. Analine dye is found in many butter colors. It is a deadly poison and is prohibited by law. The Fuller's Earth test will discover it every time. For a Sample bottle of Thatcher's Orange Butter Color, write

THATCHER MANUFACTURING CO., - Potsdam, N. Y.

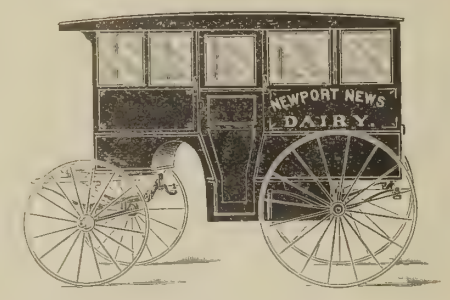
The DEATH of Dewey

would not create more talk among dairymen to day than does the arrival of one of our

UP-TO-DATE
LOW DOWN

Dairy Wagons

in your town or vicinity.



It is the PERFECTION of all points
in a practical easy running, low hanging, commodious wagon.

Arcadia Ind Sept 15 98.

National Wagon Co
Chillicothe Ohio
Gentlemen —
On the afternoon of the 9th inst - the Low Down Milk wagon shipped by you to this place on the first came to hand without a mark or scratch on it. "It is a Dandy" my boys would not take $1000 for it. On Sunday morning they hitched up a span of match Texas Ponies yellow with white Mane and tails with a nice set of Harness and taken in the town every one wanted to know where that wagon came from.
I am well pleased so far and should me or my boys need anything in that line in future we will not forget you
Yours Truly Wm A Fletcher

We have a Dairy with 110 Head of Registered Stock right at our door, and in handling the distribution of this immense product, nothing but the most practical time and labor saving devices are used.

E. B. O. SMITH,
EXPERT OPTICIAN.
All kinds of Optical and Photographic Goods Carried in Stock
Special Attention Given to Fitting Spectacles and Eye Glasses.
119 W. MAIN STREET,

Lancaster, Ohio, Sept 20 1898

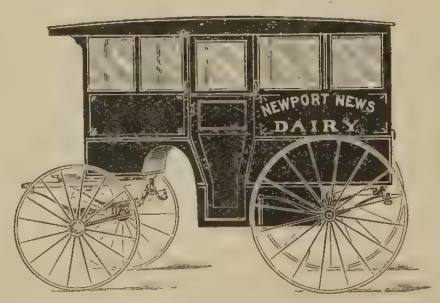
National Wagon Co
Chillicothe O
Gentlemen
I have intended writing for some time to tell you how I liked my wagon.
It came all right on time and since put on the streets has been the talk of the town the universal verdict is that it is the "smallest business turnout ever put on the streets of the town."
If ever a wagon got a critical examination mine did the other day by the representative of another factory. (one I had corresponded with before buying) and all he could say was this was shorter coupled and for that reason lighter draft" he said more was worth the money and finally requested that I drive out where he could take a photo of it.
If I can do you any good refer to me
Respectfully Yours
E B O Smith
"Dry Cottage Dairy."

Our Wagons

ARE NOT BUILT BY THEORISTS,

but from points attained from day in and day out usage.

SELLS ON ITS MERITS!



THE BEST FOR LEAST MONEY!

EVERY DAIRYMAN should send his address, and we will send one 22 x 26 Engraving of the scene

"The New Dairy Wagon,"

Produced by our own Artists from life.

THE NATIONAL WAGON COMPANY, Chillicothe, Ohio.

THE LARGEST AND MOST COMPLETE DAIRY WAGON SHOPS IN THE WORLD.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, aggregated 9,840 pounds. All bids were at 19 cents, and all sales at this figure. The Quotation Committee announced the market steady at 18½ cents.

The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Red Clover	1,200	19c.
McConnell	1 0?0	"
East Burlington	900	"
Shabbona	1,080	"
Shabbona Grove	840	"
Shattock's Grove	2,400	"
Malta	1,500	"
Keystone	840	"
Total	9,?40	

The sales for the corresponding week of the three preceding years were as follows:

April 18, 1898, 16,500 lbs. of butter sold at 17c.
April 19, 1897, 40,680 lbs. of butter sold at 16@16½c.
April 20, 1896, 81,120 lbs. of butter sold at 14@15c.

The New York butter market Monday was reported steady at 19 cents. H. C. B.

Elgin, Ill., April 17, 1899.

CONCERNING OUR ADVERTISERS.

GET YOUR MONEY'S WORTH.

The American farmer knows where to get his money's worth. That is why he buys the McCormick in vast majority. The great record of 189,760 machines built and sold in 1898, was made by the McGormick Harvesting Machine Company of Chicago. These figures utterly transcend those of any other agricultural implement factory on earth. There is a reason for this; it arises from the masterly construction of the McCormick machines. They are the most modern of all machines upon the farm. Each machine turned out of their gigantic works possesses a genius in design, an accuracy in workmanship and strength of material which surpasses all rivalry. The agriculturalist who wants to be a happy farmer, is attracted to the McCormick machines. He has the absolute certainty of his money's worth when he buys "The Best in the World."

WORTH TRYING.

A farmer recently wrote his name and postoffice address on a postal card and addressed it simply to "Deering, Chicago." By return mail he received from the Deering Harvester Company a catalogue with over 100 fine half-tone illustrations, containing a picture of the largest factory in America, a "twine booklet" on the subject of binder twine, a copy of the Deering Farm Journal, and a personal letter—All for a postal card. Try it.

The advantages of a cash buying principle are much more highly appreciated than formerly. Present indications point to the fact that at no very distant date the long drawn out interest bearing account will be a thing of the past. Cash buying is a business short cut, it is the little path that leads across the fields It saves business distance.

Cash selling and buying has gradually led up to another method of conducting business, which is to sell direct from the manufactory to the consumer.

Take for instance the Elkhart Carriage and Harness M'f'g. Co., of Elkhart, Indiana They sell everything they make direct from the factory to the consumer. Their terms are either cash with order or C O. D. with fullest privileges of examination, and their experience is that the cash buying principle is growing upon the people. By far the greatest percentage of their orders contain cash remittance. This is very complimentary to the Elkhart people and their fair business methods. They are undoubtedly the largest manufacturers of vehicles and harness in the world selling direct to the consumer.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

CALF SCOURS.

I have lost two calves lately. They came all right, and in two or three days seem to have a very bad diarrhoea. They seem to be in pain and nothing comes from them but water, and they soon quit sucking and they die in a couple of days. Can you tell me what to do or what is the cause?

ANSWER.

There are so many cases of scours in calves now-a-days, that it points seriously to one great common cause. Whatever the cause, the general treatment is the same. Slippery elm, flax seed tea, island moss, oil cake porridge, gum arabic, oat meal gruel, etc. To each pint put a piece of unslacked lime as large as a hickory nut. The gruels can be changed so as to get the best suitable.

CALF SCOURS—TREATMENT OF BAG.

I have lost three calves and all the rest, eight more, are sick same way, but I gave them paragoric and saved their lives. They are born all right, lively and hearty, but in two or three days were taken with dysintery and their bowels run like water and became badly swollen. I fed the cows on hominy chop and bran, one-half and one-half, and dry corn fodder and clover hay.

2. Also what is best remedy to rub a bag with. When calf was born, the bag was hard and took a few days to get it soft. I used to rub with hog's lard and gum camphor dissolved or melted.

3. I also have a cow that, when she had her first calf, had a perfect bag but second calf was neglected by her owner and her bag got hard on one spot and only a small amount of milk comes out of that teat, but that comes free. Is there anything I can do to soften that place and get a full flow of milk from that teat? This it her second calf since it happened. W. S. R.

Md.

ANSWER.

Give slippery elm tea, flax seed tea, island moss, gum arabic, oat meal porridge—any of them, one at a time—about a pint or less, gradually. Put into each pint, fluid extract of ginger, two teaspoonfuls; don't give any rough sort of food for a while, keep the stools constantly washed off thoroughly. Keep well calves away.

2. Hand rubbing, thoroughly, and fish oil.

3. Same as No. 2 and a dilating plug.

GROWTH IN NAVEL.

Large cow has a large protuberance about navel, say 8 inches long and 2 inches thick in center. It is growing harder. What is proper treatment? I am applying external irritant. J. W.

Rapidan, Va.

ANSWER.

Paint over with strong tincture of iodine several times daily. Internally give 80 grains of iodide of potassa for 10 or 20 days. Give also a full dose of physic, and repeat; repeat if needed 5 to 7 days apart.

ABORTION.

I have a full blooded Jersey cow that has aborted three times out of four. Calves come too soon to bring a flow of milk; head of calf about the size of that of a goose. This cow has been a dead loss to me for several years, but because she is a thoroughbred, and a very handsome cow, one that I bought as a heifer from a Jersey cattle raiser to aid in building up a Jersey herd, I am loath to part with her to the butcher.

Lynchburg, Va. J. C.

ANSWER.

I refer all such cases to the special medicines advertised in the DAIRYMAN. It is fully as cheap as medicines I have been recommending for some time for the prevention of abortions, this had to be compounded by inexperts. The medicines had in many cases to be gotten at country drug stores, etc., and was quite often of no value, from being old shop stuff; then again, it was quite often inaccurately compounded.

A LAME LEG.

Have a cow that was taken lame in right hind leg about two weeks ago and there seems to be no improvement. There appears to be a bunch on the outside of the leg just below the stifle. L. L. S.

Ft. Atkinson, Wis.

ANSWER.

Cut off the hair close then paint over with the Gombault's Caustic Balsam several times a day. When you have raised a good blister cover with clean lard, daily, until the scab comes off easily. Then, if needed, repeat and so on.

SUDDEN BLINDNESS.

I have a two-year old Jersey heifer that has become blind. When I turned her out in the morning she was all right and when I put her in she was blind. She is in good health and her eyes look natural.

Naomi, Mich. SUBSCRIBER.

ANSWER.

Your case is beyond all correspondence. Paralysis of the optic nerve is quite a serious condition. Get a genuine veterinarian or your family doctor to examine the eye and act accordingly.

ABORTION.

I have read with interest your reply to R A.W. in the DAIRYMAN of recent date respecting the "hypodermic treatment for abortion."

I have about fifty cows and am losing more than half of my calves. They are born at from five to seven months. Heifers are the worst to abort.

Cows are well fed on sorghum hay, corn fodder, all they will eat, and about 8 lbs. bran, 2 lbs. cotton seed meal, and 3 lbs. corn and cob meal per day. E. T.

Edwardsville, Kan.

ANSWER.

Select one of the special remedies advertised in the DAIRYMAN. Cotton and cob meal is one of the worst foods known for breeding cows. Cotton, in all its forms, is a positive abortient.

LUMP ON JAW.

We have a cow with a lump on her jaw, which runs perpendicular with jaw where it joins neck, that is, from ear downward. It started about five weeks ago, and has been getting larger, gradually, until now covers whole back of jaw, and sticks away out.

Meramec Highlands, Mo. B. C. B.

ANSWER.

All such and similar cases need a good expert to make a professional examination, and act accordingly. All these sort of swellings are very suspicious of serious conditions. No approximate diagnosis can be made by correspondence.

CHEMICAL DEHORNING.—PIG SCOURS.—BREEDING FROM TWINS.—ABORTION.

1. Is caustic potash in liquid or solid (paste form) used for dehorning calves? At what age, how to apply, and how many times? Is four to five weeks too old?

2. How to treat scours in pigs?

3. Are catttle liable to take infection from hog mange or itch?

4. If the male or female is one of twins, which one would have the greater power to transmit these tendencies?

5. If abortion exists in the herd, and they were not sired by the "head," is he liable to infection?

Cedarburg, Wis. M. H. M.

ANSWER.

1. Some persons use caustic potash for dehorning calves, or rather, preventing the growth of the horns.

2. Keep clean; change the food gradually; plenty of pure air and sunlight, charcoal, hard coal screenings, and a little clean chalk once a day, for two or three days. Grass as soon as practicable.

3. Yes.

4. All depends upon the prepotency.

5. Don't understand your meaning by the head. Bulls do get infected quite often.

LAMENESS IN LEG.

About four weeks ago I went to woods and put on a load of logs; my mare got stiff; brought her to barn. She laid down for three days, then got up. Is lame in right hind leg; seems to be lame in hip. Please give a remedy. J. B.

Sheboygan, Wis.

ANSWER.

No doubt your mare was strained across the loins. Log hauling is responsible for many similar cases. Strong oak decoction tea, two quarts; acetic acid, half a pint. Bathe over loins, and the lame leg six to ten times a day. Don't attempt to work her. Give her a good soft hay bed.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for FREE $2 trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa

CANCER cured at home. Send four cents, stamps. 80 page book illustrated Dr. J. B. HARRIS 2226 Kemper Lane, Walnut Hills Cincinnati, O.

The work of a farmer's wife is never ended. But it is wholesome, enjoyable, productive work that is pleasurable if the farmer's wife is a well woman.

The work becomes weary drudgery when the woman is sick. The work drags and the woman's pride is hurt. Her ambition is to do as much and better work than her neighbors. It is a distinct triumph if her butter is generally regarded as the finest in the county. But fine butter and bad health don't go together.



Mrs. W. J. Kidder, of Hill Dale Farm, Enosburg, Vt., writes to Dr. R. V. Pierce, Buffalo, N. Y.: "During the past year I found that I was to become a mother and that I was in rapidly failing health. I suffered dreadfully from bloating, and urinary difficulty. I was growing perceptibly weaker each day and suffered much sharp pain at times. I had to give up my work and I felt that something must be done. I sought your advice and received a prompt reply. I followed your directions and took twelve bottles of Dr. Pierce's Favorite Prescription, and also followed your hygenic instructions. I began to improve immediately, my health became excellent, and I could do all my work (we live on a good sized farm). I walked and rode all I could, and enjoyed it. I had a short, easy confinement and have a healthy baby boy."

The one medicine that gives prompt and sure relief is Dr. Pierce's Favorite Prescription. It is a tonic and purifier that works on one special set of organs and puts them in a perfectly vigorous, healthy condition. It quickly soothes inflammation and stops debilitating drains on the system. Taken regularly during the period of gestation it greatly lessens the pain and danger of childbirth.

Although sweet to the taste it contains no sugar which often disagrees with weak stomachs; nor does it contain any alcohol, or opium in any form, and therefore does not induce a craving for stimulants. Keeps perfectly in any climate.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to **H. W. KELLOGG COMPANY, Ripon, Wis**

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One galion will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** Theseare established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

Dr. Horne's Anti-Abortient

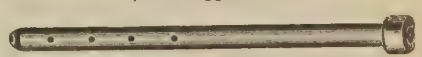
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

Mr. EUCLID N. COBB, of Monmouth, Ill., better known to our readers as "Buff Jersey," has published a small pamphlet entitled "The Dairyman's Hand Book," which is replete with sound advice and timely admonition, gathered in an experience covering many years of active association with cows. He has induced several enterprising business men to give him advertising enough to cover cost of publication and will therefore send a copy to anyone who will forward a two cent stamp to cover expense of postage and wrapping.

Experience with Abortion and Calf Scours.

ED. HOARD'S DAIRYMAN:—As there always seems to be some one in trouble by having abortion in their herds, I thought I would give my experience for the benefit of W. J. A. and others.

I keep about forty cows and two years ago they commenced aborting and about every other one would abort. They continued through the year '97 and commenced again in '98, two or three of them performing the act the second time. I commenced feeding them carbolic acid in the following manner:

Two ounces carbolic acid in one gallon bran, thoroughly hand rubbed in the bran, then mix this with two gallons coarse salt and keep this where the cows can get at it every day.

Do not feed any other salt while feeding this; also with fine spray, (five gallons water and one pint carbolic acid), disinfect all posts and prominent doorways, stalls, and mangers on premises, also the affected cows. I never lost one case after using this method.

We have lots of scouring calves in this valley, and we find that a little spice tea, made from any of the spices that our good wife always keeps on hand, will check it better and quicker than anything else we have tried. W. S. M.

Randolph, Utah.

Vetch Experience Wanted.

Also Experience Growing Protein in Corn Belt.

ED. HOARD'S DAIRYMAN:—Can you or any of your readers give experience with vetch, sent out so lavishly by the government last spring? I sowed alone in drills, and broad cast; also broad cast with oats, but got nothing over six inches in height.

Also, has there been any experiment recorded in which the attempt was made and proved that the protein supply for a dairy farm in the corn belt can be grown successfully, financially?

I have tried this to some extent, but am not at all convinced of it on 50 bushel corn land or better, and experimenting while trying to live, is very wearing, both on nerves and pocket. J. P. D.

Fowler, Ind.

J. P. D. has raised some important and vital questions. The United States is at considerable expense every year, in the distribution of seeds of various kinds. Much of this expense is worse than useless, and the Department of Agriculture has repeatedly urged Congress to repeal the law making such distribution compulsory, but for reasons which it is unnecessary to specify in detail, congressmen have not been willing to surrender this to them cheap method of complimenting their constituents. It is, of course, perfectly legitimate and proper for the general government to secure and distribute sample packets of new and untried varieties of grains, vegetables and forage plants, in order to ascertain their adaptibility to various soils and climates, and that is the theory upon which the vetch seed was distributed last year. Our Indiana friend and all others who received seed should report to the Secretary of Agriculture, the results obtained, and in due time these reports will be published.

Meantime, if there are other readers of the DAIRYMAN who tried vetches last year, we should be glad to hear from them.

As will be seen, in reply to an inquiry from Pennsylvania, our opinion is that it is not practicable to raise all the protein feed on the farm, but that is no reason why one should raise only corn. It is indispensible if one expects to maintain the fertility of his soil and continue to produce crops at a profit, that he pursue some system of rotation. All corn, all cotton, or all wheat, year after year, will bankrupt any soil or any farmer. The dairy farmer in the corn belt, above all others, should include clover or other leguminous crops in this rotation, not alone for the conservation and improvement of the fertility of the soil, but for the added reason that such crops supply him in part with the much needed and expensive protein, without which it is impossible to produce milk. In the alfalfa "belt," where the protein is over abundant, he should raise kafir corn, sorghum, or some variety of common corn (maize).

Peas and Pea Hay.

ED. HOARD'S DAIRYMAN:—On page 151, A. D., of Marion, Ind., asks about pea hay. We have raised from 5 to 30 acres peas and oats every year for the past five years. Sometimes making hay, and sometimes ripening and threshing for grain crop.

If we have a heavy piece of sod filled with wire grass or June grass, or badly infested with Canada thistles, of which most farmers in this section have an abundance, we use it for our pea crop. Soil here is heavy clay loam. Plow just after corn is planted, good depth, work the ground with disk and spring-tooth, rolling several times while fitting, until it is well mellowed, when we set our drill so it will run at least four inches deep.

We sow 2 to 2½ bushels per acre of the small Canada peas, broad cast, about 1½ bushel oats per acre just ahead of drill. The reason we sow about June 1st to 10th is, we get a heavier crop. It chokes out thistles more completely and will entirely rid the land of wire or June grass, so hard to get out of the land here.

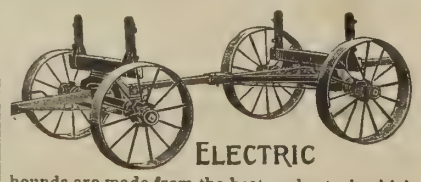
It leaves the land more loose, and it fits it for wheat nearly as easily as a summer fallow, rotting the sod out more completely than can be done with a summer fallow. Our mode of harvesting for hay is the same as we would handle a crop of clover, cutting when lower pods are about right to cook, and oats will be nearly all headed. We keep an old set of knives to use on mower for this business, as it is hard on them, for we like to cut as close to the ground as possible, so ground will be clear to fit for wheat.

If we wish to save a portion for grain crop, we use mower just the same; only we take three men with us to pitch the swath out of the way, so horses and machine will not run over them. In starting have one man follow up and roll swath ahead until he gets a good sized forkful, then roll it to one side, and so on; second man going half way round the piece, and starting in as the first one did; the third remaining at the starting point to take up second swath. In this way each man will take up an equal amount, and by the time machine is half way around on second swath, the first man will be there ready to start in after you. In this way four men and team will cut and leave in windrows ten acres a day. E. L. M.

Armada, Mich.

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned whiteoak. The front and rear



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hounds are made from the best angle steel, which is neater, stronger and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130 Quincy, Illinois., for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.

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Last season the McCormick Harvesting Machine Company of Chicago built and sold 189,760 machines. This kind of expansion dwarfs every other achievement American history records in favor of the well being of the farmers. Buy McCormick machines and you will get your money's worth.

THE CUTTING KIND

The **Deering Ideal Mower** is the best modern representation of a grass cutting machine that will cut.

The light draft of the **Deering Ideal Mower** is due to the fact that the Deering roller bearings have practically annihilated friction.

The **Deering Ideal Mower** runs almost noiselessly and has no lost motion.

The **Deering Ideal Mower** is quick acting and positive. Every ounce of horse power is saved. The knife starts with the wheels. No backing up to "get a start."

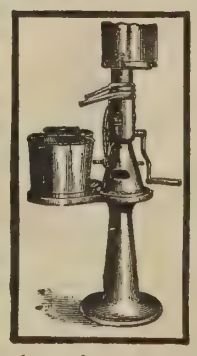
The **Deering Ideal Mower** has an adjustable cutter bar that is always in line; the hand levers and foot lift are handy and quick-acting.

The unsatisfactory mowers cost less money than the Deering Ideal, but the **Deering Ideals** are the *cutting kind.*

Send for the descriptive booklet, "Light Draft Ideals."

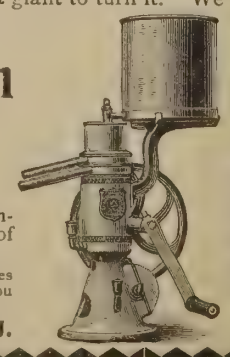
DEERING HARVESTER CO.,
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A Hand Separator



to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators

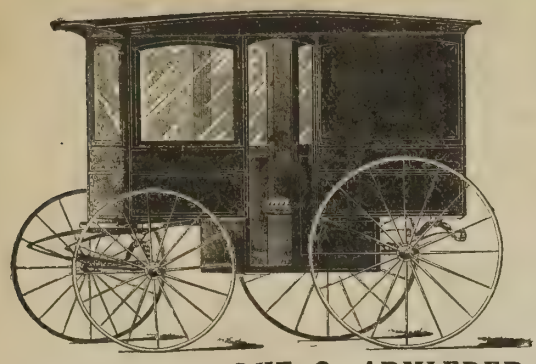


to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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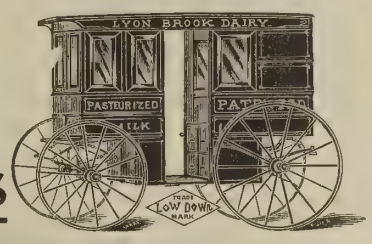
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Imitation is an acknowledgement of real merit. Thirteen years' trial has proven the Parsons "Low-Down" Wagons to be **THE BEST.** Secure our catalogue of strictly first-class, hand made, up-to-date, durable work.

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You save the jobber's commission and the retailer's profit when you buy direct from the factory. You pay the cost of making with one moderate profit added. We are not agents, but manufacturers of buggies, carriages, surreys, phaetons, wagons, harness and horse accessories. Everything guaranteed. With our illustrated catalogue you can order easily and safely. If what you order does not suit, send it back and we will pay the freight both ways. First, get the catalogue. You are welcome to a copy.

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HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

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Feeds and Feeding

By Prof. W. A. HENRY.
Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premum.

or

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehenisve from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price $2.

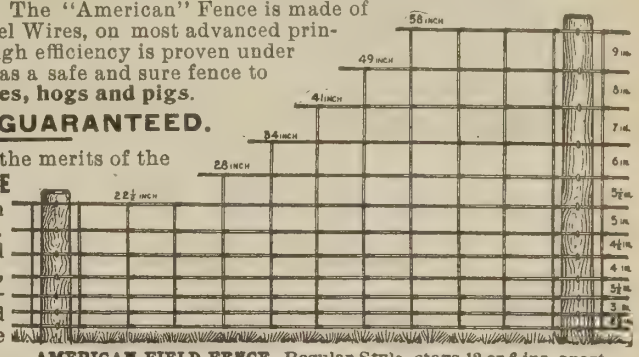
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Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

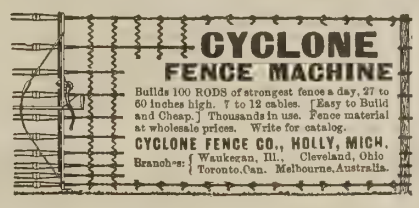
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AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

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Builds 100 RODS of strongest fence a day, 27 to 60 inches high. 7 to 12 cables. Easy to Build and Cheap. Thousands in use. Fence material at wholesale prices. Write for catalog.

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With our **DUPLEX Automatic Ball-Bearing Machine,** you can use your old plain and barb wire, making 100 styles, and 50 to 70 rods a day. New Wire costs

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Makes the best fence on earth. We send Machines on trial. **Were Awarded First Premium and**

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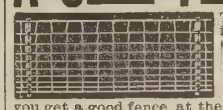
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We Sell Direct to the Farmer at Wholesale.

That saves you the dealer's profit. It's all interwoven, no loose ends to unravel. Cross wires can't slip. Our prices are as low as they can be made for a good fence. Don't buy until you get our **free circulars** and **special discounts.** Write for them at once.

Advance Fence Co. 4004 Old St., Peoria, Ill.



WHAT WOULD YOU DO

if a man offered you an outfit—clothes, shoes and hat—for 99 cts.? You would look them over carefully, that's what we want you to do with cheap fences.

LAMB WIRE FENCE CO.
Adrian, Mich.



ONE INCH BLACK WROUGHT IRON PIPE

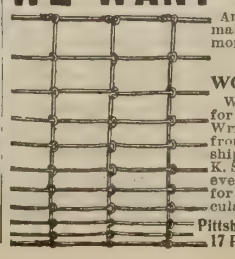
For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

TWO CENTS Per Foot.

Write for free catalogue of merchandise for ***HOME, FARM and FIELD***---from **Sheriffs' and Receivers' sales.** Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., **at HALF PRICE.**

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

WE WANT AGENTS.



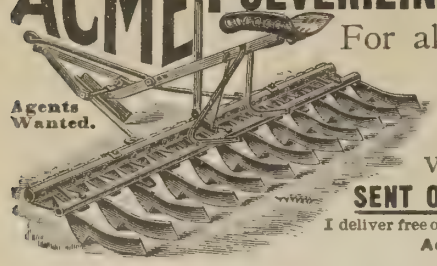
Any good active farmer can make a nice sum of extra money selling our

...PITTSBURG... WOVEN WIRE FENCE.

We will reserve territory for the right kind of men. Write at once. The first order from a locality secures township agency. The price is O. K. Stands all tests and meets every requirement. Write for special terms and circulars. Mailed free.

Pittsburg Woven Wire Fence Co.
17 Penn. Av., Pittsburg, Pa.

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



For all soils, all work—crushes, cuts, lifts, pulverizes, turns and levels. *Cast steel* and wrought iron—therefore *indestructible.* Cheapest *riding* harrow and best pulverizer on earth. Sizes 3 to 13½ feet. Catalogue free.

SENT ON TRIAL to be returned at my expense if not Entirely Satisfactory.

I deliver free on board at New York, Chicago, Columbus, O., Louisville, Ky., Minneapolis, San Francisco and other points.

Address DUANE H. NASH, Sole Mfr., MILLINGTON, N. J., or CHICAGO, ILL.

PLEASE MENTION THIS PAPER.

THE FAMOUS KEYSTONE LINE OF SEEDING, PLANTING AND CULTIVATING TOOLS.



Victor Disc Harrow —greatly improved for '99. Oil tubes to the bearings from top of frame—positively exclude all dust or dirt. Steel scrapers, double adjustment levers—easy to place gangs at any angle. Ball bearing—no side pressure and easy draft. Made 4, 5, 6, 7 and 8 ft. wide, with 18 or 20 in. discs. SEEDER ATTACHMENTS are made for 6, 7 and 8 ft. disc harrows.



Keystone Force Feed Broadcast Seeder are made 8½ or 11 ft. wide. Sows broadcast all small grains in any quantity in the best possible manner. Mounted on low steel wheels. Made with or without grass seed attachment. Equipped with CULTIVATOR ATTACHMENT if ordered. Made with end wheels or middle wheels. Has the best force feed we know. Send for special Seed Circulars.



Keystone Rotary Drop Corn Planter —it's a whole hill drop, each hole in seed plate holds enough grain for a hill. It never skips or misses. Equipped with Automatic Wire Reel. Has a drill attachment. Gear throws out automatically at end of row. Always drops at even depth because of the shoe gage on each runner.



Keystone Potato Planter —sprung quickly into popular favor because it is a simple and effective machine for the purpose at a reasonable price. Fits the needs of the man who grows an acre or two of potatoes, but who is not regularly in the business. Plants 10, 14, 17 or 20 inches apart in rows. Send for circulars.

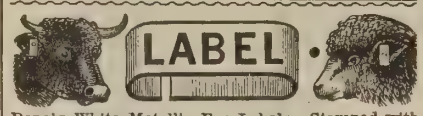


Keystone Walking Cultivator. This is clearly a leader among the machines of its class. It is made entirely of steel and iron except tongue, singletrees and neck yoke. Strong and well braced in every way. Steel braces and four soft centre steel shovels. Full line of Riding Cultivators also. Send for circulars.

KEYSTONE MANUFACTURING CO., 39 RIVER STREET, STERLING, ILLINOIS.

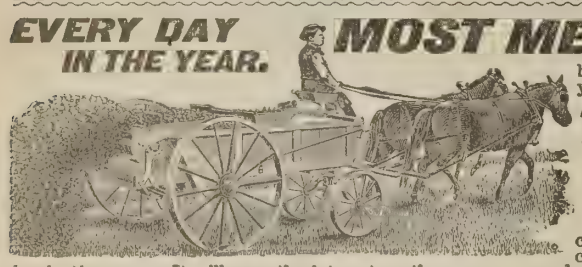


Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean. E. C. NEWTON CO. Batavia, Ill. Catalogue Free.



Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.

C. H. DANA, 55 Main Street, WEST LEBANON, N. H.



EVERY DAY IN THE YEAR. MOST MEN

will pay $125 for a twine binder or a corn binder, machines that can only be used a few days in the entire year, and think nothing of it.

The Kemp Manure Spreader

costs much less than that, and can be used successfully **every day in the year.** It will earn the interest on the money every day it is used. Spreads all kinds of **fine and coarse manure, wood ashes, lime, salt, etc.** Spreads broadcast or drills in the row. We make a special drilling attachment for this machine, which is of unusual value to tobacco and cotton planters and southern truck farmers. Splendid new catalogue FREE. Tells all about it.

Kemp & Burpee Mfg. Co., Box 46, Syracuse, N. Y.

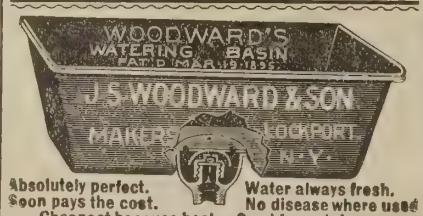
LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

WRITE FOR CIRCULAR 108

THE AMERICAN WELL WORKS

AURORA, ILL. – CHICAGO. – DALLAS, TEX.

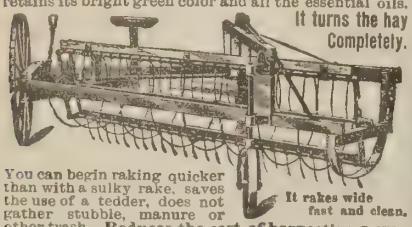


Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. No disease where used. Send for catalogue.

THIS SIDE DELIVERY HAY RAKE

Means "Quick Haying Quality Prime."

Leaves hay in a light, loose windrow, where it is cured by the action of the air—not bleached by the sun, hay retains its bright green color and all the essential oils.



It turns the hay Completely.

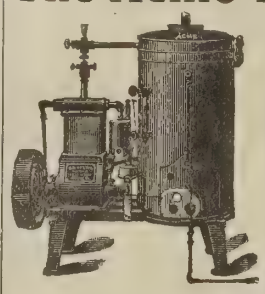
You can begin raking quicker than with a sulky rake, saves the use of a tedder, does not gather stubble, manure or other trash. **Reduces the cost of harvesting a crop of hay.** More about this and the **Keystone Hay Loader** in our FREE circulars. Write for them.

It rakes wide fast and clean.

KEYSTONE MANFG. CO., 39 RIVER ST., STERLING, ILL.

ON THE MARKET TEN YEARS.

The Acme Engine Still LEADS



1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

No. 9, Center St., Rochester, New York.



RIFE HYDRAULIC ENGINE

You can get a constant stream of water delivered to your buildings from a stream or spring by means of this engine.

RUNS ITSELF. NEVER STOPS.

Send your conditions for catalogue and guaranteed estimates.

RIFE ENGINE CO., 126 Liberty St., New York.



DO YOUR OWN...

GRINDING

With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

KELLY & TANEYHILL, Waterloo, Ia.

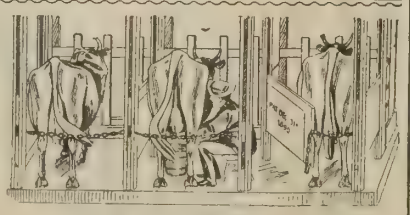
THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our 2, 3 and 4-horse

TREAD POWERS because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

ST. ALBANS FOUNDRY CO., St. Albans, Vt.



The **Lambert** Is a success at grinding feed, cutting fodder, churning butter, separating cream, anything, it's so simple. Write for catalogue, prices, etc.

The Lambert Gas & Gasoline Engine Co., Anderson, Ind.

GASOLINE ENGINES FOR DAIRY AND OTHER WORK.

Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. **N. DIRIGO ENGINE WORKS, Portland, Me.**

The DROWN PATENT COW STALL

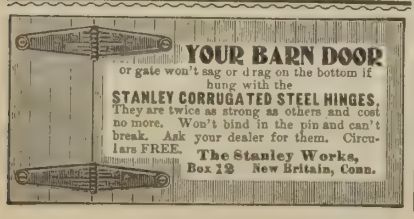
guarantees; perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more to not have than to have it. Send for information. DROWN COW STALL CO., H. C. DRAKE, Ag't, Madison, Wis.

POWER FOR THE FARM.

Nowhere on Earth can so much Power be obtained for so little money.

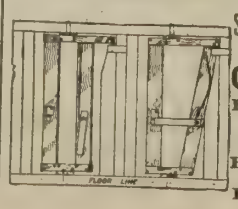
We make all kinds of **Sweep Horse Powers for 1, 2, 3, 4, 6 and 8 horses.** Prices ranging from $55. to $100. **Tread Powers, 1, 2 and 3 horse. Farm Engines, 2, 4 and 6 horse power.** Send for free circulars and prices.

Smalley Manf'g. Co. Sole Makers, Box 16, Manitowoc, Wis.



YOUR BARN DOOR or gate won't sag or drag on the bottom if hung with the **STANLEY CORRUGATED STEEL HINGES.** They are twice as strong as others and cost no more. Won't bind in the pin and can't break. Ask your dealer for them. Circulars FREE.

The Stanley Works, Box 12 New Britain, Conn.



Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT, 83 Beach Street, Bridgeport, Conn.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

WANTED—Agents for the **Roney Hay Fork Returner and Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.

GOODHUE



Self-oiling, Best Governed, Acknowledged to be the most powerful and durable made. We have everything the farmer needs in this line.

Towers, Tanks and Pumps, Cutters, Grinders, Shellers, etc.

Galvanized Steel

POWER AND PUMPING MILLS

Catalogue, full of valuable points, free.

Appleton Mfg. Co.

85 Fargo St. BATAVIA, ILL.

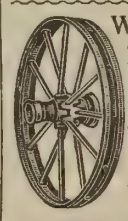
COLOR and flavor of fruits, size, quality and appearance of vegetables, weight and plumpness of grain, are all produced by Potash.

Potash,

properly combined with Phosphoric Acid and Nitrogen, and liberally applied, will improve every soil and increase yield and quality of any crop.

Write and get **Free** our pamphlets, which tell how to buy and use fertilizers with greatest economy and profit.

GERMAN KALI WORKS, 93 Nassau St., New York.



We are the largest manufacturers of steel wheels in America. We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue.

HAVANA METAL WHEEL CO.
HAVANA, ILL.

FIRE DRIED SEED CORN

Best varieties, both White and Yellow Dent. HENRY SHERMAN & SONS. Ft. Atkinson, Wis.

HOME GROWN SEED CORN

Best kind, YELLOW DENT, tested seed. FRANK B. FARGO, Lake Mills, Wis.

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased greatly.

Get a Binder

now for the present volume and preserve the copies in handy form for reference and reading.

BINDER BY MAIL POSTPAID, 75 CENTS

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 25% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY

27 Beaver Street, NEW YORK.

VERSITY OF ILL

HOARD'S DAIRYMAN.

University of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., APRIL 28, 1899. NUMBER 11

CASH BUYERS AND DEALERS IN BUTTER AND EGGS.

J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

REFERENCES:—Ex-Gov. W. D Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.,; Mercantile Agencies.
151 Reade St., NEW YORK.

David W. Lewis & Co.

177 Chambers St., NEW YORK,

Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

RAPE IS THE BEST FORAGE PLANT.

It furnishes succulent food from May to December. No equal for summer and autumn SHEEP FOOD. Equally good for cattle, calves and pigs. Beats clover and alfalfa by scientific test.

Grows 20 to 40 Tons Green Feed to Acre

—no green food approaches it for fattening. Salzer's Dwarf Essex, best, 100 lbs. $7.00; 10 lbs. $1; 15 to 99 lbs. 8 cents per lb.; for less than 100 lbs. add 25 cts. cartage if sent by freight. Send 5 cents for pamphlet on Rape.
Seed Dep. Amer'n Sheep Breeder, 124 Michigan St. Chicago.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES FOR CHR. HANSEN'S LABORATORY

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**
Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

A Square Talk.

For some years the dairy farmers and creamerymen have felt the pinch of hard times to such an extent that they have been buying the lowest priced articles the market afforded, and they have had to renew them every year. Our great factory and immense output enable us to put on the market a line of dairy supplies of the highest quality at first cost prices, no higher than the poorer ones, and with good lasting qualities.

DAIRY SUPPLIES. . .

Our Vats and Churns are unsurpassed. We carry in stock the well known SHARPLES CREAM SEPARATORS, which can be run profitably with a dairy of only five cows. The No-Tin 6-Bottle Babcock Test that will do accurate work and last a life time.

WHEN BUYING AN OUTFIT

It will pay the intending purchaser to specify that it shall be of the Haney-Campbell make. Order from your nearest dealer if you prefer, and he will send to us for it. ☞ Catalogue on request.

HANEY-CAMPBELL CO., Dubuque, Ia.

PEAS FOR HOGS

FIELD PEAS
FOR HOGS AND DAIRY COWS
"EQUAL TO CORN AND SIX WEEKS EARLIER"
THE ALBERT DICKINSON CO.
GRASS AND FIELD SEED MERCHANTS, CHICAGO, ILL.

Has The Inside Track.

The milk in a Sharples Tubular Separator spins around a two-inch radius in the largest sized factory machines. From three to five times this radius is the rule with all other factory separators.

Won't your hat fly off more quickly in turning a short corner than a long one, even though you are going at the same rate of speed? Well, it's just so with the skim milk falling out of the cream in the Tubular.

The Tubular separator is full of practical common sense and scientific knowledge, but it has no discs in it.



THE TUBULAR CREAM SEPARATOR

Tubular No. 25 skims 2,500 lbs. per hour.
Tubular No. 40 skims 4,000 lbs. per hour.
Tubular No. 60 skims 6,000 lbs. per hour.

Hundreds are in use and their users are wildly enthusiastic in their praise. Acquaint yourself with Tubular truth. Send for Catalogue No. 46.

BRANCHES:—
Toledo, Ohio. St. Paul, Minn.
Omaha, Neb. Dubuque, Ia.
San Francisco, Cal.

P. M. SHARPLES,
West Chester, Pa.

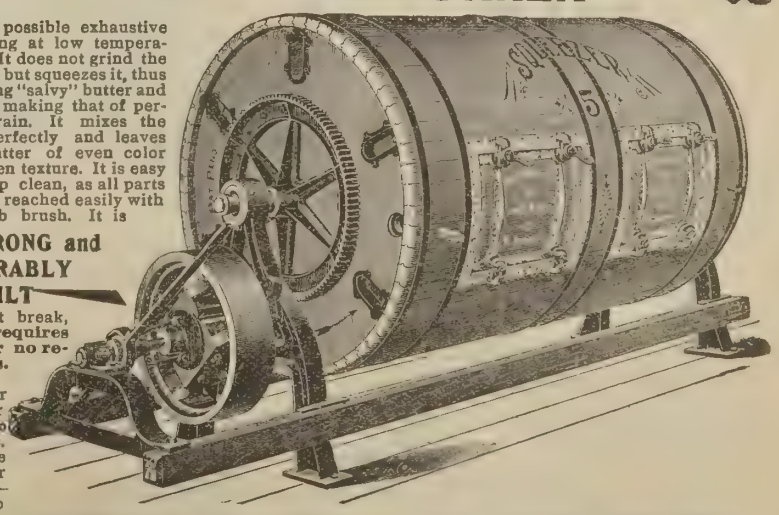
D. DERBYSHIRE & Co., Brockville, Ont.

The "SQUEEZER"
COMBINED CHURN and BUTTER WORKER

Makes possible exhaustive churning at low temperature. It does not grind the butter, but squeezes it, thus avoiding "salvy" butter and always making that of perfect grain. It mixes the salt perfectly and leaves the butter of even color and even texture. It is easy to keep clean, as all parts may be reached easily with a scrub brush. It is

STRONG and DURABLY BUILT

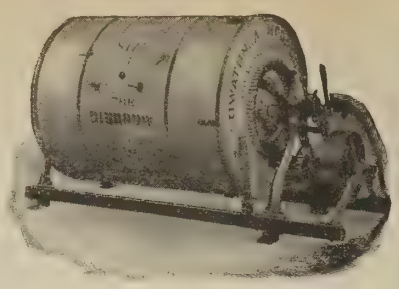
will not break, and requires few or no repairs. Five sizes for creameries, 300 to 700 gals. Three sizes for dairies—50 to 150 gallons.



☞ SEND FOR CATALOGUE NO. 46 giving Prices and Testimonials.

ELGIN MANUFACTURING CO., - - Elgin, Ill

SUCCESS



This is the magic word that marks the limit of every man's aspiration. Men who have and men who will achieve success are those who take advantage of every facility which the world affords in their particular line. The

DISBROW

Combined Churn and Butter Worker

IS ITSELF A SUCCESS

And will promote the success of every man or institution which uses it. It will make *more* and *better* butter than any separate machines. Nearly all the premium butter exhibited at fairs and conventions during last year was made in these machines.

OWATONNA MANUFACTURING CO.,

SOLE MANUFACTURERS. Owatonna, Minn.

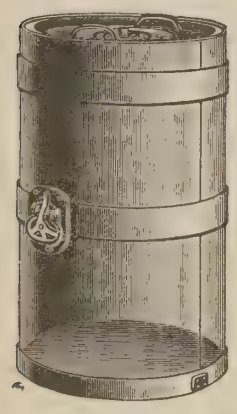
Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— 1, 3 and 5 W. Washington St., CHICAGO, ILL.

Kansas City, Mo. Waterloo, Iowa. Minneapolis, Minn. Omaha, Neb.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



A Great Mystery Solved.

The reason why so much poor milk is delivered to the creamery or cheese factory is that it is allowed to be drawn in railroad, or narrow necked cans, which are absolutely impossible to keep clean.

USE NONE BUT

OPEN TOP UNION and EMPIRE STATE Factory Cans,

Which can be kept ABSOLUTELY CLEAN and PERFECTLY VENTILATED. Made of heavy tinned steel, any style top or center hoop.

OAKES & BURGER,

Sole Manufacturers, - - CATTARAUGUS, N. Y

BUTTER SALTED WITH

WORCESTER SALT



Captured **SWEEPSTAKES** at fifteen of the principal Dairy Conventions during the last year, including such leading dairy states as Iowa, Minnesota, Wisconsin, Illinois, New York, Maine, New Hampshire and Vermont.

IT TAKES THE BEST TO MAKE THE BEST.

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. Haddonfield, N. J.

Send for Catalogue of Sanitary Dairy Apparatus.

THE IMPROVED

U. S. Triple Current Separator

PROVES ITS SUPERIORITY EVERYWHERE.

AT THE STATE EXPERIMENT STATIONS.

Read a Few 1899 Reports.

Massachusetts,	average of	19	tests,	January 7th to 31st,	.033 of 1%
Ohio,	"	" 19	"	" 10th to 21st,	.034 of 1%
Vermont,	"	" 18	"	" 9th to Feb. 3d,	.038 of 1%
Wisconsin,	"	" 17	"	" 2d to 19th	.03 of 1%
An average from 73 tests of skim milk of					.034 of 1%



IN THE FACTORY.

The U. S. Takes the Cake.

POYNETTE, WIS., Jan. 20th, 1899.

Have been running U. S. Separators since 1892, and can cheerfully say that the new No. 1 Improved U. S. Separator takes the cake. When the skim milk is tested it shows only a trace of fat. I won the sweepstakes and three other first prizes, amounting in value altogether to $115.00, at the 1898 Wisconsin State Dairymen's Association, and all because my No. 1 U. S. Separator makes such smooth, perfect cream.

R. M. BUSSARD, Prop. Bussard's Creamery.

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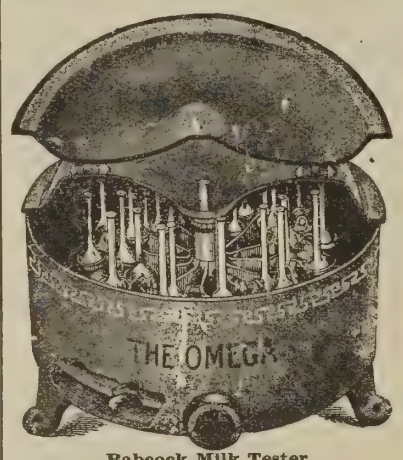
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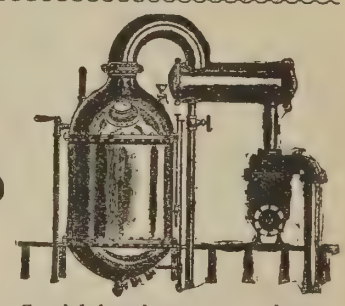
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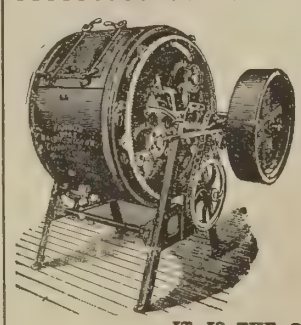
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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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Good Advice for All of Us.

Plant flowers in the soul's front yard,
Set out new shade and blossom trees,
An' let the soul once froze an' hard,
Sprout crocuses of new idees.
Yes, clean yer house, and clean yer shed
An' clean yer barn in ev'ry part;
But brush the cobwebs from yer head
An' sweep the snow banks from yer heart.
—*Sam Walter Foss.*

COLD water, cold barns and cold air have to be heated with butter fat, if the cow is to keep herself warm. There are lots of dairymen, who have not found it out yet—but their pocket-books have.

MILKING SCRUB COWS.

We have the privilege of placing before our readers this week, the record of a herd of scrub cows for the year 1898 at the Kansas Experiment Station, Manhattan, and in connection therewith, illustrations of one cow yielding 383.7 pounds butter fat, and of another, receiving similar feed and care, yielding only 135.7 pounds, or a trifle more than one-third as much. The photographs from which these illustrations were made, were taken about four months after the cows were received at the station. This would be about April 1st, and before they were turned to grass, and after they had been milking for four months.

This experiment is exactly in line with the one at the Michigan Station, reported a few weeks since, with the exception that there is a much wider difference between the best and the poorest cows. Both experiments confirm what the DAIRYMAN has so often tried to impress upon the minds of its readers, to the effect that good care, and proper feeding will pay; that there is great virtue and true economy in balanced rations. It would seem as though the results reported from these stations, ought to go a great ways in disabusing the minds of many dairymen in regard to "book farming," and the application of the teachings of science to the every day affairs on the farm, and with the dairy.

If it should be claimed that the average of $16.25 per cow, over and above the cost of feed, with this Kansas herd, is not a very bad showing, we answer that it is very much less than it would have been had the best six cows only been brought into the calculation; and if we include only the best three cows, the discrepancy is still greater. Our contention is that it is not only possible, but comparatively easy to have a herd that shall average as well as the best three, and that any dairyman is losing money that does not have such a herd. When a net income of $30 per cow is possible, what sort of business judgment does a man exercise, who spends his time with a herd that averages only one half as much? Or in the language of Prof. Otis in the bulletin, "Is stronger argument needed to induce Kansas dairymen to cull their herds, and keep only the best?"

Comment on the illustrations seems to be unnecessary. Number 20, if not of the extreme dairy type, approximates it, and number 5 is about as far removed from it as possible.

We also call attention to the manner in which these cows were fed. It will be remembered, that time and again HOARD'S DAIRYMAN has said that alfalfa hay and corn, practically supplement each other, and will furnish a balanced ration. In Kansas they substituted kafir corn for the common field corn (maize.) It may be noticed further, that when these cows were in pasture, three-fourths of the grain allowance was corn meal, and the remaining fourth bran,—the latter used, probably, more for distending or diluting the corn, than for its specific nutritive effect.

Following is the bulletin in full:

From January 1 to April 15, 1898, the College bought thirty head of common scrub cows, with the object of testing the value for the dairy of this class of cows when properly handled. These cows were purchased in Lincoln county, cost delivered at Manhattan an average of $34 each; were selected by a farmer who was not a dairyman, and in quality were below the average cows of the state. The cows were shipped from Lincoln county to Manhattan (100 miles) in mid-winter, the excitement and weather causing a serious drop in the milk yield of those that had calved. The first week the average daily milk yield per cow was fifteen and one-half pounds, the second week twenty-one pounds.



SCRUB COW NO. 20, KANSAS EXPERIMENT STATION.

Record for 12 months, 9,116 lbs. milk, containing 383 7 lbs. butter fat. Food cost of butter fat 8.5 cents per pound.

At the start, the cows were fed alfalfa hay and a mixture of two-thirds bran and one-third old process linseed meal, a ration rich in protein, designed to stimulate the milk flow and to partially overcome the effects from shipping. As soon as the cows were brought to a fair milk flow, they were put on a ration of alfalfa hay and kafir corn grain. This ration produced the greatest flow of milk with butter fat at least cost, but had to be dropped at the end of seven weeks, so that various feed stuffs could be fed in order to show our dairy classes the effect of various feeds on the texture of butter. The daily grain ration averaged about eight pounds per cow while on dry feed. While on pasture, the daily grain ration averaged three pounds of a mixture of four parts corn meal and one part of bran. Alfalfa hay was also kept in a rack where the cows could eat it at will, when they were brought in at milking time. The yield held up well through the fall drouth. For a short time green kafir corn was fed with the pasture, and the cows were pastured on wheat in the fall until the ground became frozen.

Twelve cows were fresh when received January 5, the rest calving in from one to five months. The records here given are for the twelve, for 1898. The butter fat yielded has been credited at the prices paid each month by the Manhattan creamery, which were as follows: January, 17½ cents; February, 17 cents; March, 16½ cents; April, 15 cents, May 14½ cents; June 13 cents; July, 13½ cents; August, 15½ cents; September, 16 cents; October 18 cents; November, 18 cents; and December, 17 cents

The feed has been charged at the average retail price in Manhattan for the year: Cost per 100 pounds—corn meal 55 cents, kafir corn meal 55 cents, linseed meal $1.25, soy bean meal $1, bran 55 cents, cotton seed meal $1; cost per ton, alfalfa hay $4, corn ensilage $1; pasture 75 cents per month. It would pay many Kansas farmers who live distant from market to milk cows, if through the milk they could obtain the above prices with no additional profits.

RESULTS.—Average yield of milk per cow, 5,707 pounds; best cow, 9,116 pounds; poorest cow, 3 583 pounds. Average yield of butter fat per cow, 238 pounds; best cow, 383.7 pounds, poorest cow, 135 7 pounds Average cost of feed per cow, $29.20; best cow, $32 80; poorest cow $26.75. Average value of butter fat per cow, $37.75; best cow, $60.88; poorest cow, $21.39. Average value per cow of skim milk at 15 cents per 100 pounds, $7.69; best cow, $12 29; poorest cow, $4.83. Average income per cow from butter fat and skim milk, $45 44; best cow, $73.17; poorest cow, $26 22. Average receipts per cow less cost of feed, $16 25; best cow, $40.37; poorest cow, receipts 43 cents less than cost of feed. Average cost of butter fat per pound, 12.2 cents; from best cow, 8.5 cents; from poorest cow, 19.7 cents. The average price received for butter fat for the year was 15.8 cents. To the receipts given above should be added the value of the calf at birth.



SCRUB COW NO. 5, KANSAS EXPERIMENT STATION.

Record for 12 months, 3,583 lbs. milk, containing 135.7 lbs. butter fat. Food cost of butter fat 19.7 cents per pound.

This test shows the difference in value between different cows with feed and care alike. The year's record of our best scrub cow (9,116 pounds of milk; 383.7 pounds butter fat, equal to 451 pounds butter; value of products, $73.17; returns, less feed, $40 37) is one that many a pedigree dairy cow would be proud of. This cow is of mongrel breeding, but has a pronounced dairy farm. The poorest cow's form is a good beef type, and her yield of 3,583 pounds of milk and 135 7 pounds butter fat was worth 43 cents less than the feed she ate. Is stronger argument needed to induce Kansas dairymen to cull their herds and keep only the best?

This test shows that Kansas cows can be made to give greatly increased yields with proper feed and care. We collected the records of eighty-two herds owned by creamery patrons in one of the leading dairy sections of the state, finding an average annual yield per cow of milk 3,441 pounds, butter fat 104.5 pounds, value of butter fat $19.79 Contrast this with the average for the college scrub herd, milk 5,707 pounds, butter fat 238 pounds, value of butter fat $37.75; and remember that the college herd is much inferior to the average herd of the state.

We attribute the greater yield secured from the college scrub herd to three causes. First, at all times their rations were either balanced or contained an excess of protein—the material which builds blood and milk—while the Kansas cow, usually, when on dry feed, has only half enough protein. Second, kindness and shelter. Our scrub cows were petted, comfortably sheltered, never driven faster that a slow walk, and never spoken to in an unkind tone. Third, a full milk yield was secured through the summer drouth by giving extra feed.

RECORD OF SCRUB HERD, 1898.

Number of Cow.	PRODUCTS. Milk, Lbs.	Aver'ge Test per cent	Butter Fat, Lbs.	Cost of Feed.	VALUE. Butter Fat.	Skim Milk, 15c per 100 Pounds.	Total.	RECEIPTS LESS COST OF FEED. Gain.	Loss.	Cost of Butter Fat per Pound.
20	9,116	4.21	383.7	$32.80	$60.88	$12.29	$73.17	$40 37	.....	.085
7	7,015	4.43	310.8	30 61	49.26	9 46	58.72	28 11	.....	.098
15	6,509	4.27	277.9	29.20	43.89	8.70	52.59	23 39	.....	.105
1	5,904	4.62	272.7	31.06	43.65	7.97	51.62	20 56	.....	.114
6	6,269	4.09	256.4	29.95	40.56	8.44	49.00	19 15	.....	.113
3	5,864	3.99	233.9	28.93	37.04	7.91	44.95	16.02	.....	.123
10	6,580	3.51	230.9	30.79	37.16	8.87	46.03	15.24	.....	.133
17	5,236	3.97	207.8	28.83	32.92	7.07	39.99	11.16	.....	.138
18	5,023	4.12	206 9	28.97	32.69	6.78	39 47	10 50	.....	.139
11	3 475	5.14	178.6	25.24	28.16	4.68	32 84	7.60	.....	.134
19	3,913	4.14	161.9	27.27	25.41	5.27	30 68	3.41	.....	.168
5	3,583	3.79	135.7	26.75	21.39	4.83	26.22	.....	$0.43	.197
Aver'ge	5,707	4.17	238.1	$29.20	$37.75	$7.69	$45.44	$16.25	.....	.122

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ALL PRESERVATIVES DESTRUCTIVE TO DIGESTION.

At a trial of certain dealers in meats in Pittsburg, Pa., who were charged with using preservatives, Prof. F. T. Ashmon, chemist, testified that all preservatives were dangerous, and at best, were destructive to digestion. One of the most serious charges we have heard against "renovated" butter is that preservatives were used in the manipulation of the same.

But the point made by Prof. Ashmon should be borne in mind. Any preservative, if effective, must inevitably affect the natural fermentation which goes on in digestion, *and to that extent* injure digestion. It is here that its use is found so injurious in milk when fed to infants and small children. It would seem that no man could be found, so lost to all sense of honor, or humanity as to put anything in his milk that would injure a child.

THE ANTI-COLOR LAW SOLIDLY ENTRENCHED.

The people of this country are waking up to the merits of this oleomargarine business.

In Michigan and Illinois, as is well known, the dairymen and farmers of the state two years ago carried through the Massachusetts anti-color law, in spite of all the money and political influence the oleo manufacturers could muster. The Michigan law was declared void by the Supreme Court of that state because of the lack of an enacting clause.

The present legislature has re-enacted the law in spite of determined opposition, and great care has been taken that all legal requirements are fulfilled. We congratulate Dairy and Food Commissioner Grosvenor of that state, on the consummation which he has so devoutly wished for.

In Illinois, the stock yard magnates have made a bitter fight to have the law repealed. They have defeated its execution very largely but the legislature with the fear of a "wrath to come" have not yielded to the oleo demands and the law still stands. What Illinois so much needs is a Dairy Commission.

There is no use to have laws if their execution is to be thwarted, and it now looks as if the office of Dairy and Food Commissioner will be created in that state. The only state where the cause of honest butter has received a set back is in Kanaas. There were too many dirty politicians in the pay of the oleo gang in that legislature, many of them being farmers.

The farmers of Kansas have not yet been aroused to an understanding of the merits of this question. Many of them are fairly paralyzed over the remark of some cunning demagogue that "this is class legislation". Well, if putting down fraud, adulteration, and counterfeiting in food, is class legislation, let us have more of it. Such laws do classify, it is true, fraud and counterfeiting. They force men who would defend the swindle to go into their own class, and be counted. "Hence these tears."

There is a significant question to be asked in all this matter: Why do these legislators stand up to the rack and defend the law? Some of them are enemies to it in private and so declare.

It is because the farmers both Republican and Democratic have fired the postal cards into their ranks. The farmers have talked plain talk. They have shown a true American independence of character and the slick politicans know they will "vote as they have shot."

That is the kind of a farmer to be. When a man lets his politics run away with his patriotism he is of but little good to himself, his neighbor or his country.

The National Dairy Union has not been idle in all these contests. It is working in the steadfast hope that the farmers of the country will rise up as one man and exert their influenee on their members of Congress in support of the Davidson bill to tax colored oleo 10 cents a pound.

KEEPING THE CANS CLEAN.

There is serious trouble in every creamery in the land, over certain of the patrons not keeping their milk cans clean. The difficulty is largely because the patron does not understand the necessity of a clean can. He has never made any special study of this point, and there is no reason why he should know all there is to be known on this subject. But in such a case, he ought to be willing to take some other man's word for it, who does know, and because he will not do this, is the cause of all the loss and trouble that ensues.

Farmers complain that their skim milk sours too quickly after leaving the creamery. If every patron would thoroughly clean and scald his cans with *boiling hot water*, before he puts his milk into them, to bring to the creamery, his milk and all the milk would be in much better condition to keep, to start with.

Then if he would do the same thing, and add to it, scouring the seams with a brush *after the skim milk is emptied from them*, the can would be in much better shape to receive the fresh milk at the next milking.

It is evident that a great many patrons and their wives do not really know what it means to clean a can so it can safely hold milk, and not taint it.

Experiments have shown that milk stored in sterilized cans will keep nearly twice as long, as when kept in cans washed in the ordinary way. To clean a can thoroughly, or free it from germs, C. B. Lane, of the New Jersey Experiment Station, states that it must first be scrubbed, then scalded out with boiling water, care being taken that it is boiling, or, better still, use live steam under pressure. No living organism can withstand steam, not even bacteria spores, although some of them will resist a temperature of 203° F. If dairy houses are supplied with a boiler, it can easily be managed to turn cans over a jet of steam having a pressure of 15 or 20 pounds. After steaming, cans should be kept bottom side up, as bacteria tend to go downward. There are patent "milk can washers" on the market, which run by power, but for the ordinary dairyman, hand brushes will be found just as effectual, and economical.

The ideal way to be sure of having clean milk, would be, for the patron to have two sets of cans, one for the fresh milk, and the other for taking home the skim milk. Then when he empties the fresh milk cans have them thoroughly cleaned and steamed at the creamery, and at the same time have the skim milk cans cleaned, and likewise steamed before being filled with skim milk.

The creamery always has the hot water and steam, and it could easily fix up a can cleaning place, in addition. This method would greatly help the creamery to get sweet, pure milk, and help the farmer to longer keep his skim milk sweet.

A WOMAN'S ADVICE.

We hope it will be a long time before the dairy business of the country will be evoluted out of the valuable touch and sympathy of the farmers' wives. Mrs. J. L. Reid, of Delavan, Ill., read the following excellent essay before the Tazewell Co., Ill., Farmers' Institute:

Milk, when in its natural state, or in the form of butter or cheese, is an article of diet so useful and wholesome that dairy management, which includes all that concerns its production and treatment, constitutes a most important branch of husbandry.

* * *

The first step of importance is to get a good milk cow. Make a study of cows if you have not already done so. Subscribe for dairy papers and study them. Then attend the fairs, visit the dairy barns and talk with the exhibitors about their cows, getting the experience of all; also talk with those who exhibit butter, notice the scorings, and if you find the judge at leisure talk with him, have him point out the difference between samples; it will be a great help if you are interested in the subject.

The cows must be well stabled; whatever the material used in constructing a barn, let there be plenty of light and sunshine. Have a southern exposure, if possible; keep it warm, clean and well ventilated.

Well cured clover hay, with mixed feed of corn and oats ground, and bran once in a while for a change, will produce a milk that will make a firm butter. It is very important that they should have plenty of pure water.

It is being strongly advocated to have the water warmed in winter. A recent writer asserts that five dollars, per cow, for the winter would be a low estimate of the value of warmed water over that of ice water.

The next thing required is a place to keep the milk. It ought to be a room adjoining the kitchen, or at least opening from the porch. Oh! the weary, weary steps one has to take for want of thought or management. It should be large enough to accommodate all the furniture one needs, churn, scales, chest, table, refrigerator, print, etc., also have it well lighted and ventilated. The water chest should be thoroughly cleaned once a week. Water standing a length of time becomes slimy and a bad odor arises, tainting the cream and butter.

While good butter has been, and can be made from using crocks or pans, if one is to handle a quantity of milk, it is much easier to use a creamery, or a separator, preferably the latter, as one gets a greater per cent of cream from the milk, and the work can all be done at once.

After milking each cow, the milk should be strained into a can and be covered, keeping the dust and odor from it. If the deep setting method is used, the milk should stand 24 hours in order to get the greatest quantity of cream. Late writers advocate 12 hours. Experience will teach one how long to let it remain before skimming. Skim into cans and keep sweet until having the desired quantity for churning.

In winter, place the can in a tub of hot water, stirring constantly until it reaches 80°, then pour in a cup of sour cream or buttermilk to facilitate ripening; let it remain in a warm room over night. When ready for churning it should have a thick velvety appearance and 60° temperature. In summer 56° and 58° is good temperature, but the warmth of the room will have some effect on the cream, and one must be governed some by that. The churn should be a barrel or one similar in construction; it should be large enough to have plenty of room for concussion, thereby lessening the labor of churning.

To color or not to color is a mooted question. When the cream begins to break and form globules the size of large shot, stop the churn, pour in a gallon of water that has had a cup of salt dissolved in it, replace the cover and revolve the churn five or six times Let it stand a few minutes that the globules may rise, draw off the milk, pour in water, wash until the butter is free from milk. Drain well, salt in the churn at the rate of 1½ ounces to the pound of butter, tipping the churn back and forth as you sprinkle in the salt, so that it will be thoroughly mixed. After draining an hour longer, it will be ready to print, working enough only to make the globules adhere. After printing, wrap in parchment paper to exclude the air and dirt. Butter exposed to air soon becomes rancid.

While there is a great deal being done at the experiment stations to establish the theories of bacterial growth and lactic fermentation giving butter its flavor, we believe if the principles herein laid down, of pure air, water and food, and cleanliness, in all parts of the work, are followed, we will have "gilt edge butter".

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series, XII.

COMMUNICABLE ANIMAL DISEASES NOT CAUSED BY BACTERIA.

It is a common belief that all of the various animal and human maladies that are communicable are produced by bacteria. This arises from the fact that a considerable number of these diseases have already been traced to bacterial origin, but the general statement assumes too much. Another reason for this belief lies in the fact that in the minds of many there is no accurate conception of what a germ is. Many believe them to be animals, while as a matter of fact, so far as the bacteria are concerned, they are vegetable.

The phenomena of parasitism, however, is not confined to the vegetable kingdom, and we are beginning to learn that some of the diseases, the cause of which has been supposed to be bacterial are in reality due to parasitic fungi and lower animal forms.

Practically, it is immaterial, whether the cause of the disease is bacterial or not, for if it is due to a living parasite, the introduction of the disease germ is the main factor in the production of the disease. Yet, in other ways, it is of material importance as to what is really the cause of disease, for the biological laws that govern one bacterial disease are almost sure to aid in the working out of the life history of another disease, produced by allied forms of life.

Thus, the methods of work developed in bacteriology in the study of anthrax and tuberculosis have been successfully applied in many other diseases produced by bacteria, but they are not so applicable to those caused by animal and some fungal parasites. Among the more important diseases of this class is lumpy jaw or actinomycosis.

LUMPY JAW OR BIG HEAD.

This disease derives its name from the fact that peculiar tumors are formed on the forward end of the body, particularly the head and neck. This affection which is confined mainly to cattle is more properly known as actinomycosis, and while the parts referred to are most often affected, yet it not infrequently invades other tissues like the lungs and sometimes the digestive tract.

The disease is charactertzed by the development of tumors, which are at first imbeded in the soft tissue and which may later undergo pus formation. A close inspection of the cut surface of these growths will generally enable one to detect minute sulphur-

"I Have No Time to Read."

That is what many farmers say when asked to subscribe for HOARD'S DAIRYMAN. To the man who says it we would say: Note well the man who does read. Consider well his ways. How his mind, well stored with sound knowledge, always goeth ahead of his feet. He is the prosperous dairyman. Go into any creamery and nine cases out of ten the man who has the best herd of cows, who gets the largest yield per cow, WHO MAKES THE MOST MONEY, he is a reader. He takes time to read. He feeds his mind on sound dairy thought as regularly as he feeds his body. Do you know of dairymen who are making money by not reading a good dairy paper? Do you not know of some who pursue the other course and are the more prosperous?

yellow granules that may be readily removed from the tissue. These are masses of the organism that is the cause of the disease.

The germ causing this affection belongs not to the bacteria but to another group of vegetable parasites—one of the lower fungi. It is called the ray-fungus, and hence, the name actino (ray) mycosis (fungus), because under the microscope, these yellow grains are made up of radiating club-shaped bodies.

MANNER OF INFECTION.

The disease germ finds its way into the animal generally by means of the food. It establishes itself in the mouth, if the mucous membranes are lacerated in any way. Sometimes a decayed tooth permits the germ to find its way into the inner tissues, but more frequently the membranes are penetrated by sharp bristles, awns, or hairs from various kinds of grasses. Barley "beards" and the pointed awns on our common squirrel tail grass, which is a botanical relative of the barley, not infrequently serve to introduce the germ.

While the disease is in the strict sense of the word contagious, because it is produced by contact with the diseased material, it is not readily transmitted from animal to animal like anthrax or even tuberculosis.

If, however, an animal is affected with actinomycosis, care should be taken in regard to the distribution of the material discharged from the tumors. These contain the disease-breeding germ, and thereby the liability of infection is consequently increased by the presence of an affected animal, unless the discharges are properly treated.

The presence of the distintive germ of the disease is sufficient to cause an irritation of the invaded parts that results in inflammation, and the characteristic bunch is formed in those tissues that are near the surface of the body.

The character of these tumors may vary much in consistency. Often they are soft and quite yielding to the touch, but as the foreign growth increases in dimensions, they frequently take on a firmer character, that is due to the development of fibrous tissue.

Inasmuch as the disease generally results from invasion of the mouth, through its mucous surfaces, the tumors develop in the tissues that are contiguous to these surfaces. The salivary gland at the angle of the jaw is very frequently affected; then again, the disease may attack the bony system of either jaw.

In this case it is more serious as the development of the fungus results in the deformation and ultimate destruction of the bony tissue itself. In the later stages of the disease as the swelling increases in size, it may break through the outer skin, in which case thick yellow pus is formed.

Sometimes the disease affects the tongue, causing this organ to lose its flexibility. Hence, the distinctive name, wooden tongue which is applied to this phase of the disease. If the actinomycotic organism is drawn into the lungs with the air breathed, it is possible that the disease may establish itself in this tissue. The course of the malady is, however, quite similar, abscesses being produced.

To the casual observer, this phase of the trouble might be confounded with tuberculosis, but by a careful inspection it is possible to distinguish it from that disease as the yellow grains that are so characteristic of lumpy jaw can generally be seen with the naked eye.

The development of the disease is apt to be quite slow. Where the bony tissues become involved, the destruction of the same may interfere seriously with the ingestion of food. Respiration may be obstructed, if the tumors develop in connection with the pharynx. Where the trouble is near the surface, and does not directly affect any of the vital functions, as breathing, eating, etc., no serious impairment of the general health of the animal is apt to occur.

COMMUNICABILITY TO MAN.

Actinomycosis also occurs sparingly in man (only 58 cases have been reported in America) and it is a question of considerable importance as to whether the human being may not contract the disease from the bovine, in which species the disease is quite prevalent.

The evidence on this question is far from conclusive, although some cases are on record in which it seems more than probable that human beings acquired the disease from animal sources.

The idea is still prevalent in some sections that all meat from an animal affected with lumpy jaw should be regarded as unwholesome, but it is manifest that such a measure is altogether too sweeping, and that there is no warrant for the total destruction of such meat. The extent of the lesions and the location of the same should be taken into consideration in determining the disposition of the carcass.

TREATMENT OF THE DISEASE.

The loose tumors that develop in the fleshy parts of the face and neck can frequently be cured by a surgical operation. This treatment, however, cannot well be given where the disease becomes established on the jaw or tongue, or in the internal organs. Within recent years a new treatment has been found that has proven very successful. It is the administration internally of iodide of potassium.

The dose given should vary with the weight of the animal, and is about one-fourth dram (1 gram) per cwt. of live weight. The continued use of the drug will result in symptoms of iodism, which is characterized by discharges from the nose and eyes, and scaling off of the skin.

These symptoms will be alleviated by a discontinuance of the drug, and after having disappeared, the use of the remedial agent can be resumed. The remedy is not of so much service with milch cows, as the milk is rendered unfit for use during treatment. The proper use of the drug seems to dry up the tumor rapidly without any ill effect on the animal.

Co-operative Creameries.

ED. HOARD'S DAIRYMAN:—In reading Mr. George E. Scott's article, "Why Creameries Do Not Pay," in the DAIRYMAN of March 24th, I was somewhat surprised to find that co-operative creameries in Ohio are not a success.

Is it possible that we have more intelligent farmers in western Wisconsin and Minnesota than in Ohio? Sixty-five per cent of the Minnesota creameries are co-operative and successful; here in western Wisconsin the majority are co-operative, and they are driving out private creameries.

I do not know of a single instance of a co-operative creamery failing. We have no trouble to pay as much per pound for butter as the private creameries, and at the end of the year, we have always paid a dividend of at least ten per cent on our capital stock. Our neighboring co-operative creameries have paid from 7% to 10% dividend each year, besides improving our plants.

Mr. Scott speaks of one factory "that went into debt head over heels, by the use of a popular butter calculator in making out churn gains from fat tests, when there must have actually been little or no churn gain."

Now the management of this factory must either have been very careless or very dull, to have let this state of affairs happen. If the affairs of the creamery are run as they should be, it is an utter impossibility to run the creamery in debt on this score.

After we get in all of our sales for the month, we simply deduct the sinking fund and expense for the month, and the balance is divided according to the number of pounds of butter or butter fat. To say that the co-operative creamery cannot be run as cheaply as the private creamery, I think is a mistake.

Mr. Scott says "that the owner of a factory in his locality, by batching it and getting a boy to help him, was making a success of the business." How long do you think this owner will be satisfied to work this way?

As a rule, the owner does not do the work, but hires some one as butter maker, and expects to make enough out of the business to pay him a good interest on the money invested. Now, why not let the farmer take this interest, and manage his own affairs? We farmers raise our cows, feed them, do the milking, and take the milk to the creamery, can't we finish the job by making and selling our butter? I think we can.

Stock in a co-operative creamery in this locality is as good as wheat, as there are always buyers, if any is offered for sale.

Mr. Scott speaks of co-operative creameries having failed because the patrons did not supply the milk necessary. Any creamery will fail if they do not get milk enough; that is the all important point. Creamery supply concerns in the past have built creameries in sections where they could get the necessary stock subscribed, when there was not enough cows in the locality to support a creamery.

All such of course failed, but where there are enough cows to support a good creamery, the co-operative is the best, as we cannot ask any more than all there is in the milk, after paying for the making. Hire a first-class buttermaker and run the creamery on business principles, and there is no chance for failure. DAVID IMRIE.

Buffalo Co., Wis.

Improving The Herd.

ED. HOARD'S DAIRYMAN:—I am going to let you know what reading HOARD'S DAIRYMAN has done in my herd. I came into possession of ten milch cows last March. After reading the DAIRYMAN and seeing the difference in cows, I bought a Babcock tester and scales, and the milk was weighed night and morning, and tested twice a month.

The first cow, I weighed her milk as soon as it became good. The next two calved on January 28th, next two on February 1st. All these were weighed from March 20th only, so can not do them justice.

The rest of the herd calved after I began weighing. I sold the five poor ones, and have bought six high grade Jersey heifers of the St. Lambert strain.

No. of Cow.	*Lbs. of Milk.*	*Butter by Test.*
1	7,840	313
2	7,230¾	289
3	5,738	229
4	5,752¼	249
5	5,442½	236
6	2,834	177
7	4,751¼	166
8	4,538	159
9	3,669¼	156
10	4,405	154

No. 6 is a thoroughbred Jersey two-year-old. I milked her from June 15th to Feb. 3rd. When I sold her, she was still giving eight lbs. per day. No. 10 was a high grade Ayrshire, two years old. The rest were from five years up to ten years old, and the five best are of the special-purpose type.

Under good hands, this year, they will make more butter.

In answer to the Editor's Questions:

1. Yes.

2. 10 cows, tested for ten months. Rejected 5.

3. Cost $6 for scales, $10 Babcock tester. Took sample from two milkings, twice a month. The trouble and expense is not to be compared to feeding five useless cows.

4 No, but have a thorough-bred Jersey bull, Mac of Lynwood, now.

5.

6. Breed in the same line by all means.

7.

Ormond, Ont. E. D. B.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of supplying animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gum and in the published tables of chemical analysis are usually subdivided into the terms *crude fibre*, which is the least digestible portion of these stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passes on into the circulatory system in a changed form, or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

SEEDING TO GRASS.

Can I get a good seed catch after oats and peas where it is cut for green feed early?

Binghamton, N. Y. E. J. L.

Much will depend upon the variety of seed sown. It is hardly possible to sow clover too early. Indeed not a few farmers insist that the best time is when there is snow on the ground. Clover is not a very hardy plant at best, and the better it is established the less will be the danger of winter killing. And yet we have known late seeding to be very successful.

The better practice in all cases is to keep something growing on the land all the time. It pays to sow clover in the corn field at the last time of cultivating, and turn it under late in the fall or the following spring. Crimson clover is especially adapted to this purpose.

A UNIVERSAL REMEDY FOR UDDER TROUBLES.

Mr. Herman Whitaker, of New Hampshire, in renewing his subscription to the DAIRYMAN, writes as follows: "Tell the readers of the DAIRYMAN that a free and persistent use of Snow Flake Axle Paste will cure about all the ills that a cow's teats and udder are heir to. Sore teats, scab on end, bunch in the teat, hot and inflamed and caked udders have all yielded to its persistent use."

We are very much obliged to Mr. Whitaker for this bit of experience, and would add a confirmatory note from our own. We have found common axle grease to be a very excellent remedy for many of the ills to which both cows and horses are subject. We can hardly go as far as our correspondent does, in saying that everything will yield to its persistent use, but we have found it quite as satisfactory as any other single remedy.

AS TO BEEF BRED COWS.

How to feed a herd of beef bred cows so as to get a paying flow of milk and not allow them to take on any fat? Is it high feeding and good care that would cause a 3-year-old heifer to go wrong, be always in heat, roam the fields and bellow, when she was sired by

a neighborhood bull that knew no fence or farm? Is 9,763 pounds milk and a veal at $7.50 cash in 10 months, 3 days, a common yield from common care from a beef bred cow? W. B. T.

Standing Stone, Pa.

We have substantially answered the first query above in another place in this issue, to the effect that when any milch cow, no matter what her breeding or classification, commences to lay on superfluous fat, the amount of fat forming feed given her—the carbohydrates and fat—should be curtailed, and the muscle and milk forming feed, that is, the protein, may probably be somewhat increased. Whether this will result in securing a "paying flow of milk" cannot be determined in advance. Moreover, there are different opinions as to what is a paying flow of milk. Our opinion is that it does not pay to keep a cow giving $15 net income very long when it is possible to have one that will yield $20 or more net income. In other words, "The best is none too good."

The second query does not admit a specific answer. High feeding frequently produces the conditions named, but not always. Individuality is a potent factor in all directions. There are very few beef bred cows, even with extra care, that will yield 9,000 lbs, of milk in 12 months.

CASEIN IN POOR AND RICH MILK.

Remembering that butter milk and loppered milk sell for ten cents a gallon, will it pay us to keep a few Holstein cows, i. e. is there any considerable difference in constituents of closely skimmed 3% milk and 5% milk? Will not the latter go nearly twice as far for feed for calves and pigs and for cottage cheese? W. BROS.

Humboldt, Tenn.

Three per cent milk contains about 2.9% of casein and albumen; five per cent milk in the neighborhood of 3 7% of casein and albumen. The milk sugar remains more nearly constant; the variation bring less than three-fourths of one pound between three and five per cent milk. The feeding value of three and five per cent milk, aside from fat, would be in the relation of 8 to 9.50.

For the making of cottage cheese, the richer milk is more valuable in the ratio of 3.14 to 2.10, as only the casein can be used for the above purpose.

It would not be advisable to raise a cow for the purpose of producing casein, without considering the fat; at present skim milk is a waste product, or rather by-product of the dairy, and one that can be obtained at a very low price.

Circumstances may be such, that in your case skim milk brings more than its usual price, but in such event, it would be better to breed towards a good flow of rich milk, and thus obtain two values from the food, rather than endeavor to increase the amount of the cheaper ingredient; at the same time, breeding up a herd of low monetary value.

SILO QUESTIONS.

1. What objection is there to the ground for foundation and floor for a stave silo?

2. Where we wish to build our silo, the rock is within one foot of the surface. How would it do to put bottom of staves on this rock?

3. Can a small cutter and a 30-foot elevator be run with a two-horse power? If not, how much power is required to operate one?

4. Give dimensions of a round silo sufficient for twenty cattle, 180 days.

5. Tell us how to build a round stave silo on a cheap and durable plan.

6. If menstruation comes on a cow after being served by bull, is it not evidence that she has failed to concive. W. AND SON.

Benham, Texas.

1. There is no objection if the ground is of clay or a clay loam. If of sand or gravel, it lets in too much air, and the silage spoils at the bottom. The foundation of the silo should be as air tight as possible.

2. All right, if you can make the stave bottom tight; otherwise use cement or clay.

3. Yes, if you don't try to cut more than fifteen tons per day.

4. It will take 72 tons, requiring a silo 16×21 feet.

5. See last issue of the DAIRYMAN, page 187.

6. If it is repeated, yes.

SOILING CROPS.

Please inform me as to time of planting, amount of seed per acre, amount of each crop, and best crops to plant to feed thirty head of cows from June 15th, to November 1st,; feed to be cut and hauled on meadow for cows. H. R.

Woodbine, Pa.

On page 129 of the current volume, will be found a table giving crops, areas, seed and time of planting for soiling crops.

CURE FOR LUMP JAW.

Is there any cure for lump jaw on cows? What is it. R. T. F.

East Rochester, O.

See article by Prof. Russell in this issue of DAIRYMAN.

DAIRY CHURN.

Will you please tell me the best kind of a churn to use for a dairy of ten cows. C.

Kendallville, Ind.

Any of the revolving box or barrel churns will do.

ARE SILOS DANGEROUS?

I send you herewith, a clipping from the New Castle *News*, on the silos that I think will do a deal of harm. We have several dairyman that talk of building, and this will knock them out. A number of them have taken the DAIRYMAN this spring. Please give me your opinion on this question.

New Castle, Pa. F. E. MC A.

We have received several copies of the same cutting, from papers in different parts of the country. We don't know what kind of material there was in the silo, but if it was corn ensilage, there was certainly nothing formed that could kill, or cause the illness of any animal. There are thousands of men, working in silos, getting out the feed for their cows, every day this winter, with no thought of illness of any kind.

Moreover, meningitis is not a disease of the lungs, but of the brain and spinal cord, and could not be caused by a gas. It is much more probable that the lung affection was caused by the ammonia from fermenting horse manure.

BOOK ON DAIRYING.

Can you tell me through the DAIRYMAN where I can get a good, practical book on butter making? Find enclosed one dollar for 1899. E. D. B.

Ormond, Ont.

We would suggest Gurler's American Dairying. It can be obtained from this office, post paid, for one dollar.

RULES FOR OFFICIAL TESTS OF JERSEY COWS.

I am a new subscriber to the DAIRYMAN. Have a small bunch of A. J. C. C. cows. I see that bulls are advertised as having so many in the list. Now what I want to know is how to make a test, that is, an official test, one that can be recorded.

I have a cow that has made 14 lbs. butter in seven days. I also have a two-year-old that made, the week she was two years old, 9¾ lbs. butter in seven days.

I fed the two-year-old 4 lbs. bran, 4 lbs. ground corn, 1 lb. flax seed meal, 24 lbs. sugar beets, and all the sorghum fodder she would eat. Drink, cold water. Stabled at night and run in the yard through the day. She had been in milk two months Is this a fair showing for a youngster?

Blais, Neb. A. C. J.

Write to Secretary American Jersey Cattle Club, No. 8, West 17th St., N. Y., City, for a copy of the rules governing official tests.

The heifer's record reported above is certainly a very good one, but in our judgment she was not fed to best advantage for making a large yield. The digestible protein in her daily allowance of feed did not exceed two pounds, whereas, for best results, at least for a short period, it should have been certainly not less than 2.25 lbs. and very likely she could have used more to good advantage. The linseed oil meal of commerce would have been better than the ground flax seed. It should have been fed up to at least 2 lbs. daily. In the absence of this oil meal the bran should have been increased nearly or quite 100 per cent and the corn meal correspondingly reduced. It should not be forgotten that protein is the one indispensible thing to enable the cow to make milk.

VALUE OF FAT IN MILK AND CREAM

What is the proper allowance for separating cream at home for sending to a creamery? J. D. O.

Victoria Co., Ont.

We do not exactly understand what you mean by "allowance" but assume that it is the extra value which fat in cream has over fat in whole milk; owing to the absence of loss in separating.

The loss of fat in skimming is from 3.5 to 4 0 per cent of the total amount of fat present when good work is done with the separator. Thus a hundred pounds of fat in 25 per cent cream is equal to 104.0 pounds of fat in the form of 4 per cent milk. On one hundred pounds of milk this would amount to a fraction over three cents.

THE SAND VETCH.

Would you be kind enough to give your views of the value of "sand vetch" advertised in DAIRYMAN, March 3, 1899, by Currie Bros., compared with clover as a forage crop, for hogs, and also in regard to enriching the soil? C. E. S.

McKinstry, Md.

We find very little concerning this particular species of vetch in any of the books or bulletins, and conclude, therefore, that its comparative value as a forage plant is not fully determined. In South Dakota the vines grew to six feet in length, and were so rank and thick, that the crop could not be cut with a mower, and had to be harvested with a scythe. When introducing new varieties of grains or forage crops in any locality it is not wise to commence on too large a scale.

CUBIC FEET IN A TON OF SILAGE.

How many cubic feet of ensilage are there in a ton? W. H. M.

Salem, Ohio.

The weight of a cubic foot of ensilage will vary according to position in the silo and the amount of silage above it. In a silo 36 feet deep, the first foot will weigh 18.7 lbs. and the bottom foot 61.0 lbs. per cubic foot. The average weight is about 40.0 lbs. per cubic foot, this would be 50 cubic feet to the ton.

SALTING AND WORKING BUTTER IN A SWING CHURN.

I have seen some very interesting articles in your paper on salting and working butter before removing it from the churn so it will require no second working. It seems very practicable for those using revolving churns. How may the same result be obtained in the Davis Swing churn?

Lincoln, Ill. S. E. D.

To work and salt butter in the churn it is necessary to use a revolving churn so that the butter and salt would have fall enough

"Necessity Knows No Law."

But a law of Nature bows to the necessity of keeping the blood pure so that the entire system shall be strong, healthy and vigorous.

To take Hood's Sarsaparilla, the great blood purifier, is therefore a law of health and it is a necessity in nearly every household. *It never disappoints.*

Tired Feeling – "I had that tired, dull feeling, dyspepsia, headaches and sinking spells, but Hood's Sarsaparilla made me a new man. I never was better than now." JOHN MACK, Oskaloosa, Iowa.

Rosy Cheeks – "I have good health and rosy cheeks, thanks to Hood's Sarsaparilla. It builds me up and saves doctor's bills." MARY A. BURKE, 604 East Clair Street, Indianapolis, Ind.

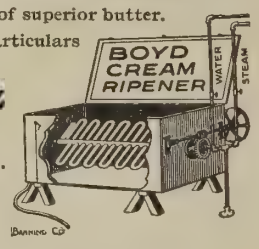
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Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

BOYD CREAM RIPENERS stand ready to aid you to fortune with fame as a maker of superior butter.

Write for full particulars at once.

CORNISH & COMPANY,
ST. PAUL, MINN.



Creamery Machinery, Sharples Improved Separators.

Gilt-Edge Butter

is the only money-making kind. But to make it, and the most of it, you must use the latest improved machinery. It is just this sort of product that has built up the demand for our



Empire Cream Separators.

They get all the cream from the milk and leave it in the best condition for churning. Lightest running and simplest in construction. Our catalogue will tell you why.

U. S. Butter Extractor Co., Newark, N. J.



FENNER'S
Revolving Six-sided
CHURN.

Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes.
Send for catalogues.
R. W. FENNER,
South Stockton, N. Y

DO IT NOW. What? Get a Champion Milk Cooler-Aerator. It will save you time, labor and annoyance. It will mean many dollars added to your annual profits, no matter what line of dairying you pursue. Our free book "Milk" is full of points. Ask for it.



CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

to be thoroughly mixed. We rather doubt the possibility of the same results being obtained in the swing churn.

A NEW YORK RATION.—FEEDS DISCUSSED.

Enclosed please find post office order for $1 to renew my subscription to HOARD'S DAIRYMAN; please give me credit for same and oblige. The DAIRYMAN has done wonders for me. I think it is the best invested dollar I ever paid out.

I wish you would formulate a ration for me in your next issue out of the following: Ensilage, bran, barley meal and timothy hay. My ensilage is heavily loaded with corn. Cows are of ordinary size. C. K. F.

Fillmore, N. Y.

About the best that can be done, if one is limited to the feeds mentioned, would be the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
8 lbs. timothy hay	6 92	.22	3.46	.11
6 lbs. bran	5.39	.75	2.32	.18
6 lbs. barley	5.35	.52	3.94	.10
Totals	25.58	1.88	13.92	.60

This gives as much dry matter as the cows would be expected to eat, and contains, if anything, a surplus of carbohydrates. It is, however, deficient in protein and we should prefer more fat. The question therefore is, how to obtain more protein and more fat without unduly increasing cost. By turning to the feeding tables it is found that cotton seed meal, gluten feed, linseed oil meal, peas, malt sprouts, and buckwheat middlings rate particularly high in protein. We should therefore try to substitute some one or more of these feeds and reduce the amount of barley particularly, and perhaps bran to some extent. If we take out one pound of bran and one pound of barley and substitute one pound of cotton seed meal, we have the following results:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Silage and hay as above	14 84	.61	7.66	.32
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. barley	4 46	.44	3.28	.08
1 lb. cotton seed meal	.92	.37	.17	.09
Totals	24.63	2.05	13.04	.64

If the barley can be sold to good advantage, it might pay to exclude it altogether and substitute gluten feed. In that event we would have the following figures:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Silage and hay as above	14.84	.61	7.66	.32
5 lbs. bran	4.41	63	1.93	.15
5 lbs. gluten feed	4.61	1.02	2 42	.25
Totals	23.86	2 26	11.51	.72

The last formula seems to us better adapted for cows that are fresh, or nearly so, than either of those preceding it. It conforms very closely to the so-called American Standard Ration for milch cows. For cows giving a large quantity of milk the protein should be rather increased than decreased. This can be effected by increasing the gluten feed or adding from ½ lb. to 1 lb. cotton seed meal. We omit linseed oil meal, partly because of the extravagant price at which it is sold and partly because we do not consider it specially necessary when there is succulent feed like silage, roots or pasture.

COOLING CREAM—SEPARATORS.

We finish separating at noon, do not cool cream from separator, hold it at 68 or 70 degrees, find it 65 degrees the following morning, thick, and the right acid as per Farrington's test. We then churn at 50 degrees, the cream being rich enough to average four pounds of butter per gallon. The buttermilk is thin and tests clear. Now the butter is fine, but would it be better if we should cool the cream as it comes from the separator and, if so, how cold? We also use ice in the churn for cooling from 65 to 50 degrees.

Can you suggest another or better way to cool thick sour cream? We have the twin cream vats with a coil of 4, 1¼ inch pipes running lengthwise of the vats. These are connected with the Remington refrigerating machine but it takes so long to cool in that way.

Is there a separator made that is superior or equal to the Alpha DeLaval?

Ill. E. P.

In handling cream, much depends on the water supply. For instance, if you have a good supply of water below 50 degrees, we should not advise you to use ice in the churn. There is too much dirt in the average ice to make it a good addition, in any form, to either cream or butter.

It is tedious work to cool cream in a body as it is in cream tanks. It is both cheaper and better to do the cooling at the time of separating. By running a stream of cold water or brine through an outside cooler, the cream can be brought to any required temperature and much time saved.

To obtain the best grain and body, especially in hot weather, it is necessary to hold the cream at or below 50 degrees for at least four hours.

It makes little difference when this is done, whether just after separating or before churning. The time is a question of convenience, but as it is easier to handle sweet cream, it would probably be best to cool direct from separator.

We cannot assume to decide upon the relative merits of rival machines, whether separators, combined churns and butter workers or self binders.

SUGAR BEETS FOR COWS.

What kind of sugar beets would you plant as feed for milch cows? What do you think of alfalfa? J. M. S.

Richmond, Ind.

It will not pay you to grow sugar beets *exclusively* for cow feed. If given in large quantities they cause scouring.

Mangles are easier grown and harvested and are better for the cows.

Alfalfa is one of the most valuable known foods for dairy animals. Its value is too well understood to require any discussion.

THE RENOVATED BUTTER QUESTION.

THE Minnesota Dairy Commission is after renovated butter with sharp sticks. A new food law is before the legislature supported by the Commission which will deal with this product rigorously.

Concerning the article the Commissioner says:

The manufacture of it is in this wise. The greasy, smelly, frowy butter is first melted and then mixed with air by running it through a separator or by pouring it through a sieve and letting it fall a considerable height. That takes the taint away and leaves it clean and sweet. Dropped into water it granulates. Then it is mixed with skim milk; a lactic acid ferment, of laboratory manufacture, is added—the same comes of itself in making butter—and the mixture is churned and salted and made up into pats of best creamery butter.

And what harm? Experts say it won't keep any time out of the refrigerator. It loses its consistency and relapses into grease. It loses its flavor and resumes its flat taste.

To prevent that, preservatives are added, —borax, boracic acid, salicylic acid, formaline and the like. The preservatives kill the germs in the butter and keep it indefinitely in the condition in which it came from the factory.

If the preservatives could be taught to discriminate in their duties, renovated butter might be a fairly good substitute for creamery. But they go on germiciding to the end of the chapter. And it happens that digestion is a process in which certain germs assist. Of the several hundred species of bacteria and microbes that dwell in the human body some are necessary to nutrition. So the preserved butter may be indicated in the household by internal dissensions

"These preservatives," says Assistant Commissioner White, "are not immediately poisonous, but in time they are bound to impair the health and may work fatal injury. They are used a good deal in milk, too, more now than we could wish though a good deal has been done to stop it.

"I don't know that renovated butter is unwholesome without the preservatives, but it won't keep, and it is a fraud if it is sold for new butter. With preservatives it is distinctly unwholesome.

"There is one establishment in St. Paul, one in Minneapolis and one in Duluth where it is manufactured. It is done on a smaller scale in some other places. I know of one creamery which has turned from making butter to making it over."

Blackleg.

Treatment—Prevention.

Blackleg is characterized by its rapid and almost invariably fatal course. As is the case with all similar diseases, the public is imposed upon by uncrupulous quacks, who make and sell all sorts of sure cures for blackleg. The principal characteristic of all these so-called remedies is that they fail to do what is claimed for them. We mention some of the remedies below, viz: The internal use of salt, hellebore, assafœtida, nitre and sulphur; the application to and under the skin of pink tablets, ointments, elderpith, onions; surgical operations, like setoning, roweling, nerving, bleeding, the running of animals, etc.

It is a fact that, in some instances, the use of some of these remedies is followed by a decrease in the number of deaths, and sometimes animals stop dying altogether, as if by magic. But these are single observations and they prove absolutely nothing. We can find just as many similar instances where no treatment whatever is followed.

We know that thrifty calves are more likely to be attacked with blackleg than unthrifty ones, and that, once attacked, the former seem to have the least chance of recovery. It has, therefore, been suggested to observe care not to let animals get too thrifty; this is easily done, either by resorting to the time honored but now slightly out of date practice of bleeding, or by giving purgatives, or by actual starvation. If anyone sees economy or profit in this procedure he is advised to follow it.

We believe in prevention. The cause of blackleg in calves is two-fold: First a natural susceptibility of the animal to acquire the disease; and second, the blackleg bacillus, a microscopic, vegetable parasite belonging to the bacteria, the excitors of most of the common infectious diseases.

Blackleg is caused by the blackleg bacillus, and by no other germ. On the other hand, the blackleg bacillus causes blackleg and no other disease. By controlling this bacillus we would have one solution of the question of prevention.

Blackleg is a wound infection disease, i. e., it is produced by infection through a wound; by the entrance of the blackleg bacillus through a wound into the body tissues This wound may be in the skin or in the mucous membrane of the digestive tract (mouth, stomach, intestine).

Blackleg bacilli are found in two places—in the bodies of dead or diseased blackleg victims, and in certain low, damp soils, usually bottom lands. In both places these germs grow and multiply. Infected soil, or food plants grown on such soil, serve as means to carry the germs into the animal's tissues. Wounds or bruises in the animal's skin or digestive membranes, be they ever so slight, serve as ports of entrance for the bacillus. The hoofs of animals and their coats of hair, even their droppings, carelessness in attendants, serve to carry the germs from place to place.

These statements point out two possible methods of prevention:

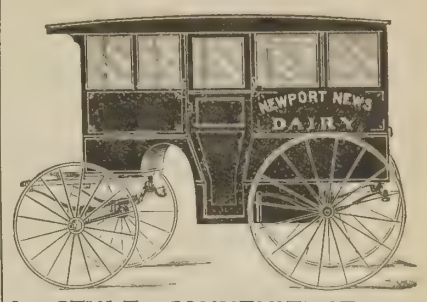
(1.) Changing animals from infected fields (usually low places with rich soil) to non-infected grounds (high, dry places).

We can further prevent the spread of the disease, by burning the dead bodies of animals that died of blackleg, avoiding the practice of burying such carcasses, which amounts practically to planting the disease germs for future harvest.

(2.) The disease can, in a measure, be prevented by proper feeding. Feeding digestible grasses and root crops, avoiding rough cornstalks and other coarse, hard foods which can produce small internal or external wounds or abrasions, and thus provide a port of entrance for the disease germ. The germ always enters the body through a wound. Suckling calves do not have these opportunities for wounding their delicate mucous membranes, and it is a well-known fact that they are rarely afflicted with this disease. However, this is not the only explanation for that fact.

So much for prevention by guarding against an invasion by the blackleg bacillus. — *Kansas Experiment Station, Press Bulletin.*

The World Cannot Show Its Equal

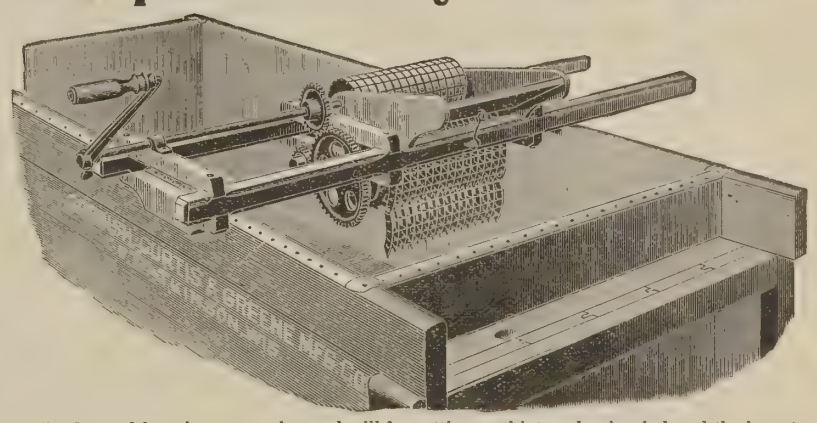


In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for DE LAVAL ALPHA SEPARATORS.

Note and Comment.

Feeding Silage and Corn for Milk Production—Balanced Ration an Exception to the Rule.—City Cream Trade.—Gouda Cheese.

ED. HOARD'S DAIRYMAN:—One of the strangest things that is "at large" is the utter contempt some dairymen exhibit towards trying to feed their stock with some degree of skill, now that practical instruction is to be had from authoritative sources. A farmer who is milking a winter dairy, has a good barn, a silo with fine silage, complained that his cows were not giving as much milk as they ought, in fact, but a little more than when farrow.

He said he was feeding them all the silage they would eat, of well eared corn, quite a feeding of hay, and twelve pounds of corn and cob meal to the cow. It was no use to tell him. He knew that corn meal had no equal to make milk and butter, and ought to fatten a cow at the same time; but they are not fat, and——and——and——that was the end of men telling him that cows could be milked and fattened at the same time. It had cost him a thousand bushels of corn to find out that one should not believe all these college farmers told, and away he went.

***

Last evening neighbor Burnett—some ten miles away—called me up over the telephone to tell me what a great help the new Cornell Bulletin No. 154 had been to him within the past month. He had been feeding a certain combination of grains with his silage, and thought he was doing a pretty fair up to date job, but he got hold of this bulletin, and taking his scales he weighed out accurately the ration that he was feeding, and found that it was very short in protein after all.

So he figured up the cost of this ration, built another one according to the book, and found in a week that his thirty cows were giving about 75 pounds more milk a day—83 cents worth—and the feed was costing him a cent less than the first one.

He was feeling good over the affair and together we planned another silo, to be filled next fall for 1900 summer feeding. Here was the difference in two men. One knew, and fed twenty pounds a day of digestible starch, etc., fuel makers, when his cows only needed fourteen, and but litttle of the protein which they should have had to supply the needed milk stimulant, body action and blood and nerve food; threw away 1,000 bushels of corn, and got far less milk. The other man thought he was wrong, took pains to inform himself, and is making a profit of $1.12 a day by it. Still there are those who will "call him down" and still say, "Great is Diana of the Ephesians," and go right on feeding timothy hay and corn meal, and kill hogs by the moon.

***

Not long since at Piqua, O., at an Institute, I came across one of those confounding things which are created for the express purpose of proving a rule by being a conspicuous exception, and it was an exception to show that once in a great while, milk and butter are combined in great quantities in an animal that does not exhibit any marked number of "signs," or conform to the dairy type or temperament.

The cow in question is the property of Mr. Cox, of that place, and is his only cow, so there was no chance for him to carry her milk through the spring house where other milk was creaming. The cow in question is possibly a 1,300 pound cow, of some Shorthorn blood, the balance being the Ohio mixture of all breeds; huge head and horns and remarkably devoid of nervous energy. But her butter making powers are great.

In the year 1896, she gave milk from which was made and sold 686 pounds butter, and the skim milk fed to a calf that was sold for $25. During the year, besides the grass on a small lot, she consumed twenty bushels wheat, fifty-five of oats, and twenty-five of corn ears, together with two tons of clover hay, all costing $37.50. The butter sold for $137.00 (20 cents per pound) and with the calf made her income $162.

The next year on practically the same food, but less cost, this cow made 760 pounds of butter which was sold for $152, and the calf for $5, making $157, but the skim milk was not counted. The highest amount of milk given in one day was 52 pounds, and the most butter made in one week was 19 pounds, but the great total amount was made in persistent yield for the year.

The old gentleman puts his hand over the old cow's neck and with no little pride remarks: "She izen't none of yer blooded critters, but when it comes to producin', she makes them thoroughbredded animals strike a purty lively stride, to go with her."

***

The producing of cream for the city markets is making its effects seen in many ways in northern Ohio. It is not only stimulating the price for milk, but is reviving the industry itself, and cows are selling for old time war prices. There is a result growing out of it that is not so commendable, and that is these cream concerns are about all making the skim milk into cheese(?) and as it is selling in Cleveland at 7 to 9 cents per pound, between cream and cheese the milk buyers are not losing anything in 11 cent milk, i. e. 11 cents for 10 pounds of milk.

The outcome of this may not add any laurels to the reputation of Ohio cheese, or cut much ice in competition with Canada, but in the light of the ever omnipresent dollar, it seems the thing to do, though the end will probably be the apples of Sodom, and these skims will later on pull down a lot of good cheese with them. Some of these concerns use the deep pails for milk setting, and of course there is some fat left in the milk, and less pepsin will be needed to digest the cheese but some of them will prove durable enough to utilize as handy wagon wheels.

***

In the Gouda section, I notice there is an increase being made this season in the Gouda cheese business, four large factories with a combined daily supply of nearly 50,000 pounds of milk per day, is all being made into full cream Goudas, and shipped as fast as they get a full (?) flavor. While the demand for these peculiar cheese is increasing, the demand about how they shall be made, is now different, and they are now made salter, more solid, more taste and other reminders of Holland.

They are now left longer in the brine, so that the salt will strike to their very centers. The utmost care is used in making them so that there shall be no loss of fats, and some whey that was Babcock tested, only showed .1%. The curd is slightly scalded and salted some before pressing, but the cheese get most of their salt in the salt baths, which are as salt as they can make them, with more salt added. They are cured in cellars and mould is not objected to. When the cheese are packed it is well brushed off, and start for market with bright faces.

Ohio, April 16th. JOHN GOULD.

Stave Silo Queries From Iowa.

ED. HOARD'S DAIRYMAN:—I am contemplating building a silo this summer and I wish to ask you a few questions to be answered through your most highly esteemed paper.

The size I wish to build is 25 ft. in diameter by 25 ft. high. Now, will ensilage keep as well in as large a silo as this as it would in a smaller one, and would it not be better to have the staves all the full length than to have them spliced? My plan is to put a good stone wall laid up with cement, say about one foot thick and 18 in. deep, with about 6 in. of it above the ground, then fill up nearly to the top of the wall with gravel or cinders, also have a tile laid so as to drain, then use 2×6 spruce or fir dressed on one side, tongued and grooved for the outside wall. Then after getting this set up and hooped with flat hoops (which I want you to tell me the size iron to use and how many it will take) I will commence at the door and put on a strip of tar paper then cover with good flooring of the same kind of wood and line it.

Then I will cover it with cedar shingles making it a circular form. Now, as to a ventilator, does it need any or not? I will give it 3 good coats of paint on the walls

What do you think of my part of the plan, and how much will it hold, or how many cows will it accommodate? I have about 75 head, old and young

I also ask your opinion of a half-bred Jersey heifer that was 20 months old when she dropped a calf, a heifer, and although I milked her twice a day for a month she did not give a bit of milk. I re-bred her, is she likely to do the same again? She was fed corn fodder with corn, oats, straw, clover and timothy hay, do you think her heifer calf will be a failure?

I have been a subscriber to your paper over a year and I consider HOARD'S DAIRYMAN one of the most useful things in my business.

Any suggestions or answers in the columns of the DAIRYMAN will be very acceptable.

Wappelo Co., Iowa. J. B. B.

A circular silo 25 ft. in diameter and 25 ft. high will hold approximately 225 tons of silage. This will suffice to feed 75 animals 200 days at the rate of 30 lbs. per day, or longer, if less is fed. The trouble with a silo of this size would be that the feeding surface is too large. More or less of the silage would be injured by exposure from day to day. It would be a little more expensive, but on the whole, a little more economical, to build two silos, each 16 to 18 feet in diameter. Feed from one until it is empty and then from the other.

It is an entirely useless expense to use long joists for such a silo. Lumber, 25 feet long, costs a great deal more than that which is 16 feet or less, and is absolutely no better for building a stave silo. Ensilage keeps as well in a large silo as in a small silo, except as above stated. Six square feet of surface, per cow, is as much as should be uncovered at one time. That is to say, if a man has twenty cows, his silo should not be so large that he would be obliged to uncover more than 120 square feet. Where flat hoops are used they should be from 2 to 2½ inches wide, and not less than 5-16 inches thick, and a silo 25 feet high should have not less than seven of these hoops, one at the bottom, another 2 feet above this and the third 3 feet above the second, and so on. The pressure at the bottom of the silo is much greater than at the center or the top, therefore the hoops should be closer together at the bottom. Notice the construction of the water tanks at railway stations, and see how this law is observed there.

A silo does not need a ventilator at the top of the roof, although one would do no harm. For inside of the silo, there is nothing so good in the way of painting as coal tar, but paint of any description should not be applied until the lumber is thoroughly seasoned through and through. Nothing will induce decay sooner than to paint lumber before it is thoroughly seasoned.

In regard to other details of construction mentioned, no particular criticism, either in approval or disapproval is necessary. A good many people would say that the interior lining is unnecessary, others would approve it. It certainly would do no harm, and its tendency would be in the direction of making the structure more impervious to air. It would be necessary, however, if this method of building was followed, to thoroughly coat the inside lining with the coal tar paint, and to renew it as often as necessary.

The case of the heifer referred to is so very unusual that we hesitate to express an opinion. It is at least doubtful whether she will ever make a profitable cow. The probabilities are that her heifer calf may not take after her in this respect, but there is an element of uncertainty in this respect, and on the whole we should be disposed to prefer not to run the risk.

Breed and Form.

ED. HOARD'S DAIRYMAN:—If you think this worth printing do so, if not, let the waste basket have it.

I read both the DAIRYMAN and the *Jersey Bulletin*, which claims there is no cow equal the Jersey, and the DAIRYMAN any breed, so she is of a dairy form. My experience has been that you do not get the dairy form without either the Jersey or Guernsey blood. We have lots of good cows in the country which do not look like either breed in any way, but I feel sure the blood is there. Well do I remember the first cow I bought; she did not look like anything but a native, but with good feeding and care she would make 10 pounds of butter in 7 days, and furnish the milk used in the family. She was of the dairy form, and I have since learned she got it from the Jersey blood.

There is a great objection to the Jerseys in this county on account of their size, but I have cows of that breed that will weigh one thousand pounds, and dropped their first calf when they were 16 months old. I do not think the size or weight has anything to do with the profits in the dairy, for after a cow acquires the weight of from eight to ten hundred pounds, it is a burden to her, and what she will sell for after she is of no use in the dairy, amounts to naught.

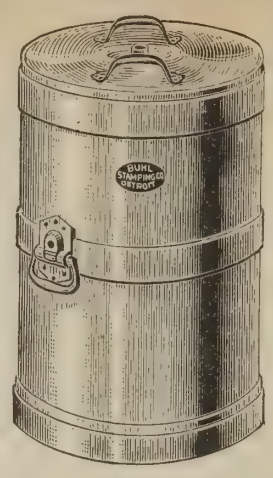
I am not prejudiced against the Guernsey, but I know the Jerseys will return a good profit, both in milk and butter, and are the ones for us farmers of small means to keep.

To express my mind, a man might as well try to cut and bind a field of wheat with a mowing machine as to make a profit keeping dual-purpose cows; he will make about as much muss with one as the other.

Feasterville, Pa. W. H. W.

We take no particular exception to what our friend *says* in the above communication. He is about right as far as he goes, but like all the rest of us he has something yet to learn. Wider experience would have taught him, as it has taught others, that the dairy form is not wholly dependent upon Guernsey or Jersey blood, and, although not so mentioned, his present experience has probably convinced him that there are both Guernseys and Jerseys that do not have the dairy form or dairy ability; that, notwithstanding their imperial lineage, they are in effect "scrubs" and all the more dangerous because of the fact that they trace to distinguished ancestors.

Does it follow that HOARD'S DAIRYMAN is opposed to distinguished ancestors, and would ignore both breed and pedigree in selecting a sire to head either a distinctively dairy herd or a breeding herd? By no manner of means! No one has been more insistent than we that the dairy farmer should use pure-bred sires, and among them, only those that could trace to performing dams



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and sires, not too far removed. But we go further than this, and because we do, the breed organs scold and fume like London fish wives. We insist, not only that the dairy sire shall be well bred, but that he shall show this in his form; show that he has inherited the qualities which made his ancestors famous; exhibit something more than a mere paper title to excellence. Many times we are compelled to buy and sell without other evidence of merit, than a charted pedigree, and because more frequently than otherwise, like produces like, we are not likely to disappoint or be disappointed.

But excellence sometimes crops out in unexpected places. American history is rich in the names and deeds of heroes and statesmen whose ancestors were not renowned and never had their names registered in congressional directories, or other official publications. So there are cows and families in all the dairy breeds, whose latent powers have never been developed, or if developed, never advertised. Advanced registries and books of butter tests are frequently receiving accessions from such sources, and it should no more occasion surprise to have a prepotent bull from such ancestry, than to have extra cows. But in either case it will be found the rule, to which the exceptions will be few and far between, that the dairy form accompanies performance. And the dairyman who is raising calves for the profit they will bring him as cows might better use a bull of proper form with an unfashionable pedigree, than one faulty in form no matter how gilt-edged his pedigree.

In its last analysis, breed is only another name for pedigree. There are breeds within breeds, only we call them families, and it is no more unreasonable to insist that great excellence can be found only in special families of Jerseys, than it is to claim that all great dairy excellence is confined to the Jersey breed. When it comes to individual excellence, type is more important than breed or pedigree. Mr. Hunter Nicholson in the *Jersey Bulletin* to the contrary notwithstanding.

Our Special Elgin Letter.

ED HOARD'S DAIRYMAN:—The offering of butter aggregated 15,960 pounds. A bid of 15 cents was made for the entire offering, but manufacturers refused to sell and the call closed with no sales made. The Quotation Committee announced the market steady at 17 cents.

The sales for the corresponding week of the three preceding years were as follows:

April 25, '98, no sales, market price, 16½ cents.
April 25, '97, 24,540 lbs. of butter sold at 16 cents.
April 25, '96, 43,320 lbs. of butter sold at 14@15c.

The New York market Monday was reported steady at 17 cents. Boston steady at 18 cents, and Washington steady at 19 cents.

Elgin, Ill, April 24. H. C. B.

Farmers' National Congress.

ED. HOARD'S DAIRYMAN:—The next session of the Farmers' National Congress will meet at Boston, Massachusetts, October 3rd, 4th, 5th and 6th. Section 2 of the constitution of the Farmers' National Congress determines the membership and reads as follows:

SEC. 2. The voting membership of this Congress shall be as follows: A member from each congressional district and two at large, to be appointed by the governor of each state (and such governors are requested to appoint practical farmers as such delegates); each Agricultural College and Experiment station shall be entitled to a delegate; and each national and state society or organization, created and maintained for the fostering of any agricultural interest in the western continent, shall be entitled to a delegate. These organizations, societies, etc., shall supply a certified statement of the existence of said organization.

Will you please give this communication a place in your columns, which we know are read by the officers of many of the organizations entitled to representation in the Congress. It is hoped that if this meets their eye, they will take the proper steps to have delegates appointed to the next annual meeting of the Congress.

W. D. HOARD, President.
Fort Atkinson, Wis.
JOHN M. STAHL, Secretary.
4328 Langley Ave., Chicago, Ill.

DAIRY MARKETS.

ELGIN, Ill., April 24—Butter—266 tubs offered at 15c, but no sales. Committee reported steady at 17 cents.

CHICAGO, Ill., April 24—Butter—Creamery extras, 16c; firsts, creameries, 14@15c; seconds, 13@13½c; dairies, selections, 14c; extra ladles, 12½c.

Eggs—Fresh, at mark, cases included, sold at 12¾c.

Cheese—Full cream, Twins, new, good to choice, 10½@11c; Young Americas, 11½@12c; Swiss, 10½@12½c; Limburger, 8½@10c; Bricks, new, 10c.

Bran—Scarce and quotable at $11.75@12 per ton.

Cattle—Receipts were estimated at 18,000, against 14,900 a week ago, and 11,108 a year ago. Our receipts were as large as the combined receipts at Chicago, Kansas City, Omaha, and St. Louis on the corresponding day last year. The general quality was good, yet with a scarcity of strictly prime beeves. Fancy cattle would sell around $5.80. Three head of 1,676 lb steers sold at $5.60, with $5.45 the next highest for a load averaging 1,421 lbs. Native steers ruled steady to 10c lower, with the decline mostly on heavy grades. Light beef cattle were fully steady, and native cows and heifers were without quotable change. Most of the native steers sold at $4.60@5; cows principally at $3.15@3.70, and heifers largely at $4@4.50. Feeding cattle steady, with sales at $3 90@4.25. Five loads of straight Texas sold at $4.35 for steers, and $3 35@3.75 for bulls and oxen.

MILWAUKEE, Wis, April 24—Butter—Creamery, fancy prints, per lb. 17c; Extras, per lb., 17@17½c; firsts, per lb., 15@16c; seconds, per lb., 14@15c; imitation, per lb., 14@15c. Dairy selections, per lb,, 13@14c; Roll, fair to choice fresh, 11@11½c. Market dull but steady, with continued accumulation of supplies, buyers taking only small lots, while receipts are 8,770 lbs

Cheese—American full cream, October Twins, 11½@12½c: new per lb., 10@11½c; Brick, new per lb., 10@10½c; Limburger, fall choice per lb., 9@10c; winter made, per lb , 8@9c; Swiss, drum, choice 12½@13c; Block, choice, 10½@11c. Market dull and quiet, trade being limited, with receipts 1,350 lbs and 11 boxes.

Eggs—Fresh, per doz., 12. Market steadier. Trade fair, chiefly for storing and receipts are 628 cases.

FOND DU LAC, Wis , April 24—Offerings 225 Twins and 250 Daisies; market active at 10½c.

AVOCA, Wis., April 24—Lone Rock and Muscoda Dairy Board held its first meeting to-day John Galagher was elected President; John McVey, Vice-President; Joseph Frost, Secretary and Treasurer. Offerings 308 boxes; market firm; all sold at 10½c.

SHEBOYGAN FALLS, April 23.—There were 347 boxes of cheese offered on the "call board" to-day and all but 10 cases of Longhorns were sold as follows: 145 Twins at 11c, 75 cases Young Americas at 10⅝c and 11c and 117 at 10¾c.

PLYMOUTH, Wis , April 18—On today's board 370 boxes of Twins were sold at 11¼c, and 60 boxes of Young Americas at 10¾c.

SHEBOYGAN, Wis., April 19—The sales on the call board today were 145 Twins at 11 cents, 75 cases Young Americas at 10⅝ cents, and 117 at 10¼ cents.

NEW YORK, April 24.—Butter—Creamery, Western extras 17c; firsts 16@16½c; state extras 16@17c; choice 16@16½.

Cheese—State full cream, large colored or white fancy 12@12¼c; choice 11½@11¾c; small fancy 12¾@13c.

Eggs—State, Pennsylvania and Western 14c.

BALTIMORE, Md., April 24.—Butter—Market easy; creamery separator extra 21@22c; extra first 20c; creamery first 19c; ladle extra, 14@15c; Western store packed 11@13c.

Eggs—Market firm; strictly fresh stock 13c.

PHILADELPHIA, Pa., April 24.—Butter—Solid packed separator creamery, extra, 18c; creamery firsts 17c; seconds 16c; imitation creamery, extra 16c; firsts 15c; seconds 14c; ladle packed, extra 15c; firsts 14c; seconds 13c; print butter, creamery, extra 20c; firsts 19c; seconds 18c.

Eggs—Pennsylvania and near-by 13c; Western 13@13½c; Southwestern 13@13½c; Southern 12½c.

BOSTON, April 24—Butter—Creamery extra, 18@18¼c, western extra 18@18¾c; dairy extra 16¾@17c; imitation creamery 15c; western ladle 14c; print creamery 19c; box creamery 19c.

Eggs—Fancy near-by 16@17c; choice fresh 14½c; Michigan extra 14@14½c; western 14c; fair to good 13½@14c.

ST. LOUIS, Mo., April 24.—Butter—Steady; creamery 15@20c; dairy 13@17c.

Eggs—Lower at 11c.

KANSAS CITY, Mo., April 24.—Butter—steady; creamery 14@19c; dairy 15c.

Eggs—Demand light; weaker feeling prevailed to-day, though prices remained unchanged; fresh Missouri and Kansas stock in new cases, cases included 12c; cases returned 11½c.

NEWARK, N. J., April 24.—Market steady 17c for best western extras. Receipts liberal.

WASHINGTON, D.C., April 24.—Market steady, extras 19½c; firsts 18c.

CINCINNATI, Ohio, April 24—Market weak; Elgin 60 lb tubs 19½c; prints 20½c.

NEW ORLEANS, La., April 24.—Market weak. Free offerings 18@19c.

Latest quotations for fancy creamery:—St Paul 17c, Minneapolis 17c.

NEW YORK MARKET.

NEW YORK, April 22—Butter—Receipts for the week, 37,755 packages. Exports for the week, 355 packages.

There was plenty of fresh creamery butter this week, and although trade is very good, prices declined one cent per pound and our market closes with some stock being carried over, and prices in buyers favor. The quality of butter is not as good as it ought to be, and a large proportion of the western creameries were turned down this week by buyers who have used them all through the season. Exporters are looking for fresh ladle butter, and would pay 14½@15 cents for finest, but this style of butter is very scarce; at the close this trade is reported to have bought several lots of finest creamery at 17 cents. We quote: Creamery, extra, 18c; medium, 16@17c; poor, 14@15c; Dairy, extra, 17c; medium, 15½@16½c; poor, 14@15c.

Cheese—Receipts for the week, 8,209 boxes. Exports for the week, 2,826 boxes.

Little doing in old cheese and prices easier on all grades. The receipts of new are increasing, and we note sales for export of large cheese at 9@10c, and small sizes to local trade at 10@10½c.

All kinds of poor to good quality new cheese sell slowly at very irregular prices. We quote: Full cream, old, extra, 11@11½c; medium, 9@10c; poor, 6@8c; Full cream, new, extra, 10@10½c; medium, 8@9c; poor, 5@6c.

Eggs—Receipts for the week, 57,808 cases. Quite a falling off in demand, and prices are about 1c dozen lower than last week. We quote: New York & Pennsylvania, per dozen, 14@14½c; Western & Northern, 13⅝@14c per dozen; Southern, 12@13c per dozen. DAVID W. LEWIS & Co. 177 Chambers St.

FOREIGN MARKET.

BOSTON, April 22 Butter—Cable advices of this date, from the principal markets of Great Britain to G. A. Cochrane, give butter markets as dull and declining. While stocks are not burdensome, and receipts only moderate; buyers are very conservative in anticipation of increased receipts of Irish and Continental. Australian butters are now in very small compass and will soon be out of the way, values of which are nominally 20@20½c. Arrivals of Canadian are light and when in boxes sells at 20@21c, for finest. American butter is meeting with a poor demand; stocks however, are not large, and there is little or none left of creameries good enough to command over 18@18½c. Some fine imitations are selling at 16@17c. Ladles are moving out slowly, and free sales cannot be made except at 15c downwards. Fresh Danish and Irish are the most popular butters at the moment. Finest Danish takes a range of 22@23c, with very fine Irish offerings at 21@22c, but prices from now on will rapidly decline.

Cheese—Markets, while steady, and with finest descriptions of Canadian firmly held, there is little prospect of any improvement on present prices, which are 11½@12c. Anything under finest is very scarce and in active request.

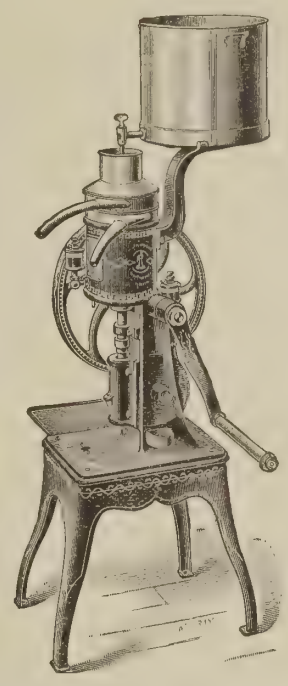
MANCHESTER, England: Dowdall Brothers' special report of April 8th, says: Copenhagen market weaker, with plenty of butter offered at reduced prices. It is expected that official prices will be reduced 4 kroner, and as exporting is likely to give losses, holders prefer realizing here at a sacrifice whenever possible.

Manchester had a fairly brisk market, and cleared extremely well in the face of the cautiousness of buyers and of the Easter holidays. There was a slight reduction in price. Rates here have been well maintained, owing to recent wild and stormy weather, the decrease in Colonial supplies and the lateness of the season in Ireland. Irish is beginning to make its appearance, and at reasonable prices, with good quality. Manchester received 1,020 Finns or 147 more than the previous week. For next week's North of England markets there are advised 20,437 casks of Danish and Swedish, or 437 casks more than last week, and 2,969 casks Finnish, or 391 more. Margarine arrivals through Hull, 11,416 packages, and via Grimsby 5,710 packages.

LIVERPOOL, April 24.—Butter—Finest United States 84s; good 65s.

Cheese—American finest white and colored 52s 6d.

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The BEST, the CHEAPEST and the reasons why?

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GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Second hand cream separator, cheap, hand or power. H. H. LYON, Bainbridge, N. Y.

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Wanted—Position by an all around dairyman, (Hollander). Can make cheese and butter. JOE HEILKEMA, Holgate, O.

Wanted—A position as manager or foreman on a good dairy farm. Have been running farm of my own for past 8 years, and owned one of the best herds of Holsteins in America. Address at once, Box 14, Monticello, Wis.

Wanted—Position by a practical farmer and dairyman. Good reference furnished. Address W. I. L , care of this paper. 11-2

Position Wanted as manager or foreman of stock farm. 33 years of age, with good recommendations. Experience in the business. Address with particulars, H. A. N., care Hoard's Dairyman. 11-sp

Buttermaker is wanted at Pine Grove Creamery. Address immediately, giving references as to character and ability. S. E. RIGG, Valparaiso, Ind.

A Good Bargain—For Sale, the young Jersey bull Tom Goldfinch 52166. Sire, Cambronne 40614. Dam, Lady Goldfinch 72214. Dropped Oct. 8, 1897. Grandson of Grand Khedive 30474. Is a fine animal with splendid blood lines. Will be sold cheap. Address F. A. TILDEN, Fort Atkinson, Wis. 11-2

Wanted—A single man to work on dairy and stock farm. Must be a good milker. Board and washing furnished. State wages and give reference. Address J. L. ROBERTS, Foreman, Saxony, Ind. 11-2

For Sale—Five Holstein-Friesian Bulls ten and twelve months old. Also B. Plymouth Rock eggs for hatching, Address C. W. SCHERMERHORN, Charles City, Iowa. 11-4

$75.00 will buy registered bull Gerben Mechthilde Sir Josephine 2d, H. F. H. B., born August 28, 1897. Reason for selling, compelled to give up dairying. C. KAHLER, Prairie au Chien, Wis. 11-4

For Sale—Fifteen h p. boiler and 15 h. p upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 10-3

Haunts in the Wild Woods and gay places for summer outings. Either or both, can be found along the lines of the Chicago Milwaukee & St. Paul R'y in Wisconsin, Minnesota, Northern Michigan, Iowa and the Dakotas. Among the many delightful summer resorts are Delavan, Waukesha, Oconomowoc, Elkhart Lake, Marquette, Madison, Kilbourn, Minocqua, Star Lake, Lakes Okoboji, Spirit Lake, Clear Lake, Big Stone, Frontenac, White Bear and Lake Minnetonka. In the north woods of Wisconsin, in the forests of Northern Michigan and Minnesota, and in the far stretches of the Dakotas true sportsmen can fish and hunt to thier heart's content. For pamphlet of "Summer Tours," and "Fishing and Hunting," apply to nearest ticket agent, or address with two cent stamp, GEO. H. HEAFFORD, Gen'l Pass, A't., 535 Old Colony Building, Chicago. Ill. 9-3

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

"In Old Kentucky."

The Soja Bean Problem.

ED. HOARD'S DAIRYMAN:—Only a few of us down here in old Kentucky have as yet engaged in the dairy business. It is generally considered a little business here and becoming only to the person who mounts the "critter" on Saturday afternoon and with 4 pounds of butter in one end of a basket and 3 dozen eggs in the other goes to the country store to exchange its value, which is $.67, for goods. This $.67 generally represents the week's output of produce from the farm, and if invested, as it generally is, say 5c in soap, 10c in oat meal, the same amount in starch, and some in soda, and perhaps a package or two of coffee, the farmer is all smiles and heard to exclaim, "this produce mounts up in the cose uv a year; I need a 'nuther' basket to take home what my 'marketin' brought; hit helps out mightly", etc.

Then he is off perhaps for the saloon for a "good send off", and returning to the grocery store takes a chew of "homespun" and is therewith content the balance of the afternoon "postin" himself in national affairs, or rather posting everyone else. He understands the financial question perfectly and takes his party paper, but ask him what agricultural literature he reads, or better still, talk to him about 5 minutes about stock feeding, balanced rations, economical production of beef, pork or butter, or the restoration of tired lands, and ask him what he would do and why he would do it, etc., and his answers will explain to you why he places so low an estimate on the dairy.

What do dairymen think when I say that there are many farms, of 300 acres, say, in this county with a total gross income of less than $700 per year, and the gross receipts a little less every year, with a corresponding decrease in the value of the farm. The making and applying of manure is the work most neglected of all. These same farms occupied by intelligent dairymen would in 5 years easily increase this gross income to $1,800 or $2,000 per year, while the value of the farm would be increased certainly not less than 6%. Years may come and years may go but it looks as if this poor shiftless way of farming in Kentucky is to go on forever.

But I am about to forget the object of this communication, which is to make some inquiry about soja beans. I want to grow protein, so to speak, and in addition to clover I will use cow peas pretty extensively, and have already bought 10 bushels of soja beans. I believe analysis puts them above peas, but want to hear from the editor and also from practical dairymen, who have been growing them for cows, and also for hogs, and as a soil renovator. How do they compare with southern peas as food for stock? How as a restorer of tired land? Shall I plant in rows and cultivate, or is it better to drill or broadcast them? I should like to know its value as ensilage. A friend of mine put about 30 tons in silo last year and is much pleased with it. Please turn on the light and oblige. P. W. F.

Irvington, Ky.

All persons interested in soja (soy) beans should send to the Secretary of Agriculture, Washington, D. C., for a copy of Farmers' Bulletin No. 58, which treats of "The Soy Bean as a Forage Crop." Meantime we copy from this bulletin as follows:

In a general way, the same methods of culture may be recommended for the soy bean as would be given to the ordinary field beans. The soil should be well prepared, so as to afford a good root bed, and should be left smooth and free from clods in order to facilitate the cultivation and harvesting of the crop.

Although soy beans may be planted quite early in the season, the best results will be obtained if the seeding is postponed until the ground has become thoroughly warm; and in case the earlier varieties are used, a fairly good crop of forage or even of seed may be obtained, if the seeds are not planted until the earlier small grains, such as rye and barley, have been harvested.

Another practice is to drill the beans in between the rows of corn after the last plowing; they are also sometimes planted between the hills of corn, as are field beans. The best method of seeding will depend somewhat upon the kind of crop which it is desired to harvest. If the soil is good, and a crop of hay or green fodder is desired, good results may be obtained by sowing broadcast or with a grain drill. If, however, a crop of beans is desired, it is best to plant in drills from 2 to 3 feet apart, according as the soil is light or heavy.

There is considerable difference in the amount of seed sown per acre in the various parts of the country; some farmers sow only about half a bushel per acre, while others prefer a bushel or even more. The proper amount will necessarily vary somewhat, according to the method of seeding and the character of the soil. As a rule, when grown for seed, from one-half to three-fourths of a bushel per acre will be ample. When put in with a grain drill or sown broadcast, a greater amount of seed will be required; but in any case it will hardly be necessary to use more than 1 bushel per acre. Of course, less seed will be required when the grain drill is used than when the seed is sown broadcast, and as a rule better results will be obtained. When planted for beans, enough seed should be used to give an average of five or six plants per foot in the row. If nothing better is at hand for planting the seed, an ordinary grain drill, with enough of the holes stopped up to give the desired distance for the rows, may be used. For example, if the holes are 8 inches apart, number 1 may be left open, numbers 2, 3 and 4 closed, number 5 open, etc., and the rows will be 32 inches apart, or, if a less distance is desired, number 4 may be left open and number 5 closed, and the rows will be 24 inches apart. In very light soil the latter distance would probably be best, but in heavier soils the former would be preferable.

When the seed has been drilled in rows close together, or has been sown broadcast, very little cultivation will be necessary. It will sometimes be found advisable, however, to cultivate the drilled field soon after planting, as in case the land is very foul, the weeds are liable to get such a start that they will interfere with the growth of the young soy plants. For this purpose use a light harrow. When grown for seed, thorough cultivation should be given, at least while the plants are young. As a rule, cultivation should be shallow and frequent if the best results are to be obtained. When the ground is inclined to pack or bake, it should be stirred after each rain, but care should be taken not to work the field when the plants are very wet from rain or dew. If the drills have not been made too far apart, it will be found that the plants will soon shade the soil sufficiently to keep the weeds in check and to keep the surface in good condition, so that much cultivation will be unnecessary. In fact, on good soil very fine crops have been obtained with but a single stirring of the soil after the seed had been planted. As a rule, this crop will require a smaller amount of cultivation than corn.

Silage as a Producer of Healthy Milk.—Alcohol in Silage.

ED. HOARD'S DAIRYMAN:—The following inquiry has been received: "Letters which we receive from time to time, indicate that there is a very decided inclination among Boards of Health and doctors acting as health officers to decry the use of ensilage as a milk producer.

Among other things they bring up the action of alcohol assumed to be in silage and the abnormal composition of casein, brought about by the use of the above feed. Owing to the almost universal ignorance of doctors on the subject of animal feeding, the use of silage is being prohibited in many localities, on these grounds. Could you not supply some data on the above points?"

Objection has at times been made on part of milk-condensing factories to the use of silage as a feed for milch cows on account of the supposed injurious effect of the silage on the flavor of the milk, and perhaps on its keeping quality. The prejudice against silage in some quarters is doubtless traceable to careless feeding of sour silage made from very immature corn. One can overdo everything; a fair allowance of silage being a good thing, it does not follow that a cow can be advantageously fed on silage as sole roughage. It is generally not advisable to feed more than 40 to 50 pounds of silage, per cow, per day, giving all the dry fodder or hay she wants to eat, in addition to the grain feed. Fed in this manner there can be no objection whatever to the use of silage for milch cows; in fact, there is no feed that can be fed more economically under our conditions and with better results as regards the quality of the product obtained. That not all condensed milk factories are averse to the use of silage by their patrons, is evinced by the fact mentioned in Prof. Henry's Feeds and Feeding, that the Michigan Condensed Milk Co. with factories at Lansing and Howell, Mich., accepts milk from silage-fed cows and urges its patrons to build and use silos; the only condition set being that nothing but well-matured corn be used.

There is no evidence that silage fed as suggested will bring about an abnormal composition of the casein (I suppose the term is meant to include the nitrogenous components of the milk) and no reason is apparent why it should have any such effect. The silo is getting to be more of a necessity to the American dairy farmer with every year that passes, no matter whether milk, cream, butter, cheese or condensed milk is the final product sold, and if any abnormal changes were apt to be worked in the composition of the milk from its use it would have been discovered long before this.

The alcohol found in silage can in no way influence the quality of the milk. There is not enough alcohol in the silage to be determined quantitively by the most delicate chemical methods; it is indeed often difficult even to show that it is there. I have but rarely failed to find alcohol in silage when I have looked for it, but it is necessary to use the microscope to decide whether the characteristic reaction showing the presence of alcohol has been obtained. There is therefore only an infinitessimal quantity of alcohol in silage, perhaps not more than is found in bread, which for some time past has been considered "the staff of life" and very likely will continue to be so considered, in spite of the fact that minute qualities of alcohol generated in the fermenting (working) of the dough remain in the bread after it is baked.

The objections to silage as a feed for dairy cows are therefore wholly unwarranted, and no company, doctor or Board of Health can prohibit its use, for this purpose, without thereby showing that they have not followed the progress of dairying and cattle-feeding in this country or abroad. The silo is as important an adjunct to modern dairying as is the separator or the factory system of butter and cheese making. F. W. WOLL.

Wisconsin Experiment Station.

Satisfactory Experience With Stave Silo in Kentucky.

Various Queries.

ED. HOARD'S DAIRYMAN:—Last fall I built a tub silo according to your plan with sketch given in one of last year's copies. I have just finished feeding, and it has kept well to the bottom, excepting around edges, probably from lack of tramping. My experience, however, is that I must have a good roof over it. Last fall was very wet here, and I think some spoiled on top because of leaky roof. A bad roof is certainly worse than none, as with no roof the rain will be evenly distributed, while a leaky roof will make seeps, penetrating deeply.

I think I saw where some one covered the full silo with saw dust; this is plenty and cheap here, and could be carried up with elevator. Do you think it would injure the silage?

I also had trouble with the uprights through which the iron rods pass, they bulged the silo walls on the inside where they lay, causing the rods to draw the tub out of round. Now that it is empty, I have put cross bracing in, before tightening, to remove before filling.

I want to build another one this fall, on this plan. I think it is good enough for me; if there is a better way to do this, I would be glad to learn it.

My roof is simply boards, covered with tar paper, no rafters. I simply nailed small strips underneath to hold boards as one; gables nailed up from tub to roof. There was plenty high wind to test it this spring. I have only two holes in 20-ft. tub.

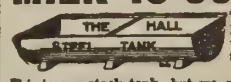
I have often had my oats damaged by wet weather and big binder bundles. Can bundles be made smaller some way? How would it do to make ensilage out of it, when nearly ripe?

How do you keep your large water tanks from freezing in winter (steel or wood) or rather from bursting?

Finally, my steam gauges, both on boiler and separator, stop on 5, when cold. They were frozen this winter; how does it affect the proper reading?

I live in a poor dairy country here; people won't get out of their old ruts. I get about

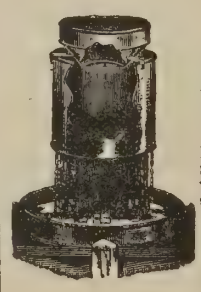
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Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.
Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.
Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.
For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

20 cents for my butter and make a fair living by hard work and by working my boys, in place of sending them to school. Public schools are very poor here. I teach them at home.

I make this a pretty long letter, but I just want to show you that I appreciate HOARD'S DAIRYMAN, and then I won't write you so soon again.

I have been grinding corn in iron mill, and also in crusher this winter. I was painstaking not to get any iron in corn, but a nail or a small bolt turned up now and then, so it will take a new set of burrs every winter. I see that millers use magnets to catch them. Would they be effective on an iron mill?

Bardstown Junction, Ky. C. H.

Communications like the above, filled with a record of facts, drawn from experience, are full of instruction.

Sawdust makes excellent covering for silage. The point is simply to exclude the air. Anything that will accomplish this answers the purpose. Whether to use sawdust, swale grass, paper and boards, chaff or other material, depends solely upon cost and convenience. When the sawdust is evenly distributed over the surface, it would be an excellent plan to wet it down thoroughly as this will make it more impervious to air.

The pressing in of the staves was caused by the hoops becoming too tight in consequence of the swelling of the staves. If the nuts on the ends of the hoops had been loosened a little on the first appearance of inward pressure of the staves, the difficulty described above would have been obviated.

In building new silos this year, we suggest to C. H. that he study the description of the silo built at Purdue University, which was given in the last issue. Instead of using separate blocks, pieces of 4x6 were used in place of two of the staves, holes being bored at proper intervals through which to run the ends of the hoops. However, the use of these pieces in place of the staves will not obviate the necessity of keeping pretty close watch to see that the hoops are not drawing too tight.

All the self binders with which we are acquainted, make provision for increasing or decreasing the size of the bundles to be delivered. Unless the agent, from whom this machine was purchased, can give specific instructions for working this device, we advise our correspondent to write to the manufacturer of the machine, and they will very promptly give him detailed instructions what to do. Oats do not make first-class silage, largely because such silage does not keep well. The hollow straw permits too much air to remain in the silo, and thus furnishes conditions for inducing decay.

The only way known to us for protecting tanks is to cover them sufficiently to exclude the frost, leaving only a small opening for the cattle to drink from, or better yet, provide a short spout to lead from the large tank into a smaller one as may be necessary for watering the stock. In lieu of covering so much as completely to exclude frost, less covering may be used in connection with the tank heater.

We are not quite certain as to the reliability of the gauges referred to. It is just possible that they may be accurate by deducting 5 from the registered reading, but we should hardly like to rely upon such a conclusion. It would be much better to send away and borrow a gauge that is known to be accurate, and test those which are now out of condition.

We know of no reason why the magnets should not work as well in connection with an iron mill as with any other.

RAISING BEEF AT A LOSS.

Prof. Shaw argues that the dual purpose cow is a necessity because the range cannot grow enough beef for the country to eat, and to grow the remainder with special purpose beef cows on arable land is too expensive a process. Therefore some one must keep dual purpose cows and milk them, and also raise steer calves from them. This is a good argument.—*Republican*, Waverly, Ia.

To our mind this is equivalent to saying that the range cannot grow beef enough for the country; therefore somebody must keep beef cows for dairy purposes, be to all the extra expense which the dairy involves, including extra care, feeding, transporting the milk to the creamery, etc., and in the end lose money on such cows in order to raise steer calves from them. Is it not time to admit in this argument, that the real logic of the case lies in the fact that if men become dairymen, they must subject themselves to the same expense in fixed charges with a poor cow, a scrub cow, a half way cow,—dual-purpose—that they would with the best sort of a dairy cow? That when once they embark on this road of dairying, the natural logic of trying to secure the best return for their capital, labor and expense, should lead them to secure the best paying cow machine they can?

Every farmer in the land, who is contenting himself with cows that just about pay for the food they consume, or maybe lose money for him, is an advocate of general-purpose breeding and general purpose management.

A large proportion of these men have never put pencil to paper to figure the expense of keeping a cow, or what a cow should yield to afford a fair revenue. On the general purpose side of the question is found the vast host of farmers who have no ambition or care to be well posted dairymen, and thus secure the larger revenue that comes from special-purpose ideas and cows.

Everywhere through the land wherever we find a man with true dairy ideas, we find him with cows posessing more or less special-purpose blood.

Special-purpose ideas in the dairy business lead naturally to improvement in dairy cattle, breeding in more and more of dairy capacity, and a general grading up of the man himself. Dual-purpose ideas lead where the thousands upon thousands of farmers with poor, unprofitable cows find themselves to-day.

ARE YOUR COWS CHEATING YOU?

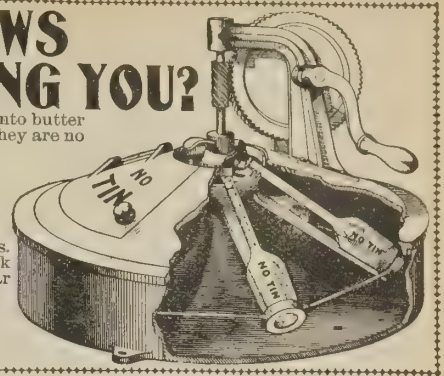
Are your cows turning the feed they eat into butter fat, or are they just living off of it. If they are no good they should go to the butcher.

A NO-TIN BABCOCK TESTER

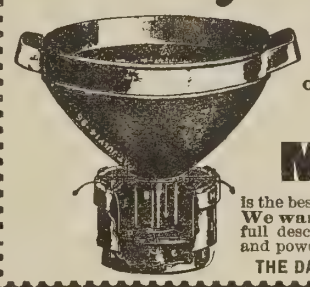
will tell on them and it makes no mistakes. It's always ready for business—doesn't break down—doesn't have accidents—doesn't wear out. Runs easily and noiselessly.

Send for Catalogue No. 85.

ELGIN MANUFACTURING CO.
ELGIN, ILLINOIS.



Every Speck of Dirt



is removed from milk by Meloney's Patent Milk Strainer. A new principle in milk straining—practically filters the milk. Yet it's simple—no complicated parts, nothing to get out of order; as easy to operate and to clean as the commonest strainer.

MELONEY'S Patent
MILK STRAINER

is the best, most economical device for purifying milk ever invented. **We want a reliable agent** in every dairy community. Write for full description and free catalog of everything for the dairy—hand and power separators, coolers, milk scales and buttermakers' supplies.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia, Pa.

$15.95



ONLY ONE DOLLAR DOWN

Cut this ad. out and send to us with $1.00 and we will send you this HIGH GRADE 1899 MODEL $50.00 VICUNA BICYCLE by express, C. O. D., subject to examination. Examine it at your express office and if you find it a genuine 1899 model HIGH GRADE $50.00 VICUNA, the grandest bargain you ever saw or heard of and you are convinced it is worth $10.00 to $15.00 more than any wheel advertised by other houses up to $25.00, pay your express agent the balance, $14.95 and express charges.

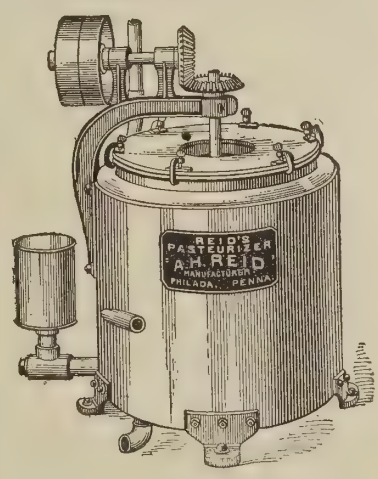
THE VICUNA

IS COVERED BY A BINDING GUARANTEE. Frame is 22 or 24 inch, made from best seamless tubing, finest two-piece Denton hanger, finest full ball bearings, Mason arch crown, enameled black, green or maroon, highly nickel finished, Delhi padded saddle, up or down turn handle bars, best Doyle pedals, HIGH GRADE GUARANTEED REGAL PNEUMATIC TIRES, fine leather bag, complete with all tools and repair outfit, ORDER TODAY. YOU CAN MAKE $50.00 EVERY MONTH SELLING THESE WHEELS AT $25.00. (Sears, Roebuck & Co. are thoroughly reliable.—Editor.)

CATALOGUE FREE.

SEARS, ROEBUCK & CO., CHICAGO, ILL.

Is Pasteurizing A Success?



Ask the creamerymen who are making pasteurized butter and the butter men and retail dealers who are selling it. Ask them how it compares with other butter—if it doesn't command better prices—if it isn't preferred by consumers. Read what Philadelphia's largest commission merchant says about the rapidly growing demand for pasteurized butter:

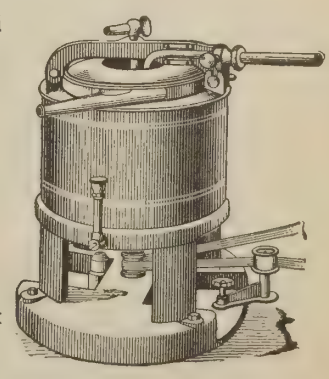
PHILADELPHIA, March 1, 1899.

Dear Sir:—In reply to your inquiry regarding the merits of pasteurized butter, would say that we are receiving it from a number of creameries who have adopted your system of pasteurization, and the only difficulty we find is, we are unable to supply the demand. Pasteurized butter makes its own way in the market and commands a far better price than the average good creamery butter. We are always ready to pay a good price for pasteurized butter and buy as much of it as we can get.

Water and Market Sts., Philadelphia. JOHN JAMISON.

The only machine that has satisfactorily and practically solved the problem of pasteurization is the

REID
PASTEURIZER.



Write for detailed description and complete information. Ask for the Reid 1899 Separator book.

A. H. REID, 30th and Market Sts., PHILADELPHIA, And CEDAR RAPIDS, IOWA.

A Milkman's Queries.

An Ohio reader is considering a proposition to establish a milk route in a manufacturing city in Ohio of about 6,000 inhabitants and submits the following queries:

How can we best build up a trade for bottled milk to be sold at 6c per quart and 10c per pint for cream? There are many wagons in the town now drawing milk from the can at 5c per quart. We expect to run the milk from a separator, cool and bottle. Would it be best to remove enough of the skim milk so that we could guarantee the remainder to contain 5% fat.

Please give method of sterilizing bottles and required apparatus for the job.

What thickness of cream is it best to run through a separator? To what temperature should the milk be cooled? Would you recommend the Star cooler? Would you run skim milk and cream together after leaving the separater and then to the cooler? Would not bottled milk put in sterilized bottles and cooled to from 40 to 45° keep to 36 or 48 hours in a temperature not above 70°?

Our plan is to use a turbine separator of 300 to 600 lbs. capacity per hour. What size boiler would be required or would be best?

Would like to have a plan for dairy house, with ice for the refrigerator. What is the best material for floor? Is it best to have ice-house separate from the other buildings? Can a dairy house be built for $40, having a herd of 30 to 40 cows?

Would it be a good plan to make a stave silo of two-inch pine, 20 ft. long, and paint the edges and inside before putting it up? What kind of paint is best, what kind of root? Could we hoop the silo with heavy galvanized wire? Any other suggestions would be thankfully received. P. B., Jr.

Gratiot, Ohio.

There are many ways of building up a milk route. One of the most successful milk routes in Boston was established without advertising or soliciting of any kind. The proprietor started in moderately, was resolved to serve his customers at all times and under all circumstances with strictly pure, clean, high-class milk. Doing this, his customers became his advertisers, and their friends called in the distributors from time to time, until the business has grown to wonderful proportions. It does not follow that a similar course would be equally successful elsewhere. Personally, we believe in the efficacy of advertising. If a man has something to sell or wants to buy something, we know of no so sure a way of making his wants known, as judicious advertising; and, as a rule, this is best done in first-class papers circulating among the people to be reached.

In the milk business, in particular, performance must keep, at least, equal pace with promise. Doubtless the distribution of free samples, accompanied with a guarantee that the regular product shall at all times be equal to the sample, might prove advantageous. In order to accomplish this with certainty, it is necessary to use the separator, and remove enough of the skim milk to insure the regular and the promised proportions of fat. It is not at all certain that it is necessary to have this as high as 5%. Not a few families would probably prefer 4% milk at a proper reduction in price. If there are others who desire a richer milk, or one approximating cream in richness, be prepared to comply with their demands. There is no more reason why every family in the city should be obliged to purchase milk of uniform quality, than that they should purchase coffee and tea, and other groceries of the same quality.

There are various ways of sterilizing milk bottles and other milk utensils. In a small way this is best accomplished by the use of boiling hot water. Where there are a large number of bottles to be sterilized, some special apparatus for using live steam, would be more convenient. Various devices are manufactured for this purpose, and we advise the inquirer to address the different manufacturers on this subject. Any of the firms advertising dairy supplies in HOARD'S DAIRYMAN, will answer such inquiries promptly.

The ordinary standard for commercial cream is from 22 to 25 per cent fat. It was formerly considered indispensable to cool the cream down as low as possible, and we still believe this is the most practicable way, at least for the retail milkman, but we read there are large shippers of cream who start their consignments on long railway journeys, heated up to 150°. This, of course, implies that the cream has been pasteurized. There are various forms of coolers on the market. The one mentioned by our correspondent has a good reputation, but in this, as in all other matters of similar nature, we cannot be expected to pronounce upon the relative merits of rival machines or implements.

After running milk through the separator, the skim milk and the cream should be reunited before being cooled. We think it very doubtful whether milk put in sterilized bottles and cooled to 40°, would thereafter keep for the length of time mentioned in a temperature as high as 70°.

When one purchases a separator, or any other machine, he should confer with the parties selling the same and get their advice as to the character and amount of power required.

We have already published, in a recent number, a plan for a farm creamery, including a refrigerator. Where only a milk and cream business is done, possibly the size might be reduced, otherwise we cannot suggest any desirable change.

The stave silo question has been pretty thoroughly discussed elsewhere in this issue and in several others that have preceded it. There is no objection to painting the inside and edges of the staves with coal tar, provided that the lumber is perfectly seasoned.

Heavy galvanized wire would not, in our judgment, suffice for hoops. Some method must be resorted to for tightening and loosening the hoops on a stave silo. This could not be done by driving hoops up or down, as one would on an ordinary barrel, for the reason that the silo is the same size from the top to the bottom.

A Dairyman's Adversity.

Losses From Abortion and Garget.

ED. HOARD'S DAIRYMAN:—I know a young man who began dairying several years ago, and has not prospered for reasons apparently beyond his control. He has worked hard for success, he has practiced the best methods of dairy farming, as far as he was able. When he came in possession of his farm, the first thing he did was to try to improve his cows. With his farm he got a dairy of very poor cows, and he began at once to improve his herd, by using a thorough bred bull. By raising the calves from his best cows, he was able, in a few years, to build up a fine herd of grade Holsteins.

In the meantime he had built a silo, and repaired his buildings. By making and saving more manure, he made his farm more productive, so he was able to keep more stock.

After he had worked so hard, for several years, to bring about these improvements in his farming, and when the future looked bright to him, for he thought he would now obtain some of the results that would come to him from his work, he began to have trouble with his cows.

There is nothing else a dairyman fears so much as disease among his cows, especially if it is one he cannot control. This fine herd of cows that had cost their owner so much work was made almost worthless by abortion; the disease was so contagious that for two or three years in succession, the most of the cows aborted. The young man was in debt, and receiving but little income from his dairy and this time he was unable to make his expenses.

He finally got rid of the most of the cows that had aborted, and raised or bought cows to take their place. When he was recovering from his losses from abortion, and was making some money from winter dairying, he began to have trouble with the garget. With some of his best cows, the trouble was so severe, that the udders were so badly affected, as to make them worthless, and the cows had to be sold for beef.

He kept raising and buying cows to take the place of the cows that had proved worthless to him, and persevered until he got his cows on a paying basis again, and was in condition to make some money. Then followed the long drouths of '96 and '97, when in the eastern states, for two years in succession, the hay crop was almost a failure, and farmers had to buy grain to supplement their pastures, in the summer.

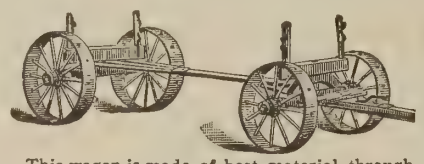
In these years, this man has seemingly done all in his power to make his farming a success; he has worked hard, and has been progressive in his dairy farming, but he is still in debt, and the lower prices of dairy products, of the present time, makes the debt more difficult to pay. Besides the adversities mentioned, he has suffered loss in the depreciation of farm property, and this shrinking has, in twenty years, been nearly one-third on real estate in the country. This instance I have described, I know, is somewhat exceptional. With usual conditions, the efforts of this man would have been rewarded with success, and it is only along the line that he worked, that dairying can be made profitable.

My reason for writing about this instance of adversity is, to ask what the veterinary science of to day can do to prevent or cure the diseases, which were the main cause of the losses suffered. I think if this man had asked the advice of the best veterinary authorities, that they would have been able to help him but little. They may be able to prevent, or cure many diseases, and by using their remedies, he probably could have avoided much trouble from the garget, but with the abortion there was no help for him, from medical science, that could arrest it so as to save him from great financial loss.

It certainly will be of great interest to the

Farm Wagon for Only $19.95.

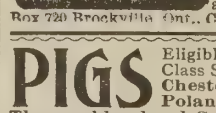
In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19 95 The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with a 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.



FINE BLOODED Cattle, Sheep, Hogs, Poultry, Sporting Dogs. Send stamps for catalogue, 150 engravings. N. P. BOYER & CO., Coatesville, Pa.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

For Sale. Two yearling bulls ready for service, out of tested dams. A few bull calves, some out of tested dams. All sired by Maquilla's Major 40804, a son of Maquilla's Violet, 31 lbs. 1 oz. Write for prices. **W. R. THOMAS, Bellmore, Ind.**

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.

Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.

Estab. '90. (*Capital Stock $100,000.00,*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs. Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock
INTO YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys Grand Young Bull For Sale.—Solid light fawn. Dropped Dec. 3, 1898. Sire, Chromo, sire of 8 in 14 lb. list and is by Diploma the sire of 46 with records over 14 lbs., including Merry Maiden. Dam, Stalactite 2d, 17 lbs. 10½ oz. in 7 days, 34 lbs. 4½ oz. in 14 days, 40 lbs. 2 oz. milk in one day. Write for price.
HOOD FARM,
Lowell, Mass.

We Have Sold

SEVERAL OF The A. J. C. C. COWS advertised March 17th (see page 92) in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.

70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. **P. J. COGSWELL,**
Rochester, N. Y

MILLER & SIBLEY'S JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455⅓ lbs. milk, 30 lbs. 2⅗ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

High-Class Jerseys.
DIPLOMA

Left behind him **85** daughters, **44** including **Merry Maiden** have records, **14** of his sons have produced daughters that have records. The Breeders Gazette says; "Age and opportunity considered **Diploma** stands peerless—his record is unapproached. In proportion of tested daughters he out ranks his sire **Combination,** which in four years service left **73** daughters, **25** of them having records." The Jersey Bulletin says; "Great as doubtless **Combination** was, **Diploma** was greater." Service bulls, **Recorder 29239,** son of **Brown Bessie,** Champion Butter Cow at the World's Fair, and **Diploma 2nd 36374,** full brother in blood to **Merry Maiden.** State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers **now in** special offer, including some sure prize winners.

Introduce Fresh Island Blood
Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

readers of HOARD'S DAIRYMAN to know just what our best veterinary men would do if they were placed in the circumstances I have described. No doubt the germ theory of abortion is the correct one, and it will afford the dairyman some satisfaction to know the cause of contagious abortion, and he is waiting for further researches that will enable him to prevent or cure it.

A SUCCSSFUL ENTERPRISE.

In my town there are two creameries. These creameries buy the milk of the farmers, and the greater part of the milk is bottled for a retail trade in New York City. A part of the milk is run through the separator, and the cream bottled for the city trade. These creameries own milk routes in the city, where they are able to retail milk and cream for the highest prices.

Much of this milk is sold for eight cents per quart, and the price paid the farmers in the summer, is but little more than one cent per quart. The farmers became so dissatisfied with the prices paid for their milk, that one year ago they organized a stock company, and contracted with the Elgin Creamery builders to build a creamery for making the Elgin creamery butter, to be managed by the farmers on the co-operative plan.

This creamery has been in operation for one year. An expert butter maker and his assistant are making the butter that commands the highest market price. The other two creameries have been nearly deserted by the farmers, and the butter factory is getting nearly all the milk made in its vicinity. The farmers find the butter factory is the most profitable, and seem to be well satisfied with their investment in creamery stock. The plan of the co-operative butter factory has much to commend itself to dairymen, but, of course, its success depends entirely on its management. W. J.

Delaware Co., N. Y.

Preliminary Feeding for Fattening Steers in Tennessee.

ED. HOARD'S DAIRYMAN:—A neighbor aims to feed 200 two year-olds next winter and fatten for beef in spring and summer. Says he will feed cotton seed hulls and cotton seed meal. I contend that he should feed some hay, at least, and corn and cob meal or corn meal as part of grain ration. Please give ration for same with following prices: Cotton seed meal $15, hulls $3 00@$4.00, corn 20 cents per bushel, corn and cob meal delivered $9, bran $12, pea hay $6@8. Don't think he will have any stover. Our Southern farmers save only corn blades. If clover hay can be imported for $6, would it be better, with pea hay at maximum price? Cows doing well "considerin.' "

Expect to put in Scott's stalls before another winter. Will get a separator in a few weeks and build a silo, perhaps on Mr. Van Norman's cheapest style. Have much greater margin of profit than most small dairies in the North, but want to improve anyhow.

Humboldt, Tenn. J. W.

Experiments at the South seem to have demonstrated that cotton seed meal and hulls make a fairly satisfactory ration for fattening steers. With a feeding period lasting from 100 to 125 days, it is usual to commence with three or four pounds of the meal, gradually increasing to eight and sometimes ten pounds per head daily. In addition they should have all the hulls they will eat, which will probably average from three to four pounds for each pound of meal.

It is our opinion that better results would follow if at least a portion of these hulls were mixed with the meal. Cotton seed meal is a very concentrated feed. By that we mean that it carries a large amount of nutriment in small bulk, and it seems reasonable to expect that if this meal is diluted or mixed with hulls or with wheat bran, digestion will be very much aided.

The foregoing is not a direct answer to the specific question, which was how to feed steers during winter preparatory to fattening them the following spring and summer. Of course, we cannot speak from experience with cotton seed meal and hulls, but the conclusions we draw from our reading are that an exclusive diet upon these articles is likely to beget more or less aversion. It would seem, therefore, much the better practice during the preliminary period to add something by way of variety. The suggestion as to hay and corn and cob meal is, therefore, a very good one, in our opinion.

It is hardly practicable to specify either the total or the proportionate amount which should be fed. This must be determined largely by circumstances as they arise from day to day with different animals. Some will take more and some will take less. The rule is to feed up to the limit that each will eat with relish. A variety in the ration stimulates appetite and this in turn aids digestion. One matter too frequently overlooked is a daily allowance of salt, or placing a supply where the animals can have access to it at will.

Cow pea hay carries more protein than common clover hay, and for milch cows is to be preferred, but where cotton seed meal is fed freely, which supplies all the protein that can be profitably used, we should prefer clover at $6.00 per ton to cow pea hay at $8.00 per ton; and if some of the native grasses, such as Bermuda, Crab, or Johnson, could be made into hay, we are not certain such hay would be inferior to clover.

Oat and Pea Hay.

ED. HOARD'S DAIRYMAN:—In reply to A. D, Marion, Indiana, page 151, have to say: I have grown oats and peas for hay a number of years, and do not think anything will come so near filling the place of nicely cured clover hay for milch cows, as nicely cured oat and pea hay.

When changing, in feeding from one to the other, do not notice any d fference in yield of milk. Peas should be sown as soon as the ground will do to work. I plowed in one acre yesterday afternoon, April 6th.

My mode of raising is as follows: Harrow the ground thoroughly, both ways, with disk harrow, then sow the peas, (Canadian) just as when sowing oats broadcast, three steps apart, two bushels to the acre, and plough them in four inches deep. In about one week, harrow the ground thoroughly both ways, with smoothing harrow, teeth straight, and drill in a stiff strawed oat, one bushel to the acre.

This year I will try using more oats, up to two bushels. Cut early and make the hay just as clover. If the peas get too ripe loss will result from shelling, and the hay will not be near as good.

The yield will depend on richness of ground and season. Last year my yield was not so good as the year previous, owing to a dry June. Next to peas and oats, I like Hungarian grass for hay. Last year I sowed the latter after taking off a crop of oats and peas, and had fair returns, owing to plenty of rain in July and August. J. R. H.

Dayton, Ohio.

Sweet Corn Profitable for Silage.

Experience of a Close Observer with it, and in other Matters Ancillary to Profitable Dairying.—Quantity of Milk as Important as Quality.

ED. HOARD'S DAIRYMAN:—I thank you very much for the full and satisfactory reply to my inquiry published in your issue of April 7, page 157; and concerning your comment on the quality of cotton seed meal, will say: It is the American Cotton Oil Co's product, and each sack has their "red tag" showing guaranteed analysis, but I bought early in the winter, before the advance in price. I also buy bran in car lots.

For several years I have practiced testing my cows with Babcock tester and scales, and by this means have improved the quality of my dairy. Some cows I have tested, showed as high as 6 6% butter fat; but the quantity proved them to be unprofitable boarders, and they were discarded. I am breeding for both quantity and quality, and believe in raising my own cows; have but two out of sixty-five that I did not breed and raise. In feeding my cows, I always consult their individual capacity and ability to convert the most feed to the best use.

Have some of your readers had any experience with silage made from sweet corn? Thinking it may interest them, I will relate what has come under my observation. When I had but one silo, I filled it with Leaming or some of the yellow dent varieties of corn for three years, but after building my second silo, I filled my first with sweet corn, and found that an equal tonnage would feed the same number of cows 33% longer than the yellow varieties, giving each animal what she would eat up clean. I have also found that when changing my cows from sweet to yellow corn silage, they ate more of the latter, but did not give as much milk, nor would they recover in quantity of milk with the same grain ration.

I have practiced this for four years, with the same results. I have always considered it better to feed sweet corn silage the fore part of winter. The tonnage per acre is in favor of the yellow varieties, but I have grown 12 to 15 tons per acre of sweet corn.

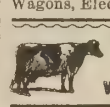
For the past eight years I have had at the head of my dairy, registered Jersey bulls, from dams that have produced 14 pounds and over of butter per week, and hoping to further improve my herd, I have recently purchased from P. J. Cogswell, Esq., of Rochester, N. Y. a young bull that I think equal in breeding and individuality to any in the realm of Jerseys. A. L. F.

New York.

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 130 Quincy, Ill. for their catalogue; which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.





HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

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Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

A PRINCE AMONG THE HOLSTEINS!
De Kol Pauline Sir Barrington.
Dropped Aug. 18th, 1898. His dam and sire's dam being of the royal family and for five generations have won the highest honors of the breed. His sire's dam being a daughter of Pauline Paul, the champion butter cow of the world, and his sire the first prize bull at the World's Fair, Chicago. The following and many other noted cows appear in his pedigree: Pauline Paul, champion butter cow of the world, 1,153 lbs. 15¾ oz. butter in one year; DeKol 2nd, butter record, 33 lbs. 6 oz. in 7 days, champion 4-year-old DeKol 2nd, at 11 years old, winner of Register $200.00 challenge cup, giving 83¼ lbs. of milk and making 4.30-100 lbs. of butter in one day under the supervision of the N. Y. State Inspector of milk

Oude Empress,	114 lbs.	of milk in 1 day			
Empress,	109	"	"	"	"
Klasian Payne,	102	"	"	"	"
Hamming,	99	"	"	"	"
Mantucto,	95	" 6 oz	"	"	"
Trintje,	95	"	"	"	"
Netherland Dowanger,	91	"	"	"	"
Aaggie,	90	"	"	"	"
Onetine,	90	" 8 oz.	"	"	"
Colantha,	89	"	"	"	"

He is a large, strong calf, with deep barrel and well ribbed, large mammary veins and fine, silky hair; a Dairy Bull of Great Merit. **Price, $50.00**
WIS. LIVE STOCK ASSOCIATION,
Appleton, Wis.

SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. **W. B. GATES, Ripley, Jefferson Co., Wis.**

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

A Trio of Show Bulls
of the richest and most famous breeding in the world are the yearling bull Valencia Sir Mechthilde 25050, H. F. H. B., average butter record of dam and sire's dam, 31 lbs. 12 oz. in 7 days; average milk record, each, 100 lbs. in 1 day. De Kol Alban Astrea (25150), average butter record of dam and sire's dam, each, 32 lbs. 15 oz. Sir Tirania of Valley Mead (25146), grandson of both Tirania and Natecy. No three better bred or better individual young bulls can be found in America today. High class breeders can not afford to let this opportunity go by. Prices low for quality. Inspection invited. VALLEY MEAD FARM,
KARLEN & CO., Monticello, Wis.

Ten Choice Yearling
Holstein-Friesian Bulls
FOR SALE!
Sired by sons of Parthenea's Colanthus, whose dam had a record of 38½ pounds butter in seven days. Write for description and prices.
A. H. WEGEMANN, Lake Mills, Wis.

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Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America.
Breeding Stock for Sale. Inspection invited.
L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair. 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden; 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection
ELLERSLIE STOCK FARM,
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Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

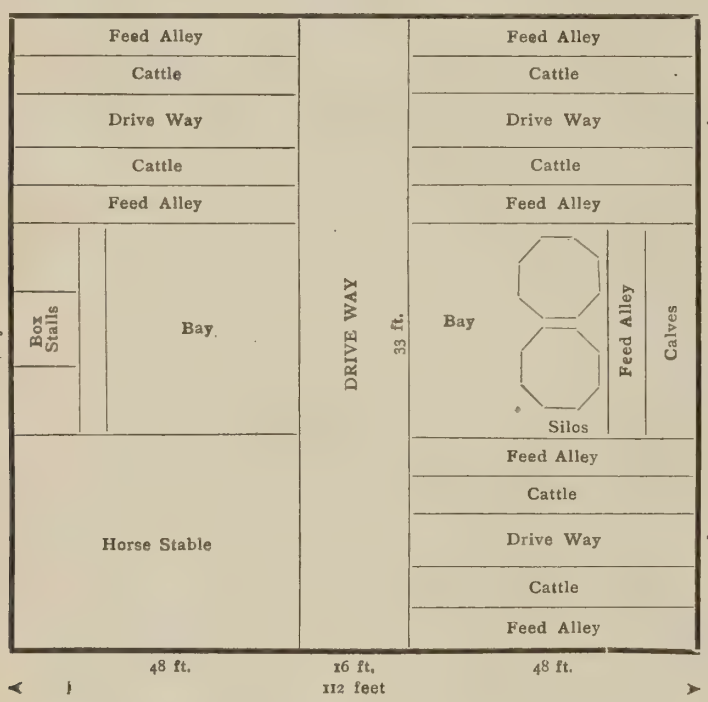
AYRSHIRES Finely Bred and from the very best families. Stock for sale bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Criticism on Plans for a North Dakota Silo.

ED. HOARD'S DAIRYMAN:—I am contemplating building two silos this coming summer, after plans unlike anything I have seen described in your valuable paper; nor do I find in Prof. Woll's book, anything suggestive of the plan I propose. I submit it, therefore, for your criticism, and if faulty in any particular, you will greatly oblige me by pointing them out, as I do not want to make any mistake.

I have a barn 101 x 112 feet, with 16 feet drive through the middle the shortest way, leaving 48 feet on each side. One end is divided into two cow stables, 34 x 48 feet on the outside, with a bay 33 x 32 feet between them; the remaining 16 feet between the bay and the end of the barn is for calves.

The cows stand with their heads to the walls, with a drive way behind them, and feeding alley in front about 6 feet wide. There are stanchions for fifteen head in each of the two rows in each stable, or sixty head in the two stables. Thirty head then will face bay, and thirty head will face the outside walls. The barn has eighteen foot posts, and stands about eighteen inches above the ground; both stables are floored over head, making large storage room for fodder, above.



My thought is to take sixteen feet of the bay next to the calf stable, which will be the middle section of the 48 feet between the drive and the end of the barn, and which will be in the middle and directly in front of the two rows of cows facing the bay. The space, as noted above, will be 16 x 32 feet. My purpose is to make two octagon silos, 16 feet in diameter, with the wood work extending to the top of the barn plates, or 18 feet 6 inches from the foundation, with an excavation four feet, with cobble stone foundation, plastered with cement and a cement floor or bottom.

On top of this foundation bedded in cement, I will lay double sills of 2 x 10, letting the octagon corners of second tier lap by, so as to spike into bottom plank, so these sills cannot spread at corners; then above this, at such a distance as will give me the required strength, I will put another octagon band or girt of two inch stuff, fastening the corners by nailing inch stuff on both sides, and if need be to give it more strength, bend a strap of iron around, letting it extend a foot each way, and spike solid through drilled holes. Then above this second band or hoop, another one at the proper interval, and so on until I get to the top. Then I will board up and down, on inside, with about third class pine flooring, six inches wide; then paper with suitable paper, and board again with heart pine flooring, four or six inches, as may seem best; then paint with coal tar or other paint that will best preserve the wood. It will be seen that the octagon band between the two silos will support the sides to both; the partition studding between the bay and the stables will support two other sides of both silos. It seems to me that this shape will be as good as the round silo, and will have the advantage of being at all times tight; whereas, the stave silo must, of necessity, shrink and swell, necessitating tightening the hoops.

My openings above the second floor will be directly over the feeding alley, next to the bay, and can be dumped down the shutes now provided for hay, and below the floor directly into the feeding alley.

As will be seen, the silos will be sixteen feet from the drive way, where my shredder will stand, so that the carrier will run at an angle of a trifle more than forty-five degrees, and everything under cover.

Sargent Co., N. D. B. P.

The plan proposed is not without merit, but there are two or three points which it seems to us are worthy of reconsideration. In the first place, the machinery and the power for running it cannot be placed in the central driveway. A load of Dakota corn will come pretty near extending from one side to the other, although this is a distance of 16 feet. If a steam engine is used for power, it would necessarily have to be located outside of the barn, and the power communicated to the cutter through the stable. If a tread power is used, it might be set up in the end of one of the stables and the belt run through the partition in the vacant space between the silos and the barn floor.

We would suggest that it would be better to have the openings from silos face the vacant space which opens into the barn floor. The feeding at any given time will all be done from one silo, and it would be quite inconvenient to push a cart into the one feeding alley and bring it out into all the others.

The carriers for elevating the silage can run at a much sharper angle than 45°, It would be practicable, therefore, to enlarge the silos, making them at least 16×20 instead of 16×16.

Thick and Thin Planting for the Silo.

Yield of Nutriment Per Acre.

ED. HOARD'S DAIRYMAN:—I have received the following letter:

I have read with much interest, your article in the DAIRYMAN, on the feed value of crops. I infer from what you have written—for you do not say it—that you would plant corn too thick to ear very much, not only for roughage, but for the silo. Or, that if it were eared heavily you would remove the ears before siloing it. Would you do this? In feeding from the silo, we do not, or at least, I have not, discovered any perceptible change in flow of milk, when passing through successive layers of silage rich in ears, and that upon which were few ears.

My conclusion is that if the stalks have attained a fair size, there is little, if any difference. Is this the wrong conclusion?"

Underhill, Wis. W. M. U.

It was not my purpose, in the article referred to, to give any of the figures obtained in our experimental work with the corn

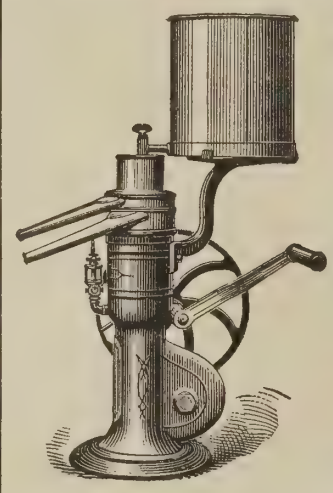
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IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co 's Color has the highest standing in the markets. . . .

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Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
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Strength and Durability .	The NATIONAL is the Best.
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Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

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Newark, N. J.

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At The ST. LOUIS FAIR, as the

BEST CREAM SEPARATOR For FARM USE. . . .

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GOOD PARCHMENT.

(Not the Cheap Kind.)

YOUR NAME OR CREAMERY, should be printed on every sheet. Send Name and Address for Sample Sheets to

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Paterson Parchment Paper Co., Passaic, N. J.

plant, but simply to give the information that an acre of corn planted or sowed so thickly that no ears would form, contained greater feeding value than when planted in hills.

It was merely a figurative illustration, taking the average yield per acre, of ears and fodder in some fifteen different trials in crop experiments at the Minnesota station, and the average composition and digestibility of corn and stover. From this, calculating the feeding value of an acre of hill corn and then comparing it with the feeding value of an acre of fodder corn, using for a basis the yields obtained at this station from corn broadcasted or sowed so thickly in drills that no ears were formed and its composition as found by analysis.

We have made comparisons along this line for three years, planting corn in various ways and at different dates, weighing, analyzing and feeding a given area at intervals of ten days, and the results thus far show that in every case the corn in hills gave the smallest amount of food nutrients per acre, and that late planting produced more protein.

During the past three winters, we have fed to our dairy herd, fodder corn that had formed no ears, and I am satisfied that the final results will show that it is better feed than that having ears. The same is true with silage. That fed this winter contained no ears and we detected no difference as to quantity and quality of milk, though every milking is weighed and tested separately for per cent fat.

I have tables showing the various changes that take place in the corn plant from the time it tassles until it it ripe or is harvested for fodder, but I will only submit one showing the pounds of green fodder, dry matter and protein contained, per acre, under the various methods of seeding.

	Planted.	Harvested.	POUNDS. Green Fodder.	Dry Matter.	Protein.
Hills	May 12	Sept. 11	23,400	5342	392
Single drills	May 14	Sept 11	33,300	7306	387
Double drills	May 14	Sept. 11	33,120	7256	512
Broadcast	May 14	Sept. 11	30,600	7050	502
Double drills	June 19	Sept. 7	42,210	7783	603
Southern corn	June 26	Sept. 7	58,680	1541	647
Sorghum	June 19	Sept 7	61,650	6565	478
Sorghum	June 19	Sept. 20	54,000	9023	434

The rows of corn planted in hills, single and double drills were planted 44 inches apart while the kernels were about two inches apart. The first two years we planted the double and single drills with a Keystone drill and last year the fields of corn intended for fodder corn and ensilage were sowed with a Dowagiac shoe drill, having seventeen shoes five inches apart. The first two were left open and five closed. The next two were left open and then five closed, then two open and one closed which planted the corn about right for ease in cultivating and harvesting with a self-binder corn harvester. By this method three double rows can be planted in going once across the field.

In the latitudes where the dent varieties mature they will give the best results, as cows will eat a larger percentage of the crop. Fodder corn needs from seventy to eighty days from planting to harvesting.

By plowing the field, about the time when it is ordinarily plowed for corn to be planted, in hills' and harrowing it once a week until about the 10th or 15th of June, then planting and harrowing once before and once after it is up, it will not be necessary to cultivate more than once, for at that time of year the soil is so warm that the corn will make such rapid growth that the weeds will be smothered and in the fall the land will be found free from weeds.

When corn is intended for the silo it should be harvested with a corn harvester and the bound bundles drawn to the cutter, as this will save labor in handling it. Cut the twine and remove it before running the corn through the cutter. If it is intended to be fed as cured fodder, put up in large shocks and leave it in the field until it is wanted. It is not safe to stack fodder corn as it contains so much moisture that it will spoil if stacked.

.T L. HAECKER.

St. Anthony Park, Minn.

PREVENTION OF MILK FEVER.

The following from Dr. Daniel S. White, in *Agricultural Student* prescribes a most excellent method for the prevention of milk fever. If any one has a cow over four years of age, which is a heavy milker, it is well in all such cases to provide against the appearance of this dread disease, for it is invariably the best cows that are taken:

"Allow to pregnant cows plenty of exercise. Cows on pastures which are not too rich are most rarely overtaken by the disease. Heavy grain foods should not be allowed for four weeks before calving, and the bowels kept open with a dose of Glauber salts, which in no case should be given later than ten days before the cow is due to be fresh. The observance of these simple suggestions will positively prevent milk fever's appearance among the cow herd, and as this particular disease is prone to clutch within its embraces the best, most productive and valuable cow of the herd, its prevention means always, from a pecuniary standpoint, a saving to the breeder and dairyman."

"It is hoped that the reader of this short article will not think the less of it because of the simplicity of its suggestions along the line of disease prevention. All that is rational is simple; nothing is more rational than nature, and her most complex phenomena are really marvels of simplicity when we understand them."

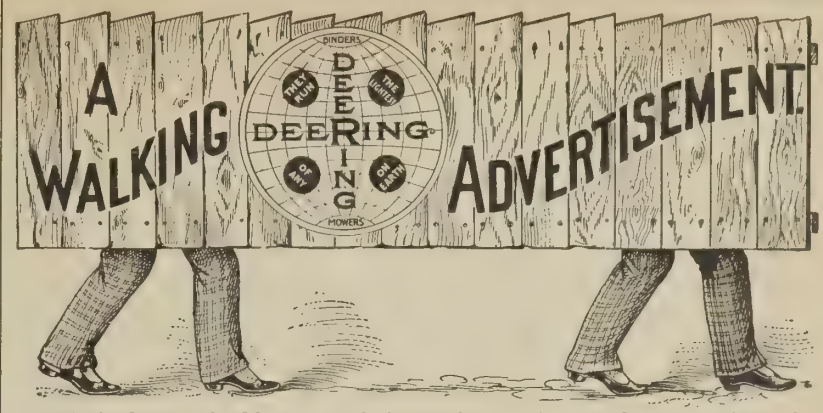
A Significant Letter.

ED. HOARD'S DAIRYMAN:—Enclosed find one dollar to renew my subscription for the DAIRYMAN, which I can't afford to be without. The lessons learned in its columns during the past seven years have greatly aided me in increasing the carrying capacity of my farm from 35 to 100 heads of stock, and the average butter production per cow from 200 to 260 pounds.

Let me congratulate you on your issue of March 31st, which I believe was the greatest in the history of the DAIRYMAN, and would make a better text book for farmers than "Stewarts Feeding-Animals". F. W. D.

North Sheldon, Vt.

The above letter shows what it shall profit a man who reads the DAIRYMAN attentively.



Hundreds of thousands of farmers—United States farmers, European farmers, South American farmers, Australian farmers—men who farm for profit—representing the intelligence of the agricultural industry, are walking advertisements for Deering grain and grass harvesting machinery.

Deering machines are profit producers. The harvest season is brief. Very often the weather conditions are such that unless a crop can be saved just "in the nick of time" a goodly percentage of it is spoiled, damaged, lost.

It is just here that Deering machines go in and win the day. Imminent disaster is changed to victory—seeming loss to actual profit.

Deering machines are the *dependable* kind. They stand the test of dire emergency.

That's why the farmers of the world like them, buy them, use them, praise them.

Deering Ideal Binders, Reapers, Mowers, Corn Binders, Hay Rakes and Binder Twine are winners for '99.

DEERING HARVESTER COMPANY, Chicago.

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In Bulk	$1.00 per Ton.
In American A Grain Bags	2.45 per Ton.
In Stark A Grain Bags	2.70 per Ton.

Farmers may combine and order together.

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Our large stock enables to ship promptly. ☞ Cash must accompany order.

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401 Pythian Temple. Grand Rapids, Mich.



A KIND NEIGHBOR.

The kindest and most neighborly thing one woman can do for another in case of sickness is to tell how she herself was brought out of trouble and distress; and urge her neighbor to seek the same remedy. Hundreds of thousands of mothers have cause to bless just this same kind, neighborly spirit which actuated Mrs. Wm. S. Vollmer, of Concord, Cabarrus Co., North Carolina.

"We moved here to Concord, N. C., over a month ago," she says, in her communication to Dr. R. V. Pierce, of Buffalo, N. Y. "A little girl here was in dreadful health. We told her folks about Dr. Pierce's medicines. I knew what they had done for us. Her parents bought a bottle of his 'Golden Medical Discovery' and of 'Favorite Prescription' and one of 'Pellets.' The patient has improved wonderfully after taking these medicines. I wish everybody knew the great virtue of Dr. Pierce's medicines. I have been using them in my family for three years and always with success.

"I will be pleased to have my letter published. If persons wishing to know more about the great benefits we have received from using Dr. Pierce's medicines will write, enclosing stamp, I will gladly answer."

Every mother of children ought to possess Dr. Pierce's grand book, the People's Common Sense Medical Adviser, a magnificent thousand-page illustrated volume. It teaches mothers how to care for their children and themselves. It is the best doctor to have in the house in case of emergency. Over half a million copies were sold at $1.50 each, but one free copy in paper-covers will be sent on receipt of 21 one-cent stamps to pay the cost of mailing only; or send 31 stamps if you prefer a heavier, handsome cloth-bound copy. Address the publishers, World's Dispensary Medical Association, No. 663 Main Street, Buffalo. N. Y.

ARE YOU PROUD OF IT?

Are you proud of the butter you are making? Has it good grain? Has it the delicious June tint? Is its flavor all right? **Will it stand the Fuller's Earth test for analine dye?** Remember this test can be made in five minutes by any housekeeper, and also remember that if she finds analine dye there, her custom is gone from you forever.

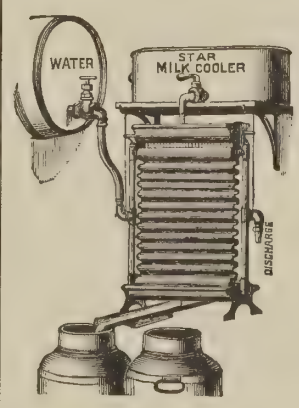
Thatcher's Orange Butter Color

Will give every desired quality to butter that is otherwise all right.

IT PLEASES THE EYE, AS GOOD BUTTER DOES THE TASTE.

It is made from pure vegetable substances, and is healthful. Analine dye is found in many butter colors. It is a deadly poison and is prohibited by law. The Fuller's Earth test will discover it every time. For a Sample bottle of Thatcher's Orange Butter Color, write

THATCHER MANUFACTURING CO., - Potsdam, N. Y.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. **C. E. Smith & Co.**, Westboro, Mass.

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The clover crop of southern Wisconsin is a total failure. Every mail brings letters from farmers, asking how to provide pasture for their stock, and to most quickly recover from the severe shock entailed by such loss.

HOW TO GET THE QUICKEST PASTURE.

A field of oats or barley will furnish the quickest pasture it is possible to obtain, barley being a little earlier than oats. Sow oats or barley as for a grain crop, and when the young plants are a few inches high, turn in the stock and treat the field as though it were a pasture. If the cattle do not graze the field evenly, run the mower over the patches where the growth is excessive. By keeping the growth short it will last much longer than if allowed to head out. It is recommended that, as an experiment, clover and timothy seed be sown with a part, at least, of the oats or barley, in the hope of securing a stand for next season. The farmer who can pasture his oat or barley field, and get a crop of clover started at the same time, will be one year ahead. This recommendation must be regarded as an experiment; but it has been successfully tried in a number of cases.

OATS AND PEAS.

Let the farmer also put in a patch of oats and peas. Sow a bushel and a half of peas per acre, covering three or four inches deep on light soil, and one or two inches on heavy soil. After these are planted, sow or drill the oats in the usual manner. Cut the green forage for the cattle, or cure for hay.

MILLET.

For winter hay sow millet or Hungarian grass from the 10th, to the 30th, of June, using from a bushel to a bushel and a half of seed per acre. When the seed heads are coming into blossom, cut and cure for hay. Millet or Hungarian grass will yield from one ton to two and a half tons of good quality hay per acre. Horses should not be given over one feed of millet hay per day.

CORN FODDER.

Any variety of corn will do for green or dry forage, the early kinds being the most suitable for early fall feed. Sweet corn is very satiafactory, because the stalks are soft and palatable. Plant in hills or drills just thick enough to choke the ears down to about half their normal size. Begin feeding as soon as the ears are glazing, and continue with the dry forage throughout the winter. From three to six tons per acre, of winter forage, suitable for all kinds of farm stock, can be secured from a corn crop grown on good land.

Last season the farmers of southern Wisconsin, secured for the first time, in several years, a good "catch" of clover; its loss is little short of calamity. Let no one be discouraged, however, or part with his live stock, but rather let him, by careful foresight, and unusual effort bridge over the short period of difficulty.

W. A. HENRY, Director.

Press Bulletin, Agricultural Experiment Station.

Food Tests of Holstein Friesian Cows.

ED. HOARD'S DAIRYMAN:—Among those of the present official year, not previously given to the public, are the following:

DeKol Manor Beets; age 2 years, 1 month, 15 days; food consumed, pasturage, pea meal 11.83 lbs., ground oats 11.83 lbs., ground barley 11.83 lbs., ground buckwheat 11.83 lbs.; product, milk 307 lbs., butter-fat 9.695 lbs.; representative of Cornell University Station, H. C. McLallen.

Mutual Friend 2nd; age 6 years, 6 months, 26 days; food consumed, ensilage 434 lbs, hay 36 lbs., wheat bran 45 lbs., cotton seed meal 3½ lbs., ground oats 5 lbs., corn meal 15 lbs.; product, milk 427.4 lbs., butter-fat 14 724 lbs.; representative of Cornell University Station, A. R. Ward.

DeKol Lady; age 1 year, 11 months, 2 days; food consumed, pasturage, pea meal 11.83 lbs., ground oats 11.83 lbs., ground barley 11.83 lbs., ground buckwheat 11.83 lbs., product, milk, 312.4 lbs., butter-fat 9.384 lbs.; representative of Cornell University Station, H. C. McLallen.

Aggie Paul, age 2 years, 2 months, 2 days; food consumed, ensilage 203 lbs., hay 7 lbs., wheat bran 28 lbs., oil meal 16 lbs., corn meal 30 lbs., ground oats 14 lbs.; product, milk, 280.3 lbs., butter-fat 11.203 lbs.; representative of Michigan Station, Porter H. Davis.

Clothilde Artis Topsy; age 4 years, 1 month, 10 days; food consumed, pasturage, malt sprouts 21 lbs., gluten meal 7 lbs.; product, milk 412.8 lbs., butter-fat 13.724 lbs.; representative of Cornell University Station, Leroy Anderson.

Paula Dorinda; age 2 years, 10 months; food consumed, ensilage 363 lbs, hay 13 lbs., wheat bran 80 lbs., oil meal 31½ lbs.; product, milk 343.2 lbs., butter-fat 11.101 lbs.; representative of Michigan Station, Porter H. Davis.

S. HOXIE, Supt. Adv'd Reg'y.

Yorkville, N. Y., Mch. 27, 1899.

A Simple Cure for Warty Udders.

I notice that in your last issue a querist signing himself "Drogheda" asks for your advice with regard to the removal of large, rough warts from the teats of one of his cows. The remedy which you prescribe—dressing with lunar caustic—will undoubtedly effect the desired object, but if you will allow me to say so, I think your correspondent will find it an improvement upon the plan which you recommend, if, after smearing his fingers with castor oil, he draws the warted teats gently every day for a few weeks, and then rubs the udder with a little of the oil, so that it will run down along the teats. In this way he will find that the warts can be completely got rid of without any burning of the teats, or any pain to the cow. No one who has not tried it can form an idea of the effect which castor oil has when externally applied on the mammary glands and the teats.—*The Farmers' Gazette, Ireland*

Secretion of Milk.

The following statement concerning milk and its secretion is taken from a very useful little work "Elementary Physiology" by Ainsworth Davis.

It may be said to represent the latest determinations of physiological investigation concerning this very interesting subject.

"The milk glands (the udder) are not merely to be regarded as arrangements by which certain materials are strained out of the blood. The milk tubules are very closely surrounded by a network of capillary blood-vessels and constitute a fitting apparatus so far as the water contained in the milk is concerned. But that a great deal more than simple filtration takes place follows from the fact that casein, milk-sugar and butter fat are not present in the blood, while there are considerable differences between the two liquids as regards the inorganic salts, milk containing for instance far less sodium chloride (common salt) than blood, but much richer as regards potash compounds. In short the protoplasm of the glandular cells, which line the blind ends of the milk tubules breaks down into the simpler chemical substances, casein, milk-sugar, butter fat, etc,, which are therefore produced much the same way as the pepsin of gastric juice, or the ptyalin of saliva. But in this case there is not only a chemical breaking down of protoplasm, but also a *disintegration of the cells*, which so to speak are constantly "moulting". For this reason milk has been termed "dissolved milk gland," using the expression somewhat metaphorically. An interesting proof of this is found in the nature of *colostrum*, the fluid which is secreted by the milk glands just after the birth of the calf, and which differs a good deal from milk in composition. If a drop of this is examined under the microscope, it will be found to contain not only milk globules, but also larger bodies *colostrum corpuscles*, some spherical, some irregular, which are obviously discarded cells.

The constant breaking down, which takes place in a milk gland is counterbalanced by a corresponding process of renewal and reconstruction, the materials of which are supplied by the blood.

During milking the *sphincter* muscle of the teat is relaxed as the result of reflex (or sympathetic) action, so that the milk can flow out of the milk cistern. It has also been commonly assumed that a large amount of milk is actually secreted during milking, as another result of reflex action. The main argument in favor of this view has been that the cavities of the glands are not large enough to contain the amount of milk actually yielded at one time. It must be remembered however that these organs are very elastic and capable of great distension, besides which, careful experiments recently made do not support the usual view.

FACTORS INFLUENCING THE AMOUNT AND QUALITY OF MILK.

In this connection (1) the breed is of very great importance, determining as it does the tendency of the glands to secrete a greater or less total quantity, and to produce milk more or less rich in butter fat. (2) Diet. The essential point is that the food should be rich in albuminoids (protein), the most favorable ration being 1 to 5.4. It is quite a mistake to suppose that an increased percentage of butter fat in the milk results from giving more fat or oil with the food. Careful experiments, made on feeding of cows, show that if anything, the tendency is the other way. From what has already been said on the secretion of milk, it follows that the fat of the food does *not* pass *as such* into the milk, a fact which enables the experiments quoted to be more clearly understood.

A reasonable amount of water taken with the solid food increases the secretion of milk and so does common salt, of which from ½ to ¾ of an ounce may with advantage be given daily to the cow. (3) The state of the *general health* naturally exerts an important influence upon the production of milk for all the organs of the body are more or less interdependent.

It is therefore a matter of *practical* importance to secure the health of cows by feeding them properly, by *ventilation* and *cleanliness*.

Some interesting experiments have been made as to the effect exerted by a proper care of the coat. The amount and quality of milk yielded by a number of cows were carefully determined for two periods of two weeks each, no attention being paid to the coat in the first period, while during the other it was carefully brushed and curry combed every day.

In the latter period the yield of milk was considerably greater, and there was a distinct increase in the percentage of butter fat.

The yield is diminished by exercise, the amount of which should not, therefore, be increased beyond that actually necessary for the health.

(4) The quantity and quality are not constant throughout the period of milk yielding or lactation. The maximum quantity is secreted during several weeks after the birth of the calf, then a gradual diminution takes place.

(5) TIME OF MILKING.

The morning milk is poorer in solids than the evening milk, while that obtained at noon is richer than either. In other words, the longer milk remains in the udder the poorer it is in quality, though at the same time the quantity is greater. Experiment has also shown that three milkings a day are more advantageous than two, the total yield being greater and the percentage of butter fat higher."

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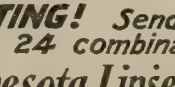
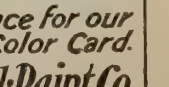
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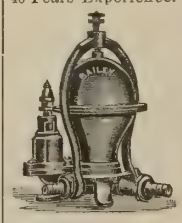
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mous loop lock woven wire fence have put in a number of new machines and otherwise improved their factory, so as to promptly handle their steadily increasing business. These people are among the newer concerns to engage in the woven wire fence business, but this fence was of such good quality as to place them at once upon a firm basis with both the trade and the users of fencing. They make fence of the usual standard heights for various purposes. The method of construction is such that the fence responds readily to both expansion and contraction, and consequently remains tight, avoiding all sagging and looseness. If any of our readers are in need of fencing this spring they will do well to correspond with these people before buying. Ask them for circulars, etc., and kindly say that you saw their ad. in our paper.

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The most modern of all machines in the harvest field is the McCormick. The McCormick anticipates every improvement. The McCormick invariably leads the way. It is the oldest firm in the business, and yet the most up to date in its methods. There is a special satisfaction in owning a McCormick. It makes a man a happy buyer. He knows he has a sure thing when he is in possession of the "Best in the World", whether it be a McCormick Binder, Mower, Corn Harvester, Rake or Fodder Shredder. Everybody knows that the "Best in the World" is the motto of the McCormick Harvesting Machine Company.

CARE OF MILK.

Warm weather is now rapidly approaching and with its coming will also come the usual difficulty in caring for milk. With all that has been said in these columns, touching on this subject, from time to time, our readers should be well informed. As the subject is one of more than ordinary importance, however, we shall again refer to it.

It is not always desirable or convenient for farmers or dairymen to put up a supply of ice with which to cool milk and cream. This is indeed no longer a necessity, as less expensive and equally as effective methods are now within easy reach of all. We refer to the modern milk cooler and aerator. This is a simple, low priced device through and over which the milk is passed, removing all animal odor and any taint that may come from stabling, food, or other cause, and at the same time reducing the temperature to a low point. This retards decomposition, (souring) thus making the milk keep sweet much longer than would otherwise be the case. Many creamerymen and cheese factorymen are now insisting upon aerating in all the milk which they buy. These aerators are made in a variety of sizes, to meet the requirements of large or small herds. A very good aerator and cooler is the "Perfection", made by our advertising patron, L. R. Lewis, of Cortland, N. Y. Write him for circulars, prices, etc.

ED. HOARD'S DAIRYMAN. Ft. Atkinson, Wis., DEAR SIR:—I herewith send you report of the test of Exile's 70th daughter, Exile's Dainty, 107508, 4 years, 8 months old; weighs about 850 pounds; a beautiful cow, carrying a grand udder.

She milked, from Jan. 31 to Feb. 7, seven days, 251 pounds of milk, from which was churned 16 pounds 8 ounces of well washed butter, salted one ounce per pound. This cow milked, in 60 days, from Jan. 1st to March 1st an average of 32 pounds daily. She had no special preparation for the test, and was not unduly forced. I think she is capable of making a higher test.

Rochester, N. Y. P. J. COGSWELL.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

CHRONIC ROUP.

I have a flock of chickens that act as follows: The chicken's eye will water and wink very much, in a few days a bunch will come out between the eye and the bill, or the eye will swell shut. I know it is all caused by the same thing. In the eye will gather a hard substance all around the eye, and will last about a week, when the eye will open again, and you would think that it would be all right. If the lump comes in first above the bill, the eye will be all right, but the hen cannot eat, and is in great pain. After a week or so, I can pick out the lump, it looks like a kernel of corn, well soaked. The hen can eat for some time, and I think they will be well, but it will come on again and again, and the hen is weaker every time; she will get blind and starve to death. G. F. E.

Rogersville, Wis.

ANSWER.

You have unmistakable roup, in a chronic form. If you kept your floors clean and well aired you would not be thus annoyed. Separate all affected ones from the others. The disease is very infectious. Stop corn as food. Chop onions fine, to each pint of chopped onions add two, only, drams of finely pulverized sulphate of iron. This must be so mixed that each spoonful of chopped onion will have just the same amount of iron. Wash all the heads with tar soap and hottish water. Then thoroughly dry and *rewash* with Tilden's Bromo Chloralum, 1 to 8 of cold water. Let two teaspoonfuls trickle down the throat; continue this until well. Most thoroughly disinfect. Burn all old infected nests, all of them; clean, and then keep clean. Roup is always an indication of neglect and of filth in some form.

GARGET.

We have a high grade Holstein cow that dropped her calf about ten days ago, that has a badly caked udder. We had trouble with her last season in the same way, so we commenced milking her two weeks or more before she calved, and have milked three times a day since, but she does not get much better. THE O. C. S. Co.

Parkman, Ohio.

ANSWER.

Nothing you can do will do as much permanent good as full, constant physicking, 1¼ pounds, at least, of salts, and 2 ounces of best ginger. Second dose of 1 pound in 5 days, third dose of 1 pound in 6 days.

Rub udder with strong camphorated spirits six parts, common turpentine two, only, parts; rub hard and long once a day. Much depends upon good massage. Still much more depends upon the physicking.

WARTS.—CLOVER BLOAT.

We have young heifers that have warts almost all over them. What can be done to remove the warts?

What do you advise doing for a cow that is bloated on clover? T. E. E.

Ind.

ANSWER.

Touch each wart with nitric acid, a few at a time; change this acid to butter of antimony every other day. Tie a piece of sponge or cotton batting tightly to the end of a pencil sized stick; rub a little when applying.

Keep her off the clover for a while, then allow a short run, only, until the change takes place, as it will.

SHORT BREATH IN COW.

I have a cow that has trouble breathing. She rattles inside. When full of water, you can hear her breath for ten or fifteen rods. She will jerk herself from tail to head. Worse in damp weather. Milks well and in fair flesh. Been so for six months and is growing worse. H. G.

Albino, Iowa.

ANSWER.

Your cow may have the asthma, or there may be some other of many different ailments. To determine which, requires a personal and close examination by a qualified veterinary surgeon.

BLACKLEG.

The other calf died also, and we think the disease is blackleg. This calf was swollen up, and under the skin it felt like a bunch and being almost black when cut open. We have now taken off the feed of the others except milk, water and hay. We have given them several physics. We have a mixture of equal parts of Epson salts, copperas, and saltpeter. Do you advise this to be given to young cattle, like old, so they can help themselves whenever they want? What medicine do you advise for young calves that seem to run down, cough and finally die? Have you any medicine for pneumonia for cows? What do you think of Fowler's solution for it? Is there any risk in feeding silage as much as they will eat, to young cattle, say, 6 months to one year old? K. & W.

Monticello, Wis.

ANSWER.

You say the other calf died also, I have no knowledge of the other calf, no doubt you have. Looks like anthrax—blackleg. No, I do not advise such a mixture by any means. I do advise an inspection by a veterinary surgeon. No, I have no medicine for tuberculosis. Yes, I think silage is wrong for young cattle.

RETENTION OF PLACENTA.

Two months before calving, my cows were brought two hundred miles by train, apparently all right, till after birth of the calves. Three out of five retained placenta, one for ten days, and one, as we believe, never passed all of it at all. She began to fail soon after calving, and died in three weeks afterwards. Once or twice, after doses of physic, salts, ginger and nux vomica, she discharged offensive matter, and bits of apparently decomposed flesh.

The other two cows responded to the physic, discharged the placenta after a week or ten days, and are doing very well although one seems delicate and gets off her feed every day or so. MRS. B. F.

Valdorta, Ga.

ANSWER.

Shipping pregnant cows, especially so far along, shows poor judgment on the part of the buyer and seller. It is, in all points, wrong.

I can give no advice as to the cows not cleaning, beyond the fact that they did not clean, as you say. All this was, no doubt, the result of the rail road travel, etc. I can't give any further advice than never to ship pregnant cows.

STAGGERS.

A 3-year-old Jersey heifer, in milk since last fall, thriving and healthy, has had a couple attacks of staggers. First time about a month ago, noticed when turning her out to water, her eyes seemed dilated and her legs weak, so that she tottered out of the stable, all right when we brought her in this time after sunning herself for an hour in the yard staggered and almost fell when being put in. J. H. D.

Stonewall, Manitoba.

ANSWER.

Gentle physicking for a while, say 6 ozs. of Epson salts, 1 oz. of ginger, and half a dram nux vomica, give three daily doses, then wait a week, then repeat two doses, then wait a week again, then repeat one dose. If recurrence should take place, give one full dose without the nux vomica. Be careful of the food, not too stimulating.

SWELLING OF TEATS.

Two of my cows were troubled with swelling at the root of the teats. It first commenced with hard lumps, and in the course of time they broke open, and remained open like large pimples, for a long time. Now I have two more that are commencing the same way. W. J. M.

Westby, Wis.

ANSWER.

Neglect, for a long time is bad management. Inject the sore with the compound tincture of myrrh and aloes, daily. Thoroughly physic and repeat. I think, originally, you had cow pox, neglected. Give internally, sixty grains of iodide of potassa each morning, for twenty to thirty days. Keep clean, but don't wash. This will go through your herd if not arrested at once. Use spermaceti and oil of almonds, as an ointment, half and half; use liberally.

THE EFFECT OF A KICK.

A fine Jersey cow, 5 years old, was kicked in the flank on the left side, just forward of the udder, not quite a year ago. After the swelling went down, there was a big "melon" shaped protrusion, which finally settled down to about ten inches in length, and six or eight inches through. It feels to the hand, as if there were small lumps about as large as hen's eggs inside, more noticeable on the under side of this rounded shape. She has a good appetite, is giving her regular amount of milk, and in no way does the swelling seem to hurt her, except that she flinches and tries to kick at one's hand, when it is being felt of. Would the milk from such a cow be considered unfit for human food, by the health authorities of the cities?

Hastings, Ill. S. G.

ANSWER.

There can be little mistake in your case. The kick ruptured the bowel. I know of no permanent treatment likely to do any good. Feeling, as usual, is foolish and annoying to the cow, and can do no possible good. So long as the hernia is not strangulated, she may get along; never allow her to get costive. The milk is good.

NYMPHOMANIA.

What can I do for a three year old heifer that has had one calf and comes in heat once a week, but does not get with calf?

Nebraska. B. T. T.

ANSWER.

Sexual desire must be stopped for several periods by the best antaphrodisiac. There is no other right way.

MILK FEVER.

What caused the death of a valuable Jersey cow I owned? The cow calved at 3 p. m., April 1st; calf came wrong end first; she was only a few minutes having calf; calf died soon after; cow seemed to be in perfect health; cleaned in about 5 hours; she ate and drank all right until 11 o'clock, a. m., April 2nd, but seemed to be weak, soon after laid down unable to get up, did not seem to have any pain, but at 2:30 p. m. was dead.

Hinkley, Ohio. F. W. B.

ANSWER.

Unmistakable milk fever. She ought to have had good daily exercise. All pregnant cows should.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

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Retention of Placenta and Failure to Breed.

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H. W. KELLOGG COMPANY, Ripon, Wis

BELLMORE, IND., Jan. 25, 1899.

H. W. KELLOGG, Ripon, Wis.

SIRS:—The medicine I bought of you last winter was fed to two cows and one heifer. The cows have each a bull and heifer calf respectively. Only fed them 3 or 4 doses apiece and caught the first service after feeding the medicine. It has saved us two valuable cows. I can recommend it to persons who have cows in the shape our's were. The heifer was killed after being in calf about three months, and was examined, found with calf. She had been bred several times before.

Yours truly,

W. R. THOMAS.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, $3 oz. $4, 50 oz. $8, by mail.

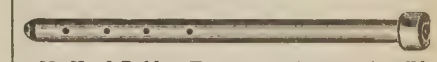
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM HORNE, Janesville, Wis.



8000 BICYCLES

Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10. Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance.

EARN a BICYCLE by helping us advertise our superb line of '99 models. We give one Rider Agent in each town FREE USE of sample wheel to introduce them. Write at once for our special offer.

MEADE BICYCLE CO., 290 Ave. S., Chicago, Ill

EVERYWHERE IT IS FIRST THE MAN.

Everywhere that we find an up-to-date paying herd of cows, do we find over them an up to-date farmer. One who does not believe that the less a man reads and thinks on this question the more money he will make.

For instance, here is Mr. John Armstong, of DeSmet, South Dakota. It is only a few years that they have been dairying in that state but if they are successful they come down to the principles, as has to be done everywhere. Mr. Armstrong makes this statement to a Sioux Falls paper:

It may be of interest to your readers to give them a statement of the results of feeding sixteen cows balanced rations for the year 1898.

You know it is well for one to practice what he preaches, and the more I go into the matter of feeding the more I am convinced that the farmers of this state are losing large amounts every year by not feeding the proper proportion of nutriments.

So for the past year I have kept an accurate account of the product of sixteen cows, the cost of feed, and the net income derived therefrom.

My cows are just an average lot, bought as I could find one for sale some three years ago, and the results show what can be done with an average cow with proper care and management.

The yield of milk from the sixteen cows in 1898 was 96,018 pounds, an average of a little over 6,000 pounds each. This milk at the DeSmet creamery was worth $794.76. I base the amount on what I delivered at the creamery and the amount used in four families. Besides rearing the calves on the skim milk, I fed with skim milk and shorts—charged to cows—$215 worth of pork. Now, putting a reasonable value on the calves at the end of the year, $325, gives us a total cash value of $1,334.76. We deduct forty tons of bran and shorts, $240, and say for hay and pasture $94.76, leaving a net balance of $1,000. Profit for each cow, $62.50. The average yield of butter for each cow was 301 pounds and 5 ounces.

The following is the report of Geo. Bickford, a patron of the skimming station, at Livingstone, Wis., for 1898:

Number of cows milked 18, of which 5 were two-year-old heifers, freshening in April; 4 were full blood Jerseys and the balance were grades. Amount of milk delivered at creamery 86,700 lbs., for which he received in cash $678.86. Milk sold to customers by quart $25. Average test 4.5 7-12, making the price per one hundred pounds 78 3-10 cents. Veal calves sold $30. This makes a total $733.86, or an average of $40.77 per cow. This is not counting any skim milk or heifer calves raised.

It should be understood that the two foregoing reports are measured by the result at the creamery, so far as milk and butter is concerned. Both of them show that there is a man at the helm who believes in the cow and in giving her a fair show to do dairy work and bring forth dairy results.

Official Tests Made by Holstein-Friesian Cows.

ED. HOARD'S DAIRYMAN:—These butter tests (made from May 1st, to May 31st, 1898,) are for seven consecutive days, and are supervised by officers of agricultural colleges and state experiment stations, or by persons vouched for by such officers. The amounts of butter fat are determined by the Babcock tests, and the amounts of butter are calculated on the basis of 80% fat to a pound of butter, the rule established at the World's Columbian Exposition.

Rixa Silva's Last 39389; age 2 years, 11 months, 12 days; amount of butter fat, 10.339 pounds; amount of butter, 14.174 pounds.

Lady Longfield 3rd 39945; age 3 years, 3 days; amount of butter fat, 12.894 pounds; amount of butter, 16.114 pounds.

Jessie Fobes 3rd 32286; age 6 years, 1 month; amount of butter fat, 17.11 pounds; amount of butter, 21.39 pounds.

Vevie DeKol 40932; age 1 year, 9 months, 22 days; amount of butter fat, 7.936 pounds; amount of butter, 9 92 pounds.

Johanna Clothide 40384; age 2 years, 6 months, 26 days; amount of butter fat 10 839 pounds; amount of butter, 13.549 pounds.

Johanna Rue 3rd 42167; age 2 years, 29 days; amount of butter fat, 13.477 pounds; amount of butter, 16.846 pounds;

Johanna Aaggie 36477; age 4 years, 5 months, 9 days; amount of butter fat, 18.289 pounds; amount of butter, 22.861 pounds.

Aaggie Paul 40930; age 2 years, 2 months, 2 days; amount of butter fat, 12.574 pounds; amount of butter, 15.728 pounds.

Fannie Douglas 4th 41943; age 1 year, 11 months, 26 days; amount of butter fat, 8.934 pounds; amount of butter, 11.198 pounds.

Ollie Watson 3rd, 41944; age 2 years, 11 days; amount of butter fat, 7.311 pounds; amount of butter, 9.139 pounds.

Francktje 2nd 40125; age 1 year, 9 months, 28 days; amount of butter fat, 8 637 pounds; amount of butter, 10.796 pounds.

Gewina 2nd's Lulu 41945; age 2 years, 17 days; amount of butter fat, 11.959 pounds; amount of butter, 14.949 pounds.

Lottie Lass 19220; age 9 years, 2 months, 3 days; amount of butter fat, 15.75 pounds; amount of butter, 19 69 pounds.

Vrouwkje of Hijlaard 7th 28449; age 7 years, 26 days; amount of butter fat, 14 791 pounds; amount of butter, 18.489 pounds.

Sijtje Twisk Pietertje 38233; age 4 years, 10 months; amount of butter fat, 12.041 pounds; amount of butter, 15.051 pounds.

Hetje 6th's Pietertje 38945; age 3 years, 29 days; amount of butter fat, 11.123 pounds; amount of butter, 13.904 pounds.

Lotty Moselle's Pietertje Mechtchilde 41805; age 2 years, 2 months, 24 days; amount of butter fat, 9.765 pounds; amount of butter, 12.206 pounds.

Hetje 6th's Mechtchilde 41809; age 2 years, 1 month, 7 days; amount of butter fat, 9 001 pounds; amount of butter, 11.251 pounds.

Mechtchilde of Midland 41806; age 2 years, 1 month, 29 days; amount of butter fat, 7.456 pounds; amount of butter, 9.32 pounds.

Midland Gem 41811; age 1 year, 11 months, 19 days; amount of butter fat, 7.916 pounds; amount of butter, 9 895 pounds.

Pietertje Mechtchilde of Midland 41887; age 2 years, 2 months, 1 day; amount of butter fat, 7.732 pounds; amount of butter, 9.665 pounds.

Leda's Princess 2nd's Aaggie Wayne 33591; age 5 years, 10 months, 3 days; amount of butter fat, 16.44 pounds; amount of butter, 20 55 pounds.

La Reina Maud 43380; age 3 years, 7 months, 3 days; amount of butter fat, 13 68 pounds; amount of butter, 17.10 pounds.

Aaggie Paul 40930; age 2 years, 2 months, 2 days; amount of butter fat, 11.303 pounds; amount of butter, 14.129 pounds.

This last test was made to ascertain cost of food per pound of butter. It was supervised as other tests. The cost per pound, as per schedule of prices prepared by the board of officers, was 6.3 cents. S. HOXIE.

Yorkville, New York.

Wetting Feed for Cows.

ED. HOARD'S DAIRYMAN:—In your paper of March 24, '99, No. 6, page 107, last column, near the bottom, you say: Wetting the feed is only an increase of labor. Henry, Feeds and Feeding, page 433, at close of Art. 665 says: This experiment would indicate that slopping is an expensive way to feed cows.

I am cutting my dry alfalfa with a feed cutter into a box, mixing with it equal parts of corn meal and bran, wetting this thoroughly, and giving it to the cows I am milking just before they are milked, and they eat it greedily.

They have, in their yard, plenty of good water at any time, night and day, and twice a day dry alfalfa, as much as they will eat. They have pasture in the forenoon.

Not long since, my cutter broke down and I was compelled to stop this feed and give them dry corn meal and bran. Now my cows may not know what is best for them, but they immediately let me know that it was an "expensive way" for me to omit their wet cut feed, as they dropped off from one to two, each in the amount of milk they gave at a milking.

The cutting and wetting of this feed is quite an increase of labor and cost of keeping cows, and if I can omit it without loss of milk I should be glad to do so.

Dona Ana Co., N. M. A. M. H.

It is frequently the case that changing feeds will cause a slight change in the amount and quality of the milk given. After a sudden change, it may be a week or more before the animal returns to her normal flow of milk. Consequently it is hardly safe to judge of a method of feeding from a few days' experience.

The quotations from HOARD'S DAIRYMAN and *Feeds and Feeding* relate exclusively to grain feeds. We have frequently advocated the moistening of corn stover and other coarse fodder and letting it lie long enough to heat and soften.

Transfers of Guernsey Cattle from March 15 to 31, 1899.

BULLS.

Amnesty 4489, James M. Codman to W. B. B. Denny, Montpelier, Vt.
Book-keeper 5th, 5873, Mark Hughes to J. I. Carter, Chatham, Pa.
Ben Sampson 5480, L. B. and H. B. Williams to F. S. Gorton, Chicago, Ill.
Carlton, Jr., 5889, W. R. Merriam to F. A. Kaufer, St. Paul, Minn.
Duke of Springville 5871, Stanley R. Brunges to B. T. Carlton, Springville, Pa.
Esterhazy 5346, A. J. Snyder to The Baron De Hirsch Agl. and Industrial School, Woodbine, N. J.
Glencoe of Meadow View 5867, Wm H. Caldwell to Geo. E. Barnard, Hopkinton, N. H.
Gen. Gomez 5736 G. W. Washburn to Malson Brothers, Schodack Landing, N. Y.
Henryl 5402, Levi P. Morton to Mrs. Kate E. Lawton, Port Ewen, N. Y.
Haristyle 5407, Levi P. Morton to John Henry Livingston, Tivoli, N. Y.
Imp. Heir Apparent 5847, H. Mc K. Twombly to M. B. Rowe, Fredericksburg, Va.
LaBeaux 4562, J. P. Jackson to J. M. McCamant, New London Pa.
Max Adair 5876, Wm. B. Harvey to J. D. Wall, Grampian, Pa.
Ontario's Pride 1929, J. N. Grunshields to Barclay Stevens, Montreal Que.
Persimmon 4960, James Logan Fisher to H. P. Mc Kean, Spring House, Pa
Phallen's Son 5888, Louis Cabot to C. W. Wormuth, Ira, N. Y.
Prickett 5890, James Logan Fisher to Nicholas Reisiegel, Oak Lane, Pa.
Ripon Boy 5877, P. Powers to W. S. Fridd, Karo, Wis.
Robinson's Select 5895, Wm. L. Tharp to J. B. Duke, Somerville, N. J.
Salem's King 5362, A J. Philips to Albon Parks, Pickett, Wis.
Senator of Aluvive 5815, A. H. Walker to Wm. J. Goodwin, Wells, Me.
Sampson Faucette 5623, James L. Branson to J. Howard Marshall, Langhorne, Pa.
Stanford's Climax 5275, Abraham Tiger to F. N. Livingston, Haverhill, Mass.
Tadousac 4961, James Logan Fisher to Franklin Smedley, Frankford, Philadelphia, Pa.
Wandering Jew 5850, H. Mc K. Twombly to L. W. Richards, Greenwood, Del.

COWS.

Caress 3rd 7119, Funa 9265, Feronia of Ellerslie 9269 Imp. Lady May des Prices 10938, Lady Richesse of Madison 8269, Lady Sevina 8188, Imp. Millicent 6th 7649, Imp. Millicent du Chene 7647, Mother O'Pearl 7491, Rich 9352, Royal Lady 7126, H. Mc K. Twombly to S. Cameron Young, Middleton, Pa.
Flush 11433, James M. Codman to W. B B. Denny, Montpelier, Vt., Para Fishermaiden 7217, Judith of Lanvale 11142. L. D. Passano, Jr. to Wm. W. Carr, Roanoke, Va.
Fillpail's Marcella 7476, Nathan Dane to T. S. Batchelder, Kennebunk, Me.
Gardiner's Chestnut 9761, S C. Hall to Sumner Batchelder, Kennebunk, Me.
Golden Fancy 9995, Golden Maid of B. 11176, Golden Pride of B. 11194, M. B. Rowe to A. J. Snyder, Plumsteadville, Pa.
Isaleigh Coquette 8510, J. N. Greenshields to John F. Beeker, Bowdoin Center, Me.
Imp. Isaleigh Grace 11462, Isaleigh Mabel 11459, J. N. Greenshields to Barclay Stevens, Montreal, Que.
Laure's Nelly 11440, S. C. Hall to H. E. Coffin, Berwick, Me
Milk Weed 3rd 11452, Craig Biddle to Wm, B. Harvey, West Grove, Pa.
Nellie of Ridgeview 11431, Collen B. Meirs to Charles B. Case, Trenton, N. J.
Ruth B. Hastings 10399, A. J. Snyder to Ezra Michener, Carversville, Pa.
Rosa of Dudley 7034, W. J. Easter to N. Sagendorph, Spencer, Mass.

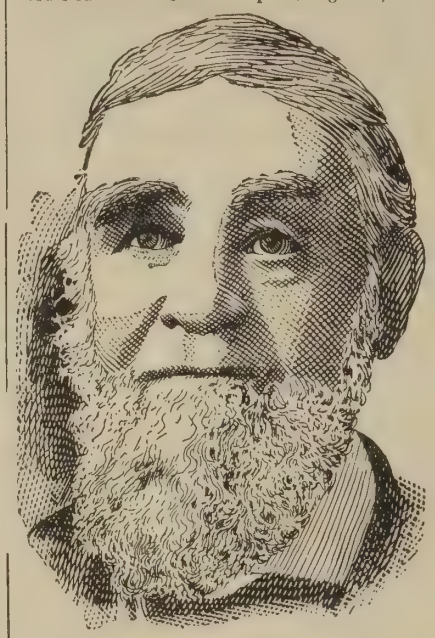
WM. H. CALDWELL, Secy.
Peterboro, N H.

Ruptured 20 Years

WONDERFUL CURE OF A WELL KNOWN CITIZEN OF WISCONSIN.

R. M. Wilsie's Good Fortune in Overcoming His Affliction.

It is a piece of good fortune to relate the fact that there is a cure for rupture. Some people contend that only a surgeon with a knife and a needle can bind the broken place together, but



MR. R. M. WILSIE, Brandon, Wis.

the experience of R. M. Wilsie, of Brandon, Wis., completely upsets this theory.

There is a doctor in Adams, N. Y., who has discovered a marvelous system of treatment that not only retains any kind of a rupture, but also causes the muscles to grow together. Mr. Wilsie heard of it and gave it a test. The results were astonishing.

Although 61 years of age and badly ruptured for more than twenty years, Mr. Wilsie began to mend at once and was perfectly cured in a remarkably short time. Today he is hale and hearty, a fine looking gentleman and completely restored from the slightest trace of rupture. He naturally recommends the system highly. His cure excited considerable interest among his neighbors, many of whom were also ruptured and who have since been cured.

The system of cure is the discovery of Dr. W. S. Rice, one of the best known rupture specialists in the country. He has recently issued an illustrated book on the subject of rupture and sends it free to every one; his object being to disabuse the public mind that rupture cannot be cured. The beauty of his system is the absence of all pain; absolute immunity from danger; no operation of any kind; and not the loss of a minute's time from work. This is a subject well worth inquiring into. Thousands of people have friends who are ruptured and they will do them a lifelong service to tell them of this new and marvelous home cure. Send for the book. It is free to all. It fully explains the system of cure and is immensely valuable to all who are ruptured. Write at once to Dr. W. S. Rice, 353 L. Main St., Adams, N. Y.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

KANSAS CITY, MO., March 15, 1899.

MORRISON MFG. CO., GENTLEMEN:—With regard to your Heel Plate, we would say, it is increasing the sales on your plows very materially. It is easy to appreciate that it is a decided improvement in walking plows. It is the greatest advance made in walking plows for ten years, and that is saying a great deal. Yours truly. BUFORD & GEORGE MFG. CO.

It makes Share last longer, cures winging over, holds the Share sharp twice as long.

A postal will bring a beautiful catalogue.

MORRISON MFG. CO., Fort Madison, Iowa.

FRENCH BUHR STONE MILLS



For grinding crushed ear corn, shelled corn, oats, any kind of grain mixed or separate for stock feed; table corn meal, buckwheat, rye and graham flour for family use.

THE BEST MILL FOR ALL FARM USES.

The most durable. Largest capacity. Less power. Finest grinding. No expense. Easiest handled and kept in order. Make no mistake, get a **Buhr Mill,** it will pay best. *Our new book on Mills of over 85 sizes and styles now ready.* Send for it.

NORDYKE & MARMON CO., Flour Mill Builders, 25 Day St, Indianapolis, Ind.



THIS PERFECTION MILK COOLER AND AERATOR

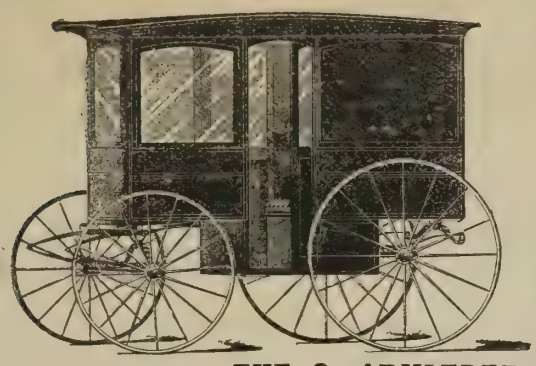
is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all **animal odors,** odors arising from **stables, feed, etc.** This method of treatment makes the milk keep sweet much longer. It is better for making **butter, cheese,** etc., and will stand shipment much better.

Cost But Little and Last Indefinitely.

They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated catalogue and prices of **Farm and Dairy Supplies.**

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A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue which fully illustrates and describes this wagon and 10 other styles.

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THE ONLY LOW-DOWN

Short Turn
Straight Bottom
Short Coupled
Light Draft Wagon
on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

SHIPMAN, BRADT & CO.,
Sole . . . Manufacturers,
DE KALB, ILL.



No. 214—Three-spring Extension-Top Carriage. Price, complete, with lamps, fenders, curtains, storm apron and pole or shafts, $65; usual retail price, $95.

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and save all intermediate profits and expenses. Traveling men's expenses, agents' and dealers' commissions, losses on bad accounts, etc.

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We sell to you direct from our factory at wholesale prices. **We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** You may not have been accustomed to dealing this way but just one trial will convince you of its advantages. We are not dealers or jobbers. **We make every article we sell.** 170 styles of vehicles and 65 styles of harness to select from. No matter where you live, we can reach you.



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and guarantee and warrant everything. Send for our large Illustrated Catalogue—FREE.

Elkhart Carriage and Harness Mfg. Co. W. B. PRATT, Secretary. **Elkhart, Indiana.**

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Feeds and Feeding

By Prof. W. A. HENRY.
Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premum.

or

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium

Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be refered to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price $2.

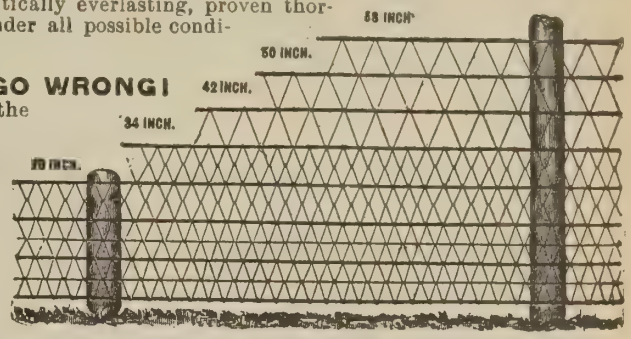
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Makes Woven Wire Fence that "Stands Up." **Cannot Sag.**
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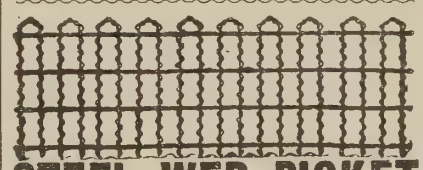
W. J. ADAM, Joliet, Illinois.



IF YOUR COAT FADES

you bought the **wrong kind.** If your wire fence "looks like a fish net," you didn't buy **The Page,** or else your posts have given away.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



STEEL WEB PICKET

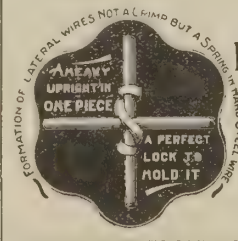
FENCE FOR LAWNS AND CEMETERIES.
Steel Gates, Posts and Rail. Cabled Field and Hog Fence with or without lower cable barbed. Cabled Poultry, Garden and Rabbit Fence.
DE KALB FENCE CO., 22 High St., DE KALB, ILL.

PITTSBURG WOVEN WIRE FENCE.



Meets all the wants of the man who needs a reliable and durable fence. Made of just the right weight of wire; takes up all expansion and contraction; does not sag and properly constructed will last indefinitely. It makes friends wherever [illegible]ed. We want a reliable agent in your locality. First order secures township agency. Write at once. Circulars, testimonials, etc., free.

Pittsburg Woven Wire Fence Co., 17 Penn. Av. Pittsburg, Pa.



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If you are, it will pay you to look into the merits of the

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before you buy. It is good in every particular and right in price.

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ONE INCH BLACK WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

TWO CENTS Per Foot.

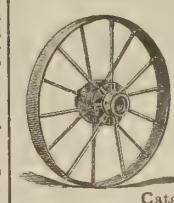
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For Farm Wagons and Trucks Have all the latest improvements. Interchangeable hubs, Stagge red spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the best meta. wheels on the market, buy them from **The Arnold Metal Wheel Company** Lock Box 28 New London, Ohio.
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Shipped subject to your Inspection.



Double locked seams, with no black iron to come in contact with water and galvanizing, causing rust. Angle braced on the outside—makes them extra strong. Being made of best material—they last. Catalogue FREE.

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is the same to the cow as sarsaparilla and good diet are to the human. It tones and invigorates the cow, sustains the flow of milk and the color and flavor of the butter.

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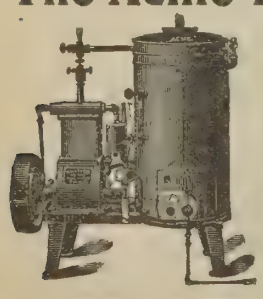
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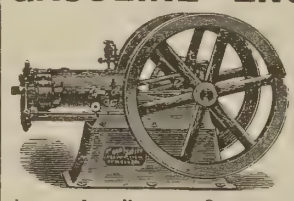


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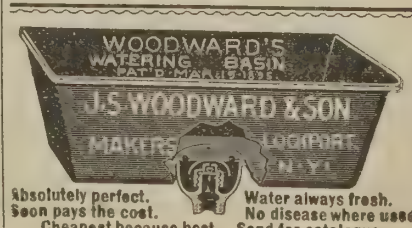
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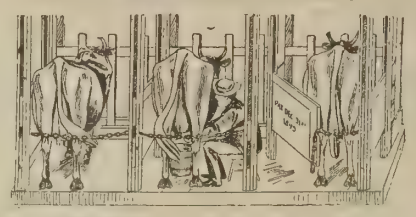
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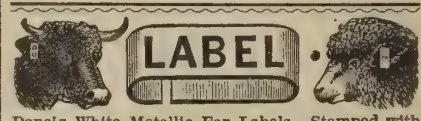
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MAY 5, 1899. NUMBER 12

University of Ill.

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J. E. Keith & Co., 2-4-6 Clark, Cor. S. Water St., CHICAGO, ILLS.

Fort Atkinson, Wis. Metropolitan National Bank, Chicago Ill. W. M. Hoyt Co., Chicago, Ill. REFERENCES:—Ex-Gov. W. D Hoard,

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100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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Medals—Bronze 1878, Silver 1887, World's Fair 1893.

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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

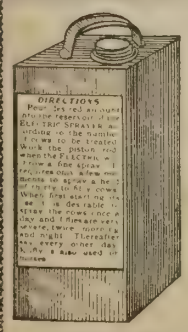
SAN FRANCISCO, SEPT. 22nd, 1896.
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Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

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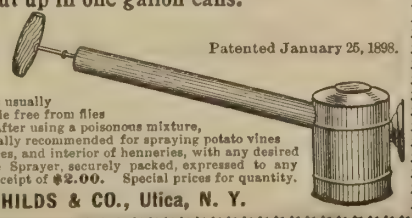
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A Liquid Mixture of Untold Value.
Applied with Childs' Electric Sprayer.

Protects cows from the torture of flies, thereby increasing the amount of milk. Absolutely harmless to man or beast.
Put up in one gallon cans.

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Throws a very fine spray of any of the liquids and mixtures usually used for destroying insects, bugs, etc., and for keeping cattle free from flies during the summer weather. Can be thoroughly cleaned after using a poisonous mixture, which is conveniently done by removing the cover. Especially recommended for spraying potato vines with Paris green, also all kinds of plants, bushes, vines, trees, and interior of henneries, with any desired formula. Sample Lot—One gallon can KILFLY and one Sprayer, securely packed, expressed to any address (except in State of Maine) charges prepaid, upon receipt of $2.00. Special prices for quantity.

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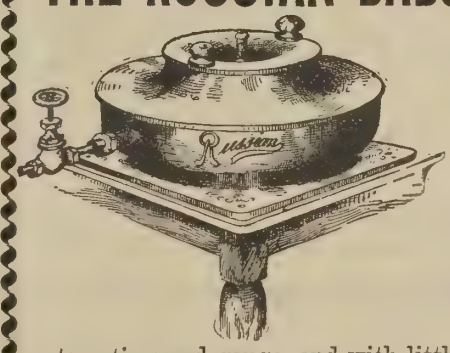
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THE MOST SIMPLE,
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is preeminently the machine for the man who wants to read small quantities correctly.

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is easily accomplished, for the machine is not stopped when the bottles are filled with hot water. It is a

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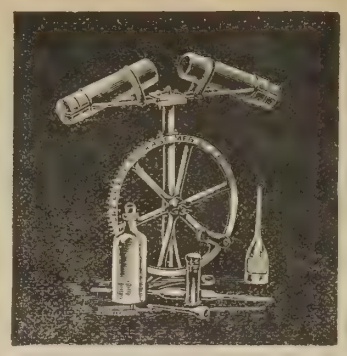
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HIGH GRADE WORK ONLY. Haddonfield, N. J.

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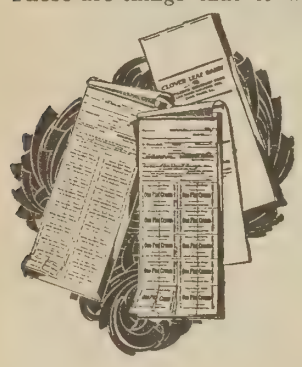
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of the aggregate results from your herd ought not to satisfy you. Your aim should be to bring the average up to the best results from your best cow. This is up-to-date dairying. What you want is quality, not quantity. In order to intelligently weed out your herd you should have one of our



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You may be surprised to find that some of your cows which have been "filling the pail" have been filling it with water. Knowledge gives confidence. These are things that it will PAY YOU TO KNOW. Our prices on these Testers are reasonable. Write for them.



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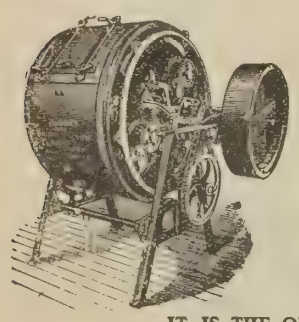
Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

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We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

Print Butter Should be wrapped in GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on Every Sheet.

SEND FOR SAMPLES.

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Salt Surety

Is a good thing to have and costs little to get. It costs fifteen cents extra on every ton of butter to have a salt you can absolutely rely on. That is the first cost of using

DIAMOND CRYSTAL SALT

but, the fifteen cents comes back in fifteen different ways before you are through with it. It comes back in a saving of time, in added flavor to the butter, and weight. More—but why enumerate when the book, "The Salt that's all Salt," tells the story complete. It is yours for the asking.

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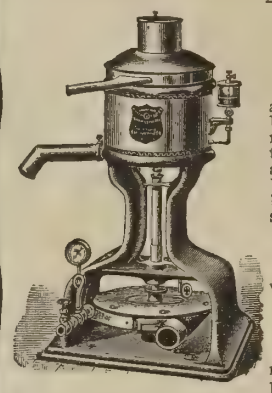
THE IMPROVED U. S. Triple Current Separator

PROVES ITS SUPERIORITY EVERYWHERE.

AT THE STATE EXPERIMENT STATIONS.

Read a Few 1899 Reports.

Massachusetts,	average of 19 tests,	January 7th to 31st,	.033 of 1%
Ohio,	" " 19 "	" 10th to 21st,	.034 of 1%
Vermont,	" " 18 "	" 9th to Feb. 3d,	.038 of 1%
Wisconsin,	" " 17 "	" 2d to 19th	.03 of 1%
An average from 73 tests of skim milk of			.034 of 1%



IN THE FACTORY.

The U. S. Takes the Cake.

POYNETTE, WIS., Jan. 20th, 1899.

Have been running U. S. Separators since 1892, and can cheerfully say that the new No. 1 Improved U. S. Separator takes the cake. When the skim milk is tested it shows only a trace of fat. I won the sweepstakes and three other first prizes, amounting in value altogether to $115.00, at the 1898 Wisconsin State Dairymen's Association, and all because my No. 1 U. S. Separator makes such smooth, perfect cream.

R. M. BUSSARD, Prop. Bussard's Creamery.

AND IN THE DAIRY.

Very Durable, Very Easy to Operate, Never Out of Order.

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Have used the No. 5 Improved U. S. Separator nearly three years and do not think it is worn a particle. It runs as smooth as the day we first started it. **It is the best separator in the world,** it is so easily run and so easy to clean, and it is always in order to do the best of work. We wonder how we ever got along without one. We think very much of the enclosed gearing. You have the best machine I know of in running and mechanical construction.

GEORGE D. SCOTT.

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Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

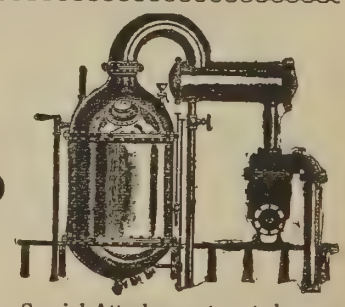
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

To show up this dust question in stables, some experiments were made at the Illinois station with sterile plates exposed for half a minute in various places. The following collections resulted: Dust from fodder 263; dust from corn meal 5; dust from brushed cows 869; under unwashed udder 2,023; under washed udder 90.

WHICH IS THE BETTER COW?

We have this week pictures of two Guernsey cows, both imported in 1895, by Hon. Levi P. Morton, of New York, and so far as we know still owned by him. The cuts came to us without any accompanying letter of description or explanation, and except as we may judge from the pictures we do not know whether they are good cows, or simply ordinary cows, or poor cows, or which is the better, if there is any choice. Perhaps it is better this way, and better also that we should omit discussion, and invite correspondence and criticism from our readers.

Being imported animals there is very little that can be learned concerning their ancestry, and they, therefore, stand before us simply on their individual merits, as exemplified in their respective forms. The question is: Which of these is the better cow, and why?

We would like a hundred answers to this inquiry—not that we can publish them all, but we could select a few that would be representative and interesting.

It will be excellent discipline for any dairyman, and especially for the young men, to make a close analytical study of these pictures and write out his conclusions, and the reasons therefor. There is more or less both of similarity and dissimilarity between them,—certainly enough to make a choice not altogether easy.

We suggest that not too much importance be given to the matter of position, as it is not possible to make every cow take the most acceptable "pose" before a camera.

AS TO PARTNERSHIPS.

It occasions no little surprise that the patrons of creameries and cheese factories are not more jealous of their individual rights. They constitute, in fact, a partnership; and in all partnerships it is the duty of each partner to do whatever he can to further the interest of the partnership, and to refrain from doing whatever will militate against those interests. There are partnerships in all kinds of business—mercantile, manufacturing, and in practicing law and medicine. What would be thought of a mercantile partnership if one of the partners who, either from carelessness or by design, should so conduct himself as to cut down the profits from 10 to 25%? or the manufacturing concern wherein one of the partners would tolerate such laxity in manufacturing, that the greater proportion of all of the goods made, would have to be sold at a discount of 10 or 20%?

In what essential respect would conduct, such as this, differ from the management of too many creameries and cheese factories where the parties, responsible for the conduct of the business, allow one or more of the patrons to deliver milk in such a condition, that it contaminates the whole product, and makes it impossible to sell it for the best price?

We are not at all disposed to overlook the short comings of the butter maker or cheese maker, or relieve him from the responsibilities incident to his position. He ought to have a judgment sufficient to make a first-class product, when furnished with first-class material. In addition to this, he ought to have ability to determine whether the material furnished him is first-class, second-class, third-class, or worse, and then he ought to have the nerve to reject all the material offered, that will not make a first-class product. But it is worse than useless for such a man to attempt to do himself justice, or the creamery or the cheese factory justice, unless he is supported by a preponderance of sentiment, which demands that he shall exercise this ability and discretion.

If there are slovenly or careless patrons (partners in the business, remember,)who cannot or will not take such care of their cows, the milk and the milk utensils, that they can furnish sound milk, and that which is free from taint, of course they will be offended, and unless they will reform their methods, the sooner they withdraw from the partnership, the better will it be for the business. The sooner they quit delivering milk the better it will be for the other partners, and, we may add, the better it will be for themselves. Discipline is as essential among the patrons of a creamery or cheese factory, as it is in an army. It is not a pleasant task to discipline a soldier, put him on extra duty, or otherwise subject him to punishment, but the good of the whole must not give way to the perverseness of the individual.

It is a well known fact, that at all the dairy conventions held last winter in the central, western and northwestern states, the exhibits of butter scored exceptionally low, and there is no other way to account for it, except on the theory that some of the milk received, was not up to standard; that, in practically all the creameries, one or more of the patrons had persistently and habitually delivered milk that contaminated the whole mass, and made it impossible for the butter maker to turn out a first-class product. Makers that in previous seasons had butter that would score 95 or better, fell down this year to 90 points and below. Is it reasonable to conclude that they have lost their cunning, that they cannot make as good butter this year as they did last year, and the year before? If it had only been now and then a maker that fell below the standard, we might attribute it to carelessness on his part, but when the product of practically all the creameries in the land scores so low, the conclusion is irresistible that there was, somewhere, some general cause for it. The defect was not noticable in texture, color, salting or packing, but everywhere in flavor, and flavor is the one thing more than all others over which the maker has least control. It is the one thing for which the patrons themselves are most responsible.



ROSE OF THE QUARTIERS, A. G. C. C. 8654.

This is not an indictment of the patrons as a whole, or of any considerable proportion of them, in the matter of the milk they individually delivered. One can of off flavored milk is sufficient to impregnate a vat full.



VILLET'S GEM, A. G. C. C. 8664.

With these facts staring them in the face the wonder is that 19 patrons will suffer the twentieth to deliver this contaminating milk. They ought to rise in indignation and insist that they should not be made to suffer in this way. Every creamery and cheese factory in the land ought to call a meeting of its patrons without delay, and by a vote, not only authorize the buttermaker to reject all imperfect milk, but demand that he do this, and give him to understand that his tenure of office depends upon doing this. And when the maker does it, they ought to stand by him like a rock, utterly unmoved by sympathy or any other consideration.

The cheese making season, in Wisconsin, is opening. There are factories in this state habitually receiving from ½ to 1 cent per lb. above the current market price. The cheese that is turned out is always extra, there is no loss on it, it commands a ready sale, it stimulates further purchases. On the other hand, there are factories, too many of them, which habitually receive from ½ to 1 cent(or more) less than current market price.

Why is this? If the maker is at fault, discharge him at once and get some one who can do better; but before doing this be sure that he is at fault, and not some one or more of the patrons.

Every factory in the state, and for that matter, in the United States, should be furnished with the Wisconsin Curd Test. This simple and inexpensive apparatus will enable the patrons, or a committee of the patrons, to determine whether the maker is as fault, or the patrons, or whether the fault lies with only one or two or three patrons. More than that, it will enable the patron whose milk is found to be defective to locate the trouble in his own herd or on his own premises.

There is no question but that the habitual use of the Wisconsin Curd Test in any factory will add very materially to the income to that factory, and if it could be used in all the factories in the state, it would result in enhancing the value of Wisconsin's cheese product by hundreds of thousands of dollars, annually.

We are particularly anxious that every cheese maker who reads HOARD'S DAIRYMAN should be eminently successful. We know he will find the Wisconsin Curd Test of great assistance in attaining this success. It will as infallibly detect milk that is not fit for cheese making as the scales will detect short weights, or the Babcock test detect skim milk, and it will furnish the evidence to support its conclusions. If not already familiar with it, drop a postal card to the Wisconsin Experiment Station, Madison, Wisconsin, requesting a copy of the bulletin which explains it.

We have written on this subject many times before and may recur to it many times in the future, but were specially moved at this time by the receipt of a very brief communication from one of the patrons of a creamery in Minnesota, which reads as follows: "Several of the patrons of the creamery to which I deliver milk have been keeping their milk in the cow stables and horse barns this winter, and it has cut our price down very materially. Talking don't do any good. Will you please give the farmers a broad hint on this subject?"

The Wisconsin Curd Test is especially designed for cheese makers, but the butter maker can often use it to locate the patron whose milk is cutting down the quality of his butter and convince him, and all other patrons as well, if necessary, what the trouble is and where it comes from.

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C. W. SWITZER, of Sleepy Eye, Minn., makes the following report of his last year's work in dairying. He states that off of 40 acres of land, he realized $1,080. He milked 16 cows and for this milk he received $680; the increase from the cows was 14 calves, woth $140; he raised and fattened for market $120 worth of pork, and has on hand $120 worth more of pork; he also got his own butter off the land, which his creamery tickets show was worth $20. As a further advantage he turned back upon the land fertilizer from his barns that made the fields better than they were when he commenced operations. Of course, there was some work necessary to care for these cows, but as an offset to this work, he also got forage for seven head of work horses off this land, and he estimates this forage worth at least a dollar a day for seven horses.

When two currents of blood unite to form a third of still greater power, we say they have "nicked" well.

It has been noticed that grade Ayrshire cows bred to a registered Jersey or Guernsey bull seem to produce a superior class of cows. Several of the finest business herds in this country are of that foundation. We cannot account for this except that the Ayrshire "nicks" well with the other strains. But, as we said before, so far as we have observed the same result is not so surely seen when the cross breeding is between Holstein and Jersey or Guernsey. The prepotency of the Holstein is very pronounced and does not readily yield, even in a grade, to a harmonious compromise with other blood.

Others may have had different experience and observation, and we shall be pleased to have them give their experience in the DAIRYMAN.

EFFECTS OF BORIC ACID.

Dr. J. Jameson Evans says that the increasing use of boric acid for medicinal and preservative purposes is sufficient reason for a further record of some effects which have been produced by the drug, when given internally. Quoting a case where it had been given, he says:

An erythematous rash spread over the man's face and head, his salivary glands became enlarged, and eventually the hair on the face and head fell out, so that in a fortnight he was perfectly bald. I have administered boric acid in many cases, and when it has been given for some time, have noticed a rash, followed by a fine scaly exfoliation. I can only conclude that this was due to the action of boric acid on the skin.—*Popular Science.*

If boric acid is absolutely without action, except on bacteria, it is strange that it should be given as a drug. The above would indicate that it has a very decided action on the human body, as well as on bacteria.

A POINT ON STABLE VENTILATION.

HOARD'S DAIRYMAN considers that the cows and all cow owners who want to preserve their cattle to health and profit, owe a debt of gratitude to Prof. King, of the Wisconsin Agricultural College, for the efforts he has made to instruct cattle owners as to the best methods of ventilating stables.

The great danger to the dairymen in these severe northern climates is the fact that in order to secure a flow of milk in winter, they must (1) preserve a certain degree of heat.

(2) There is no way of economically warming a stable except by animal heat of the cows.

(3) To preserve this heat, the stable must be made tight, and consequently the air soon becomes foul and poisonous.

How to build a stable that shall at once be warm and well ventilated was shown by Prof. King, in his admirable lecture before the last meeting of the Wisconsin Dairymen's Association at Green Bay. We heard a score or more of dairy farmers declare that that lecture was worth a journey across the state to hear, and yet there were but few of the thousands in Wisconsin who need such information, there to hear it.

We have often wondered, when stepping into some close, foul stable, if the owner really knew and realized what he was doing. In the old days stables were well ventilated, but they were cold, and but little milk was expected. The following illustration will show the fearful weakening effect upon cattle of breathing foul air.

In Appleton's Encylopedia, 1875, page 125, Dr. Parks, in his article on "Practical Hygiene", gives an instance from the cattle plague in Europe, in 1866:

In cattle sheds containing twenty or thirty cows—which the owners kept closed to such an extent that all chinks in the doors and windows were stuffed with straw and matting, under an ignorant belief that thus the plague could be kept out—very frequently the entire stock died in two or three days after the first appearance of disease; while in other cases, where the animals were housed in a well-cleaned and tidily-kept shed, with a plentiful supply of fresh air, not only did some of them escape the disease altogether, but the deaths were reduced one-third of the number of beasts attacked."

THEY NEED A BETTER DAIRY EDUCATION.

Not long since we received a statement from an intelligent farmer and dairyman, concerning the poor success of a creamery in his neighborhood.

The report he made set us to thinking over the hundreds of similar instances we had known. "The difficulty," he said, "is, that our farmers do not understand this dairy business well enough to make a creamery succeed. And what makes it worse is that no one can get them to see that they need information. They all think that they know enough to handle cows. So they do in their way, but there is no money in their way.

I tried to get them to see that fully a quarter to a third of the returns was in the skim milk, if they handled it right. But a majority of them voted to sell the whole milk for the year at 70 cents a hundred. That forced myself and three more of the heaviest patrons out, for we could not afford to throw away 15 to 20 cents a hundred on our whole year's production, just because the majority of our neighbors did not know the value of skim milk and would not learn. I called a meeting of the patrons, and took with me several copies of the DAIRYMAN and read to them reports of men who told what they were making out of their skim milk with calves and pigs. Then I said to them, 'Why don't you read and post yourselves on this dairy question as long as you are going into it as a business?' I can't afford to trot along with you and lose money just because you are willing to, and are not willing to learn better. There is too much at stake for any of us to be ignorant of our business, and the skim milk is a part of the business.'

Well, the meeting broke up in a row, and our creamery is plunging along and will probably bust up soon, for lots of the patrons say they can't afford to milk cows at present prices of butter.

It makes me mad to see such stupidity. They say they can't afford to milk cows at present prices, but they *can* afford, every mother's son of them, to keep a lot of cows that no man can afford to milk, that has any sense of what he is doing. And then, they *can* afford to throw away the value of their skim milk, and they can afford to be wasteful and unthrifty in lots of other ways, but they can't afford to learn to do better. Can you tell me what can be done with such a community?"

The only advice we can give is to keep up courage. Be patient, but keep everlastingly at them in one way and another. They are like everybody else. When they see their way they will follow it. But it is no wonder that they have not the best cow sense, skim milk judgment and all other kinds of good dairy judgment. Indeed, it would be a wonder if they did have all this.

Men who have never devoted any time to the study of a subject, can not know how long or how wide it is, nor can they know clearly where it touches them. If these men had been readers of what other men were doing, things would look different to them.

Any intelligent man can do wonders in the way of helping up his neighbors, and in getting them to adopt more profitable methods, if he will only keep his temper, use a little good tact and lots of faith.

Get them to read on these subjects all you can, for they can not travel and see for themselves how other men use the better method and obtain the reward of the better knowledge.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series, XIII.

GLOSSARY.

Enzootic—Said of an animal disease, when it occurs continuously in any section of the country.
Haemoglobin—The red pigment in the red blood corpuscles that gives the color to the blood.

TEXAS FEVER.

One of the diseases of cattle that is of more than usual interest in this country is that of Texas fever. On account of its wide spread distribution, and the very peculiar way in which it is disseminated, it is one of the most important animal maladies that we can consider. Again, our interest in it is awakened because it marks one of the triumphal victories that our National Department of Agriculture has scored in its work for the stock interests of the country.

While the disease is commonly called Texas fever, it must not be thought that the Lone Star state enjoys the distinction of being the only region where the disease is thoroughly "at home." Many different names have been given it, the more important of which are southern cattle plague, acclimation fever, or red water disease. The disease is enzootic throughout a number of the southern states and territories, and it is now pretty generally believed that the disease occurs in other continents, although the peculiar nature of the malady renders it difficult to determine these points except by comparative studies.

PECULIARITIES OF THE DISEASE.

This disease has been a puzzle for many years. While its communicable nature was self-evident, it acted so differently from the majority of infectious diseases, that the rules that have proven of such value in the study of these failed to solve the question of the cause and manner of distribution of the infective agent for many years. The disease does not show itself so severely on southern cattle as it does upon those with which these cattle come in contact. When the southern cattle are shipped or driven north to utilize the wide ranges of the west, a pathway of disease is frequently noted. For many years before the true nature of the disease was established, it was maintained that these southern cattle in some way spread poison and disease among northern herds. Generally this transference of the disease does not occur directly, but pastures and pens occupied by southern cattle are in some way affected so that when fresh cattle are put in them, they acquire the disease. Frequently, the spread of the disease is limited in a very peculiar way. Cattle in one field will acquire the infection, while in a contiguous pasture they will remain free. To such an extent is this true, that close observers even asserted that a barbed wire fence seemed to stop the progress of the disease, although it was also noted that the wash of an infected field onto another piece of land was often sufficient to contaminate it.

The disease frequently breaks out when northern cattle are imported into the south, they seem so be so much more susceptible than the native southern cattle. The name, acclimation fever, comes from this characteristic,as it was thought that northern cattle acquired the disease, before they became inured to southern conditions.

With most infective diseases of a febrile type, the period of incubation is generally short, but in Texas fever a period of about a month elapses before the disease breaks out. It is evident that this disease presents peculiarities that differentiate it from most other contagious maladies.

For many years, it baffled the skill of all investigators to determine the cause and manner of its spread. A study of the animal in a diseased condition, and also post mortem examinations showed that the disease was not caused by bacteria. It had been determined by these examinations, that one of the most salient characteristics of the disease was the destruction of the red blood corpuscles in the blood. Another symptom was the appearance of a bloody urine, a condition produced by the excretion of the blood pigment (haemoglobin) through the kidneys. This peculiarity gave the name red water to the malady.

Finally, the clue to the disease was obtained in the affection of the blood corpuscles. Some years ago, it was discovered that malaria was caused by a micro-parasite of animal origin that had the power of attacking the blood corpuscles and destroying them. This analogical condition led to a most careful examination of the blood of animals with Texas fever, to find evidences of a similar parasite. Dr. Theobald Smith was finally able to demonstrate that such a parasite existed. He proved conclusively that such an organism grew and multiplied in the blood corpuscles, and that their bodies were destroyed by the parasite. The causal relation between the disease and this form which belongs to the animal world, rather than to the bacteria, was thus placed beyond dispute, for by introducing the blood of an affected animal, containing the organism, into a healthy cow, the affection could be artificially produced. Unfortunately, it is impossible to grow these animal parasites on culture media, as we do bacteria; therefore the study of them is rendered much more difficult.

MANNER OF INFECTION.

How this organism finds its way into the susceptible animal was still an unsolved problem. The idea had gained ground as a result

of the experience of cattle owners, that the disease was propagated by cattle ticks, but no satisfactory proof for this had ever been adduced. As a result of the investigations of the United States Department of Agriculturel, it was shown that the cattle tick did serve as a vehicle for the transmission of the disease. When southern cattle are shipped north in summer, they are infested with cattle ticks. As these mature, they drop off the animal, lay their eggs, which also contain the micro-parasite. In the course of three or four weeks the young ticks appear, and attach themselves to the cattle. The bites from these infect the animal, and the disease then appears. This accounts for the prolonged period of incubation, that is to be noted in skin disease.

The working out of this relationship, between the organism of Texas fever and the manner in which it is introduced into the susceptible animal, shows how important it is to carry on thorough investigations by competent investigators.

The many peculiarities of the disease are now readily explained on the basis of this relationship. The apparently nonsensical statement, that a barbed wire fence could stop the disease, appears rational when one understands that these cattle ticks cannot migrate far, and that the longer grass under the fences would prove so serious an obstacle, that they could not readily go from one field to another.

No sort of an efficient treatment, or even prevention could be instituted so long as the cause, and its manner of distribution remained unknown. When these points were thoroughly established, the basis for a rational treatment of the question was made.

If the cattle tick could be killed, then it would be possible to prevent the spreading of the disease. A study of the life history of the tick, showed that during the winter months no danger need be apprehended in the shipment of cattle from southern to northern states. The result of these studies were to institute a quarantine power, and a quarantine boundary across which cattle could not be transported during the closed season. This quarantine service has been of great importance in limiting the distribution of the disease.

After the relation of the cattle tick to the disease had been established, rational attempts could be made toward prevention. This was done by experimenting on methods of disinfection, that would destoy the ticks on the cattle without affecting, seriously, the animals themselves. After a large number of unsuccessful attempts to find a "dip" that was satisfactory, success has finally been attained in the use of paraffine oil. This destroys the ticks without seriously irritating the skin of the animal. To insure complete destruction, it is necessary to dip twice, with an interval of a few days, but this can readily be done, and it is confidently expected that the inauguration of this method will result in the saving of millions of dollars to the stock owners of the south.

FEEDING ANALYSES.

We republish herewith a revised table of feeding analyses, compiled from what we believe to be the most authentic and reliable sources—largely from Prof. Henry's book on Feeds and Feeding, a work we most unhesitatingly commend to the attention of every man who wishes to become a progressive farmer.

The figures given are the averages of a great number of chemical analyses and digestion experiments, and will thus be somewhat too low for feeds of extra good quality, and too high for those of poor quality or in poor condition.

We have, in deference to the practice of the experiment stations, changed the first column from organic to dry matter—the only difference being, that the latter includes the mineral matter or ash of the feeds, a portion of which is utilized by the animal.

The amounts given are the quantities of the different ingredients found in 100 pounds of the feed named. Thus in 100 pounds of mixed pasture grasses there are, as an average, 20 pounds of dry matter, and in this dry matter there are 2.5 pounds of digestible protein, 10.2 pounds digestible carbohydrates, and 0.5 of a pound of digestible ether extract, or fat.

TABLE SHOWING THE AVERAGE AMOUNT OF DRY MATTER AND DIGESTIBLE NUTRIENTS IN ONE HUNDRED POUNDS OF THE SEVERAL MORE COMMON AMERICAN FEEDING STUFFS.

	Dry Matter.	Digestible Nutrients.		
		Protein.	Carbohydrates	Ether Extract.
GREEN FODDERS.	Lbs.	Lbs.	Lbs.	Lbs.
Past're grasses mixed	20.0	2 5	10.2	0.5
Fodder corn	20.7	1.0	11.6	0.4
Sorghum	20.6	0.6	12.2	0.4
Red clover	29.2	2.9	14.8	0.7
Alfalfa	28.2	3 9	12.7	0.5
Cow pea	16.4	1 8	8 7	0.2
Soja bean	24.9	3.2	11.0	0.5
Oat fodder	37.8	2.6	18.9	1.0
Rye fodder	23.4	2.1	14.1	0.4
Rape	14 0	1.5	8.1	0.2
Peas and oats	16.0	1.8	7.1	0.2
Beet pulp	10.2	0.6	7.3	...
SILAGE.				
Corn	20.9	0.9	11.3	0.7
Corn, Wis. analyses	26.4	1.3	14.0	0.7
Sorghum	23.9	0.6	14.9	0.2
Red clover	28.0	2.0	13.5	1.0
Alfalfa	27.5	3.0	8.5	1.9
Cow pea	20.7	1.5	8.6	0.9
Soja bean	25.8	2.7	8.7	1.3
DRY FODDER AND HAY.				
Corn fodder	57.8	2.5	34.6	1.2
Corn fodder, Wis analyses	71.0	3.7	40.4	1.2
Corn stover	59.5	1.7	32.4	0.7
Sorghum fodder	59.7	1.5	37.3	0.4
Red clover	84.7	6.8	35.8	1.7
Alfalfa	91.6	11.0	39.6	1.2
Barley	85.2	6.2	46.6	1.5
Blue grass	78.8	4.8	37.3	2.0
Cow pea	89.3	10.8	38.6	1.1
Crab grass	82.4	5.7	39.7	1.4
Johnson grass	87.7	2.4	47.8	.7
Marsh grass	88.4	2.4	29.9	0.9
Millet	92 3	4 5	51.7	1.3
Oat hay	91.1	4 3	46.4	1.5
Oat and pea hay	89.3	14.3	50.3	1.9
Orchard grass	90.1	4.9	42.3	1.4
Prairie grass	87.5	3.5	41.8	1.4
Red top	91.1	4.8	46.9	1.0
Timothy	85.8	2.8	43.4	1.4
Vetch hay	88.7	12.9	47.5	1.9
White Daisy	85.0	3.8	40.7	1.2
STRAW.				
Barley	85.8	0.7	41.2	0.6
Oat	90.8	1.2	38.6	0.8
Rye	92.9	0.6	49.6	0.4
Wheat	90.4	0.4	36.3	0.4
ROOTS AND TUBERS.				
Artichokes	20.0	2.0	16.8	0.2
Beets, common	13.0	1.2	8.8	0.1
Beets, sugar	13.5	1.1	10.2	0.1
Carrots	11.4	0.8	7.8	0.2
Mangels	9.1	1.1	5.4	0.1
Parsnips	11.7	1.6	11.2	0.2
Potatoes	21.1	0.9	16.3	0.1
Rutabagas	11.4	1.0	8.1	0.2
Turnips	9.5	1 0	7.2	0.2
Sweet potatoes	29.0	0.9	22.2	0.3
GRAINS AND BY-PRODUCTS.				
Barley	89.1	8.7	65.6	1.6
Brewers grains, dry	91.8	15.7	36.3	5.1
Brewers grains, wet	24.3	3.9	9.3	1.4
Malt sprouts	89.8	18.6	37.1	1.7
Buckwheat	87.4	7.7	49.2	1.8
Buckwheat bran	89.5	7.4	30.4	1.9
Buckwheat mid'lings	87.3	22.0	33.4	5.4
Corn	89.0	7.9	66.7	4.3
Corn and cob meal	89.0	6.4	63.0	3.5
Corn cob	89.3	0.4	52.5	0.3
Corn bran	90.9	7.4	59.8	4.6
Germ meal	89.6	9.0	61.2	6.2
Gluten meal	91.8	25.8	43.3	5.0
Gluten feed	92.2	20.4	48.4	3.5
Hominy chop	88.9	7 5	55.2	6.8
Starch feed, wet	34 6	5.5	21.7	2.3
Cotton seed	89.7	12.5	30.0	17.3
Cotton seed meal	91.8	37.1	16.9	8.7
Cotton seed hulls	88.9	0.3	33.1	1.7
Cocoanut meal	89.7	15.6	38.3	10.5
Cow peas	85.2	18.3	54.2	1.1
Flax seed	90.8	20.6	17 1	29.0
Oil meal, old process	90.8	29.3	32.7	7.0
Oil meal, new process	89.9	28.2	40.1	2.8
Cleveland oil meal	89.6	32.1	25.1	2.6
Kafir corn	84.8	7.8	57.1	2.7
Millet	86.0	8.9	45.0	3.2
Oats	89.0	9.2	47.3	4.2
Oat feed or shorts	92.3	12.5	46.9	2.8
Oat dust	93.5	8.9	38.4	5.1
Peas	89.5	16.8	51.8	0.7
Rye	88.4	9.9	67.6	1.1
Rye bran	88.4	11.5	50.3	2.0
Wheat	80.5	10.2	69.2	1.7
Wheat bran	88.1	12.6	38.6	3.0
Wheat middlings	87.9	12.8	53.0	3.4

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

OATS, PEAS AND BARLEY—BEAN PICKINGS.

Will you please tell me through the columns of your paper, in what proportion to mix peas, oats and barley for growing, where the grain is fed to horses and milch cows?

Can you give me the relative value of bean pickings ground into meal? That is, the amount of protein, etc. H. C. W.

Ellisburg, N. Y.

We have some doubt whether oats, peas and barley could be successfully grown together, because of the differing periods of ripening. One trouble in raising oats and peas is that if sown at the same time the oats get too ripe before the peas are ready to harvest. To overcome this we sow the peas from a week to ten days before the oats. Barley ripens earlier than oats and this circumstance would augment the inconvenience.

We suggest sowing oats and peas at the rate of 1½ bushels of each to the acre and omitting the barley.

We have no figures on the feeding value of bean pickings, and because of the varying quality of these pickings, we question whether any reliable figures could be had. What we do know is that beans are rich in protein and a very concentrated feed. They should, therefore, be fed somewhat sparingly and never without mixing with some lighter feed, like bran or oats, with careful observation of results from day to day and being governed thereby.

AN IOWA RATION.

Please give me a balanced ration of the following: Wheat bran $10 per ton, corn, shelled, 26 cents, oats 23 cents, barley 30 cents, oil meal $1.40 per cwt. Plenty of good clover hay, and cows run in corn stalks in good weather. W. H. L.

Cooper, Iowa.

We very much doubt whether milch cows derive any benefit from roaming in a stalk field even "in good weather." There is a limit to the cow's capacity for eating, and when she fills, or partially fills, her stomach with old, weather beaten, juiceless corn stalks, it detracts, pro rata, from her ability to take other and better feed. It is almost as impossible for the cow to make milk out of this kind of fodder, as it would be for her owner to make a silk purse out of a sow's ear, and as profitless, too. Such fodder will sustain life, but it bears about the same relation to well cured corn stover that the stone and copper implements of the races which preceded us in this land bear to the highly tempered and polished steel implements we are permitted to have.

The long and the short of the story is, that it is not good feed,—not so good for cows as was the miscalled "canned roast beef" for our army boys in Cuba and Porto Rico.

Moreover, there was great waste in letting these stalks stand out in the field. Less than one-half of the feeding value of the corn crop is gathered when only the ears are saved. The great enemy of the farmer, and especially of the dairy farmer, is waste. Every large legitimate fortune in the land was started and maintained by saving those things which others throw away. Allowing a valuable food product to become deteriorated is only one of the ways in which waste occurs. There is great waste in keeping two cows to do the work that one ought to do; great waste in feeding an excess of carbohydrates and too little protein; great waste in not providing comfortable quarters for milch cows; great waste in unkindness.

This inquiry, with some half dozen others, was received at a time when we could not possibly keep up with the demands upon our time and space, and was buried under a mass of accumulated correspondence, or it would have been answered some weeks ago. We regret this very much. Possibly our friend may have found in the numberless answers to other inquiries some formula fairly well suited to his conditions. We are almost certain he could have done this, if he had read with half the care that the importance of the question merits.

If we had given a formula early in March, it would have been about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn chop	3.56	.32	2.67	.17
1 lb. oil meal	.91	.29	.33	07
1 Totals	24.93	2.47	11.70	.70

If there had been some good corn stover (well cured corn stalks) available, 7 pounds of such fodder might have been substituted for 5 pounds of the clover hay.

ROUP.

My chickens eyes will water and wink very much. In a few days a bunch will come out between the eye and the bill, or the eye will swell shut. I know it is all caused by the same thing. There will gather a hard substance all around the eye, and it will last about a week when the eye will open again, and you would think that it would be all right, but the hen cannot eat and is in great pain. After a week or so I can pick out the lump; it looks like a kernel of corn well soaked. G. F. E.

This flock of fowl is affected with roup, a contagious disease among poultry. It is caused by damp quarters or being kept in open quarters in damp and cold weather. First, I would suggest removing the causes, clean out the coop well and keep it dry, scatter a generous quantity of lime throughout, whitewash the walls and nests and paint kerosene oil on the roosts. Remove the sick fowl from the flock. Having done this, the disease will disappear. In a well advanced case, it is best to kill the fowl, but upon the first appearance of the disease it can be easily cured. Clean out the nostrils and inject kerosene (a small sewing machine oil can is good for this). Feed soft feed with a stimulent, such as red pepper. D. E. ROBERTS.

Fort Atkinson.

LINING A SILO.—TARRED PAPER.

I expect to build a silo this summer. Will build of double boards put on perpendicular, inside course planed, but not matched. Will it be better to put a double lining of tarred paper between the lining at an extra cost of $2.00, or will one lining be sufficient?

Baxter, Pa. C. H. T.

Two thicknesses would be better than one, first, because there is apt to be some defect in the paper, which the second thickness would be likely to overcome, and second, the double lining would be more durable, thus postponing the necessity for repairs.

A GEORGIA RATION.

Give me a balanced ration of the following feeds, only ones available here: Cotton seed meal $20 per ton, bran $18 per ton, corn meal $21 per ton, cotton seed hulls, $7 per ton. You will certainly confer a great favor upon me if you can give me a balanced ration of this, that will be a healthy

feed for my cows. They are new to the section, having recently come here, are fed and milked at 3 a. m., watered and turned into five acre grass lot at 7 a. m., where they have one acre of good shade. At 3 p. m. they are fed and milked again and remain in the barn until next morning. The DAIRYMAN is my only help in trouble.

Valdosta, Ga. MRS. B. F.

First of all, see to it without delay that something in addition to cotton seed hulls be provided for roughage as soon as possible. Sow some cow peas at once, and when they are fairly well grown, cut and feed green. Cut and cure for hay what are left, and be sure to have enough to last until other forage is available. Hulls do very well in moderate amounts, but they are very dear fodder at $7 per ton.

We advise for present use a mixture of cotton seed meal, corn meal and bran, in equal parts by weight, and feeding from 6 to 9 pounds daily, mixed with an equal amount in bulk, of hulls. The amount to feed to each cow must be governed by her ability to respond. In addition to the above let the cows have what they can gather from the pasture and all the hulls they care to eat.

FOAMING CREAM—ABNORMAL FERMENTS.

1. What causes cream in the churn to foam and swell, so that it will all stick to the walls of the churn?

2. Why does the milk from cows short of lactation, sour quicker than if they have been milked for a length of time?

3. Why is it that sometimes cream will thicken before it sours, and other times it will get very sour, and yet not thicken?

Wooler, Ont. J. C. A.

1. Thin cream churned at a low temperature will frequently foam and swell so that it will nearly fill the churn. Thin cream churned below 55° will frequently foam and give trouble. A thicker cream is the remedy.

2. If the milk is clean and kept in a cool place, it will not sour any sooner than milk from fresh cows.

3. It depends on the kind of ferment you have in the cream. Some forms of bacteria will thicken cream without any acid being formed. You may also have a ferment that will make the cream so viscous that it will not churn under any conditions. In both cases there is an abnormal ferment in the cream, which should be removed by thorough cleaning and scalding of the milk utensils and the introduction of the proper lactic acid ferment in the form of a starter.

PRESERVATIVES FOR MILK.

What will keep milk sweet, and how much to the gallon? E. C. F.

New Castle, Pa.

Do not use any preservatives in milk. You are only preparing trouble for yourself in the future. See that your utensils are kept clean and scalded with boiling water; keep your milk in a clean, cool place and you will have no need for antiseptics of any kind.

COLORADO RATION.

Would like formula for ration from bran at $15, corn chop (fine) at $15.50, cotton seed meal at $22 and good silage and alfalfa hay. Is there any benefit in cutting the hay for the cows, if we feed the grain with the silage? C. C. P.

Denver.

Alfalfa hay at $7 per ton furnishes protein to better advantage than cotton seed meal at $22, or bran at $15, and we therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
12 lbs. alfalfa hay	10.99	1.32	4.75	.14
8 lbs. corn chop	7.12	.63	5.34	.34
Totals	24.71	2.28	13.59	66

For cows in full flow of milk and capable of responding to more generous feeding, the grain may be moderately increased, and possibly it would be wise to give variety by using bran for this purpose.

There will be less waste, if the greater part of the hay is chaffed and mixed with the silage, or otherwise moistened and allowed to soften somewhat. Alfalfa, if not cut when quite green, is very apt to have more or less large stems, containing a surplus of woody fiber.

MILK DEALER'S ACCOUNTS.

T. M. D. states that his business, as a milk dealer, has outgrown his present method of booking. He asks how the large dealers succeed in keeping the accounts of their numerous customers. Who of the DAIRYMAN readers can help him?

PRESERVING COMPOSITE SAMPLES.

Can samples of milk be kept for the Babcock test, for two weeks, by chemicals, so that the fats will be unimpaired? In other words, can cheese factories that test their samples by the Babcock test, twice a month, get as fair tests as those that test once a week? SUBSCRIBER.

Easton, Pa.

Bichromate of potash is the substance usually used for preserving composite samples of milk.

Use 8 grains for every pint of milk to be preserved. This can be measured best by taking a .22-inch pistol cartridge shell, cut to ½ inch long. This, when loosely filled with powdered bichromate of potash, will hold enough to preserve ½ pint. The composite sample should have a light straw color, if the proper amount of preservative is present.

If too much is used, the solution of the casein in the acid is rendered difficult—so much so as to interfere with the proper performance of the test.

If the proper care is used in taking the test from the composite sample, accurate results can be obtained when testing but once a month. In general, the oftener the test is made, the better.

DIVIDING OVERRUN.—SILO FOR FIFTY COWS.

How much is the overrun on 100 pounds of butter fat? Should the patrons be paid for butter fat or for total butter? Is it right that the patrons should have the overrun when the patrons pay all the expenses? How big a silo is required for fifty cows?

Grantsburg, Wis. P. J. P.

The average overrun is about 15% but it may vary from 12% to 20% according to conditions.

The patrons should be paid according to the amount of butter made. After all expenses of manufacture have been deducted, the net amount should be divided according to the per cent of fat furnished by each patron.

Fifty cows will require about 180 tons of silage. A round silo to hold the above amount will be 19 feet in diameter by 30 feet deep.

LICE ON ANIMALS.

I have lice on some of my cattle, what can I do to get rid of them? X. Y. Z.

Staten Island, N. Y.

The remedy which has given the most satisfactory result is kerosene emulsion, made as follows: Kerosene, two gallons; common or whale oil soap, one-quarter pound; water, one gallon. Heat the solution of soap and add it boiling hot to the kerosene; then churn the mixture for ten minutes. Dilute the emulsion with twenty gallons of water and apply with a spray pump. If no spray pump is at hand, drive the animals, if many are to be treated, into a narrow chute and apply the emulsion with a common watering can, being careful to treat all parts of the body.

THE CLOVER IS KILLED.

All over Wisconsin, Northern Illinois and in much of Michigan, Iowa and Minnesota, there is a great complaint about the clover being winter killed. In Southern Wisconsin we have yet to hear of a single piece, new or old seeding, that will pay for leaving. In many instances alfalfa is also killed.

Now, this is just the time to make arrangements to grow oats and peas for hay, to take the place of the clover.

Be sure to fit the ground well, making a nice seed bed, and use plenty of seed, not less than two bushels to the acre.

It is of the *utmost importance* that the peas be *planted deep*. The best and surest method is to sow them broadcast and plow under four to five inches deep, roll the ground, and a week later, harrow well and sow on the oats.

Oat and pea hay is the best substitute we know of for clover hay. Read what Prof. Henry says on page 220 and what J. R. H. says on page 217, both in last week's issue. There is no time to be lost in this matter.

THE MAN—THE COW—THE RESULT.

Twelve years ago C. H. Phelps, a Marshaltown, Iowa, school teacher, landed at Belmont, Northwestern Nebraska, with a team of horses, one cow, fifteen dollars cash, and a large family, and himself in poor health. He determined to become a first-class dairy farmer although there was no sort of encouragement in the wild surroundings about him, for that sort of farming. He had sufficient education to appreciate the value to any man of good knowledge, of the aid that good reading in his line would give him. This is a big thing in favor of any man whether he lives in Nebraska or Massachusetts. He has gone on doing the right thing according to the best intelligence he could get.

Twelve years have rolled away and how is it now? He owns a large farm, and lives in a large and comfortably furnished house. He has a large barn with a well arranged underground stable, a splendid silo, which he believes is one of the sheet anchors in dairying even though he lives where "cheap food" is the cry. He has a herd of nearly forty Holstein cows, a good hand separator, and is an all around up-to-date dairyman. All this has been done, starting clear down at the bottom round of the ladder, in twelve years.

We know of young men who started with the gift of a farm, a herd of cows and a cash balance in the bank, one might say at the top of the ladder, who are today sitting on the bottom round. The *Up to Date Farmer*, from which we take the above facts, well says: "Few attempts have been made to develop the dairy industry there (northwestern Nebraska), but it will only require a few men like the enterprising and ambitious Phelps to bring it to the front."

Here again do we see the everlasting truth of the statement so constantly made by HOARD'S DAIRYMAN, that it is not the state, location or community, which governs success or failure with cows, but rather the qualities of the man himself. It is not a matter of luck, or special providence, but of special manhood. "What man has done man can do." If Mr. Phelps can make such a success, in a region that is not a dairy section, what ought not other men to do with every aid and assistance about them?

Of Interest to Cheesemakers.

Mr. T. B. Millar was for several years one of the most successful of the traveling cheese instructors in Ontario and is now manager of the Thames Dairy Company. His past experience and his present employment are sufficient guaranty that what he has to say about cheesemaking is worthy the attentive consideration of every cheesemaker, no matter how long he has worked at the business.

We especially want to emphasize what he says below in regard to rejecting all milk that will not make good cheese. Of course, there is a right way and a decidedly wrong way for doing this. It can be done in such a way as to win the respect and esteem and gratitude of the patron, or it can be done so as to be extremely irritating and offensive. Choose the right way. If a certain patron's milk is suspicious call his attention to it in a quiet, personal and strictly confidential and not too positive manner. Tell him that you are having trouble and that you fear it comes from something in his milk. Ask him if he has any reason to suppose that there is anything wrong with any of his cows or his help, or his surroundings, and suggest that it would be a good plan to test the milk with the Wisconsin Curd Test, and explain how it works. Tell him that such a test will surely decide whether you are right or wrong. Nine times out of ten the patron will say go ahead, but if he demurs, simply say that you are sorry not to have his co-operation, take the sample and ask him to look at the results the next day.

Do not say anything about the matter to other patrons or outsiders. In other words, do as you would like to be done by if the situations were reversed and you were the patron and he the cheesemaker.

Meantime read what Mr. Millar has to say about cheesemaking in general. We copy from the *Farmers' Advocate:*

For cheesemaking, only milk that is clean, sweet and free from bad flavors should be used. To the cheesemaker I would say inspect closely all milk delivered at your factory, and reject anything that will not make good cheese. Having carefully selected the milk, heat gradually to 80° or 86°, stirring frequently and gently to keep the cream from rising and the milk from scalding on the sides of the vat. After the heat is up to the desired temperature, make a rennet test immediately to ascertain the degree of ripeness If the milk is working slowly, a small quantity of nice flavored starter would be an advantage. Set the milk so that it will dip in

"The Mill Cannot Grind with Water That's Past."

This is what a fagged out, tearful little woman said in telling her cares and weaknesses. Her friend encouraged by telling of a relative who had just such troubles and was cured by Hood's Sarsaparilla.

The little woman now has tears of joy, for she took Hood's, which put her blood in prime order, and she lives on the strength of the present instead of worrying about that of the past.

Neuralgia—"I had dreadful neuralgia, miserable for months. Neighbors told me to use Hood's Sarsaparilla; it cured me perfectly." MRS. FRED TURNER, Barre, Vt.

Erysipelas—"My little girl is now fat and healthy on account of Hood's Sarsaparilla curing her of erysipelas and eczema." MRS. H. O. WHEATLEY, Port Chester, N. Y.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Does the Milk Taste Cowy?

: : : : If it does it injures it for either sale milk or for Creamery or Cheese factory purposes. Get a Champion Milk Cooler-Aerator and it will remove that trouble. It aerates and cools your milk instantly, saves time and labor, and makes you money. Our free book "Milk" for the asking.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

from 2¾ to 3 hours with from ⅛ to ¼ inch acid. Use enough rennet to cause perfect coagulation in from 30 to 35 minutes (I am now speaking of summer cheese), allowing the curd to become fairly firm and to break clean over the finger before cutting.

Commence cutting with the horizontal knife, cutting slowly, then follow at once with a perpendicular knife, but with this knife, to make a good job, it is necessary to draw it quickly through the curd, and thus secure a clean cut, instead of driving the curd before the knife. Generally speaking, cutting three times is quite sufficient, but if the knives are coarse, or if agitators are to be used, I would recommend giving an extra cut. Stir gently for 10 or 15 minutes, and see that the curd is free from the side of the pan before turning on any steam. Then heat slowly for the first 15 or 20 minutes, taking from 35 to 45 minutes to raise the temperature to 98°. After turning off the steam, stir continually for 15 or 20 minutes, and occasionally after until the curd is ready for dipping. In most cases it is advisable to run off part of the whey soon after the heating is completed, and see that the curd is well cooked before sufficient acid for dipping has been developed.

Dip the curd with from ⅛ to ¼ in. acid, and by the hot-iron test, and have the curd in such condition that it will not require much stirring in the sink. Have the curd from 4 to 6 inches in the sink, and leave until matted sufficiently to turn without breaking, then cut in strips about 6 inches wide and turn often enough to keep the whey from gathering in pools on the curd. When turning the second time, it may be doubled, always turning the cold ends or sides in and thus secure uniform maturing.

Mill the curd when it becomes flaky and will show from 1¼ to 1½ inches acid by the hot-iron test. I would not be guided altogether by the amount of acid, but by the acid and the condition of the curd. I would use a mill that would leave the curd of a uniform size and not too large. After milling, air well by stirring, and if the curd were maturing slowly, I would pile deep and stir out frequently. Air and mature well before salting; salt according to the amount of moisture in the curd, and the length of time you expect to hold the cheese in the curing room, for the curing room must also be taken into consideration. Usually from 2½ to 2¾ pounds of salt to 1,000 pounds of milk is about right quantity. As soon as the salt is dissolved, put to press and see that the temperature is not over 85° or under 78°. Apply the pressure slowly at first, and leave the cheese in the hoops for 45 minutes before bandaging. Pull up the bandage neatly and trim off the shoulders that are almost sure to be on them. Put back to press, turn in the hoops in the morning, and see that they are finished in first-class shape before being taken to the curing-room.

THE UTAH DAIRYMEN.

The Utah Dairymen's Association recently closed its Annual Meeting, and a wide-awake and profitable session it was. Somehow we always read the proceedings of these newer associations with great interest. There is a freshness of spirit and a conquering faith in them that takes us back a quarter of a century, when the associations that are now old stayers were then in the forceful believing age. President Hanson in his annual address emphasized a truth that cannot be dinned into the ears of all of us any too much That was, the value of strong laws against adulteration and counterfeiting of dairy products. Where a state has such laws and there is a strong public sentiment behind them for their enforcement, the cow and her product then holds the market. On this point he said:

'Six years ago there were at the outside eight creameries or factories in the state and the amount of milk handled by the majority of these was quite limited. The greatest difficulty we had to contend with at that time was the marketing of our produce. Carload after carload of oleomargarine and filled cheese were shipped into our markets, all of it sold to the consumer as the pure article.

The result was practically to shut the Utah dairymen out of the consuming centers of the state. At the present time there are six times the number of factories there were in 1894, and I believe ten times the product is manufactured in them. Yet, though prices are lower, as they are lower all over the United States, we sell this very largely increased production just as easily, if not more so, than we did the smaller amount. The factories of the state distributed nearly a half million dollars the past year to the farmers supplying them with milk. When we consider that this income is almost a direct gain without any decrease, rather an increase in other farm products, the advantages of this dairy development become still more prominent."

When it is considered how hard it is to get the dairy farmers of the country to see the necessity of a strong fight all the time to prevent being driven out the markets by fraud; how hard it is to induce more than a few to contribute even a trifle to defend their own livelihood, and still more, how many can be found throwing cold water on every effort of manly defense. The words of President Hanson show that it is worth while to stand up like men in defense of the cow and her honest product.

Cream Testing Station.

An Important Step Taken by the Maine Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The lately organized Maine Dairymen's Association has just taken an important step in the interest of the dairy industry in the state and sets an example for other dairy states, which might be followed, perhaps, with profit to farmers.

This is in establishing a state testing station, where the several individual samples from creameries, representing the cream of the different patrons, can be tested by an expert.

A meeting was held early in April, plans were formulated and action taken to carry out the work outlined. This was to properly fit and equip with necessary appliances a room, and put in charge a competent and reliable man, with such assistants as he may need, to do the testing, keep the records, and be responsible for the details in the management of the station, under the direction of the executive Board of the Dairymen's Association.

Of course, it is expected that many, if not all, of the creameries of the state will eventually come into the plan and have the testing which forms the basis of the distribution of each patron's proportion of money for cream furnished the factory, done at the testing station. A large part of the creamery managers have already expressed a desire to do so.

The managers of the creameries will, at the end of each month or period, send their composite samples by express or otherwise, to the testing station and in due time receive back their empty bottles and certified results of tests.

The business as previously carried on in Maine, and generally so in other dairy districts of the country, has carried with it an element of uncertainty, not to say of distrust, among the patrons of the creameries.

From the very first use of the method of apportioning the proceeds of the creamery by the Babcock test, the whole matter of sampling, testing, reading, recording and reporting the quality of the patron's cream, has been left entirely in the hands of the men who bought it of them.

This one sided way of doing business has long been recognized and deplored by prominent dairy workers. The feasibility of adopting something like the present plan was first presented at the State Dairy Conference at Portland, last winter, by Prof. G. M. Gowell, Professor of Agriculture, at the University of Maine, Orono, when he urged that a testing station be established to stand between the cream producers and the creamery managers.

While there has ever been questioning and more or less dissatisfaction with the test, as it has been conducted, the real purpose of the station is to place the whole matter above any chance for suspicion.

The Association was fortunate in securing the hearty co-operation of Mr. E. L. Bradford, manager of the Turner Center Dairying Association, and who had already fitted up a testing room in their large new creamery building at Auburn, who readily assented to rent this room for the purposes of the testing station, and have all the testing of this creamery—sufficient in itself to employ the testing station half the time—done by the station.

This, so far as I know, is the first testing station ever established in this country in the interest of the creameries and their patrons.

Maine. L. F. ABBOTT.

Partly Skimmed Milk for Cheese Making.

ED. HOARD'S DAIRYMAN:—At our annual cheese factory meeting the question arose: Shall we skim the cans? The cream raised by gravitation from milk held over night at home in the late fall as the weather grows cooler. The argument in favor of skimming was that the milk was richer in butter fat in the fall, and it was impossible to work it all into the cheese. Consequently, the whey vat received the excess of fat that might be skimmed off at home and converted into a saleable article. The inference was that the cheese was just as good, and the butter from the night skims was clear gain. The difference noted on the increase of butter on the whey vat proved it.

Those opposed to skimming said: The difference in the selling price of the cheese more than overbalanced the gain derived from the night skims, and the whey vat was no indication of the loss claimed, but the increase in the amount of whey butter in the fall was due to the change of weather; that those little devils that make things sour were not quite so active as the cool weather approached, hence, the wrong impression that there is an avoidable waste.

FRED LITTELL. N. Y.

If the only argument in favor of part skimming is the old one, that fat may be, or is wasted by running away with the whey, it is an exceedingly poor excuse.

A good cheese maker will lose but little fat in working up either rich or poor milk. The whey should not contain over .35% fat even from 5% milk, and if a cheese maker loses more than that, it is time for the patrons to ask, why?

To allow the patrons to part skim at home, is to introduce a very disturbing element into cheese factory practice, especially if the milk is pooled without testing. If skimming is to be done at all, it should be performed at the factory, so that there will be some uniformity as to the quality of cheese made.

We do not think it advisable to skim at all, but think that the factory should be so equipped as to make either butter or full cream cheese, according as to which product will bring the best returns.

AT a meeting recently held by the executive committee of the Kansas State Dairy Association, it was decided to hold the next meeting with the usual program and exhibition of butter and cheese, at Manhattan, Kansas, November 22nd, 23rd, and 24th, 1899.

At the same time the Association will have the honor of dedicating the new agricultural building, for which the late legislature appropriated $25,000, and which will, practically, all be used for various purposes connected with the dairy industry.

In Pain?

In the Back?
Then probably the kidneys.
In the Chest?
Then probably the lungs.
In the Joints?
Then probably rheumatism.

No matter where it is, nor what kind; you need have it no longer. It may be an hour, a day, or a year old; it must yield to

Dr. Ayer's Cherry Pectoral Plaster

Immediately after applying it you feel its soothing, warming, strengthening power.

It quiets congestion; draws out inflammation.

It is a new plaster.

A new combination of new remedies. Made after new methods. Entirely unlike any other plaster.

The Triumph of Modern Medical Science.

The Perfected Product of years of Patient Toil.

Placed over the chest it is a powerful aid to Ayer's Cherry Pectoral in the treatment of all throat and lung affections.

Placed over the stomach, it stops nausea and vomiting; over the bowels, it controls cramps and colic.

Placed over the small of the back, it removes all congestion from the kidneys and greatly strengthens weakness.

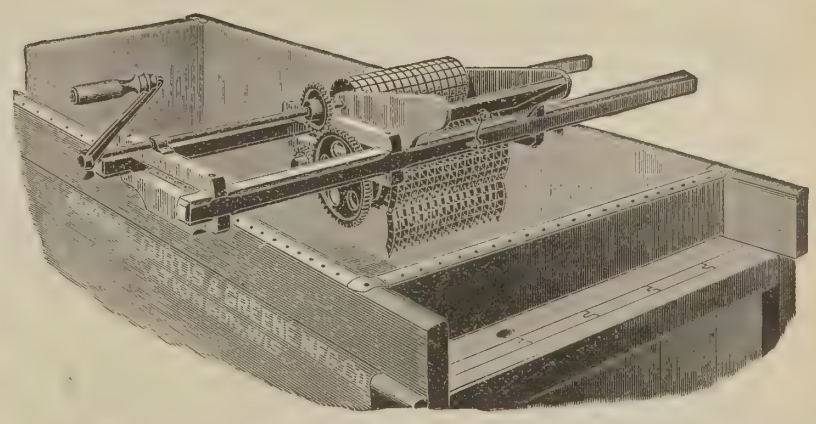
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J. C. Ayer Co., Lowell, Mass.

Do You Want a Good Job?

We can use a live agent in every county. Must have light rig. Money in it. Steady work Write for particulars. REAL WORTH MEDICINE CO., New Richmond, Wis.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00.**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

Comments and Queries from Robinswood Farm.

Calf Scours and Tuberculosis.

PAPER NO IV.

ED. HOARD'S DAIRYMAN:—Tnere are evidently many people in the world who do not appreciate the value of undertaking the causation of disease, and in using such knowledge in treatment. The aggregate loss to dairymen from diarrhœa (scours) in calves must be immense, yet very few seem to be aware that preventive treatment is all important.

Here and there a writer in the DAIRYMAN is impressed with the effect of improper feeding, as a cause, but I have not noticed that anyone seems to have had a very thorough grasp of the subject—a grasp relatively as great as any ordinary physician has in his knowledge of diarrhœal maladies in the human infant.

Of course, much is yet to be learned in both cases—especially in connection with the relation of bacteria to such diseases. The very first thing a doctor of medicine does, in treating a case of diarrhœa is to find out the cause and to remove it. Alleviation and counteractive treatment follows.

The farmer, so far as possible, should understand the hygienic conditions impossible to health. Scours in calves may be due to general constitutional weakness resulting from defective hereditary tendency, or to an environment of foul, depressing air, or it may be due to the action of some specific disease germ; but both these causes are infrequent. In the great majority of cases, it is due, as it is in the human infant, to defective feeding, and much to over feeding.

Especially is this so in regard to too much feed being given at one time. The stomach of the calf is small and its function at first, weak. If too much feed is introduced at one time, the stomach is overdistended, which further weakens its digestive functions, and before the food can all be digested and absorbed, bacterial fermentative changes occur, producing irritating and paralyzing products, and then bring on the catarrhal action known as scours.

In a lesser degree the quality of the feed given induces this malady. In a certain few cases, too large a proportion of fat in the milk may be the cause, but in a much larger proportion a deficient quantity is the trouble. Skim milk is not a healthful food for calves. The fat is needed to supply easily produced energy in the animal and to prevent the cheesy coagula in the stomach becoming too dense and tough, and too large in size, and difficult to digest.

It may be all right to avoid over fattening in a calf intended for dairy purposes, but it was very poor economy to start out such an animal in its career with a weakened or drained alimentary system, especially when butter fat sells at so low a figure.

A prominent cause of scours in calves must be bacterial infection of the feed, from uncleanly milkers' hands, dirty feeding utensils, and even the ordinary atmospheric infection in transferring the milk from the udder to the calf's gullet. When the calf sucks, with the exception of the first draught, it gets little of this infected food; but when milk is carried to the creamery, it comes home infected to such a degree that if not sour when fed, it will soon become so in the warm cavity of the calf's stomach.

The books say that the first milk of the fresh cow is necessary for the welfare of the calf. I believe that this assertion is incorrect. That it is likely to be a mass of germs, and that it will irritate the alimentary tract of the calf is a fact. But that such action is necessary in the new born calf if not so apparent.

Nature does not always provide conditions that are ideally normal. Neither tonsils, vermiform appendix nor corns are beneficial or necessary to man; and I doubt if the colostrum of a cow is a benefit to a hand-fed calf. A vigorous calf running with the mother can withstand this evil as well as others, that the hand-fed, stable-housed calf would be well rid of.

If the calf has scours, let it take only a little fresh milk direct from the mother, and in only a few feeds in the twenty-four hours. Remove the cause and relieve the stomach and bowels as much as possible from labor in carrying out their functions. Give fresh, clean air to breath; but protect from dampness and cold draughts. In these cases prevention is much more valuable than cure.

The interesting question has been broached as to the susceptibility of the specialized dairy cow to tuberculosis. As my medical specialty has been diseases of the lungs and throat, I feel like giving an authoritative opinion in this matter. A cow whose surplus of nourishment goes to milk is no more subject to tuberculous infection than one whose surplus goes to beef and fat, always provided that general muscular exercise is equally taken in both instances.

A small well used pair of lungs, or any other tissue in the animal, is not so subject to tubercular diseased action, as is a large but under used part. The ability of any tissue to resist such invasion, depends upon its healthful state, the force of the blood current coursing through it, the completeness of its nourishment by a well balanced blood supply, the nervous energy directed to the parts, the thoroughness of the oxygenating process in the tissue, and the impure or imperfect air.

The cow with small lungs is not nearly so likely to become infected with tuberculosis while standing in the stable for the long winter season, as would be the cow with lungs larger than is necessary to oxydize its blood, or that could not be kept in a fine condition by heart action, quieted by resting. Athletes are almost sure to die of consumption if, after extraordinary development of their lungs by hard exercsie, they take to a sedentary life. Defects in breeding, lack of exercise and impure air have more to do with tendency to tuberculosis than anything else. Soft, delicate tissues are the breeding ground of the tubercular bacillus.

There seems to be considerable misunderstanding in the dual-purpose cow question, because of varieties in ideas as to the make up of that creature. It seems that Prof. Shaw does not advocate the dual-purpose cow for the dairy specialist. I certainly do not. Nor does anyone that I have heard express an opinion. But Prof. Shaw's papers confirm me in my opinion, that skillful breeding will produce a cow that will do fairly well for the family dairy, and yet will be saleable for beef when her best milking days are past.

It is probable that such cows would be uncertain when bred, in reproducing their all-round qualities, but there are such cows that would be probably more profitable for a certain class of general farmers to keep, than the straight dairy cow whose whole returns are in her milk.

The editor must not think that because, in my last article, I expressed my doubts as to its paying to buy concentrated foods for my cows, that my cows are not good ones. They are the best that I could buy in our region, and bring in about $50 a year on defective feed, most of which is the natural grass hay of the region, supplemented with a small addition of prepared proteids.

Further along, when we grow more clover and oats and ensilage, we will make a better showing. But it is a comforting thing to know that some of my cows will sell for $75 for beef at any time; while it is hard to have a cow that has been testing nearly 7% fat, fall to 3%, and then not be able to get a pound of flesh on her. I have such a cow, and cannot make up my mind to knock her in the head for manure.

If the oleomargarine men can be sat upon we may all give in complete adhesion to the special dairy cow; but if not, then the oleomargarine cow may be the cow of the future To whom do we send our dollars in the oleomargarine matter?

J. M. M. KITCHEN, M. D.
New Hampshire.

Send contributions to National Dairy Union, care HOARD'S DAIRYMAN.

Official Tests of Holstein-Friesian Cows.

From June 1, to October 1, 1898.

ED. HOARD'S DAIRYMAN:—These butter tests are for seven consecutive days and are supervised by officers of agricultural colleges and state experiment stations or by persons vouched for by such officers. The amounts of butter-fat are determined by the Babcock test, and the amounts of butter are calculated on the basis of 80% fat to a pound of butter, the rule established at the World's Columbian Exposition:

Segis Clothilde Pietertje 44584; age 1 year, 8 months, 25 days; amount of butter fat, 7.629 lbs., amount of butter 9 lbs , 8 6 oz.

Clothilde Grace 41385; age 2 years, 3 months, 6 days; amount of butter fat, 9.339 lbs.; amount of butter, 11 lbs. 10.8 oz.

Aaggie Pietertje Clothilde 41384; age 2 years, 1 month, 17 days; amount of butter fat, 8.363 lbs.; amount of butter, 10 lbs. 7.3 oz.

Tehee Clothilde 41383; age 2 years, 1 month, 20 days; amount of butter fat 8.107 lbs; amount of butter, 10 lbs 2.2 oz.

Segis Aaggie Grace 39454; age 3 years, 6 days; amount of butter fat 11.811 lbs.; amount of butter, 14 lbs. 12.2 oz.

Segis Inka 36617; age 4 years, 6 months, 12 days; amount of butter fat, 14.803 lbs.; amount of butter 18 lbs. 8.1 oz.

Aaggie Grace Clothide 39452; age 3 years, 3 months, 17 days; amount of butter fat, 14.796 lbs.; amount of butter, 18 lbs. 7.9 oz.

Clothilde Artis Belle 2d 39861; age 3 years, 1 month; amount of butter-fat, 10.948 lbs.; amount of butter 13 lbs 11 oz.

Jannek Beauty's Inka Pietertje 28681; age 7 years, 1 day; butter fat 12.563 lbs.; amount of butter, 15 lbs. 11.3 oz.

Jannek Bright 2d, 22943; age 8 years, 10 days; amount of butter fat 14.430 lbs.; amount of butter, 18 lbs. 6.9 oz.

Aaggie Grace Boy's Topsey 22946; age 8 years, 13 days; amount of butter fat 13.800 lbs.; amount of butter 17 lbs. 4 oz.

Clothilde Artis Constance 39866; age 3 years, 20 days; amount of butter fat 11.423 lbs.; amount of butter 14 lbs. 4.5 oz.

Clothide Artis Aaggie Lass 39865; age 3 years, month, 1 day; amount of butter fat 10 824 lbs.; amount of butter 13 lbs. 8.5 oz.

Clothilde Artis Aaggie Bright 39864; age 3 years, 1 month, 22 days; amount of butter fat, 12.875 lbs; amount of butter, 16 lbs. 1.5 oz

Clothilde Lunde Artis 39867; age 2 years, 10 months, 28 days; amount of butter fat, 12 821 lbs.; amount of butter, 16 lbs. 0.4 oz

Homestead Girl's Shadeland Boon 40720; age 2 years, 1 day; amount of butter fat, 7.934 lbs ; amount of butter, 9 lbs. 14 7 oz.

Jetske Roe's Aaggie Artis 40718; age 1 year, 11 months, 27 days; amount of butter fat, 9.956 lbs : amount of butter. 12 lbs. 7.1 oz.

Dorothy Ondine Wayne 3d 38931; age 3 years, 4 months, 19 days; amount of butter fat, 11 820 lbs.; amount of butter, 14 lbs. 12.4 oz.

Aaggie Ideal's Black Beauty 36517; age 4 years, 4 months, 8 days; amount of butter fat, 13 338 lbs.; amount of butter, 16 lbs. 10.8 oz.

Beryl Wayne 32496; age 5 years, 8 months, 17 days; amount of butter fat, 12 930 lbs.; amount of butter, 16 lbs. 2 6 oz.

Aaggie Cornucopia 2d 30597; age 6 years, 2 months. 18 days; amount of butter fat, 15 830 lbs.; amount of butter, 19 lbs 12.6 oz.

Vevie Night 2d 16002; age 9 years, 20 days; amount of butter fat, 14.666 lbs.; amount of butter 18 lbs. 5.3 oz.

Mage Clothilde 40929; age 1 year, 11 months, 24 days; amount of butter fat, 8.823 lbs.; amount of butter, 11 lbs. 0 5 oz.

Leah Veeman 4th 40264; age 3 years, 1 month, 24 days; amount of butter fat, 11.908 lbs.; amount of butter, 14 lbs. 14 2 oz.

Shadeland Amber 29330; age 7 years, 1 month, 18 days; amount of butter fat, 13.073 lbs.; amount of butter, 16 lbs. 5 5 oz.

Helena DeKol's DeKol 41976; age 2 years, 1 month, 6 days; amount of butter fat, 10.238 lbs.; amount of butter, 12 lbs. 12.8 oz.

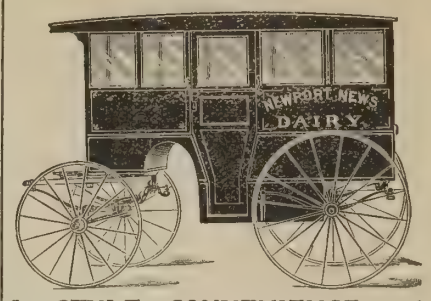
Lena Bohn 2d 44349; age 2 years, 3 months, 9 days; amount of butter fat, 8.819 lbs.; amount of butter, 11 lbs. 0 4 oz.

Nickle Plate 42659; age 4 years, 6 months, 16 days; amount of butter fat, 13.418 lbs.; amount of butter, 16 lbs. 12 4 oz.

Elgin Belle 6th 46886; age 1 year, 9 months, 13 days; amount of butter fat, 10.417 lbs.; amount of butter, 13 lbs. 0 3 oz.

Yorkville, N. Y. S. HOXIE.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



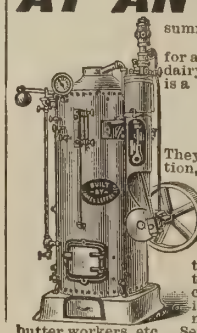
FENNER'S
Revolving Six-sided CHURN.

Churns, washes, works without removing. Nine dairy sizes always in stock. Special attenton given to factory sizes.
Send for catalogues.
R. W. FENNER,
South Stockton, N. Y.

FOR SALE
Splendid Manufacturing Property

Located on the Main street of a thriving and growing town in North Central Iowa. Property 133 x 133 feet—Main building 40 x 133 ft. with two additions. The town is the county seat—has paved streets, three railroads, good water power and is in short a model factory town. Price low and terms easy. For further particulars address,
J. B. DICK, 211 Superior St,, Toledo, Ohio.

AT ANY TIME—



summer time or winter time, the **BEST POWER** for all purposes on the farm, in the dairy, creamery or cheese factory, is a

LEFFEL ENGINE.

They are very simple in construction, and easy to run and keep in order. Are very economic of fuel, are easy steamers and great power developers. They are made both horizontal and upright with engine mounted on boiler. Everything is made of best material throughout. They are ideal for cutting and grinding feed, sawing wood, pumping water, running cream separators, churns, butter workers, etc. Send stamp for **Book on Power.**
JAMES LEFFEL & CO., Box 50, Springfield, O.

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COLUMBUS, O., JUNE 8, '99.
Send for Catalogue.
J. P. BRADBURY, . Pomeroy, Ohio.

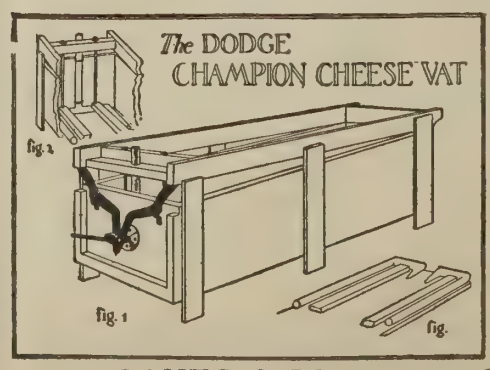
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Remains the same "Yesterday, To-Day, and Forever."

The imitations of these celebrated Cans attest the value of the genuine, which are invariably stamped with the maker's trademark. To secure prompt deliveries of genuine "IRON CLAD" Factory and R. R. Milk Cans, all inquiries and orders should be addressed direct to the makers, THE IRON CLAD MANUFACTURING CO.,
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THE DODGE TILTER
....FOR CHEESE VATS....



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

WRITE FOR PRICES.

OAKES & BURGER, CATTARAUGUS, N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The aggregate offering of butter on Monday's Elgin Board of Trade was 12,060 pounds. Bidding opened at 16 cents and all sales were at that figure.

The market was declared steady at 16 cents.

The sales reported were:

Factory.	*Pounds.*	*Price.*
Evansville	1,500	16cts.
South Wayne	2,400	16cts.
Shattcck's Grove	2,460	16cts.
Malta	1,500	16cts.
Total	7,860	

The markets for the corresponding week of the three preceding years were as follows:

May 2, '98, 3,300 lbs. of butter sold at 16½ cts.
May 3, '97, 23,460 lbs of butter sold at 14@5 cts.
May 4. '96, 27,660 lbs. of butter sold at 15½ cts.

The New York market Monday was reported steady at 17 cents. H. C. B.

Elgin, Ill. May 1, '99

DAIRY MARKETS.

ELGIN, May 1—Butter—Market steady. Eight thousand pounds sold at 16c.

MILWAUKEE, Wis., May 1.—Butter—Creamery, fancy prints, per lb. 16c; extras per lb. 15½@16c; firsts per lb. 14@15c; seconds per lb. 12@13c; imitations per lb. 12@13c; dairy selections per lb. 12@13c; lines per lb. 10½@11c; roll, fair to choice, fresh 10@10½c. Market was dull and lower, with little trade. Receipts show signs of grass and the present make is not fit for storage purposes, wants being confined to consumptive requirements. Accumulations are liberal and receipts are 13 450 lbs.

Cheese—American full cream October Twins 11½@12c; New per lb. 10@10½; Brick, new per lb. 9½@10c; Limburger, fall, choice, per lb. 9@10c; winter made per lb. 8@9c; Swiss, Drum, choice 12½@13c; Block, choice, 10½@11c. Market declining for new; old steady; trade quiet.

Eggs—Fresh per doz 11c; cases returned. Market unchanged with receipts of 878 cases. Local wants are small and arrivals now have to be candled for storage purposes, and show more or less loss-off on account of the warm weather.

CHICAGO, Ill, May 1.—Butter—Creamery, extra, 16c; firsts creameries 14@15c; seconds 13@13¼c; dairies, selections 14c; extra ladles 12½c.

Eggs—Fresh, at mark, cases included, sold at 11½c.

Cheese—Full cream, Twins, new, good to choice 10½@11c; Young America 10¾@11c; Swiss 10½@13c; Limburger 8½@10c; Brick, new, 9c.

Cattle—Most grades of native beef cattle sold 10@15c lower, heavy grades showing the most decline. Some of the choicest light steers showed little if any decline. But cows and heifers were steady with undesirable stock and Texas cattle weak to 10c lower. Trade was active and comparatively few remained unsold. Of the 30,300 received at the four leading Western markets Chicago was credited with 22 000, about all of them being natives. Only seven loads of Texas were received. The best cattle on sale sold at $5 35 with the bulk of 1,150@1,450-lb. steers at $4.50@5. A week ago $5.60 was the top of the market Fed Western steers sold at $4 25@5.15; straight Texas steers 1,089 lbs $4.65; Mississippi steers 659 lbs. $3.85 and 1,056-lb oxen $3.55. Native cows sold principally at $3@3.75 and heifers $4@4.50.

Bran—Quiet and easier; sold at $11.50 per ton in bulk and $12.75 in sack.

Middlings—Quiet and sold at $12 per ton.

AVOCA, Wis., May 1.—Lone Rock and Muscoda Dairy Board to-day, offering 234 boxes; a few sold at 10 cents.

FOND DU LAC, Wis., May 1.—Offerings today 255 Twins and 210 Daisies. Twins sold for 10 cents.

PLYMOUTH, Wis., April 25—On to-day's board 20 boxes of Twins sold at 11¼c; 250 at 11⅜c; 55 at 11½c; 50 Young Americas at 11c.

BRILLION, Wis., April 21—The sales on the Brillion dairy board to-day were; 148 Daisies, 48 Twins, and 24 cases Young Americas at 10½c. Next meeting Friday, May 5.

SHEBOYGAN, Wis., April 26—Cheese—The sales reported today were: 200 Twins and Daisies at 11c, and 250 cases Young Americas at 11c.

SHEBOYGAN FALLS, Wis., April 26—Cheese—There were 374 boxes of cheese offered on the call board today, and all sold as follows: 150 boxes of Twins at 11¼c; 159 cases Young Americas at 11c; 55 at 11⅛c, and 55 at 11¼c.

HORTONVILLE, Wis., April 26—Cheese—Sales 85 Twins at 11c. The first meeting for the sale of cheese will be held May 4 at 10 o'clock a. m., and every two weeks thereafter during the season.

PHILADELPHIA, Pa., May 1—Butter—Solid-packed separator creamery, extra, 17½c; creamery firsts, 17c; creamery seconds, 16c; imitation creamery, extra, 16c; imitation creamery, firsts, 15c; imitation creamery seconds, 14c; ladle packed extra, 15c; ladle packed firsts, 14c; ladle-packed seconds, 13c. Print butter: Creamery extra, 20c; creamery firsts, 19c; creamery seconds, 18c.

Eggs—Pennsylvania and nearby, 13c; Western, 13½c; Southwestern, 13¼c; Southern, 12½c.

WASHINGTON, D. C., May 1—Market steady, extras, 17c; firsts, 16c.

ST. LOUIS, Mo., May 1—Butter—Weak; creamery, 13@18c: dairy, 12@16c.

Eggs—Steady, 10c.

KANSAS CITY, Mo., May 1—Butter—Steady; creamery, 13@17c; dairy, 14c.

Eggs—Receipts increasing; dealers beginning to buy on storage account; fresh Missouri and Kansas stock in new cases, cases included, 10½c; cases retured, 10c.

CINCINNATI, O., May 1—Butter—Quiet, 18c.

Cheese—Firm; good to prime Ohio Flat, 12c.

Eggs—Easier, lower, 11c.

NEWARK, N. J., May 1—Market steady, 17c for fancy creamery. Receipts liberal.

NEW ORLEANS, La., May 1—Butter—Easy, 17c.

NEW YORK, May 1—Butter—State full cream, large, colored or white fancy, 12c; choice, 11¼@11¾c; small fancy, 12½@12¾c.

Eggs—State, Pennsylvania and Western, 13@13¾c.

NEW YORK MARKET.

NEW YORK, April 29.—Butter—Receipts for the week, 34,403 packages. Exports for the week, 1,631 packages. The highest bid at Elgin was 15c; highest bid at Jamestown was 14½c, and the board at Elgin declared the market for a conventional business settlement basis to be 17c, the apparent idea there seeming to be to carry the Elgin market at about a par with New York prices and make Elgin a central distributing point. Receipts at New York are comparatively less than normal for this time of year, but the demand seems lighter and there is a general cutting of prices among retailers; today (Saturday) placards in many retail grocers' windows read "Extra Creamery butter 16c per pound."

Extra creamery has been quoted at 17c all through the week; at the close, however, there is more butter than buyers and lines of fine stock are offered at 16c. New York State dairy in very light supply and wanted if quality is fancy; Fresh imitation and ladle goods are arriving very sparingly and are of poor quality and sell for bakers' use at 13@13½c. Exporters would pay say 14c for fine ladle goods, but there are none here. We quote: Creamery, extra 17c; medium, 15½@16c; poor, 14@15c. Dairy, extra, 16@16½c; medium, 14@15c; poor, 12@13c.

Cheese—Receipts for the week, 11,520 boxes. Exports for the week, 3,885 boxes. The export trade is moving into Canada. The three leading exporters of cheese to the United Kingdom leave this market this spring and station themselves in Montreal.

Genial were these gentlemen and courteous—kindly and useful were they, and their going makes the frigidity of a vacuum in commercial circles and marks the loss of a business which at its flood brought to American dairymen an increment of $14,000,000 per annum

The market has ruled soft and easy all the week. Holders of the remnant of old stock like to close it out and the bulk of new makes arriving were sold Monday at 10c, Tuesday and Wednesday 9¾c and closes drooping at 9½c. We quote: Old cheese, extra, 10½@11c; medium, 8@9c; poor, 5@7c. New cheese, extra, 9½@9¾c; medium, 8@8½c; poor, 5@7c.

Eggs—Receipts for the week, 71,837 cases. We quote: New York & Pennsylvania, per doz., 14@14½c; Western & Northern, 13½@13¾c.

DAVID W. LEWIS & Co.

117 Chambers St.

BOSTON, Mass., May 1—Butter—Market steady, 17c.

Cheese—New cheese quiet at 11c.

Eggs—unsettled, 13@14c.

BALTIMORE, Md., May 1—Butter—Market quiet; creamery, separator extra, 20@21c; extra, first, 20c; creamery, first, 19c; ladle extra, 14@15c; Western store-packed, 11@13c

Eggs—Market steady; strictly fresh stock, 12@12½c.

BALTIMORE MARKET.

BALTIMORE, Md., April 27—Butter—The receipts of separator creamery this week have been of about the usual quantity at this season, but as they have had to bear the burden of the bulk of the demand for all table grades, they gave out, in first hands before all the orders for the week were filled; it is quite likely that the greatly reduced prices has had something to do with increasing the run on this variety. Gathered cream makes have been very scarce, the receipts not half satisfying the regular trade, so jobbers have had to supplement their supply with purchases from northern cities. Imitation creameries are in very light receipt and good demand; choice makes are bringing about the same prices as corresponding grades of gathered cream products, and some buyers prefer them. Ladle packed butter is unusually scarce, and the falling off in the receipts makes a material reduction in the volume of business done by the receivers, when the present sales are compared with the work of previous years. There is very little roll arriving, and that little is eagerly sought after by the market house cutters at full prices. Blocks and prints are in fair receipt, but the demand still is in excess of the supply.

Creamery Separator, extras 19c; firsts 18c; seconds 17c. Gathered Cream, extras 18c; firsts 17c; seconds 16@17c. Ohio, extras 18c; firsts 17c; seconds 16@17c. Iowa & N. W. Ladle, extras 16c; firsts 13@14c; seconds 12c. Ohio & Indiana Ladle extras 14@15c; firsts 14c; seconds 13c. Roll, extras 14@15c; firsts 13@14c; seconds 12@13c. W. Va. Roll, extras 13@14c; firsts 12c; seconds 11@12c. Creamery Blocks (2 lbs.), extras 22c; firsts 21c; seconds 19c. Creamery Prints (¼ lb) extras 23c; firsts 20c; seconds 18c. Md., Va. & Penn. Prints, extras 20c; firsts 18c; seconds 15@16c.

Eggs—So far this week the receipts have been fairly liberal; there has been a good steady demand, and receivers have been enabled to keep all receipts well cleaned up from day to day; our market, though somewhat lower than it was last week, is still in good shape at 12¼ cents, and we advise liberal shipments of choice eggs.

NOTE—If possible to get crates; we would advise you to do so, as the stock arrives in much better condition and will sell to better advantage than eggs packed in barrels or boxes; try crates and see the good results.

Western Md. & Penn., per doz., 12½c; Eastern Shore (Md. & Va.) 12½c; Virginia, 12½c; Western & W. Va, 12½c; Southern, 12c; Duck eggs, 12c; Goose eggs, 16@18c.

Cheese—Receipts light; demand good; market steady.

N. Y. State, Cheddars, fine 12@12½c; choice 11@11¼c; fair 9@10c. Flats, fine 12@12½c; choice 11¼@11¾c; fair 9@9½c. Small, fine 12¼@12¾c; choice 12@12½c; fair, 9½@10c. Ohio Flats, fine 11@11¼c; choice 10½@11c, fair 8½@9c Picnic, fine 11½@12c; choice 10@11c: fair 9½@10c. Swiss cheese, fine 11@12c; choice 10c; fair 8½@9c.

301 Exchange Place. G. M. LAMB & BRO.

Latest quotations for fancy creamery—Buffalo, 16@16½c; St. Paul, 16c; Minneapolis, 16@16½c.

LIVERPOOL, May 1—Butter—Finest United States, 84s; good, 65s.

Cheese—American finest white and colored, 51s 6d.

FOREIGN MARKET.

BOSTON, April 29, 1899—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane, give butter markets as dull and declining, owing to increased receipts of Danish and other Continental butters. The Irish and home make is also increasing, and on top grades there has been a decline of 1@1½c during the week. Australian is about cleared up. Some stray lots of American creamery are selling from 16@18c. Ladles have sold moderately well when they are offered from 15 cents downwards.

Cheese markets are all the turn easier. The conservative action of buyers prevents holders controlling the market and prices have given way ¼c during the week on finest Septembers, which are to be had at 11@11¼c. Under price cheese is in light supply with a very little to be had below 10½c.

MANCHESTER, England—Dowdall Bros. special report of April 22nd says: The weather is very cold at nights, sometimes even frosty, but in day-time it is clear and spring-like. Vegetation is making almost no progress. Such are our reports from most of the butter producing countries Landed prices have been below shipping rates for Danish and Swedish. Copenhagen has in consequence reduced the official quotation 4 kroner, in order to get more in line with the price of consignments. Demand is steady, and as retailers are selling with little or no margin at present, consumption will be large, and will help to clear off supplies rapidly. Prices are now about in line with the corresponding period of last year, and as favorable for this period of the season as we can reasonably expect. Supplies are still extremely small from Ireland. Advance parcels of some of the best creameries show excellent quality. Cork market has officially opened for the new season. Firsts are realizing good prices, quite comparable with Danish quotations. Shipments at sea of Danish and Swedish butters for next week's North of England markets are 21,677, and Finnish, 3,893 casks. In margarines and mixtures a fair steady trade is doing. Arrivals are via Hull, 11,694 packages, and via Grimsby, 6,133 packages.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—"Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill. 12-tf

Situation Wanted as general farm manager, by man of practical knowledge of business and all its branches of farming and stock raising. First-class testimonials from last employer. Address "MANAGER," care Hoard's Dairyman. 12-2

Wanted—A first-class man to rent a fine dairy and stock farm within three miles of the city of Janesville, Wis. H. F. KELLER, 251 South Jackson St. Janesville, Wis. 12-4

A good man is wanted, right off, by the MT. PLEASANT CREAMERY CO. at Mt. Pleasant, Pa. One who can make first-class ice-cream in all styles and fine butter. Address immediately. 12-2

For Sale—Holstein-Friesian bulls one year old and over of choice breeding, sired by a Mercedes bull. Also eggs from high scoring B. P. Rocks. I. L. CURTIS, Poynette, Wis. 12 2

I Have medium Soja beans for sale, $2.00 per bushel. W. E. CAMPBELL, Rosemond, Ill. 12 2

Wanted—Position by an all around dairyman, (Hollander). Can make cheese and butter. JOE HEILKEMA, Holgate, O.

For Sale—A fine Poland-China boar and sow, 3 years old, both sired by the great Black U. S.; sow due to farrow in May next. B. F. THOMPSON, Detroit, Mich.

Wanted—Position by a practical farmer and dairyman. Good reference furnished. Address W. I. L., care of this paper. 11-2

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

A Good Bargain—For Sale, the young Jersey bull Tom Golafinch 52166. Sire, Cambronne 40614. Dam, Lady Goldfinch 72214. Dropped Oct. 8, 1897. Grandson of Grand Khedive 30474. Is a fine animal with splendid blood lines. Will be sold cheap. Address F. A. TILDEN, Fort Atkinson, Wis. 11-2

Wanted—A single man to work on dairy and stock farm. Must be a good milker. Board and washing furnished. State wages and give reference. Address J. L. ROBERTS, Foreman, Saxony, Ind. 11-2

For Sale—Five Holstein Friesian Bulls ten and twelve months old. Also B. Plymouth Rock eggs for hatching. Address C. W. SCHERMERHORN, Charles City, Iowa. 11-4

$75.00 will buy registered bull Gerben Mechthilde Sir Josephine 2d, H. F. H. B., born August 28, 1897. Reason for selling, compelled to give up dairying. C. KAHLER, Prairie du Chien, Wis. 11-4

For Sale—Fifteen h. p. boiler and 15 h. p. upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 10-3

Exceptionally Low Rates to Minneapolis, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, May 16, 17, 18, limited to include June 3, account of meeting Presbyterian General Assembly. Apply to agents Chicago & North-Western R'y. sp

Exceptionally Low Rates to Denver, via the North Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, May 15 and 16, limited to June 16, account of Annual Meeting, Cumberland Presbyterian Church. Apply to agents Chicago & North-Western R'y. sp

Half Rates to Milwaukee, via the North-Western Line. Excursion tickets will be sold at one fare for the round trip from stations in Wisconsin, May 15 and 16, limited to include May 19, account of G. A. R. Encampment. Apply to Agents Chicago and North-Western R'y. sp

For Sale—Holstein-Friesian bull calves of choice breeding. Will sell cheap if taken soon. For particulars address, JOHN SHUGART & SON, National Military Home, Ind. 7-6

Exceptionally Low Rates to Roanoke, Va., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, May 18 and 19, limited to include June 23, account meeting German Baptists. Apply to agents Chicago & North-Western R'y. 12-2

Half Rates to San Francisco, via the North-Western Line. Quickest time, grandest scenery, variable routes, perfect service. Excursion tickets will be sold at one first-class fare for round trip, May 14-17, limited to return until July 15, 1899, inclusive, account of National Baptist Anniversaries. Apply to agents Chicago & North-Western R'y. 12-2

—THE—

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Do you want a second or third class separator, of less than claimed capacity, requiring high speed and heavy power, of second or third class mechanical construction, and doing second or third class work?

Or do you want a first class separator, of actually greater than claimed capacity, requiring low speed and light power, of the very best and most careful mechanical construction, and capable of thoroughly first class work under the widest range of operative conditions?

You can find the former in some half-dozen makes of separators, more or less advertised, and showing fairly well "on paper."

You can find the latter only in an "Alpha-De Laval" Disc System machine, which in every feature of centrifugal separation efficiency stands in a class by itself.

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CHICAGO.	NEW YORK.	PHILADELPHIA.

Meeting of Farmers' Institute Workers and Directors, at Rochester, N. Y.

ED. HOARD'S DAIRYMAN:—The third annual meeting of this association was held in the assembly rooms of the New Osborn House, Rochester, March 29-30. The Hon. Franklin Dye, New Jersey's institute director and president of the association, presiding. Vice-President, F. E. Dawley, of Fayetteville, N. Y., and F. W. Taylor, Lincoln, Nebraska, secretary and treasurer, were also present.

The states represented at the sessions and banquet were New York, New Jersey, Ohio, Michigan, Wisconsin and Nebraska, while Canada sent Mr. James Sheppard, of Queenstown, Ontario. Besides the foregoing named gentlemen, there were present John Gould and T. B. Terry, of Ohio; Geo. McKerrow, of Wisconsin; Kenyon L. Butterfield, of Michigan; and the following from New York: H. W. Collingwood, Prof. S. A. Beach, Edward VanAlstyne, Prof. I. P. Roberts, A. R. Eastman, Prof. V. H. Lowe, F. A. Converse, James E. Rice, George T. Powell Prof. Geo. W. Cavanaugh, Dr. C. D. Smead, J. P. Clark, P. J. Cogswell, George W. Sisson, Jr., W. T. Hughes, G. A Smith, W. W. Hall, V. C. Beebe, Henry VanDreser, W. W. Smallwood, A. L. Twitchel, C. E. Chapman, Ellis Woodworth, C. W. Jennings.

The first number of the program was the opening address by President Dye. It was followed by a paper having for a heading: "Fifteen Years in Institute Work in the United States," by T. B. Terry. This was in many ways one of the most interesting papers read, although it was not of a make up to bring out discussion, being of an historical character. He said that the institute began in a small way in Ohio. At first the speakers received no pay and boarded themselves besides. Ofttimes they even built the fires in the halls, then went out and invited people to come in.

Sometimes a boy was hired to go about the streets and ring a bell as they sometimes do to call the people's attention to an auction. At one place, where the institute was to be held in a court house, the sheriff called the meeting from the doorsteps. Often the audiences were very small, numbering not more than a half dozen; and, at one time, he met but two, a man and his wife, who said they had driven six miles to hear his lecture on "The Wife's Share." When they told him that, he got up and gave it to them *verbatim et literatim*, taking an hour and a quarter in which to do it. He had not another listener. Now-a-days, there has come a change, and not only the farmers and their families, but the village people as well come out in force. He, not long since attended an institute at church, which, when he arrived was so crowded that he had to crawl through an open window, while the crowd outside was so large that the windows of the church had to be opened so that the speakers could be heard by those who could not get in.

Concluding his bit of history, Mr. Terry offered some suggestions as to how best to continue institute work. First, secure a hall and decide on how it shall be paid for, but don't take collections for it at the institute. He had seen three trials before enough was secured, then a few had to bear the brunt. They may as well do it before as after the institute.

He also favored a fall meeting of speakers with the conductors and directors of several states, to formulate plans for the winter's work, so that all could work in harmony, and each would know his part. Small places he considered best; small meetings, scattered over a county, with a small force of speakers, are better than large ones.

We must take instructors to the farmers; they can't or will not, go far from home. The director should get a good local correspondent in each place, one who can and will "push things" and thoroughly advertise the meetings. Secure rooms near the hall, so that the speaker can be well cared for.

Numbers do not always count most. Many times small audiences are better than large ones. The work should be made educational. As a rule, the average farmer is not informed. Many of them know nothing, scarcely, of the value of manure, and so allow their liquid voidings to go to waste. This subject he considered the most vital to-day, connected with institute work. The farmers *must* be awakened to this fact.

The institutes not only must be progressive, but must be conducted so as to reach all classes of farmers. They will no longer be popular unless they are. The object of only giving general instruction or information, is not enough.

We must have, not only better farms, but better homes.

Mr. Powell—The farmers' institutes have made wonderful progress since I was director, six years ago. We are educating the farmers, and have been all these years, and the instructors must keep ahead of the people, else the institute will fail. The question is, can they do this? The institute speakers are working and studying hard, and the experiment stations are giving much information, hitherto furnished by the institute, so that now the duties of the institute worker are more onerous than ever before. He must, therefore, not only be a student, but a worker also, striving to keep abreast of the people. The day he fails in this, that day the influence of the institute will be forever gone.

Mr. Eastman—I am not an institute director, but have done some work as a speaker at institutes, and I am going to endorse much which Mr. Terry has said, and proposed. Old workers appreciate this advice more than do young ones, and I am satisfied that small towns are best for institutes. Too many in the large places make an institute a sort of entertainment. They don't care so much for what is said, as they do for something new, by way of entertainment. Select small places, and have a less number of speakers, which means less expense. But eliminate the "lap-overs." The speakers of the first day are gone, when those of the second day arrive. None of them know anything of the addresses or questions of the first day, and the new comers cannot, many times, answer the questions in the box that a former address brought out. Substitute one day meetings for these lap-overs. No speaker can become acquainted with an audience at one session.

Mr. McKerrow—We hold lap-overs; two men and a conductor, however, are always left.

Mr. Eastman—That will do in your case, because two or three men remain behind; while with us, all of the first day go on to the next meeting, leaving the new comers to finish up the institute.

Dr. Jordan in his paper, among other reforms, suggested the eliminating of local speakers from the institute, as a rule.

Mr. Van Alstyne—I am heartily in favor of Dr. Jordan's proposition to eliminate these speakers. Leave them off the program. I have seen the work of the entire institute corps of speakers at an institute, neutralized by the contradictory remarks of one of these speakers.

Mr. McKerrow said he was in favor of employing the man who is capable, whether as local or state speaker. But he must be competent, honest, and one who stands well at home, pays his debts, and is able to keep ahead of the procession of farmers.

Mr. McKerrow suggested that small exhibits of farm products be encouraged and small prizes offered for the best of them. These will interest the farmers, and those of them who have pretty good things will bring them out. The business men—merchants, as a rule—in his state, offer the prizes. It has worked well so far in every place. The only trouble being some of the men would stay in the rooms where the exhibits were displayed, thus neglecting the institute; but, as a rule, more farmers come to the institutes where these prize exhibitions were made, than otherwise. "In some places the exhibits have grown so large that they have come to be an elephant on our hands, while, in others, they have been the means of building up a first-class institute each year."

At some institutes there are live stock exhibits for which prizes are offered, the judges of which are forced to give their reasons for the awards as made, right on the spot. This fills the large tent with men and women, who are anxious to hear the "whys and wherefores" of the judges.

The speaker said that he favored these exhibitions and awards; also short papers and addresses, but long discussions. The farmers know better than we do what they want and they like discussions better than long talks or papers. But he did not favor the holding of a farmers' institute in connection with a regular fair, unless some extra inducement can be offered to hold the crowd. An ordinary farmers' institute on a fair ground is a "flat failure;" but an exhibition of farm products at an institute tends to elevate it, and is sure to bring out a larger attendence, especially when these prizes are offered by the merchants. They talk with the farmers, read the programs to them and urge them to come out, thus advertising it more generously. Sometimes small prizes are offered for the best ten minute essay to be read by a farmer's son or daughter, and as a rule, where large exhibits are made, the hall is closed during the institute hours, and at some places, large, genuine shows of poultry, horses, and sheep are made. At Fort Atkinson, it was dairy cows, while 100 horses were shown at another institute, elsewhere.

Mr. McKerrow's address was very instructive and brought out considerable discussion.

Belleville, N. Y. C. W. JENNINGS.

Large Overrun of Butter.

ED. HOARD'S DAIRYMAN:—I am a young and inexperienced farmer and dairyman, having been engaged in the business less than one year. My milk is made up at a creamery which manufactures at a fixed price per pound, and pays according to butter fat, etc. I understand that the excess of butter over fat in a given amount of milk is held to be about 15% to 16%, while the statements I receive from the factory vary in the excess all the way from 14½% to 25%. From May 1898 to the present the excess figures as follows: May 22¼ %, June 17.9 %, July 14¾ %, August 14½%, September 16%, October 19%, November 25%, December 20%, January 24%, February 26¼ %

Now, if you will explain to me why when 15% to 16% is held to be about right, ours should reach such figures as indicated above I'll certainly be grateful to you.

N. Y. SUBSCRIBER.

The average overrun, as stated before is about 15%, but it may be more or less according to the accuracy of testing, exhaustiveness of separating and churning, and the physical condition of the milk. All these conditions affect the overrun. Variation in the above conditions will frequently cause a deviation of several per cent, either above or below the average. In the above case where the February overrun is 11.25% above the average, and others almost as high above the average, we should suspect the accuracy of the testing. Factory work should not show such extremes if the work is performed in the proper manner. The use of weak acid would bring the test so low that large losses could be made by the separator and churn and yet show an excessive overrun.

If the testing is accurate, then there may be an excess of water in the butter, a condition which can be easily obtained by chilling the butter before working.

Feeding Corn Fodder.

The Advantages of a Silo.

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I should like to get your opinion through the columns of HOARD'S DAIRYMAN of my method of feeding fodder corn:

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Trouble Cows off feed, couple of cases of caked bag and a cow or so with milk fever! Care and watchfulness are great preventives, but feed is far more important. No such cases follow the use of our feed. Common sense and Quaker Dairy Feed are the watchwords. Enquire about it; you will find we are right.

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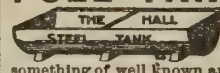
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on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

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Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Pronouuced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.

For 2 cts. I will send one miniature page of each of the three songs. Address the author,

HALBERT L. HOARD, Fort Atkinson, Wis.

of cattle, mostly of Ayrshire and Durham grades.

2nd. I raise each year from two to three acres of fodder corn, which usually gives a very heavy crop.

3rd. Corn is cut before frost and stored under an open shed in such a way as to allow the air to freely circulate through it. As wanted for feed, corn is cut about one inch long by horse power and fed as follows: The feed for morning is placed in a water tight box and enough boiled water is added to cause it to steam up quite freely; we then cover the box up carefully and allow it to steam all night. It is usually warm in the morning, when it is fed, after adding whatever grain we are feeding. The same process is followed in the morning, for the evening meal.

4th. What advantage would a silo be over my present method of feeding corn? I might say that I vary the above feed to some extent by feeding clover hay instead of corn, but prepare it in the same way. I have never had a cow refuse to eat a liberal allowance, and a sick animal is an exception.

I might add that my farm of about sixty acres is some fifty miles from Montreal, and I have to depend entirely on some one else to attend to it. A SUBSCRIBER.

Montreal, P. Q.

It would be difficult to enumerate all the advantages of the silo. Some of them, briefly stated, are as follows:

There is no way in which storage can be provided for fodder corn at so little expense and take up so little space as in the silo.

There is no way in which a field of corn can be harvested with so much expedition as to put it into a silo.

Although it has been demonstrated that, under the most favorable conditions and with the greatest care exercised, the actual loss in nutritive elements is about equal in field curing of corn and in a silo, yet it is so difficult sometimes to command these favorable conditions and to insure this degree of care that the silo comes in somewhat in the way of insurance against bad weather and lack of proper care.

Another advantage of the silo is that it enables the farmer to make one job of putting his corn fodder into the best possible condition for feeding, so that no matter what demands may be made upon his time from day to day through the winter, this feed for his cows is always ready to his hand.

Having said this much, it is eminently proper for us to add that Subscriber's method of feeding his fodder corn corresponds in effect with the directions we have so often given in the DAIRYMAN for feeding corn stover. When we have stover to feed, we like to run enough through the cutter to last for three or four days or longer, and if it is not already damp enough, to add a little water so that when lying in the pile it will heat and soften up very materially, making, as one might say, silage in a degree.

What to Grow for Silage.

ED. HOARD'S DAIRYMAN:—There is one point put forth by the various authorities on silage that does not seem consistent with my views. Protein is the most expensive feed with us, as we raise hay in abundance—such as timothy, red top and the various clovers—which gives us all the organic matter and carbohydrates we require.

Now you say that peas and oats contain 25% more protein than corn. By the evidence of the various statements in the DAIRYMAN, they all agree that as much oats and peas can be grown per acre as corn. Why then should we grow corn in preference to oats and peas? I make this inquiry for the benefit of the farmers of this state. I know of one farmer in this section that filled two silos, one with corn and the other with oats and peas. He fed the oats and peas first; when he fed his corn, it took two quarts more of grain to keep his cows up to the same flow of milk that the oats and peas gave. Will you kindly enlighten us upon the point in question? H. F. G.

Kenduskeag, Maine.

Conditions in Maine may be different from those in Ohio, Wisconsin, Texas and various other states. Ordinarily it is not advisable for the dairy farmer to raise over much timothy and red-top hay. He can put his land to more profitable use. If one can raise more oats and peas, per acre, than of corn, let the area to corn be restricted. In other words, let the main dependence be put upon the crop that will produce the most feed at the least expenditure for labor and land.

Practical Suggestions in Dairy and Creamery Managment.

From the twelth annual report of the Iowa dairy commissioner:

It is a good thing to know how to do, but it is a far better thing to do as well as we know.

Each dairyman should strive to produce the best and sweetest of milk, and then see to it himself that it is delivered to the factory in the best possible condition.

Own and milk good cows. If you have poor ones send them to the butcher.

Never use or sell milk from diseased or unhealthy cows. It is dangerous even to feed it to the pigs.

Keep the cow warm and dry.

Feed clean, bright food in variety to produce good results.

Do not allow a cow to drink water you would not drink yourself.

Keep the cow clean by using plenty of clean, bright bedding.

Milk with clean, dry hands as quickly as possible.

Strain milk through cloth, thick enough to retain any particles of dust or litter that may be in it.

It takes as much muscle to milk one hard milking cow as it does to milk four or five easy milkers. Sell her.

Treat cows quietly and kindly; excitement affects the quantity and quality of milk.

Remember when filling cans with skimmed milk at the creamery, that it is not always the other fellow that needs watching.

The cornstalk, either shredded or in ensilage, is one of the best feeds for the cow. Hundreds of thousands of dollars' worth of this feed are annually lost in Iowa.

In freezing weather, scald can covers just before starting the milk for the creamery. The cream will not stick and freeze in them. Also cover cans.—*Gazette*, Sumner, Ia.



JOHN SHUGART & SON,
Breeders of
Holstein Friesian Cattle.
Also Wholesale and Retail Milk Dealers.

National Military Home, Ind., Mar 21 1899.

Glucose Sugar Refining Co.
Chicago, Ill.

Gentlemen

The Gluten Feed finally got here; It arrived here the 16th, was glad to get it for our cows were failing in their milk every day. They have gained in the last four days to twenty five gallons more per day than they were while we was out of the Gluten Feed.

We think Gluten Feed is second to none as a milk producing feed, it makes more milk and better milk than any other feed we can get.

Yours Respectfully
John Shugart & Son.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery. CHICAGO, ILL.

KANSAS CITY, MO., March 15, 1899.
MORRISON MFG. CO., GENTLEMEN:—With regard to your Heel Plate, we would say, it is increasing the sales on your plows very materially. It is easy to appreciate that it is a decided improvement in walking plows. It is the greatest advance made in walking plows for ten years, and that is saying a great deal Yours truly. BUFORD & GEORGE MFG. CO.

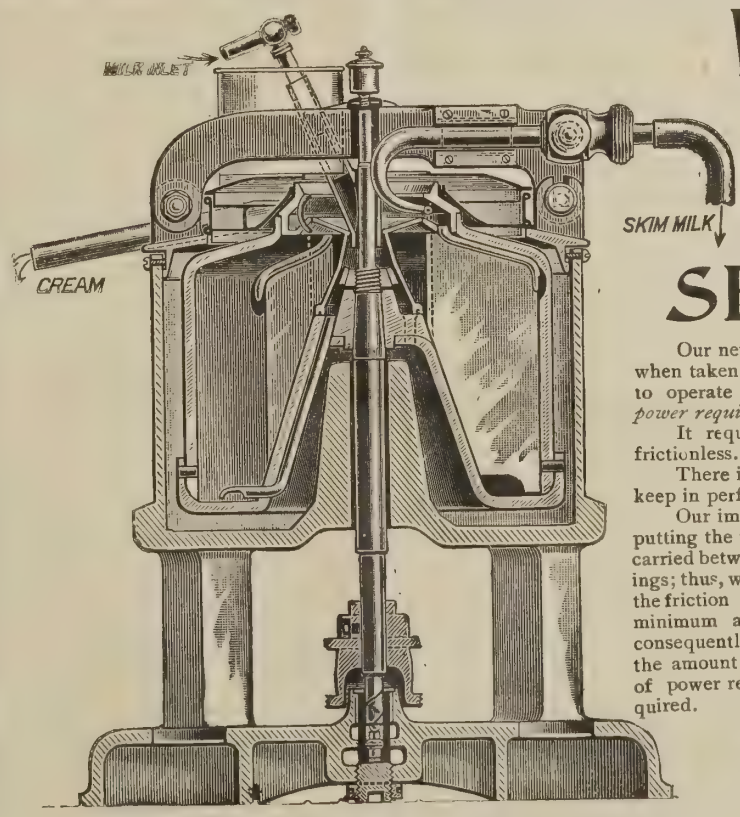
It makes Share last longer, cures winging over, holds the Share sharp twice as long.

A postal will bring a beautiful catalogue.

MORRISON MFG. CO., Fort Madison, Iowa.

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FIELD PEAS
FOR HOGS AND DAIRY COWS
"EQUAL TO CORN AND SIX WEEKS EARLIER"
THE ALBERT DICKINSON CO.
GRASS AND FIELD SEED MERCHANTS, CHICAGO, ILL.



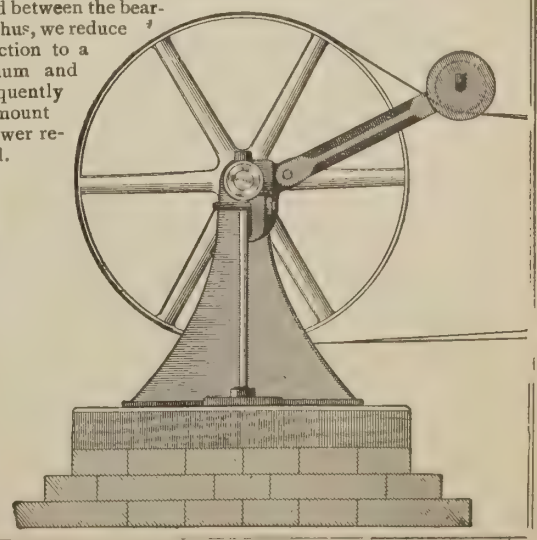
What We Claim
for the
REID Long Spindle
SEPARATOR

Our new Long Spindle Separator and Belt Tightener, when taken together, will run with one-half the power required to operate our old style machine, *and less than half the power required to run any imitating separator.*

It requires practically no oil, the top bearing being frictionless. It requires no special foundation.

There is less wear and tear on the belts and the bowl will keep in perfect balance always.

Our improvement consists in lengthening the spindle and putting the upper bearing above the bowl so that the bowl is carried between the bearings; thus, we reduce the friction to a minimum and consequently the amount of power required.



Our new **BELT TIGHTENER** is calculated to take up all tension in the bowl automatically and consequently operators have no trouble in keeping the machine up to full speed, as the bowl cannot slip.

There Tighteners may be applied to any of the Reid Improved Jacks or the old Danish Weston Jacks.

A. H. REID, 3000 Market St., Philadelphia, Pa.
And ELGIN, ILL.

Mr. Wheaton's Canadian Dairy Notes.

Marketing Cheese.—Dairy Legislation.—Speculating in Cheese.—Agricultural Exhibitions.—Spring Cheese.—Dairying in England.

ED. HOARD'S DAIRYMAN:—A very important part of the business of cheese making in this country from a factoryman's or patron's point of view, is the selling of the product. For this purpose a number of cheese markets or local dairy boards of trade have been formed (about 20 in Ontario) where the salesmen of the factories meet the buyers and offer their goods for sale, by auction or by what is known as the "Call" system.

This system has been in operation in some form or other almost since the first factory was built, and in many ways has been a lasting benefit to the country and to the dairymen. But the best of systems often have their weak points, and one of the weak points in the system in question has been that none of the rules or regulations adapted by the various boards could be properly enforced. This weakness in some ways has made the operations of the markets a kind of "farce". Rules and regulations governing the operations of the board have been adopted by each one at the opening of the season, only to be broken by a member at the very first opportunity offered to make capital out of doing so.

One of the rules common to every board is that no member shall buy or sell cheese on the regular day for the market, excepting on the market, and according to the plan adopted.

It has been found very difficult to make members obey this regulation to the letter, though by keeping at it during the whole season would give better results to the factorymen.

Another grievance and complaint has been that very often cheese is sold subject to inspection, and rejected by the buyer, when he has not sufficient cause for so doing. There have been more complaints on the part of the dairymen in this particular, during last year than ever before, and it was felt that something would have to be done to remedy matters.

The remedy has come this year in the way of legislation passed at the session of the Ontario Parliament recently prorogued, which provides for the incorporation of these local dairy boards of trade and the appointment of competent inspectors to decide disputes between factorymen and buyers in cases where cheese is bought and rejected.

It may be claimed by some in the trade that this law is not workable and that the person who buys the goods has the right to reject them if he does not consider them first class and according to terms of sale. While this may be the case, it is also true that frequently cheese are rejected after being bought on the market, subject to inspection, when there is no other cause for doing so than that prices have dropped a little in the meantime.

This rejection of purchased goods would not have such evil consequences if the loss sustained by such actions fell upon the patrons. But in the majority of cases it falls upon the maker, who is less prepared than anyone else in the business to stand it.

The almost universal practice here, when a maker is engaged to make cheese, is to hold him responsible for the quality of the goods turned out. In cases where cheese is rejected and a loss is sustained, the maker has to foot the bill. If the goods are really superior and their poor quality is due to the maker's lack of skill or neglect, he certainly should be held responsible for the loss. But where cheese is rejected upon a whim of the buyer, who finds some trifling fault with it, it is nothing less than robbery to make the maker pay for it.

We have heard of several cases of this kind during the past year or two, which we sincerely hope are not as bad as painted, where cheese were bought on the market and at first rejected but afterwards taken by the buyer at a lower figure, the maker paying him the difference as a kind of "hush" money.

One may ask, "Why does the maker agree to do such a thing?" The position of affairs is just this: The maker has a reputation to guard, and if he allows the report to get abroad, that his cheese has been rejected, whether it is up to the mark or not, his position as a first-class maker is injured both among the patrons of his own factory and among other factories.

The Cheese and Butter Makers' Association, formed over a year ago and composed entirely of makers, is doing considerable to counteract this tendency of some of the buyers and to protect makers, who are not in a position to stand up for themselves. If every maker however would stand right out and when a buyer makes a demand like the one referred to, would refuse to let him have the cheese at any price we hardly think there would be much rejected that was of good quality.

No one in the trade expects a buyer to take goods that are not up to the mark. But there are two parties to every transaction of this kind and if goods are rejected the owner or the factory's representative should have the right to have them inspected by a competent, independent third party whose judgment should be final. Such provision is made by the law recently enacted. As to how it will operate in practice we will have more to say later on. The very fact that such an individual is recognized by the law of the land may serve as a deterrent, and we may not hear of the unsavory transactions so frequently reported during the past year or two.

Another piece of dairy legislation is on the tapis at Ottawa, where the Federal Parliament is in session. This is a bill to prevent the buying and selling of goods that are not made nor in prospect of making, or in other words, to prevent what is known as selling "short". This matter was before the Dominion Parliament a year ago, but was withdrawn in order to obtain the views of the dairymen of the country as to the need and wisdom of such legislation. Quite a number of replies to a circular sent out have been received, the majority of them being in favor of such legislation being enacted.

Looking at the question in a somewhat narrow way, and from the standpoint of certain transactions occasionally transpiring, in which the price of cheese has been advanced through "short" selling, one must come to the conclusion that such a practice is a good thing for our dairymen.

But if we take the broader and wider view and consider the industry as a whole and its operation from year to year, no other conclusion can be come to than that the "short" selling of cheese is not in the best interests of our dairymen, and, in fact, is a positive detriment.

A person who sells, or offers for sale, cheese or other goods which he has not in his possession, does so with the hope of getting them at a price that will enable him to make a good price out of the transaction. From the moment his bargain is made with the English dealer, or anyone else, all his efforts will be directed towards bearing the market down as low as possible so that he may be able to buy at a good profit. And though there be a temporary rise in prices, when "short" selling negotiations are being made, so soon as the bargain is made, strenuous efforts are at once put forth to bring about a depression in the market.

Where there are several transactions of this kind made, and there are several persons in the trade endeavoring to depress the market, such depression is sure to follow to the lasting injury of the producer.

We are inclined to the view, therefore, that if a law to prevent this practice is passed, and it can be properly enforced, it will place our export cheese trade on a better working basis. What the average dairyman in this country wants is to be able to do business on a fair basis. But this cannot be done if there are individuals in the way ready to manipulate the market and turn as large a share of the profits as possible their own way. If this manipulation can be prevented by law, or otherwise, and the business be allowed to regulate itself in accordance with the supply and demand, there is good reason to believe that our dairymen would fare a good deal better one season with another. At any rate, they would have a better idea of where they were at as regards market conditions and could govern themselves accordingly.

Just now the leading fairs and exhibitions are making preparation for their fall shows. No especially new features have been provided for in connection with the dairy display, with one exception. The Toronto Industrial fair, which, without exception, is the best all round annual agricultural show held on this continent, is making a new departure, and will hold next fall a butter-making contest.

As far as we know, this is the first time that such a contest has taken place on this side of the Atlantic. At any annual exhibition or fair, butter-making contests form a most attractive feature at many British shows, and are exceedingly popular among dairymen. It is the intention of the management here to make this the important feature of the dairy branch of the show this fall. Though the prize list and rules of the contest have not been given to the public, yet we understand that it is the intention to make the competition open to butter makers either in Canada or the United States.

Quite a number of factories are now well under way, making early spring cheese. It is expected that fodder goods will be made till well on to the middle of May, owing to the backwardness of the spring. Though there were big crops of hay all over this country last year, a scarcity of feed is reported in some sections, chiefly in Western Ontario. The supply of fodder goods will therefore be larger than usual.

Prices are well maintained and a number of factories last week (April 23rd) sold their April output for 10 cents and over. Better attention is being given to curing the product this season and therefore it is claimed that the quality is ahead of other years.

Old cheese is quoted in Montreal at about 11 cents, but there is very little to be had. The total decrease in shipments from Montreal and New York from May 1st, 1898, to date is 545,016 boxes as compared with a year ago. The shortage from Canada of about 230,000 boxes is the largest in the history of the trade, which makes the outlook for 1899 very bright.

According to reliable reports a change seems to be coming over the methods of dairying practiced in Great Britain. The large supplies of butter from outside have caused many of the English dairymen to turn their attention towards supplying milk to the large cities, instead of making butter. This is causing a falling off in the home supply of butter and leaving more room for foreign goods, and Canada will likely come in for a large share of the trade. At no time during the past twelve months have the English markets been surfeited with surplus butter as in former seasons, though the ship-



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STRACY Box 720 Brockville. Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ST. OMER HERD

Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to J. E. TYRRELL, Marysville, O.

For Sale. Two yearling bulls ready for service, out of tested dams. A few bull calves, some out of tested dams. All sired by Maquilla's Major 40804, a son of Maquilla's Violet, 31 lbs. 1 oz. Write for prices. W. R. THOMAS, Bellmore, Ind.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

Hood Farm Jerseys Bull for Sale—Dropped Aug. 27, 1898. Solid color. Sire, Mint, 50 per cent Combination. Dam, Romena of Hood Farm, test 15 lbs 11 ozs. with second calf, 40 lbs. milk, full sister of Winksette, 23 lbs.; 2d dam, Romena, 15 lbs. 10½ ozs, by Diploma; 3d dam, Commotion, 17 lbs. 6 ozs. dam of 3, by Combination. Write for price. HOOD FARM, Lowell, Mass.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00,*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs. Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock
INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92). in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think genuine bargains. We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.
70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¾ oz. of butter in seven days. P. J. COGSWELL,
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High-Class Jerseys
— THE BLOOD OF —
COMBINATION
(Sire of 25 in list) through
BROWN BESSIE
(Champion Butter Cow at World's Fair), and
DIPLOMA 16219
(Sire of 48 in list including MERRY MAIDEN.)
Young Bulls, also Cows and Heifers bred to Recorder 29239—son of Brown Bessie
Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

MILLER & SIBLEY'S JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. 224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys.
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood
Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

ments from this country have been greater.

Prices for creamery have got down to an export basis which has enabled more business to be done on English account. Sales were made last week at Montreal at 17@17½ cents with a steadier feeling reported. Sales are reported at the factories at as low as 16@16½ cents per pound, which is 3 or 4 cents lower than when we last reported.

Toronto, Canada. J. W. WHEATON.

DAIRY HUMOR.

The DAIRYMAN is a pretty sober paper, for it has to deal with hard facts all the time. But its correspondents often give off a flash of keen wit and humor, which we feel it would be a loss not to record.

The other day, in response to our offer of a 25 cent trial subscription, we received the following keen reply:

ED. HOARD'S DAIRYMAN:—Somebody did not know me when they gave you my name as an enterprising fellow. The truth is I am too lazy to deny it, and so send along the 25 cents to save further annoyance (to you). I am a Jersey crank and know nothing else, scarcely. Have a son of Recorder (of your state) and "Tivoli", a St. Lambert bull at the head of my herd. I presume your columns are open to advertise good Jerseys; I really think the "Governor" down in his big heart rather likes them. I see by the *Jersey Bulletin* (conducted by an expert chicken man) that your paper sometimes makes bad breaks, but never mind, don't be discouraged; when you get this quarter, use it to increase your store of knowledge where Col. J. thinks you are lacking.

It certainly don't cost much to be informed for he (the chicken man) soon got so smart that he could believe anything he heard in favor of his pets.

Now for five months do your best for Ohio. J. A. P.

We hasten to assure our Ohio friend that his 25 cents shall be faithfully expended in the direction he desires, and with increased faith, since he has shown how easy it is to know all about the cow.

Experience With Ensilage.

Its Value in the Dairy.

ED. HOARD'S DAIRYMAN:—I have been much interested in whatever has appeared, from time to time, in your excellent journal, in relation to silos and ensilage, as in this way valuable suggestions are continually being made as the the results of experience, that should be of great help to those engaged in dairying. I here contribute a little from my own experience, hoping it may be of interest to others.

For many years we have raised fodder corn, as we term it, that is, corn to feed green to the cows until frost comes, and the larger part to cure and keep for winter use.

For this purpose a variety well adapted for this climate, known as the Sanford corn, and now largely grown in New England for the silo, is used. It is grown the same as if it were to be husked, only a little thicker, and with suitable cultivation a large amount of fodder, per acre can be secured, and at comparatively small cost. The crop well cured, makes excellent feed for the cows in late fall and winter, producing good results in milk and butter.

But where a large amount is raised, there is much labor and trouble in curing and properly storing it for use. Only in a very favorable season can it be dried sufficiently to safely pack in a mass under shelter, and the difficulty is in finding room for so much.

After all the available space under cover has been filled, often a large amount has to be left in shock, or otherwise disposed of out of doors, until wanted for use. In this way much labor is involved, as it is sometimes necessary to handle over two or three times, and there is, of necessity, more or less of loss from moving, and the effects of the weather.

These considerations, in our own case, led to the building of a silo, and more especially as winter dairying is now practiced, and more succulent food is wanted. Last year a thoroughly constructed silo was erected outside the barn,—there not being room inside to spare for the purpose—conveniently connected with the stable.

Five feet were in the ground, and the rest a substantial timber building, above, and large enough for a twenty-cow dairy.

It required a twenty-four foot carrier to elevate the ensilage to the door in the gable end of the building, but this worked all right.

We found it less work to put the crop in the silo than curing in the old way; and then as the field was clear, it could be plowed as soon as desirable.

The neighbors said it would take two years to raise corn enough to fill the silo, but it was filled, allowed to settle and filled again clear to the roof. It is astonishing how much corn can be put in so small a space. We estimated it cost 30 cents a ton to put in the silo, and $1 00 a ton for growing and siloing.

The ensilage has kept remarkably well, but with the experience gained should be able to do a little better in some respects another time.

Commenced to feed cows giving milk in November and expect to have enough to last until they go to pasture.

We find it much more convenient and easy feeding the ensilage, than the cured corn, as formerly practiced. Aside from the loss on top there is practically no waste, while with the cured corn there would often be considerable. I understand that the past winter it has been difficult getting stock to eat the cured fodder even fairly clean. Perhaps this was owing to the season which resulted in making the stalks dry and hard.

Formerly, the cured corn would last not much over half the winter; as ensilage, each cow gets twenty-five pounds a day, given at too feeds, till grass grows. In addition, they have morning and night, a feed of oat hay or mixture of clover and timothy.

At noon comes the grain feed, composed of bran, gluten and cotton seed, in proportion of 200, 125 and 100 pounds, respectively. Each cow gets five pounds of this mixture. Water twice a day. Water warmed in the morning.

The cows—except one that has since gone where there are no silos—are very fond of the ensilage. But in addition to its value as a feed, I think it helps to give the cows a better appetite for the hay, and with the care received, are sleek-coated, hearty and healthy.

The feed and care have resulted in a good yield of milk and butter. Never had cows do better on the best summer pasture. That the milk is of good quality may be inferred from the fact that it requires only seventeen and one-half pounds for one pound of butter. The butter has much of the aroma of that made on grass, and is well liked by consumers.

From this brief experience we are well satisfied with the silo and its results and consider it a great help in the dairy, especially where the cows are milked through the winter. E. R. TOWLE.

Franklin Co., Vt.

A Believer in the Escutcheon Theory for Judging Cattle.

ED. HOARD'S DAIRYMAN:—In renewing my subscription, after reading so much about milk and beef form and general purpose cows in your paper, I will give a little of my experience, as I am a breeder of Holsteins and breeding for the milk form.

My experience teaches me that it costs more to feed a cow that is bred for milk and beef than one bred more for milk. I have a heifer two years and ten months old that dropped her second calf ten days ago. She is of the milk form and gave last night and this morning (March 14th) forty-three pounds of milk. Her feed is, for the entire day, five pounds bran, four pounds gluten feed, fifteen pounds hay, and three pounds corn stover. I bought hay for $3 per ton delivered, so you see it don't cost much to feed her.

According to the Guenon system, this heifer gives very rich milk. Her mother was an imported cow and gave the richest milk of any cow I ever owned.

There are a great many signs by which to select a good cow. I place most reliance on the Guenon or escutcheon theory; you on the pelvic arch and incurving thighs. I can see that these are good indications, for my cows that have the highest pelvic arch are the best cows; but the beauty of the Guenon system is that you can pick out a calf when it is three months old and tell what kind of a cow it will make, and that is what farmers want to know.

I never raise a calf that does not have a good escutcheon, whereas the editor's advice is to get a Babcock test and scales and weed out the poor cows. It costs a good deal to raise a cow up to four or five years old to find whether she is worth keeping, and what will you do with her if you find you have a poor one? No one wants her.

I have studied the escutcheon theory for twenty-five years or more, and I know it to be correct. I have been judge at fairs a great many times, and I can tell more by looking over a cow in fifteen minutes than any man can by milking or testing her in one year, for cows will never do just the same two years alike. There are poor cows in all breeds and good ones. J. J.

South Hamilton, N. Y.

"Keeping The Cans Clean."

Something should be added to the editorial in last week's DAIRYMAN on this subject in regard to the importance of selecting milk cans that have no crevices inside in which milk can lodge and sour and smell. In buying a can, put your hand down between the breast and the body sheet, on the inside. If you can feel a square corner or crevice there, or if there are rivets going through the breast hoop, or if the can is soldered in bunches or not soldered at all, it will trouble you sorely to keep it clean. Any roughness on the inside of the can should be avoided. If the tin coating on the can is thin, or even a little imperfect, the metal underneath will oxidize, the milk will taste badly, and the can will soon rust out and go to pieces. There is a sure way of telling a good from a bad milk can. Turn the can upside down. If the makers are afraid of its quality, their name will not be on it, but if it is stamped with the Milk Can Trademark, no matter what its weight or pattern, you can bet it is the best Can you can get—for the money. Those who are interested in good cans should write to the BUHL STAMPING CO., Detroit, Mich., for their book entitled "A Study In Milk Cans," which is mailed without charge.



Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

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MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis.

A Trio of Show Bulls
of the richest and most famous breeding in the world are the yearling bull Valencia Sir Mechthilde 25050, H. F. H. B., average butter record of dam and sire's dam, 31 lbs. 12 oz. in 7 days; average milk record, each, 100 lbs. in 1 day. De Kol Alban Astrea (25150), average butter record of dam and sire's dam, each, 32 lbs. 15 oz. Sir Tirania of Valley Mead (25146), grandson of both Tirania and Natsey. No three better bred or better individual young bulls can be found in America today. High class breeders can not afford to let this opportunity go by. Prices low for quality. Inspection invited. VALLEY MEAD FARM,
KARLEN & CO., Monticello, Wis.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America.
Breeding Stock for Sale. Inspection invited.
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CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection
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Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
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AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
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HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
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SHADY NOOK HERD HOLSTEIN-FRIESIANS and CHESTER WHITE SWINE. W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Some Nuisances of the City Milk Supply.

Continued.

ED. HOARD'S DAIRYMAN:—I wished especially to call attention to

THE CITY DAIRY NUISANCES.

The honest and intelligent city milk dealer to a great extent has the control of the milk he handles. Even if he has a large business and draws his milk from a large number of dairies, most of which are located along the railroad lines, and maybe as far as a hundred or more miles away from the city, still he can to a great extent compel his patrons to furnish him only good, clean and pure milk and cream.

The only trouble is, that if he is too exacting the producer will seek another less careful buyer (of which we have only too many) and if a dealer insists upon pure milk, he will have to pay an extra price. But I can assure the average milkman, that while probably such an effort would reduce his profits temporarily, it will pay in the end.

In the city-milk-supply, certainly, the old maxim holds good: "Always room at the top." And the dealer who has pluck, intelligence and ambition enough to stick to it long enough is obliged to be a winner.

Let us examine some of the most common and mischievous nuisances which could easily be avoided and are only caused by the gross ignorance, carelessness and selfishness of the retail dealer, and just as much by the insufficient inspection and the inspector's lack of understanding anything, as to the nature of milk and the way in which it should be treated and handled in order to reach the consumer in as perfect and pure a condition as possible.

I am convinced that as long as men are employed as inspectors of dairies and milk who are ignorant in the dairy business, we shall never make much headway.

One of the first and main nuisances is

THE MILK SHIPPING CANS

and their condition. Anyone who will take the trouble to examine a lot of empty return cans, standing on some city depot platform, can soon convince himself on this score. First, lots of cans are used that even while new were unfit for transportation of milk, especially by rail.

It is strange, indeed, that for instance, any one selling or buying milk for city sale (and for that matter for manufacture of butter and cheese as well) would ever use any kind of can, where the cover will admit dust or impurities of any kind.

Yet, common sense ought to convince anyone that a can cover, which simply goes into the neck of the can, without any rim protecting the edge, must always leave access for impurities from the outside, more or less. No other cover should ever be permitted by the Health Boards than such where the rim of the cover perfectly protects the edge of the can.

A cover of any kind may accidentally, during transportation, receive a push, and be somewhat loosened, and then the chance for dirt to get into the can is still greater. On railroads, we even run the risk that something else is placed on top of a can, and goodness knows what might get into it. Never have a little hole in the cover, as some make "for ventilation".

If the milk or cream has been aerated and cooled as it should be before shipping, we need no ventilation, but want our cans as nearly hermetically closed as possible; that little hole, while no larger than a pin's head, is only there to let dirt in.

RUSTY OR BRUISED CANS

should be absolutely prohibited. Rust causes a tallowy taste, and bruises (which always mean rust also) furnish excellent living departments for bacteria of the most undesirable kinds.

To start with, have only cans made of the best material and by best workmanship. The can costing you a double price will prove the cheapest in the end, and it will be a long time before they get bruised or rusty even by railroad handling.

As long as they are properly cleaned and cared for at both ends of the trip, which they generally are not, you will find that even the railroad employees will handle a well constructed, clean and respectable looking can in a much more respectable way than an old rusty, bruised, dirty thing. There will be about as much difference in the way of treating cans, as in the way a conductor treats a gentleman or a tramp.

CANS WITH DIRTY BOTTOMS,

and otherwise, even of clean appearance, are a common nuisance, and it is a worse one than you think for. I have handled cans, where a collection of old manure, etc., was to be found under the bottom, which made me suspect that the bottom never had been cleaned since it was taken in use. I fully believe some never have.

The only way in which they are cleaned is occasionally by accident being placed in some pool in the road or outside the barn, and some old dirt gets away to make room for some new. This is no fancy picture.

The trouble caused from such dirty bottoms, both at the place of production and city dairy, is obvious! At either place the full cans are often placed in springs or ice water tanks, and especially in the city dairies it costs too much ice to renew the ice water daily.

Think now of this can, bottom collections over and over again, being placed in these tanks, and leaving a little there every time! It seems to me simply ridiculous that there is no law against dirty cans, as undoubtedly many disease germs are transferred in that manner.

SHIPPERS' CANS ARE FREQUENTLY RETURNED UNWASHED.

Sometimes they may have been rinsed out with cold water, but just as often not even that. Take the trouble to scrape with your finger nail along some inside seam of a return-can, as found on a city platform, and you will soon be convinced. Now let that little old milk stay there for hours, even for days sometimes, and in warm weather, and it will be a herculean task to have those cans thoroughly cleaned after they come back to the farm dairy, where they probably will be filled with milk again as soon as possible.

How can we expect milk, even the purest and cleanest, to keep sweet and fresh flavored when thus maltreated? Let us have a law that:

NO CAN ALLOWED RETURNED BY RAILROAD UNLESS ABSOLUTELY CLEAN INSIDE AND OUT.

This would surely be a very simple law to pass, and one easily controlled and of just as much importance to the producer as to the consumer. Can't we get such a law?

But while such cleaning would mean an immense improvement, still to be really efficient:

ALL CANS SHOULD BE STERILIZED OR STEAMED AFTER CLEANING.

This will be the only sure protection against transmittance of injurious germs. Of course an inspector cannot see if the can has been sterilized or not, but a law could be passed that:

No farm or city dairy should be permitted to sell milk in a city which was not supplied with proper arrangements for the steaming or boiling of all milk vessels used.

The farmer or dairyman once supplied with proper appliances, would not be foolish enough not to use them, as he very soon would discover the great advantage, to himself, of steam for sterilizing purposes.

As it is now, too much cleaning (so called) is done with luke warm or cold water, and too much final rinsing with cold and impure water, instead of hot water or, still better, steam.

Always finish all cleanings with hot water or steam, and you will also find it one of the best protections against rusty spots, which are the ruin of the cans and milk vessels generally. Let us have a

CITY STERILIZING LAW.

It would prove an immense help for the pure milk supply. In hot as well as in very cold weather, milk and cream cans should be protected by "jackets". We have received cream here during the entire year, which is fully from 6 to 9 hours in transfer by railroad and express, and it has always reached us in perfect condition for pasteurization, even in the hottest weather. The highest temperature, upon arrival, having been 56° F., but the normal temperature below 50° F.

If these cans holding 5 gallons had not been jacketed, the cream could never have endured such exposure, arriving here by 1 or

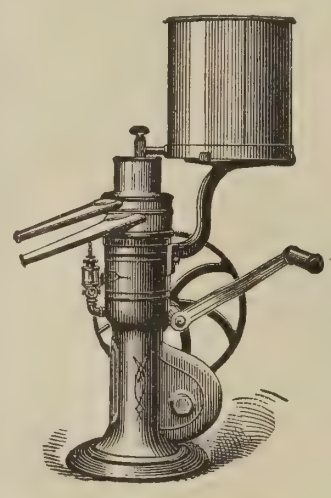
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IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co 's Color has the highest standing in the markets. . . .

Wells, Richardson & Co.'s Improved

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"The Kind That Has No Mud."



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
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Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

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NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



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AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**

At The ST. LOUIS FAIR, as the

BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

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CREAMERY

Uses either water or ice. Does its work perfectly. Possesses desirable features found in no other.

Send for Circular, free, to learn all its merits. Efficient, inexpensive, clean, low temperature.

ZERO CREAMERY CO., PERU, IND.



Water alone will do the work. Money saved.

The Most Complete Creamery and Refrigerator on the Market

3 p. m., in the hottest weather. This winter, though always cooled below 50° before shipping, it never arrived badly frozen, and we had 15 below zero. But this leads us to the great importance of having

MILK AND CREAM THOROUGHLY COOLED AND AERATED BEFORE SHIPPING.

Without that, of course, the jacket would often prove worse than useless. The fact is that all milk for city sales should be cooled to 40° before leaving the producer; and as to straining and aerating, I hold that

ALL CITY MILK SHOULD BE RUN THROUGH A SEPARATOR

and cream and milk run back together again. As it leaves the separator, it should pass over some good and efficient cooler; especially see to having one easily kept clean. But after the milk or cream has passed over the cooler, the cans should at once be placed in ice water and the contents frequently stirred, as by so doing we reduce the temperature still more, and keep it as low as possible, until the time for shipping.

I have found that I can do better with milk and cream from the evening before, kept in ice water all night and shipped at 40° with jacket, than I can with morning's milk cooled only to 50° and shipped at once, thus being 12 hours younger than the other. Many do not believe this, but have a bacteriological test made, and you will find I am correct.

I must leave some other points for next time, as well as some hints about pasteurization of milk as well as cream.

Washington, D. C. J. MOLDENHAWER.

Seasonable Notes from Michigan.

Cost of Silage.—Oleo in Michigan.—Grading Dairy Butter.—Feeding Fat into Milk.

ED. HOARD'S DAIRYMAN:—March is always a trying month when stock of all kinds begin to feel the effects of the long confinement and dry food, usually their only resource from fall till spring.

Lucky indeed the animals which have succulent ensilage, well preserved as a daily ration during this period.

Speaking of ensilage reminds me of what Mr. A. M. Welch, of Ionia, one of the most intelligent and prosperous dairymen in the state, said at the Round-up Farmers' Institute, held at Pontiac last month.

He is most enthusiastic over the silo, and places total cost of growing and harvesting his ensilage at 40 cents a ton. Surely this is furnishing an ideal food at a surprisingly low cost.

Michigan is in a muddle over an oleomargarine bill, now before the legislative body of the state. House and senate have each a bill covering the same ground, but introduced under two different names and neither will give precedence to the other.

Meanwhile the oleo men are jubilant and are pushing their work in every possible way to defeat the action in unison of the two bodies. It is to be hoped that something will be accomplished, which will be effectual, since last year's law proved ineffective by reason of some technical defect in its wording. It is getting so there is no telling whether a law is a law or not now-a-days, when it is so easy to detect flaws, which proves them inoperative.

But one thing is certain, there ought to be something done which will protect the farmer from injustice, and not allow hog butter to be sold for the pure product of the dairy.

Let each be sold strictly on its own merits and for what it really is. We ask nothing more than this, which certainly is a reasonable and just demand.

I was talking with a grocer who handles considerable butter, not long ago, in regard to the practicability of grading it, buying and selling it entirely upon its merits.

In his own practice he refused to buy poor butter at all, but pays the same price for all that passes inspection. He thinks if dealers would unite in refusing to buy poor butter at any price, it would result in great benefit to all concerned, and in the end force makers to better the quality of their product.

As long as a single grocer in any town will take whatever is offered and pay the same price that he does to those who make good butter, the others can do little to improve present conditions. It requires considerable courage to refuse to buy from regular customers the butter they offer, and loss of trade would surely result.

If every dealer would be firm in doing this, however, one can see that it would shut out all that is undesirable, and those who make it, would be forced to improve their methods.

It is true that some are surrounded by great inconvenience in attempting to make good butter, and a visit to some farms would show that conditions under which the buttermaker labors are distressingly adverse to best results.

Yet I believe it lies within the power of nearly every woman to so arrange her dairy equipment, as to turn out a fairly good article, if she so wills it.

Tin pans and dash churn have turned out some of the very best butter that has ever been made. An earnest desire to succeed is pretty sure of accomplishing its object in this, as in everything else.

As the season advances, there are pretty sure to be some foolish ones who are anxious to get their animals out to pasture. The result of turning them out too soon will be seen in a few weeks.

The grass cannot get a good start, but is cropped close to the earth, whereas a few days' delay in turning out would have given it a growth which would have enabled it to hold its own against the onslaughts of the stock, hungry for a stomachful of the toothsome herbage.

Young stock, calves in particular, need extra care when turned out to grass for the first time. They will miss their mess of milk and should have a generous grain ration every day. It cannot be too strongly urged that this be done. Do not allow them to fall away, for such loss is a serious detriment to future development.

Again and again does that question of feeding fat into milk arise for discussion. Argument availeth not to convince the average farmer that it is impossible to feed fat into milk.

They cannot bring facts and figures to show this, but have a convincing belief which is as unchangeable as the laws of the Medes and Persians. Ought not the result of experiments under such men as Clinton D. Smith, director of Michigan State Experiment Station, to be accepted without demur?

This seems to be one of those abstruse questions which are difficult to explain to the satisfaction of those who have relied upon tradition and their own opinion for solution. Like the one relating to the elaboration of milk in the cow's udder, it has not been accepted without objection by those who have long held contrary opinions.

The best way is to say that those who have made it a study are better prepared than any one else to know the truth in regard to the matter, even though it may entirely disagree with preconceived ideas on the part of the individual. There are plenty of accepted beliefs and opinions which are not truths.

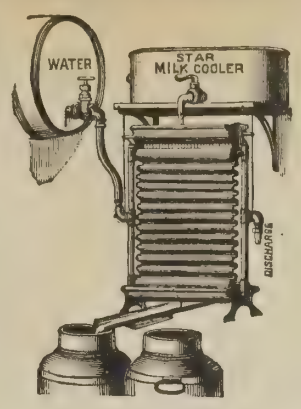
In this case of feeding fat into milk there are a large number of men who refuse to accept proof regarding the subject, simply because it disagrees with the opinion they have always held.

Genesee Co. W. C. ROCKWOOD.

Knowing How to do Things.

Success never follows ignorance or slip shod methods. There is a creamery up at Beloit with branches in several different counties that is making money hand over fist. Half a dozen men went down in the effort to maintain a creamery at that point; lost money right and left. But one day a couple of young Danes, the Jensen Bros., came along and took up the work where others had made such dismal failures. They succeeded. There was no "luck" in it at all. They simply understood their business. They knew how to "do things."—*Topeka Kansas Capital.*

There is the same difference in success in dairy farm management that there is in creameries. All over the land will be found men taking milk to the same creamery, one losing money, or just barely starving along, the other doing business at a profit. It always pays the biggest kind of returns to learn how to "do things," and farther, to keep learning.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also AERATES.

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J

Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. C. E. Smith & Co., Westboro, Mass.

Castor Oil for Calf Scours.

ED. HOARD'S DAIRYMAN:—In regard to treatment of calf scours, I give four tablespoonfuls of castor oil at a dose. One dose is generally sufficient, but if not, I follow it up with another in about twenty-four hours, but seldom have had to give more than one dose. Of course a person would have to use his own judgment in regard to that. In fact, I have never paid as much attention to the time between the doses as I would if I had thought of writing it up.

It seems that a large dose of oil physics them out thoroughly and then checks the discharge from the bowels.

One man told me that he gave his calves (when they had been troubled with scours) a dose of castor oil soon after they were dropped, and had been very successful. I have never lost a calf that I have given oil, and have had them so bad they could not stand up. E. E. WHEELOCK.

Whiteside Co., Ill.

SICK WOMEN

are invited to consult Dr. R. V. Pierce, chief consulting physician to the Invalids' Hotel and Surgical Institute, Buffalo, N. Y., by letter, without fee or charge of any kind. Dr. Pierce is a specialist in the diseases of women. He has treated over half-a-million women for diseases of the womanly organs and ninety-eight out of every hundred women he has treated have been absolutely and perfectly cured. Every letter received by Dr. Pierce, is treated as a purely personal and private communication and its contents guarded as a sacred confidence. All answers to these letters are sent in sealed envelopes bearing upon them no printing or advertising whatever.

Write to *the doctor*. It is no use for sick women to write to a man unless he is a doctor. It is no use to "write to a woman" unless the woman is a doctor. Write to a woman about cookery or any branch of housekeeping, because she is a woman and knows. But it is of no use to write to a woman about disease unless she has a doctor's training and diploma. **A woman who isn't a doctor is just as dangerous as a man who isn't a doctor, when she undertakes to treat disease.**

There is no qualified woman physician so far as is known connected with any proprietary medicine put up for women. Even the "bearded woman," the *man* who advertises "write to a woman" is not a qualified physician and stands too much in fear of the law to claim that he is.

There is no other physician, male or female, who, like Dr. Pierce has a record of over thirty years, as chief consulting physician of a well known institution, making a specialty of the private treatment of women's diseases.

Write to *the* doctor—Dr. R. V. Pierce, Buffalo, N. Y.

Women realize Dr. Pierce's ability when they read his great work the Common Sense Medical Adviser, 1008-pages; sent free on receipt of stamps to defray expense of mailing *only*. Send 21 one-cent stamps for paper-bound edition, or 31 stamps for cloth. Address Dr. R. V. Pierce, Buffalo, N. Y.

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased greatly.

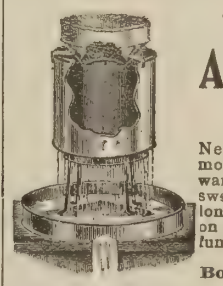
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C. H DANA, 55 Main Street, WEST LEBANON, N. H



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,
W. H. YOUNG,
Box 135, Aurora, Ill.

Fire Dried SEED CORN.

Best early maturing varieties, both white and yellow dent, at $1.00 per bushel.
HENRY SHERMAN & SON, Fort Atkinson, Wis.

HOME GROWN SEED CORN

Best kind, YELLOW DENT, tested seed.
FRANK B. FARGO, Lake Mills, Wis.

Seed Corn

Fire dried and tested choice varieties of White Pearl Dent and White Flint.
White Shoenen Oats.
C. EUGENE WARD, Fort Atkinson, Wis.



RIFE HYDRAULIC ENGINE

Pure water delivered by muddy water as power.
Brook water used to pump spring water
Absolute Guarantee.
Your Money Back if You Want It.
Send Your Conditions.
RIFE ENGINE CO., 126 Liberty Street, New York.

A Good Text for a Dairy Sermon.

Hoard's Epistle to the Dairymen No. 1571 Page 207.—*Multum in Parvo.*

ED. HOARD'S DAIRYMAN:—"Cold water, cold barns and cold air have to be heated with butter fat, if the cow is to keep herself warm."

My brethren, costly heating isn't it?. Yet how true.

In the first place, to illustrate the force of the foregoing true passage of dairy gospel, let me say I have two neighbors, good friends—both readers of the DAIRYMAN,—men I like to associate with; both men are good farmers, both keep good cows. I'll call them No. 1 and No. 2. They live only half a mile apart.

No. 2 said to me the other day: There are some things I cannot understand. I raised last season, double the feed that No. 1 did, and I farm double the land he does, but I am about fed out of corn, hay and fodder, and he has a large crib of corn untouched; a large stack of unfed stalks, and plenty of oats and hay.

We milk about the same number of cows, and No. 1 has a better yield of cream than I have. My barn is quite warm except when south wind blows. I turn them out only to drink, and have a tank heater, and put them in when stables are cleaned. His cows look well, and yet it seems to me, I feed twice the amount he does.

So to help him out I said, "I think I can English it." In the first place, No. 1's cows have had continuous stabling for seven winters, from November 1st to May 1st, each year. Most of his cows never breathed cold air. Every visitor who goes there, Briggs & Stiles included, say, O how hot it is here; the air must be bad; why, it makes me sweat.

Now this barn is continually kept nearer blood heat, than any I know of; hardly an ounce of feed is used to keep up animal heat.

The milk in the cow—or after it is drawn, is about the same temperature; the water tank in the stable is the same—no animal heat used to warm it after being drank. All his feed is used to sustain life and produce cream.

Now secondly, I said, your barn is not so warm as his, and though your tank heater warms the water, your cows are all turned out to drink and remain out one to two hours, or longer,—barn is opened, stables cleaned. Temperature goes down from 30° to 60°, then when the cows are well cooled off, they are put back. What warms the barn up again? Why, it must be the excess of feed you use, over and above what he uses.

My friend said that must be the reason. According to the text it is heated with butter fat, and it takes feed to make that.

Now, thirdly, is this a healthy way to keep cows, and is it profitable? Well let us reason together and see. Seven years ago No. 1's herd produced less than 300 pounds each per year, quite a little less, but since continuous stabling in winter, they have gradually increased to over 400 pounds per cow, and two individual cows produced over 500 pounds each last year. All are grade cows, look sleek and fine. He has had no abortion in herd, calves and yearlings kick up their heels, and play in their stalls, and I believe a visit to that barn would make that noble man, Geo. T. Angell, of Boston, smile and feel happy, and say, "Surely one man in Wisconsin practices what I preach, to wit: kindness to dumb animals."

Now as to profit: If No. 2 makes any money by keeping good cows, and feeding the crops of one hundred acres to them, do you think No. 1 makes any profit feeding the crops of fifty acres to the same number of cows for the same yield of cream? Surely, yes.

Is there not some food for thought in the foregoing, and can dairymen not profit by it, and govern themselves and their cows accordingly? If the Creator made blood heat the temperature it is, it seems to me the nearer we can keep the temperature of the barn there, the better, though I heard a student at Madison last winter say, that he understood that the Station cows produced better when the barn was kept at 40° to 50°, than when higher.

A visit to Mr. Cate's barn, at Amherst, last winter convinced me that a room with a good hot stove in it, opening into the cow stable, on a cold day, made the inmates look happy, comfortable and contented.

I was going to say fourthly, but Goodrich said fourthly blew out of the window some time ago, so I bring my remarks to a close.

La Crosse Co., Wis. A. J. PHILIPS.

Bro. Philips is quite right in the main, but we cannot agree with his conclusion, that the temperature in the stable should be kept up to "blood heat", which in the case of cows is 100°, or a little more.

The bodies, whether of men or cows, contain wonderful and mysterious furnaces, and if there was no provision for the escape and dissemination of the resulting heat, it would accumulate to an unendurable and dangerous degree. On the other hand, as the cases cited by Bro. Philips amply prove, and as the experience of every individual attests, when subjected to temperatures approximating the freezing point, these internal furnaces must consume more fuel (food) and then are often unable to maintain bodily comfort. Here as elsewhere, *in medio tutissimus ibis.*

Varieties of Corn for the Silo.

ED. HOARD'S DAIRYMAN:—Now is the time that the silo men are considering what are the best varieties of corn to plant for this purpose.

I would like to give through the DAIRYMAN the results of our experience with this part of the silo question for the past fourteen years, and also the opinion of some of the best dairymen of this section.

It was my privilege the past winter to visit some thirty silos in this vicinity and note the quality of the silage. In a majority of the cases where the dairymen had been using the silo for a number of years they were filling with some of the dent varieties, either yellow or white.

The best silage was from the dent varieties of corn, when they were cut for the silo when the the ears were well glazed, or just beginning to dent, and the lower leaves were dying. When put up greener the silage contained a larger per cent of acid, and if allowed to become too mature it was found to be moldy in spots and in some cases in layers, extending over the entire surface of the ensilage, even below ten feet of good feed.

The southern varieties of corn make quite an acid silage. The chief cause of this is that they do not sufficiently mature. In our section they rarely become anywhere near mature before frost.

It is best to have a small part, say, ten per cent of the crop, of some other southern kinds, for they possess certain qualities which are not found in the other varieties.

Their ability to withstand a long drouth in summer is surprising. They will produce a larger amount of feed per acre. That they will produce a greater amount of feed value per acre, in an average season, is questionable.

My plan is to have a small amount of some of the early varieties, and, as just stated, a certain per cent of the late, with the main bulk of the crop of some of the dent varieties.

By this plan, not only the time of filling the silo can be extended, but the planting season as well. The flint varieties can be planted quite late and in an ordinary season will produce a good crop. Two years ago I planted some yellow flint on some low land, which did not become dry enough to work until July, and yet we got a good crop.

The southern variety should be planted soon after the dent. When several varieties are grown the work of filling the silo can be commenced sooner than where we depend entirely upon one kind.

One advantage of this is that it will not be necessary to hire as much extra help at filling time, for if the first variety becomes too mature, we can commence on the next, and so on. As the number of silos increase this is a matter which must be considered, for help will then be even scarcer at that time than it is now.

The southern varieties stay green almost any length of time, and thus we have a good heavy kind to fill in on top of the rest to help pack and preserve it.

Where one variety is depended upon there is danger of getting the driest feed at the last, just where the heaviest is needed.

WILBER F. STILES.

Jefferson Co., Wis.

THE LARGE PROFITS OF THE NEW YORK MILK TRADE.

The Five States Milk Producers Association have prepared the following array of figures to show the enormous profits reaped by the New York dealers out of the milk trade. These figures are also instructive for all dairymen, on general principles. The milk is figured to be sold at five cents a quart, when, as they claim, that most of it is sold for six, eight and ten cents a quart:

The farmers are only paid from one, and one-eighth, to two and one-third cents a quart, and in this estimate they are allowed two and one half cents.

The 24,000 cans of milk that are each day sold in the metropolis, at five cents a quart, would bring $17,520,000 in a year. A daily consumption of 600 cans of cream, at 25 cents a quart, amounts to $2,190,000, making a total of $19,710,000.

The annual expenses are figured as being: The cost of milk at two and one-half cents a quart, $8,760,000; freight, at 30 cents a can, $2,628,200; cream at 10 cents a quart, $1,095 000; freight on cream at 40 cents a can, $87,600; labor in 350 shipping stations, figured on a basis of $50 a month for each employé, $210,000; icing stations, at $200 each, $70,000; 1,000 delivery wagons labor, at $3 a day, each $1,095,000; 1,400 horses at $1 a day each, $511,000; salaries, clerk hire, etc., $202,000; making a total of $14,658,800.

This would leave a net profit, according to this committee, of $5,051,200.

Food Tests of Holstein Friesian Cows.

ED. HOARD'S DAIRYMAN:—Among those of the present official year, not previously given to the public, are the following:

DeKol Manor Beets; age 2 years, 1 month, 15 days; food consumed, pasturage, pea meal 11.83 lbs., ground oats 11.83 lbs., ground barley 11.83 lbs., ground buckwheat 11.83 lbs.; product, milk 307 lbs., butter-fat 9.695 lbs; representative of Cornell University Station, H. C. McLallen.

Mutual Friend 2nd; age 6 years, 6 months, 26 days; food consumed, ensilage 434 lbs, hay 36 lbs., wheat bran 45 lbs., cotton seed meal 3½ lbs., ground oats 5 lbs., corn meal 15 lbs.; product, milk 427.4 lbs., butter-fat 14 724 lbs.; representative of Cornell University Station, A. R. Ward.

DeKol Lady; age 1 year, 11 months, 2 days; food consumed, pasturage, pea meal 11.83 lbs., ground oats 11.83 lbs., ground barley 11.83 lbs., ground buckwheat 11.83 lbs, product, milk, 312.4 lbs., butter-fat 9 384 lbs; representative of Cornell University Station, H. C. McLallen.

Aggie Paul, age 2 years, 2 months, 2 days; food consumed, ensilage 203 lbs., hay 7 lbs,. wheat bran 28 lbs., oil meal 16 lbs., corn meal 30 lbs., ground oats 14 lbs; product, milk, 280.3 lbs., butter-fat 11.303 lbs.; representative of Michigan Station, Porter H. Davis.

Clothilde Artis Topsy; age 4 years, 1 month, 10 days; food consumed, pasturage, malt sprouts 21 lbs., gluten meal 7 lbs.; product, milk 412.8 lbs., butter-fat 13.724 lbs.; representative of Cornell University Station, Leroy Anderson.

Paula Dorinda; age 2 years, 10 months; food consumed, ensilage 363 lbs, hay 13 lbs., wheat bran 80 lbs., oil meal 31¼ lbs.; product, milk 343.2 lbs., butter-fat 11.101 lbs.; representative of Michigan Station, Porter H. Davis.

S. HOXIE, Supt. Adv'd Reg'y.

Yorkville, N. Y., Mch. 27, 1899.

No sense in doing without Macbeth lamp-chimneys; but get the right chimney. The Index tells.

There's money in it.

Write Macbeth Pittsburgh Pa



ECLIPSE Cream Separators

SUPERIORITY over any other make GUARANTEED; they are CLOSEST SKIMMERS and Built DOUBLE AS STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Ag'ts wanted. Catalogue FREE.

C. L. Chapman Separator W'ks, ERIE, PA.

When writing mention HOARD'S DAIRYMAN

WE MAKE OUR GOODS FOR THE PEOPLE



At Lowest Wholesale Prices. GALVANIZED STEEL TANKS Any Size or Shape As low as $1.75. Will not Leak or Rot. We also manufacture Tank Heaters, Feed Cookers, Harness and Buggies.

WE HAVE NO AGENTS. Large Catalogue FREE.

C. E. Banta Mfg. Co., 32 A LaSalle St., Chicago, Ill.

PAGE

"WILL YOU TAKE Something"—new and untried when there is "on tap" a "time-tried and fire-tested" favorite? The Page is long past the experimental stage.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

ILLUSTRATION.



The above is cut of the Havana all steel Handy Wagon. Concerning this wagon they write us as follows:

"Our all steel Handy Wagons have grooved tire wheels that are made so as to protect the ends of the spokes. We can assure our customers that one set of wheels made with the grooved tires will outlast three sets made with the ordinary flat tires. We know this to be a fact. We are also making grooved tire truck wheels for farm wagons. This is an important feature. An investigation before buying is earnestly solicited." HAVANA METAL WHEEL CO.

Havana, Ill.

ILLUSTRATION.

The day of delivery of your milk product by surry, or some improvised vehicle is by. The National Wagon Co., Chillicothe, Ohio, have kept pace with the times, and to-day their National Low Down Cut-under stands without a superior. The management of the company two years ago decided to confine their entire energy and the capacity of their immense shops to the building of a Dairy Wagon, combining every possible point of convenience and durability.



A glance only at the showing of wagon will satisfy you that it is low hanging, and short turning, built especially either for the carrying of bottled goods, or by can system. Two sizes of the wagon are built to meet the demands for the lighter or heavier wagon.

The company have an unprecedented business this year, having shipped into every state in the Union, Canada and Cuba, since the first of January.

One of the company's artists has just completed a very fine engraving which is titled "The New Dairy Wagon." It is a picture full of interest to every dairyman, and would well adorn the walls of home or office. It can be had for the writing for it to the National Wagon Company, Chillicothe, who would be only too pleased to mail you one for the asking.

The Oat Question.

The great loss in the oat crop last year through lodging, and the consequent weakening, if not total loss, of the stand of clover, has made farmers study the oat question this spring as they never have before. Every bushel of early oats that can be had will be sown. Some are inquiring as to whether black oats will stand better than the white on corn land yielding from fifty to sixty bushels an acre.

We have discussed this question quite fully. We do not believe that there is any kind of oats ever grown that will stand up in a wet year on rich ground. There are only three things that we see, for farmers to do. One is to secure the earliest variety of oats that they can and sow them early. The second is to mow or pasture them off in case they threaten a too luxuriant growth. The pasturing should be done with sheep and unfortunately only a few men can do it successfully. To do a good job of pasturing requires three or four times as much stock per acre as it would ordinarily bear. A man with a large flock of sheep or with plenty of young cattle could manage it, and while this method is practical, it is so only for a few farmers. Most farmers will find it better to mow, but here again great care will have to be exercised. The mowing must be done before the oats are jointed, and then the mowing must be confined to simply clipping off the tops so as not to interfere with the head. We have known some successful jobs of mowing done last year in each of these forms, but it is not work for a boy or a man without mature judgment. If, notwithstanding all this, the oats lie down, then the only thing remaining is to mow them at once and make them into hay. This will secure a hay crop of the best kind for young cattle and dairy cows, and save the young clover.—*Wallace's Farmer.*

CONCERNING OUR ADVERTISERS.

PROFIT AND COMFORT.

Both profit and comfort are combined in the use of Kilfly on your milch cows. The comfort comes to both the herd and the milkers, while the increased yield of milk represents the profit. The cost of the liquid and the appliance for spraying it over the cows, is but nominal, and is soon paid for by the added profit in the increased "giving down" of milk—with the comfort thrown in. See the advertisement elsewhere in this issue.

EXPANSION.

Expansion is a word much in use It is a word which expresses the new political atmosphere. Breathing this new political atmosphere men argue and parties divide, but there is neither arguing or division about one kind of expansion which has been going along in agricultural circles for nearly seventy years. It is the greatest expansion for their benefit which the farmers have ever known. It is the expansion of the sales of the McCormick. Last season the McCormick Company built and sold 189,760 machines. This kind of expansion dwarfs every other achievement American history records in favor of the well being of the farmers. Buy McCormick machines and you get your money's worth.

BALL BEARINGS DID IT.

Bicycles were invented centuries ago, but it required the magic touch of the nineteenth century inventor to make the "wheel" a most useful vehicle, instead of a mere toy.

Ball bearings did it. It was a case where the improvement has proved greater than the original invention. The principle that reduces friction to a minimum in a bicycle is applicable to all machinery, and the cost is the only obstacle in the way of what will be known in history as the "Light Draft Era" in mechanics. Millions of dollars have been spent in this direction. The Deering Harvester Company, of Chicago, solved the problem, so far as grain binders and mowers are concerned, by equipping their machines with roller and ball bearings in 1891.

Other manufacturers in this line have since followed with several kinds of experimental roller bearings, but the Deering machines are still alone in the field with ball bearings of the bicycle pattern.

The Deering Company's annual catalogue for 1899 contains some very interesting historical matter on this subject, fully illustrated. The book also describes the largest factory in America and gives the latest news on the subject of harvesting machinery. Send for one; it's free.

THE aeration of milk is rapidly becoming one of the most important objects that the farmer has to deal with in the disposal of the product of his dairy. The reason for this is, that the managers of butter and cheese factories, and consumers of large quantities of milk in the cities, are daily learning, by experience and from acknowledged authorities, that milk that has been aerated, while warm from the cow, is freed of all foul odors from the animal, or taint from turnips, rag weed, or other vegetables on which the cow may have been fed. Aeration also adds from ten to thirty hours to the sweet-keeping qualities of the milk, and increases the quantity of cheese or butter that may be made from a given number of pounds of milk.

The aerator manufactured by W. H. Young, of Aurora, Ill., and advertised steadily in the DAIRYMAN, is a very simple device and thorough in its work. Circulars can be obtained by addressing as above.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

UNABLE TO STAND.

I have a cow that got down about three weeks ago. She is farrow and had been dry some weeks. I was feeding her just on roughness with the stock cattle; had cane hay, corn fodder, crab grass hay, etc, but no grain. Found her down in shed one morning, got her up; she seemed all right, and went out in pasture with the rest, laid down during the day and we can't get her up. I thought it caused by lack of grain feed. Began at once to feed oil meal, shorts, bran, some ground kafir corn, also oats and hay. She eats heartily and does not seem sick, but she can't be got up; she will get part way up and change position from one side to the other, but if we try to help her she won't help herself at all. My neighbors say I might as well kill her, as they have had such experience and never could save one. J. K. G.

Chanute, Kansas.

ANSWER.

No. I am sorry to say that at this late date of ailment I can't suggest anything likely to help the cow. Three weeks is a long time to defer asking advice which might have helped her at the beginning. After a cow has been down as you say, etc., there is but a slight chance, if any, of recovery. I don't believe the feeding, as you suggest, would have done good. Don't know the cause of the paralysis. There are many. I think some injury was the cause in your case. I would not recommend further doctoring. Don't believe anything you can do will pay you or help the cow.

LOSS OF MILK.

I have a splendid young cow. Last year gave a pailful of milk at a milking when she calved. Now she has not a drop of milk. Her teats are closed, appear soft and natural; up in her udder appear small lumps. Would you advise using milk tube? What kind, or shall I try to dry her up? What to use on the udder to take down swelling?.

Pleasant View. D. L. J.

ANSWER.

Immediately full dose of physic and repeat in 5 or 6 days. Then repeat in one week. Besides the physic, give 70 to 80 grains of iodide of potassa each morning as a small drench, in half a teacupful of cold water. The wind bloweth where it listeth, so do such diseases of the milk apparatus, etc. Let her alone until next calving. She will come O. K. then, more than likely. If you can milk her, do so thoroughly. See ads. in DAIRYMAN as to best milk tube. Rub camphorated spirits well into the swelling, six to two ounces of turpentine. Rub hard once a day for three or four days.

CALF NOT DRINKING.

We bought a new milk cow in March. Cow had been fresh about 10 days; calf would drink. We brought her home; she walked about 4½ or 5 miles in new snow. The calf drank good the first two feeds; since then has not drunk good; very slow and has been getting very poor. Will not drink over 2½ quarts. The cow is 7 or 8 years old; has lived in one place; perhaps she is homesick. Is the calf home-sick, or was it in the milk at the first feed? A. S.

Labarge, Mich.

ANSWER.

I don't think you need trouble about your calf. It will come round to its feed again, no doubt. Put ten drops of nux vomica in the milk for 3 to 6 days. Be carefull. Give good out door exercises in the sun, if not too hot. If the nux vomica is too bitter for the little fellow, give it one dram of fluid extract of golden seal, for 2 to 4 doses.

WHOLESALE USE OF POISONOUS DRUGS.

J. C. R., of Missouri, writes a long letter detailing the cases of two cows that he has been doctoring (?) very heroically.

He has given the first one, since the first of January, about 10 pounds of salts, 3 ounces of aconite, besides saltpeter and other things, and is still giving 20 drops aconite, four times a day, and notwithstanding all this, the cow is getting worse all the time.

Cow No. 2 calved April 9th, and although fed salts and aconite, failed to clean properly. About the ninth day udder became badly inflamed, and salts, saltpeter and aconite (20 drop doses 5 times daily for 3 days) were administered. At the time of writing (April 23d) the daily number of doses of aconite had been reduced to three.

To this letter Dr. Horn makes the following:

ANSWER.

Case No. 1 is beyond any help from me. How she lived, with aconite enough (if good) to kill half a dozen cows, is beyond my knowledge.

Case No. 2. Such wholesale administering of one of the most deadly vegetable poisons, is evidence of great ignorance of its properties and probable effect. After such exhibitions of dangerous medicines, I am quite unable to form even an appropriate estimate, as to the present condition of your cows.

CALF SCOURS.

A neighbor had nine yearling calves that died last winter. They had scours all winter. He opened some of them and discovered that the calf's gall was larger than its liver. Its liver was saturated with gall and the lining of the stomach had disappeared. Its digestive organs seem to be turning to gall. L C.

Montesano, Mich.

ANSWER.

Something in the food caused the liver disease; what this was I am not just prepared to say, as there are several forms of food likely to cause disease of the liver. The scours in your case shows this in the affection of the liver. The cure would have been the prevention.

REMOVING A CURB.

What will remove a curb from horses leg, brought on about one week ago working on farm? Horse is five years old. M. S.

ANSWER.

Perfect, absolute rest. After the inflammation is over, cut off the hair and apply the Gombault's Caustic balsam; quit for a while. When the blister is good, cover with hog's lard until scabs are off. Then repeat.

RUPTURE.

I have a nice cow due to drop calf May 10th, and seems to have broken down. I can't think of any other name as appropriate. About two weeks ago, her belly broke down, so that the bag is far up on side of stomach She eats well, and seems to be in perfect health. Is there any help for her?

N. Rupert, Vt. W. B. D.

ANSWER.

The symptoms point to a dead calf, or rupture. To get the proper diagnosis, a personal examination is needed by a competent veterinarian.

MANGE.

I have a pure Holstein calf, 10 weeks old, which about 3 weeks ago had a breaking out on and around her ears. I applied chloronaptholeum—it seemed to blister the part. The trouble has spread over her body, nearly. The hair comes off, leaving the skin dry and hard. She eats well.

Newburg, O. E. A. A.

ANSWER.

Mange. Cleanse with tar soap and hottish water. Then rub in pyroligneous acid, two ounces, oil of tar, one dram; fish oil, three ounces. To be thoroughly mixed and kept in a dark place out of the sun. Twice a day for a few days. Keep aloof from the herd, or they will be likely to become infected.

MANGE.

Our young cattle have a skin disease which looks something like bee stings only there is a yellow, waxy, crystal form in the center of each of these little lumps. They do not seem to be sore to touch. They generally begin on the animal's head and spread over the neck and belly, and on the legs, but not on the upper part of the body. They are not easily seen, but easily discovered by passing the hand over the animal, as they are very close together. J. M.

Oscoda, Mich.

ANSWER.

If not itch, scabies, or mange, I don't know what the disease is. Of course the three above skin diseases are all mange. Immediate full dose of physic; wash as above for mange, and prepare the same mixture exactly, but six times as much. Follow the same treatment exactly.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

FITS Permantly Cured. No fits or nervousness after first day's use of Dr. Kline's Great Nerve Restorer. Send for FREE $2 trial bottle and treatise Dr. R. H. KLINE, Ltd., 931 Arch St., Philadelphia, Pa.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a POSITIVE CURE for abortion in cows. SWORN testimonials furnished on application. Dr. D. ROBERTS, Veterinary Surgeon, Address, Waukesha, Wis.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis

SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitatic* "I have used several so-called 'Cattle Comforts,' *none* equal to '*SHOO-FLY.*' It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected. SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., PA

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

WE HAVE IT!

POSITIVE

Hog Cholera Cure

MONEY REFUNDED If we fail to Cure a single case. SEND FOR FREE SAMPLE.

Wilbur Seed Meal Company,

185 2nd Street, - MILWAUKEE, WIS.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

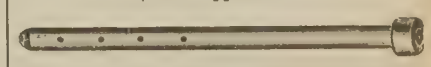
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

NOT long since a dairy farmer, not a thousand miles from this city, was ridiculing an article he had read in HOARD'S DAIRYMAN, about the necessity of guarding against the dust that falls from unbrushed cows in the stable. His wife spoke up and said:

"Well, Tom, I agree with the DAIRYMAN. Every morning the milk you bring in looks as if you had peppered it."

Then Tom went out swearing that "women have no sense."

Cross Breeding of Jerseys and Holsteins

ED. HOARD'S DAIRYMAN:—Please state in the DAIRYMAN why you oppose crossing of Holsteins and Jerseys. Will not such a cross increase the milk of the Jersey and the butter fat of the Holstein?

Grant Co., Ky. W. H. DAUGHERTY.

The position of the DAIRYMAN on this question has been taken as the result of considerable observation along the line of such cross breeding with grade cattle, where registered sires, either Jersey or Holstein, were bred to grade cows of the opposite blood.

In theory, the cross ought to result as Mr. Daugherty suggests, but practice does not always justify theory. It appears to us that the prepotency of the Jersey and the Holstein are so strong and variant, especially with the latter, as to set up a conflict rather than such a union as is desired.

The result in the majority of cases that we have noticed has been what is called an "unfavorable nick."

There is shown a peculiar uncertainty in the character of the subsequent progeny for several generations. We take it that there is, in one sense, too much of the "dual-purpose," and that these purposes being widely apart in their tendencies do not knit well together in such a way as to create a constantly enlarging and harmonious current of dairy blood, purpose and character. As a rule in breeding, it is not wise to unite two strains too widely apart in tendency and in character. In such cases there is apt to result a lack of harmonious nicking as it is called.

Ascertaining the Real Value of Silage.

ED. HOARD'S DAIRYMAN:—I see by the label on my paper that my subscription has expired. Enclosed you will find $1 to renew the same.

Confirming what you have so often published, I myself can say a few words about my silo feed. I have been feeding silage for eight years and did not know the real value of it until now.

I fed the last of this year's supply the 28th of March. The third day thereafter, although the cows had the best of clover hay and the same amount of grain, the yield of milk for the twenty-two cows decreased 100 pounds. So I think I know the value of silage to me to be about $1 per day more than the best clover hay.

Spring very late here. Snow not all gone yet. A year ago today, April 10th, I was seeding. J. D. McA.

Mills Center.

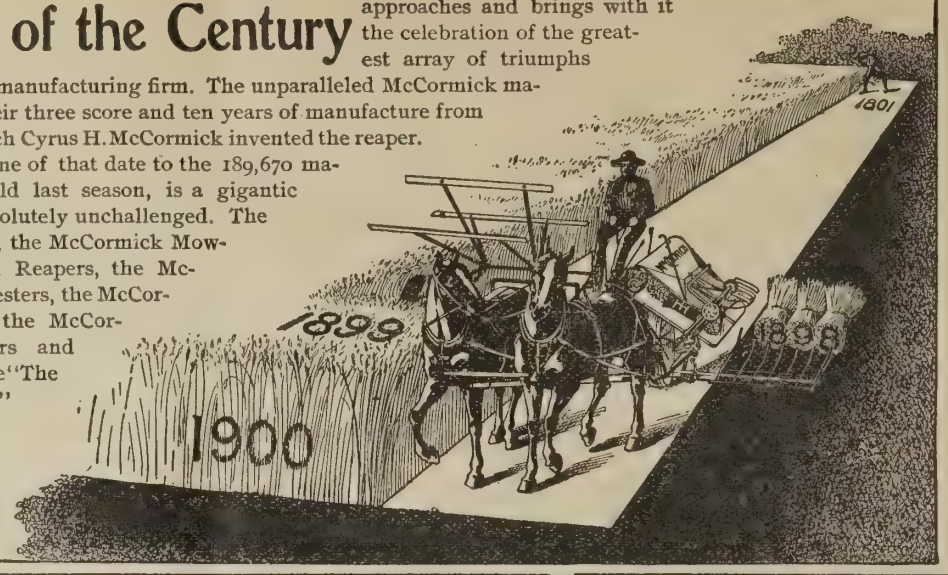
Salting the Cows.

We have found from a sad but glorious experience, that cows need salt, not when you think they do, but when they think they do. Nothing could be more irregular than the way the average farmer sets up the salt to his cows; when he happens to think of it he scatters some salt along the ground, and the mad, feverish haste with which the cows go for it show that they have been hungry for it a long time; and when the farmer doesn't happen to think of it, the cows don't get salt. Other farmers mix salt with the cows feed, and that is a worse plan yet, for it is better to feed too little than to force too much. The best and only sensible plan is to place salt where the cows can get it where and when they want it.—Nebraska Dairyman.

The advice of our contemporary is all right for men who have no judgment or prefer not to use what judgment they may have. It is as good practice to mix salt with the feed for the cow as to mix it with the food prepared for men. Let the allowance be from three-fourths of an onnce to a full ounce, daily, for moderate feeding with a proportionate increase when the feed is ncreased.

The End of the Century approaches and brings with it the celebration of the greatest array of triumphs ever credited to one manufacturing firm. The unparalleled McCormick machines will reach their three score and ten years of manufacture from 1831, the year in which Cyrus H. McCormick invented the reaper. From the one machine of that date to the 189,670 machines built and sold last season, is a gigantic growth of output absolutely unchallenged. The McCormick Binders, the McCormick Mowers, the McCormick Reapers, the McCormick Corn Harvesters, the McCormick Hay Rakes, the McCormick Corn Huskers and Fodder Shredders are "The Best in The World."

McCormick Harvesting Machine Company, Chicago.



Milk Fever.

The New Jersey Experiment Station issued an excellent bulletin on this disease, and we give the following extracts from it. It is claimed that one form of the disease is caused by germs. This may account for the fact that, in some herds and barns, milk fever seems to be contagious like abortion.

The efficacy of the wet-pack or "sweating" system of treatment in this, as in all fevers, depends on the fact that the sweat glands remove the poisonous products that have accumulated in the blood. In fact, the paralysis produced by the poisons absorbed from the womb, probably, also extends to the kidneys, so that those organs cease to remove the ordinary poisonous excreta made in the system. Thus we have here really a double poisoning. It has also been suggested that there may be poisonous products manufactured by germs in the udder, which are absorbed.

The old theory of the cause of milk fever explained the disease as a sudden over-distension of the blood system, due to the accession to the general circulation, after calving, of the blood which flowed in the uterus before calving. This factor, probably, enters into the question, but there can be no doubt that bacterial poisoning is the principal cause of the disease.

TREATMENT AND PREVENTION.—Treatment should begin a week or two before the calf is expected, and should be practiced on every cow whose condition is such as to lead the owner to fear the occurrence of milk fever when she calves. The treatment is to continue for a week after calving. Begin giving short rations, feed sparingly of rich food, such as grains and clover, rather give apples and bran mash. Give salt to provoke thirst, and encourage the cow to drink, by warming the water if it is cold. Large doses of Epsom salts, a pound to the quart of water, may be given once or even twice a week, to provoke an unwonted activity of the bowels, and to counteract the tendency to constipation. If the udder is distended, it should be rubbed and milked regularly. The cow should be kept in a place which is dry, clean, airy and cool (in Summer) or warm (in Winter), and away from the other animals. Should the owner fear that his method has not succeeded in reducing the blood sufficiently, as may happen when the time is short, a veterinarian should be called to let out several quarts of blood from the jugular vein of the neck. Just before calving, the vagina should be washed out with a generous injection of two per cent creolin solution, which should be repeated daily after calving, for a few days. Immediately after the calving is completed, the veterinarian should inject creolin solution into the uterus, as in cases of abortion. Neither carbolic acid, nor corrosive sublimate nor iodoform can be recommended for disinfecting the genital passages, but these disinfectants and others may be used liberally upon the soiled bedding, barn floor, etc. If the cow is down, she should be propped up on the brisket to prevent the running of food into the lungs from the stomach.

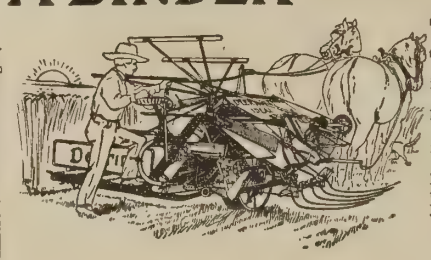
Oh, what shall the har-vest be?... Oh, what shall the har-vest be?

NOTES ABOUT A BINDER

WITH SPECIAL REFERENCE TO THE DEERING IDEAL.

If it were lacking in any of those qualities which farm use has demonstrated to be the prime requisites of a grain harvester it would not be Ideal. In the **Deering Ideal** there is nothing lacking.

1. The Deering Ideal is strong and rigid in build.
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4. The Deering Ideal binds every bundle.
5. The Deering Ideal is a handy machine.
6. The Deering Ideal has more good points than any other make of harvester.



DEERING HARVESTER COMPANY, CHICAGO.

Sown in the darkness or sown in the light, Sown in the light, Sown in our weakness or sown in our might, Oath ered in time or

It takes a teaspoonful of analine butter color to color eight pounds of butter. This quantity of butter color has been shown to be sufficient to kill a human being.

Thatcher's Orange Butter Color

Is a pure, healthful vegetable color. It costs more than coal tar color to make, but the creameryman gets back in the ext a weight of his product the extra price paid. It gives butter the

DELICIOUS JUNE TINT.

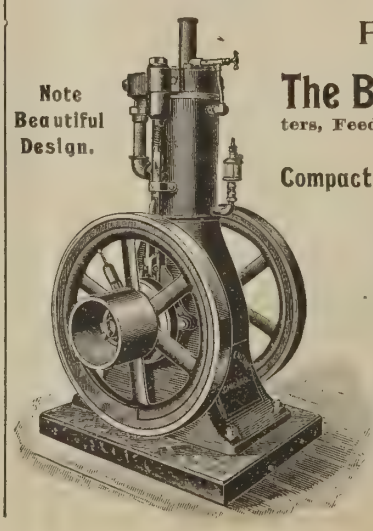
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The Burrell Upright Engine

FOR GAS OR GASOLINE.

Note Beautiful Design.



The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

3 Actual H. P., On Time	$140.00
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Spot Cash	115.00

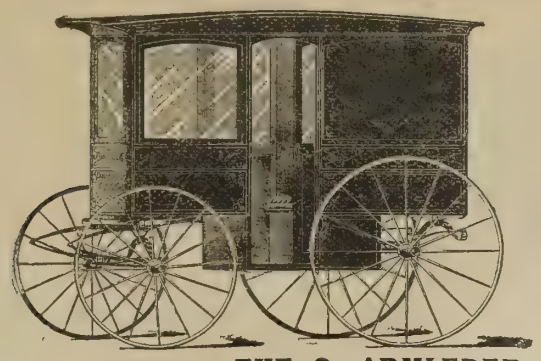
Price includes Gasoline Tanks and Full Set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

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SOLE MAKERS,
239-241 So. Jefferson St., Chicago, Ill.

Horizontal Engines made in larger sizes.

A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

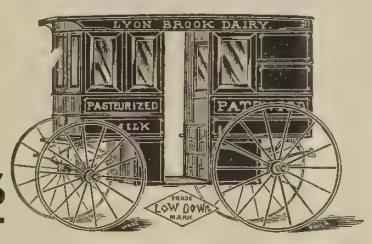
Write us for our Catalogue which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.

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Of the now famous "LOW-DOWN" Milk Wagon.

Imitation is an acknowledgement of real merit. Thirteen years' trial has proven the Parsons "Low-Down" Wagons to be **THE BEST.** Secure our catalogue of strictly first-class, hand made, up-to-date, durable work.

PARSONS' "LOW-DOWN" WAGON WORKS,
EARLVILLE, N. Y.

THE ONLY LOW-DOWN

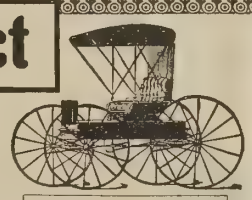
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20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

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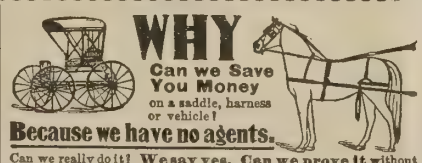


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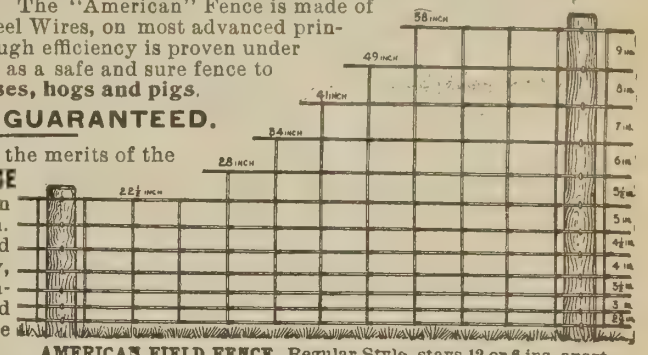
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Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

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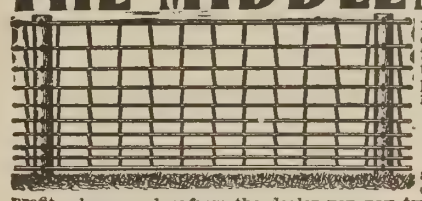
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AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

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makes the fence no better. Then why pay him a lot of extra money? Why not save that amount by buying from us at wholesale prices? We do not impair the quality to make our fence cheap. In fact, we depend upon the quality to hold your trade. We could not sell the

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PIG-TIGHT!

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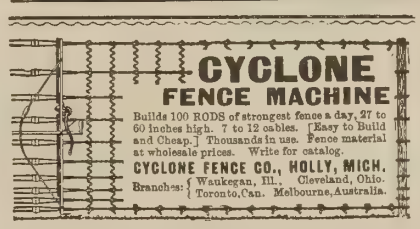
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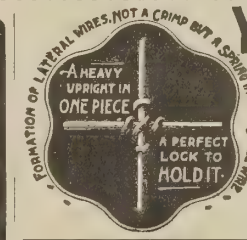
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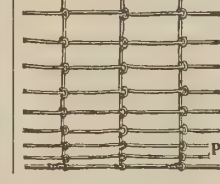


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This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

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Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

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Keystone Hay Loader.



Loads the hay from the windrow or cock, or direct from the ground if the hay is heavy. Takes the hay up clean but takes up no manure, rubbish, &c. It makes haying quick and easy. In showery weather it often saves enough to pay for itself in one day. Loads a wagon in 5 minutes.

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KEYSTONE MANUFACTURING CO., 39 RIVER ST., STERLING, ILL.

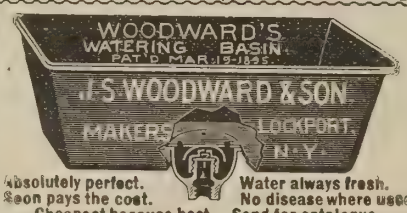
SUCCESS ONE HORSE

TREAD POWER



THE MOST Successful and Satisfactory power for running Cream Separators, Churns, Pumps, because it has a Governor which regulates the speed to a nicety. A successful power for running small Grinding Mill, Feed Cutter, or any machine, because the largest horse can work in it with ease. SIMPLE, EFFECTUAL AND LASTING. We make 2 and 4 horse Tread Powers, also Ensilage Cutters, HERO AND AMERICAN FEED MILLS, Shellers, Wood Saws, Sweep Powers, THE CELEBRATED GOODHUE WIND MILLS, etc. Our 150 page illustrated Catalogue SENT FREE.

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STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

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THE AMERICAN WELL WORKS

AURORA, ILL. – CHICAGO. – DALLAS, TEX.

The Most Power

can be gotten from a horse, or two or three horses, by using a

SMALLEY

Tread Power.



This cut shows our 2-horse power mounted on a 2-wheel truck. Provided with EVENER LAGS; all our 1, 2 and 3 horse powers are equipped with the Smalley Patent Governors and Speed Regulators. If the band flies off the horses can't be thrown out or damaged. No danger of fire; no mud; man and beast indoors. Applicable to all purposes requiring power. Don't buy until you get our free POWER CATALOGUE.

Smalley Mfg. Co. Box 16, Manitowoc, Wis.

THE MOST FOR THE MONEY.



THE MOST POWER for the money can be gotten from our 1, 2, 3 and 4-horse

TREAD POWERS

because safest for dairy machinery, cutting, shelling, grinding, sawing, pumping, etc. Get our circulars and know all about them.

ST. ALBANS FOUNDRY CO., St. Albans, Vt.

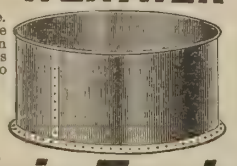


DO YOUR OWN... **GRINDING** With one of our FARMER'S FRIEND Sweep Feed Mills, and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. We make Well-Drilling Machinery.

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SUNNY WEATHER

will soon be here. That will start the hoops on all wooden tanks and hundreds of them will "fall to staves."



If you buy an

Electric Tank

You will always have a Tank.

They are made of best galvanized steel and will not rust and cannot rot. Thoroughly riveted, soldered and re-inforced with iron strips. Makes them unusually strong and lasting. Made in many sizes and for all purposes. Write for Special Tank Circulars, prices, etc., they are FREE.

ELECTRIC WHEEL CO., Box 303, QUINCY, ILL.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.

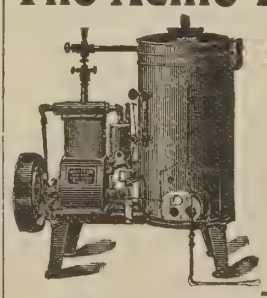
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If you want the best machinery for making wells, to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

F. C. AUSTIN MFG. CO., Harvey, Ill. (Chicago Suburb)

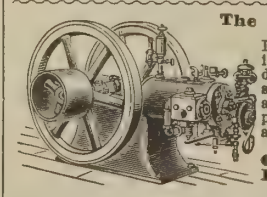
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The Acme Engine Still LEADS



1 TO 8 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to Rochester Machine Tool Works No. 9, Center St., Rochester, New York.

The **Lambert**



Is a success at grinding feed, cutting fodder, churning butter, separating cream, anything, it's so simple. Write for catalogue, prices, etc.

The Lambert Gas & Gasoline Engine Co., Anderson, Ind.

GASOLINE ENGINES

FOR DAIRY AND OTHER WORK.

Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. N. DIRIGO ENGINE WORKS, Portland, Me.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.

FROM MAKER TO USER DIRECT AT WHOLESALE PRICES



Buggies $35 and Up.

BUGGIES AT WHOLESALE.

We manufacture a full line of Buggies, Phaetons, Surries, Spring Wagons and Road Wagons and sell them to you direct

From our Factory at Wholesale Prices.

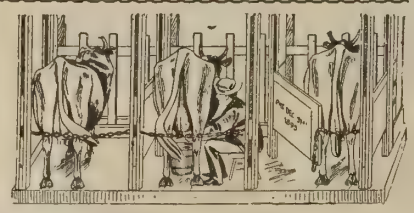
This saves you all the extra expense of double shipment, traveling men's expense, middle men's profits, &c.

We make all the Vehicles we Advertise.

Each is the best of its kind. Best seasoned stock, best workmanship, best finish and best styles.

Our line of Single and Double Harness embraces everything you could wish in style finish and variety of mountings. Handsome illustrated catalogue FREE. Prices of everything in plain figures.

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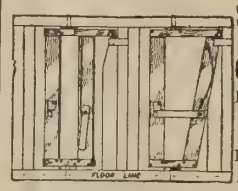


The **DROWN PATENT COW STALL** guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. No TIES. It costs more to not have than to have it. Send for information. DROWN COW STALL CO., H. C. DRAKE, Ag't, for Wisconsin, Madison, Wis.

Mention HOARD'S DAIRYMAN when writing.



Newton's **COW TIE** Improved Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean E. C. NEWTON CO. Batavia, Ill. Catalogue Free



Scott's Perfect Swinging And Self Closing **Cow Stanchion** Each cow shuts herself in place. CIRCULARS FREE. B. C. SCOTT, 83 Beach Street, Bridgeport, Conn.

These Offers will prove a Saving.

To those who want some other journal in combination with HOARD'S DAIRYMAN. . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$1.50
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Potash.

ENOUGH of it must be contained in fertilizers, otherwise failure will surely result. See that it is there.

Our books tell all about fertilizers. They are sent *free* to all farmers applying for them.

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WANTED—Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, INDEPENDENCE, IOWA.



We are the largest manufacturers of steel wheels in America We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue,

HAVANA METAL WHEEL CO. HAVANA, ILL.



Catalogue & etc.

THE IMPROVED **VICTOR Incubator** Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE. GEO. ERTEL CO., QUINCY, ILL.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for GLUTEN FEED. This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address CHAPIN & CO., Milwaukee.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.80%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY

27 Beaver Street, NEW YORK.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent post-paid for 50 CENTS. Will send as premium for

ONE NEW SUBSCRIBER

FARM BARGAINS

ST. CROIX COUNTY, WISCONSIN.

Drop me a postal card and I will mail you a descriptive price list of genuine SNAPS in improved and unimproved farms in the best agricultural county in Wisconsin.

L. A. BAKER, Care of Manufacturers Bank, New Richmond, Wis.

UNIVERSITY of ILLINOIS

HOARD'S DAIRYMAN.

University of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., MAY 12, 1899. NUMBER 13

WE PAY CASH f. o. b. Your Place for CREAMERY, DAIRY and PACKING STOCK in lines; EGGS in new cases. . . . . What have you to sell?
J. F. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT And Wholesale Dealer in Fancy Creamery Butter and Cheese.
REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade St., NEW YORK.

David W. Lewis & Co.
177 Chambers St., NEW YORK,
Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

FOR SALE
Splendid Manufacturing Property
Located on the Main street of a thriving and growing town in North Central Iowa. Property 133 x 133 feet—Main building 40 x 133 ft. with two additions. The town is the county seat—has paved streets, three railroads, good water power and is in short a model factory town. Price low and terms easy. For further particulars address, J. B. DICK, 211 Superior St., Toledo, Ohio.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**
Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.
A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Odor to Destroy One.
SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.
Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.
FITCH CHEMICAL COMPANY, Bay City, Michigan.

A Business Talk.

The great majority of creamerymen this spring will buy some new material for their creameries. It is important that this material shall be of good quality. It will last longer and be cheaper in the end than the average of such supplies on the market. When

FITTING UP A CREAMERY

See that the Vats, Churns, Butter Workers, Tin Ware, Butter Boxes, Engines and Boilers are of the Haney-Campbell manufacture. They cost no more than the other kind, but are of much better quality. Mere mention of these things is meaningless; they must be seen to be appreciated. they must be tried to appreciate their excellent lasting qualities.

Tubular Separators have conquered the world in the matter of clean skimming. They produce a smooth, even cream and have large capacity. They run without the use of a steam engine and have practically no wearing parts.

Babcock Testers are machines that have been made on clap-trap lines until recently. We have a full line of the Elgin Manufacturing Co.'s testers—**No-Tin, Russian** and **Standard.** Send for our illustrated catalogue.

HANEY-CAMPBELL CO., Dubuque, Iowa.

PEAS FOR HOGS
FIELD PEAS
FOR HOGS AND DAIRY COWS
"EQUAL TO CORN AND SIX WEEKS EARLIER"
THE ALBERT DICKINSON CO.
GRASS AND FIELD SEED MERCHANTS, CHICAGO, ILL.

Write It In The Contract.

WHAT SHALL I WRITE?

Just This: "Please ship to me a Sharples Tubular Separator. I will immediately put it into my factory and will give it a fair and careful trial. If I like it in every respect and it does all claimed for it, I will keep and pay for it. If it fails to suit me for any reason, I will notify you to that effect and on receipt of instructions from you will re-ship to your order as you may direct."

We know 'tis a wide open proposition on our part and invites trouble from the unscrupulous creamerymen and the unprincipled separator agents who swarm around every Tubular that is placed, trying by fair or foul means to displace it.

But our faith in humanity is large. Out of hundreds of Tubulars placed on such liberal terms, not a dozen creamerymen disposed to listen to the unholy propositions of competitors, or to take an unfair advantage of our liberality, have been found. A few betray our trust for reasons best known to themselves, but we try to steer clear of that kind.



THE SHARPLES TUBULAR SEPARATOR
Has Merit That Will Win.

It is a hollow bowl separator.
It has no metal bearings except the ball bearing on which it spins.
THE BOWL ALONE REVOLVES.

It is a clean, rapid, superb skimmer of large capacity. The best creamerymen everywhere are using it or about adopting it. Send for Catalogue No. 46.

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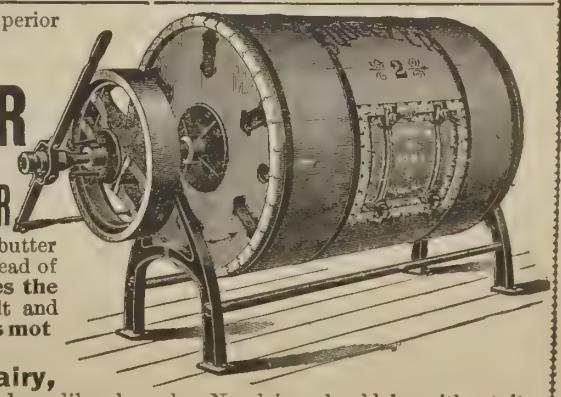
P. M. SHARPLES, West Chester, Pa.
D. DERBYSHIRE & Co., Brockville, Ont.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and **SANITARY DAIRY ENGINEERS.**
HIGH GRADE WORK ONLY. Haddonfield, N. J.
Send for Catalogue of Sanitary Dairy Apparatus

The Machine that will Build a Butter Trade.

Because it will make a superior quality of butter.

THE **SQUEEZER** COMBINED **CHURN AND WORKER**



squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

Made for the Dairy,

and is easily operated and readily cleaned. No dairy should be without it.

Will do Exhaustive Churning at any Temperature.

We are prepared to repair all cream separators and employ highly skilled men for this work.
Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

It is always...

Hard Times



FOR PEOPLE WHO ARE BEHIND THE TIMES.

Keep up with the times and the times will be good to you and you will enjoy the prosperity of the times. The Creamery is behind the times which is not equipped with a

DISBROW

Combined Churn and Butter Worker.

These are good times. NOW is a good time to buy a Disbrow and prepare for the coming season. They are making money for their users everywhere.

OWATONNA MANUFACTURING CO.,

SOLE MANUFACTURERS. . . . Owatonna, Minn.

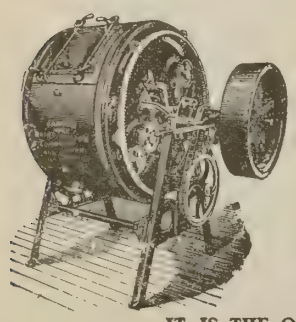
Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES :— Kansas City, Mo. Waterloo, Iowa. Minneapolis, Minn. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

Print Butter Should be wrapped in GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on Every Sheet.

SEND FOR SAMPLES.

Department H, PATERSON PARCHMENT PAPER CO., Passiac, N. J.

There's More Money

in milk than you can get out of it by the old way of skimming. If you had a Victoria Separator you would get *all* the cream—and a better quality of cream—from the milk, in much less time, with much less work than by any other way. It will pay any one who makes butter or sells cream, to write for illustrated, descriptive circular of the

VICTORIA CREAM SEPARATOR



Made in hand and power sizes, adapted to the needs of the smallest as well as the largest dairies. The Victoria Hand-power Separator is as practical, as durable and skims as close as the largest separator made. **Agents wanted.** Write for catalog of dairy appliances—milk coolers, strainers, milk scales, butter tools, etc.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia, Pa.

THE IMPROVED

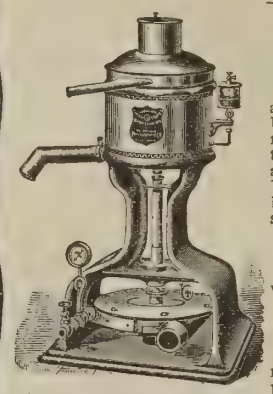
U. S. Triple Current Separator

PROVES ITS SUPERIORITY EVERYWHERE.

AT THE STATE EXPERIMENT STATIONS.

Read a Few 1899 Reports.

Massachusetts,	average of 19 tests,	January 7th	to 31st,	.033	of 1%
Ohio,	" " 19 "	"	10th to 21st,	.034	of 1%
Vermont,	" " 18 "	"	9th to Feb. 3d,	.038	of 1%
Wisconsin,	" " 17 "	"	2d to 19th	.03	of 1%
An average from 73 tests of skim milk of				.034	of 1%



IN THE FACTORY.

The U. S. Takes the Cake.

POYNETTE, WIS., Jan. 20th, 1899.

Have been running U. S. Separators since 1892, and can cheerfully say that the new No. 1 Improved U. S. Separator takes the cake. When the skim milk is tested it shows only a trace of fat. I won the sweepstakes and three other first prizes, amounting in value altogether to $115.00, at the 1898 Wisconsin State Dairymen's Association, and all because my No. 1 U. S. Separator makes such smooth, perfect cream.

R. M. BUSSARD, Prop. Bussard's Creamery.

AND IN THE DAIRY.

Very Durable, Very Easy to Operate, Never Out of Order.

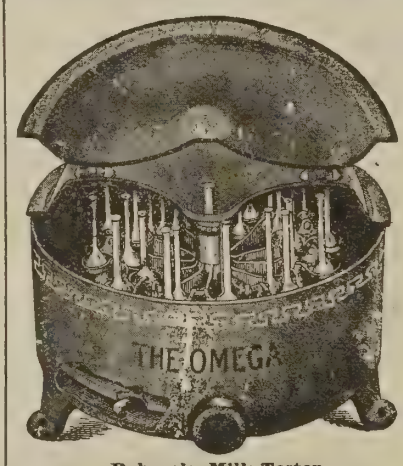
TIFFIN, OHIO, Nov. 28th, 1898.

Have used the No. 5 Improved U. S. Separator nearly three years and do not think it is worn a particle. It runs as smooth as the day we first started it. **It is the best separator in the world,** it is so easily run and so easy to clean, and it is always in order to do the best of work. We wonder how we ever got along without one. We think very much of the enclosed gearing. You have the best machine I know of in running and mechanical construction.

GEORGE D. SCOTT.

Write for Illustrated Catalogues.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.



Put Your Nose Over It.

Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

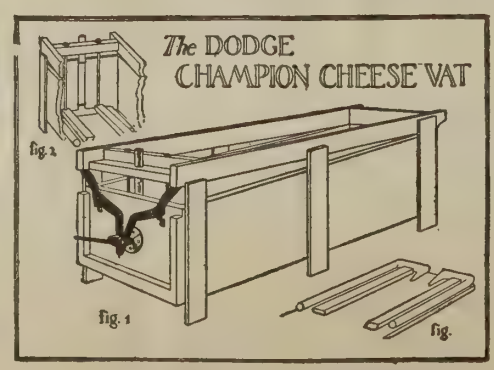
PERFECTION MILK COOLER AND AERATOR

it would **smell sweet, be sweet** and **remain sweet.** It takes out all animal heat and with it all bad odors of **animal, stable** or **food.** Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated catalogue and prices on **Farm** and **Dairy Supplies.**

L. R. Lewis Mfr., Box 10, Cortland, N. Y.

THE DODGE TILTER

....FOR CHEESE VATS....



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

WRITE FOR PRICES.

OAKES & BURGER, CATTARAUGUS, N. Y.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

JEFFERSON COUNTY, N. Y., has 125 cheese factories, as well as several creameries.

D. F. SEXTON, of Snohomish, Wash., has a dairy of 21 Jersey grade cows 11 of which are heifers. The production of those cows and heifers, last year, was an average of 305 pounds of butter—another proof that it is not the location, but the men that makes the real difference in the production and profit of this business. The first thing for every dairyman to strive for is, to be the right kind of a man with the right kind of ideas, and all things else shall be added.

Among the many interesting papers which were presented at the last winter's convention of the Wisconsin Dairymen's Association, there were none more timely, or worthy of more earnest consideration by those interested in the cheese industry of the country, than the article found elsewhere in this issue, by a practical New York cheesemaker. The current year ought to witness more than one factory reorganized on the lines suggested by Mr. Cook.

HONOR TO PROF. BABCOCK.

Recognizing the distinguished service which Prof. S. M. Babcock has rendered to the cause of advanced dairying by the invention of the milk test which bears his name, and by other scientific investigations of immeasurable value, the present session of the Wisconsin legislature, has appropriated three hundred dollars for a gold medal to be suitably engraved and superscribed and presented to him. This is a well deserved recognition of the genius and unselfish devotion to agriculture of one of the foremost scientists of the day.

SCOTCH DAIRY JUDGMENT.

The illustration on this page, for which we are indebted to a friend in Copenhagen, Denmark, whose interesting letter in regard thereto, appears in another column, exemplifies better than any words can describe, the inevitable tendency and result of toying with general-purpose ideas and ideals. The awards at this Scottish show are in line with awards at other shows in Great Britain, and in America, too, for that matter, being of a character that would probably command hearty assent from the *Breeder's Gazette*, which, by endorsing "square-endedness" must necessarily accept all that goes with square-endedness, or results from it. It is to such awards as these that the Short-horns owe their dethronement as dairy animals, and if our Holstein friends dally too long with their devotion to a supposed milk and beef form, we fear they will land in the same abyss.

AS TO ADVERTISEMENTS.

HOARD'S DAIRYMAN is continually besieged to give space in its columns for various nostrums, implements and machines, which manufacturers and dealers seek to bring to the attention of dairymen, and induce them to purchase, but its invariable rule in these cases is not to accept an advertisement in these lines that we could not conscientiously endorse in its editorial columns or by personal letter. We cannot undertake to discriminate between rival machines and pronounce *ex cathedra* which is best, but there is no amount of money that can move us to give space for advertisements of "preservatives" or machinery which we do not believe to be fairly well adapted to the purposes for which it is recommended. It follows therefore that we forego a goodly sum of money every week, amounting to several thousands of dollars each year, because of our endeavor to deal fairly and squarely with our readers. If you see a dairy utensil or machine advertised in the DAIRYMAN, it is because we believe it to be at least fairly well adapted for use by dairymen. Such things in the dairy line as you do not find advertised in these columns may, as a rule, be most safely let alone.



A PAIR OF PRIZE WINNING DAIRY (?) COWS.

Winners of First and Second Prizes at the Scottish National Show, the First Prize Winner—the Polled-Angus Cow—also gaining the Silver Cup and Gold Medal as the best Dairy Cow in the Show. Owned and exhibited by Mr. JOHN LOCKHART, Colinton Mains, Edinburg.

SHEBOYGAN COUNTY CHEESE FACTORIES.

They Open Up This Spring Somewhat Earlier than Usual.

The majority of the cheese factories in the county have opened up and are using all the milk they can get hold of. The supply, however, is very limited, and will be for a month or more. The scarcity is due to the fact that nearly all the farmers are raising their calves, which are bringing exorbitant prices. They allow them to run with the cows, and do not expect to patronize the factories until the calves are old enough to take care of themselves. The price of cheese is also 'way up, higher than it was ever known to be before at this time of the year. This fact has caused the factories to open about three weeks earlier than usual, but it is doubtful if they will make much cheese before the middle of next month. Butter, too, is also bringing a good price, which is causing the creameries to get in shape for the season's campaign as rapidly as possible.—*Sheboygan Telegram.*

If it be true, as the *Telegram* avers, that the farmers of Sheboygan county are letting their calves run with their cows, it illustrates very forcibly the decline of sound dairy sense and judgment in that once famous old dairy county. Any man of dairy experience must know that to let a calf run with the mother several weeks will result in serious after loss in the amount of milk that cow will give for the season. A year or so ago, a prominent dairyman residing in Sheboygan county made the statement to the writer that there was much less pride and ambition towards good dairy farming among the farmers of that county, than existed fifteen years ago. He claimed that their cheese factories and farmers both were living on past reputation and caring but little about keeping up to the mark in sound practice, as they ought to.

The report of the *Telegram* would indicate that there is some truth in the Sheboygan man's statement, though we could hardly credit it at the time.

What Is Wanted Is Cows, Not a Cow.

We copy, with full approval, the following communication from Mr. C. I. Hood to the *Jersey Bulletin*. What a cyclone it would have created in the *Bulletin* office if such sentiments had appeared in the editorial columns of the DAIRYMAN, especially any suggestion of the possibility of fabulous records.

Hood Farm is doing a grand work for the dairy interests of the country in establishing a system of yearly records, both of the production of butter and the food required to produce it, and we are very much gratified that Mr. Hood has the necessary influence to secure the publication in the *Bulletin* of such sound doctrine as the following:

I want to express my concurrence in the admirable letter of my brother Jersey breeder, Mr. Gettys, of Athens, Tenn., published in the *Jersey Bulletin* of December 21, 1898, especially when he says:

"In my humble way I have been breeding, feeding and testing registered Jersey cattle for eighteen years, and each recurring year only adds to my appreciation of the worth of any cow that will produce fourteen pounds of gilt-edge butter in seven days. I believe in testing every cow, but think the average standard should be raised, rather than that of the individual cow."

Hood Farm can probably lead out twenty-five greater Jersey cows than the twenty-five best cows shown at the Columbian Exposition at Chicago, and better than can be selected, to the same number, from any other Jersey herd in the world.

But the herd that can show any great number of the phenomenal Club tests referred to by Mr. Gettys, doesn't exist. The cow that will honestly make fourteen pounds of first-class butter in seven days, on non-forcing rations, and is persistent in her large production, is a great cow.

The line of breeding pursued by Mr. Gettys, and the results aimed at, are those also pursued and aimed at by Hood Farm. We are not trying to produce a cow that can be forced into a fancy record, but cows that can elevate and keep up the average standard. Only from such cows come the permanent improvements of the dairies of the country. And our farmers who are testing cows should not be discouraged if it seems a long way from their fourteen pound cows to the fabulous figures which now and then appear. The dairy world, by common consent, puts the stamp of nobility on the fourteen pound cow. In the end, we shall considerably better that average. But do not forget that what we seek is *cows*—not *a cow*.

C. I. HOOD.

Hood Farm, Lowell, Mass.

"If."

If somebody tells you that a tax of 10 cents per pound on colored oleomargarine wouldn't be constitutional, tell him he is ignorant of federal taxation laws—for he is.

If anybody tells you that a 10 cent tax would legalize colored oleomargarine and prevent the state having control of it until after it had passed from the hands of the original receiver in an original package, tell him he is very much behind in his information, regarding supreme court decisions upon this exact point; and tell him further that when oleomargarine has paid a 10-cent tax it matters little how much license the holder has to sell it—it won't be sold when butter is called for. There won't be any profit in it.

If anybody tells you that the attempt to secure this law is useless, tell him that nothing was ever accomplished without effort, and that "can't" never did anything.

If anybody tells you this is "class legislation," tell them that the tax on beer, whisky, wines, tobacco, bank checks, patent medicines and everything else that is taxed is the same kind of legislation.

If anybody tells you that a tax of 10 cents on colored oleomagraarine would be looked upon as an exterminating tax, tell them that Congress placed an internal revenue tax of 10 per cent on state bank notes in 1863 for the purpose of driving them out of existence; but that if butter ever got up as high as 30 cents, oleomargarine could sell with profit even with a 10-cent tax; that if butter were to sell to-day at 4 cents per pound, the two cent tax would be a prohibitive tax on oleomargarine. Few people really understand this question.—*Chicago Dairy Produce.*

Minnesota as a Dairy State.

But a comparatively few years ago this state was noted only for its wheat raising, with some mines in the north and pine in the northeast, but we are hearing it mentioned of late as a dairy state. The cow has come to make us rich as she has several of our sister states. The record we have thus far made for prime butter is unexcelled by any state in the Union, and creameries are starting in every populated county of the state. The grasses for stock have no equal for nutrition and rich milk, therefore when another generation comes upon the scene this will be known as the chief dairy and fruit state of the grand old Union.—Granite Falls *Tribune.*

There is more of hope and promise and value in the two-line statement that the "butter fat" in the milk furnished the Tillamook creamery last year, "brought the farmer an average return of 20.3 cents per pound," than in all the letters read and speeches made at last week's political banquets.—*The Oregonian.*

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THE Condensed Milk factory, at Newport, Maine, pays the following price for milk, from April to September per 100 pounds: April $1.08; May 80 cents; June 84 cents; July 84 cents; August $1 08; September $1.08.

A Kansas City police justice the other day fined three milk dealers $500 each, for selling milk below the city standard in butter fat. With one party, it was the second offence and his license was revoked. Extremes often meet. Kansas City has a very delicate conscience on milk, but sends out daily, enormous quantities of counterfeit butter.

Gnats and camels often sleep in one bed there.

THE DIFFERENCE IN VALUE OF MILK FOR CHEESE MAKING.

The patrons of the Barr cheese factory, west of Middaugh Settlement, Alleghany Co., New York, met a few days ago to arrange matters for the coming season. A discussion arose relative to the merits of the Babcock test, when two of the party put up $10 each on a bet that the test had made a difference of 23 cents on a hundred pounds of milk. Oliver Cooley put in 2,022 pounds of milk to the factory, which tested 3.8 butter fat, for which he received $1.00 per hundred. D. O. Jordan put in 1,670 pounds of milk, which tested 4 7 butter fat, and for which he received $1.23 per hundred. Cooley keeps native cows and Jordan has Jerseys. Cooley claims to have won the $10, and the stakeholders think that the whole sum of $20 should be paid into the treasurer.

The decision of the judges, as to the final disposition of the bet money, is about on a par with the objections many have to the Babcock test.

A WISE MOVE.

Mr. J. E. Nissley, Chairman of the Executive Committee of the Kansas Dairymen's Association, in speaking of the next convention of the Association, to be held at Manhattan, Nov. 15, 16 and 17, says:

"This state convention will be distinctly for the farmers of the state. It will embody features of especial interest to the producers of milk. The best ways of handling milk, raising cows for milk, and getting milk on the market, will be discussed.

"In the past, the general tendency of the convention has been to give programs of especial interest to creamerymen, and devices for making butter have somewhat monopolized the attention of the convention. Now, however, we have the creameries all right, and our only trouble is to get milk enough to run them. This convention will endeavor to offer suggestions to the farmers along this line."

Dairy Associations must never forget that the farmer who produces the milk is the chief link in the chain, and that so far as progress is concerned, the whole procession must wait for him.

Every community and state goes ahead in dairy accomplishments only so fast as the men who produce the milk are educated up to the best thought and practice from the farm standpoint.

Whenever we find a community of farmers well posted in cows and cow management, we invariably find that the creamery and cheese factory have to be up to grade also, and both are invariably prosperous.

For this reason our state dairy conventions should be devoted to the cow end of the business very largely.

THEY NEED IT.

One of the DAIRYMAN'S good friends, Mr. E. W. Mosher, cashier of the First National Bank of Aurora, N. Y., sends us nine new subscribers and writes:

"I wish I might make it ninety-nine, for there are that number of dairymen here who need it. They will do the same thing year after year, because it is too much trouble to make the change."

On that point we are reminded of the remark an Irish farmer, not many miles from Fort Atkinson, made to us a year or so ago. We had had some conversation together two or three years before and he had complained bitterly about the fact that he could make no money with his cows. We ventured to say this:

"Mike, the trouble with you is that you have got a lot of poor cows and in addition you are not showing the best kind of dairy sense in the way you feed them. Your main reliance is timothy hay, and that is the poorest milk fodder I know of, while at the same time it sells the highest in the market. You should change your cows and your methods, Mike. Put up a silo and feed your cows in a way a sensible dairyman ought to who knows what he is feeding for."

"Well," says Mike, giving his trousers a histe, "that all sounds very nice, but, dang it, I'm too lazy to take on new troubles." Then with a mischievous twinkle in his eye, he said: "Hadn't I better keep on in the old way and make it up in cussin' "

However, Mike did build the silo and make some effort to improve his cows and is not growling or "cussin' " any more.

"NEED WE EVER EXPECT TRUTH?"

The above is the title of a three quarter-column article in a recent issue of the *Jersey Bulletin*, which is devoted to a review of an editorial paragraph in HOARD'S DAIRYMAN of March 31st. Of course we are not advised as to, the "needs" of the *Bulletin*, but answering the query from the article referred to and that paper's general course in controverted matters, we are of the opinion that if one wishes to escape disappointment he better not expect either the truth or fair treatment in its columns. This conclusion has been reached very reluctantly and not without deep regret. HOARD'S DAIRYMAN has no ambition or desire paramount to the welfare of the dairy interests of the country and it recognizes that its contemporaries are not without influence in this direction. The *Bulletin* has an opportunity for doing a very considerable amount of good in its field, albeit this field is not a very large one, but it very often suffers itself to betray the truth, or so becloud it with faint praise or malicious inuendo as to amount to the same thing, in order to cater to the pride and profit of here and there a patron who reports—we quote the words of Mr. C. I. Hood as published in the *Bulletin*—"the fabulous figures which now and then appear" in its columns.

Its present spasm of untruthfulness is in regard to the Babcock test, claiming with its not unusual misuse of words "that it is about time for HOARD'S DAIRYMAN and a few self-imposed (*sic*) 'dairy leaders' to leave off lying about *The Jersey Bulletin's* position in this matter." And then it goes on to say that no one ever heard Jenkins say a word in derogation of the test, nor has any one read in his paper "a line of opposition to its proper use."

It pretends to admit that the Babcock test is all right for use in creameries and cheese factories as an arbiter for dividing millions of dollars in an equitable manner between contributing patrons, and then with singular infelicity claims that it cannot be depended upon to determine the relative or actual butter producing capacity of individual cows!—a very good illustration of the scriptural metaphor of straining at a gnat and swallowing a camel.

Of course the *Bulletin* is not so profoundly ignorant that it does not realize the absurdity of its position, but it tries to hide its shame under the thin mask of a puerile play upon words and behind the fog of abusive language, by saying that "it is a misrepresentation to apply the test to a lot of milk and call the process a butter test; and a man who will do it must surely be short-sighted, demented or crooked."

Call it what one may, the fact remains, that there is no other practicable way of so surely determining the actual butter equivalent of a lot of milk, whether the product of one cow or many cows, as to subject a sample of it to analysis by the Babcock test. When the *Jersey Bulletin* and all breeders of dairy cattle will admit this fact and be governed by it, fewer "fabulous figures" will appear and the cow that can yield milk in one week containing fat sufficient to make fourteen pounds of butter that will score extra in a commercial market, will be accorded more appropriate consideration than she now receives.

REMOVING THE PROFIT.

It is frequently asked why the per cent of fat in milk should change without apparent cause. During a feeding experiment at the Nebraska Station, it was observed that the weather exercised a very decided influence on the fat content of the milk. During this trial there were ten sudden storms and cold waves.

Of these, seven caused a diminished yield of milk. The per cent of fat diminished in five cases, remained constant in four, and increased in one. The cows at the time were warmly stabled.

If such changes happen when the animals are well fed and stabled, what might we not expect with poor food, cold water and stables. The cow can't talk back, if abused, but she can remove the profit from the milk pail, by using the fat to keep herself warm, and in a quiet, yet very thorough way, she does so, looking after her own comfort before the pocket-book of her owner.

Prize Winning Cows at Scotch Shows.

ED. HOARD'S DAIRYMAN:—The enclosed cutting illustrates the kind of cows people "dairy" with in Scotland—at least the kind of dairy cows that win prizes at the Scottish National show. The paper from which it is taken, the best agricultural paper in Scotland, published the illustration without a smile; but the same mail which brought it, brought me also HOARD'S DAIRYMAN containing the portrait of the Storrs College herd, and the contrast between the American ideal and the Scotch ideal, almost made me weep—for Scotland.

If you want a typical illustration to show your readers the cows they ought *not* to have, you might search a long time, and not find a more suitable object lesson.

C. W. SORENSEN.

Copenhagen, Denmark.

Cow Peas and Kafir Corn.

ED. HOARD'S DAIRYMAN:—I was very much interested in L. W. Lighty's description of cow peas and kafir corn. I would like to plant some for forage. Mr. Lighty says that some varieties are heartier in the north; that for ripening the seed, we had better grow the quick growing kinds, and for forage we use the long season grower.

Would Mr. Lighty please tell me what variety to plant; how much of both kinds to sow to the acre; whether in drills or broadcast, and how deep the grain should be put in the ground? N. M.

Bally, Pa.

There are many varieties of cow peas advertised by different firms and some make wonderful claims, but for a soil enricher or forage crop, I prefer the common black cow pea or the black eye cow pea. These are the most common southern sorts, and I can buy them for about $1 per bushel.

The whippoorwill is also a very luxuriant grower. The seeds are speckled; late to ripen. The Ramshorn is a good grower and fairly early. The early black is a very early pea, but poor forage maker. Northern grown seed, as a rule, matures the plants earlier than the southern grown. We can sow them in drills, and cultivate between rows, but it makes extra work.

If friend N. M. wants them for a land renovator, sow broadcast 6 pecks to acre, with 4 to 8 lbs. of kafir corn to hold up the vines, and cover seeds about as deep as you plant corn. If you have a fine warm seed bed, you will experience no trouble to grow the plant. For me it grows like a weed.

Adams Co., Pa. L. W. LIGHTY.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

CORN AND ALFALFA.

You say "that Alfalfa hay or corn practically supplement each other and will furnish a balanced ration." I am using this with say one-third bran and shorts mixed. Can I omit the bran and shorts, or would it be best to omit the shorts and give say two-thirds (by weight) corn meal and one-third coarse bran with no shorts. By weight they all cost about the same, viz.: $20 per ton. I have the best of alfalfa and my cows get all they will eat of it. A. M. H.

Dona Ana County, N. M.

If you can manage to chaff (cut) some of

the alfalfa to mix with the ground corn and thus distend or dilute it, the bran may be dispensed with. Corn meal is too concentrated for feeding by itself, either with safety or profit.

Omit the shorts altogether.

A VERMONT RATION CRITICISED.

I have a herd of high grade Jerseys and am feeding this ration daily: 10 lbs. hay, 30 lbs. ensilage, 5 to 7 lbs. meal mixed thus: 500 lbs. bran, 200 lbs. gluten, 100 lbs. cotton seed. Will you kindly criticise this?

Passumpsic, Vt. E. L. E.

Much depends upon the variety and quality of the hay. If, as we fear the fact may be, it is timothy, the protein is materially deficient as the following tabulated statement shows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs silage	7.92	.39	4.20	.21
10 lbs. timothy hay	8.68	.28	4.34	.14
7 lbs. concentrates	6.27	1 23	2.68	.33
Totals	22.87	1.90	11.22	.68

An equal amount of clover substituted for the timothy would raise the digestible protein to 2.30 lbs., which is about right for cows giving say 20 lbs. milk per day. With timothy hay, we should consider it advisable to add at least 2 lbs. to the grain allowance.

A VIRGINIA FEEDING PROBLEM.

What would you pronounce the best ration from these feeds, to make flow of milk: Clover hay $13 per ton, corn and oats ground together in proportion of 5 bushels of corn to 10 bushels of oats, $20 per ton, wheat bran $16 per ton, cotton seed meal $22 per ton.

Norfolk, Va. I. C. W.

There is but little choice in these feeds in the matter of relative cost and nutritive value, and hence the main point to be considered lies in their effect upon the quality of the product. If butter is to be made at this season of the year, in the climate of Norfolk, we should certainly use some cotton seed meal, as its tendency is to make a butter that will not soften very readily. On the other hand, if the product is to be disposed of as milk, there will be little or no necessity for using cotton seed meal.

We advise trying a daily allowance of about 4 pounds bran, 4 pounds corn and oats and 1 pound cotton seed meal, and all the clover hay each cow will eat.

THICK *vs.* THIN SEEDING OF CORN.

Will we get more protein, and consequently more feeding value, per acre, from corn sown at the rate of one bushel per acre, than from that sown at the rate of 8 quarts per acre? A. H. B.

Despatch, N. Y.

Prof. Henry in Feeds and Feeding, makes the following statement: "When the stockman is seeking the greatest possible amount of nutrients, possible from the corn crop, he will plant the seed so thickly as to choke the ears to about half their natural size." Experiments at the Illinois Station showed that corn planted 24 inches apart in the rows, gave 4,207 pounds of digestible nutrients per acre. When planted 3 inches apart, the yield was 6,218 pounds per acre.

Experiments at the Pennsylvania Station on the thick and thin seeding of corn, showed that there is a decided increase in the yield of digestible albuminoids per acre in thick over thin seeding. There is also an increase of total digestible matter. The thin seeding was at the rate of one kernel every 18 inches, thick seeding, one kernel every six inches.

USE COTTON SEED MEAL.

I have to pay $22 for for corn meal, $21 for cotton seed meal, $24 for Chicago Gluten feed, and bran $17.50. Would like to know which of the concentrated feeds will be the cheapest for me to use in connection with bran. W. E. B.

Fayetteville, N. C.

At the prices named we consider cotton seed meal, if of good quality, much the cheapest, but it must be fed in limited amounts, certainly not to exceed 3 pounds per day, and preferably not more than 2 pounds, and 6 to 8 pounds of bran, proportioning the total allowance to the individual capacity of the several cows to respond.

SWEET CORN HUSKS AND COBS.

Has there been any test made as to the feeding value of sweet corn husks and cobs, the refuse of the canning factories, when siloed? A. C. J.

Blair, Nebraska.

We are not aware of any reports of specific tests with this kind of silage, at any of the experiment stations; and none are reported in Prof. Henry's book on Feeds and Feeding. It is reported, however, that this refuse is preserved in silos at several canning factories, and that it makes a satisfactory and valuable feed.

Will not some of the DAIRYMAN readers who have some accurate knowledge on this question, make a more specific report thereon.

SILAGE AS AN EXCLUSIVE FEED.

What do you think of feeding silage to cattle alone? Is there any risk in feeding as much as they will eat, without any other feed? Our cows are fed on silage alone when they are dry, and they seem to refuse hay. We have good clover hay, feeding it once a day and the silage twice; but they eat very little of the hay. We are now feeding to our milch cows about 30 pounds ensilage, 10 pounds grain daily, being corn and oats, but have now added a little bran and hay at noon, and almost two shocks of corn fodder to the 40 head in the forenoon, when turned out. We are feeding our young cattle, one year old to six months down, as much ensilage as they will eat. Is there any risk in doing that? We have been troubled with blackleg on two head, although being only calves 3 months old, and for that matter are afraid the silage might affect the older ones. My bull seems to drink no water. He is only watered once a day, and then refuses half of the time to drink. Please give us your advice, also what you think of the ration. SUBSCRIBER.

Green Co., Wis.

We consider good corn silage a perfectly healthful food for cows or steers, under the conditions named, equal in this respect to any other variety of food that can be named for exclusive use. But when any demand, other than mere maintenance is required, there should be some additional feed provided, and this should be of a character to meet the demands upon the animal. Ordinarily this extra demand calls for a feed carrying much larger proportions of protein and ash than are found in corn silage. Whether this additional feed should be supplied in the form of concentrates (grain) or roughage, will depend somewhat upon circumstances and the system of feeding. If the animal is fed first all the silage she will eat, there will be little room in the stomach for taking the additional nutriment in bulky roughage, and bran or oats or gluten feed, or something similar should be offered. On the other hand, if the amount of silage is somewhat restricted, clover hay affords an excellent supplementary feed.

A steer or cow at rest and with no demand upon vital energy except the mere maintenance of existing weight, is said to require the following amounts and variety of digestible food nutrients, namely:

Protein	0 7 lbs.
Carbohydrates	8.0 lbs.
Ether extract (crude fat)	0.15 lbs.

The analyses of Wisconsin grown corn silage show that if of good quality, fifty pounds of such silage will contain approximately the following amounts of digestible nutrients:

Protein	0.65 lbs.
Carbohydrates	7.00 lbs.
Ether extract	.35 lbs.

These figures seem to demonstrate that for simple maintenance, where no increase in flesh is desired, or growth, or there is no fœtus to be nourished, or excessive cold to be withstood, or other untoward conditions to be overcome, 45 to 60 pounds of good silage will constitute a very fair daily allowance.

The ration mentioned as supplied to the cows in milk appears to us to be deficient in digestible protein, and the addition of bran was wise. If the corn and oats were mixed in equal amounts by weight, it would require at least three pounds of bran in addition, to bring the protein up to the minimum standard. Or, rejecting the corn and oats altogether, 4 pounds bran and 4 pounds gluten feed would suffice; or 4 pounds bran, and 4 pounds corn and 1 pound cotton seed meal. The bull will drink if he needs water.

A KENTUCKY CASE.

Please say what, in your best judgment, I should plant for benefit of seven Jersey cows, to be fed in winter. I have clover and timothy hay, corn fodder, and for bran and corn meal, I have to pay usually, $13 and $16 per ton respectively. I had thought of putting one-half acre in sorghum. P. H. J.

Donerail, Ky.

We do not think it expedient to bother with the sorghum, but would prefer to try cow peas, both for soiling through the probable summer drouth, and to make into hay for winter use. We also advise a moderate use of cotton seed meal, and special care in saving all the manure. Thirty-five acres of land can often be made to yield a larger net income, than many of the large Kentucky farms now return. Good tillage of a few acres, with good cows, pays much better than many acres carelessly worked, and many poor cows. Expansion may be all right for the nation as a whole, and it seems inevitable, but in farming it is usually better to contract than expand.

But it is important to bring those seven Jersey cows, and all others that may be added, to a strict account. See to it that none are kept that do not yield a good profit.

BUTTERMILK FROM SKIM MILK.—SILO.

I promise my cows to build a 100 ton silo this summer, and want to know from you just how to build it.

I need a cream separator, but am told skim milk will not make good quality of buttermilk. I sell 10 to 20 gallons buttermilk every day at 10 cents per gallon, and if cannot make good buttermilk with separator skim milk, I cannot purchase. W. A. J.

Osceola, Ark.

On page 187 of the current volume of the DAIRYMAN, you will find a detailed description of the construction of the stave silo.

Buttermilk, of excellent quality, can be made from separator skim milk, if the proper methods are used as to handling and ripening the skim milk.

Ripen as carefully as you would cream and churn when it has just clabbered. If you wait till it is sour it will make the casein hard, and it will separate from the whey in hard clots.

REFRIGERATING ROOM—MILK TRUST OFFICERS.

In building a refrigerator room for cooling milk and cream and bottled milk, where floor is concrete and one wall is brick, does insulation need to be as good as where wooden floor and wall are found? Does concrete floor need any insulation?

2. The names of milk trusts in American cities and their secretaries. Also the names of large milk companies in Chicago, New York and Philadelphia.

A refrigerating room should be insulated by air spaces and wood on all sides and floor. Otherwise the loss of ice is very large. A concrete floor will waste a lot of ice, as it is a good conductor both of heat and cold.

We have not seen a list of the officers of the milk trusts and cannot say where one can be found.

HYDRAULIC SEPARATORS.

There is offered for sale in our town a separator called the Hydraulic Cream Separator, price $10, manufactured at Centerville, Iowa, which they claim will do the work as well as the power separators. Do you know anything in regard to them?

Odell, Ill. SUBCRIBER.

The so-called hydraulic separators do not fulfil the claims made for them. The process of adding water to milk for the purpose of improving the creaming, was given a thorough trial over ten years ago. Recent work by the experiment stations has only confirmed the former verdict, that the process is not so good a method of creaming as either the common shot gun can or shallow setting. If you want to try the process, there is no patent to prevent your using a shot gun can and diluting the milk with water before setting. But you will find the results disappointing, except in the case of milk from cows far advanced in lactation.

FENCING THE BULL LOT.

Will you please tell me how to build a fence about a yard for a bull to exercise in and have him safe. You said at Burchard Farm there was a half acre lot where the bulls were turned each day. I thought perhaps you used some kind of wire fence but as I don't like to take any chances with a bull, I come to you for help. A. G. T.

East Eddington, Maine.

With the exception of a part of one side and end where the yard for the bulls adjoins the cow yard and a short lane leading to the pasture, the fence at Burchard Farm is made of ordinary barbed wire, but with more than the usual number of wires. Where the lot comes adjacent to the lane and cow yard a tight board fence, about 5½ feet high is used.

This arrangement has proven satisfactory for several years but we may have been exceptional fortunate in the character and disposition of the animals to be restrained. In the first place, there have been no bulls on the farm that were not raised there from calf-hood and subjected to kind discipline every day, and never given any opportunity to exhibit their strength or cunning or perverseness. They are always led with a staff, never driven or "cornered" or otherwise given any "advantage". We have no doubt but that some of the woven wire fencing which is advertised in the DAIRYMAN would be equally efficacious and require less attention than one of common wire, which allows the bulls to get their heads between the strands and loosen the staples.

FROM A RECENT SUBSCRIBER.

I have a cow, now five years old, that has been giving milk over three years (has never been dry); has raised three calves, present calf is six months old (not weaned) and she is due to calve again in July next. Which would be better, to dry her up a couple of months before calving and give her a rest, or continue milking her?

What would be the best feed for the calf when taken from the cow? (Intend keeping it for a dairy calf.)

How many pounds should a gallon of whole milk weigh? MRS. J. D. B.

St. Francisville, Ills.

If the cow will dry off easily, we should give her the two month's rest, but if with reduced feed, and milking once a day, she does not incline to shrink quite readily, then continue milking and generous feeding.

We fear the calf has been materially injured by the extra privileges accorded to it. A fattened calf does not usually make a first-class dairy cow. Just how to proceed now is not an easy problem. Teach the calf to drink milk if you can—and this is possible with sufficient patience and courage. It may be necessary to let it get pretty hungry, and let it mourn for its mother before it will accept any substitute for the way it has been accustomed to.

Or you can let it run for a week or two with the mother in pasture, taking away most of the milk, and thus forcing it to follow the mother's example and eat grass, and perhaps a little grain.

A gallon of milk weighs approximately 8.6 lbs.,—or say 8 lbs. and 10 ounces. The richer the milk the less it weighs, but the difference is too slight to be detected by ordinary scales.

The Relation Between Patron and Maker.

[A Paper by Mr. H. E. Cook, of Denmark, N. Y., at the Wisconsin Dairymen's Convention, Feb. 17, 1899.]

INTRODUCTORY.

I feel, Mr. President, somewhat embarrassed coming to Wisconsin to talk about cheese matters, or, in fact, anything connected with the dairy business, because we know that you people, through some of your most prominent citizens and through your dairy school, have given us some of our best thoughts and ideas in regard to the dairy business; and today wherever the dairy language is spoken—and it is spoken in pretty nearly every hamlet in the civilized world—Wisconsin, through its dairy leaders, has come to be known, and I say again that I feel some embarrassment. A redeeming feature, however, is that some of these good men first saw the light in the State of New York.

The little talk I am about to make is more from the business side than from the technical side of the cheese business. I have been interested in dairying and the cheese business all through my life, and I believe that there are two points more essential to do than anything else.

The first one you have already listened to from Mr. Decker—that is the curing of the cheese; and the next is the selling of the product. Whether you may agree with me or not, I believe that is true.

Dr. Jordan, at a meeting recently held in New York, made a statement something like the following, and it comes to that point. A cheese, and a very good one, stood upon the table—Gov. Hoard had a piece of it—and Dr. Jordan says: "What is that cheese good for, no matter what the quality, until it is turned into money? Good for nothing, has no value at all."

In New York state and in Wisconsin too, we have spent a good deal of time and a good deal of money through state aid, to help the cheese maker, and I tell you in New York State we have wonderfully changed the product. We have made the product more uniform and a good deal better; but there has not been any aid in any way given to the business side of cheese making, the selling of the product, only as it has come through individual effort. That is why I place so much stress upon the business side—the disposing of the product after we have got it. You might have cheese which will score 98 to 100 points, and still, without a business man to handle those cheese and get money for them and get them to the consumer, those cheese will have lost at least a part of their value.

Premises must always be right for correct reasoning.

It is for this reason, therefore, that we wish to outline some of the conditions that surround our cheese interests today. Rapid changes are taking place in every branch of trade. A class of goods that was marketable ten years ago, is out of date today. Business methods that were successful then, result in failure now. A cheese that was marketable at that time, is not satisfactory today.

Competition has very materially and wonderfully modified our demands. Some eighteen or twenty years ago we were in control of the export trade through the port of New York. Today the metropolis is practically out of the export trade; we exported 150 millions of pounds, now it is 30 millions. Have the English people stopped eating cheese? No. They have gone elsewhere for the goods, and we suffer accordingly.

Personally I have met and experienced many failures and disappointments, but never once has success or satisfaction eventually resulted by brooding over the past. Let bygones be bygones, and meet the future face to face with a firm determination and renewed energy. This idea carried out is the basis of all success, and let me say, that such must be our policy in the production of cheese, or failure is stamped upon the enterprise.

It is to some of the causes that have led to the present embarrassment and to an apparent solution of them that we wish to call your attention. It is an unfortunate fact that milk producers rarely take the initiative or aggressive stand, but on the contrary are compelled to adopt and maintain advanced methods by individual or corporate business enterprise, or as in some extreme cases, the State Department, under and through its police power and force, is necessarily obliged to interfere in the name of health, and improved sanitary conditions are demanded and enforced.

I have been firmly convinced for several years, that the future American success would depend upon our home markets, and not upon export demand, and in a business way we have acted accordingly.

When we realize that our consumption is only about three pounds per capita, and the English fully six times as much, it would seem to the most casual observer that our home markets offered much the greater opportunity for development. With this idea in view, I began a study of the wants of the customers. A failure to do so has been a general fault with the producers. While manufacturers of most goods are constantly laboring to meet demands, cheese makers have, either by negligence or necessity, ignored the consumer. The only factor with whom he comes in contact is the local buyer or agent.

I wish here to make an assertion, a delicate one, and upon which our good cheese friends may consider me heterodox. It is this: The country dealer does not truly represent the ideal demands of the consumer for the following reason:

Every dealer looks carefully to his own interests first. He has an investment that must be guarded. He knows by experience that transportation and heat will materially affect a cheese, and his only safety lies in a cheese so closely knit, that it is not easily affected. In most instances, this kind of a cheese does not please the consumer, simply because it is not soft enough, or as the consumer terms it, "not rich enough," a misapplied expression, because two cheese may carry an equal percentage of butter fat, and still be of an entirely different texture and make up.

With all, I want to say a word of praise for the local dealer. I have frequently stood by in our large city stores, and observed the cutting and sale of cheese. Did you ever observe that most buyers cut off a piece and taste before ordering? Why? Because there is no recognized standard of quality that can be depended upon, equally by the retailer and the consumer, and they are at all times jealous of the product. If the consumer were to establish a score card, it would be very much modified from the present accepted 50, 25, 10, 15 points. He would score about as follows: Richness 80 points, flavor 20 points. That seems ridiculous to the expert, so called, but here is the point upon which hinges the possibility of increased consumption of American cheese by Americans. Mark my word, not until the makers fully comprehend this point, will the maximum limit be reached.

From this standpoint, and with such a purpose in view, not only upon paper, but in every day business, I wish to make some practical deductions upon the subject assigned to me, viz: "The Relation of Patron to Maker."

What is the trouble we cannot manufacture a cheese of this type? Are we not able to get skill? Yes. Are not the factories equipped to cure these cheese? Not many of them. Is the milk good enough? Here lies the serious trouble.

I was discussing this subject not long since with dealers in Buffalo and Rochester, as I have frequently done in other of our large cities.

In every instance they told the same story. We must have a softer cheese, and when we get it there seems to be no limit to the demand. I asked one of these firms to show me a sample which would exactly suit their trade. The gentleman hesitated, and finally confessed that they did not have such a sample in stock. Said I, "Why don't you buy only such stock as suits your trade?" Said he, "This is not easily done. When we get a satisfactory line of goods, when we least expect it, the quality goes off. In other words, we fail to get uniform quality."

This gentleman was very free to confer with me when he found out I would try, at least, to produce such stock, and at once asked the price. I very politely informed the gentleman that the price would certainly be high enough, to which he had but little objection, providing the quality suited.

This one illustration will suffice for many which might be duplicated many times over in my experience.

We have just passed over a year most trying, with prices abnormally low. Yet this class of cheese has been in demand, beyond the ability of the manufacturers to fill, at from one-half cent to one cent above market prices. To carry out such a plan means that many radical changes must be made; that the present relation between patron and maker must be transformed into one of more thorough unity, either by mutual agreement or by force. I have been carefully studying the milk interests of our state for some years and have observed a gradual change from loose methods to more careful attention to stable management and the care and handling of milk.

Do you know that the cheese interest is at the bottom of the list in this respect? It is not pleasant to realize this statement as a fact, but is it nevertheless unfortunately true. Why is it we have not followed this change? Because our system is wrong.

The plant has but little value. The cheese are made by one man, sold by another, checks signed by another, and many times none of them have any material interest in the business.

How long could any other trade stand up under such management?

You may put it down as a certainty that the cheese business will sooner or later give up to the new order of things.

The manager of the factory must first of all be a good business man, a man of affairs, familiar not only with the details of manufacture, but with the trade with which he is constantly engaged.

Whether or not we shall be able to bring about the desired results under the present patron system, I am not sure.

The result will be entirely dependent upon the personel of the factory management and his relation to the patrons. I am satisfied that milk producers will never take the initiative and demand a system such as we will try to outline, and one that we are now making an effort to carry out in our factories.

Two primary reasons seem to exist for the lack of courage among those progressively inclined, viz: The fact that however much they are inclined toward improved care of milk, they know the neighbor across the way will not, of his own volition, do anything of the kind. And there is very little encouragement for a man to take extra care when his slovenly neighbor delivers milk for which he receives equal returns, and he has no anxiety for its condition; and secondly the factory manager makes no special effort to distinguish between the two grades, thinking the good milk would improve the quality of the poor, and an average would be the quality of the two lots.

I have often heard bitter complaints made against dealers in country produce, on account of insufficient discrimination against the inferior, placing but slight variation in value between first and third grade quality, the first grade being discounted and third grade receiving more than its full value, but the average price making a safe business venture for the purchaser. The same principle is daily carried out in our cheese factories and creameries.

What profiteth a man to produce 4% milk when it returns him no more than 3½% only so far as it improves the value of the whole pool? And what profiteth it a man to produce milk of a high character so long as Smith, Jones and Brown refuse to do so and the manager refuses to compel them to do so?

Withal, our much boasted factory system of the year 1899, with millions of dollars in-

"The Least Hair Casts a Shadow."

A single drop of poison blood will, unless checked in time, make the whole impure. Hood's Sarsaparilla is the great leader in blood purifiers.

It casts no shadow, but brings sunshine and health into every household.

Dyspepsia—"Suffered everything but death for years with dyspepsia. Nothing relieved me until I took Hood's Sarsaparilla and it made and kept me well. Can eat anything I wish." MRS. EUGENE MURPHY, Hull's Mill, Danbury, Conn.

Consumptive Cough—"Five years ago I had a consumptive cough which reduced me to a skeleton. Was advised to take Hood's Sarsaparilla which I did and recovered normal health. I have been well ever since." MATILDA BRIDGEWATER, Cor. Pearl and Chestnut Sts., Jeffersonville, Ind.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Light Running.

Many dairymen are deterred from buying a hand separator because they "run so hard." Some do, but a child can turn the



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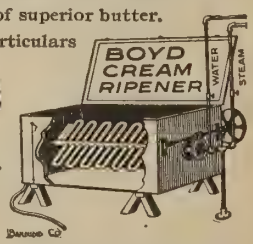
without fatigue. They require about one-half the power of other machines of equal capacity. We guarantee the Empire machine to fulfill every claim we make and to give perfect satisfaction to every purchaser, or your money back.

Catalogue of the largest line of hand separators in America for the asking. Agents wanted.

U. S. Butter Extractor Co., Newark, N. J.

BOYD CREAM RIPENERS stand ready to aid you to fortune with fame as a maker of superior butter.

Write for full particulars at once.



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Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10. Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance.

EARN a BICYCLE by helping us advertise our superb line of '99 models. We give one Rider Agent in each town FREE USE of sample wheel to introduce them. Write at once for our special offer.

MEADE BICYCLE CO., 290 Ave. S., Chicago, Ill



Not a Preservative but a preventative. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION MILK COOLER-AERATOR. It does its work perfectly and its use doesn't violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

vested, is yet crude when viewed from a standpoint at once practical and up to date, as compared with most business concerns, and when subjected to a keen analysis.

So far, we have confined ourselves to a diagnosis of disease. Let us now consider something suggestive and remedial.

Did you ever think that success comes only by one's ability to apply? Many men are wise in means and methods, yet blank failures from lack of ability or courage to apply their knowledge to practical ends.

Most factory managers know well enough the quality of milk needed and the factory surroundings necessary, but fail to apply the knowledge.

There are to-day two distinct systems in factory management which makes for an entirely different relation betwecn patron and maker.

In general, the patron plan, so called, is followed, but rapidly increasing is the purchase plan, paying for milk at a price fixed at least once a month in advance and in some instances a year in advance. This latter system is the direct result of the milk shipping industry, and has many features to commend itself. From the fact that the farmer realize a fixed value for his product, in consideration of which he complies, whether willingly or not, with rules and regulations for the care and handling of the milk, which are found necessary for the buyer, in order to realize a reasonable profit on the first cost of the goods.

Do you realize the difference between a responsibility that guarantees a fixed value, and one like the patron plan that does not?

The factory equipment must be more complete, conditions under control, more money invested, and a larger working capital at hand to tide over unfavorable conditions. There will necessarily be little direct sympathy between patron and maker, but results satisfactory are obtained by compulsion. My purpose is to carry out this system and apply it to the so called patron plan, thus insuring the benefits and results of the purchase plan, without its attendant danger and loss.

How shall we do it?

The maker must be a student of human nature, alert, active, with keen perception, and cognizant of the fact that no two human beings are just alike. The man who takes in the milk must have a keen sense of quality, must know the flavor of milk in its varied conditions, and be able to gentlemanly reject that which is not up to his standard of quality, or rather character. As fine cheese can be made from 3½ as from 4% milk, for reasons patent to any man who understands milk.

This man should possess tact as well, ever attendant upon the wants of his patrons, and yet with all of these good qualities he cannot reach the source of 75% of factory trouble. Why? Because the trouble is distant, is at the farmer's home, and cannot be controlled by electricity.

After some study, the only feasible plan that suggested itself to me was, that system of inspection followed by our condensed milk companies, viz: of inspecting the dairy and the surroundings as often as necessary by a competent man, looking carefully to it that the rules and regulations of good food and care of the animals, good aeration and proper cooling of the milk should be properly carried ont. I am inclined to think we have in the past underestimated the necessity of cooling milk for cheese making, placing too much value upon the aeration alone. I could note many instances where trouble has been averted by aeration and subsequent cooling, simply because germ life has been held in check and not permitted to develop.

In our factories we are now using an aerator and cooler combined, giving us the advantage in the winter of aeration, which is so necessary, and of the combined effect in warm weather. There are several styles on the market, each one a modification of the other, yet the principle in each case is the same. We are now getting down to some system, of which most factories are void, and the following rules are carried out:

1st. Cows must be fed upon good wholesome food and have plenty of pure water and be kept clean.

2nd. All milk must be removed at once from the stable and aerated and cooled in a good pure atmosphere to 70°, and in the winter it must not freeze.

3rd. Milk from diseased animals will not be accepted.

4th. All decomposing matter on the farm must be buried.

5th. Milk will be paid for according to its fat contents.

6th. Milk will not be accepted in old rusty cans.

7th. Whey shall be removed at once from the cans and the cans rinsed and scalded.

8th. The inspector shall enforce the same rules of hygiene and cleanliness at the factory as are required at the farm.

9th. In consideration of the above rules we guarantee more than market prices for the product manufactured.

That reads well and appears well on paper, but paper is worth about 2½c a pound, and that will be about the value of the rules and regulations unless enforced, which I am satisfied can only be done through the agency of a competent inspector, who shall be brought into daily contact with the producers who permit whey to stand in the cans from two to four hours, who wash the strainers in cold water and are otherwise unclean in the surroundings.

No business can succeed without a regulated system, and that enforced.

I am now anxious to have you go with me and discuss a system which I have never seen in operation, but which we purpose to attempt, at least, to carry out, the coming summer, which I trust you will agree with me has some merit in theory, if it does not carry any in practice.

The by-product, whey, is a much abused substance. It receives little care either at the factory or farm house. By analysis it contains one-half of the total solids of the milk and these same solids, so far as they are retained in the whey, are just as valuable for feeding as they were when in the original product. The loss is occasioned only when decomposition and putrefaction enter in, break down and destroy these solids. The sugar of the whey constitutes nearly 80% of the total solids. This sugar, in the usual process of Cheddar cheese making, is rapidly converted into lactic acid even in the cleanest receptacle, and soon loses in feeding value.

In the factory system the whey goes into a vat none too clean, and allowed to stand until the following morning, drawn home and turned into a dirty, sour barrel or vat, and then we proceed to make pork and swear. What is the matter?

The system is wrong. This is the reason that farmers used to denounce it as no better than canal water—which illustration has been discarded since the recent appropriation, for the water is now even richer than whole milk. This condition is the reason why farmers sell the whole product for the same price obtained for the cheese—because they actually realize but little from the by-product. I have spent some time during the last six months studying the value of skim milk and whey for manufacture into articles of commerce, and am yet unable to find an outlet from which more profit can be realized than by a wise, judicious and economical feeding of these by-products in their pure, sweet, original condition, to young growing animals. Many difficulties present themselves at first, which soon disappear after careful reflection.

My plan and purpose is this: To feed the product at a suitable distance from the factory, conveyed thither by means of water pipes, that can be easily flushed and sterilized each day after use, feeding the whey at once after it has left the vat, in its sweet, best condition.

The animals to be fed shall be purchased and charged to the whey account. All feed purchased shall be charged to the same account, together with labor required for feeding, selling and care. When sales are made they shall be placed on the credit side, and at the close of the season, or at suitable times, a balance shall be made and a dividend declared upon the same basis as we now declare the dividend on the milk for butter and cheese sold. This system will do away with hauling the whey back to the farms and the attendant labor of handling it there, which is always crude at the best; do away with the marketing of the pork or young stock, and put it under the care and management of a skilled man; creating a market for the product very much as we now make a special market for our butter and cheese.

I am confident that this system carried out by a good business man will increase the value of the by-product above its present value in a greater proportion than the present method of handling of milk augments its value above what could be obtained if each patron individually manufactured and disposed of his own product.

But I have not yet mentioned the essential element of success in this system, viz: Keep the whey out of the cans and washing them at the factory where every convenience is at hand for cleansing and sterilizing. We had occasion this past season to handle milk from a neighboring factory that had produced the black or rusty spots in cheese. All that I wish to say at the present time, concerning it is this: We produced from the milk, without a single exception, a fancy cheese in every respect. But the cans were frequently sterilized as a possible preventive, and I must confess my surprise at the odor from these cans that were to all appearances thoroughly cleansed at the farm house. Subsequently we sterilized with live steam many cans for a few minutes, and without exception from each and every can where the tin was at all worn or eaten off by sour whey, we found an objectionable odor arising. New cans were invariably all right, but farmers will not buy new cans every year, and the hauling of whey very soon reduces a bright new can to one old and unfit for use.

The appliances at the farm house are not such as to warrant germ free cans, even when the utmost cleanliness prevails. When we realize that it requires live steam for at least one minute to destroy these germs and spores quietly resting and breeding on the inside of a rusty can, and that the scalding water from a tea kettle is not sufficient, and that the good housewife who wishes a bright, clean can, after whey has been hauled in it, must resort to a scouring—removing even more tin,—we must begin to realize that under the present system there is a constant lurking menace to good milk, even though the ever watchful and vigilant maker has succeeded in getting clean cows and thoroughly aerated and cooled milk.

Let me say, therefore, in conclusion, that it seems to me present relations between maker and patron must be very materially changed, and, practically, along lines here mentioned, or the cheese business of New York State—I say nothing about Wisconsin—will eventually pass on and out and become a thing of the past.

In other words, we need improved factory surroundings and equipment; an ability to control degrees of heat and moisture; a good business man at the head, familiar with markets and their special demands; a plant running twelve months in the year; a set of rules heretofore mentioned, not on paper

Good Blood!

Your heart beats over one hundred thousand times each day. One hundred thousand supplies of good or bad blood to your brain.

Which is it?

If bad, impure blood, then your brain aches. You are troubled with drowsiness yet cannot sleep. You are as tired in the morning as at night. You have no nerve power. Your food does you but little good.

Stimulants, tonics, headache powders, cannot cure you; but

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will. It makes the liver, kidneys, skin and bowels perform their proper work. It removes all impurities from the blood. And it makes the blood rich in its life-giving properties.

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You will be more rapidly cured if you will take a laxative dose of Ayer's pills each night. They arouse the sluggish liver and thus cure biliousness.

Write to our Doctors.

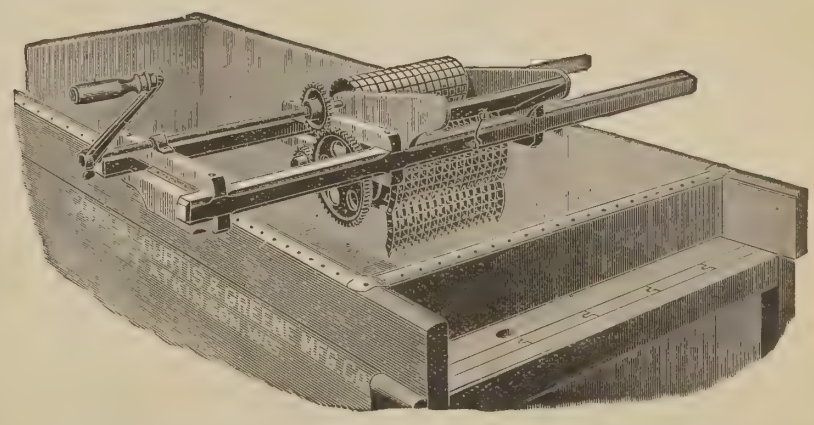
We have the exclusive services of some of the most eminent physicians in the United States. Write freely all the particulars in your case.

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Do You Want a Good Job?

We can use a live agent in every county. Must have light rig. Money in it. Steady work. Write for particulars. REAL WORTH MEDICINE CO., New Richmond, Wis.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

but actually carried out; the sweet whey economically fed and handled; all cans washed and sterilized each day. Then, and not till then, will we have reached a condition of relationship between patron and maker which will bring an increase of "shekels" to both; an actual condition of things such as to warrant the manufacture of the very soft rich American cheese, so much sought after, and so seldom found; a cheese which the American people have given up almost in despair of ever finding, and have educated themselves to the consumption of the soft, so called fancy cheese that require an education of taste to eat them, instead of the good American product that every true American taste demands by instinct instead of education.

Give us these conditions and instead of consuming a paltry three pounds per capita, and searching in vain for an exporter to take the small surplus that weighs down the market and fixes the price of the great bulk of cheese, we should be looking around for new plants and more milk to supply the home demand.

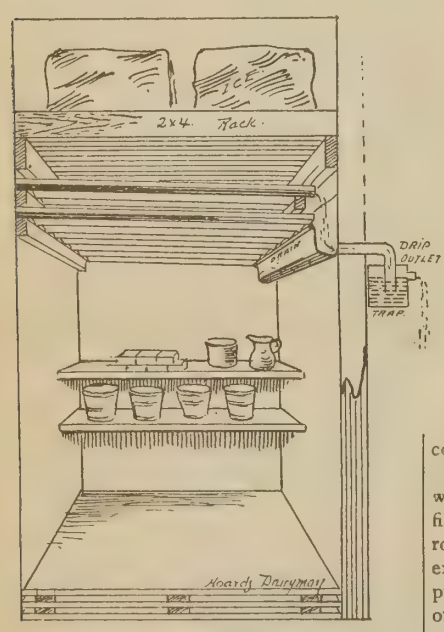
A Refrigerating Room and Other Questions.

ED. HOARD'S DAIRYMAN:—In copy of your paper, April 14th, page 167, you have a cut of Farm Creamery. I am about to build a farm dairy, would like for you to tell me how to construct your refrigerating room and how to operate it; also would you advise me to hang shaft overhead or put it close to the floor? What kind of floor would you advise in this dairy?

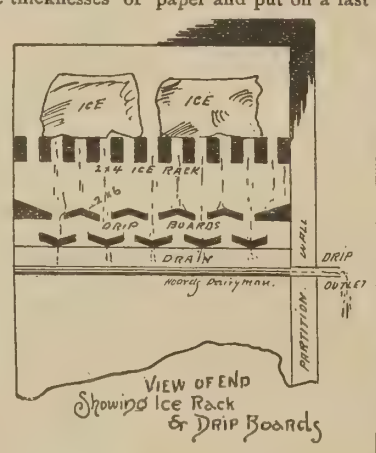
I have a small boiler and engine—DeLaval separator. Will have to buy a churn and butter worker. Does it make any difference which way a combined churn and butter worker runs? The DeLaval will have to be turned to the right, and if you put your churn on opposite side of shaft, it will have to turn to the left. W. L. G.

Stonewall, La.

The following cuts and description of a cooling room, by Buff Jersey, are self explanatory:



INTERIOR VIEW OF SIDE



VIEW OF END Showing Ice Rack & Drip Boards

1. The material is to be found in any lumber yard.

2. Any good carpenter can build them.

3. They can be built of any size, from a kitchen chest to a large room for storing butter or working it in.

4. The packages of butter will not take mould, but keep bright and dry.

5. They are very economical of ice.

6. They are readily cleaned.

In 1892, I put a small room in a South Dakota creamery, that would hold 600 pounds of butter. The creamery room was so small that the refrigerator stood only four feet from boiler—a very trying position—but for all of that the temperature was at forty-two degrees. On Springside farm we are using a chest that I built last spring that holds 400 pounds of one-pound prints and 300 pounds of ice. I have often weighed the drip, and when room was up to 96 or 100 degrees, the waste was but one pound per hour. This cooler cost just $11.05 for material, about the cost of freight for a refrigerator from Chicago.

I will give as brief a description of manner of making as possible. For a room of any size, make bottom first of 4 or 6 inch flooring; to start, cut flooring enough for first course—the width the room is to be, and length—take 2x2 inch strips, lay them down eighteen inches apart, and on them lay two thicknesses of best odorless building paper and on these strips nail the flooring; turn the floor over, so naked strips will be uppermost, (the strips are three inches shorter all round than the flooring); now put on two more thicknesses of paper, and lay on flooring flush with strips; cut another set of strips three inches shorter than the floor you now have; lay on these two more thicknesses of paper and put on a last course of flooring.

You now have two perfect dead air spaces, which is a better non-conductor than any filling, and will always be sweet. Inside of room, sides are put on the same as bottom, except at the corners where, as a matter of precaution, I always put an extra thickness of paper, as I add the flooring. In height of building leave enough room over head for ice chamber (2 feet, 6 inches is about right). Now comes the principal feature of the room, namely: the ice racks.

Four inches below where the 2 ft. 6 inch line is from ceiling of cooler, nail securely a 2x4 scantling on long way of cooler, both sides alike; on these rest 2x4's two inches apart. These are the floor of ice chamber.

The ice pans, or drip catchers, are made of 2x6 pine of good quality thus: gouge out one side, like a trough, full width of 2x6, and 1½ inches deep in middle, turn 2x6 over and take off corners, and plane, so the 2x6 will be a gradual fall from centre to edge. These troughs run same way as ice rack. Before placing them, have tinner make a strong zinc or galvanized trough two inches wide, one side strengthened by a wire turned in edge, other side straight; at one end have an outlet pipe soldered on, long enough to go through cooler and project an inch or more; if desired, an air trap is put on end. This trough runs long way of room below ice rack, one end nailed two or three

AMERICAN DAIRY-SUPPLY COMPANY

"Everything for the Dairy."

This Company will distribute Machinery and Supplies, of the highest quality only, through conveniently located agencies. No questionable goods of any kind will be handled. Complete equipments furnished on approved specifications without extortionate charges.

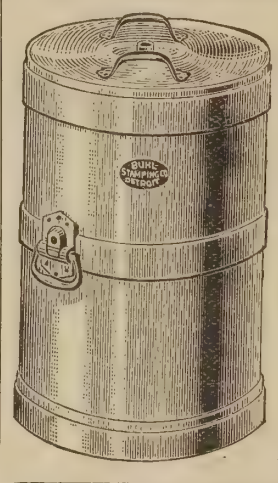
We are prepared to make instant shipments in any quantity desired of the genuine **BUHL and IRON CLAD "Jersey," "Sunlight," "Sunset," "Iowa," "Improved Elgin," "Chicago," "New York," "Philadelphia," and "Cheese Factory" MILK CANS.** The quality of these Cans is famous throughout the world. We caution the trade against inferior imitations of these Cans, without the makers' trademark, offered by Western supply dealers who cannot get the genuine.

Experienced Salesmen Wanted for Kansas and Nebraska.

Address all orders and correspondence to . . . .

AMERICAN DAIRY-SUPPLY COMPANY,

NEW YORK, N. Y. DETROIT, MICH, Or SIOUX CITY, IA.



The Best Factory Cans.

The strong points of the Buhl Factory Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Handles.

Look for the Milk Can Trademark.

This Can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders.

Capacity 15, 20, 30, 40 and 50 gallons.

Refuse imitations. We make all patterns and sizes of Milk Cans, and will gladly mail you our hand-book free.

We Make Prompt Shipment.

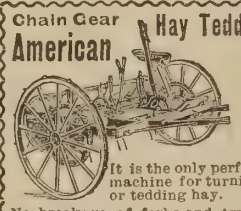
THE BUHL STAMPING CO.,
Detroit, - - - Mich.

Victor

ANY OLD STRIP OF TIN . .

With two nails will fasten the cover. Butter makers who care for the appearance of the package use the VICTOR. Strong and smooth. No tacks or sharp corners to injure the hands. **C. E. Smith & Co.**, Westboro, Mass.

Chain Gear **American Hay Tedder**



It is the only perfect machine for turning or tedding hay.

No breakage of forks and Arms.

STAR PATTERN BILLINGS Planter and Fertilizer

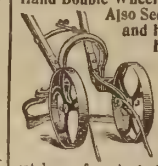
It is the latest, and it drops at twelve different distances.



For Corn, Beans, Peas and Beet Seeds....

If you want them, we furnish Marker and Trip attachment for rowing both ways. Send for circulars.

NEW UNIVERSAL Hand Double Wheel Hoe. Also Seeders and Horse Hoes.



Send for our new 48-page catalogue of our Agricultural labor saving specialties.

AMES PLOW COMPANY, BOSTON AND NEW YORK.



$3.55 buys this all steel Cultivator

complete with lever, five 3-inch shovels, 3 hilling shovels and gauge wheel. Has great leverage with short throw. It is a perfect tool, strong and durable. **14-tooth Lever Harrow Cultivator $3.30.** Sent on "Approval," to be returned if not absolutely the best tool sold at the price. We have complete lines of Carriages, Wagons, Plows, Harness, Twines, Feed Cutters, Powers, and other things at factory prices.

Send for our large catalogue, and save dealers' big profits.

JOHN DORSCH & SONS,
223 Wells St., Milwaukee, Wis.

PRICE IS OUR ARGUMENT.

There is not a manufacturer in America who can compete with us, quality considered. We have for sale

The Best $26. Buggy on the Market.

You have only to pay the manufacturer's profit, the rest goes into the buggy. Do you want a Sewing Machine, Harness or Surrey? Send for our handsome, illustrated catalogue.



Crawfordsville Carriage and Harness Co.,
22 Main St., Crawfordsville, Ind.

inches lower than other to secure quick drainage. On opposite side of room from gutter, secure a 2x4 to lay first course of drip boards, convex side up, and three inches apart; these drip boards rest just over drain, four inches is room enough. Directly under the three inch space, and two or three inches lower down, place concave 2x6s, one end resting on drain, and other end a little higher. You now have an open pan, can see ice every 6 inches, but no water can drop on floor. The drip boards are not fastened, but can be taken down and washed readily. The rack for ice is not fastened, but can be removed at any time. Make doors on same plan as sides and bottom. This room, built as above, will hold the same degree of temperature at all times and is very inexpensive. Outside can be finished with cornice and panel work, if one so desires; put on two or three coats of paint anyway.

With the exception of the jack for the separator, shafting in the creamery is invariably put overhead.

Make the floor of concrete.

Machinery is usually built to run in a certain direction, and separators and combined churns are no exception to the rule. You can easily run your churn the right way by twisting the belt.

DAIRY MARKETS.

ELGIN, Ill., May 8.—Butter offerings 25 tubs, all sold at 16⅜c. Official market firm at 10c.

CHICAGO, Ill, May 8.—Butter.—Creamery, extra, 16c; firsts, creameries 14@15c; seconds 13@13½c; dairies, selections 14c; extra ladles, 12½c: packing stock, fresh, 10@12½c; rolls, 10@10½c.

Eggs—Fresh, at mark, cases included, sold at 11½c.

Cheese—Full cream, Twins, new, good to choice, 9@9¼c; Young Americas, 10@10¼c; Swiss, 10½@13c; Limburger, 7@8¼c; Bricks, new, 8c.

Cattle—The demand was active from all sources, and the general market ruled stronger, with desirable grades of beef cattle mostly 10c higher. Receipts were about 6,500 smaller than a week ago, and combined receipts at the four Western markets were only about as large as the total at Chicago a week ago. The quality was generally good, yet the proportion of finished 1,300@1,500-lb beeves was very small for this season of the year. One load of 1,530-lb steers sold to a New York shipper at $5 45, with $5.35 the next highest, and the bulk of beef cattle at 4.70@5 20, averaging 1,130@1,350 lbs. Corn fed western steers sold at $4.35@5.25; corn fed Oklahoma steers 1,358@1,380 lbs, $5.10@5.30; Missouri-Texas 1,057 lbs. $4.65; native cows, $2.25@4.50; heifers, $3.20@4.95: distillery bulls, 1,562@1,603 lbs. $3.75@3.85; feeding cattle, $3.80@4.90. No straight Texas cattle were received.

Bran—Steady and quotable at $12 per ton in bulk and $12.50 in sacks.

MILWAUKEE, Wis., May 8.—Butter—Creamery—Fancy prints, per lb., 16c; extras 15½@16c; firsts 14@15c; seconds 12@13c; limitations 12@13c. Dairy—Selections, per lb 12@13c; lines 10½@11c. Roll—Fair to choice fresh 10@10½c. Market fairly active and steady, with the quality improving as the season advances; receipts 11,385 lbs.

Cheese—American full cream—October Twins 11½@12c; new, choice to fancy, 9@10c. Brick—New choice 8½@9c. Limberger—Fall, choice 9@10c; winter made, 8@9c. Swiss—Drum, choice 12½@13c; Block, choice 10½@11c. Market declining for new, while supplies of old are about gone; receipts 4,600 lbs and 29 boxes; trade quiet.

Eggs—Fresh per doz 10½c, cases returned. Market unchanged, with a firm feeling, packers taking the bulk of supplies, receipts being 1,047 cases.

AVOCA, Wis., May 8.—Offerings on board were 250 boxes; market firm; all sold at 8½c.

FOND DU LAC, Wis., May 8.—Offerings today were 242 Twins and 290 Daisies; market active, with sale of Twins at 8¾c.

SHEBOYGAN FALLS, Wis., May 3.—Three hundred and thirty-one boxes of cheese were sold on the Call board today, as follows: Ninety-seven boxes Twins at 9c; 184 cases Young Americas at 9⅝c and fifty at 9¼c.

SHEBOYGAN, Wis., May 3 —The sales reported today were 200 boxes of Twins and Daisies at 9c and 300 cases Young Americas at 9⅛c.

PLYMOUTH, Wis., May 2—On to-day's board 400 Twins sold at 9c, 25 Twins at 9¼c, 105 Young Americas at 9¼c, 80 Young Americas at 9⅜c.

SEYMOUR, Wis., May 2—Seymour Dairy Board organized to-day with a small offering of Twins which sold at 10¼c.

NEW YORK, May 8—Butter—Creamery, western, extras, 17c; firsts, 16@16½c; state extras, 16½@17c; firsts, 16c.

Cheese—State full cream, large colored or white fancy, 12; choice, 11¼@11¾c, small fancy, 12¼c.

Eggs—State Pennsylvania and western, 13¼@13¾c.

FULTON, N. Y. May 1—Cheese—Sold here in the past week in small lots at 10½@11c.

LITTLE FALLS, N. Y., May 1—The sales on to-day's board were 52 lots, comprising 2,517 boxes, mostly small cheese; 9c was paid for all but 77 boxes, which brought 9¼c.

UTICA, N. Y., May 1—At the annual meeting of the board to-day, the attendance was unusually large, but few salesmen had any cheese to sell, and buyers didn't offer any definite price. Transactions comprise four lots of large, 283 boxes, and 26 lots of small, 1,550 boxes, all consigned. Total 30 lots, 1,833 boxes.

PHILADELPHIA Pa., May 8—Butter—Solid packed, separator, creamery, extra, 17½c; creamery, firsts, 17c; seconds, 16c. Imitation Creamery, extra, 15c; firsts, 14c; seconds, 13c. Ladle packed, extra, 15c; firsts, 14c; seconds, 13c. Print Butter—Creamery, extra, 20c; firsts 19c; seconds, 18c.

Eggs—Pennsylvania and nearby 13c; western, 13½c; southwestern, 13c; southern, 12½c.

BALTIMORE, Md., May 8—Butter—Market steady. Creamery separator, extra, 19@20c; extra first, 18@19c; creamery first, 17@18c; ladle extra, 14@15c. Western store packed, 11@13c.

Eggs—Market steady; strictly fresh stock, 12c.

KANSAS CITY, Mo., May 8—Butter—Lower; creamery, 12@15c; dairy, 13c.

Eggs—Decidedly firm feeling; fresh Missouri, and Kansas stock in new cases, cases included, 10½c; cases returned 10c.

ST. LOUIS, Mo., May 8—Butter—Steady; creamery, 14@17½c; dairy, 12@14c.

Eggs—Firm, 10¼c.

CINCINNATI, O., May 8—Butter—Quiet, 17@17½c.

Cheese—Firm.

WASHINGTON, D. C., May 8—Market steady, extras, 17c; firsts, 16c.

NEWARK, N. J., May 8—Market firm, 17c for fancy creamery. Receipts moderate.

NEW YORK MARKET.

NEW YORK, May, 6—Butter—Receipts for the week, 37,242 packages. Exports for the week, 673 packages. The market for strictly extra creamery was fairly active. Prices are firm and little stock is going over unsold; but for all other grades, we have had more stock than could be marketed, and we note sales of fine Western Creameries at 16@16½c; most of the state Creameries were sold at the same prices and there is some accumulation of this style butter and prices favor the buyer.

Dairy of finest quality sold at 16@16¼c. but most of the arrivals are off in flavor, or mixed in color, and are salable only at much lower prices, say 13@15c. Imitation creamery and ladle butter were in better supply, quality however is running poor, and prices are lower and irregular. We quote: Creameries, extra, 17c; medium 15@16½c; poor, 13@14c. Dairies, 16½c; medium, 14@15½c; poor, 13@13½c.

Cheese—Receipts for the week, 14,645 boxes. Exports for the week, 7,700 boxes. There was steadier market for new cheese, exporters paying 9@9¼c for large size and home trade taking some small sizes at 8¾@9c. The remnant of old cheese is selling at 10c for finest and 6@8c for lower grades. We quote: Full cream, small, 8¾@9c; medium, 8@8½c; poor, 6@7c. Full cream, large, 9¼@9½c; medium, 8½@9c poor, 6@7c. Old cheese, extra, 10c; medium, 7@8c; poor, 5@6c.

Eggs—Receipts for the week, 83,839 cases. Market is in good shape and strictly fresh eggs sell readily at quotations. We quote: New York and Pennylvania, 14@14½c per doz; Western & Northern Sections per doz. 13½@14c; Southern, 12½@13½c. DAVID W. LEWIS & Co.
177 Chambers St.

BALTIMORE MARKET.

BALTIMORE May 4—Butter—Trading in this article, since our last issue, has shown more animation than for any corresponding time this year, both receivers and jobbers agreeing that the activity on the street reproduced scenes that one time were familiar incidents of spring business, but of late years have given way to the quiet of a strictly distributive allotment of the best parcels of all table varieties to regular customers, whose wants are accurately measured beforehand. There are no inducements, at present, for exporters, so they do nothing beyond sending prices. Out of-town dealers have been able to secure but a very slim share of anything, and then were confined to a few extra creameries, aud some not very good ladles—snap shots at receipts from sources not regular, in the sense that they are ours or anybody's—and have been marketed in every large city east of Chicago, at different times, as the whims of the makers consigned them here or there. There is so little imitation creamery and high grade ladles arriving, that quotations are largely based upon what could be gotten rather than what has been obtained. Roll is in very light receipt, and quality very poor. Ohio and West Virginia are sending in some store packed, solid goods, which we quote below.

Creamery Separator, extras, 18c; firsts, 17; seconds, 16c. Gathered Cream, extras, 17c; firsts, 16c; seconds, 15c. Ohio, extras, 17c; firsts, 16c; seconds, 15c. Imitation, extras, 16c; firsts, 15c; seconds, 13c. Iowa & N. W. Ladle, extras, 14c; firsts, 13c; seconds, 10@12c. Ohio & Indiana Ladle, extras, 14c; firsts, 13c; seconds, 10@12c. Roll, extras, 14c; firsts 12@13c: seconds, 10@11c. Storepacked, extras, 13c; firsts, 12c; seconds, 10@11c. Creamery Blocks, (2 lbs) extra, 19c; firsts, 18c; seconds, 17c. Creamery Prints, (½ lb.) extras, 21c; firsts, 19c; seconds, 18c. Md. Va. & Penn. Prints, extras, 19c; firsts, 17c; seconds, 15@16c.

Eggs—The receipts so far this week have been quite liberal; the demand continues good for all desirable invoices, and up to the present time there has been no accumulation of stock; the demand has been fully equal to the supply; market steady at 12c. Note—As the warm weather is fast approaching, we again urge you to ship your eggs in cases, as they are less liable to become heated, and the loss in breakage is much less than in barrels or boxes. So please bear this in mind, especially those who do not understand how to pack eggs properly.

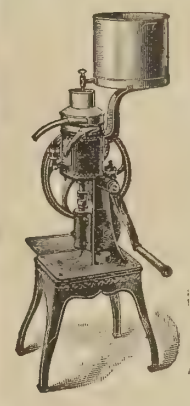
Cheese—Receipts light; demand fair; market steady. N. Y. State Cheddars, fine, 12@12½c; choice, 11@11½c; fair, 9@10c. Flats, fine, 12@12½c; choice, 11¼@11¾c; fair, 9@9½c. Small, fine, 12¼@12¾c; choice, 12@12⅛c; fair, 9½@10c. Ohio Flats, fine, 11@11⅛; choice, 10½@11c; fair. 8¼@9c. Picnic, fine, 11⅛@12c; choice, 10@11c; fair, 9½@10c. Swiss Cheese, fine 11@12c; cnoice, 10c: fair, 8½@9c. G. M. LAMB & Co.
301 Exchange Place.

FOREIGN MARKETS.

BOSTON, May 6—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as lower, but at the decline in prices the consumption is increasing greatly, and while receipts are increasing of Continental, Irish and home make, there is no accumulations of stock. Danish has dropped to 19@20c, Irish 18@19c. What little American creamery and imitation here meets with a slow demand It is most difficult to realize over 17c for anything in creameries and 16c for imitations. Low grades of butter of all kinds are in light supply, but it is difficult to realize over 15c for anything in ladles, no matter how good they may be. Buyers prices are generally 13@14c. The season is backward, cold nights and only moderate temperature during the day. This has favored old butter greatly.

Cheese markets are all on the downward trend. The free offering of new cheese from America and Canada makes buyers very cautious and their purchases are aggravatingly small, causing holders of old cheese some little uneasiness, and in most cases are inclined to accept lower prices to move quantity. Stocks are not large, but the high price of late has curtailed consumption greatly.

"ALPHA-DISC" CREAM SEPARATORS



The improved "Alpha" disc or divided milk-strata system is used in the De Laval separators only. Strong patents prevent its use in any other machines. The "disc" system makes the De Laval machines as superior to other separators as such other separators are to setting systems. It reduces necessary speed one-half, reduces size of revolving bowl, saves labor and power, enables simplicity and durability, skimming cold milk, running cream of any desired thickness, and insures absolute thoroughness of separation under practical use conditions, which is not possible with any other separator or creaming system.

Send for new 1899 catalogue.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO. | GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK. | Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

First-Class brick and American cheese maker wants position immediately. Address "O," care Hoard's Dairyman.

Soja Beans.—For soiling, ensilage and hay. Northern grown, medium early variety $2.00 per bu. Circular on growing and feeding 2c stamp. W. H. STODDARD, Carlinville, Ill.

For Sale—"Brown Bessie Omaha" Bulls. A great combination. GEO. E. BRYANT, Madison, Wis. 13-2

Cooley Creamer wanted. E W. AMSDEN, Ormond, Fla.

For Sale—a grand pure St. Lambert Jersey bull, nine months old. Tested ancestors and perfect show bull No better St. Lambert breeding to be got. WM. ROLPH, Markham, Ont.

Wanted Farm superintendent on dairy farm in Waupaca County. Fine house and pleasant social surroundings. Permanent position on salary. Married man, with experience. Good references required. M. C. PHILLIPS, Oshkosh, Wis. 13-4

Wanted—man and wife to milk 35 cows. Must be speedy and clean milkers. Man to care for cows in winter and in summer to work on farm between milkings. References as to character and ability required. State references and wages. Addressing JAMES B. BUCHANAN, Kendall, Beaver, Co., Pa.

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

For Sale—Five Holstein Friesian Bulls ten and twelve months old. Also B. Plymouth Rock eggs for hatching. Address C. W. SCHERMERHORN, Charles City, Iowa. 11-4

Wanted—Man and wife on a farm. Man to do ordinary farm work and woman to cook and do housework. Apply to A. KENNEDY, Supt., Indian Ford, Wis. 13-2

$75.00 will buy registered bull Gerben Mechthilde Sir Josephine 2d, H. F. H. B., born August 28, 1897. Reason for selling, compelled to give up dairying. C. KAHLER, Prairie du Chien, Wis. 11-4

For Sale—"Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill. 12-tf

Situation Wanted as general farm manager, by man of practical knowledge of business and all its branches of farming and stock raising. First-class testimonials from last employer. Address "MANAGER," care Hoard's Dairyman. 12-2

Wanted—A first-class man to rent a fine dairy and stock farm within three miles of the city of Janesville, Wis. H. F. KELLER, 251 South Jackson St. Janesville, Wis. 12-4

A good man is wanted, right off, by the MT. PLEASANT CREAMERY CO. at Mt. Pleasant, Pa. One who can make first-class ice-cream in all styles and fine butter. Address immediately. 12-2

For Sale—Holstein-Friesian bulls one year old and over of choice breeding, sired by a Mercedes bull. Also eggs from high scoring B. P. Rocks. I. L. CURTIS, Poynette, Wis. 12 2

I Have medium Soja beans for sale, $2.00 per bushel. W. E. CAMPBELL, Rosemond, Ill. 12 2

Half Rates to Madison, Wis., via the North-Western Line. Excursion tickets will be sold at one fare for the round trip from stations in Wisconsin and Michigan, for trains arriving Madison the afternoon and evening of May 25, on May 26 and for trains arriving Madison before 1:30 p. m., May 27, limited to include May 29, account of Inter-Scholastic Meet, etc. Apply to agents Chicago & North-Western R'y. 13-2

Exceptionally Low Rates to San Francisco, Portland, Tacoma and Seattle, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, May 15 to 18, inclusive, limited to include July 15, account of National Baptist Anniversaries. Apply to agents Chicago & North-Western R'y.

Exceptionally Low Rates to Sioux Falls, S. D., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, May 26 and 27, limited to include May 29, account of meeting United Commercial Travelers of America. Apply to agents Chicago & North-Western R'y. 13-2

Exceptionally Low Rates to Louisville, Ky, via the North-Western Line Excursion tickets will be sold at greatly reduced rates from all stations on account of Annual Convention Travelers' Protective Association to be held May 16-19. For dates of sale and limits of tickets apply to agents Chicago & North-Western R'y.

Exceptionally Low Rates to Minneapolis, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, May 16, 17, 18, limited to include June 3, account of meeting Presbyterian General Assembly. Apply to agents Chicago & North-Western R'y. sp

Exceptionally Low Rates to Denver, via the North Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, May 15 and 16, limited to June 15, account of Annual Meeting, Cumberland Presbyterian Church. Apply to agents Chicago & North-Western R'y. sp

Half Rates to Milwaukee, via the North-Western Line. Excursion tickets will be sold at one fare for the round trip from stations in Wisconsin, May 15 and 16, limited to include May 19, account of G. A. R. Encampment. Apply to Agents Chicago and North-Western R'y. sp

Exceptionally Low Rates to Roanoke, Va, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, May 18 and 19, limited to include June 23, account meeting German Baptists. Apply to agents Chicago & North-Western R'y. 12-2

Half Rates to San Francisco, via the North-Western Line. Quickest time, grandest scenery, variable routes, perfect service. Excursion tickets will be sold at one first-class fare for round trip, May 14-17, limited to return until July 15, 1899, inclusive, account of National Baptist Anniversaries. Apply to agents Chicago & North-Western R'y. 12-2

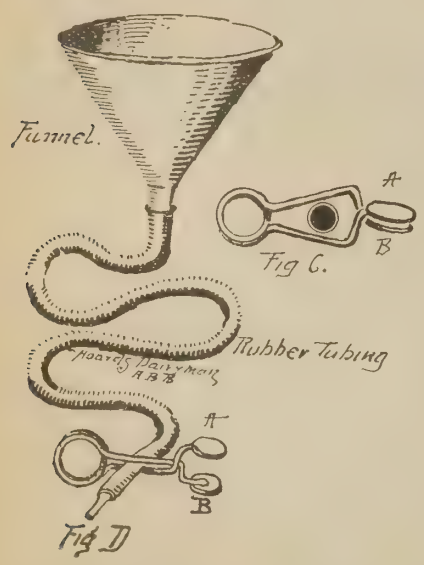
Parturient Paresis.
(Milk Fever.)

S. B. NELSON, State Veterinarian, Pullman, Wash., before Washington State Dairymen's Association, Ellensburg, Wash.

Could I but say to you, "Your cow has an attack of milk fever, the symptoms of which are such and such, and you must give her this or that drug, which will constitute the treatment," the task before me would be an easy one. This, however, is impossible. The symptoms vary too much, the pathology has required and is still in need of deep study, and this typical western progressive association is too critical.

There is probably no disease in cattle, outside of the category of contagious diseases, which has caused, and is continually causing so much financial loss to dairymen as this one, and I am free to say that it has been a constant source of annoyance and dread to the veterinarian. As a result of this latter unfortunate circumstance, the disease has been the subject of much careful study and investigation by the veterinarians of to-day, who have earnestly tried to elucidate the true pathological conditions of this disease, upon which to prescribe a logical therapeutic treatment.

The earlier writers believed that it was due to congestion of the brain and spinal cord. It was also thought that it was due to air being admitted into the blood vessels. These suppositions were followed by the theory that the blood supply thrown back to the system immediately after parturition was the cause of the trouble. Next we find the hypothesis advanced that the nervous force which has been stored up in the system during the period of gestation, has not been expended during the easy parturition and is therefore returned, which results in the paralysis of the motor nerve endings and thus causing the disease. These various theories carried with them their own peculiar treatment, but the percentage of fatal cases remained large.



Later Schmidt-Muhlheim advanced the proposition that the disease was due to ptomaine poisoning— the ptomaines or toxines being formed in the uterus from the lochia, only in the absence of air, and absorbed by the system. The ptomaine theory has not been accepted by most veterinarians. The source of the ptomaines, however, is still a mooted question. Dr. J. Schmidt, of Kolding, Denmark, believes that the ptomaines are produced from the colostrum cells of the mammary gland and not from the lochia of the uterus. He brings forth in an excellent argument a great deal of evidence against the Schmidt-Muhlheim proposition and in favor of his own.

When we consider that the disease does not occur, or very seldom, in prima para, but in cows bringing forth their third, fourth or fifth calf, in deep milkers, and when they are at their best, there is a good deal of food for thought in Dr. Schmidt's statement. I believe it is the most reasonable of the theories yet placed before us.

The symptoms as we see them are as follows: The animal is taken sick some hours, from six to twenty-four, after the birth of the calf. At first she is uneasy, stamping her feet, switching her tail, etc. Later she becomes dull, then staggers in her stall, at times falling; the appetite has disappeared and rumination has ceased. There may also be a swelling of the udder. Later the symptoms are generally very characteristic, the animal is down, unable to rise, she may be quite comatose, the breathing stertorous, the eyes staring; the bowels have ceased to act and the contents of the posterior part of the bowels is very hard and dry. The temperature may vary greatly, from ninety-five to one hundred and five degrees. Such are the symptoms as they are generally observed. I believe that any of you who have seen a typical case of milk fever will readily recognize these.

The treatments have varied as much as the theories of the cause of the disease, from stimulants, as hot as can be given, to aconite in good large doses to lower the blood pressure, and the most of us have tried nearly all of them with good, indifferent and bad results.

If we should obtain a remedy which may act nearly as a specific, it will not pay us to throw overboard everything that has been used prior to this. That is, there are certain attentions which should be given every patient. She should be placed in comfortable quarters and the surface temperature regulated by means of hand rubbing, blankets, etc. Give her a purgative potion, which may be your choice of either an ounce of aloes in a ball, two or three pounds of magnesium sulphate in a drench, or you may obtain the laxative action from two or three quarts of molasses, given per mouth. Rectal injections of warm water are always of value; they should be repeated. To stimulate the heart's action give rectal clysters of 0.5 per cent salt solution, that is, into every gallon of water dissolve six drachms of salt. In addition, the following treatment has met with favor in the hands of many practioners and with failure in others: Sweet spirits of nitre twenty ounces, aromatic spirits of ammonia ten ounces. Give three ounces of this mixture in one pint or quart of water every half hour until five doses have been given, and then every hour until the remainder has been administered.

Another remedy, which is based on Dr. Schmidt's theory, that parturient paresis is caused by the absorption into the system of ptomaines from the udder, is to inject into the udder through the teats, one quart of boiled water, into which has been dissolved from two to three drachms of potassium iodide, the solution thus formed strained and cooled. Plenty of air should be allowed to pass in with the fluid. After the injection, thorough massage should be applied to udder so as to force the iodide solution into contact with every portion of the gland.

The fact that a greater percentage of cases recover under this treatment than under the others is not the only factor to be taken into consideration, but also the fact that the animal commences to improve from the time of the injection into the udder, and in from four to six hours the comatose condition disappears, and in from twelve to twenty-four hours she is able to stand, while under other methods of treatment, the disease lasts more than twice this length of time, and if the patients are seen early when not very bad, they grow worse before they become better under the old forms of treatment. Out of four hundred and twelve cases reported, ninety per cent recovered. This, for results from a new treatment in several hands, is certainly very good.

In the application of the treatment much depends on thorough cleanliness. The udder must be thoroughly disinfected with a two per cent creolin solution. The instruments used in making the injection, this funnel, rubber tubing and glass dropper must also be well disinfected in a solution of creolin, then the iodide preparation carefully poured into the funnel, from which it runs into the udder through the tubing.

It is to be hoped that these favorable results so far obtained which I have enumerated, may be eclipsed by others more so in the future.

Cedar Hill Jersey Farm Notes.

Spring Feed.—Grass and Clover.—A Promising Heifer.

ED. HOARD'S DAIRYMAN:—To-day we are having some signs of spring, but the prospects of early seeding are not good. Cold, frosty nights with some days when there is but little sign of thawing, is our prevailing weather.

A neighboring dairyman has turned his herd on his blue grass pasture, and by the way they stand huddled in corners of fences to get protection from the cold winds, is not a good sign of liberal milk flow. The only feed they can get is the old grass and a slight hint of green grass to come later.

I find it a great temptation to the average dairyman to turn out to grass from two to three weeks earlier than they should, and another mistake is to reduce grain ration at once. I have found that the best results are obtained by reducing as cows show an inclination to eat less. They will give an ample notice of what they want, and this method will save trouble from any inclination to bloat or scour. Some hay at night is also a good thing for them.

This week we will run a pulverizer over all the grounds around buildings and lanes, sowing a liberal amount of timothy and clover seed. We think this will be preferable to weeds. We have just invested in a grass seed sower that is cheap and good. It is a tin tube, about three feet long, attached to a sack to be carried over one's shoulder. There is a gauge valve in the tube to regulate the flow of seed. The manner of operating is to hold tube in hand and swing in a half circle. This causes seed to be thrown over a space of 20 to 25 feet very evenly.

Speaking of grass seed, reminds me that we have about 40 acres of clover to cut this summer, that promises a good yield. We are dressing it with manure, using a No. 3 Kemp spreader. We have spreader set to apply six loads per acre. The loads are nearly, or quite, twice as large as usually hauled on ordinary farm wagons.

Our ensilage is all fed and leaving us to mourn a shrinkage of two and three pounds of milk per cow, in spite of increasing our grain and hay ration. I am fully convinced that we should have silo space enough to feed twelve months in the year. Then when once filled, drouths, long winters, or increased numbers in herd, would not catch us short. If we had a silo full left, so much the better. It is sure to keep and will be good to have in reserve.

Last winter I bought a two-year-old heifer that was only lacking a date or two to make her eligible to record. Thirty-five dollars was the price asked by her owner, who sold her to make room for a dual-purpose cow. This heifer freshened on March 4, giving us a fine heifer calf. She has developed into a phenomenal individual.

She is the best two-year-old I ever had in my charge. She is a beautiful squirrel grey, has the ideal Jersey shape and her udder if photographed would be considered by most people an impossibility for so young an animal. Her daily yield now is just on each side of 30 pounds of milk and tests six per cent full, making over two pounds of butter daily.

I often wonder how my dual-purpose man has invested his $35 to make an improvement on this heifer.

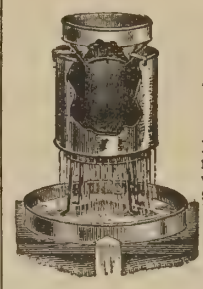
I was fortunate in finding the heifer's mother and lost no time in securing her also. She tests 5.8%, after being fresh since Jan. 1st; is now giving 25 pounds of milk daily. I secured her and her young heifer calf for $50.

"BUFF JERSEY."

Saving the Manure.

ED. HOARD'S DAIRYMAN:—On page 44 of the DAIRYMAN, under the caption of "Land Plaster in Stables," is touched a most important topic. The fertility or plant food contained in the voiding of our dairy cows is,

TESTED BY THE MILK PAIL
Quaker Dairy Feed
SPECIMEN RATIONS.
The rations appearing in our larger advertisements are true and proved. No matter what your roughage, Quaker Dairy Feed can be profitably fitted in. And the same with your feed; it matters little what grain you have grown or what feed you have bought, Quaker Dairy Feed can always serve its purpose as a milk maker. It is profitable in every connection.
Sold only in sealed and branded sacks
MODERN DAIRY FEEDING,
an invaluable book, containing scientifically proportioned rations, including every form of roughage and variety of feed sent postpaid on request. *Scientific Advice on Feeding Free.* Address, Science Dept.,
The American Cereal Co.
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SCIENTIFIC ADVICE ON FEEDING


The YOUNG AERATOR And Cooler
Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,
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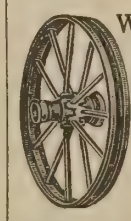
MILK QUALITY

as well as the quality of its products, butter and cheese, depends very largely on how it is handled.
To be good, milk should be thoroughly cooled and aerated as soon as drawn from the cow. For this purpose nothing equals
THE ELECTRIC Milk Cooler and Aerator.
It quickly reduces the temperature and at the same time takes out all bad odors, of feed, stable, etc. Leaves the milk sweet and clean and makes it long keeping. Made in different sizes for any number of cows. Don't start into the summer without one. Electric Cooler and Aerator circulars, prices, etc., mailed FREE upon request.
Electric Wheel Co., Box 303, Quincy, Ills

HALL STEEL TANKS


are the best for supplying water for live stock. Being made of galvanized steel they cannot rust, rot, burst from freezing, fall to pieces from drying out, etc. We make tanks for all purposes. Also troughs for feeding calves and pigs, cooling milk, hauling liquid manure, etc. Write for what you want. We will make it. Special price to *first inquirer* from *new territory.* Circulars and price list mailed free. THE HALL STEEL TANK CO. 64 N. Ashland Ave. CHICAGO, ILL

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MIXED PAINTS
At WHOLESALE PRICES, delivered FREE For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.


We are the largest manufacturers of steel wheels in America. We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue,
HAVANA METAL WHEEL CO.
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It's easy to haul a big load up a big hill if you grease the wagon wheels with
MICA Axle Grease
Get a box and learn why it's the best grease ever put on an axle. Sold everywhere. Made by
STANDARD OIL CO.

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.
Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.
Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.
For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

or should be, an important factor in the profits of dairy operations.

The great majority of our dairy farms need the fertility very badly, and often don't get it. With me it has been a study for some years, and I tried to profit by the experience of others, as well as myself, and to utilize the findings of our scientific friends at the experiment station. We know that the voidings of a well fed dairy cow, at present prices for commercial fertilizers, if carefully saved and applied to our crops, are worth from $20 to $25 annually.

The first and great loss that we can easily *see* is in the form of liquid leachings, both in the stable and on the yard. About two-thirds of the fertility value is voided in the liquid form, which is much more readily available to plants and, therefore, we should make an extra effort to save that part which contains the most and best fertility.

By carefully cementing our stable floors and gutters and puddling and roofing our manure yards, we can save all the leachings by absorbents. This stops that visible loss, but there is another form of loss that is invisible, but that awful odor in the stable tells the tale if we can read aright.

First and foremost, we want to get rid of that smell, for the sake of our dairy products and the health of our animals, but there is another and very important reason why we should abate that "stink factory."

The great part of that nasty smell is simply the ammonia, liberated from the fermenting manure. Some of us now construct elaborate ventilators and the result is that out of that ventilator shaft a great many of our hard earned dollars escape.

Our careful experiments and investigators, at our experiment station, have proved that if we do not arrest the rapid fermentation and provide a chemical agent to capture the ammonia or nitrogen in form of a gas, we will lose in this invisible gas more than one-third the total value of the manure. Think of this invisible loss from 20 cows, amounting to possibly $150 per year.

Gypsum or land plaster will do this, but it is not the best nor the cheapest preservative. It is necessary to use quite a large quantity, or it will not do the work properly, about 4 pounds daily to each animal, and that costs nearly five dollars per year, and adds no value to the manure, only holds the original value, but if we use instead of plaster, dissolved South Carolina rock or phosphate, one pound per day for each animal will do the work completely and cost us only about $2 per year, and at the same time for each ton of phosphate we use we add 280 pounds of phosphoric acid to our manure, making it a much more completely balanced plant food.

Thousands of farmers use phosphate every year on the land, and by thus using it in the stable on the manure they make *three* profits instead of one. First, they sweeten the stable; second, they hold the nitrogen plant food in the manure; third, they get the full benefit of the phosphoric acid contained in the phosphates. L. W. LIGHTY.

Adams Co., Pa.

The Butter Men are Right.

The butter men have a genuine grievance against the dealers in oleomargarine, who sell that mysterious product under false pretenses to unsophisticated persons, who imagine that what they are buying has been made from cream, instead of from the large variety of articles, which are said to enter into its composition. So long as it has not been proven unwholesome, there can be no valid objection to the manufacture of oleomargarine, or to its sale as such, but there is no doubt, that in this respect, many who deal in it are accustomed to practice a flagrant deception on the public.

Oleomargarine may be all right. It may be as palatable as butter, and equally nutritious. It may even have some points of superiority. The fact remains that not many people, even among those who are ready to admit its innocuousness, and its entire legitimacy as a commercial product, are willing to put it into their mouths. Their unwillingness may be the result of an unworthy prejudice, but it exists, and up to date there has been no getting away from it. As a consequence, dealers in the oleoaginous deceit have contracted the habit of misrepresentation, and the law which requires that oleo shall be exposed for sale in boxes, legibly branded with the word which indicates its true character, has been very generally disregarded.

This makes a two-fold wrong, a wrong to the consumer who gets what he doesn't want and wouldn't take if he knew it, and a wrong to the butter man, whose business is injured by a fraudulent competition. It is now intended to sue the dealers who are suspected of practicing this fraud, and that is what should be done. The state law which prohibits the manufacture of oleomargarine altogether, has been rendered nugatory by the freedom of interstate commerce, as guaranteed by the constitution, and is, moreover, inherently inequitable. The Supreme Court sustained it as a legitimate exercise of the police power, but it has never had the approval of fairminded and intelligent people, and its enactment was a mistake.

It is different with the law requiring that oleomargarine should be plainly marked. That is just and practicable, and ought to be enforced. We wish the butter men success. —*Philadelphia Inquirer.*

Poor Butter in Winter.

One of the causes why the winter butter made in many dairies is not so good and so well flavored as the summer product is that the feed stuffs used are often a little moldy, or in some way spoiled. They may not be "downright bad," or the spoiling so pronounced as to make the feeder willing to throw it aside, but they are often just bad enough to put the milk a little off in flavor.

Another common cause is that the churning is not done frequently enough. This is partly because the milk supply is usually less and it takes longer to collect what is ordinarily regarded in the particular dairy as a churning of cream, and partly because it is thought that, as the weather is cold, milk will keep longer, not being liable to sour or undergo putrefactive fermentation. Neither of these reasons is sufficient for churning any less frequently in winter than in summer. The churning should be done as often, with a smaller amount of cream at each churning if necessary. When cream has been over kept, even though the weather be cold, it undergoes a change which seriously injures the flavor and to some extent injures the grain. When cream, for example, is a week old, as it often is in winter churning, it will have lost considerable of its desirable flavor and often acquires an unpleasant one. If for some reason that appears unaccountable to the butter maker the winter butter does not seem as good as it ought to be, and the winter habit is to have long intervals between churnings, make a change at this point, and churn as often as twice a week, and see if it does not remedy the trouble.—*Homestead.*



AFTERNOONS OFF

Tied down to housework, to the scrubbing brush and bucket, to the dish pan and housecloth, is the condition of the woman who still uses soap in her cleaning. On the other hand the woman who uses Gold Dust has her work all done by noon, does as she pleases in the afternoon. With Gold Dust she does her cleaning with half the effort, in half the time and at half the cost as with soap or any other cleanser. For greatest economy buy our large package.

GOLD DUST Washing Powder



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O. DOUGLASS BUTTER CULTURE.

ST. GEORGE, MINN., Feb. 20, '99. O. Douglass Butter Culture Co., 81 Austin St., Charlestown, Mass. Dear Sirs:—In the Genesee Salt contest I scored 97½; at the State Fair, Minnesota, I scored 95½; at Sioux Falls Convention I scored 95; being a money winner at each. I used your culture in all of the above. C. H. CLEVELAND, St. George, Minn.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin St., Charlestown, Mass.

WORCESTER SALT

Gets all the HONORS at the State Convention of Dairymen just held at Salt Lake City, Utah. ✕ ✕



BUTTER

The HIGHEST Score..... 97
SECOND HIGHEST Score..... 96½
Both were salted with **Worcester Salt.**

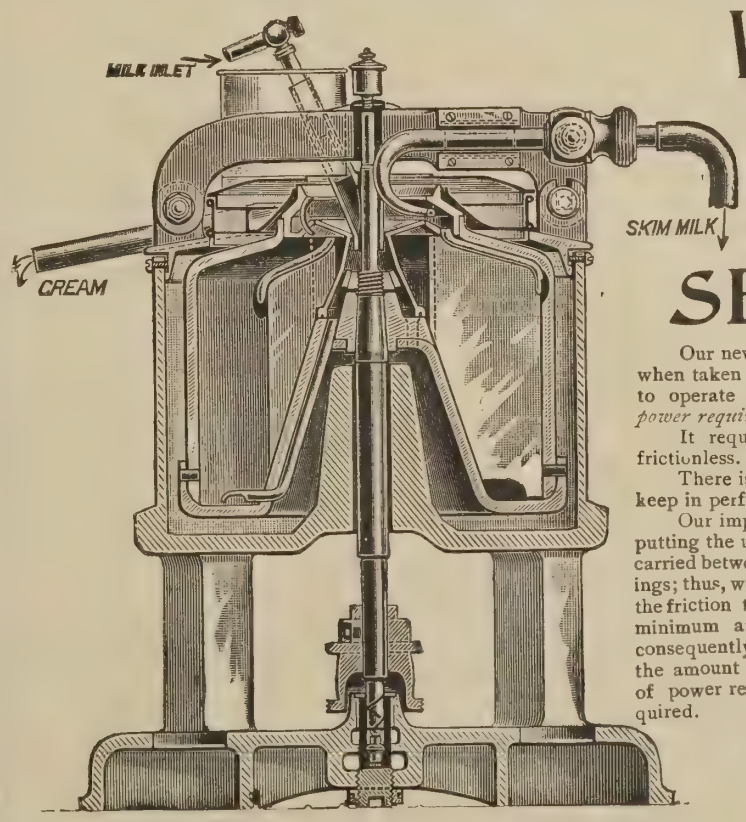
CHEESE

All at the Utah Convention was salted with **Worcester Salt.**

IT TAKES THE BEST TO MAKE THE BEST.

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.

What We Claim for the REID Long Spindle SEPARATOR

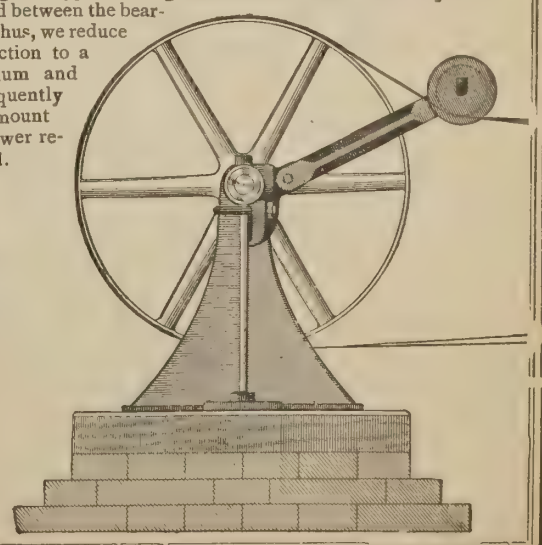


Our new Long Spindle Separator and Belt Tightener, when taken together, will run with one-half the power required to operate our old style machine, *and less than half the power required to run any imitating separator.*

It requires practically no oil, the top bearing being frictionless. It requires no special foundation.

There is less wear and tear on the belts and the bowl will keep in perfect balance always.

Our improvement consists in lengthening the spindle and putting the upper bearing above the bowl so that the bowl is carried between the bearings; thus, we reduce the friction to a minimum and consequently the amount of power required.



Our new **BELT TIGHTENER** is calculated to take up all tension in the bowl automatically and consequently operators have no trouble in keeping the machine up to full speed, as the bowl cannot slip.

These Tighteners may be applied to any of the Reid Improved Jacks or the old Danish Weston Jacks.

A. H. REID, 3000 Market St., Philadelphia, Pa.
And ELGIN, ILL.

Preparation of Concentrated Feeds.

HOARD'S DAIRYMAN is in constant receipt of inquiries which call for an explanation of the different feed stuffs which are on the market.

The following excellent definitions of feed stuffs is from an address by Prof. J. B. Lindsey, before the Society for the Promotion of Agricultural Science:

COTTONSEED MEAL.—The seed of the cotton plant as it comes from the gin where the cotton fibre has been removed, is still covered with a coat of white down technically known s "linters." This being removed, the seed appears as black in color, and irregular egg-shaped in form. The thick, hard, black seed-coat or hull is filled with the coiled embryo, (meat) which in turn contains a large number of oil-containing cells. Machines have been invented to remove the hull. The meat is then cooked in large iron kettles, and while still hot is wrapped in hair cloth, and subjected to a pressure of 3,000 to 4,000 pounds per square inch, to remove as much of the oil as possible. The pressed cottonseed cake is cracked, ground, and results in the decorticated bright yellow cottonseed meal of commerce. A ton of seed furnishes about 800 lbs. of meal. Sometimes a considerable amount of hull is ground fine and mixed with the meal, producing a dark colored article, having not much over one-half the feeding value of the prime material.

LINSEED MEALS.—Linseed meal is the ground residue remaining from the flaxseed after the oil has been removed. The larger part of the flaxseed used in this country is grown in North and South Dakota and in Minnesota. The seeds of the flax plant are flattened, elliptical-oval, pointed at the lower end, and of a brown color. They contain in their natural state from 30 to 35 per cent of oil. Twenty to twenty-eight per cent of the oil of the seed is removed by warm pressure. This oil is known as linseed oil, and after being refined is used in the preparation of paints, varnishes, printer's ink, or in the manufacture of soap. The pressed cake remaining is dried, cracked and ground, and furnishes the old process linseed meal. A considerable portion of the old process meal is sold by the National Linseed Oil Company.

The so-called "Flax Meal" is made by the Cleveland Linseed and Oil Co. The oil is quite thoroughly extracted from the crushed seeds by means of a solvent, and after the extraction the meal is treated with steam, which process tends to produce a coarse and flaky product.

Linseed meals are generally known as oil meals. This is an incorrect name, the oil having been to a considerable extent removed.

GLUTEN PRODUCTS.—The various products known as gluten meals, gluten feeds, germ feed and the like, are the residues resulting from the manufacture of starch and glucose (grape sugar) from maize or Indian corn.

How the parts are separated. The corn is first soaked in quite dilute, warm, sulfurous acid water. It is then ground by being passed, with water, through mills to carry off the substance in suspension. Degerminating machinery removes the germs at this point. The germs are dried and crushed through rolls, and the oil pressed out, leaving the residue in cakes. It is largely exported as

CORN GERM CAKE.

After degermination, the suspended mass is bolted through sieves, separating the hull, bran and some light weight and broken germs from the starch and gluten. The first materials (hull, bran, broken germs, etc.) are pressed and dried, and results in what is known as

CHOP FEED.

The starch and gluten are run into concentrating tanks, and then very slowly through long shallow troughs. The starch settles down like wet lime in these troughs, while the hard, flinty portion or gluten floats off into receivers, is concentrated, and finally pressed in heavy filter cloths, run through steam dryers, and appears as

GLUTEN MEAL.

The gluten meal and chop feed mixed together, pressed and dried, constitutes gluten feeds. [See preceding.]

CLASS II.

ATLAS GLUTEN MEAL.—So called, is very different from the ordinary gluten products. The germ is first removed from the Indian corn, and the remainder of the corn kernels are mixed and ground together with rye, barley, wheat, juniper, etc. This product is then heated with a solution of malt, which converts a considerable portion of the starch into sugar. Yeast is then added, the alcohol, etc., resulting distilled, and the refuse remaining in the still is pressed, dried, and placed upon the market under the above name.

DRIED BREWER'S GRAIN is the kiln dried residue from beer manufacture. It consists of some of the starch, together with the hulls, germ and gluten of the barley. A small portion of the gluten and a large part of the starch are removed from the barley by the action of diastase and yeast.

MALT SPROUTS.—Malt used in beer manufacture is prepared by moistening barley and allowing it to sprout. The sprouting produces a ferment called diastase, which changes starch into sugar. After the formation of the diastase, which requires a certain number of days, the barley is dried, and the sprouts removed by machinery and sold for cattle feed. The barley is now termed malt.

CLASS III.—WHEAT PRODUCTS.

The wheat has the same general formation as the corn kernel. The natural divisions of the feed resulting from grinding wheat are bran, middlings and red dog flour.

Bran is the exterior covering, and is first removed.

Middlings are removed next after the bran.

Red Dog is a very low grade of flour, and represents the dividing line between feed and high grade flour.

Flour middlings is a mixture of middlings and red dog flour.

Mixed feed is generally a mixture of bran, middlings and red dog flour.

H. O. dairy feed consists of oat feed as a basis, mixed with feeds high in protein, such as cottonseed and gluten meals.

CLASS IV.

Cerealine feed. This feed comprises the hull, and some of the starch of the corn. It is the by-product resulting in the manufacture of the breakfast preparation known as cerealine flakes. It is very coarse. It possesses a feeding value but slightly inferior to corn meal.

Hominy feed or chop. Hominy is the hard part of the corn kernel. The separation of the hull, germ and some of the starch which constitutes the feed, is said to be brought about solely by the aid of machinery and steam.

Chop feed has been described under gluten products.

Oat feed, corn and oat chop, etc. Oat feed is the refuse from factories engaged in the preparation of oat meal and other cereals for human consumption. It consists of poor oats, hulls and some of the bran and starch removed in the process of manufacture. It is sometimes mixed with corn, as corn and oat chop.

Working Butter in the Churn.

ED. HOARD'S DAIRYMAN:—I saw in your paper about working the butter in the churn and I have tried it, but I cannot get the water or brine out to satisfy my customers. In a tub of sixty pounds, one claimed that there was two pounds of water.

I think the flavor and grain far superior to what I have made before, but that is my one difficulty.

The gentleman who wrote the article said, he had not used the worker for some time, but had worked his butter in the churn. Please explain in your paper, or give me his address, so I can write him. E. J. T.

Bridge Hampton, N. Y.

The way to obviate the above difficulty is simply to exercise greater care in packing the butter. It should be packed very firmly, draining off whatever brine may be pressed out in the operation.

In my own practice of this method of working butter, it has been the rule to turn the tubs or crocks (the latter used for certain private customers, who preferred them) upon their sides, at the time of shipping, to make sure there was no surplus of water contained therin.

It has been found that considerable brine will run out of a large tub of butter, but as by this simple means it can be removed, there is no harm done.

For the benefit of those who may not have seen the previous article upon this subject, I will briefly describe the process again.

When the butter comes to the granular stage stop the churn, and draw off the butter milk. If the butter does not separate freely, add salt, a pint to forty pounds or about that proportion. This does no harm to the butter milk for feeding or culinary purposes, although it might injure its sale. However, it acts like a charm in the churn; a few revolutions of the crank, after it is added, brings the butter globules to the surface, without further trouble. On no account must the grains be allowed to mass; they should be not larger than fine shot.

The first water should be about the same temperature as the butter; the next tempered to 60° or 62° in cold wheather, something depending upon the temperature of the room. Butter from Jersey or Guernsey cows will be waxy, and in fine condition for working at a temperature which would prove injurious to other butter.

Wash twice, drain thoroughly, but do not touch the butter until the salt is added. Weigh or measure the salt and sift a portion

St. Lamberts AT PUBLIC SALE!
COLUMBUS, O., JUNE 8, '99.
Send for Catalogue.
J. P. BRADBURY, . Pomeroy, Ohio.

Introduce Milking Jersey Stock
INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert
13657.
70 per cent of the blood of this great sire of dairy cows. He now has 69 daughters that have made from 32 lbs. 6 oz. to 14 lbs. of butter in seven days—a greater record than any other bull, living or dead. Solid fawn color. Dropped July 26, 1898. His grandam made 16 lbs. 4¼ oz. of butter in seven days. P. J. COGSWELL, Rochester, N. Y

BILTMORE FARMS' JERSEYS.
This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested Above the fever line, so we can ship anywhere.
Some Choicely Bred
BULL CALVES
out of great cows and by the best sires for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

Tamworths. The Dairyman's Hog. Choice pigs ready for delivery. Send for circulars and prices. OAKWOOD FARM, State College, Pa.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STRACY, Box 720 Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ST. OMER HERD
Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

For Sale. Two yearling bulls ready for service, out of tested dams. A few bull calves, some out of tested dams. All sired by Maquilla's Major 40804, a son of Maquilla's Violet, 31 lbs. 1 oz. Write for prices. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00,*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Hood Farm Jerseys The Best Blood of the best breed for dairy products is found at Hood Farm. If you would secure the greatest profits from your dairy you should have a bull from Hood Farm to head your herd. Young stock carrying the blood of the World's Fair winners generally on hand for sale. Correspondence solicited. Address,
HOOD FARM, Lowell, Mass.

High-Class Jerseys
— THE BLOOD OF —
COMBINATION
(Sire of 25 in list) through
BROWN BESSIE
(Champion Butter Cow at World's Fair), and
DIPLOMA 16219
(Sire of 48 in list including MERRY MAIDEN.)
Young Bulls, also Cows and Heifers bred to Recorder 29239—son of Brown Bessie
Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

MILLER & SIBLEY'S JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. 224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys.
THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

of it over the butter, turn the churn to expose fresh granules and add more, continuing this until all is added. A roomy churn is required for best results. This is always an advantage anyway.

A large wooden fork may be used to more thoroughly incorporate the salt if desired, but do not remove the butter from the churn. As soon as the salt strikes the globules the brine begins to start, each tiny particle receives its quota over its entire surface. Practically this is brine salting.

Put on the cover, close the lower opening of the churn and revolve very slowly. The exact number of revolutions is immaterial provided the butter is at the proper temperature. It must not show the least sign of being too warm, or the grain will be injured.

At the end of two minutes, there should be one or more solid lumps of butter in the churn and quite a quantity of brine. Remove the cover, hook the churn and drain. With the ladle or fork, break the butter into pieces, replace the cover and again revolve the churn as before.

At the end of another two minutes the operation should be completed and the butter ready to pack. It ought to show a perfect grain with no trace of mottles, either then or at any subsequent time.

Should these appear, it indicates insufficient working and a little more care in evenly adding the salt will be advisable. Motles are the direct result of uneven distribution of salt throughout the butter, the color being lighter where there is little or no salt.

After practicing this method of working butter for a year, I still have no disposition to abandon it. For me, its results are perfectly satisfactory in every respect.

W. C ROCKWOOD.

Genesee Co., Mich.

Not Quite Satisfied With Silage.

ED HOARD'S DAIRYMAN:—There is one thing I would like to ask you. What effect will silage feed have on the cows?

I have several cows and am feeding silage, but I think it ruins their insides in time. Now, the first year I fed silage, the cows liked it and got fat on it, but the next year they did not do so well and I nearly lost one cow, and I think sure it was the silage feed, for she got better in the spring, though it was a hard pull to get her through till the grass was fit for her.

The next year I did not fill the silo. They did well. I fed hay, corn stalks and roots. Have always given bran mash warm at night till lately. Now I feed bran dry, because I think with the silo the wet bran is too much for them.

This year, I filled my silo good, all corn cut when it was just right and the silage looks good. Never had it better than now. Yet the cows don't do well; are never hungry; they will eat it but they don't like it. They will not eat it alone very well, so I cut hay or straw and mix with it, then I put bran and salt on it and so coax them to eat.

I have tried it all ways, with and without mixing it. When I am gone out of the barn and they know they will not get anything else, they will eat it. They don't act like that when I give them corn stalks or hay.

Sometimes they are bound up, then again they scour. With all the care I give them, they will fall off in their milk, and as I am a milk peddler, it is very inconvenient. When I want milk the most, then they give short measure.

Can you or any reader account for it? My best cow freshened this winter and she was quite sick about two weeks after. I gave her two doses of physic per day—the physic prescribed by HOARD'S DAIRYMAN—but it never seemed to physic her any.

I left off feeding silage. She is better now, but not what she was for giving milk that she was before when she came in.

Now I would like to hear of some one else's experience on silage feed. I like the silo, it is handy and cheap. But I do think it wears the cows out. I don't think they could stand it many years. I am always in fear. I never know when they will get sick of it and stop eating. I feed silage three times a day, one-half bushel to a feed, mixed with cut hay. ALBERT EDWARDS.

Charlevoix Co., Mich.

Our Michigan friend's experience with silage is so opposite to our own and that of the great majority of those who have fed it for years with the highest satisfaction, that we are utterly unable to account for the results he reports. Elsewhere in this issue, in reply to a Wisconsin subscriber, we have discussed the silage question somewhat, and there may be a suggestion there, indicating some of the possible causes of our friend's failure to find silage as profitable as others find it.

Fattening Dairy Heifers.

ED. HOARD'S DAIRYMAN:—I notice all dairy writers who have touched on the subject, caution against allowing the dairy heifer to get fat.

My experience leads me to believe the danger to be greatly overestimated, and I believe 99 heifers are dwarfed and permanently injured by underfeeding to one injured by liberal feeding.

Do these gentlemen never turn their growing heifers on good pasture? And, if so, do they never get fat?

My experience leads me to believe that the animal that will not get fleshy on good pasture is lacking in digestive capacity, and will never amount to much in the dairy.

The first really dairy bred heifer I raised was so beefy looking, that on taking her home from pasture, a butcher of my acquaintance tried to buy her for beef, saying she would never amount to anything as a dairy cow because she carried too much flesh. I knew she was sired by a splendid bull and decided to keep her anyway. She calved in Nov. '94, at 22 months, and gave as high as 39½ lbs. in one day, testing 3.3%. Freshening again a few days before she was three years of age, she gave 56½ lbs. in one day, and a little over 12,000 lbs. in the ensuing year. In May '97 she gave 74 lbs. 14 oz. in 24 hours. Last season in spite of a peculiar sickness lasting several weeks after freshening, 60 lbs. in one day, and she is still doing good work in the dairy. She now has the thin drooping neck, prominent back bone, cat hams, and the general appearance of your typical dairy animal.

This cow always had this form, it was simply covered by this surplus flesh, because it was natural for her to do so.

Again, early last summer we had five fine heifers calve, that had been wintered on ensilage mostly, that came through very fat, yet all did well. Feb. 6th a heifer calved that was fat all of the winter of '97-'98, all last summer, and still very fat when she calved, yet she has given 40 to 46 lbs. daily ever since. (April 15th on mixed hay and gluten feed, 46 lbs.). Now that dairy form is uncovered.

In short, if a heifer inherits a tendency to do dairy work she will do it when the time comes, and do it all the better if she has been liberally cared for. Do not scrimp the growing dairy heifer.

Lorain Co., O. GEORGE R. CREHORE.

NEW YORK has decided to have her dairy products placed on the market without the use of those preservatives which are so highly lauded and profitably supplied by the dealers in antiseptics. The Governor has signed the bill, and it goes into effect at once.

The *New York Produce Review* comments as follows:

"The new law strikes a blow at all preservatives excepting salt. The danger confronting our export trade from the use of boracic acid, demanded some legislative protection, and the Empire State was not long in seeing the necessity for immediate action. The expression of the dairy interests of New York State, as well as the merchants of her large cities who handle so much of the product of the country, is overwhelmingly in favor of keeping our butter pure. The preservative people have been carrying whole page advertisements in western dairy (?) papers trying to beguile the creamery managers and ladle packers into the use of their compounds, and the passage of this bill will be a wholesome check to their schemes."

It is to be hoped that the time will come when we can buy our food without the suspicion that it has been "doped" with powerful drugs under the excuse of preserving it from decay.

The Soy Bean as a Farm Crop.

[Press Bulletin.]

A comparatively new and promising leguminous crop for Indiana farmers is the soy bean. This plant has been successfully grown in different parts of the state, and at several points farther north in the United States. It thrives in good corn soil, and will grow wherever corn can be successfully produced.

Being a quick maturing annual, it will prove especially helpful to those who cannot grow clover. A crop of soy beans can be produced betweed the spring and autumn frosts anywhere in the state. The soy bean may be grown for pasture, green forage (soiling), for hay or silage, or for seed. It will yield 9 to 12 tons of green fodder, 1½ to 2½ tons of hay, and 10 to 40 bushels of seed, according to variety, condition of soil, etc.

VARIETIES.

If seed is desired, the earlier varieties, only should be grown in northern Indiana. The medium early varieties will doubtless mature in most parts of the state, and are to be preferred, owing to their greater yield. The later varieties might be grown for soil renewal and soiling, but they would hardly mature seed.

CULTURE.

The soil may be prepared as for corn. If impoverished by previous cropping, the soil should be well supplied with lime, potash and phosphoric acid. Nitrogenous manures have also proved beneficial in New England.

The seed may be sown broadcast with the wheat drill, in rows 16 to 24 inches apart, or with the corn drill to be cultivated as corn. The earlier varieties of soy bean may follow a crop of rye or barley, or be sown in the standing corn at the time of the last cultivation, if the weather is seasonable. If sown in corn, put in two rows of soy beans between each two rows of corn. Sow about two pecks to the acre in rows, like corn, and cultivate, if seed is desired. For pasture, soiling or hay, sow four or five pecks to the acre.

FOOD VALUE.

Soy bean hay compares favorably with clover hay in chemical composition. The seed is very rich in protein and can, therefore, be fed advantageously with corn. The seed should be ground before feeding. The seed is readily eaten. Stock, as a rule, do not relish the stems and leaves at first, but soon take kindly to this forage.

Soy beans and sorghum supplement each other as soiling crops. Corn and soy beans, together, are said to make good silage.

HARVESTING.

Begin cutting at the time of early bloom, for soiling. Cut for hay when in full bloom, and as soon as the pods have formed, for silage.

COST OF SEED.

Seedsmen offer soy bean seed at $2 50 $5 00 per bushel. This makes the cost far too great to justify growing soy beans as a general crop. Farmers are advised to try soy beans in a small way as a special crop, and then grow their own seed, if the crop gives promise of being valuable.

W. C. LATTA, Agriculturist.

Purdue University Ag'l Exp. Station.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

A Trio of Show Bulls
of the richest and most famous breeding in the world are the yearling bull Valencia Sir Mechthilde 25050, H. F. H. B., average butter record of dam and sire's dam, 31 lbs. 12 oz. in 7 days; average milk record, each, 100 lbs. in 1 day. De Kol Alban Astrea (25150), average butter record of dam and sire's dam, each, 32 lbs. 15 oz. Sir Tirania of Valley Mead (25146), grandson of both Tirania and Natsey. No three better bred or better individual young bulls can be found in America today. High class breeders can not afford to let this opportunity go by. Prices low for quality. Inspection invited. VALLEY MEAD FARM,
KARLEN & CO., Monticello, Wis.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America.
Breeding Stock for Sale. Inspection invited.
L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair. 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

GUERNSEYS.
225 Pure Bred Guernseys,
Of the best American and Island breeding. Butter average, whole herd, 318 lbs. per head. No catalogue. Come and make your own selection
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Echoes From the New York Institutes.

Separating.—Ripening.—Churning.—Preparing Starters.—Winter Dairying.

ED. HOARD'S DAIRYMAN:—One of the places where the old cow, her progeny, and other products, receive much attention, is Lowville. In fact, she occupies a front seat at every institute held in Lewis county, whether it be in Lowville, or elsewhere; and is, therefore, most deserving of mention, when we come to remark upon the institute program.

The senior editor of the DAIRYMAN was at Lowville, last winter, but left town before the question box had been uncorked. His address, together with those of S. Brown Richardson and George A. Smith, however, filled it to overflowing.

Some of the questions were as old as the institutes, and to some readers the answers may read like a "twice told tale;" nevertheless they may be of benefit to some "forlorn and shipwrecked brother" which is my excuse for copying them from the report.

Q—What are the best grains to feed our milch cows?

Geo. A. Smith—That is a good question, and we might profitably spend the whole afternoon on it. If the farmers would study it more closely, they would be much better off. The failure to do that, together with the heresy the farmers have of keeping cows from the standpoint of numbers, instead of production, has cost them millions of dollars. Foods produce fat, growth, muscle and bone. To do this, we must have two classes,—one for heat and one for growth, milk and bone production.

It has been found that it required 12% of the feeding energy of corn stalks to enable the cow to masticate them; corn meal creates heat, and the cow gets a double benefit from it, in one sense—but it does not make milk.

If she is to produce milk, she must be fed the elements that are contained in milk. Clover hay contains these elements in nearly a perfect ratio, while oat straw, timothy hay, corn stalks and silage, do not; so we must balance these foods, with those which do contain milk elements.

Milk having a ratio of 1 to 4, the cow, if she is to give milk, must have foods containing a corresponding ratio. This shows why the cow makes the most milk when running in good June pasture, such grass having the same ratio as has milk. The casein portion of the milk nearly all comes from nitrogenous foods, so that, if one feeds nothing but timothy hay and straw, she cannot produce milk, for the reason there is little or no casein element in her food; therefore, she either shrinks her milk flow or else takes the elements from her body to produce it, in which case, she at once becomes poor and thin in flesh.

A cow whose function is to produce milk, will do so, at the expense of her physical condition; but the cow which is of the beefy type, will put the foods that she eats, on her back and refuse to give milk.

So it is first necessary to find which of the herd are the milk producers, then give them all the well-balanced rations they will eat, digest and assimilate. But no two will require the same amount of food, and, it may be, the same balanced ration. You must watch them, and feed accordingly.

Having corn silage, timothy hay, corn stalks or straw, there should be fed with them, oats and peas, or bran, gluten, oil or cotton seed meals. If your hay is clover, and you have silage, somewhat less of the nitrogenous grains may be fed.

Q—Can cream be separated from milk as easily in winter as in summer?

Mr. Rees—I do not think it can unless the cows are fresh in milk; of course, I refer to deep-setting.

With the separator, there would not be much, if any, difference, since the separator of to-day forces all but about two tenths of 1% of the fat out of the milk.

The great bulk of the butter of to-day is from separator cream; it sells for the highest prices in our markets, and more of it is made from a given amount of milk.

Mr. Dawley—One must learn to make butter by the separator. You have a different cream from that of the old way, and more of it.

When we got our separator it broke up all our methods, and, after using it two weeks, we were about to throw it out, as worthless; but Mr. Smith came to our aid and said: "Cool your cream down to 50° as soon as it comes from the machine, for the purpose of hardening the fat globules". We did that, and in less than two weeks, were making *better* butter than we had ever before made.

It was not only better, but there was *more of it*. Besides that, we were able to make the quality the same from day to day.

One must follow strictly the directions of the man who made the separator, just as Mr. VanDuser said one must follow those of the man who made the incubator. Very many fail to do this, which accounts, in part at least, for an occasional failure to make a uniform quality.

Mr. Richardson:—Mr. Dawley, or rather, Mrs. Dawley knows how to make good butter, and they use the separator.

At Gouverneur, there were but few samples of dairy butter that scored up to the hundredth point, but one of them was Mrs. Dawley's.

Mr. Smith—The New York market wants a butter that scores high and one of quick flavor. The high scored butter is the best when eaten at once, but it does not keep as well as does a slower one. That is why butter, made in the old-fashioned way, keeps better. It is a dryer butter.

Mr. Dawley—At Gouverneur, the great falling off in score points was in flavor. Texture, salt and color were nearly all perfect in the great exhibit, but when we came to flavor, down it went. This loss was caused, in the main, by the handling of the cream after it came from the separators and during the ripening process.

Mr. Richardson—Why is it necessary to stir cream at all?

Mr. Dawley—Cream will ripen more rapidly, or, rather, lactic acid will increase more rapidly, where cream is the warmest, which is at the sides or top of the can; so we use a stirer of our own device. It is somewhat like a saucer with the convex side up. To this is attached a long stem or handle, placed in the center, and which reaches up and through a hole in the cover of the can.

Half a dozen times a day we go to that can, lift that stem handle up and push it down just once. That motion stirs every bit of cream in the can more than we could stir it with a paddle in three minutes, because it changes the position and mixes it all up. The top is forced to the bottom, the bottom to the top and the center to the outsides. Then, too, it is all done in two seconds and without removing the cover from the can; thus saving time and keeping outside air away.

Q—How long should we be in churning cream?

Mr. Dawley—I want to be not less than thirty minutes. If we find we are going to get the butter sooner, we cool the cream down. I hear people say that they churn in five minutes, while others say they have to churn two days. One churns at too high a temperature, the other has improperly ripened cream, or churns at too low a temperature.

If you have cream enough, it will pay to churn quite often; say every other day or at least twice a week.

Mr. Richardson—I wish, Mr. Smith, that you would tell these people how you make your starter.

A—At the Geneva station, we have a John Boyd ripening vat in which the cream is kept away from the atmosphere, it being air tight; but you can put your cream into a glass can and keep it pretty nearly air tight. If we make a milk starter, we select a sufficient amount of pure, clean, sweet skim milk, put it away in an air tight can, and, when it has become slightly acid, we put in about two per cent of the starter into the cream, warm it up to about 68°, cover it up and stir it often with a wire stirrer, or one like Mr. Dawley's.

In about twenty-four hours, the cream is slightly acid and is ready for the churn.

A Lady—How long shall we allow our cream to remain on our milk, set in shallow pans?

Mr. Smith—Until the cream is all up, if you can do it and not have the milk sour. Never allow that to occur, but skim it while the milk is perfectly sweet. This allowing the milk to sour, it may be in one pan, be-

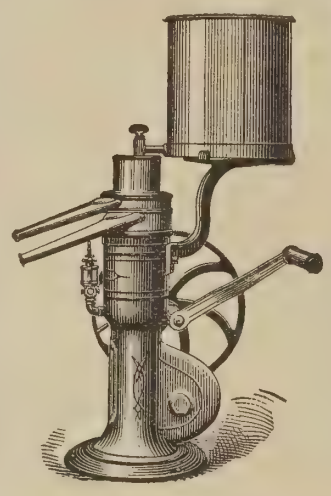
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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

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CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

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AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**
At The ST. LOUIS FAIR, as the
BEST CREAM SEPARATOR For FARM USE. . . .
Send for Descriptive Catalogue.

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A Handbook for Farmers and Dairymen By... Professor F. W. WOLL, with the assistance of WELL-KNOWN SPECIALISTS. With illustrations, 398, pages. 12 mo. Cloth. $1.50.

Modern Dairy Practice By... GOSTA GROTENFELT, President Mustiala Agricultural College, Finland. Authorized American Edition by Professor F. W. WOLL, with Illustrations. Second Edition. 291 pages. 12 mo. Cloth. $2.00.

JOHN WILEY & SONS, 53 E. 10th Street, New York City.

fore taking it off, then skimming another while sweet, mixing both samples, then holding them two long, is the main cause of most of the poor butter made by the farmers.

Mr. Miller—Is it necessary to make a new starter every day, or shall we hold over some of that of the day before?

Mr. Dawley—It is my experience that we ought to have a new starter every day, and not hold over the old one, as a woman holds yeast. We then get it fresh, pure and of just the right acidity. If it is held over, it will become too acid. Select fresh skim-milk each morning, for next day's use.

Q.—How should the milk be conducted from the wagon to the receiving can in the factory, for cheeee or butter?

Mr. Rees—It will be best to dump it; the maker can then look into the bottom of the can and see if it is clean or not.

Mr. Smith—I think that the best way. You save the work of cleaning the faucets and conductors, and it can be handled much more rapidly.

AT CONSTABLEVILLE.

Q—Does winter dairying pay here?

A farmer—It pays me sixty cents out of every dollar, I get for it, provided I get $1.00 per hundred pounds of milk. If I get $1.10, it is more.

Mr. Converse—A cow which drops her calf in the fall will give more milk from the same feed during the year, than will one that comes fresh in the spring. Of course, one must have warm stables, and other favorable conditions to do it. For myself, I have no patience with a man who allows his cows to go dry four months of the year, when milk is worth double the price it is in summer. But, one must have suitable foods, such as silage or roots, to balance his other foods. Dry hay, corn stalks and straw will not produce milk.

How many of you are doing winter dairying?

But few responded.

How long do your cows go dry?

Answer—From December or earlier, to April.

Does winter dairying pay here?

Yes, when we can market our milk; but most of our factories close in November.

Q—To Mr. Richardson—Do you advise the making of home-trade or export cheese?

Answer—I handle both export and home-trade cheese; but, my opinion is that we should consume more cheese than we now do. The trouble is, we eat too little, although but a small part of our cheese is exported; but that regulates the price for our home consumption. Then, a large amount of export cheese goes into cold storage when prices are lowest, which comes out and competes with that made later on, which keeps the price down. We can, as a rule, get as much for our home-trade cheese as for our export goods. Lewis county makes the best cheese in the state, and the state the best in the Union. Reports from the factories in this county show that more money is received per hundred pounds than in any other county in the state. I believe that the dairymen of the county should seek a larger, wider home market, then make just the quality of cheese that is called for.

Q—Is it worth $1 per hundred pounds to make our cheese?

Mr. Richardson—I do not believe that any good cheese maker can make it for less than a cent a pound. We need a man having a good level head, to make cheese, and to get him, we will have to pay him, just as we will have to pay any other good man for other good work. Lewis county cannot afford to employ cheap cheese makers.

Belleville, N. Y. C. W. JENNINGS.

Some Good Thoughts.

ED. HOARD'S DAIRYMAN:—Having been a subscriber and reader of HOARD'S DAIRYMAN for a number of years, my observation and experience has led me to appreciate the value of your paper to the farmer and stock raiser of to-day.

In this age of progress and civilization when everything is wending its way to the highest stage of perfection; when scientific principles are being applied to every pursuit in human life; when a man's success is in a direct ratio to his education; it is apparent that the first essential is knowledge. It is important "to know."

It would be little less than folly for me to assert that every farmer in order to be successful should be the possessor of a college education. Not at all. The means of the ordinary farmer would not allow it. But education is not alone found within college walls. Many of our successful men of to-day, as far as institutions of learning are concerned, never saw more than the ordinary high school. Some not that. Their success is mainly due to the periodicals, and their relations and associations with other men.

In my mind, Mr. Editor, money is wisely invested by the dairyman and farmer who would succeed, when placed in a subscription to a good periodical, devoted exclusively to a full and free discussion of all matters pertaining to his occupation, in this manner coming in contact with his fellows from all parts of the country. As I have previously stated I believe HOARD'S DAIRYMAN a valuable educator to the farmer and stock raiser of to-day.

Being born on a farm and having worked at farming in my early days, I have taken more than ordinary interest in the occupation. In the town of Deerfield, Oneida Co., N. Y., less than two miles from the city of Utica, I purchased some years ago what is known as "Fine View Farm." It has been my aim to run that farm according to the most modern methods.

In stocking my farm I put on grade Jerseys, which I believed to be good milk and butter cows. I purchased a thoroughbred Guernsey bull, Springdale, H. R., No. 1596, raised calves from the best cows and am milking them in my dairy at the present time. This cross has given me very satisfactory results. For the year ending April 30th, 1898, the cows averaged $56.00 per head in milk alone, some of the younger ones being fresh in October and November and were not in the dairy until the fall of that year. One of my grade Guernseys, "The Belle of Fine View," fresh in October, gave as high as 52 pounds of milk in one day; another, a grade Jersey, gave over 40 pounds of milk, the former making over $5.00 and the latter $4 00 per week. Neither of these cows had any feed other than what they picked in the field.

My milk is sold at wholesale and delivered every morning to a dealer in the city of Utica.

I have been quite a little interested in different articles appearing in your paper both pro and con the dual-purpose cow. While I do not wish to attack any statements made in support of dual-purpose, yet my experience has led me to oppose such a theory. Beef and milk are ends which should be striven for separately. I believe it is impossible to get good results together in the same animal. It would be ridiculous to assert that good drafting and racing qualities can be found in one and the same horse. The race horse is from a family of racers, while the draft horse is from another kind. Just so is a good milk and butter cow bred from a family of milkers, while the cow raised for beef is from another distinct family.

In this section of the country, the poultry business, if intelligently carried on, is a paying venture. In chickens, raised on an extensive scale, there is money. In connection with my dairy, I have this year added a poultry department to my farm. The erection of a brooder for the accommodation of 2,000 chickens and ducks has just been completed and the same fitted up according to the latest improved plans. About the first of December, the imcubators are started and the poultry raised during the winter months, so that eggs and broilers can be put on the market during March and April. My poultry is all full-blooded and I intend to raise nothing but the best.

JAMES B. TURNBULL.

Oneida Co., N. Y.

THE Yankton, S. D. *Gazette* reports the following colloquy between two farmers:

John—"Say, Hans, let us invest in some shares of the new Sea Level mine of Alaska."

Hans—"No, I have a share in the Center Point creamery, and that yields me more from my ten cows than any mines in Alaska."

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

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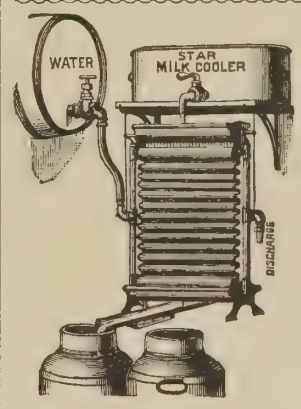


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Remains the same "Yesterday, To-Day, and Forever."

The imitations of these celebrated Cans attest the value of the genuine, which are invariably stamped with the maker's trademark. To secure prompt deliveries of genuine **"IRON CLAD"** Factory and R. R. Milk Cans, all inquiries and orders should be addressed direct to the makers, **THE IRON CLAD MANUFACTURING CO.,**

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Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

It takes a teaspoonful of analine butter color to color eight pounds of butter. This quantity of butter color has been shown to be sufficient to kill a human being.

Thatcher's Orange Butter Color

Is a pure, healthful vegetable color. It costs more than coal tar color to make, but the creameryman gets back in the ext a weight of his product the extra price paid. It gives butter the

DELICIOUS JUNE TINT.

FOR SAMPLE BOTTLE WRITE TO

THATCHER MANUFACTURING CO., - Potsdam, N. Y.



An Old Proverb That—

but just as forceful today as one hundred years ago.

It's good common sense advice in almost every transaction, but for present purposes let us suppose you are going to buy a binder, a mower or a corn harvester.

Possibly you have made up your mind to get something cheaper than the **Deering Ideal.**

Perhaps it is not yet too late to "go back." And it certainly *is* "better to go back than to go wrong."

That word "cheaper" is an old fraud. Do not be deceived by it.

Deering Ideal grain and grass harvesters are "ideal" because they embody the best thoughts and suggestions of the farmer and the mechanic.

They are simple, scientific and substantial.

They are the cheapest to buy because they are the best to own.

DEERING HARVESTER CO., - Chicago.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade was unusually light, only 1500 pounds being placed on sale. This sold at once at 16⅜ cents. The Quotation Committee announces the market firm at 16 cents. The sale made was:

Factory.	*Pounds.*	*Price.*
Red Clover.....	1500	16⅜

The markets for the corresponding week of the three preceding years were as follows:

May 9, '98, no sales, market price, 16 cents.
May 10, '97, 35,230 pounds of butter sold at 14½c.
May 11, '96, 46,930 pounds of butter sold at 15½@16c.

The New York market was reported steady at 17 cents. H. C. B.

Elgin, Ill., May 8, '99.

Studying the Cow Machine.

ED. HOARD'S DAIRYMAN:—During the summer of 1898, the Kansas Experiment Station started an investigation among the creamery patrons of the Meriden Creamery Co., in order to find out what the Kansas dairy cow was producing, and to compare these results with those obtained by the College scrub herd. This would enable the station to offer suggestions for improvement.

Realizing the benefit to be derived from keeping in touch with the patrons, the Meriden Creamery Company has recently written for a list of the questions used by the Experiment Station, last summer, with the remark that the company intends to have their skimming station men visit each patron some time in the next few months. Having three of the graduates of the Kansas Dairy School in its employ, this company will be able, not only to make this investigation, but at the same time to offer suggestions to the patrons along the line of feed and care of the dairy cow, and the handling of milk. The practices of the most successful patrons can be used as object lessons for those less successful. In this way the creamery becomes an educational center, where valuable information is received and dispersed.

The effort is certainly a commendable one, and should be followed by other creameries. Find out what the cows in your neighborhood are doing, compare them with the standard of what they should do, and then work to improve them. No dairy should be content to keep a cow that gives less than 5,000 pounds of milk per annum, and should not rest satisfied until his best cows yield annually between 8,000 and 10,000 pounds of milk.

The record of the college scrub herd, with cows below the average of Kansas, shows that this can be done. If dairying is to be made more profitable, more attention must be given to studying the cow machine with a view of increasing her efficiency. Any effort put forward along this line will result in profit, both to the creamery and to the creamery patron. Now is the time to act.

D. H. OTIS.

Kansas Experiment Station.

A Word of Caution to New Creamery Associations.

[Press Bulletin.]

The writer has received a number of inquiries of late in regard to the methods employed by "creamery promoters" in establishing creameries. From the reputation that these "promoters" in general bear, it would seem wise to give them a wide berth. It is their business to build and equip a creamery and get their money for it, regardless of the subsequent success of the enterprise. To do this, they misrepresent the amount of milk that can be expected from a given number of cows and the average price that can be obtained for the butter, and they usually charge much more for erecting and equipping the plant than it would cost the Creamery Association, if purchased at market rates.

By misrepresenting the profits to be derived from the creamery business, "creamery promoters" have induced thousands of farmers to pay for expensive creamery plants which are now standing idle and not only yield nothing on the investment but are constantly deteriorating in value.

In order for a creamery association to be successful, it is necessary, above all things, to have the milk from 300 to 500 cows guaranteed to the creamery for nine or ten months in the year. A creamery to handle this amount of milk can be built and equipped from $1800 to $2,200. The price usually asked by "promoters" is from $2700 to $4000.

If it is desired to build a creamery in a community, an informal meeting of those interested should be called. Then, if a sufficient number of cows can be guaranteed, an effort should be made to get the manager of a successful creamery to come and thoroughly explain the advantages and disadvantages of a creamery and give his suggestions as to building and equipping a plant.

A committee should likewise be appointed to visit one or more well managed creameries. "The creamery promoter" should be kept away from these meetings.

By appointing suitable committees to carry out the plans adopted by the stockholders, a creamery can be built and equipped at a comparatively small cost and its success be assured from the start. A very useful and suggestive bulletin entitled "Creameries and Butter Factories" has recently been issued by the Dairy Division of the U. S. Department of Agriculture at Washington, D. C., and may be had for the asking.

Pa. Exp. Station. H. HAYWARD.

Manuring Soils Naturally Rich.

It may seem absurb to talk of manuring soils naturally rich, yet the evidence of our official statistics tends to prove these naturally rich soils have a very low productive power. The low average yields per acre of wheat and corn on our rich prairie soils is often quoted as a kind of national reproach. There seems to be no doubt of the fact that these soils are rich; there is certainly no denying that they give a very low acre yield.

Low acre yields on rich soils is practically invariably due to inequalities in the supply of fertilizers or manures. A soil rich in organic matter is likely to be rich in fertilizer nitrogen, but may be relatively deficient in in fertilizer potash and phosphoric acid. In a natural state the potash and phosphates have been used over and over again in making crops of grasses, more or less of which belong to the legume family. Thus, there has been a constant increase in the supply of fertilizer nitrogen, but no corresponding increase in the supply of potash and phosphate. The result is that the soil becomes charged with vegetable matter moderately rich in nitrogen, but low in the mineral fertilizers.

Under these conditions, fair crops of stalks of straw may result, but the grain will be low in quantity. Potash and phosphate are the determining fertilizer ingredients in producing the seeds of plants; if there is present in the soil relatively more available nitrogen than available potash and phosphate to properly accompany same, the yield of grain (seed) is controlled by the deficient mineral fertilizer. The strength of the chain is the strength of its weakest link. Even the yield of straw and stalks cannot go beyond a certain limit with a deficient supply of potash and phosphate, though the nitrogen be abundant.

Though such soils are called rich, they are rich chiefly as regards nitrogen only, and too much nitrogen is only a trifle less harmful than too little, especially in grain farming. These rich soils will amply repay manuring with mineral fertilizers. They do not require heavy manuring, or fertilizing rather, as do the more exhausted soils of the Atlantic coast line, but the small quantity needed is just as important as the larger applications found necessary in the east. One hundred pounds of acid phosphate and 50 pounds of muriate of potash per acre will make a great showing, though doubtless twice as much would still show a handsome margin of profit.

Any form of chemical fertilizer supplying potash and phosphoric acid may be used. Finely ground bone meal is very useful as a source of supply of the latter, while muriate of potash would be cheaper per actual pound of potash than kainit, on account of the high freight rate. The combination would show up well. S. COX.

The Woman's Side of Creamery Work.

Patronizing Creameries.

The following is an extract from a letter, written by Mrs. Jeanette Wragg Miller to the *Wisconsin Farmer*, in which she advises farmers to send their milk to the creameries:

"Now if the milk is sent to a creamery, all the wife has to do is to wash and scald the cans with soda water and set them in an airy place until needed. Whoever does the milking will strain the milk and the hauler will come to the door and get it and bring back the separated milk. It makes no work for the wife, and she will have the two or three morning hours that are usually spent in dairy work, to employ in other occupations, or, if the weather is fine, she will enjoy going about with her husband at his morning chores, and with him admire the stock and poultry. The husband will enjoy this as much as the wife.

I have heard some men say that separated milk was not fit for calves and pigs. I know better than this, for while it may not contain as much nutriment as home skimmed milk, it is still good if fed with judgment. We have marketed pigs at seven months old that weighed 200 pounds, and they had been fed on creamery skimmed milk, with grain of course. We have also raised calves on it that looked as well as any that run with the cow. Some may laugh and say it is impossible, but I'll tell you how we do it, and I generally do this part of the work myself. I put a handful of oil meal and a large handful of corn meal in each pail and pour about three pints of boiling water into it, let it stand a few minutes and then put in milk enough to make it just milk warm. My husband feeds them and the work ought never to be trusted to children. We are now feeding three calves and they look well. Each one eats shelled corn, oats and hay before it is one month old. We always give them new milk for ten days or two weeks

"BURNING MONEY."



The most precious possession on earth is perfect health. It is the ground-work of all prosperity in life; and few people grudge any reasonable expenditure which will be the means of restoring it; but one of the most disheartening things in the world is for any one who works hard for his money to keep paying it out for doctors and medicines that do no earthly good. It is like throwing it into the fire.

"We had spent lots of money for doctor bills and I had almost given up in despair," says Mrs. Ella Schall, of Moosehead, Luzerne Co., Pa., in a sincere letter to Dr. R. V. Pierce, of Buffalo, N. Y. "Then I told my husband I was going to write to you. I am very glad I did so; You remember my case was abscess of the breast. Dr. Pierce's Golden Medical Discovery cured me in one month, sound and well."

"Your kindness to me I can never forget," writes Mrs. Josie E. Clark, of Enterprise, Shelby Co., Mo. "I cannot express half my feelings of gratefulness to you. I had despaired of ever getting well. I had been in bad health for twelve years. Had aches all through me, numb hands, cold feet, and everything I ate distressed me; my bowels were constipated. I was very nervous, depressed and despondent. When I first wrote to you I thought I could never be cured. I have taken six bottles of Dr. Pierce's Golden Medical Discovery, and my health is now good. You have my honest recommendation to all sufferers. I think there is no medicine in the world as good as Dr. Pierce's."

It's an insult to your intelligence for a dealer to attempt to palm off upon you a *substitute* for this world-famed medicine. You *know* what you want. It's his business to *meet that want*. When he urges some *substitute* he's thinking of the larger profit he'll make—not of your welfare. Shun all such dishonest dealers.

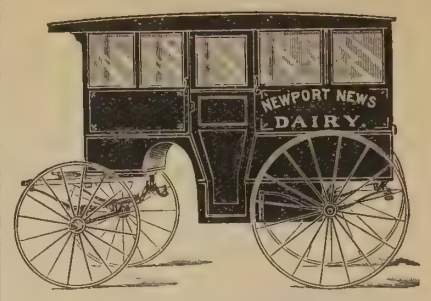
Every sick person in this land should possess Dr. Pierce's grand thousand-page illustrated Common Sense Medical Adviser, which will be sent free for the bare cost of mailing, 21 one-cent stamps.

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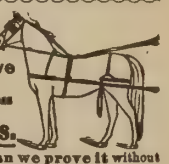


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THE NATIONAL WAGON CO., Chillicothe, Ohio.



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Send $1 00 at once to the undersigned for a copy of his new book stating all about these lands and how to buy them. It will be worth $1000.00 to you. If you have not the money now, cut this ad out and send for book later. CHAS. P. SCRIVENER,
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References:—Hon. Jas. H. Reagan, Railroad Commissioner. Hon. E. P. Willmot, Pres. Austin Nat'l Bank. Hon. A. S. Burleson, Congressman.

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Volume XXIX of Hoard's Dairyman

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BINDER BY MAIL POSTPAID, 75 CENTS

and gradually change. You will doubtless say that this is lots of work. To be sure, but what is gained in this world without work, and it is through these small gains on the farm that the farmer makes his money.

Having always kept a strict book account, from the buying a postage stamp to the selling of a horse, I can give you some exact figures of what we made on a few cows besides raising their calves. From October 1, 1893, to June, 1894, from five cows running in pasture with hay at night and without extra feed, I sold butter (besides what was used in the family of four and such company as came, and we used no small quantity) to the amount of $98.72. For some of this I got 22 cents a pound, and I only sold ten pounds of it for less than 20 cents. The next year we sent the milk to the creamery, and for the same time, from October 1, 1894 to June 1, 1895, from the same cows on the same kind of feed, after the hauling was paid for and we got our own butter and cream, we received $118.28. Don't imagine that I think this any butter record. Our cattle are not special butter cows. We raise cattle more for beef, yet we mean to make all we can out of the milk. If the cows had been fed on ground feed they would, of course, have done better, but I give these figures merely to show the gain in patronizing a creamery over making butter.

If a wife's strength coun's for anything, I think the gain on this account trebles that of dollars and cents, and in these progressive times a woman's time can be better employed than working in the kitchen three-fourths of the time. Let machinery do all that it will to save her and give the farmer's wife more time to get out into the world."

CONCERNING OUR ADVERTISERS.

Every line of manufacture has been advanced by the use of modern machinery. But a few years since the buggies, the carriages and the harness of all of our farmers were made in country shops by skilled workmen. They cost quite a lot of money too. It took many a hard month's work of the farmer boy to pay for a buggy. But the designer and the machinery inventor have done a great deal to lighten the load on his pocket, and to day he can buy a better built and far handsomer buggy for twenty six to thirty dollars than he could get for a hundred ten years ago. It is machine made, which means that it is well made. It is more graceful in outline, more stylish looking and is a lighter load on the horse. It rides more easily, and it will last longer than its predecessor. One of the most successful houses in America, handling these buggies is the Crawfordsville Carriage and Harness Co., of Crawfordsville, Ind. The man who buys from it has no middleman's profits to pay. He gets the worth of his money. The company issues a handsome catalogue which can be had upon application.

A gentleman who has received one of the handsome new catalogues from Hood Farm, Lowell, Mass., writes as follows, "Mr. Hood deserves the thanks of the Jersey World for preserving in such beautiful form the portraits of his splendid herd which I believe to be unexcelled in this country. The catalogue is a work of art as well as a work of love for one of the most lovable of the animal creation."

MORE WORK WITH LESS HELP.

How to do the greatest amount of work with the fewest men and horses is a most important problem for farmers. The efforts of many inventors have been directed to the solving of this problem. Hundreds of machines and implements have been devised to take the place of human labor in farm work. The most successful implement that has been introduced in recent years, if we accept the testimony of its users, is Hallock's Success Anti-Clog Weeder and Cultivator. Mr. L. B. Marsh, of Trempealeau, Wis., writes of this implement af follows;

"I tended last season 75 acres of corn and potatoes with the Success Anti-Clog Weeder, and I am in my 70th year. I must say I never before saw such clean fields of corn and potatoes in my life With the weeder I did with one team as much work as three men and three teams could do with the old style cultivators, and did the work in a very much better manner, too."

D. Y. Hallock & Sons, York, Pa., the manufacturers of the Success Weeder, will be glad to mail sheets of testimonials and full information to any one who requests them.

PROSPERITY.

Greater Prosperity among the farmers is the mission of the McCormick. Speed at harvest time is all important. Prompt saving of crops means money in the farmer's pocket. Delay means loss, speed means profit. Buy the Mc Cormick and you will get your full money's worth. Mc Cormick sets the standard in Binders, Mowers, Reapers, Corn Harvesters, Rakes and Shredders.

CATALOGUES BY CARLOADS.

A statistical genius has figured that the various manufacturers of harvesting machinery have printed and distributed enough "advertising matter" during the last decade to fill 2,000 freight cars. The greater portion of this literature has been expended on the farmers of this country in an effort to make them believe that almost any kind of a machine is "as good as the Deering." In the meantime the Deering Harvester Company of Chicago, has prospered, until at the present time its works employ more hands than any single manufacturing plant of any kind in America.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

SORE TEATS.

Will you give me a remedy for our cows; teats are very sore; at first little white blisters appear, which soon turn to large sores, and in some cases part of the udder swells and cow gives lumpy milk from that part. In other cases cow will be all right when turned out, without any sores at all, and will come up with one quarter of udder swollen and fevered, and milk will be lumpy, as in other cases. All cases of sore teats do not develope into swollen udders with lumpy milk. Cows were given cotton seed hulls, meal, and wheat bran during winter. Spring has opened now, so will not feed any more hulls. Would hulls cause the above disease?

TOWER HILL DAIRY.

Kingston, N. C.

ANSWER.

Cow pox. Immediate full dose of physic and repeat, one or two times if needed. Rub swelled udder with strong camphorated spirits six parts, common turpentine two parts only. Rub hard twice first day, then as needed. Dress sores with spermaceti and almond oil, equal parts, and one dram to one ounce of gum myrrh, to be intimately mixed.

Hulls cause many queer and puzzling ailments. Don't forget the physic.

TUMOR ON KNEE.

I have a cow with large bunch on her knee, as large as a tea saucer. It came there this winter. I think it came from lying down against the stanchion. The bunch is quite soft and feels like there is water in it. I run a knife in it, but only a little blood run out. It does not lame her.

Wyoming, Wis. W. C.

ANSWER.

Lancing was a serious wrong, indeed. Paint it over twice a day with strong tincture of iodine. This will need to be done systematically for quite a long time, or it will do little good. Must be done at the same time each day. Keep off the knife.

LUMP IN BAG.

I have a fine Jersey heifer ten months old. Noticed her bag was growing considerably. Upon examination found a round, hard lump, apparently in the right side of her bag. It seems about two and one-half inches through, but not much sore. Is it possible that it might injure her future usefulness as a cow? A SUBSCRIBER.

Cluster, W. Va.

ANSWER.

I should judge some injury the cause. No, it does not follow that such should destroy the usefulness of the cow. Still, it is possible. Such is a blind tumor. Paint over the spot, only, with strong tincture of iodine three times a day for a while. Internally give forty to fifty grains of iodide of potassa in a little cold water, each dose as a small drench, for ten to thirty days. Give good out door exercise daily.

MILK NOT COME.

Have a heifer dropped a calf two weeks ago. Her udder is not broke yet; am rubbing it thoroughly, twice a day with olive oil and tincture of opium. Can I use anything else that will bring into right condition soon? I do not seem to make much if any headway with the remedy now in use.

W. E. B.

ANSWER

You are simply feeding the already bad condition. Physic, physic, two to three times, five days apart. Rub udder hard with strong tincture of camphor, six parts, common turpentine two parts, only. Use much hand massage, rubbing, kneading and squeezing, gently, daily. Keep away the oil. Milk her dry three times a day. Give good exercise by driving her, and so direct the blood to the general circulation. Physic is your grand remedy, so do it faithfully and well.

SUDDEN DEATH OF COW.

I lost a cow so strangely, and so far removed from all my experience, that I lay it before the readers of the DAIRYMAN to see it anyone can clear up the mystery.

The cow was a medium size Jersey, in fine condition all winter. In April an eruption appeared on her skin. I not being acquainted with it, consulted the local veterinarian, who gave me a wash to put on, and dry it up, pronouncing it entirely local, and not anything serious. It was slowly doing the work. When the veterinarian asked how she was getting along, I said slowly. He replied, give a good drench of one pound of salts and one-half pound common salt. He sent it up, and after supper gave it to the cow. In thirty minutes she was dead. She seemed like one affected with the heart disease. She was eating heartily, and was in fine flow of milk, and the purgative is our common remedy for ordinary cases. I believe it is general.

Norfolk, Va. I. C. W.

ANSWER.

The physic was all right. The half a pound of salt was far from good practice, and did the final mischief. There is nothing at all of a mysterious nature in the skin disease named. She had some form of itch, scabies or mange. These forms are familiar, and are quite common to both cows and horses, usually the result of neglect in sanitary measures.

SWELLED NECK.

I have a cow that had swelled neck and chops, could not eat nor drink for a day or two, but I poulticed it and it is better now but don't seem to get over it, breathes hard and coughs as though there might be something in her throat, like phlegm or a discharge, sticks her nose straight out. A. S.

Hinesberg, Vt.

ANSWER.

The best advice I can give you, is to have an expert make an internal and external examination. I don't think it tuberculosis. I don't believe it is contagious. There may be some obstruction by lodgment of food, etc.; an examination alone can determine this, and must be a practical man to make the examination.

CAUSE OF MANGE.

Will you please inform me what causes the mange on a horse, and what is the remedy? W. D K.

Philadelphia, N. Y.

ANSWER.

Neglect, poverty and filth is the father, mother, and grandparents of mange. As a rule, good, nutritious food in plenty, and work in moderation. Wash with strong tar soap some warm day, in the sun. Rub in well. Use the curry comb and brush thoroughly each day, and keep them from the unaffected, or they will be likely to be infected. Rub dry after each washing.

BLINDNESS IN CALF.

I have a very fine calf, now one month old, which was born blind. Kindly suggest a mode of procuring vision for it. Its mother was fed liberally on cotton seed meal. a few weeks previous to delivery. I. H. D.

Hamilton, Ga.

ANSWER.

You don't give the condition of the eyes, so I can't even form a proximate professional opinion as to the ailment. But I am quite sure no remedy of mine would avail in such a case. A personal, close and careful examination might suggest the true condition. I look upon all such cases as hopeless, unless the blindness is caused by a film or skin over the eyes.

SORE UDDER.

I have a cow whose bag spoiled last fall, soon after calving. I tried everything I could find recommended, all of no avail. One teat is dry and I'd like to dry her off, but she still gives a white mattery substance from the three teats; the bag has burst in four or five places and doesn't seem to get any better. I haven't milked her regularly for two months. W. S. H.

Mattoon, Ill.

ANSWER.

Dress the sores with the compound myrrh and aloes twice a day. Give her one or two doses of physic, 5 days apart. As soon as the sores are healed, fatten her. She will not be at all likely to ever be fit for a milk cow.

SWOLLEN UDDER.

I have a cow, the skin of her udder is swollen and hard; the swelling extends about one foot in front of udder, and in two places there is a scab on udder. The cow has had sore teats about two months. Cow appears in good health. When she is milked the skin hangs loose. W. J. T.

Stillwater, Minn.

ANSWER.

Immediate full dose of physic, and repeat two or three times if needed, five days apart. Stop at once hand milking, or you can't cure the sores. Select the easiest and best milk tube. See ads. in DAIRYMAN. The same camphorated liniment daily, for a while, as above.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis

It Also Cures Calf Cholera.

STORM LAKE, IOWA, March 22, '99.

H. W. KELLOGG, Esq., Ripon Wis.

Dear Sir:—Have now made use of your condition powders twice in my herd and am highly pleased with the result.

I heartily recommend the powders to others and will say that I am better pleased with their use than that of any other remedy for "Abortion," "Failure to Breed," and "Calf Cholera." During the past year I have had much trouble and loss from Calf Cholera and found no relief until I commenced feeding the powders to my cows, when the trouble soon passed away and now the calves are coming along in fine shape.

Very respectfully,

GEO. H. EASTMAN.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills **Ticks on Sheep.** These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

WE HAVE IT!

POSITIVE

Hog Cholera Cure

MONEY REFUNDED If we fail to Cure a single case. ☞ SEND FOR FREE SAMPLE.

Wilbur Seed Meal Company,

185 2nd Street, - MILWAUKEE, WIS.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

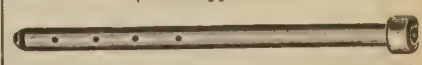
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

New York Farm and Dairy Notes.

An Early Spring.—Progress of Farm Work.

ED. HOARD'S DAIRYMAN:—The spring is usually early in south-east New York. At this time, May 1st, the trees are nearly leaved out, and the grass has made considerable growth. The weather has been very favorable to the farmers thus far. The ground has been in good condition for sowing grain, for two weeks. The oats are nearly all sown, some potatoes have been planted, and some farmers have prepared the ground for corn.

The plan of farming that has been so long practiced in this vicinity, I think, is somewhat changed. The old plan was to grow sufficient grain to feed the teams, grow potatoes for family use, plant a small field of corn, which was husked by hand, ground and fed to the hogs. A small field of fodder-corn was grown, but the corn was sown thickly, and the quality of the fodder was very poor. Very little grain was fed the cows, and that was fed early in the spring before grass.

One can see that the methods of farming are being changed to meet the new conditions in dairy farming, although in some localities the progress is slow. One can see that many farmers are working in the direction of cheaper feed for the cows. In planting their farm crops, they are planning to grow something to feed the cows that will save a part of the grain bill. They begin to see that the way of success is in the direction of carrying the maximum number of cows on the farm, and making the farm feed the cows.

Working along this line, many farmers are realizing that it is more economical to provide soiling crops for the late summer and fall, and ensilage for the winter, than to buy grain to produce the milk, which is now demanded of the dairyman in the winter. From my observation, I know that more farmers have sown oats and peas this spring for the early soiling crop, and that a large acreage will be planted to corn for ensilage.

PLANTING THE ENSILAGE CORN.

On our farm the plan has been to plant the corn on ground that has grown a crop of clover. During the winter the manure had been drawn directly from the stable, and spread on the clover sod. The ground was plowed in the spring, and prepared for planting the corn.

The corn is planted with a horse corn planter, and a little fertilizer drilled in with the corn. The Mastodon variety has proved the best for ensilage in my locality. It makes a large growth of stalks, and if planted early will mature ears sufficiently to make good ensilage. We can plant several acres in a day, and its cultivation is made much easier with the modern tools.

The cultivation with the weeder should begin soon after planting, and kept up until the corn is two or three inches high. Two or three crops of weeds being thus destroyed, the subsequent cultivation will be much easier. It pays to cultivate the corn frequently, but the cultivation should be more shallow as the corn grows larger, and the roots extend across the rows. We have planted the corn in rows three feet apart, and set the planter so it will drop the kernels about six inches apart. We get a large bulk of stalks, and nearly all grow ears of corn. We think when we cut the corn when the ears are in the milk stage of growth, we have the best ensilage that can be produced.

Many make the mistake of deferring the planting until late in the season, then planting the large growing varieties that will not mature before frost. The late plantings should be made with an earlier and smaller variety of corn.

A CREAM SEPARATOR FOR A SMALL DAIRY.

I have a neighbor who bought a cream separator for a dairy of 15 cows, and he tells me that the extra butter he has made by using it, has paid for the separator in one year. It seems to be the concensus of opinion of all the people who are using separators in the small dairies, as far as I know, that they are profitable. Good authorities have stated that one per cent of butter fat is saved with the separator. This means that twenty to twenty-five per cent more butter can be made.

A dairy of ten fair cows should make 2,000 pounds of butter. If twenty per cent more could be made with a separator, it would amount to 400 pounds of butter, which nearly pays for the separator in one year. This is surely a good investment, and would be if only one-half the amount named is saved with the separator. A good separator will last many years, with only a small cost for repairs. There is also a considerable saving of labor, as the house for the separator can be near the stable, and the milk carried to it and run through the separator, and the milk can be fed at once to the calves while it is warm.

I well remember the hard work of carrying all the milk to the dairy house several rods distant, and in cold weather warming the skim milk and carrying it to the calves. The cheapest power for most small farmers, with which to drive the separator, is a tread power on which a bull can be used. Such a power can be purchased for $50 or less, and the bull is the better for the exercise.

I know people who keep only five cows, and use the small hand separators, and they are much pleased with them. W. J.

Delaware Co., N. Y.

A GOOD DAIRY.

N. I. Swezey, of Andover, Ohio, who farms it on a small scale on about 1,000 acres, was telling us that on one of his farms, where he has over forty cows, they averaged 5,000 pounds of milk last year, and in connection with it, he said that a visitor at the farm, one day at milking time, remarked that the cows all gave a pailful. "Yes," the tenant said, "if they do not Mr. Swezey trades them off for a cow that does," and therein lies the secret of the money in milk. It costs no more to keep a good milker than a poor one. How many farmers through the country know what each cow in their dairy is doing?—Jefferson, Ohio, *Sentinel*.

Even the editor of the *Sentinel* seems to understand the true principle of profit making in the keeping of cows, and yet, no doubt, many of his readers, who are contented to keep poor cows will say, "Newspaper men are so theoretical!" "What can they know about practical dairying?" Suppose the editor should point to their practice, of keeping a cow at a loss and taking no pains to know it, and ask if they called that practical.

Transfers of Guernsey Cattle From April 1st, to 15th, 1899.

BULLS.

Amber Boy 5628, R. W. Hurlbut to B. J. Dodge, Verona, N. Y.
A. C. Roosevelt 5929, J. M. McCamant to A. C. Means, Kimbleville, Pa.
Bluebirds Deputy 5898, Queen's Cousin 5897, George Mixter to Canterbury Shakers, East Canterbury, N. H.
Imp. Breadwinner 5703, H. McK. Twombly to H. A. Weldy, Tamaqua, Pa.
Imp. Bernadotte 5702, H. McK. Twombly to P. M. Rixey, Washington, D. C.
Cyrano 5673, Ezra Michener to J. E. Woodmanse, Lake Como, Pa.
Capt. Avery 2nd 5922, Merry Rex 5921, E. S. Thomas to the Charles Parker Co., Meriden, Conn.
Chanty 5926, C. Morton Smith to Ezra Michener, Carversville, Pa.
Cornelia's Star 5682, Robert W. Lord to L. A. Libby, Sanford, Me.
Dainty's Admiral 5900, J. Howard Smiley to E. D. Bosworth, Woodstock, Ill.
Dandy of Avon 5901, Dr. C. E. Qimby to E. Maule & Co., Leonard, Pa.
Dandy of Avon 5901, E. Maule & Co. to David P. Forney, Hanover, Pa.
Dewey of Daretown 5932, S. J. Du Bois to Hamlin Woolman, Elmira, N. Y.
Duke's Sunrise 5937, E T. Gill to John R. Mc Clu.e, Curwensville, Pa.
Espanore 4764, W. D. Hoard to Adam Neiss, Ripley, Wis.
Eurotas' Star 5765, Storrs Agl. College to J. R. Gilbert, Gilead, Conn
Ed. Marshall 5548, Ezra Michener to William F. Gable, Altoona, Pa.
Essex 5912, James M. Codman to Geo. E Stick ney, Newburyport, Mass.
Egle of Riverside 5950, James Forsyth to M. O. Berry, Pompey, N. Y.
Fernwood's Squire 5353, W. D. Hoard to B. Amadon, Waupun, Wis.
Fairview's Star 5904, Storrs Agl. College to H. F. Dimmock, South Coventry, Conn.
Gold Anchor 4611, S. P. Taber Willets to Homer E. Clarke. Monroe, Conn.
Hobart of Haddon 4856, Chas H. Dudly to David Ervan, Mount Holly, N. J.
Jerome Eddy 5803, Ezra Michener to Mrs. Laura L. Pancoast, Woodstown, N. J.
Kreutzer's Ilo 5923, John D. Bates to S. T. Noyes, Colebrook, N. H.
King Samm 5865, A. J. Philips to Geo. C. Hill & Son, Rosendale, Wis.
"La Duc" 5907, J. H. Hunter to Fred A. Brandt, Fort Edward, N. Y.
Lyman Duke of Andover 5919, Porter Duke of Andover 5918, A. H. Lyman to C. H. Eno, Simsbury, Conn.
Lord Trilby 4969, J. B. Palmer to George Fink, East Woodstock, Conn.
Mr. Monsie of Homestead 5913, L. V. Axtell to C. L. Darrow Edinboro, Pa.
Newberry 5891, James Logan Fisher to Smith Montgomery, Crescentville, Philadelphia.
Omdurman 5863, James Logan Fisher to Ezra Michener, Carversville, Pa.
Pitergee Duke 5911, Clayton C. Taylor to Thomson Kingsford, Oswego, N. Y.
Reginald of Riverside 5896, James Forsyth to Frank Hyde, Brooklyn, N. Y.
Rubel 4887, S. P Taber Willets to H. B. Winters, Smithboro, N. Y.
Squire Bloom 4844, Wm. H. Taylor to C. B. Cottrell & Sons Co., Westerly, R. I.
Springville Chief, 5866, Clayton C. Taylor to H. A. House, Springville, N. Y.
Stryver 5361, F. W. Tratt to Fred Rietbrock, Milwaukee, Wis.
Sieg Lip 5441, M. D Cunningham to H. Ling, Hickory, Ill.
Schley Duke 5559. J. H. Hunter to John Moseley, West Hoosick, N. Y.
Simon R. Dale 2nd 5928, R. T. Ridgeway to John Rue, Allentown, N. J.
Sammy's Samoson 4483, A. J. Philips to C. A. Erstad, Zumbrota, Minn.
Sampson of Baldwinsville 5938, C. H. Lockwood to Frank A. Van Ness, Baldwinvilles. N. Y.
Superb of Fernwood 5941, S. J. Du Bois to H. W. Whittingham, Perryville, Md.
Uncas of Windsor 5908, J. H. Hunter to F. E. Dibble, East Windsor, N. Y.
Virginia Duke 5947, M. M. & E J. Hollingsworth, to R. B. Massey, Sundlersville, Md.
Wert 5939, C. Morton Smith to Ezra Michener, Carversville, Pa.
Prestige 2nd 3188 Fred Foss to John Ford, Snohomish, Wash.
earl Hill Chief 5931, A. P. Garfield, to Albert B. Caswell, Fitchburg, Mass.
Rex of Fernwood, 5612, S. J. Du Bois to H. K. Du Bois, Palatine, N. J.

COWS.

Anacortus 11481, Ocosta 11479, Yakima's Pride 11480, Zella Whitey 2nd 4881, J. A. Baker to J. E. Shannon, North Yakima, Wash.
Alice Mac 11524, Nancy Mac 11527, J. L. McCormick to P. H. & Norval McCormick, Bel Air, Md.
August Flower 3182, Barbara H. 5849, Lillian Mac 5848, Lotta Ethel 5847, W. C. Hudson to John Ford, Snohomish, Wash.
Biserta 9815, Elmira 9817. Isabinda 9822, Karma 11435, Omlidina 9843, Princess Marjery 6211, James Logan Fisher to L. V. Axtell, Perry, O.
Bonnie of Castle Brook 4368, A. S. Apgar to Wm. H Taylor, Saugatuck, Conn.
Bonnie of Castle Brook 4368. Wm. H. Taylor to C. B. Cottrell & Sons Co., Westerly, R. I.
Battle Cry 6531, Dolsey 6532, Maid of Austin 11375, Oak Lawn Lassie 11374, R. E. Crane to F. W. Kimball, Austin, Minn.
Beatrice of Ridgeview 11522, Collen B. Meirs to Chas. B. Chase, Trenton, N. J.
Breta 10431, J. B. Palmer to George Fink, East Woodstock, Conn.
Barbara H. 5849. Dora Flower 11536, Lady Nell Prestige 11537, Maud Prestige 11538, Prairie Queen 11539, John Ford to John E. Shannon, North Yakima, Wash.
Bonny Taylor 11558, Collen B. Meirs to C. B. Case, Trenton, N. J.
Boston Mary of Level Green 7430, James Forsyth to F. C. Ward, Chatham, N. J.
Chonita of Homestead 11527, Lady Myrtle of Homestead 11526, Benj. Sharpless to L V. Axtell, Perry, Ohio.
Coral Beauty 11352, Empress 9192, Lassie of Sedgefield 11419, Loline 11384, Prince's Carol'ne 11420 Questa 11385, Trefoil's Last 11383, True Type's Lotta 11192, True Type's Louise 11386, Elliott Warren to H. A. Snyder, Plumsteadville, Pa.
Deputy's Christabel 10494, Florino 11483, Little Nancy 11091, Mattie Patterson 11278. Primrose Curry 11140, Ruth B. Hastings 10399 Ezra Michener to J. E. Bertolette, Athol, Pa.
Daisy Tucker 9733, C. P. Sweet to R. J. Wood, Jonesville N. Y.
Daisy Springbrook 6790, Wood Bros. to O U. Kellogg, Cortland, N Y.
Daisy Springbrook 6790, O. U. Kellogg to N. E. Smith, Harford Mills, N Y.
Daisy Springbrook 6790, N. E. Smith to Dr. C. D. Smead. Logan, N Y.
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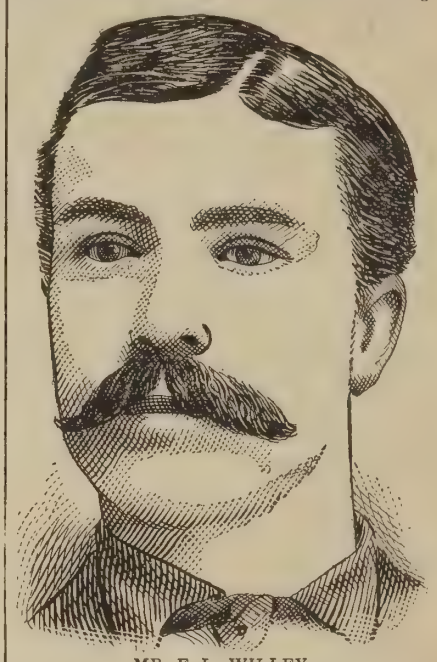
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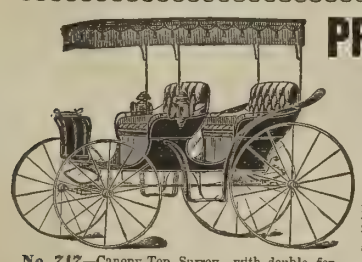
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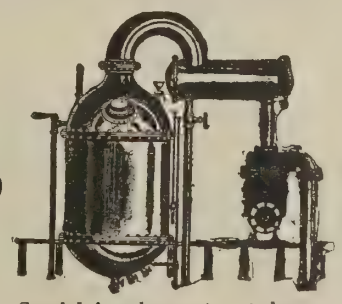
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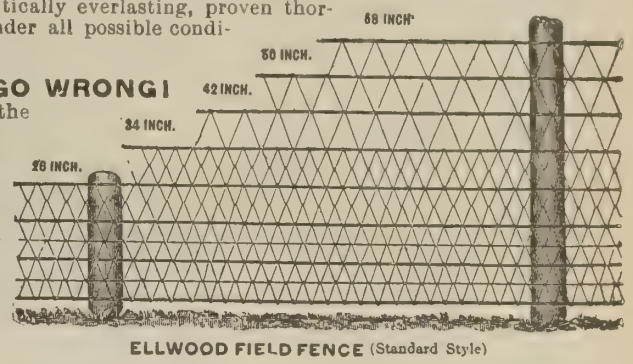
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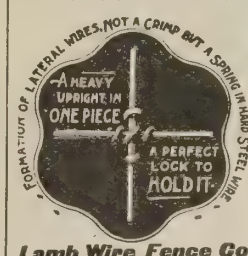
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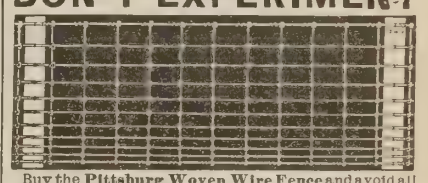
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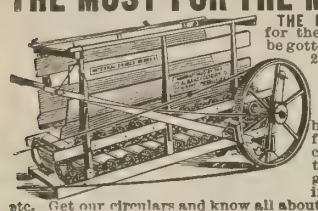
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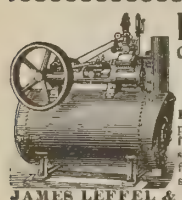
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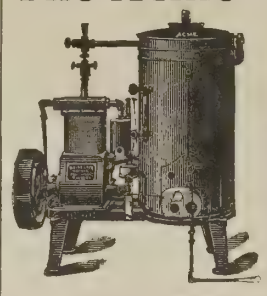
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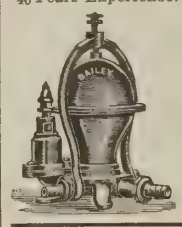
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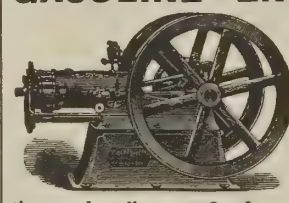
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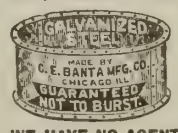
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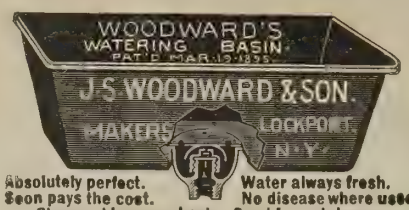
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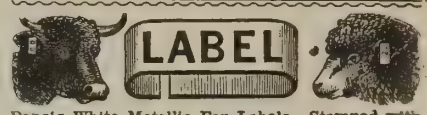


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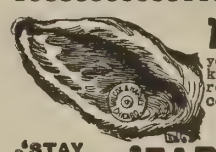


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VOLUME XXX. FORT ATKINSON, WIS., MAY 19, 1899. NUMBER 14

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IT DOES NOT Create an Odor to Destroy One.

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E. A. GREEN, Sec'y,
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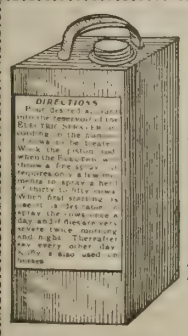
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IS UNEQUALED.

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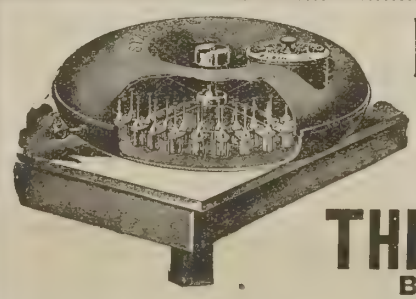
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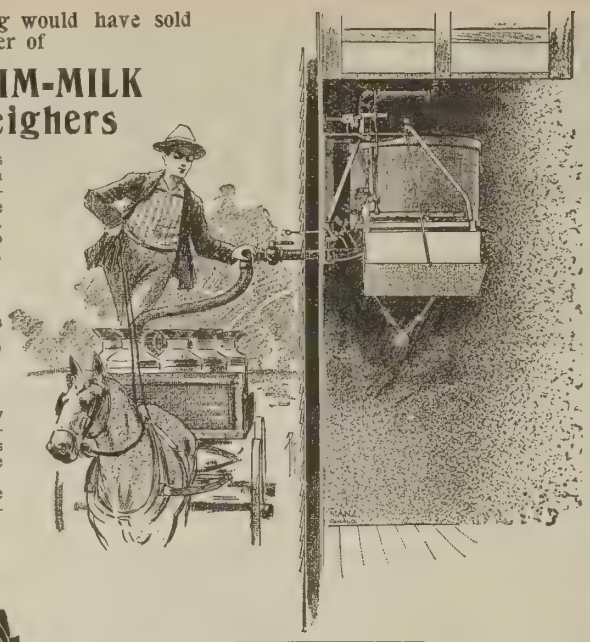
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It does what we claim. We fully guarantee it. We ship it anywhere on trial. If after 30 days in actual use it does not prove satisfactory, we take it back Our Weigher received the Gold Medal at the Omaha Exposition.



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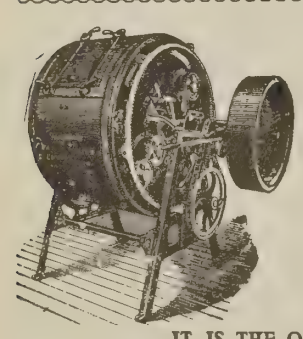
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We are Western Agents for Hansen's Butter and Cheese Color, Rennet Extract, Etc., Etc.



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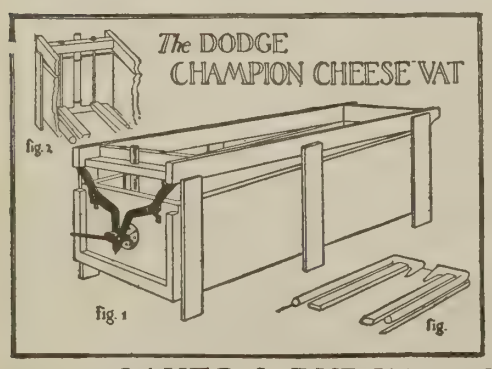
IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

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....FOR CHEESE VATS....



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

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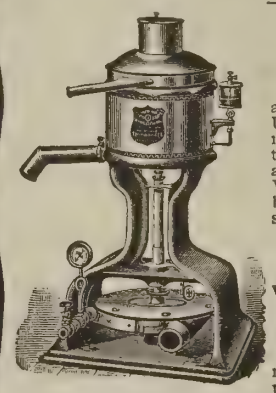
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Massachusetts, average of 19 tests, January 7th to 31st,			.033 of 1%
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Vermont,	" " 18 "	" 9th to Feb. 3d,	.038 of 1%
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An average from 73 tests of skim milk of			.034 of 1%



IN THE FACTORY.

The U. S. Takes the Cake.

POYNETTE, WIS., Jan. 20th, 1899.

Have been running U. S. Separators since 1892, and can cheerfully say that the new No. 1 Improved U. S. Separator takes the cake. When the skim milk is tested it shows only a trace of fat. I won the sweepstakes and three other first prizes, amounting in value altogether to $115.00, at the 1898 Wisconsin State Dairymen's Association, and all because my No. 1 U. S. Separator makes such smooth, perfect cream.

R. M. BUSSARD, Prop. Bussard's Creamery.

AND IN THE DAIRY.

Very Durable, Very Easy to Operate, Never Out of Order.

TIFFIN, OHIO, Nov. 28th, 1898.

Have used the No. 5 Improved U. S. Separator nearly three years and do not think it is worn a particle. It runs as smooth as the day we first started it. **It is the best separator in the world,** it is so easily run and so easy to clean, and it is always in order to do the best of work. We wonder how we ever got along without one. We think very much of the enclosed gearing. You have the best machine I know of in running and mechanical construction.

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A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

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Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.

Print Butter Should be wrapped in GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on Every Sheet.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

In the Dairyman of April 7th was an editorial article on "The Effect of the First Impregnation on Future Progeny." The *Ranch and Range* of Seattle, Wash., reprints the article in such a way as to give the reader the idea that it is very largely original with that paper, and then has the ignorance to put over the same a caption entitled, "Impotence of the Sire," when it is anything but impotence that the article treats of. The *Ranch and Range* will find it safer hereafter, in printing extracts that it does not understand, to leave them as they appeared in the original journal, and give the proper credit.

The Indiana Experiment Station has issued a second bulletin on the use of skim milk as a food for growing chickens. The late experiments upon which this bulletin is founded, confirm the result of the previous experiment and show that skim milk is a valuable food for chickens. Its influence is great in securing increased weight and in maintaining the health of the fowls. The addition of skim milk to the ration increases the profits by decreasing the cost of the ration and enabling the fowls to more thoroughly utilize the other foods given them.

The Stave Silo.

After making for three years careful study and observation of the stave silo we believe it is the most practical and successful silo which can be constructed. The round stave silo presents no corners which may pull apart and admit air, and which cause the silage to settle unequally; the original cost is very slight as no expert labor is required; all mason and carpenter work can be done by the usual farm help. The material used in construction is the minimum amount for obtaining the maximum capacity. The durability of the stave silo is as yet only a matter of conjecture, for decay has not commenced on any stave silo which we have examined.

CONSTRUCTION OF FOUNDATION FOR STAVE SILO.

Where the silo is to be constructed an excavation should be made to a depth of 3 or 4 inches or to the bottom of the loose surface soil and with a diameter at least two feet greater than the proposed diameter of the silo and drainage should be provided if the conditions seem to warrant. The excavation should be filled with stones, large ones being placed at the bottom and smaller ones being worked in and pounded down toward the top. Gravel, if well pounded down may serve as filling between the stones. It is important that the pounding be thoroughly done, otherwise settling will take place later on and the cement finish be made to crack.

The finishing should be done with cement. First a thin mortar made of one part of Portland or Rosendale cement and four parts of good sharp sand should be poured over the entire stone work. This mortar should be made so thin that it will run down into the interstices between the stones. After this first coat has thoroughly set a finishing coat made of one part cement and three parts of sand should be put on and worked down with a trowel. Finish off before thoroughly dry by dusting over the top some clear cement and working it in with a trowel. This will give a hard finish and will secure a foundation that is cheap and efficient. While the cement is still soft, it is frequently convenient to strike the circle which will mark the line upon which the staves are to be set. A spike driven in the center will serve as a pivot. Attach to this a bit of string or twine, the length of which shall be one-half that of the proposed diameter of the silo, and to the free end of the string fasten some pointed instrument with which to mark the circle. Now strike a circle the radius of which shall be equal to the length of the string and there is marked out the circle upon which the staves are to be set.

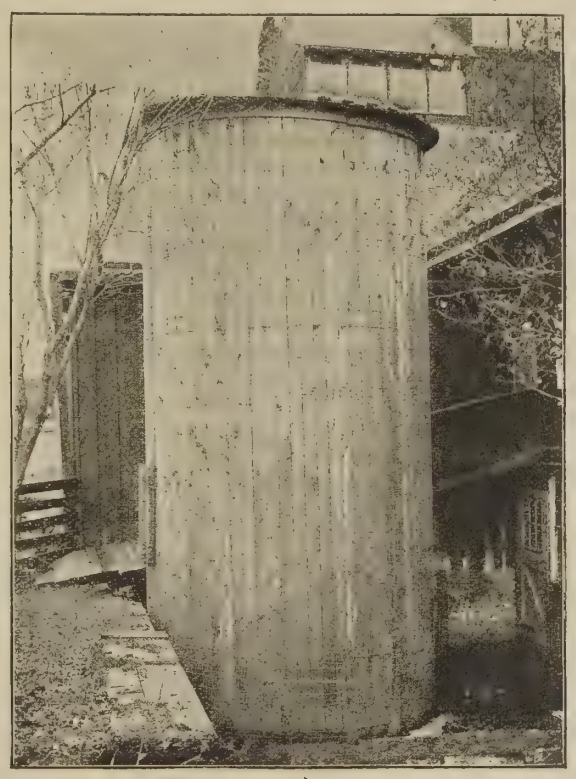


FIG. 1—Showing the use of woven wire fencing for hoops.

MATERIAL TO USE FOR STAVES.

It is probable that no better material can be obtained for the staves than Southern cypress. This, however, is so expensive in New York State as to preclude its use in most cases. Of the cheaper materials hemlock, white-pine and yellow-pine are usually the most available. At the present time hemlock is one of the cheapest satisfactory materials which can be purchased and it is probably as good as any of the cheaper materials. It should be sound and free from loose knots.

PREPARATION OF THE STAVES FOR THE SILOS.

If the silo is to have a diameter of 12 feet or less, the staves should be made of either 2 x 4 material unbevelled on the edges and neither tongued nor grooved, or of 2 x 6 material bevelled slightly on the edges to make the staves conform to the circular shape of the silo. If the silo is to have a diameter of more than 12 feet the staves should be of 2 x 6 material and neither bevelled nor tongued and grooved on the edges. If the staves are left perfectly plain, then when they are set in place and drawn together the first point of contact will be the inner edge, and the tighter the hoops are drawn the closer will become the contact of the staves at the inner edge. If it is impossible to purchase material for staves the length of which shall be equal to the desired depth of the silo, then shorter staves may be used and set up according to the method hereafter described. The staves should be surfaced on the inside so that a smooth face may be presented, which will facilitate the settling of the silage. Whether the outside of the staves shall be planed is a matter of taste, but if hemlock is used the handling of the staves will be found much easier if both sides are planed.

SETTING UP THE SILO.

There are several methods of procedure which may be followed in setting up the silo. Fig. 2 shows a cross section of one method of construction. The posts (a a a) should be of 6x6 material, and run the entire length of the silo. These should be first set up vertically, and stayed securely in place, and then they may be used as part of the scaffolding; they will also serve to give rigidity to the staves, as the work of setting up progresses, and when the roof is put on, the plates which support the roof may be laid on these posts. The scaffolding may be constructed by setting up 2x4 scantling in the positions shown in Fig. 2 as b b b b. Boards nailed from these 2x4 scantling and to the 6x6 posts will form a rigid framework across which the planks for the scaffold platform may be laid. Before the scaffolding is all in place, the staves should be stood up within the enclosure, otherwise difficulty will be experienced in getting them into position. Some caution needs to be exercised in working on the scaffolding, that the planks do not tip, but with ordinary care there need be no danger. The first stave set up should be made plumb, and should be toe-nailed at the top, to one of the posts originally set.

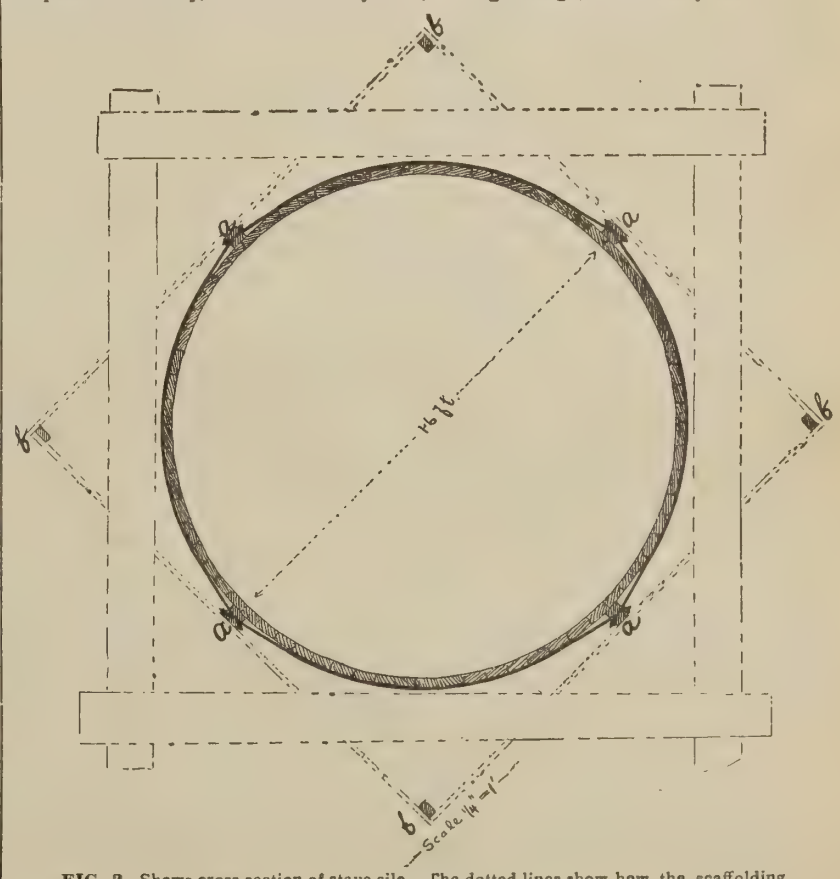


FIG. 2 —Shows cross section of stave silo. The dotted lines show how the scaffolding may be put up.

If one man works at the top of the staves, and one at the bottom, with another man to assist in raising them in position, they may be set up very rapidily. Immediately a stave is set in place, it should be toe-nailed at the top to the preceding stave set. It has been found that the work of setting up and preserving the circular outline may be materially aided by the use of old barrel staves.

Fig. 3 shows how the barrel staves are used. If, when the silo staves are put in place they are toe-nailed securely to the ones previously set; if they are fastened firmly to permanent upright posts (a a a a Fig. 2;) if the barrel staves are used as directed above, the silo will have sufficient rigidity to stand until the hoops are in place. As the staves are set up, the level or plumb should be used occasionally to determine if they are being set vertically. The 6x6 posts mentioned as being first to be set in place are not a necessity, they are a convenience.

SPLICING THE STAVES.

If it is desired to build a silo 24 to 30 feet or more in height, it will often be found impracticable, if not impossible to secure staves the full length desired. Where this is the case a joint or splice may be made.

HOOPS FOR THE STAVE SILO.

The hoops for the stave silo are usually made from five-eighths inch round iron or steel rods. Cheaper substitutes have been used and given good satisfaction. Cut No. 1 shows a silo erected at Cornell University, in which common woven wire fencing was made to serve as hoops. The staves were of 2x6 hemlock, 24 feet long, with edges neither matched nor beveled. The silo was filled directly after completion, and was satisfactory in every way.

Where the round hoops are used, it is well to have each hoop in from three to four sections. For a silo 12 feet in diameter, three sections will be sufficient, while for a silo 16 feet or more in diameter, the hoops will handle more conveniently, if they are in four sections each. If the method of construction shown in Fig. 2 is followed, then the hoops will need to be in four sections each, the ends being passed through the upright 6x6 posts, and secured by heavy washers and nuts. A chisel should be used to sink one edge of the washer slightly, so that the strain upon the nut will be squarely in line with the direction of the pull. If the upright posts are not used, then a convenient way to secure the hoops is by means of the cast iron lugs as shown in Fig. 4. The hoops should be long enough, so that they can be let out if it becomes necessary, after the silo is filled and the strain becomes great

The bottom hoop should be about six inches from the base of the silo; the second hoop should not be more than two feet from the first; the third hoop two and one-half feet from the second, the distance between

(Continued on page 270.)

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THE fourteenth annual meeting of the Holstein-Friesian Association of America will be held at the Iroquois Hotel, Buffalo, New York, on Wednesday, June 7, 1899, at 10 a. m.

OUR occasional correspondent, Mr. C. E. Chapman, of Peruville, N. Y., who is much interested in the American Cheshire Hog, which bids fair to become the "bacon hog" of the future, and devotes special attention to raising the choicest varieties of potatoes, plants, etc., has an interesting catalogue of his specialties which may be had on application.

NEVER in the history of the country was there so large a consumption of milk per capita as at the present time. No counterfeit substance has been found to drive the honest article out of the market, as in the case of butter, and so the cow holds the first and rightful place in consumption.

As an illustration of the rapid increase in milk consumption, the Oregon *Agriculturalist* states that it will take 1,000 more cows to supply the city of Portland than were needed last year.

LINE FENCE RELIGION.

There are but few vexations connected with farm life that are greater than living alongside a neighbor who is slack-twisted in his moral and manly make-up and so neglects to keep up his share of a good line fence. A man who will not restrain his cattle from injuring a neighbor is yet largely a heathen, no matter how much religion he may profess. Years ago there lived in New York two farmers. One, Captain Gray, as he was called, was a shiftless, negligent man about his fences. He was excessively pious, however. Adjoining him lived Uncle Jake Shultz, a vigorous Mohawk Dutchman, who was every inch a farmer. His fields, fences, buildings and cattle were always in prime order.

Uncle Jake, as well as other neighbors, had suffered much injury and annoyance from Captain Gray's cattle, owing to his (Gray's) poor fences. One Sunday morning, Gray was seated on his front porch reading the Bible. Uncle Jake, who was on his way to church, stopped and delivered the following message:

"Cappin Gray, you tink you got lots of religion. How can dot be? Dere you sit, mit der Bible in your hand, der devil in your heart and your cattle in my corn. Such kind o' religion ish a humbug."

We agree with Uncle Jake.

CONSTANT FRAUD.

Levi Wells, Dairy and Food Commissioner of Pennsylvania, says that his agents have discovered that not only has embalmed beef been brought into the state for sale, but that Pennsylvania butchers have been buying chemicals to freshen stale meats. This practice began in Philadelphia, and Mr. Wells fears that it has spread over the State, because chemical companies have had agents on the road selling the stuff, which is put up in packages bearing directions for its use. As Mr. Wells points out, the practice of applying preservaline to meat is a dangerous one. A very small quantity is likely to injure the stomachs of delicate persons and children, and in the hands of men unskilled in its application, the acid could easily be used in proportions dangerous to every consumer of meat. The commissioner believes that the suits already entered will have a strong tendency to keep doctored meat out of the state and stop similar practice in Pennsylvania; but consumers should satisfy themselves that the meat they buy is not treated with acids. A little judicious investigation of their butchers on the part of patrons will help to discourage the practice.

Some day we hope the farmers and consumers of this country will rise in their might and drive all these food swindlers out of existence. They flourish to-day as they do by virtue of the apathy of the farmers. If every farmer or even one half of them would speak out as they ought to these frauds would cease.

Instead of being masters of the men they send to congress and to state legislatures, they obediently follow the crack of the party whip and allow these same bosses to grow rich in many cases protecting oleomargarine and other frauds. Where is the old time American independence of character that Daniel Webster once so proudly boasted, "belonged to the American farmer"?

Public officials, who try to do their duty, too often are voted out of office by farmers who cannot see anything involved but their party.

FATTENING HEIFERS.

On page 257 in last week's issue, Mr. Geo. R. Crehore discusses the doctrine of allowing heifers to get fat, and asks the question: "Do these gentlemen never turn their heifers on good pasture? And if so, do they never get fat?"

There is this to be said to the above question. Pasture grass is a perfectly balanced ration, provided it is fresh and moderately short. It has a protein content of 1 to 4 of carbohydrates. Protein, in its physical effect, is a nerve and muscle supporter and developer. The mammary organs are composed of a wonderful tissue of nerves. Under such food, they grow and expand even if the animal does take on flesh.

But corn meal and other carbonaceous foods seem to exercise a totally different effect upon the mammary organs. Under such influences, the flesh making or fattening tendency is developed and the mammary organs grow weaker and less developed. Such is the practical effect of the two foods on young heifers, as has been observed by dairymen and so recorded for a hundred years.

The young heifer can easily be made or unmade as a future cow by the character of her feed and handling. There is fat and fat. Many dairymen have observed that with cows of a low dairy temperament, that are not strongly bred and developed towards milk making, if they are fed, for instance, corn meal heavily, they will commence taking on flesh, and shrink in their milk more and more as they increase in flesh.

The specific dairy temperament is first a thing of breeding and second of feeding and handling.

We breed towards a better cow and must follow up the breeding with true dairy handling and feeding, else we fail to develop that which we had implanted by breeding.

In our study on this important question several years ago, we took a three-fourths grade Jersey cow of very specific dairy temperament and fed her for three months on a ration of hay and corn meal and bran. To see how far we could go with this cow in feeding a fattening food, we gradually increased the corn meal until we were feeding her fourteen pounds a day. So strong and decided was the dairy temperament in her that she took this heavy, fattening ration and turned it into milk without increasing her flesh perceptibly. But had this cow been fed on carbonaceous food when a heifer, and made to keep fat on the same, the dairy temperament in her would have been so weakened, or changed, as to produce a totally different result.

We agree with Mr. Crehore in the last paragraph of his communication, to this extent, that the first thing to do is to breed in a "tendency to do dairy work." This means to establish a strong vital dairy temperament. But we must remember, that until developed by actual maternity this "tendency" is in embryo, and it is often easily spoiled.

The Making of a Good Cow.

ED. HOARD'S DAIRYMAN:—We have many cows, and the average production is hardly up to cost.

WHAT IS THE COST?

Dr.

Silage @ $1 50 per ton	$.03 cts.
Grain @ 16 00 per ton	.08
Hay @5.00 per ton	.02½
Labor	.02
	.15½ cts.
200 days @ .15½	31 00
165 days Pasture	6.00
	$37.00

WHAT DO WE RECEIVE?

Cr.

Milk, 1825 qts. @ 1¾cts.	$31.93
Profit and Loss	5.09
	$37.00

The recent bulletin from Mich. Agricultural College indicates that some money can be made even with scrub cows, by a better method of care and feeding, but I am reminded of the question of the boy, "Father, you feed me and the pig, potatoes, don't you?" "Yes." "Why don't the same food make two pigs then, or two boys? Why does it make a boy and a pig?"

The serious question is why will some cows make a profit and others a loss on the same feed?

It is not a question of breed. The proportion of unprofitable cows among the full bloods is as great as among the much abused scrub which is only another name for grade stock that inherits some good qualities as well as all the poor ones of their illustrious sires.

It is not a question of feed. I know men that have fed up farms, and been sold out on a mortgage.

It is largely the result of improper treatment, the first and second years of the calf's life. But few have a correct idea in their mind of what they want the cow to do, the best conditions for most favorable results, or how to obtain them.

They simply put feed before them and let them "come up". Many do not take the trouble to examine the teeth, udder, teats, or look at the shape, but raise the calf because it's from old "Spot". A weak calf shows it, and should be discarded. You can, if successful with stock, feed for vitality, but born vitality is more satisfactory.

What do we want this calf when grown up to do? Convert a large amount of food into milk, and produce offspring, become both a machine and a mother.

A machine to be profitable must be on a large scale. The cow has to grind up about eight tons of fodder per year. This means that a healthy stomach is required. From her habit of eating the coarse food and then re-chewing it, a large storage capacity is required to hold the large amounts needed to produce large results.

The cow must have correct habits and use the food for the purpose we want her to.

All of these essential conditions are largely the result of proper feeding the first two years.

The stomach of young animals is very sensitive to change and when once weakened by any cause never fully regains its natural power. A calf which has had one bad case of scours, in after life will not stand high feeding. A calf which is not supplied with good, forcing food, never becomes a great cow, because its powers of assimilation have not been developed.

The natural milk of the mother will not cause scours and will develop the calf.

Calves that have never sucked and are born healthy will drink the first attempt. They should have it for two weeks. Not much danger of trouble if the pail is kept clean and the milk is fed direct from the cow.

The trouble comes when the new milk begins to fatten (bad habit), fails to distend the stomach (no storage capacity), and skim milk and other foods are resorted to, to counteract these tendencies. A few men are able to 'finger' the milk and guess at the amount, so as to always have it warm enough and not too much. Too cold or too much milk is the only cause of stomach trouble in a vigorous calf. Better to own up and be a mechanical feeder, i. e., use a thermometer and measure, than to go on aiding in filling the world with poor cows.

Pure skim milk is not a good food for developing a good calf. Too much of it is required, for the first two months, to furnish all the elements needed and the stomach is overloaded. A little ground flax seed and oil meal added to separator milk will obviate the difficulty. The stomach should be extended partly by dry food instead of exclusively by food in liquid form, and wheat bran and clover hay will make growth, as well as perform this office. Their use gives strength and health while getting the distension; slops give scours.

The best calf in the neighborhood usually belongs to some mechanic or other laborer whose wife feeds it hay and a small warm mess of dish water and wheat middlings twice per day all summer, in place of milk.

At six months the calf should look like a cow in form, and grow every day.

Calves should be bred to calve at twenty months, and then the milk giving will prevent their fattening which would take place at that age if dry. They should grow every day from birth till mature, but never fatten. No dependence should be placed on the pasture the first year. Better not go out than to stop growing. They should be fed so as to produce a full flow of milk and still continue to grow in weight and ability to consume food. The demands of motherhood produce an appetite for food, and the whole system is active.

Every effort should be made to stimulate growth, milk production, and capacity, without regard to money return for the first two years. A cow heavily fed may not be a cow well fed. A cow must be brought to a high production within the first two months after calving, or failure will result for that year. Keep feeding and do not breed for second calf early, but milk a year with first calf. If the cow shrinks in her mess from any cause, she does not fully recover, till after next calf is dropped, and if a heifer, may never.

A single mistake at any critical period will undo all the work done, and to rear a calf so that she will be a large and persistent milker, is more difficult than painting a picture. The few really extra good cows prove it.

Peruville, N. Y. C. E. C.

What Attracts Boys.

How to keep boys on the farm is as much a question in the south, as in the north and west. Speaking of this the *Western Agriculturist* says:

While scieentific agriculture is an inviting field for the farmer's sons, the highest achievement is attained by the breeders of pure bred stock. Note the large number of public sales the past year, where $10,000 to $20,000 worth of surplus young stock was sold, and the breeding plant retained to keep up the supply of pedigree stock for the regular annual sale. All kinds of pure bred stock are in demand, and nothing will interest the boys like the pedigree stock that sells at good prices. There is a commercial business-like fascination about it, that will interest the boys and keep them on the farm Scientific breeding of the improved breeds is a benefit to the community, to the state and to the nation, and adds millions of dollars to the wealth of the country, and brings prosperity to the farm.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed f orm or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely,, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

CROP ROTATION FOR MAINE.

Would you recommend a rotation crop of corn, peas and oats, and clover for this section of Maine? My land is rocky and hilly. I intend to keep twenty cows on a thirty acre farm. Will plant ten acres of corn, pick ears and put small ears and stalks in silo. Do you think I can keep twenty cows on thirty acres? I have two silos.

Monroe, Me. G. M. T.

P. S. Will the rotation crop kill witch grass?

The rotation suggested would be all right, except for the "rocky and hilly" character of the farm, and this is mostly a matter of comfort and convenience. We are not much accustomed to working such land and possibly magnify its disadvantages. Ten acres of corn, with ten acres of clover and ten acres of oats and peas will furnish all the roughage necessary for twenty cows, and with such a combination the amount of grain required will be reduced to a minimum.

The extermination of witch grass will depend more upon the thoroughness of cultivation than upon the kind of crops.

TRY SOY(SOJA) BEANS.

I have ploughed an orchard of 6 acres, and the trees are well apart. I wish to sow something in this orchard for my cows for winter that will help to take the place of my grain ration, and take as little from the ground at the expense of my trees as possible. Grain in this vicinity is high in price, and anything grown upon the farm that will offset a part of this expense, will be greatly appreciated as an addition to what I get every week through the columns of your paper.

Boston, Mass. G. E. S.

We should try, at least on a part of this ground, the soy (soja) bean. It has been raised at the Hatch experiment Station in Massachusetts for several years and for the variety to use and method of cultivation for the climate of that state would recommend that inquirer to confer with the officers of that station. There is yet ample time for sowing this crop. If it was not already so late in the season we would suggest oats and peas for balance of the lot, but as it is, consider corn about the safest and most profitable crop.

See elsewhere in this issue commendation of soy beans by correspondents.

PROF. KING'S PAPER ON BARN BUILDING AND VENTILATION.

In reply to a Kentucky inquiry, we may say that the above paper will be published in the forthcoming report of the Wisconsin Dairymen's Association, the "copy" for which is all ready for the public printer. The volume will probably be ready for distribution in four to six week, depending somewhat upon the convenience of the printer. If practicable to do so, HOARD'S DAIRYMAN will secure a copy of the paper and accompanying diagrams for earlier publication.

MILK FORMING BEFORE PARTURITION.

I am only a 25 cent subscriber, but will be a dollar one as soon as my time is out.

I have a two-year-old Short-horn grade heifer that will drop her calf sometime in October. Her bag is swelled taut, but not caked, and she has milk. What will the effect be of milking her? G. M. T.

Monroe, Mo.

If there is milk in the heifer's udder it should be withdrawn and milking should continue as long as milk is formed. No deleterious results will follow such a course, but very serious consequences might follow if the milk should be re-absorbed by the udder tissues. It is unusual for milk to form in the udder previous to first calf, but such instances have been known.

THE COTTONSEED MEAL QUESTION.

You recommend cottonseed meal as a food to balance rations for cows. In No. 10 of the present volume, Dr. Horne says, it and cob meal are the worst foods known for breeding cows. I have been feeding it and am having trouble getting my cows with calf. Have not exceeded two pounds per day to the cow. Do you think it is the cause?

I have been taking the DAIRYMAN two or three years. Although I live in town and work at my trade, I am milking four cows at present, two and three year old heifers, and get about eighty pounds a day of 5% milk. I want to go on a farm next spring and am picking up a few calves and heifers when I can find one that suits my idea, as I understand the teachings of your paper.

I have one two-year-old heifer that gives twenty-two pounds of 5% milk per day. She dropped her calf in February when twenty-two months old.

Plattsburg, Mo. W. T. H.

"When doctors disagree, who shall decide?" HOARD'S DAIRYMAN in all its departments is edited upon the theory that no man, and perhaps least of all, any of its editors, is infallible. Its several editors are accorded equal privileges with its occasional correspondents, each to give his personal views freely, and this upon the theory that its readers are intelligent people, capable of weighing evidence and argument, and coming to conclusions in regard to the questions discussed in its columns with as much certainty as upon other questions. The present writer cannot conscientiously say, for example, that Dr. Horne is wrong in his views concerning cottonseed meal and corn and cob meal, but he can say that neither the evidence on these subjects nor the reasoning adduced has as yet sufficed to lead him to concur in the Doctor's conclusions. True, the Doctor has had a larger personal experience and a wider personal observation than the writer, but that is not sufficent reason for surrendering one's personal judgment, or suppressing it when occasion calls for its publication. One of us places most reliance upon a certain line of evidence, and the other finds his justification in other facts, and if either was not true to his own convictions, he would not be a faithful exponent of the principles which have guided HOARD'S DAIRYMAN in all the years of its publication.

Until better advised, the present writer will continue to advocate the rational use of cottonseed meal and corn and cob meal and silage in the department of feeds and feeding, following in this respect the teachings of his own experience and that of numberless other dairymen and experimenters. The time may come, and possibly at no distant day, when further facts brought to his attention will compel him to modify his present views and accept those held by his collaborator. Meantime let the reader follow neither one of us blindly, whether in regard to those matters wherein we agree or those wherein we disagree. Rather, let each one read, think and act for himself. We cannot all agree in politics or religion, and it should not seem strange that there are differences of opinion in regard to matters of diet and what are suitable feeds for milch cows.

PEAS AND SORGHUM.

I have 15 or 20 acres of good land that I wish to seed in cow peas, sorghum or millet hay for milch cows. Land adapted to either of the three crops mentioned, but cannot be seeded before about July 1st. Which of the three would you recommend?

Virginia. F. A. M.

Use sorghum or kafir corn with the peas. Kafir corn is advocated by many because the stalks are sufficiently strong to act as a support for the pea vines and thus prevent lodging. Sorghum would probably act in the same way.

AS TO MILK FEVER.

Is a cow liable to have milk fever when she calves, if she has never been dry? What is the best remedy for it? Is it best to milk a cow right up to the time of calving?

St. Francisville, Ill. MRS. J. D. B.

It has been the general belief, hitherto, that cows milked up to the time of parturition, were exempt from milk fever, but it must be admitted that the wisest among us have confessed that there was very little positive knowledge on the general subject or most of its phases. A new theory on the subject has recently been advanced (for which see DAIRYMAN of May 12, page 254), attributing the origin of this malady to ptomaine poisoning, but whether from the udder or the uturus is uncertain, and if further investigation shall confirm these views, we may have to be less positive about the immunity of constant milkers.

See the article referred to for remedies.

Whether it is best to milk a cow continuously will depend very much upon the cow. If she will dry off readily we prefer to give them six to eight weeks' rest, but under no circumstances less than four weeks. It is unwise to force a persistent milker to go dry; increase the feed to compensate for the additional demands upon the system and continue the milking.

PRESERVING AND TAKING MILK SAMPLES.

For making composite test of milk, what is the best preservative, and what is the best to take the sample with? How long can the milk be kept in summer time without injury to the test? N. H. W.

Necedah, Wis.

The best preservative, for general use is powdered bichromate of potassium, about 8 grains per pint of milk. The above amount will keep a pint of milk one to two weeks.

The method that is the least liable to cause incorrect sampling is that of the Scovell sampling tube. This consists of a simple tin or brass tube that can be closed at the bottom by a valve. It is filled by being lowered into a can of milk. The valve at the bottom is closed by pressure, and the tube full of milk is removed. It will furnish a correct sample, even if the milk has been standing some time.

Although samples can be kept two weeks, it is advisable, in the interests of accurate work, to test oftener, once a week at least. The oftener the sampling and testing is done, the less liability there is to errors in the work.

SILO QUESTIONS FROM ILLINOIS.

What kind of corn has proved best for silo?

The largest variety that will mature in your climate.

When best time to plant?

When the soil is in best condition, and danger of frosts is well past.

When best time to plant the ensilage corn?

It is not a bad plan to plant some at different dates, so that the whole will not mature at the same time, and thus necessitate hurry in filling the silo.

A MAINE RATION.

I wish you would formulate a ration for me, in your next issue, out of the following: Timothy hay worth $5 per ton, bran $20, cotton seed meal $24, corn meal $19, oil meal $28. You may leave out oil meal, if you think it too expensive. My cows are of large size and fresh in milk.

I like the DAIRYMAN very much.

Union, Maine. H. B. B.

If the cows are to have only the feeds named, and are in fair flow of milk, they could not be expected to do their best with much less than the following:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
20 lbs. timothy hay...	17.36	.56	8.68	.28
6 lbs. bran.....	5.29	.75	2.32	.18
2 lbs. corn.....	1.78	.16	1.33	.09
2 lbs. cotton seed meal	1 84	.74	.34	.17
Totals.....	26.27	2.21	12.67	72

This is an expensive ration, but it never pays to stint a cow in her feed, and it seldom pays to keep a poor cow.

We hope our friend will prepare for next winter by having something better and cheaper than timothy hay for roughage. We think he should have a silo, and some clover or oat hay.

GALVANIZED IRON IN THE CREAMERY.

I should like to know if galvanized iron tanks and pails can be safely used in the dairy. If not, why not?

Can plastered walls in a dairy room become so impregnated with organic matter as to endanger the quality of the milk by keeping it in the room over night?

Will buttermilk or sour cream, kept in the same cooling tank, in cans, with sweet milk, hasten the souring of it?

Also, will you tell me where milk faucets can be obtained which can be easily cleaned and safely used in milk cans and tanks? This town of Denver, or the dairy supply houses, are too small to keep such things for the use of dairymen, and I presume that many other towns are unable to keep them also, hence the inquiry. F. J. B.

Denver, Colo.

Galvanized iron is not as good as tin for dairy vessels, as it is not so easily kept clean. The oxide of zinc is liable to form a compound with the fat of the milk and the resulting coating is not easy to remove.

If kept clean there is no reason why it cannot be used.

It is possible, but not probable, where the creamery is kept in a cleanly condition. Moreover, such walls should be whitewashed at least once a year, which would go far towards keeping them in a cleanly condition.

No.

Any of the general dairy supply houses will furnish you with a faucet of the kind required.

The Stave Silo.

(Continued from page 267.)

hoops being increased by one-half foot until they are three and one-half feet apart, which distance should be maintained, except for the hoops at the top of the silo, which may be four feet apart. The hoops should be drawn fairly tight before the silo is filled, but not perfectly tight. They must be tight enough to close up the space between the staves, thus preventing any foreign matter from getting into the cracks, which would prevent the staves from closing up as they swell, thus allowing air to enter. To hold both the hoops and the staves in place, during the summer when the silo is empty, staples should be driven over the hoops into the staves. If a sufficient number of staples are used, they will prevent the sagging or dropping down of the hoops, and they will hold the staves securely in place.

The hoops should be watched very closely for a few days after the silo is filled. If the strain becomes quite intense, the nuts should be slightly loosened. If during the summer, when the silo is empty and the staves thoroughly dry, the hoops are tightened so that the staves are drawn closely together; when the silo is filled, and the wood absorbs moisture and begins to swell, the hoops must be eased somewhat to allow for the expansion. If a silo is constructed of thoroughly seasoned lumber, and the hoops are drawn tight before filling, when the silo is filled the hoops must be loosened slightly, or there is danger that the hoops will break or the thread will be stripped.

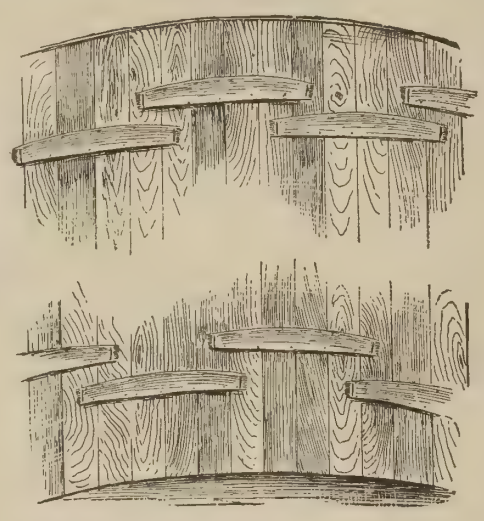


FIG. 3—Shows how barrel staves may be used in setting up a silo; they should be removed before the silo is filled.

DOORS FOR THE STAVE SILO.

The doors should be located on the side of the silo most convenient for feeding. They may be in line, one directly above the other, or they may be placed anywhere fancy or convenience dictates. If doors are placed one above the other, the short pieces of staves should be well secured to the hoops by staples. The lower door should be between the second and third hoops, at the bottom, and other doors will usually be needed in every second space between there and the top except that no door will be needed in the top space as the silage when settled will be sufficiently low to enable it to be taken out at the door in the space below. Plans should be made for the doors at the time the staves are set. When the place is reached where it is desired to have the doors, a saw should be started in the edge of the stave at the points where the top and bottom of the doors are to come. The saw should be inserted so that the door can be sawed out on a bevel, making the opening larger on the inside of the silo. (See Fig. 5). This will enable the door to be removed and put in place only from the inside, and when set in place and pressed down with silage, the harder the pressure the tighter will the door fit. After sawing into the edge of the stave deep enough to admit the end of the saw, the stave should be set in place, so that the side corresponding to c. c. in fig. 5 shall be on the outside of the silo. After the silo is set up, and the hoops have been put on and tightened, the cutting out of the doors may be completed. The size of doors would better be two feet wide by about two and one-half feet long. This will allow the passing through of a large basket, and will make a door of convenient size for handling. Before cutting out the door, cleats 2 inches by 3 inches in length equal to the width of the door, should be made which will conform to the circular shape of the silo. One of these cleats should be securely bolted to the top and one to the bottom of where the door is to be cut. (See fig. 5). After the bolting, the door may be sawed out, and it is then ready for use. When set in place at time of filling the silo, a piece of tarred paper inserted at the top and bottom will fill the opening made by the saw, and prevent the entrance of any air around the door.

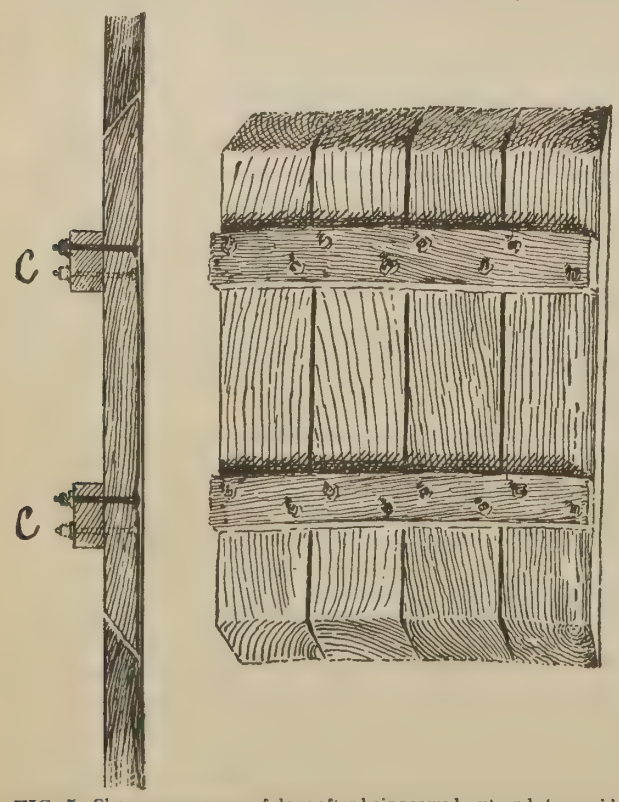


FIG. 5—Shows appearance of door after being sawed out, and shows side view of door in place. The cleets c. c. are on the outside of door.

THE SILO ROOF.

If constructed in the barn no roof or covering of any kind will be needed. If constructed out of doors some kind of roof should be provided. If the method of construction shown in fig. 2 is followed, and the upright 6x6 posts are used, these posts may serve as supports for the plates upon which the rafters are to rest. The roof should have a sufficiently wide projection to protect as thoroughly as may be the walls of the silo from the elements. The plan of roof construction which will prove efficient is shown in fig. 6. It is not necessary that the structure be air tight above the circular part. The gable end which is shown as open in the figure, may be boarded up. In this gable end a door should be provided through which the silo can be filled. The roof should extend from the silo to the barn, so as to cover the space which intervenes, and thus afford protection to the feeder in stormy weather. Another way in which the roof may be put on is shown in cut No. 1. Around the top of the silo was bent and nailed one half inch Georgia pine. This was put on so that a slight slope was given to the roof boards which simply overlap each other.

PAINTING THE SILO.

Whether the silo shall be painted on the outside is simply a matter of taste. If the other farm buildings are painted it would be well to have the silo painted the same as the other buildings. Various paints and compounds have been recommended for the interior. Probably the best paint is common gas or coal tar, put on hot, though it is very doubtful if the interior is improved by painting. If paint is applied to the staves while they are still green, it is likely to hasten rather than prevent decay. If gas tar or paint is applied it should be done after the hoops are made tight, and the staves drawn close, otherwise the paint is likely to enter the cracks and harden and thus prevent the staves from being drawn together. The large silo built at Cornell University was painted upon the interior, a part with gas tar, and a part with a special preparation, and one part was left with no paint; the silage kept equally well in all portions of the silo.—*Cornell University Bulletin.*

THE LUNG QUESTION.

It is said, "that that which we cannot prove, we argue most over," and generally speaking it is true. No one ever heard two men disagree, and much less quarrel over the multiplication table.

Our dual-purpose friends, and all cattle men, who have derived their ideas from a study of the beef outline, are fond of talking about the value of great width between the fore legs, on the ground that such outline indicates larger lung and heart power.

More than this, they are fond of considering this conformation also as an indication of constitution, vitality, power to resist disease, etc. These same people cry down the narrower chest build of the specific dairy form, and have much to say against it as indicating "lack of vitality, weakness of constitution, etc."

All this leads us to ask the following questions:

Is it true that the wide-between-the-legs beef animal has larger lungs, of greater tissue or breathing surface, than the more narrow chested dairy animal?

Has anyone taken the pains to follow these several dissimilar forms of cattle to the slaughter pen, and examine to see which is of the larger breathing power?

In similar manner, has any such comparison been made as to the size of the heart and its "action?"

Do these men who talk so confidently on this matter know "for sure," by anatomical examination, what they are talking about?

The same talk is heard among the breeders and owners of draft horses. They have the same remark to make about the deep wide chest, indicating greater lung and heart power. Is there any truth in this notion about horses?

In the race horse, for instance, we often see narrow chest formation. Some will say, "the fore legs look as if they come out of the same hole." Yet does this race horse build indicate a lack of lung and heart power?

In running a mile race the race horse has to exercise both lungs and heart to a greater extent than a draft horse will in a full day of hard pulling.

So in dairy cattle, are there any sound, well established facts for saying, that they have less lung or heart action than beef cattle?

We know of a certainty that beef cattle with their big, round briskets are just as liable to tuberculosis, under like exposure, as are the more "narrow chested" dairy breeds.

It occurs to the DAIRYMAN that on this "lung question," as well as the external build or shape of the barrel, there has a lot been said that is founded on mere notion or theory.

Thorough students of both beef and dairy breeds know how little real demonstration of the truth there has been by actual physiological study and recorded statement.

Dr. J. M. M. Kitchen spoke very close to demonstrable truth last week, on page 232, where he says:

A small well used pair of lungs, or any other tissue in the animal is not so subject to tubercular diseased action, as is a large but under used part. The ability of any tissue to resist such invasion, depends upon its healthful state, the force of the blood current coursing through it, the completeness of its nourishment by a well balanced blood supply, the nervous energy directed to the parts, the thoroughness of the oxygenating process in the tissue, and the impure or imperfect air.

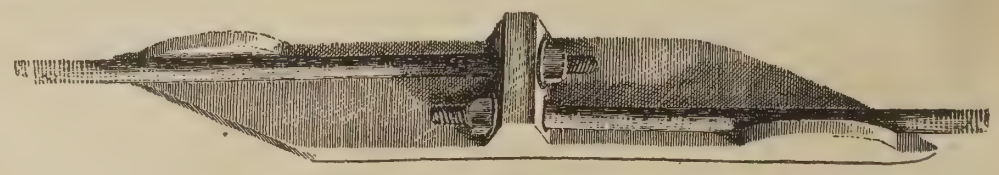


FIG. 4—Shows how the ends of hoops may be secured.

"Want of Watchfulness Makes the Thief."

Many cases of poor health come from want of watchfulness. But if you keep your blood pure no thief can steal your health.

The one effective, natural blood purifier is Hood's Sarsaparilla. *It never disappoints.*

Impure Blood—"Five years I suffered with pimples on face and body. Hood's Sarsaparilla cured me permanently. It also cured my father's carbuncles." ALBERT E. CHAST, Tustin City, Cal.

Catarrh—"Disagreeable catarrhal droppings in my throat made me nervous and dizzy. My liver was torpid. Hood's Sarsaparilla corrected both troubles. My health is very good." MRS. ELVIRA J. SMILEY, 171 Main St., Auburn, Maine.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Not a Preservative but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION MILK COOLER-AERATOR. It does its work perfectly and its use doesn't violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

GRADING UP.

An Oregon paper notes the fact that Mr. E. W. Gaptil, of Coos Co, in that state, has been paying special attention to the grading up of his cows. When he commenced, the average product per cow was 141 pounds a year. Now it is 252 pounds of butter fat or the equivalent of 294 pounds of butter.

It may be said that he did not secure this result by following out "dual-purpose" ideas of breeding. This grading up of cows to larger dairy power and profit is a simple affair. But simple as it is, the great majority of the farmers in the United States, who keep cows for dairy purposes, have much to learn concerning it. When one can ride through a community in Wisconsin, for instance, where the farmers have been patronizing cheese factories and creameries for twenty years, and not more than one in seven has a registered bull, of a dairy breed, at the head of his herd, we can get some idea of how much good breeding sense has filtered down through that community and into the judgments of its members in the fifth of a century.

Hundreds of dairy farmers in Wisconsin have brought up their herds to a point much in excess of what this Oregon farmer has done, yet his record is a most excellent one We have seen such men repeatedly with neighboring farmers right along side of them who did not believe a word of what the successful man was doing. Such instances are constantly found in creamery work, where every man must come to a common record of production. But, somehow, the more successful record is not brought home sharply to the comprehension of the dull and indifferent neighbor. There is no publication of each patron's result per cow, so all can read and compare. But it is strange how contented some men can be with poor cows and starvation results.

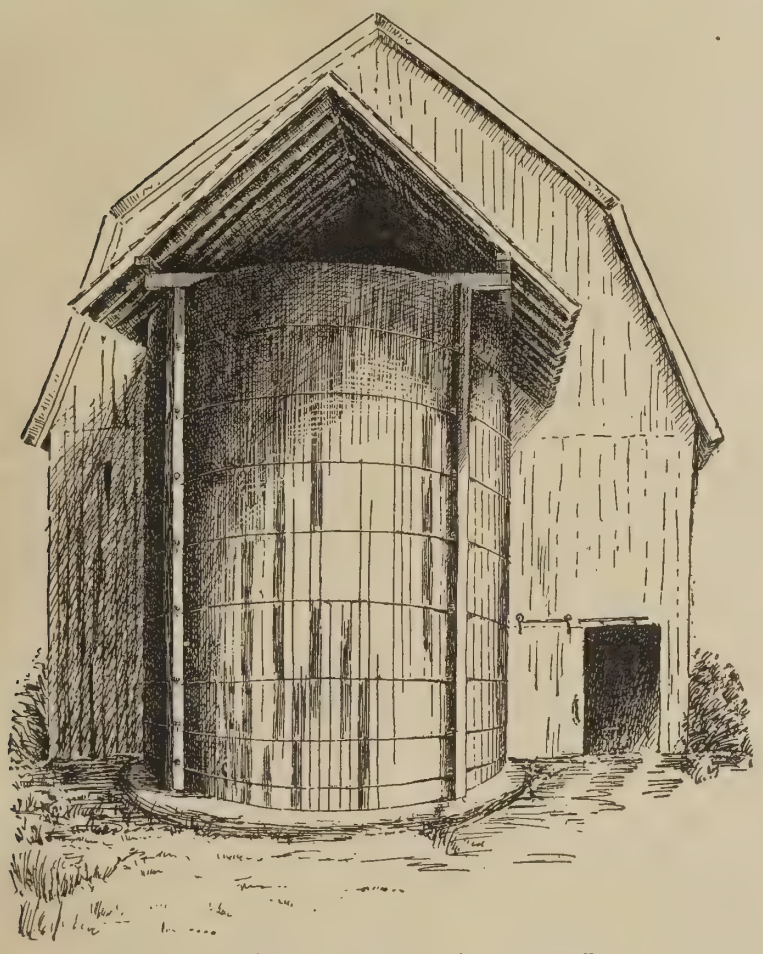


FIG. 6—Shows p n of construction of stave silo.

Why Are Eggs so Scarce?

ED. HOARD'S DAIRYMAN:—No great industry in this country is as much neglected and as little understood, as egg and poultry culture.

It is true we have a few dealers scattered through the country, who have made a scientific study of the nature habits and requirements of the hen, and some valuable books have been written on this subject, but they do not find their way into the hands of the farmer; perhaps not one farmer in five thousand has ever read a book on poultry raising. Notwithstanding the above fact, the industry has grown, perhaps, more rapidly in the last decade, than any other in America. What would it be if the farmer understood, and put into practice, the best information we have on this subject?

It seems to be the prevailing opinion of dealers in the West, that the exceedingly severe cold winter is the cause of the light crop of eggs this spring. It is to be hoped that some good will result from the scarcity and high prices of April eggs. It may stimulate the farmer to build warmer hen houses and be a little more liberal with proper food. It has been said that wheat fed to chickens will yield two dollars per bushel. No doubt the greatest of all mistakes, is in not cleaning out the hen house daily instead of once in five years. The normal temperature of the hen is 108 degrees, ten degrees higher than the human body; hence their liability to become diseased if not kept clean.

Chicago, Ill. J. E. KEITH & CO.

A Summer Resort For The Cow.

ED. HOARD'S DAIRYMAN:—The secretion of milk being in a large measure due to the nervous condition of the animal, it is important that we give her comfortable surroundings where she can recreate and chew her cud. Last summer the Kansas Agricultural College herd was pastured one-half mile north of the college barn and in order to furnish protection from the hot sun and the flies a small thicket in the lower end of r draw was opened up. The cows ignored this act of kindness and betook themselves to the top of the highest bluff, and there where the cool breezes would strike them, recreated with seeming satisfaction. The stiff breezes, usually found on such high spots, had the effect of driving away many of the flies, and left the cows free to manufacture pasture grass into milk. Any dairyman having a high knoll or bluff accessible to his cow pasture would do well to fix it as a summer resort for his cows. If possible, select a bluff where trees will furnish plenty of shade. If that be impossible an open shed will keep off the hot sun. While the cow is thus enjoying her summer outing, she will at the same time be hard at work returning thanks to her owner in the form of butter fat.

D. H. OTIS.

Kansas Experiment Station.

The Dilution Method of Cream Raising.

There are places in the state where there has been a good deal of talk of late about a "new" method of raising cream. It is sometimes called the dilution method.

The process is an old one which has fallen into disuse, but which has recently taken on a new lease of life, largely through the efforts of several concerns which are selling cans specially devised for the purpose. These cans vary more or less in minor details, which, however, do not appear to affect the character of their work. The process is the same in each case. The milk is diluted with an equal or with a greater bulk of water; the mixture is allowed to stand two hours or more, and is then skimmed by drawing off the skim milk

The advantages claimed for the method are reduced cost, lessened labor, durability and the obviation of ice storage and use. Incidentally it is stated that the cream is got cleaner than with the creamery, and that if the separator is rightly managed, all the cream will be obtained.

Some interesting tests of this method have been reported recently by the Vermont Experiment Station. This "new" dilution method, as any one can see, requires more tank room and depreciates the value of the skim milk. Besides this the Experiment Station tests show that the milk does not cream so well.

Over a hundred trials of two different sizes of the "Wheeler Gravity Cream Separator" were made at the Vermont station The "Gravity Separator" left in the skim 13% of the fat of rich Jersey milk, 40% of the fat of Ayrshire milk, and 17% of the fat of stripper milk, mostly Jersey. The centrifugal separator left in the skim milk between 1 and 2% only of the fat. The centrifugal separator, moreover, was able to extract cream from the diluted skim milk from the so-called "Gravity separator".

These results speak for themselves. The cans are less efficient then centrifugal separators, less efficient than the best forms of deep setting apparatus, and no more efficient on the average than the old fashioned shallow pan. It does not seem as if the convenience, simplicity and cheapness of the apparatus compensate for its lack of efficiency, or that it ought to compete successfully with a centrifugal separator. The latter costs more, but it saves more of the butter fat and is undoubtedly the cheaper apparatus in the long run.—*Ex.*

Profitable Feeding.

Double Price for Grain Fed to Dairy Cows.

"Any farmer would be glad to sell his corn and oats at twice the market value," says the *National Stockman*, "and while this is not possible in the ordinary way of marketing, it is perfectly feasible, if the grain be fed to a good dairy cow. There are certain conditions necessary to insure this, it is true, but they are not out of the reach of the farmer with small means. Warm stables, plenty of pure water, well above freezing temperature, plenty of good wholesome food and kind treatment—these are within the reach of any one who owns one or more cows."

Just a Cough

Not worth paying attention to, you say. Perhaps you have had it for weeks.

It's annoying because you have a constant desire to cough. It annoys you also because you remember that weak lungs is a family failing.

At first it is a slight cough.
At last it is a hemorrhage.
At first it is easy to cure.
At last, extremely difficult.

Ayer's Cherry Pectoral

quickly conquers your little hacking cough.

There is no doubt about the cure now. Doubt comes from neglect.

For over half a century Ayer's Cherry Pectoral has been curing colds and coughs and preventing consumption. It cures Consumption also if taken in time.

Keep one of Dr. Ayer's Cherry Pectoral Plasters over your lungs if you cough.

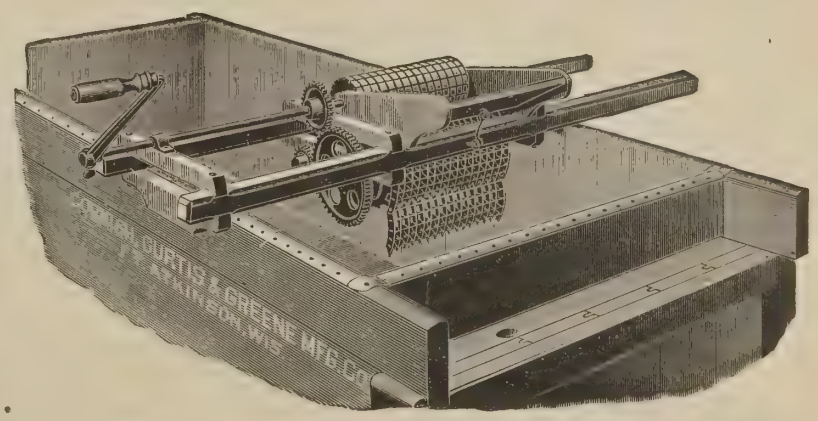
Shall we send you a book on this subject, free?

Our Medical Department.

If you have any complaint whatever and desire the best medical advice you can possibly obtain, write the doctor freely. You will receive a prompt reply, without cost.
Address, DR. J. C. AYER,
Lowell, Mass.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00.**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for DE LAVAL ALPHA SEPARATORS.

Note and Comment.

Old Slicker.—Price of Milk and Cows, Silo Corn, Yield and Cost of Protein.—Peas and Oats in Ohio.- A Milk Trust in Ohio.

ED. HOARD'S DAIRYMAN:—To an inquiry "What has become of Old Slicker?" we reply that the old cow is alive, and right at it this year as usual, and doing pretty fairly well. She freshened January 1st, last, and is now 127 days in milk, and last night and this morning gave 43 pounds of milk. She has blue grass pasture, and four pounds of grain a day, one pound gluten and three pounds fine bran. As milk has sold here all winter, up to May 1st, at 11 cents, it is seen that at factory prices, her milk for 120 days would be worth looking after.

This year, the first time in her history, Slicker gave me a heifer calf; in markings and form is the counterpart of herself, and is now a lusty calf. If there is anything in "signs," Miss Alahoe will make a fine producing cow. In due time Miss Alahoe will offer her picture to the public.

***

The posting of 90 cent milk notices every where in this section for May, has given dairying an encouragement not known about here in several years. Last year, the May price was 60 cents per 100, so that a gain of 33⅓ in a year is an advance in raw material not shared in, except by a few of the "industrials," and many a farmer is heard to say, that the prices would have been no better than last year, if is was not for the city cream men, who—while not claiming any spirit of competition—are buying milk on city cream basis, and not Elgin or Little Falls. The regular milk buyers are forced to pay going rates or—well look on and decry expansion—of the city demands.

Cows have not been so high in price since the war in '64, and it costs now 50 cents to even look at a good cow. A year-old heifer is worth $20, with or without breeding. A herd of thirty-eight to forty-five cows went by yesterday, that certainly showed an advance in prices of 100% in a year, and if I am any judge of cows, about all the owner will ever get in return from them, will be the pleasure of feeding them for the sake of their company, a proceeding, which, by the way, is quite popular with scores of dairymen in all sections of the country.

***

Prof. Haecker always writes entertainingly, and with much instruction, and in April 28th DAIRYMAN, brings out a point which, from my limited experience, I think him very largely in the right; while it is "against the teachings." As I recall twelve years of silage feeding, I do not remember that my cows performed any better at the pail, with silage heavily eared, than with a silage ration more thickly grown, so that only nubbins were found instead of ears. The same bran ration sufficed with the light grained silage, and it was commented upon at the time, but thinner seeding and more ears was thought to be the thing, and so back to ten quarts of seed to the acre was the rule again, though we are sure that there was several more loads of silage to the acre with the thicker seeding.

As to late planting of silage corn, we recollect when, a few years since, owing to the wet June, were not able to get one field planted until July 6th, and by the last of September, when we filled the silo, this lot of corn was almost a full crop, and well eared, though not as mature as they should have been to have gone into the silo. Two years ago we planted an extra piece of Virginia corn after the middle of June, and it attained wonderful size, quite as large as that planted a full month earlier.

***

The remarkable thing the Professor brings out is the excess of protein in the late planted corn, and to find that an acre of Virginia corn planted as late as June 26th, yielded 29 tons of fodder per acre, with 647 pounds of protein in it, is a revalation of itself. As bran is selling here now, the actual protein is about 6 cents a pound, which, if applied to the Professor's corn crop, would make it worth in protein alone fully $39, and more than that it would be possible to sell the husked grain for, from a splendid acre of corn.

All this brings up the protein question: where shall we get it? This experiment explains where part of it may be looked for, but a cow cannot eat 19 tons of silage in six months to get the 450 pounds of protein she ought to have. True, she will get a pound or so in the silage, clover hay, and common feed, generally, but the other pound from where?

I may be a little "sot", but I still think that one of the best ways to get the extra needed protein is to either buy it out direct, or to raise some farm crop and barter it for the needed protein. Oats here are good sale at 34 to 36 cents a bushel, and why not raise the oats and exchange them for "seconds"—fine bran— and make a good swap?

A ton of oats and $2.00 added for grinding, will to-day, here, buy 3,200 pounds of fine bran, containing about 440 pounds of protein, while the ton of oats would have but 184 pounds, or approximately $12 against $26.50, and we have the oat straw left. The oats would have 1,136 pounds of starch to the ton, and the bran 906 pounds, or only 230 pounds difference, worth as carbohydrates in corn maal ¾ of a cent a pound or $1.73, while the gain made by the trade in protein, Ohio prices, would be $14 56.

As gluten meal is selling here now at $16, we put one-fourth of this material, which contains 516 pounds of protein, to the ton, with three-fourths bran, and find it a very fine cow feed. Can I get my needed protein as cheap at present prices, as in raising oats, and with the 45 to 55 bushels per acre, seeding the crop with clover, and exchanging the oats for "seconds" and one-fourth gluten meal? What says Prof. Haecker?

***

I doubt if northern Ohio will ever make a great success with peas and oats as a protein crop. The early summer is usually too dry for field peas, and there is a disposition for the two crops to ripen wide apart. Some years it is all right, and another wrong. Last year the peas ripened long before the oats were fit to cut, and we compromised and made some hay out of them. I found that the clover that followed a crop of oats and peas turned under was a great success, sown about June 1st, right after a good rain, and put down two inches. Cow peas make a great growth, and I think is the great renovating catch crop where clover fails, as it has, to some extent, in this latitude the past winter.

North of here, in Ontario, where it is cooler, peas will grow to be a great crop, but they are not a full measure of success on the south shore of Lake Erie, one year with another. One of our most up-to-date dairymen has tried it several times, and the results are so meager that he has abandoned them, and is building a silo for summer use, and is going to rely upon silage for his extra soiling crop, run in catch crops of cow peas, and the like for this purpose, and buy outright the protein he needs, or exchange home-grown crops of some kind, for bran, gluten and oil meal.

One of the things of dairying, that demands a whole lot of investigating is, that what fits one locality misfits another; as illustrated by the man in Maine, who (page 235) could raise more oats and peas per acre than corn; but in Ohio it would puzzle a man to grow as much roughage in any other form, as in corn.

***

There are rumors in the air to the effect, that a great milk syndicate—nothing smaller can succeed now-a-days—is looking over the dairy fields of Ohio, with the view of locating two, possibly three milk condenseries, and will need next year 5,000,000 cans of milk, size of cans not stated. We are promised revolutions, or something of that sort soon, and events are anxiously awaited. There is no doubt but there is ample milk in northern Ohio to supply all the condenseries that will be erected, but I am not so sure that the northern Ohio patron will take as kindly as he should, to the rules and regulations that he will have to subscribe to to get his milk into the pool at the "greatly advanced prices which will be offered for milk."

Sites for condenseries are being—it is said—looked up at Wooster, Warren, Chagrin Falls, Jefferson, and possibly Wellington and other points. It will be an important addition to Ohio dairying, and as an educational feature, will introduce a care and a concern about the production and handling, not only of the cows, but the milk itself, never known in this state, and in this respect the enterprise should be warmly welcomed.

Whether the parties concerned are eastern or western is not known, but if they locate, build and buy 425,000,000 pounds of milk yearly, and pay eastern prices, it will be an agency to distribute millions of dollars through northern Ohio, and shut up no end of creameries and factories.

Ohio. JOHN GOULD.

Water Content of Butter.

Salt a Factor in the Problem.

ED. HOARD'S DAIRYMAN:—The amount of water in butter is generally supposed to be indicated by the number of drops of water or brine that appear on its surface. Some butter seems to hold a great deal of water in the form of brine which leaks out of the package. Other lots are dry and show scarcely any moisture on the surface or in the wrappings.

This difference in the apparent water content of butter was very strikingly illustrated by that on exhibition at the meeting of the National Association of Creamery Buttermakers held at Sioux Falls, in January, 1899.

One of the features of this convention was the exhibit sent by Dairy Division of the U. S. Department of Agriculture, of some thirty packages of foreign butter. Through the courtesy of Mr. Pearson, who had charge of this foreign butter, the writer was permitted to take a sample from each package. It was while engaged in this work that he noticed the unusual dryness of the foreign butter. There were almost no drops of brine nor any appearance of moisture on the surface of it.

The American Creamery butter, however, was covered with drops of brine. This peculiarity naturally leads to the inference that American butter holds more water than foreign butter, and such opinions have been expressed in various papers.

Chemical analyses have shown, however, that our American butter generally contains a smaller percentage of water than is found in foreign butter. This is illustrated by the following figures:

AVERAGE OF MANY ANALYSES OF BUTTER.

	No. of Analyses.	*Water %.*	*Salt %.*
World's Fair.....	350	11.57	2.78
Wisconsin Creamery	52	12.77	2.87
Danish Butter 1897..	2016	13.79	

These results seem to contradict the impression one gets by seeing the two kinds of butter. The apparent difference in their water content was so striking that on returning from the convention the writer started an investigation at the Dairy School Creamery to discover, if possible, a cause for the dry appearance of the foreign butters.

After two months' work with the assistance of Mr. C. E. Lee, a graduate student in the Dairy Department, a satisfactory explanation of the difference has been obtained.

Without going into any of the details of the work at this time, the final conclusions may be briefly stated. The general outline of the work was to take freshly churned, granular butter, divide it into two equal parts, one of which was salted "one ounce to the pound," and the other was not salted. Both lots were worked the same number of revolutions on a Mason worker, at the same temperature, and samples taken for analysis.

Eighteen such trials were made, and in every case the unsalted butter had the dry, brineless appearance of the foreign butters, while the salted butter showed drops of brine very plainly on its surface.

The chemical analysis showed that the salted butter contained from one to five per cent less water than the unsalted, the average of the eighteen trials being, for the salted butter 11.51% of water, and for the unsalted butter 14 69% water. The salted butter contained an average of 3.24% salt, and as a rule the amount of water decreased as the salt increased, although judging from the appearance of the butter, the reverse seemed to be true.

This experiment explains the dry *appearance* of the foreign butter, since it is a well known fact that such butter contains very little, and in some cases almost no salt.

E. H. FARRINGTON.
Wisconsin Dairy School, Madison, Wis.

Silo Questions.

ED. HOARD'S DAIRYMAN:—In your No. of April 21st, I see a description of stave silo. Notice what is said of using coil wire fencing for hoops. I want to build a silo this summer and have concluded a stave silo would be best. I would like to know the size I should build for 25 cows. I can only build 20 feet high, but can dig out 3 or 4 feet in the ground.

How many hoops of coil spring fencing should this height require, and what amount of silage would this silo hold.

How do you compute capacity of stave silos? The silo described seems to me pretty high. Will send cost of mine when finished. Do you think coat of pitch thinned with coal oil would be good for inside. In our moist climate we have to cover this. C. M. N.

McGhee, Tenn.

In the present issue of the DAIRYMAN you will find a cut showing the manner in which the wire fencing is used for hoops.

A silo 20 feet deep by 17 feet in diameter will hold about 90 tons; enough for 25 cows.

A cubic foot of silage will weigh about 40 pounds.

To find the number of cubic feet in a silo, multiply one half the diameter by itself, and the product by 3.1416, multiply this product by the height of the silo in feet and divide the product by 50. The result will be the capacity of the silo in tons of ensilage.

It is not necessary to paint the silo in any way, but it is probable that a coating of coal tar and gasoline would to some extent keep the wood from rotting and thus prolong the life of the silo.

Queer Cheese.

There is one manufactory in Wyoming County, N. Y., of which but comparatively few of its people have any knowledge. Anyone who is interested in cheese, especially the Italian makes, can post himself regarding one variety of the article, by visiting a little hamlet not 50 miles distant from Rochester or Buffalo on the Erie Railroad. The village is Dale, located in the town of Middlebury, this county, and it is such a little place that it has only a store or two and a postoffice. The cheese factory is not far from the station. It is a small frame building with a receiving door on the first floor. The factory hands are Italians and the farmers who live nearby say the output of the plant is sold in Chicago for Parmesan cheese. The Italians said it was known as something, pronounced like "carzo cawadeller", and from consulting an encyclopedia the writer concluded it was Cacio cavailo, of which there is the Milanno and Sorrento varieties made in Italy. Visitors to the little burgh are shown the establishment as something out of the ordinary. The cheese is made from cows' milk and the farmers about there are paid 70 cents a hundred for milk delivered. The make-up of the plant consists of two boilers, one of which contains hot water and in it the cheese is dipped, after the milk has been turned to curd and is ready for handling, for this cheese is a strictly hand made article. City people, who have seen men in the confectionery store windows pull taffy, know about the way. This cheese in the condition of long curled ropes is placed in a big, low tub and there it is given the hot water baths, between which the Italians pull and re-pull, put back in the tub and then pull it again. The men stand six feet apart and the cheese is stretched at least double that length, until it has reached the proper grain. When it is completed it is shaped into cheeses which resemble a bowling alley pin with the bottom about the size of a cocoanut. It is then aged for about half a year when the outside becomes hard. During the ageing it first becomes green, afterwards a yellow white. The outside then peels off like the skin of a kid glove orange. The article is then said to have cost about fourteen cents a pound. The imported article costs up to 23 cents in New York at wholesale, and is said to be very nutritious. Its sale is said to be larger than that of Gorgonzola, Moliterno, Sirachino di Milano Reggiano, Brescianno di Fasto or Parmiggiano, all of which sell from 20 to 30 cents at wholesale in the United States. An Italian has been at Rock Glen, this country, trying to make arrangements to get the milk of enough cows to start another factory there.

An Oregon Creamery.

ED. HOARD'S DAIRYMAN:—We wish to inform you that after about nine months' persistent effort, a creamery has been organized at Astoria, with capital, building and a proprietor of long experience and well known reputation. This is T. S. Townsend, of Portland, who has several other dairy plants, creameries or cheese factories in Oregon and Washington.

It is the opinion of Mr. Townsend, and, indeed, of all the dairy people who are acquainted with this region, that the coast slope is remarkably adapted to dairying, and that this industry may be carried on here to as good advantage as, or even in some respects, better than, in Iowa or other interior states. At least we mean to try what systematic dairying, by best modern methods will do; and Astoria, being central to the dairy region of both the lower Columbia and of the immediate coast, where there are thousands—or hundreds of thousands—of acres of tide lands and alluvial bottoms, may become a new Elgin.

H. S. LYMAN, Sec. Progressive Association.

Astoria, Oregon.

How Chicks Become Deformed in Incubators.

Complaint is often made about the large number of deformed birds which are obtained when eggs are hatched in incubators. For a long time it was a puzzle to breeders how to account for the fact that the eggs hatched in these otherwise excellent and most convenient appliances produced these crippled chickens; but careful observation has now led to the conclusion that the malformations are principally attributed to the vibration to which the eggs are subjected while the embryo is in course of development. As is well known, the drawers in which the eggs are placed in the incubators have to be opened a couple of times a day in order to admit of the eggs being turned. When looked after by careless attendants these drawers are frequently pushed back with considerable force, with the result that the eggs undergo a severe shaking. It is now found that it is these sudden jerks or jars that are responsible for the deformity of the chickens.

DAIRY MARKETS.

ELGIN, Ill., May 15.—Butter—Firm; offerings 223 tubs; holders refusing bids at 8⅛c on all lots. Official price 18c.

CHICAGO, Ill., May 15.—Butter—Creamery, extra, 18c; firsts, creameries 16½@17c; seconds 13½@14c; dairies, selections 15@16c; extra ladles 12½c; packing stock, fresh 10@10½c.

Eggs—Fresh, at mark, cases included, sold at 11½@11¾c.

Cheese—Full cream Twins, new, good to choice, 9@9¼c; Young America 10¾@11¼c; Swiss 10½@13c; Limburger 7@9c; brick, new, 8@8¼c.

Bran—Quiet, and sold at $10.75 per ton f. o. b.

Cattle—Trade was active, and beef cattle ruled strong to 10c higher. Native cows and heifers ruled firm, and bulls advanced 10@15c. The 200 straight Texas received sold strong at $4.70@4 85 for 1,967@1 233-lb. steers, and $3 80 for 1,295-lb. stags. Best native steers 1,598 lbs. sold at $5.50; top a week ago $5.45, and a year ago $5.15. Most of the native steers sold at $4.80@5.25; corn-fed Westerns $4.50@5.30, and distillery fed steers 1,012@1,274 lbs. $4.60@5. Native cows sold principally at $3.20@4; heifers $4.10@4.60; bulls $3.50 @4.10; stags $4.10@4.80; calves $5@6.75, and feeding cattle $3 85@5.

NEW YORK, May 15.—Butter—Creamery, Western extras 19c; firsts 18@18½c; State extras 18½@19c; firsts 18c.

Cheese—State, full cream, large colored or white, choice, new 9⅝c.

Eggs—State, Pennsylvania and Western, 13¼@14c.

MILWAUKEE, Wis., May 15 —Butter—Creamery, fancy prints, per lb. 17c; extras per lb. 17c; firsts per lb. 15@16c; seconds per lb. 13@14c; imitations per lb. 13@14c; dairy selections per lb. 13@14c; lines per lb. 12@13c; rolls, choice to fresh 9½@10c. Market firm and active; kept well cleared by the trade; receipts 13,355 lbs.

Cheese—American full cream, October Twins 11½@12c; new choice to fancy 9@9½c; Bricks, new, per lb, choice, 8@8½c; Limburger, choice, per lb. 9@9½c; winter made, per lb. 7½@8c; Swiss, Drum, choice, 12½@13c; Block, choice, 10½@11c. New, weak and quiet, with receipts of 7,330 lbs. Considerable inferior new offering which has no quotable value.

Eggs—Fresh, per doz 11c; cases returned. Market unchanged; receipts 733 cases, which are taken by local and storage buyers.

FOND DU LAC, Wis., May 15.—Offerings to-day 354 Twins and 113 Daisies; sales of twins at 8¾c; market steady.

AVOCA, Wis., May 15.—Offerings on to-day's board 609 boxes Twins; market firm; all sales at 8½@8⅝c.

CHILTON, Wis., May 10—The sales reported to-day were 122 cases Young Americas at 9¼c, 123 Daisies at 8¾c and 91 Twins at 8½c.

HORTONVILLE, Wis., May 4—Offerings on board: 194 Twins, 27 Daisies. Sales: 30 Twins at 9c, 50 Twins at 8⅞c. Ruling price, Twins, 8⅞c. Market dull.

BRILLION, Wis., May 5—Sales of cheese on the Brillion dairy board to-day were 109 cases of Young Americas at 9c, 160 Daisies at 9c and 102 Twins at 8½c.

BERLIN, Wis., May 6 There were 203 boxes of Twins offered on the board and sold at 8⅝c. The board adjourned for two weeks to May 20th.

PLYMOUTH, Wis., May 9—There were 480 Twins sold on to-day's board at 8¾c, 50 Young Americas at 9¾c, 20 at 10c and 45 at 10½c.

MANITOWOC, Wis , May 10—The Manitowoc county Dairy Board of Trade held its first meeting of the season to day, with the largest membership in its record. C. W. Sweeting was elected president, this being his fifth term; John Staudt was elected vice-presideut, and Emil Teitgen secretary. Offers to-day were: Fifty boxes Daisies, 40 Twins, 125 Young Americas. All sold. Daisies and Twins at 8½c, Young Americas at 9¾c.

SHEBOYGAN FALLS, Wis , May 10—The sales on the call board to-day were the most active of any sale held here this season. Three hundred and three boxes of cheese were offered, and sold as follows: Two hundred and twenty cases Young Americas, at 11⅓c; 68 Twins at 9c, and 15 Daisies at 9½c. Nine factories were represented.

SHEBOYGAN, Wis., May 10—The sales reported to day were: Three hundred boxes Twins at 8¾c, and 400 cases Young Americas at 10c.

WATERTOWN, N. Y., May 6—Sales 1,204 boxes cheese at 9@9⅛c for large; bulk at 9c; 8⅝c for small and 8⅞c for Twins.

CANTON, N. Y., May 6—Sales to-day: 600 tubs of butter at 16c and 600 boxes cheese, small at 8⅜@8¾c, large, 9⅛@9¼c.

LITTLE FALLS, N. Y., May 8—The sales of cheese: 192 boxes large colored at 9½c; 3,214 small white and colored at 9c.

UTICA, N. Y., May 8—Cheese sales: 40 boxes large white at 9c; 875 boxes colored at 9c; 60 boxes 9⅛c; 254 boxes small colored, 8½c; 25 boxes 8⅝c; 284 boxes, 8¾c; 186 boxes white, 8¾c; 135 boxes, 9c; 893 boxes consigned.

BALTIMORE, Md., May 15—Butter—Market firm; creamery separator extra, 19@20c; extra first, 18@19c; creamery first, 17@18c; creamery imitation extra, 15@16c; ladle extra, 14@15c; western store-packed, 11@13c.

Eggs—Market firm; strictly fresh stock, 12c.

PHILADELPHIA, Pa., May 15—Butter—Solid packed butter, separator creamery, extra, 18½c; creamery firsts, 18c; seconds, 17c; imitation creamery extra, 15c: firsts, 14c; seconds, 13c; ladle-packed, extra, 15c; firsts, 14c; seconds, 13c; print butter, creamery, extra, 20c; firsts, 19c; seconds, 18c.

Eggs—Pennsylvania and near-by, 13½c; western, 13½c; southwestern, 13@13½c; southern, 12½c.

ST. LOUIS, Mo., May 15—Butter—Steady; creamery, 14@17½c; dairy, 12@14c.

Eggs—Steady, 10c.

KANSAS CITY, Mo., May 15—Butter—Steady; creamery, 15c; dairy, 13c.

Eggs—½c higher; fresh, 11c.

CINCINNATI, O., May 15—Butter—Steady; 18c.

Cheese—Steady; good to prime Ohio Flat, 10c.

Eggs—Firm; 11c.

BOSTON, Mass., May 15—Butter—Market firm 18@18½c.

Cheese—Steady, 9@10c.

Eggs—Firm, 13¾@14½c.

WASHINGTON, D. C., May 15—Market firm; extras, 17½c; firsts, 16½c; imitations, 15c.

NEWARK, N. J., May 15—Butter—Fancy creamery, 19c. Receipts liberal.

BALTIMORE MARKET.

BALTIMORE, May 11th, 1899—Butter—The receipts of separator creamery from primary points, western and local, have been meager and to eke out this scant supply the wholesale trade have had had to buy supplement parcels from the principal distributing centers, and in getting these in and putting them out, an apparent increase in business is produced which has a beneficial effect upon the tone of the market. Nor has this transient activity been confined to separator goods, for on account of a material shortage in local outputs, both creamery and dairy, trade that has been supplied exclusively from these sources, has been driven to hunt substitutes for them on the street, instead of having it brought to them, or sent to them as usual, and this extra demand has fallen heaviest on gathered cream products and ladles, the natural and regular supplies of which being short also, had to be increased by purchases from points not usually tributary to our market The out-of-town demand has been of more than passing interest, stimulated also by their regular supplies falling short of the normal quantity. There has been an increase in the business done in prints and blocks at fairly satisfactory prices. Receipts of rolls are a trifle freer, and so far there is no improvement in quality; it is a matter of a few days until the passing of rolls, for when the weather settles dry and warm, everything of this grade will have to come solid to insure good prices.

Creamery separator, extras, per pound, 18c; firsts, 17c; seconds, 16c; creamery gathered cream extras, 17c; firsts, 16c; seconds, 15c; creamery, Ohio, extras, 17c; firsts, 16c; seconds, 15c; roll, extras, 14c; firsts, 12@13c; seconds, 10@11c; store-packed, extras, 13c; firsts, 12c; seconds, 10@11c; creamery blocks (2 lb.), extras, 19c; firsts, 18c; seconds, 17c: prints (½ lb.) extras, 21c; firsts, 19c; seconds, 18c; Md., Va. & Penna. prints, extras, 19c; firsts, 17c; seconds, 15@16c.

Cheese—Receipts light; demand fair; market barely steady.

N. Y. State Cheddars, fine, 12@12¼; choice, 11@11½; fair, 9@10; Flats, fine, 12@12½; choice, 11¼@11¾; fatr, 9@9¾; small, fine, 12¼@12¾; choice, 12@12½; fair, 9½@10; Ohio Flats, fine, 11@11¼; choice, 10½@11; fair, 8½@9; Picnic, fine, 11½@12; choice, 10@11; fair, 9¼@10; Swiss cheese, fine, 11@12; choice, 10; fair, 8½@9.

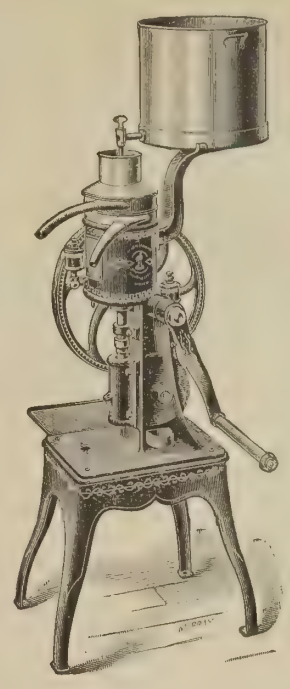
Eggs—Up to the present time the receipts have been liberal, but there has been no accumulation, as the demand has been and is still sufficient to absorb all invoices of choice stock. Our market is in good shape and steady at 12 cents. Attention—As the warm weather is fast approaching, we again urge you to ship your eggs in cases, as they are less liable to become heated and the loss in breakage is much less than in barrels or boxes. So please bear this in mind, especially those who do not understand how to pack eggs properly.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, May 13—Butter—Receipts for the week were 35,946 packages; exports for the week, 2,110 packages

"Alpha=De Laval"



CREAM Separators

Save $10.00 Per Cow Per Year.

SEND FOR NEW 1899 CATALOGUE.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.

GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.

BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

It has been a good butter market, buyers well up on the bit, receipts of finest creamery just about enough to go around, and prices firm, closing at 18c; and winding up here Saturday night with clean floors.

The scarcity of extra creamery created a better demand for all good to fine grades and sales were freely made at 16@17c. Fine dairy butter sold at 16½@17c, while inferior quality was neglected and offered at 14@15c. Some little inquiry for imitation and ladle goods for export: some sales reported at 13@14c. We quote:

Creameries, extra, 18c; medium, 17@17½c; poor, 15@16c. Dairies, extra, 16½@17c; medium, 15@16c; poor, 13@14c.

Cheese—Receipts for the week were 16,269 boxes; exports for the week were 1,873 boxes.

Better market here and in the interior and prices are advanced ½c on the week's business. Very light stock here and prices are firm at the close. We quote:

Full cream, extra, 9½@9¾c; medium, 9@9½c; poor, 6@8c; part skimmed, extra, 8@8½c, medium, 6@7c; poor, 4@5c; old cheese, extra, 9@9½c; poor, 5@7c.

Eggs—Receipts for the week were 91,315 packages. There is a good demand for fresh stock and prices are a trifle higher. We quote:

New York & Pennsylvania, per dozen, 14½@15c; western, 13¾@14½c; southern, 12@13½c.

177-179 Chambers St. DAVID W. LEWIS & CO.

Latest quotations for fancy creamery—New Orleans, 17½; Buffalo, 17½; St. Paul, 17; Minneapolis, 16@17.

FOREIGN MARKET.

BOSTON, May 13, 1899—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane, give butter markets as again low in price, but the demand is good. The low prices have stimulated consumption greatly, nothing but low grades of American left, which is selling from 15c downwards for ladles. Some fresh Canadian creamery, in boxes just landed, brought 19@19½c. The weather continues rather favorable to the make, and Denmak is sending rather large quantities. The home and Irish make will now increase greatly, and prices for all grades of butter must tend downwards for some little while yet.

Cheese markets are all quiet, with prices tending downwards. Buyers continue a very conservative policy, taking only sufficient for pressing and immediate wants; this requires holders to shade values. New cheese is freely offered from America and Canada with prices receding.

LIVERPOOL, May 15—Butter—Finest United States, nominal; good, 65s.

Cheese—American finest white, 51s; colored, 50s; ordinary new, 49s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—"Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill. 12-tf

For Sale—Fifteen h. p. boiler and 15 h. p. upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 14-4

Wanted to purchase—Good second-hand Cream Separator. Give make, capacity, price and how long in use Address A. S. COEN 708 Deleware St., Kansas City, Mo.

Position wanted as manager or foreman of stock farm. 33 years of age, with good recommendations Experience in the business. Address with particulars, H. A. N., care Hoard's Dairyman.

For Sale—Russell Pasteurizer, 50 gal. capacity. PASTEUR MILK LABORATORY, Washington, D. C.

Wanted—Position at once as manager or working foreman of good dairy farm. Thoroughly understands dairying and farm management in all its branches, such as erecting and starting plants, handling all kinds of farm machinery, and especially fitted for caring for thoroughbred stock. First-class butter making a specialty. Address G. P. KNAPP, Clinton Corners, New York. 14-2

For Sale—Short-horn bull calf by Earl of Irvin No. 125805; dam, Countess Flora. Beautiful light roan, dropped Jan. 5, 1899. Price, $60.00 f. o. b. here. HENRY LACY, Syracuse, N. Y. 14-2

A Good butter maker can get a position at once. He must help to milk and take care of young stock. Wages $25 00 per month and board. EAGLE VALLEY CRY. CO , Edwards, Colo,

For Sale—"Brown Bessie Omaha" Bulls. A great combination. GEO. E. BRYANT, Madison, Wis. 13-2

Wanted—Farm superintendent on dairy farm in Waupaca County. Fine house and pleasant social surroundings. Permanent position on salary. Married man, with experience. Good references required. M. C. PHILLIPS, Oshkosh, Wis. 13-4

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

For Sale—Five Holstein-Friesian Bulls ten and twe ve months old. Also B. Plymouth Rock eggs for hatching. Address C. W. SCHERMERHORN, Charles City, Iowa. 11-4

Wanted—Man and wife on a farm. Man to do ordinary farm work and woman to cook and do housework. Apply to A. KENNEDY, Supt., Indian Ford, Wis. 13-2

$75.00 will buy registered bull Gerben Mechthilde Sir Josephine 2d, H. F. H. B., born August 28, 1897. Reason for selling, compelled to give up dairying. C. KAHLER, Prairie du Chien, Wis. 11-4

Wanted—A first-class man to rent a fine dairy and stock farm within three miles of the city of Janesville, Wis. H. F. KELLER, 251 South Jackson St. Janesville, Wis. 12-4

Half Rates to Madison, Wis., via the North-Western Line. Excursion tickets will be sold at one fare for the round trip from stations in Wisconsin and Michigan, for trains arriving Madison the afternoon and evening of May 25, on May 26 and for trains arriving Madison before 1:30 p. m., May 27, limited to include May 29, account of Inter-Scholastic Meet, etc. Apply to agents Chicago & North-Western R'y. 13-2

Exceptionally Low Rates to Sioux Falls, S. D., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, May 26 and 27, limited to include May 29, account of meeting United Commercial Travelers of America. Apply to agents Chicago & North-Western R'y. 13-2

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, XIV.

CONTROL OF INFECTIOUS DISEASES.

Agriculture has been greatly benefitted by the discoveries made in recent years, in the realm of veterinary bacteriology. A knowledge of the cause of many of these contagious maladies has been of inestimable value, as it has led to a much more thorough understanding of the nature of these diseases. So long as the cause of disease was unknown, so long was rational treatment difficult, and prevention almost impossible.

It is too common a belief, even now, that diseases of this class, as well as any other, are attributable to something that the animal has eaten or to some change in climatic conditions. It is more natural to look upon these as causal factors than to conceive of the cause as a living germ too small to be recognized by the unaided eye. The majority of communicable diseases are produced by the ravages of vegetable parasites, the bacteria. In a few cases already known, fungi (molds and related species) function as the cause of disease, as in the lumpy jaw, and a number of the skin diseases. Then again, the phenomena of parasitism often occurs in the animal kingdom. In the preceding paper, reference has been made to Texas fever, and also to malaria in man, diseases which are caused by animal parasites of the lowest order, which attack the blood corpuscles, while among the worms and insects, there are numerous species that have adapted themselves to a life in other forms.

While the invading parasite, be it a bacterium, fungus, or any other form, is absolutely essential to the production of any specific disease, still it requires more than the mere presence of the parasite in question to produce the disease. The other factor which is just as necessary is a susceptible host for the invading parasite to affect.

Unless the specific germ finds its way into such a host, disease will not occur. An animal may possess such natural powers of resistance as to be naturally immune. In such a case, even though a virulent disease germ found its way into the body, no disease would result. This would be the case with the virus of hog cholera in a horse. On the other hand, the immunity or resistance that an animal naturally possesses is frequently overcome by the operation of various factors, some of which are dependent upon the animal itself, and others on the surroundings. Temporary debility, occasioned in a multitude of ways, may predispose the animal to disease. Over exertion, close confinement, over feeding, especially where a one-sided ration is used, and poor ventilation of stables are also factors that may render the system much more susceptible to the inroads of contagious disease. The age of the animal often plays an important role. In black leg the young stock are much more susceptible, while in tuberculosis the percentage of cases increases with the age.

HABITS OF DISEASE BACTERIA.

In attempting to fight animal diseases, it will be of value to remember that disease cannot be caused unless the specific organism is present. Disease germs, as a rule, are not universally distributed throughout nature. In some cases, as in lock jaw or tuberculosis, the distribution is much wider than it is in others, but for the most part, even in these cases, the causal organism is generally found in more or less close proximity to existing or preceding cases of the same disease. Thus, the tubercle bacillus is much more abundant in the dust of a stable occupied by tuberculous cows, or in a house occupied by affected people. This is most strikingly illustrated in the case of the tenement houses in New York city. Many of these buildings are veritable incubators of this disease. From one to four or even more cases appear in many of them, year after year, with almost unvarying regularity.

MODES OF DISTRIBUTION.

Unwittingly, disease is often introduced into our flocks and herds. One of the most frequent causes is in the purchase of stock that has the disease in an unrecognized form. With tuberculosis, this is by far the most common mode of introduction. This is particularly true with reference to this disease, because it develops so insiduously, and its presence is not generally recognized, until the secondary stages are reached. In hog cholera or swine plague, the same method frequently serves to spread contagion. In these cases, contact with the diseased animal, or its discharges, is sufficient to start infection. Animals may also come in contact with diseased animals on other farms through the pernicious habit of exchanging sires or dams for breeding purposes.

Another method whereby disease is frequently disseminated is through the medium of the drinking water, where animals have access to streams and ponds that receive the drainage from other farms. In diseases of swine, also in anthrax and black leg, this method of distribution is by no means uncommon. Practically all of the disease bacteria are able to exist or grow in water, so they are readily distributed in this way.

Again, indirect communication is also frequently established by numerous other agencies. Of most importance aside from those already mentioned, is man himself, who through carelessness often serves to bring destruction on his own flocks. Living animals of all sorts, dogs, birds and different vermin, contribute to a greater or less extent.

One channel, the influence of which is greatly exaggerated in the minds of most people, is that of the air. Many of the different disease germs are able to withstand drying for considerable periods, but under natural conditions they are not usually spread for any great distance in this way. Even with a germ that is as resistant as tuberculosis, it is hardly probable that other animals acquire it, under field conditions, except in occasional instances, unless by direct contact with each other. Where animals are closely confined, especially if stables are imperfectly ventilated, the conditions are much severer.

A knowledge of the ways along which disease is spread often forearms the stockman and enables him to avoid trouble, a course that is infinitely cheaper and more satisfactory, although it is difficult to make him see this until he has passed through an outbreak of some infectious disease.

PREVENTION OF DISEASE.

To some extent, it is possible to test an animal for certain diseases, and so determine their condition before others are exposed. The tuberculin test in tuberculosis, the mallein test in glanders, represent this type. It goes without saying that the use of these aids is commendatory in purchasing animals more especially where the owner is sure that his other stock is entirely free from the specific disease.

Where no specific test exists, it is advisable to practice the method that has been of so much service in the limitation of human disease—quarantine. The old idea of quarantine expressed in the very derivation of the word (quaranta giorni; the Italian for forty days) indicated an iron-clad separation for a given period, which was practically the same, regardless of the character of the disease.

Modern bacteriology has largely relieved quarantine of its vigors, because it attempts to apply the proper period of isolation for each respective disease. In some cases, a short detention suffices to determine the fact whether the animal is diseased or not.

While the importance of preventive measures is recognized in the abstract, only a very limited number of individuals take such precautions as would enable them to keep their flocks and herds free from disease. Their especial interest is not awakened in the subject, so long as their herds are doing well, but let an outbreak occur, and the importance of these preventive and restrictive measures appears more concrete. But under such conditions, they are interested more in a "cure". They want immediate relief, something which will save their herds. While this is the condition of the man whose flocks are infected, yet his neighbors need at this time more than at any other, the counsel that looks to prevention, to the avoidance of an outbreak, rather than the healing of one after it has broken out.

CURING DISEASE.

The very nature of most of communicable diseases is such that but little hope is offered of a cure. Where the disease germ has established itself in the animal body and has passed through the necessary period of incubation, generally the trouble is so well seated that a positive cure is often out of the question. Whether the affected animal lives or dies will depend more frequently upon the constitution of the animal than upon any other factor. Our agricultural and veterinary papers are full of reputed "cures" for different diseases of this class, but the great majority are merely nostrums, designed to catch the unwary. In a few cases, as in the iodide of potassium treatment in lumpy jaw, real efficiency has been secured, but this is exceptional. The extensive studies that have been made of late years on the causation and treatment of disease have yielded wonderful results but for the most part success has been more marked in preventive rather than curative medicine. Most of these methods rest upon the principle that disease may be warded off by increasing the immunizing power of the body. This method reaches its fullest value in the anti-toxin treatment for diphtheria in the human species. This refractory condition of the body maybe reached by the introduction of an immunizing substance as in the anti-toxins, or it may be caused by the injection of the living germ of the disease, modified and weakened in its virulence by artificial cultivation, until it is no longer able to produce fatal results.

The use of this latter method has been of great service in such diseases as anthrax, black leg, and hydrophobia, as they generally permit of the saving of the portion of the herd that has not yet succumbed to the disease. In the case of hydrophobia, the remedy is even efficacious after the animal has been bitten and the virus introduced.

This is because the incubation of the disease is so slow that the antidote can overcome the effect of the virus before it has developed sufficiently strong to show physical symptoms of the disease. The present indications strongly point to the development of a similar treatment in the case of hog cholera, but the method has not been tried sufficiently long to warrant definite conclusions as yet.

The Stone Silo.

Ed. Hoard's Dairyman:—On page 107, of the Dairyman, H. P. asks "which keeps silage best, stone or wood?"

I have used a stone silo seventeen years—that is, the lower eighteen feet of the silo is stone and the twelve feet above is stone on the two outside walls, and wood on the two inside walls.

The lower nine feet is in the earth below the feeding floor—in one corner of a stone structure 40x50—the balance of the lower story stables thirty-four cows. It is hardly necessary to say that the walls were well built, for they are seemingly as perfect as when built forty-two years ago.

For a few years, the silage rotted about six inches next the wall, which I attributed to the conducting character of the stone walls. I then lined the walls with ship-lap lumber. I would say rather imperfectly, as the air got in at the cracks and the silage rotted worse than before. I then took out this wood lining, plastered the walls smooth with cement, and I have not had any rotting of silage since.

With this experience, and a pretty thorough study of this subject, I have not the least doubt that what is required for a silo wall is, to be strong, air tight, and smooth, with no overhanging projections or concave spots. If I had stables built for fifty cows

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For 2 cts. I will send one miniature page of each of the three songs. Address the author,

HALBERT L. HOARD, Fort Atkinson, Wis.

and wished to provide them with forty pounds each of silage a day, and was to build a silo outside the stable, as near the stable as possible, I would make it round, say twenty-four feet in diameter, ten feet in the ground, walled with stone or brick and plastered smooth.

Above the walls I should stud it with 2 x 4 lumber, twelve feet high, more or less. I should paper the inside of the studs and then cover with ship-lap lumber as tightly as possible. I have no doubt that good, dressed ship-lap about three-fourths of an inch thick will bend to the studding and make a strong, durable job, and, if covered on the outside in a similar manner, durability would be assured.

Such a silo would be much stronger than the stave silo, and even cheaper than a stave silo, two or three inches thick. I should up end a stick in the center of the silo. It may be a round one from the woods made smooth, or an eight-inch square one with lumber spiked on the four sides, with a groove or slot on each of the four corners an inch wide, which is designed to hold one end of a partition. The other end of the partition is to be held by a similar groove made of two pieces of lumber about ten inches wide, attached to the side of the silo wall, making four apartments to the silo; as the partition boards are placed in position as the silo is being filled.

Inch lumber will be strong enough, if the silage is filled in regularly on all sides of the partitions at the same time. The central post and the side posts cut off the sharp angles at the three corners of each apartment. It will be well to put in the partitions as the silo is filled, which will give an opportunity to mix the silage more evenly.

Such a silo, if properly filled, would contain about 190 tons of perfect ensilage, and the top exposure of the silo, while feeding out, would be equal to that of a silo eighty feet high—no fear of stale silage for the whole year.

Such a silo eleven feet in the ground and nine feet above, surrounded by a lean-to sixteen feet wide, will give ample room for forty-four cows, headed to the center and plenty of space for manger and feeding alley between their heads and the silo.

Now, if we continue this lean-to or structure up sixteen feet more alongside of a friendly bank, preferably on the northwestern side, in such a manner that we could floor from the top story entrance to top of silo—this would admit of the silo being four feet higher; also admit of the ensilage cutter being on a strong table four feet higher, or on a level with the load of ensilage to be cut, and no carrier or elevator required, which is the most troublesome of the machinery used.

In addition to this, I would get sufficient sheet iron to go twice around the top of the silo, turn the ends so as to hook together, making a temporary hopper. When one width was filled, I would add another width on top. This when well filled, I would adjourn the filling for a search for stone, from fifty to about one hundred pounds each in weight, to the amount of about twenty tons, and place on the silage to weight it.

I assume that if the silo was properly filled, that the stone would settle down some four feet and could be taken off and piled away for another campaign. I am aware that weighting is voted unnecessary—can't be put on a thirty foot silo at reasonable cost. But that does not prove that weighting won't pay, both in quality of ensilage and silage room or storage.

I consider that silage room is well worth 50 cents a ton a year, to any farmer that has stock to feed ensilage to.

This last planned silo at 24 feet deep, would hold about 204 tons without weighting, and if weighted as I have described it would hold about 252 tons—48 tons more than the same silo space not weighted, which at 50 cents a ton would be $24. This at a cost of the labor in putting on and taking off the stone, some three dollars.

Objections have been made to the getting out the ensilage from below the feeding floor. I have found that it is less labor to get the ensilage from my lower nine feet of the silo, which is below the feeding floor, than it is to get it from the upper nine feet

The work of feeding ensilage from such a silo is about equally divided between two men, one in the silo to fill the baskets and hand them out to the other who feeds them. Pitching out and down from above, and repitching is more labor than the plan I proposed.

The first seven or eight feet below the feeding floor is handed out very easily. With the aid of a short step-ladder a few more feet can be handed out with little more labor. One great object to keep in view is having the silage as near the stock as possible.

Rocky Run, Wis. UNCLE FRED.

Curing Sore Teats.

ED. HOARD'S DAIRYMAN:—In your issue of March 24, Subscriber, Kerrmoor, Pa., wishes to know how to cure teat on young cow. I am no veterinary, but have had forty years experience with dairy cows.

The first symptoms of a closed teat is scattering of the milk; you rub your finger over the end of the teat and you will find there a glutinous substance. On discovering this, take a small dish with kerosene oil about one-half inch deep in it, and everytime for a week, after a milking, soak the teat for about three minutes in it. I have never failed to cure a case when I started as soon as I saw the first symptoms of it.

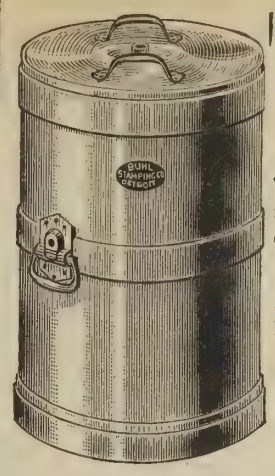
If the teat has got bad, do not pick the scab from the end; take warm water and castile soap and soak it off gently. Picking irritates the teat and makes it sore. It takes a little time, but a man can afford a little time for a good cow, and no man who reads HOARD'S DAIRYMAN one year will keep anything but a good cow any longer than he is obliged to. J. E. ROWELL.

Middlesex Co., Mass.

WHAT IT IS WORTH.

Mr. B. J. Stahlman, of Eddy, N. M., in renewing his subscription says:

Your paper is easily worth $1. of any dairyman's money, if he will just read it and try to profit by its teachings. Then when I get my index at the close of the volume and bind the numbers together, which I always do, I would not take $3.00 for it, for it is one of my most valuable reference books on anything in the dairy line; so you see I get $4.00 in value for $1.00 invested or 400 per cent. It is not every day we can do as well with our money.



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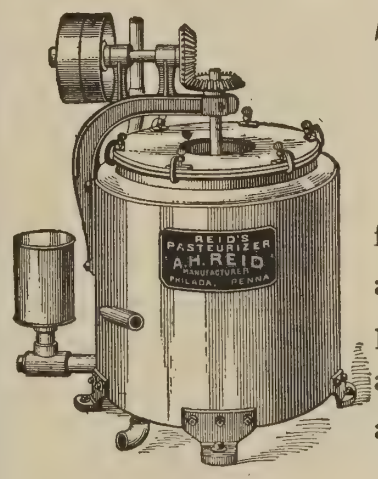
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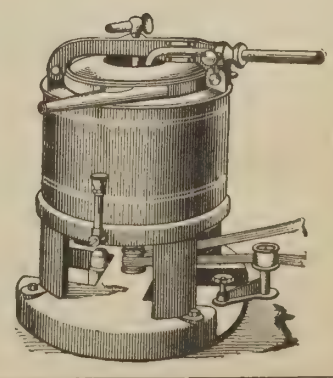
They All Admit It.

Even the strongest opponents of pasteurization are forced to admit these facts; it kills all germs, and removes all garlic and odors or taints in the milk; pasteurized cream produces a more uniform quality of butter, under varying atmospheric conditions and makes the butter keep longer and retain its flavor better.

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A Hood Farm Record.

Dam, Daughter and Granddaughter.

ED. HOARD'S DAIRYMAN:—The following table gives the year's yield of Oneida 2nd 43553, A. J. C. C., and Onwa 59628; Oneida 2nd has a weekly butter test of 17 lbs. 4½ ozs.; her sire Combination 3rd, is by Combination out of Coma, a daughter of Combination; her dam is Oneida, a daughter of Combination.

MILK AND BUTTER YIELD OF ONEIDA 2ND. 43553 AT HOOD FARM FOR ONE YEAR BEGINNING OCT. 25, 1896.

1896.	Milk.	Per cent Fat.	Estimated Butter*.	GRAIN FEED CONSUMED. Bran.	Corn.	Oats.	Oil Meal.	Cottonseed Meal.
	Lbs.		Lbs	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
October 7 days	175.13	5.0	10.50	24		7⅛	3⅛	
November	1,119.9	5.4	72.54	168⅛	84	161⅛	52½	
December	1,230 10	4.7	69.37	220¼	209	225	81½	34
January, 1897	1,070.13	5.2	66.81	186	129	189⅛	55⅓	31
February	844.12	5.2	52.71	168	100	110	28	28
March	825.13	5.0	49.54	162½	100	117	58	
April	815.3	5.2	50.86	155	100	98	45	
May	851.6	5.0	51.09	150⅛	90	73	41	
June	841.15	5.3	53.55	120	80	70	30	
July	733.5	5.4	47.51	124	85	70	31	
August	797.1	5.3	50.68	194	85	70	31	
September	642.12	5.0	40.87	120	75	67	30	
October 17 days	222.3	7.8	20.77	51	10	10	8	
Total 11 mos. 24 days	10,171.3		636.80	1774	1147	1268⅛	495	93
Daily averages	28.5	5.34	1.12⅓	Mixed grains 13⅔ lbs.				

MILK AND BUTTER YIELD OF ONWA 59628 AT HOOD FARM BEGINNING FEB. 25, 1898.

February 4 days, 1898	149.1	4.4	7.86	25½		12	4½	
March	1,225.7	4.4	64.68	210	107⅛	74½	46	14⅓
April	1,115.6	4.8	64.22	180	150	90	60	30
May	1,174.3	5.2	73.25	146	178⅛	93	46¾	50
June	955.0	5.6	64.17	97⅓	106	68½		42⅛
July	891.14	5.7	60.94	124	127	93		44⅓
August	917 9	5.4	59.42	124	124	93		46½
September	808.1	5.8	56.23	120	120	88		45
October	765.1	6.1	55.99	124	113½	77⅛	46½	
November	666.5	6.0	47.95	120	90	62	45	
December	602.12	6.2	44.78	124	93	47⅓	31	
January, 1899	571.13	5.6	38.37	124	71⅓	31		31
February 24 days	387.8	6.7	31.11	96	33⅓	19		12
Totals	10,230.0		668.97	1615	1314⅓	849	279⅓	316
Daily averages	28.	5.5	1.13¼	Daily grain fed 12 lbs.				

* Adding one fifth to test.

Onwa has a weekly butter test of 18 lbs. 13½ ozs.; sire, Diploma, son of Combination, dam, Oneida 2nd. Thus it will be seen that Onwa is inbred to a certain extent. The enclosed yields will give the readers of your valuable paper the result of such breeding. It seems to me that this article would not be complete without the yield of Oneida 42100. She has a weekly butter test of 16 lbs. 13 ozs. and has given us in the last two years 23,141 lbs. 10 oz. milk, that yielded 1,211 lbs 9 oz. butter. Her average Babcock test was 4.43 per cent fat, and her average daily grain ration was 14 lbs. JAMES E. DODGE.

Hood Farm.

The Soja Bean as a Substitute for Clover.

ED. HOARD'S DAIRYMAN:—In your issue of April 14 I note an inquiry by T. A. W., of Mo., in regard to cow peas for winter dairy feed. Having had some experience, with them, I will report what I know about peas.

A few years ago, after scoring my fifth consecutive failure on clover, I gave it up and turned to cow peas. They did not fail, but, Oh my! the memory of their harvesting makes my back ache now after four years' rest.

The vines grew from twelve to fifteen feet long. They were waist high, all in a tangle, rotted next to the ground, and when cut with a mower it took two men and a boy to part the swath before I could cut another swath.

I could have rolled up the cut swath like rag carpet for two hundred yards in a strip without a break in it.

They were so matted and lodged that it was impossible to cut them clean. Some vines, after the swath was torn apart, showed three or four feet of uncut vine straightening up towards the sun. The vines would not cure evenly. The leaves on top parched and shattered off while the vines were still green and wet underneath. There were only a few seeds on them. The soil was quite rich.

On thin soil they are somewhat more prolific and do not run to vines so badly. Horses and cattle ate them fairly well after they got used to them and I considered them a good forage crop, but not good for hay as they take too much work to cure and if a soaking rain comes, they are almost sure to rot enmasse, for it is next to impossible to tear them apart and dry them out as you can clover.

The next year I tried the medium early soy and soja beans and will not bother with either clover or cow peas any more. Instead of waiting fourteen to sixteen months for a more than uncertain clover crop, I can grow as much and better feed in four months' time. Instead of having to cut the crop inside of a week, wet or dry, to get it at its best, I can have six weeks time to suit the weather and my convenience in which to cut.

Instead of a long sprawling, matted, rotting mass of vines, I have an upright growing plant holding its leaves and stem up out of the dirt, with large pulpy leaves which cure much quicker and more thoroughly than the cow peas. They can be cut at any time for feeding, either green for soiling or for hay from the time they bloom till ready to ripen for a seed crop.

Alfalfa is a very uncertain crop here in Illinois and of little or no value the first year for either pasture or hay, and only grows on porous clay loam. Cow peas are good crop to grow to plow under, or pasture off, but if you try to grow them for hay you will be disappointed.

Clover yields no grain crop for feeding purposes. Cow peas on very rich soil run to vines with few seeds. On thin soil they yield better, but make less forage and hay.

Soja beans thrive on any soil. They will grow where it is too poor to grow clover, and unlike cow peas will yield all the more both of hay and seed on rich soil.

With us in central Illinois, cow peas will yield seed, 10 to 20 bushels per acre, soja beans 10 to 60 bushels. Cow peas will tear the "inards" out of a threshing machine with their long tough vines, but sojas thresh easily.

As to the comparative value of the three crops, according to the Government bulletins, clover contains when cut green, 4.4 per cent of protein or nitrogen condensed into food; cow peas contain 2.2 per cent; soja beans 4 per cent. Of fat or carbohydrates, clover has 1.1 per cent; cow peas 0.4 per cent; soja beans 1.0 per cent. If made into hay they contain respectively 12, 16, and 15 per cent protein but if the seeds are allowed to mature on the vines, they add to the latter in their composition as follows: Cow peas, protein 20 per cent; fat 1.4 per cent. Soja bean seeds add 3.4 per cent of protein and 17 per cent of fat.

Soja seeds are two per cent richer in protein than oil cake meal, 20 per cent richer than wheat and oats, and 24 per cent richer than corn. Of fat the sojas contain 17 per cent, linseed oil cake meal 3 to 7 per cent, corn 5 per cent, bran and middlings 4 per cent.

When siloed with green corn, the sojas make a perfect balanced ration. For calves and pigs, the beans, either green or dry, make the best possible feed, to produce health, bone and muscle.

In protein or fat they are a rich condensed food, far superior, in fact, to any of the high-priced mill products, and one you can grow anywhere and on any soil. If fed judiciously there is no danger in feeding them to any stock as a hay crop, but the seeds are too rich to feed horses; they are too loosening, owing to the fat in them.

Both the cow peas and soja beans can be sowed broadcast or with a grain drill for a hay crop, but for a seed crop it is better to plant in drills, 20 to 30 inches apart, and 10 to 15 inches apart in the row. A drill corn planter does the work nicely, and they require but little cultivation. A half bushel to one bushel will sow an acre for a hay crop, and for seed in drills ¼ bushel is enough.

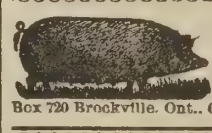
Either crop will add to the fertility of the soil where grown, enough to pay a good rental. When they become known and rightly appreciated, they will become for the farmer and dairyman as much a standard crop as corn or oats. W. H. S.

Macoupin Co., Ill.

In Favor of Oleo.

ED. HOARD'S DAIRYMAN:—Much has been said and written against the manufacture and sale of butterine, and in favor of the anti oleo bill, which is to be pushed in next Congress. Now, if admissible, a word or two might be said on the other side of this question, which might have the effect of provoking discussion, which might set some right, who may have a wrong opinion.

If we are rightly informed, the proposed bill increases the tax on oleo 10 cents per pound, and prohibits the use of coloring, which will practically suppress the business.



Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale. R. G. STRACY. Box 720 Brockville. Ont., Canada.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

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Two Yearling Bulls FOR SALE out of tested dams Sired by Maquill's Major 40804, son of Maquilla's Violet, 31 lbs. 1 oz. Will be sold cheap if taken at once. Write for prices to W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.

Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
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JERSEY COWS

all fresh. Also three yearlings and five calves. This stock will be the foundation for as fine a herd as there is in the state and will be sold at a bargain.
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Hood Farm Jerseys For Sale.—Bull dropped Sept. 21, 1898. Will do to show. Is handsome, stylish and has some white markings. Sire, Pedro Signal Landseer, half brother of Eurotisama., 27 lbs. 11½ oz., in 7 days, 945 lbs. 9 oz., in 1 year. Dam, Maquilla of Hood Farm, test, 14 lbs. 13¾ oz., when 3 years 8 months old and in same year she gave 7281 lbs., milk testing 5¼ lbs. 13 oz., butter, by Fancy's Harry. Write for price. HOOD FARM, Lowell, Mass.

St. Lamberts AT PUBLIC SALE!
COLUMBUS, O., JUNE 8, '99.
Send for Catalogue.
J. P. BRADBURY, . Pomeroy, Ohio.

Introduce Milking Jersey Stock
INTO YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

We Have Sold

SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think genuine bargains. We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

For Sale . . .
BULL CALF,

Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8¼ oz., in seven days. He will be sold cheap.
P. J. COGSWELL, Rochester, N. Y.

BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested Above the fever line, so we can ship anywhere.

Some Choicely Bred
BULL CALVES

out of great cows and by the best sires for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

High-Class Jerseys

— THE BLOOD OF —
COMBINATION
(Sire of 25 in list) through
BROWN BESSIE
(Champion Butter Cow at World's Fair), and
DIPLOMA 16219
(Sire of 48 in list including MERRY MAIDEN.)
Young Bulls, also Cows and Heifers bred to Recorder 29239—son of Brown Bessie.
Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

MILLER & SIBLEY'S JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. 224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys.

THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood
Into Your Herd.

SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

Now the writer questions very seriously the justice of such a measure. There are thousands in limited circumstances, who prefer to use butterine at 15 or 18 cents per pound, than to do without butter of any kind, because they are not able to pay 25, 30 or 35 cents per pound. It may be claimed that they can obtain butter at this time of low prices, for less money; this is admitted, but what they get is butter in name only, at least half the time, with coloring added.

I am acquainted with a host of families which use butterine, not because they are compelled to for want of means, but simply because they can procure a better article than they can get in buying so called butter as sold in our markets.

We know from personal observation, and have also heard the statement made over and over again by consumers, that butterine is preferable for table use to the average country butter found on our markets, outside of creamery and the so-called guilt edged articles. Now if the butterine manufacturer can make a better article at less money, why not let the people have the benefit of it?

Mr. Editor, is it not time to give the overworked farmer's wife a rest? She has been trying these years to make the butter of the country, at a disadvantage, and this drudgery has told on her both mentally and physically.

Now if we have mechanical and chemical and what not processes, that give us a better article for the same price, or less, it would seem to be the thing to have. Let the farmer produce the fats required in the manufacture of oleo and butterine, and get his income with less worry and work, and his wife and daughter have more time for mental culture and social enjoyment.

This bill prohibits the coloring of butterine, but allows the careless, slovenly butter maker, which, alas is too often found on our farms, to bring her greasy compound with variagated smells to market, with all the coloring she has a mind to use, in order to deceive the buyer. I ask, would not the passing of this bill be a clear case of class legislation?

If this fight is between the creamery and oleo people, which seems probable, I would say, let them fight it out; or if the consumers of these products have a grievance, claiming they are imposed upon or defrauded, let them fight the battle; but as long as we as farmers are sure of the job of furnishing the material for either process, and as a rule opposed to class legislation, can we not afford to stand aloof?

If you see fit to publish this squib, it will be a target that will no doubt draw fire from some one, and as fire is purifying, it might be just the thing we want to clear up our ideas on this subject. FAIR PLAY.

Ohio.

The law does not prohibit the manufacture of oleo, nor does it tax uncolored oleo. The proposition is to tax colored oleo so that it shall not be sold as butter to those customers who prefer the product of the cow. Those who wish to buy the compound of paraffine, cotton seed oil and animal fats, which is sold as oleo, can still continue to do so, but the tax will prevent its being colored in imitation of fine creamery butter, and sold at a large profit, to those who may have an old-fashioned prejudice in favor of butter, and against paraffine, as an article of diet.

Cedar Hill Dairy Notes.

Dairy House Construction.—Butter and Cream Notes.

ED. HOARD'S DAIRYMAN:—Since my last communication we have been more than busy at Cedar Hill, arranging our farm work, building creamery, hen houses, etc. Our creamery now has three rooms, and all rooms are bricked between studding and plastered, making cool rooms in summer and warm in winter. Our room for refrigerator, butter worker and printer, is so built that morning is the only time during day when the sun can strike it.

Our separator, churn and cream vat are in a room 14×16. Boiler is in a room by itself, so that the heat from it does not affect creamery proper. We have our boiler bricked in, which is a saving of fuel.

We secured a plum in our cream vat. The vat was especially built to exhibit at last winter's state dairy meeting, held at Galesburg. It is a natural wood vat with a liberal ice-box on end. Speaking of cream vats and cream, reminds me that hot weather is soon to be with us again and soft butter will be the reward of those who do not do the act properly.

I find that we have a solid, fine grained butter in the hottest weather by following this method: Run cream over aerator, full of ice-water, cooling down to 50 or 55° F., then put in vat and use plenty of ice; hold in vat within 24 hours of churning, then warm up to 70 and put in a liberal starter. Do this in morning, in evening stir well and again add ice, so cream will be at 55 or 58° F. until next morning, when it will be churned.

This method can be used in daily churning by adding starter in the morning and ice at night. The cream cooled for 12 hours will always make a better grained butter than if cooled just before churning.

We have in our stables 32 Jerseys in milk; 7 of them are two years old, with first calves; 9 cows are only strippers. Yesterday our two days' cream churned out 60½ pounds of butter, and since then the herd has gained 29 pounds of milk, which is the result of turning cows on grass at night as well as during the day.

Yesterday we ordered cotton seed meal and think it is the first that ever came to Warren County as a feed for milch cows.

Monday we will have a 200 egg incubator full of Plymouth Rock eggs, come off, and Tuesday one of 200 eggs of Single Comb Brown Leghorn chicks. Will report later.

"BUFF JERSEY."

An Increased Production of Butter in Australia Looked For.

ED. HOARD'S DAIRYMAN:—It is well known that Australia's butter industry, which showed such rapid development at the start, has been checked the last three years by severe drouths in the dairy districts. Had it not been for these drouths it would not have been unreasonable to have looked for last year's exports amounting to 750,000 boxes.

It must be borne in mind that the production of butter, to be sold in England at even 16c or 18c a pound, is about as profitable business as farmers in Australia and New Zealand can be engaged in. This assertion has been made by some of the best posted people in the dairy interest in these two colonies of Great Britain.

The increase in the number of dairymen has been constantly going on, and had this not been so the shipments from these two colonies, to Great Britain, would have fallen off much more than they did, in consequence of these drouths having been so severe. It not only killed off a great many, but lessened the producing condition of cows greatly.

As anything that may have a bearing on the output of butter from the antipodes, an extract of a letter from parties who are largely engaged in the exporting of butter from Australia, may be of interest to those engaged in the butter industry in this country.

Under the date of Melbourne, March 23, 1899, these gentlemen write me as follows: "Now, as regards this colony, we have had wonderfully good autumn rains, which mean first-class natural feed throughout the country during the autumn and winter; in fact, these rains are the best we have had in this colony for some years. During the last three or four years we have had warmish summers and no autumn rains, resulting in the cattle coming into the autumn and winter in rather poor condition, and there being no feed, through the want of rain, they simply existed; in a great many instances they starved; and this means they came into the spring without heart and in a miserable condition, besides there being a considerable shortage from mortality.

This season it looks altogether different; we have had a very good spring and summer, the latter being exceptionally cool, though during February we had a spell of warmish weather, but the weather is now again cool, and we have had the rains before mentioned, and we therefore look very hopefully towards next season, as there will be an increase in the dairy stock and they will come into the next season in thoroughly good condition, so we expect the production will show a considerable increase on the past four seasons.

The exports to Great Britain are in the neighborhood of 320,000 boxes of 56 pounds each, this season."

Boston. GEO. A. COCHRANE.

Packing Butter in Brine.

ED. HOARD'S DAIRYMAN:—A subscriber from Florida complains in a recent issue of the DAIRYMAN that in spite of all precautions and scrupulous cleanliness, etc., the butter will get strong in a few days.

Dairy literature of the present day is replete with sugges tions as to the importance of cleanliness, proper ripening of the cream, purity of the salt used, about scalding and exposing to the sun all utensils used in the dairy and so on; but very little has so far been said about how to prevent butter from being contaminated by the germs in the water that is used to wash out the butter milk, which are able to undo all other precautionary measures.

The Danes, who rejoice in an international reputation as the banner butter makers of the world, use only water that has been sterilized (boiled), knowing that even the clear, cool water, from the deep well, is just as apt to be impure as any other.

Boil the water the day before the butter is to be made; if salt is used boil it along with it, cover and set away in a cold place. Strain it before using; provide brine as strong as salt will melt (also boiled), strain into jar considerably larger than would hold the quantity of butter that is to be preserved; drop i nto the brine, see that the brine surrounds the butter at bottom, sides and top. Something heavy to keep the butter all under brine, must be placed on top so that it cannot turn lopside; otherwise the butter will swim on top.

It is surprising how long butter will keep sweet if protected in this way. Yes, cheese can be made profitably from one cow's milk, if a good curing room is available; a sweet curd cheese would be most convenient as it takes less time to make it and is a better keeper and can be held until opportunity is favorable to sell.

Sometime hereafter, will give receipt for cheese making that is suitable for a small quantity of milk. M. SCHEMBRI.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

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Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

Holstein-Friesian Cattle.
Stock of both sexes for sale, from such families as Parthenea, Scolton, Pietertje and Netherland.
L. F. JUDD & CO., Bloomington, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis.

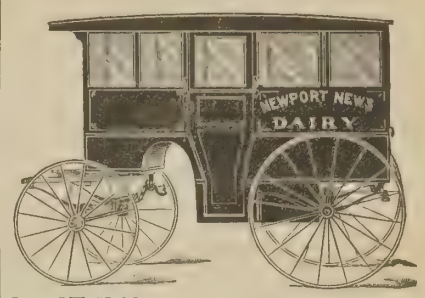
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Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

A GREAT RISK
For dairymen in using as head of their herds cheap bulls. Do you know that the bull is half the herd? You may have a handsome appearing animal, but lacks in that of the most important, breeding. Only inherited dairy qualities breed on. **Valley Mead Farm** has sent out bulls to head the best herds of Holsteins in the country this spring. Thus a fact which goes to prove that the bulls bred at "Valley Mead" have no superiors in the world. A bull costing $100 is one we recommend. Start in now. Organize a company if you can not afford one alone. Address
Valley Mead Farm, Monticello, Wis.

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In STYLE, CONVENIENCE and DURABILITY.
Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,
THE NATIONAL WAGON CO.,
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Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America.
Breeding Stock for Sale. Inspection invited.
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CHAMPION HERD
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1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

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First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
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Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
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FRED TSCHUDY & SON, Monroe, Wis.

Mr. Wheaton's Canadian Dairy Notes.

Spring Dairying.—Canadian Dairy Exports.—Prices of Dairy Products.—The Dairy Outlook.—Cheese Curing Rooms.

ED. HOARD'S DAIRYMAN:—On May 1st began a new season in connection with the dairy industry of this country. After the close of the factories in the fall it takes till the end of April of the following spring to dispose of all the product.

The disposal of this very product has been done very effectually this spring. On May 1st there was little if any old cheese held on this side of the Atlantic, and what there was was held on English account.

The total exports of cheese from Montreal, for the past season from May 1st, 1898 to May 1st, 1899 amounted to 2,374,414 boxes as against 2,603,084 boxes for the previous season, showing the large deficit of 228,670 boxes. The exports for the same period from New York were 407,879 boxes, as compared with 735,944 boxes for the year previous, showing a decrease of 328,065 boxes, and making the total decrease from Canada and the United States 522,431 boxes. The total value of the Canadian cheese exports was about $15,500,000.

Turning to butter we find a more satisfactory showing, in so far as Canadian butter exports are concerned. The total exports of butter from Montreal from May 1st, 1898 to May 1st, 1899 were 370,225 packages as compared with 265,912 packages for the previous season, an increase of 104,313 packages. The total exports from New York for the same period were 152,206 packages against 201,827 packages, being a decrease of 49,621 packages and making a total increase from the two countries of 54,692 packages.

During the season, prices for dairy products were very well maintained, especially the latter part of the season.

At the beginning of the season prices for cheese were low and contined so until well on through the summer when the great falling off in the make caused the market to advance considerably. But as is often the case, the factorymen did not get the full benefit of the rise as most of the fall cheese was in the middlemen's hands, before the highest prices prevailed. This fact however was not altogether a misfortune to factorymen as they are likely to reap the effects of it in better prices for the new season's make.

Prices for creamery butter at the close of the season were about the same as they were at the beginning, namely: from 16½ to 16¾ cents at the factories. Higher prices, however, prevailed during the greater portion of the season, the winter creameries realizing from 19 cents to 20 cents for nearly all their out-put. This fact, when the increased exports are considered, must be very gratifying to those interested in the development of an export butter trade.

It may be well just here to look forward a little and see what is in store for our dairymen in connection with the season upon which we have just entered. Our cheese trade has reached such proportions that a decrease in exports occassionally is really a blessing in disguise. We have frequently pointed out that this trade has about reached its limit in so far as quantity is concerned. Consequently in any year when there is an unusually large make, as was the case in 1897, low prices are sure to prevail. And so it is, that the large deficit of the past season has served to restore prices to a good paying price, and to make the prospects for this season better than they have been for the past year or two. A year ago, old cheese was selling at from 8½ to 9 cents, while to-day it is quoted 11c. Last year at this time, fodder cheese sold at 8 to 8½ cents at Montreal. While this year it is worth from 9½ to 9¾ cents. Of course this better price will cause a largely increased make which may overstock the market and bring with it low prices again.

On the surface the outlook for butter does not appear so bright as that for cheese, yet our creamerymen have nothing to be discouraged in regard to it. Dairymen, when they compare the price of butter with that of cheese this spring consider the former low in price; whereas it is just as high as it was a year ago and with the prospects for a big season's trade, brighter than they were a year ago at this time. Activity in exporting circles is beginning earlier and with the enhanced reputation which Canadian butter got through last season's trade, we may look forward to a very large increase in that trade during the present season.

Last season the value of our butter exports was considerably over $4,000,000, thus making the total value of our exports of dairy products fully $20,000,000, no small amount to come into a country like this for distribution among the 180,000 persons directly interested in this great dairy industry.

Curing rooms and curing cheese continue to be interesting topics in dairy circles on this side. Considerable has been said and written in regard to these, but too much advice cannot be given so long as it is good and sound, and thoroughly practical. As a rule, it takes years of preaching and teaching, where so many different factors are concerned, to obtain anything like perfection. And so our advice to those who are engaged in this good work is, never to let up till every curing room is properly fitted up for curing the cheese, as it should be cured; and not only that, but never stop this good work till every factory has proper and efficient sanitary arrangements.

A somewhat new interest has been created in this subject of curing rooms, by a recent action of the local government for the Province of Quebec. This action is nothing more than the offer of a premium of from $100 to $200, as to the size of the curing room, to each factory in that Province that will fit up its curing room according to instructions furnished by the Department of Agriculture, so as to control the temperature and moisture and cure the cheese properly.

While many may not favor bonusing industries in this way, they cannot help but admire the determination and zeal displayed by those in authority in our sister province, in their efforts to improve the quality of their dairy output.

This premium offer should not only be an incentive to the dairymen of Quebec to put their factories in order, but should stimulate those in other provinces, and especially in Ontario, where no such inducement is given to do likewise, lest they lose the place they now occupy as the banner producing section of the Dominion.

The instructions given and the conditions laid down by the Quebec authorities, upon compliance with which a premium may be secured, are such, that if fully carried out, cannot help but result in great improvement in the quality of cheese made in that Province. These conditions are divided into four groups; those relating to the construction of the factory, and to the curing room in particular; those relating to the ventilation, cooling and heating of these rooms; those which concern the general laying out of the factory, and those relating to the manufacture and other questions.

In the construction of the curing room, special attention is given to the walls. Over the double outer-lining of boards, two layers of felt paper are laid, and over the paper double clap-boarding. Over the double inner lining of rough boards there is to be one layer of paper; on the paper, strips two inches wide and one inch deep. On these a double thickness of one inch rough boards and on these two layers of felt paper, finishing up with a double thickness of planed boards. This mode of construction will be required on the inner walls, separating the curing from the working room, and the floor must be such that it will not sag or sink.

Proper ventilation must be provided, and cylinders for putting ice in to keep the temperature down in the hot weather, must be put in. (We have not space here to describe fully these ice cylinders, but may do so later on.) Where possible, the curing room must be heated by steam pipes fed from the boiler. For controlling the humidity in dry weather, there should be a steam pipe with a small valve which may be slightly opened when needed.

Respecting the construction of the factory, generally it should be built on high ground where the drainage is good. The working room should be well ventilated, and in no case must the whey vat be placed under the factory. In short, the plant must be sufficiently good to permit of the manufacture of first-class cheese before any bonus can be secured.

The conditions respecting manufacture,

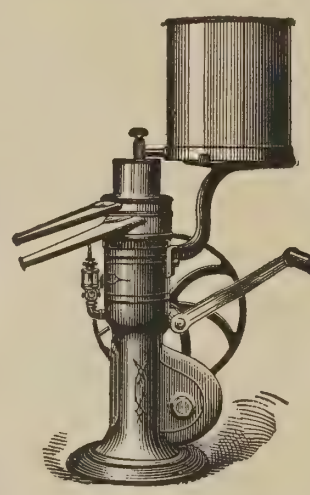
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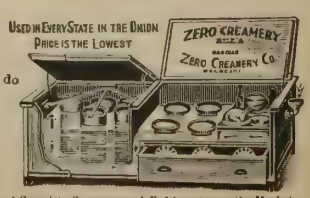
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ZERO CREAMERY CO., PERU, IND.

etc., are worth quoting in full, and are as follows:

1. That the factory should, if possible, belong to a syndicate, if there be one in the region where it is situated. If there be none the person in charge of the factory shall submit to its being inspected whenever the Government requires.

2. It shall bind itself not to ship any cheese which has been less than a fortnight in the curing room.

3. The manufacturer shall bind himself to wash out the whey vat every day. (We wonder how many makers elsewhere would like to undertake such a task.)

4. He shall keep a record of the temperature on blank forms to be supplied them by the Department of Agriculture.

5. The water used shall be as pure as possible.

From this necessarily condensed resumé of the conditions laid down for receiving this bonus, it will be seen that, if the factories largely take advantage of the offer and obey the instructions given, the province of Quebec will be placed in the very front rank in so far as well equipped and properly made factories and curing rooms are concerned.

Toronto, Canada. J. W. WHEATON.

Concerning the Healthfulness of Silage as a Food for Cows.

ED HOARD'S DAIRYMAN:—G. E. H., Hamilton, Ont., writes: "Our local board of health contemplates condemning silage as a food for dairy cows. I am interested, having built silos for farmers."

It hardly seems possible that boards of health in these days can seriously consider such action as is here reported. Of course there is such a thing as bad silage, and where such is used the milk produced from it should be condemned, but silage as a food for dairy cows should not come under the ban of any board of health simply because it is silage. The prejudice against silage still lingers and works to its detriment in some cases.

For example, it is often quoted that the milk condensing factories will have nothing to do with milk produced from silage-fed cows. Probably this prejudice arose in the early times when very green, immature corn was converted into silage with a sour, unsatisfactory product resulting. That the milk condensing factories are hardly warranted as a class in taking the position they do at the present time, is nicely brought out by the experience of the factory at Lansing, Mich., which I have reported in "Feeds and Feeding." The story runs that the factory people were greatly pleased with the milk received from a certain patron, both because of the large quantity turned in and its satisfactory character. After noting with satisfaction the product of this party, the managers of the factory were surprised to learn one day, that for some time past he had been feeding silage. At first they were disposed to be excited over this finding, but wisely reasoned that as they had been praising this particular milk they could hardly now raise objections to it, because of the discovery that silage was being fed. Like good business men they allowed their prejudice and preconceived notions to melt away, and raised the question whether or not it would not be a good thing for the factory if more farmers fed silage. As a consequence of further investigations, the Michigan Milk Condensing Co. prepared a pamphlet of nearly one hundred pages, telling how to build silos, how to fill them, and how to feed the silage.

This pamphlet was distributed gratuitously among the patrons of the condensing factory, who were urged to build silos and feed silage. At present quite a portion of the milk received at this factory is from silage fed cows, and the experience covers a sufficient number of years to preclude all possibilities of error in regard to the wisdom of recommendations for silage feeding, made a few years since.

It is a fact that silage is fed upon many of the best dairy farms in America, both where milk is produced for direct consumption in the cities, and for cream trade as well as for butter and cheese. A couple of years since the writer found silage extensively used at Governor Morton's farm at Rhinecliffe, N. Y. A ton of milk a day was being shipped to New York City and sold at fancy prices.

A visit to the Havermeyer farm, Mahwah, N. J., revealed the same situation. At the Twombley farm, (Mr. Twombley is a son-in-law of W. K. Vanderbilt) Mr. Hope, the dairy manager, was using silage. Mr. C. I. Hood, the noted Jersey breeder at Lowell, Mass., was found using silage.

A notable instance is that of Mr. Francisco, at Fairfield, N. J. Mr. Francisco started in the milk business in the humblest manner. His first effort was in carrying by hand from house to house, milk produced by one cow and her two heifers. From this small beginning his dairy interests advanced until at the time of my visit he was selling milk of 180 cows, and that was the smallest number milked at any time during the year, for it was the summer season, and a goodly portion of his patrons were away from home at the seashore. Mr. Francisco's trade is in the Oranges and Newark, N. J. His great stables and beautiful spring house are all kept scrupulously clean and neat. While on my visit of inspection, several visitors called at the office and pleaded with the manager to furnish them milk, saying they were willing to pay any price for milk that had the reputation his had. At the stables, silage fed the day of my visit, which was in August, and I was told that it was given to the cows every day throughout the year.

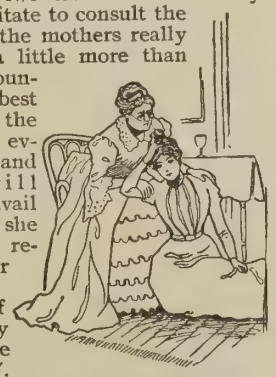
Now, how can such things as these be if silage is really the poor feed which some claim? A rich man's name, or the advertisements of some firm, may induce people to try their goods, but no one will use milk or other dairy products long, which are really poor in quality, simply because they are well advertised, or have some great or wealthy man's name behind them. People would not long use milk from Governor Morton's farm, or from Mr. Francisco's great dairy if it were really of low quality.

W. A. HENRY.
Wisconsin Agricultural Experiment Station.

THE secretary of the National Butter Makers' Association has issued the report of the seventh annual meeting, at Sioux Falls. We are requested to state that only those members who are in good standing will receive a copy. Butter makers and others, who send $1.00 to the secretary, at Elgin, Illinois, will receive a membership card and report.

If all young women could have the right sort of motherly advice much of the unhappiness of the world would be avoided.

There are two troubles in the way. The girls hesitate to consult the mothers and the mothers really know only a little more than the girls. Counsel of the best sort is at the command of every woman and if she will promptly avail herself of it she will soon be relieved of her troubles. Thousands of women, every year, write to Dr. R. V. Pierce telling their symptoms and asking his advice, which is freely given without cost.



For over thirty years Dr. Pierce has been and is to-day chief consulting physician of the great Invalids' Hotel and Surgical Institute, at Buffalo, N. Y. He is a specialist in the diseases of women and his "Favorite Prescription" has had the greatest sale of all medicines ever devised for the cure of the troubles peculiarly feminine.

Every letter addressed to Dr. Pierce is held sacredly confidential and has the most careful attention.

No testimonial letter is ever published until the written consent of its author has been given.

Mrs. Mary E. Lewis, of Tanner, Gilmer Co., W. Va., writes: "For fifteen years I suffered untold misery. I had given up all hope of ever getting well. I could not lie down to sleep, and everything I ate would almost cramp me to death. Was very nervous and could hardly walk across the room. I only weighed ninety pounds when I commenced taking these medicines; I now weigh one hundred and forty pounds and am having better health than ever before. I have taken the 'Favorite Prescription,' the 'Golden Medical Discovery,' and the 'Pellets.' I take great pleasure in recommending your medicines to the sick for I know that if it had not been for them I would not have been living to-day. I am very thankful to God, who put the great power in your medicines that cured me."



JOHN SHUGART & SON,
Breeders of
Holstein Friesian Cattle.
Also Wholesale and Retail Milk Dealers.

National Military Home, Ind., Mar 21 1899.

Glucose Sugar Refining Co.
Chicago, Ill.

Gentlemen

The Gluten Feed finally got here. It arrived here the 16th, was glad to get it for our cows were failing in their milk every day. They have gained in the last four days to twenty five gallons more per day than they were while we was out of the Gluten Feed.

We think Gluten Feed is second to none as a milk producing feed, it makes more milk and better milk than any other feed we can get.

Yours Respectfully
John Shugart & Son.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery. CHICAGO, ILL.

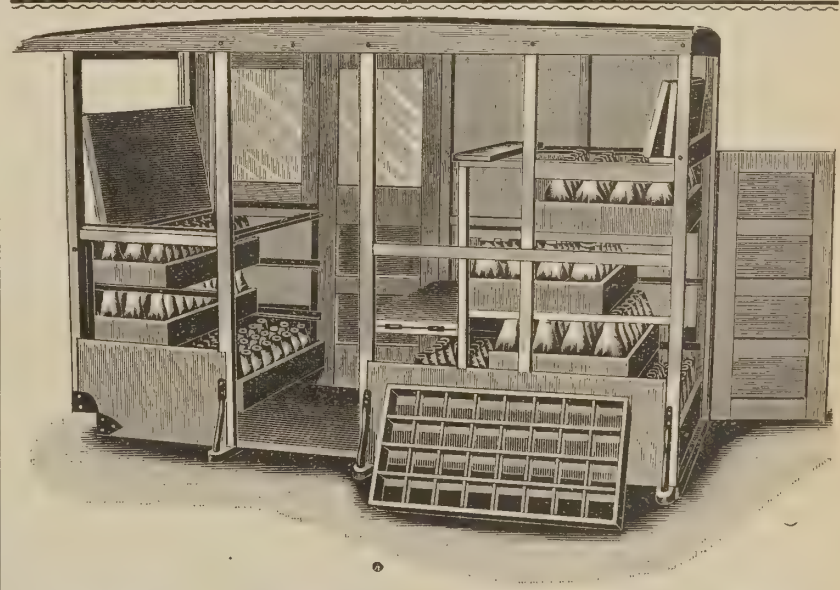
Ohio Prohibits Coal Tar in Food.

The great dairy state of Ohio says that coal tar is dangerous as a food product. Coal tar is the base of much of the butter-color now on the market, and butter in which it has been used is declared by law to be unfit for food. If you wish to know whether the butter you are eating is colored with coal tar, send to us for the material for making the test and we will mail it to you free of cost together with directions for its use.

Thatcher's Orange Butter Color

Is a pure, healthful vegetable color, free from deleterious substance. It gives butter the delightful June tint. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.



We illustrate above one of Shipman Bradt & Co.'s very convenient arrangements for carrying bottled milk in their low down, short turn dairy wagons which you will find advertised on cover page of this paper. This is a new departure in dairy wagons and is in line with the advanced ideas of the leading dairymen of the country. The plan of delivering milk in bottles is rapidly growing in favor with both the dairymen and their customers, and this illustration of a thorougly convenient system, economical of space, built right into and a part of the wagon, has been brought to our notice. All of the crates with the exception of the lower one in front, slide back and forth, giving the driver easy access to all bottles from his seat near the center of the wagon. The crates are removable and can be taken out and filled in the milk room. The front and rear are both completely enclosed and thus protected from the outside atmosphere. Where it is desired to carry ice, these two compartments are lined with galvanized iron, leaving an air space between the iron and the outside of the wagon, thus making it practically equal to a refrigerator.

The wagons built by this firm are especially adapted to carrying bottled milk for the following reasons, viz.: the body of the wagon is rectangular, there being no jogs or offsets, thus giving unbroken space inside of the wagon for your crating, and, in fact, much more room inside for the same size and weight of body than the wagons with a jog in the box. The body of the wagon hangs low—only twenty inches from the ground—hence your load (although the wagon is crated nearly to the top) rides much steadier and better than in a higher wagon. The wagon is just as low at the rear as it is at the sides, which makes it easier and more convenient to load the most of your milk from behind.

We believe that this firm has what many of our progressive dairymen are looking for and we bespeak for them a great success in this new departure. You can get a complete description of all of their different systems for handling bottled milk by addressing, Shipman, Bradt & Co., DeKalb, Ills.

Our Special Elgin Letter

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 13,380 pounds. Bidding opened at 17 cents and advanced to 18½ cents, but manufacturers refused to sell. Bidders were not eager to pay more, and the call closed with no sales made. The Quotation Committee announced the market steady at 18 cents.

The sales for the corresponding week of the three preceding years were as follows:

May 16, '98, 17,460 lbs. of butter sold at 15 cts.
May 17, '97, 15,960 lbs of butter sold at 13⅝ cts.
May 18, '96, 37,920 lbs. of butter sold at 15½ cts.

The New York market was reported firm at 19 cents. H. C. B.

Elgin, Ill., May 15, '99.

Cultivation of Vetches.

ED. HOARD'S DAIRYMAN:—I see in the DAIRYMAN of April 21st, J. P. D. asked about vetches. I presume he sowed his vetches in the spring; they must be sown in the fall, one and a half bushels to the acre. We prefer them, in Oregon, to the Canada pea. They will yield twice as much feed and of a better quality. Sow on dry ground in October and you can cut two crops.

They are said to be fine for ensilage. Try them. W. M. POWERS.

Oregon.

ED. HOARD'S DAIRYMAN:—In answer to J. P. D., in April 21st DAIRYMAN, with regard to growing vetches, I will say that from three years' experience in growing them in a small way, that they must be sown very early. Have sown them in February, May and September.

Those sown in May were not worth cutting; those sown in September made from 2½ to four tons hay per acre.

There are several varieties. The common vetch or tare (Vicia sativa) is the one I prefer. The sand vetch, or winter vetch (Vicia villosa) is very slender when young, growing slowly at first. It is probably somewhat hardier. Last September I sowed 12 acres, mostly vicia sativa.

From February 1st to 6th, we had the coldest spell, but one, ever known in Oregon, west of Cascades. I sow wheat with the vetch to suppprt the vines. Winter killed at least three fourths of the wheat and about two thirds of the vetches, so I think that it is at least as hardy as wheat.

I used to live in Minnesota and would not expect much of it there as winter wheat does not usually stand the climate. It might do sown as early as possible in the spring.

Some time ago the DAIRYMAN made me a ration formula with vetch hay and a desire was expressed that I report as to the effect of feeding it in the amounts indicated, viz: 17 pounds daily.

I have seen no bad effects from feeding it in a small way, and Prof. Jas. Whitcombe, Vice-Director of Oregon Experiment Station, and formerly state veterinarian, says that it is one of the best forage crops grown here and that it can be fed in any quantity (the hay) without bad results. He prefers the common vetch (Vicia sativa), it being more palatable. H. W. DOWNING.

Yamhill Co., Or.

A Quintet of Questions from Nebraska.

ED. HOARD'S DAIRYMAN:—If cow sticking belongs to the sorry past, what is the cure for bloat?

2. Is it profitable to feed cows grain on good pasture? If so, what, with corn 15 to 25 cents, shorts $10 and bran $8?

3. For winter feeding with alfalfa, will it pay to grind corn at a cost of 8 cents per hundred pounds when hogs follow cows?

4. With above feed, what is a ration for a Jersey bull with alfalfa? With bottom prairie hay?

5. Do we get a fair test by sending milk to a separating station, after standing in cans over night? If not, what can be done?

I am a new subscriber and a new dairyman. Can see how one might fail with, but cannot see how one could succeed without HOARD'S DAIRYMAN. D. C. B.

Culbertson, Neb.

1. The best cure for bloat is to prevent it. This may be "easier said than done," but nevertheless, there are precautions which will certainly reduce the liability to bloat, even on green alfalfa. First of all, do not turn the cows with an empty stomach into an alfalfa pasture. Give them, at least, a half feed of dry forage before turning them out, and then not let them stay out too long. Next, provide some stack or pile of dry forage to which they can have free access while in the pasture.

If after this, there should come cases of bloat that do not yield readily to the minor remedies which have been suggested in the DAIRYMAN from time to time, we should not hesitate to resort to the trocar—a sharp pointed, three-cornered instrument, enclosed for two-thirds or more of its length in a sheath, called a canula, much used for inserting rings in the noses of bulls, and a most convenient instrument for many purposes. Before using it in a case of bloat, it should be immersed in boiling water, or otherwise be perfectly sterilized. Leave the canula in the opening until all the gas has escaped.

2. We advocate little or no grain on good pasture at close range. But such pasture is usually of short duration. Corn and cob meal makes a very satisfactory addition to pasture grass. Unground corn on the cob would do very well, if not too dry and hard. In that case it might be a good deal softened by soaking for twenty-four hours or longer—a much cheaper practice than paying 8 cents for grinding.

3. This question is sufficiently answered above.

4. A bull having plenty of good alfalfa hay will require little or no grain. A "nubbin" of corn now and then ought to suffice. With wild hay, we should depend almost exclusively upon bran, with perhaps a slight admixture of shorts, if his condition seemed to require it.

5. The accuracy of the test will depend altogether upon the representative character of the sample, and this in turn upon the thoroughness with which the cream is re-incorporated with the milk, by stirring and pouring and then taking the sample without any delay.

Cheap Production of Milk.

Lively discussions sometimes have been aroused in farmers' meetings, by someone making the statement that rich feed does not increase the richness of a cow's milk. This assertion, although it is not of so much importance to the dairyman, as is the question of producing milk cheaply, always arouses considerable opposition. No argument is necessary, however, to convince a dairyman that he ought to think on the question of reducing, to its lowest terms, the cost of producing a quart of milk, but nearly every one who has milked cows for a living, will take exceptions to the statement that he cannot feed fat into milk. This and some questions, like the cause of low prices, are talked about a great deal, without much effect. Economical milk production is, however, the supreme question for a dairyman to consider, and his time is much more profitably spent in studying this problem, than in making complaint about making market prices. Like most everything else, that is bought and sold, the price of butter is influenced by the supply and demand. If each one of us should stop to consider that this is a large country, and that the annual butter crop is estimated to be 1,400,000,000 pounds, he would soon realize what a contract he is undertaking, in attempting, single-handed, to change the market price of butter. As milk producers or cow owners, our time is about the same as wasted, if it is spent in wrangling over financial problems. The milk or butter which every dairyman offers for sale, ought to be a quality to bring the top market prices, or he should know the reason why. It does not cost any more to produce pure milk than dirty milk, in so far as the cow is concerned, but as the question now under discussion, is how to reduce the cost of milk, rather than how to improve its quality, we will not digress at this point. Numberless illustrations can be cited to show how wealth has been accumulated by saving a fraction of a cent a pound, in many manufacturing processes. In creameries the amount charged patrons a pound for making the butter, has been considerably reduced since they began operations, about fifteen years ago; but what has the cow owner done during this time to reduce the cost of producing a pound of milk? Many have given the question a great deal of thought, and if they have been successful in increasing the profit from their cows, by decreasing the cost of production, you will find that one important factor in their success has been liberal feeding. When we come to realize that 60% of all that a cow can eat is required to keep her alive, and that a holding back of any part of the remaining 40% is increasing the cost of what she does produce, then the cows will be fed all they can safely eat. This is well understood by men who feed cows profitably. One way in which they reduce the cost of production to a minimum is by giving the cows plenty of feed.

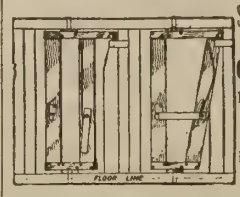
If a certain quantity of food will keep two cows alive and nothing more, for a year, the same amount given to one cow during the same time will not only support her, but cause her to give enough more than the two cows gave to pay for the feed and help toward supporting the milker. Scant feeding increases the cost of the milk a cow produces, just as a small fire under a boiler may make the water warm, but unless it is sufficiently hot to generate steam, the wheels will not go round and the fuel is wasted. After each cow owner has demonstrated to his own satisfaction, and in his own way, that liberal feeding is profitable and scant feeding expensive, he should begin to consider what kind of feed pays him best. As the corn crop is pre-eminent in this locality, the dairyman should devote a good share of his thought to considering the most economical method of converting it into milk. It has been shown by experiments (Feeds and Feeding, p 251) "that corn fodder yields about twice the dry matter that can be secured from a crop of roots on the same land."

These observations, however, indicate that roots and hay supply only about one-half as much food per acre as corn, and demonstrate the superior feeding value of corn. There has always been a difference of opinion, however, as to the best way of feeding the corn crop to the dairy cows. Some advocate cutting, shocking and curing the corn in the field, while others preserve in silos. The construction and continual use of the silos by so many prosperous dairymen, it seems to me, is convincing evidence of the economical value of ensilage as a milk-producing food.

This fact in itself should at least lead cow owners to consider the advisibility of trying this on their own farms. In addition to the fact many prosperous dairymen continue to use their silos, a great many experiments have been made with ensilage at our agricultural colleges. These show—Feeds and Feeding, p. 349—that the losses of material are about the same when corn fodder is cured in the field in the shocks as when it is preserved in a good silo; "that the digestibility of the corn silage and of dry fodder is practically the same," and that in actual feeding trial with dairy cows, ensilage "gives better results than a corresponding amount of dry fodder." In one experiment the silage ration produced 11 per cent more milk than was obtained from the dry fodder ration and in another the difference in favor of silage was 5% in milk and 6% in butter fat. Many similar illustrations of the economical value of ensilage can probably be given by those who have fed it to dairy cows, but the repetition of such data will not necessarily strengthed the fact. Ensilage can be counted on as an economical feed nearly every year, but selection of the cheapest grain feed for milk production is quite another question. The fluctuation in prices from year to year is such that each season and locality must be considered by itself when it comes to selecting the kind of grain that should be fed to cows in order to make the most milk at the least cost.—E. H. FARRINGTON, University of Wisconsin, Madison, Wis.



Binder Twine FARMERS wanted as Agents.
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Scott's Perfect Swinging And Self Closing
Cow Stanchion
Each cow shuts herself in place.
CIRCULARS FREE.
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REDUCE YOUR COAL BILL
BY USING
The No Scale Company's
High Grade Boiler Compound.
Trial orders solicited. No charge unless satisfactory. Write us. M. D. Watson Gen'l Agt, 551 Marquette Building, Chicago.



$48.50 FOR THIS $80.00
TOP BUGGY. Wheels and Gear made of second growth air seasoned hickory, tough as whale-bone, double reach, iron full length, improved 5th wheel, with King Bolt in rear of axle, will never break. Springs, highest grade oil tempered steel. Forgings all made of Norway iron. Trimmings all wool 16 oz. imported English broadcloth, finest produced. Springs in back and seat cushion. Seat ends padded. Painted under the 100 day system. All parts first dipped in hot oil and allowed to stand until perfectly dry, giving foundation for paint. Best Oil, Lead & Varnish used.
NO MONEY We will ship this elegant Top Buggy or any Phaeton, Surrey, Trap, Wagons, Carts, or Harness shown in our 164-page catalogue subject to examination, if not found satisfactory, return it at our expense.
FOR FIVE YEARS We will give with each one of our Special $48.50 Buggies a 5 years binding guarantee. We have no agents, we deal on a strictly cash basis, have no losses, therefore, in buying of us you do not pay any agent's profit, or any one elses bad bills, because we never have any. Send for our FREE 164-page catalogue.
Marvin Smith Co. 18 B-D, 55-57-59 N. Jefferson St. Chicago

A Wise Dairywoman.

It is seldom that we have run across a plainer, more compact and intelligent statement of sound dairy experience than the following, written by a woman for the *National Stockman and Farmer*. It would be a grand thing for the future wealth and well being of the country if a large proportion of the dairy farms and dairy cattle were in the hands of just such women:

About ten years ago we took a basket of butter to our county seat. Although we received the top price they were paying for butter that day, we were not satisfied, and thought we had better look up a city market. A friend gave us the address of a firm in one of the most noted cities in the United States. The following week we sent a box of butter to the above mentioned city, not knowing anything about said firm. We waited eagerly for the returns, and when we received them we were greatly pleased, for we got ten cents per pound more than we did the previous week at our home town. We are to-day shipping to the same city and the same firm. In all these years we have never fallen short an ounce in our weights. Several times there were two-pound blocks taken on the road. After that we had the express agent put the railroad seal on each box, and the butter has never been molested since.

We are not obliged to send any given amount each week, we send what we have. We may send ten pounds less this week than we did last, or perhaps send twenty pounds more, and it is all right. We ship once a week. The butter is never over a week old when it reaches the market. We receive our pay once a month.

After we had shipped butter to the above firm one year we wrote to the manager and asked him what he thought of our butter. His answer was, "If you improve as much in the next year as you did this you will be making first class butter." Now we did not get angry and say, "He'll not get another pound of butter from us, for he don't know what good butter is," as some would have done, but the next week we sent him a nice note thanking him for being so frank with us, and asked him in what points we lacked. His answer was this, "Your butter is not colored highly enough and is a little overworked. For our trade it should be the color of grass butter in June, and also about twelve per cent water. When breaking a roll, little sparkles of water should be seen between the granules." These few words were a great lesson in butter making to us. In a few months he wrote us again the following words: "You need not make any changes in your butter. I have customers for all of your butter just as it is, and wish you could send us two hundred pounds more a week."

There are many such markets open to farmers if they would only look them up and stay by them until they could establish a trade. The first essential in butter making is an even color the year round, second the same flavor the year round, third the same shaped roll, with the same prints on each week, and salted the same each time you churn, put up in parchment paper in a neat form.

True we are not all born butter makers, but we can all read up and take advice from others. We received more good practical advice from the late A. L. Crosby on dairying in *The Stockman and Farmer* than we did from any other source, as his writings were all practical. We have all the old papers filed away and they make interesting reading connected with our experience.

It is a lamentable fact that there are so many butter makers that do not try to improve and say, "It don't pay to spend much time fooling with the stuff, for we don't get much for it." Such women don't know that the more time they waste on the butter the less value the butter will be. Butter never ought to be worked more than once. The sooner the butter is taken out of the air the better it will be.

Several years ago a good substantial firm of Cleveland sent out one hundred letters to farmers for country butter, as they were in need of country rolls. A great number of farmers sent them butter. In conversation with the manager a short time ago he said; "We could use only a few farmers' makes, as the color of the butter was all shades, never twice the same color, and all the different flavors that could be gathered in a roll of butter, were present in some of the makes." And the butter wrappers were also of a peculiar make. Some of them had buttons on with the button holes torn out, and it could easily be guessed what they were originally made for. H. L. G.

Food Adulteration.

The testimony given by Prof. A. S. Mitchell, before the Pure Food Commission in Chicago, is of great interest to dairymen, as showing to what extent adulteration of food has taken possession of the country. Part of the testimony was as follows:

Some of the facts brought out by Senator Mason's pure food inquiry at the Grand Pacific hotel yesterday, were these:

That a commodity for sale throughout the United States, and in popular use among dairymen and milkmen for the preservation of milk and cream, and by bakers for the preservation of cream puffs, chocolate eclaires and similar pastry, is a product of wood alcohol, which is absolutely poisonous; that this preparation is used by undertakers for the preservation of dead bodies and by health authorities for the disinfection of buildings where virulent diseases have been treated.

That ground tarred rope has been used to adulterate ginger.

That absolutely pure flour is a rare commodity; that it is adulterated with ground stone and clay from Tennessee and Georgia.

That pure buckwheat flour is rarely to be purchased after it passes through the hands of a jobber or a wholesaler, that one barrel of pure buckwheat flour is generally mixed with two barrels of inferior spring wheat flour, that can be purchased for less than one-third the price of the buckwheat.

That nearly all powdered sugar is composed in great part of corn starch.

That nearly all black pepper is adulterated with what is known as "buckwheat shorts" (hulls).

That retail butter dealers in the city daily violate the oleomargarine law.

That flavors sold at sodawater fountains as the juice of strawberries, bananas and pineapples, are chemical compounds.

That pure vanilla extract for flavoring purposes is almost unknown, and that the flavorings for such extracts as are sold in the market, are in the main derived from cumarin; that lemon and other flavoring extracts are also adulterated to a very great extent.

SHOWS A SAMPLE OF "FREEZINE."

A. S Mitchell, Chemist of the Wisconsin Dairy and Food Commission and the Wisconsin State Board of Health, was the expert witness who testified as to the use of the poisonous preservative by milkmen, dairymen and bakers. He produced a sample bottle that was labeled with the trade name of "Freezine." The label bore the name of B. Heller & Co., Chemists, 249 to 253 Jefferson St., Chicago. Samples of other preservatives, which Mr. Mitchell declared to be poisonous, were produced in evidence. Senator Mason sent Sergeant-at-Arms Hutchinson to summon the officers of the Heller Company to appear before the committee this morning.

Mr. Mitchell testified that the cream of tartar ordinarily sold by grocers, consisted mainly of phosphate of lime and alum mixed with starch. He went extensively into the question of the adulteration of wheat flour and buckwheat flour, the use of cocoanut shells and peanut shells in food products, and confirmed the testimony with reference to the adulteration of coffee with "Black Jack"—the inferior bean shipped here from Germany and Brazil. And at this point in the testimony Senator Mason remarked: "We'll introduce a bill that will stop the Germans from sending any more of that stuff here."

PARAFFINE IN LARD.

Lard, said Mr. Mitchell, is adulterated with cottonseed oil, which has the effect of softening the lard to such an extent that it is necessary to use paraffine to restore its consistency. Paraffine is a product of petroleum and is absolutely indigestible.

C. Y. Knight, secretary of the National and Illinois Dairy association, produced four packages, purchased by himself and said to contain creamery butter. As a matter of fact, he had been supplied with oleomargarine, for which he had paid 18 to 20 cents a pound. The first package had nowhere about it any mark indicating the nature of the contents. Another package had the word "oleomargarine" faintly stamped on brown paper on the inside. Each of the other packages was stamped in a corner of the brown paper wrapper, so turned down that no purchaser would notice the stamp until careful search for it.

Augustin Gallagher, former revenue agent for the enforcement of the pure-food law, told of the adulteration of flour with ground stone and clay and other deleterious substances. The pure flour law, he said, had been beneficial, and, in large measure to the operation of that law he attributed an increase of 20 per cent in the export trade this year.

George W. Smith testified as to the adulteration of buckwheat flour. C. N. S. Hallberg testified as to the use of alum in baking powders.

HOW FRUIT JELLY IS MADE.

J. J. Berry, of the West Chicago Syrup-Refining company testified that most of the jellies sold on the market were fraudulent, being made of the cores and parings of apples, mixed with glucose and sugar and colored and flavored to suit. Glucose 50 per cent, sugar 10 per cent, and apple juice 40 per cent is the trade recipe for jelly.

Maurice H. Scully of the D. B. Scully Syrup Co., said that he knew of no adulterants used in the manufacture of syrup. J. J Berry, of the Chicago Syrup Refining company, gave similar testimony.

Contagious Abortion.

ED. HOARD'S DAIRYMAN:—I take the liberty of asking if contagious abortion is caught through the mouth (what is eaten or drank) or through the vagina?

Is a farm where it has prevailed safe if re-stocked?

Does the bull convey the disease and can such a bull be disinfected? P. M. LEWIS.

Certain forms of abortion are contagious—not infectious. That is, the germ is conveyed by contact and not through the air.

The germ which produces the disease will exist in any locality where it has been established. It is thought by some that if no fresh cases occur it will cease to exist in a year.

It is our decided opinion that the male can and does convey the abortion germ to the female provided he has been in contact with an infected female.

The disease evidently is not conveyed through anything eaten or drank, as Prof. Nocard in his investigations found the germ nowhere in the system of the mother except in the lining of the placenta and the bowels of the fœtus. We know of no effective method of disinfecting the male. Abortion will die out of a herd in a year or so if no fresh cases are brought in to keep the germ alive and active.

In at least 80 to 90 per cent of the cases they become immune after a year or so. With some they become barren. When it occurs in a herd, cows sometimes become barren without aborting, through the effect of the germ.

We have been of the opinion for some time, that the scours which occur in calves two to four days old, is due to the abortion germ which Prof. Nocard found in the bowels of the fœtus in all cows where the mother was affected. About the only thing we can do with this disease is to keep it from spreading and wear it out.

Cheese Factory Grants.

The department of Agriculture of the Province of Quebec, in order to encourage the building of first class cheese factories and the manufacture of first class cheese is offering grants or subsidies, ranging from $100 to $200, to factories in the Province of Quebec. The conditions upon which the subsidies are granted are down in a little book just issued by the Department, and are divided into four categories, viz:

Those relative to the construction of the factory, and to that of the curing room in particular; those relating to the ventilation of these rooms, to their cooling in summer, and their warming in the spring and autumn; those which concern the general laying out of the factory; those which relate to the manufacture and to other questions. The book also contains a great deal of information regarding the making of cheese and the building of factories, which would be of value to cheese makers throughout the province.—*Montreal Quebec Star.*

CONCERNING OUR ADVERTISERS.

THE WORLD'S RECORD FOR OUTPUT.

Adding together the actual number of the different kinds of harvesting machines made in a single day during 1898, at the works of the Deering Harvester Company of Chicago, gives the enormous total of 1,319, or more than two complete machines for each working minute.

THE KIND OF FARMING THAT PAYS.

Of all the improvements that have been made in farming methods and farm implements, none will do more to add to the farmer's prosperity than the perfecting of the flat, spring tooth weeder. The results of using this implement are thus summed up by Mr. Henry Walter, Shermerville, Illinois:

"I have tried Hallock's Success Anti-Clog Weeder and Cultivator on oats, peas, potatoes, feed and field corn, always with the very best results. Beats any farming tool ever known here for pulverizing the soil and destroying weeds. I have tried the weeder where a lever harrow would not work, ground being too hard and baked from rain. Never before saw such work. It looked like a garden patch worked with a garden rake. I also tried it on plowed ground just before planting. Worked to perfection, smoothing, pulverizing and leveling the soil like a house floor. The weeder is a wonder to all who see it work. It is the greatest labor saving tool ever introduced to farmers of this country. I have put it through all kinds of trial on different crops, and it has not failed in a single instance."

The Electric Wheel Company, the well known manufacturers, of Quincy, Ill., the builders of Electric Low Down Handy Wagon and the Electric Steel Wheels, have extended their business.

They are now manufacturing in addition to the above, a complete line of "electric" Dairy Supplies and Appliances. This line embraces milk coolers and aerators, cream separators, feed cookers, galvanized steel stock, water and sheep dipping tanks, stock feeding troughs, etc. These people are so well known to our patrons as to need little commendation from us, and it is entirely safe to say that in the manufacture and sale of this new line of goods. They will sustain the reputation for high quality of goods and honest and fair dealing which they have made in the past. Should any of our readers be needing goods of this kind they will do well to ask for the "Electric" Line catalogue.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

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CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

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The new remedy that has a record of 90% of cures in 412 cases. Two complete treatments with full directions and necessary apparatus neatly packed in a box for shipment, Price $2.75. Every dairyman should have this outfit on hand ready for instant use Order at once from

GARDINER BROS., 220 E. Preston St., Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz $2, 23 oz. $4, 50 oz. $8, by mail.

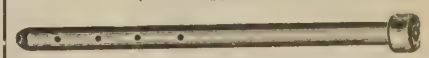
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Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

THE Texas State Dairymen's Association proposes to know just what are the facts about the average production of cows in milk, cheese and butter, and the real cash value of the same. To this end they have appointed Mr. John Jephcott to gather accurate statistics of all dairy cows and their products in the county of Grayson.

Returns from a Tennesee Dairy.

ED. HOARD'S DAIRYMAN:—Thinking that it might be of some interest to some of your many readers, I would give my experience as a junior patron of a first-class Creamery Co. I live in the southern part of middle Tennessee on the L. & N. R. R., two and one-half miles from the county seat of Giles County and own one-hundred and fifty acres of land. On Aug. 22, 1894, I began hauling milk to the Pulaski Creamery and have steadily improved my herd from the time I started, to the present.

Following is the statements of my product from my cattle for two years beginning Jan. 1st., 1897, and ending Dec. 31, 1898. For the year 1897, I milked an average of ten cows.

	Lbs. M'k.	*Test.*	*Amount Paid.*
January....	2,759	4.3	$23.77
February ..	3,225	4.5	32.51
March	3,330	4.5	33.70
April	5,178	4.	41.42
May	7,580	4.2	56.85
June.....	7,645	4.4	56.44
July.....	7,073	4.5	52.44
August.....	7,008	4.4	49.05
September.	5,477	4.6	46.50
October....	5,052	5.15	52.03
November.	3,619	6.14	46.68
December .	3,229	5.41	39.02
Total....	61,175	Av. test 4.7	$530.41

I had no silo until the fall of 1898. I built one of 2X4 pine staves dressed and tongued and grooved, fifteen feet in diameter and 24 feet high, 5 feet in the ground with rock foundation; cost one hundred and ten dollars complete. Any man is not in the dairy business unless he has a silo; it certainly affords more nutritious feed for the amount of money invested than can possibly be procured otherwise.

My 1898 statements with an average of 16 cows are as follows:

	Lbs. M'k.	*Test.*	*Amount Paid.*
January....	3,879	5.90	$54.32
February ..	4,604	5.90	50.42
March.....	5,664	5.66	66.26
April	6,458	5.66	70 39
May	10,007	5.17	91.31
June.....	9,856	5.90	102.94
July.....	8,878	5.17	75.32
August.....	8,223	5.66	85.06
September.	7,556	5.90	84.91
October....	7,154	6.39	83.54
November.	6,031	6.14	65.89
December..	7,072	6.39	89.81
Total	85,382	Av. test 5.82	$920.17

My cattle average me for 1897, $53.04 each and for 1898 they averaged $57.51 each.

I am not using any science in dairying; am trying to improve my herd by breeding the best bulls I can get to good grade cows. I have the Jersey breed. I would be glad to see other statements from other sections so as to compare. T. L. SMITHSON.

Pulaski, Tenn.

Sell Milk or Cream?

The question is the profit in milk at 4 cents per quart, or cream at 20 cents per quart, and the skim milk to be fed to calves and pigs. To decide such a proposition as this, it is necessary to take into consideration several things that do not appear on the sur face. With milk at 4 cents per quart we have a very plain case, which is simply the matter of receiving a certain amount of commodity. But with the question of selling cream at 20 cents per quart and the added value of the skim milk, we are confronted with quite a complicated problem of values. Before one could accurately get the number of quarts of cream in 100 quarts of milk—which a computation of values demand—it would first be necessary to know just what the percentage of the cream is; "cream" being a somewhat indefinite term. But we can form a basis of calculation on the average cream put on the market, which is in the ratio of one quart of cream from six quarts of milk. The six quarts of milk would be worth 24 cents, and the one quart of cream 20 cents. But to this 20 cents must be added the value of the skim milk, which from the experiments of some years has been proved to have a value of, at the lowest figure, 10 cents per 100 pounds. This is its value simply for feeding, that is, for what it will make in pounds of pork or growth of calves, and does not take into consideration the manurial value. From experiments made at various times the value in fertility of skimmilk has been fixed at two dollars per ton. This value perhaps, by skillful and judicious handling, and if the manure is used as a component part with other fertilizers, may be increased. After several years of experience in feeding skimmilk, the writer has found that if used for feeding to cows, its value is nearly double what it is if fed to calves or pigs.

But aside from the comparison of values of milk at 4c and cream at 20c and the feeding of skim milk, comes in the question of cost of labor and outht necessary in the two plans. This is a consideration that does not appear in the present proposition. Here then will be the figures from the two plans proposed: One hundred quarts of milk at 4c per quart will amount to $4; from this, at a ratio of one quart of cream from six quarts of milk, we have 16 2-3 quarts of cream, which at 20c per quart would amount to $3 33 1-3. Taking this quantity of cream from the 200 lbs. of milk (100 quarts or approximately that amount), we have 166 2-3 lbs. of skim milk, which, at 10c per hundred pounds, would make about 17c to add to value of cream, which will make $3.50 2-3. This is the comparison of values, without computing the manurial value of the skim milk, which is at best an indefinite matter, and can be estimated on a basis of about 68 per cent of its value being retained in the voidings of animals to which it may have been fed.—*Country Gentleman.*

Effect of Concentrated Foods on the Production of Milk.

In *The Journal of the Board of Agriculture*, for December, 1897, an account was given of the results of an experimental inquiry, carried out by Mr. John Spier on behalf of the Highland and Agricultural Society to ascertain the effects produced by various kinds of what are known as "concentrated" foods upon the milk yield of cows, and upon the butter manufactured from the milk of cows which received such foods. The foods employed in this investigation included vetches, maize, beans, oats, linseed and cottonseed cake, grey peas, sugar meal, meat-meal, brewers' grains, and mixtures of grains, bran, treacle, and potatoes. The principal conclusions deduced were that rations with a very high albuminoid ratio seemed to have a depressing effect on the milk yield; and that, provided extremes be avoided, the dry matter in the food seemed to be the chief controlling factor in the production of milk or increase of live weight, and was of greater importance than the albuminoid ratio. It was also found that every food when first given, seemed to have more or less effect in increasing or decreasing the percentage of fat in the milk; but that this effect was transitory, and that the milk returned to its normal composition about the end of the fifth week—brewers' grains in the wet state and in excessive quantity were, however, excepted from this general statement. The decrease per cent in the flow of milk below the estimated normal yield during the periods when foods possessing a high albuminoid ratio were supplied to the cows was calculated to be as follows: Vetches, 38.5; beans, 24.0 and 14.8; decorticated cotton cake, 15.8; decorticated cotton cake and meal, 8 3; cummins, 23.3.

Experiments of a somewhat similiar character to those referred to above on the rational feeding of milch cows have been carried out on a more elaborate scale for some years past at the physiological experimental station of the agricultural academy at Poppelsdorf, Bonn, by Drs. Hagemann and Ramm; The object of these experiments was also to determine the influence of concentrated foods on the production of milk. In the more recent of these investigations, which were under the direction of Dr. Hagemann, the special foods submitted to trial were maize, rye, wheat pollards, cottonseed meal, bruised barley, malt sprouts, palm-nut cake, and molasses, in addition to the ordinary provision of hay, straw, and roots. The proportions of the articles constituting the ordinary ration varied with the nature of the concentrated fodder: the daily allowances were as follows:—Hay, from 11¼ lbs. to 13¼ lbs.; straw, 2 lbs. to 6 lbs.; and roots, 48¾ lbs., to 61½ lbs. In addition to this standard keep there was given at different periods, one of the following rations:—13¾ lbs. of maize; 11¾ lbs. to 13¼ lbs. of wheat pollards; 12 lbs. of rye; 5½ lbs. of rye and 4½ lbs. of palm-nut cake mixed; 3¾ lbs. to 4¾ lbs. of cottonseed meal; 9 lbs. to 10 lbs. of malt sprouts; 8 lbs. to 10 lbs. of bruised barley, mixed with 4 lbs. to 6 lbs. of palm-nut meal; and 7¾ lbs. of molasses mixed with other foods.

In summarizing the results of his experiments, Dr. Hagemann states that the production of milk proved to be dependent in certain respects upon the nature of the food supplied to the cows, but not, as is usually supposed, solely upon the albuminoid ratio. If the foods employed are classified according to their apparent average influence in increasing the yield of milk, irrespective of its fat contents, his report gives the following order: maize, wheat pollards, malt sprouts, earth-nut cake, cottonseed meal and rye and palm nut cake mixed. It will be observed that the highly albuminous rations of oilseed cakes and meals were less effective in increasing the flow of milk than the other foods named. With respect to the fat contents of the milk, the oil cakes rank before the other foods; the order under this head working out on the average, as follows: Palm-nut cake and rye mixed, cottonseed meal, earth-nut cake, maize, malt sprouts and wheat pollards. The results obtained with rye were conflicting.

The object of these experiments was, however, not merely to test the effects of the use of various concentrated foods upon the secretion of milk, but also to ascertain which of those foods furnished on the whole the largest margin of profit. Hence, with a view to determine the economic value of the several foods, Dr. Hagemann compares the value of the milk produced in separate periods during which the respective foods were employed, with the cost of each ration Judged from this standpoint, the results of the experiments are stated to have shown that maize is in every respect a profitable food for milch cows, both as regards its influence on the quantity and quality of milk produced, and on the production of meat. Next to maize the following foods are placed in order of value: Wheat pollards, cottonseed meal, and earth nut cake. Molasses was found to have a stimulating effect on the milk glands; the cow receiving molasses yielded for a time more and richer milk than the known constituents of this ration would lead one to expect, but there was a marked reaction when the molasses was withdrawn, in spite of the substitution of other fodders containing high percentages of albuminoids. Moreover, it was found that molasses augmented the secretion of urine by about 50 per cent., and Dr. Hagemann considers it probable that continued feeding with large quantities of this article would bring about disturbances of the heart and kidneys.

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Soreness or uncomfortable feeling in the back indicates kidney trouble of no small importance.

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Volume XXIX of Hoard's Dairyman

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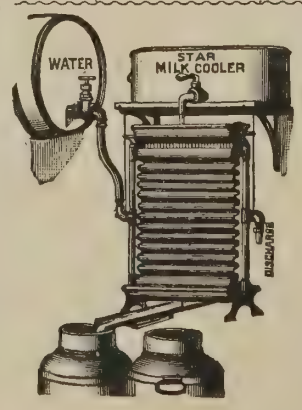
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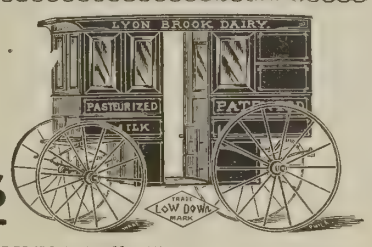
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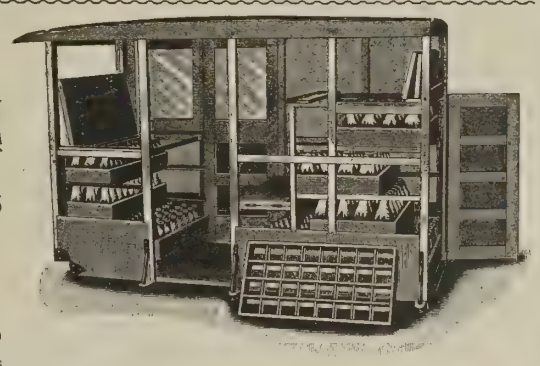
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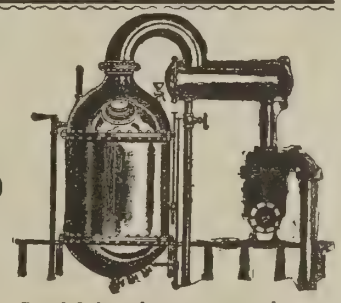
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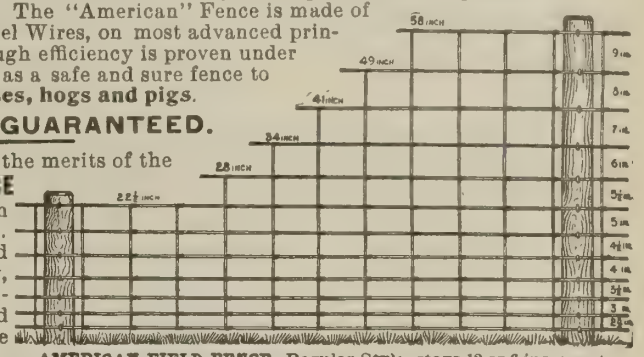
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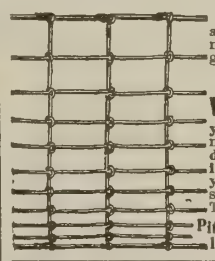
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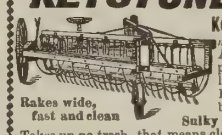
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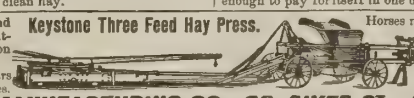
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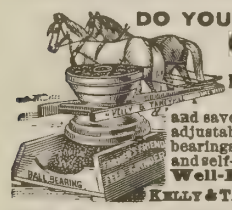
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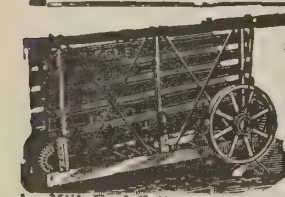
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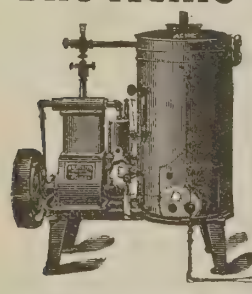


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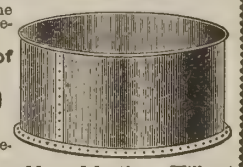
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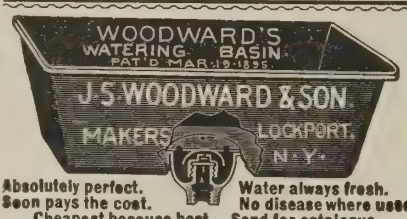
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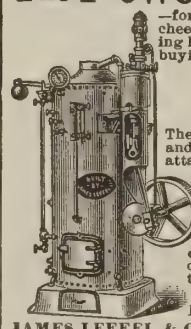
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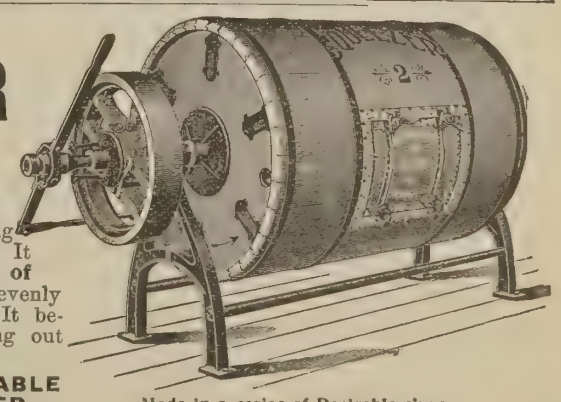
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Both were salted with **Worcester Salt.**

CHEESE

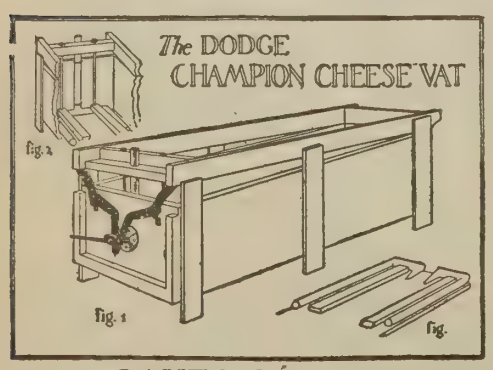
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....FOR CHEESE VATS....



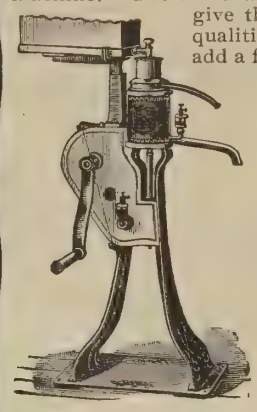
An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

WRITE FOR PRICES.

OAKES & BURGER, CATTARAUGUS, N. Y.

The Ever Increasing Demand for The Improved U. S. Separator

shows conclusively that Dairymen appreciate the worth of this machine. The sales were never so enormous as at present. To give those who are not familiar with its superior qualities some idea of what users think of it will add a few sample letters.



What the President Says.

BRATTLEBORO, VT., Feb. 27th, 1899.

It gives me pleasure to say that the dairy machinery bought of your company two years ago, including a No. 5 Improved U. S. Separator and a Pony Power, is working well and giving entire satisfaction.

The Improved U. S. Separator is doing all and even more than was claimed by your agent. The **separation is perfect**, it runs easily, without noise or friction, and it is easy to manage and care for. Of all the separators placed upon the market, there is none that excels the Improved U. S. in my opinion.

G. W. PIERCE, President Vt. Dairymen's Ass'n.

30 Per Cent. More Butter and of Better Quality.

OTIS, IND., October 4th, 1898.

The Improved U. S. Separator purchased of you has exceeded my highest expectations. In simplicity of construction and ease of running it cannot be beat. It has given us no trouble, and we have made from the start 30 per cent. more butter and that of a better quality than we did previous to obtaining the U. S.

Hoping the Improved U. S. will continue to lead, I am, etc.,

HENRY STORMES.

Excels All Others.

COLDWATER, N. Y., June 28th, 1898.

The Improved U. S. Separator is in constant use and is giving perfect satisfaction. I can say from actual experience that in ease of running, **close skimming** and quality and quantity of cream produced it excels all others. No farmer or dairyman can afford to be without one. They will pay for themselves.

C. C. BEAMAN.

Superior to Anything in Cream Separator Line.

BORDER PLAINS, IOWA, Aug. 15th, 1898.

I bought an Improved U. S. Separator this spring, and therefore have had ample time to test and also to compare it with other machines. I think the Improved U. S. is superior to anything in the line of cream separators I ever saw. For simplicity, ease of operation, thoroughness of work and substantial appearance I can recommend the U. S. I think it is O. K.

GUY L. BARGAR.

Write for Illustrated Catalogues.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



Babcock Milk Tester.

A. H. BARBER MFG. CO.,

229 S. Water St., CHICAGO, Ill.

Creamery Apparatus And Dairy Supplies.

Alpha Separators, Babcock Testers, W. & R. Butter Color, Butter Salt, Etc., Etc.

Refrigerating Machin'y

Write for Catalogue.



PERFECT FLAVOR IN BUTTER AND CHEESE

results from perfect milk. Perfect milk is that which has been properly handled from the moment it left the cow until it reaches the finished product.

THE PERFECTION MILK COOLER AND AERATOR

makes a perfect milk. It takes out all animal odors and those arising from stables or feed. It retards **loppering** and **souring**; prevents the **cowy odor** in butter and **deleterious gasses** in cheese. City boards of health are insisting on milk that is properly cooled and aerated. This machine is **simple, quick** and **effective.** Made in sizes from 1 to 200 cows. Send for free catalogue of **Farm** and **Dairy Supplies.**

L. R. Lewis, Mfr., Box 10 Cortland, N. Y.



Water MUST Be Hot

to properly clean and scald your milk cans, pails, strainers and bottles. With this Hot Water Stove, Circulating Boiler and Wash Box, you can have the water as hot as you want it, just when you want it. Little expense and no trouble to run it. The hot water stove, with pipes and fittings furnished separately. **Best and cheapest heater for greenhouses, hen houses or hog pens.** Write for free catalog and learn all about this and many other dairy necessities—**cream separators, milk coolers, strainers, scales and butter tools.**

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

THE co-operative creamery at Conroy, Iowa, opened on its first day with 40,000 pounds of milk. This is the largest amount of milk we have ever known a creamery to have at its first start.

A CONFLICT OF PATENTS.

About 300 farmers in the vicinity of Carthage, New York, have received notice that they are infringing on a patent milk can, or separator manufactured by the Wheeler Cream Separator company of Syracuse. They have purchased cans of the Aquatic Separator company, of Watertown, which makes a similar separator, patented by a man named Lee. There are a number of similar cans in the express office now for Wilna farmers. The notices are being served by two strangers, who claim to represent the Wheeler company. They charge $5 for a large can, $4 for a small one, and claim a number of farmers have settled.

It may be well to state that neither of the above cans can be rightfully called separators, as they are in effect, nothing but deep setting cans with the adding of cold water to the milk.

Building, Remodeling and Ventilating Barns.

(Prof. F. H. King, Madison, Wis., at the Wisconsin Dairymen's Convention.)

MR. CHAIRMAN, LADIES AND GENTLEMEN:—The short time at my disposal will make it necessary for me to present the subject in much briefer form than I had planned to do. To condense my statements as much as possible it may be said first of all, that cows require in our winter climate a warm stable. The secretion of milk in the udder can only take place under the right temperature. To set fire to a piece of wood, it is necessary to first raise its temperature to a certain point, and only after this point has been reached, will chemical action begin. The housewife when she wishes to raise her bread sets it in a warm place, knowing that only under these conditions will the chemical action involved in the fermentation processes go on.

If you wish to sprout corn, you put it in a warm soil, and only after the right temperature has been reached will the chemical action, which is the central factor in the germination take place; and so it is in the production of milk in the udder of the cow, there must be maintained in it the right temperature. To refrigerate the blood passing through the udder and the large milk arteries, lowering the temperature of the blood before it reaches the udder eight or ten degrees, would prevent the secretion of milk, no matter how well the cow was fed, for at that low temperature the blood would have to pass in and out unchanged.

Now, in the development of the dairy cow there has been evolved an abnormally large udder, exposed to the weather far more than nature ever intended it to be. More than this, you are asking her to produce milk in the cold of winter. Nature does not require this of her, but had arranged conditions so that the calf should be fed in the warm season of the year. To run an engine in the strong wind requires much more fuel even in the summer time than under other conditions, and the same principle applies in the care of domestic animals. The cow must hold the temperature of her body up to 100 degrees; she has a limited capacity only for digesting and assimilating food, and if it taxes this capacity to its full extent to maintain her temperature, she will do that first, and only when she has a reserve supply of food in her body can she produce milk. We must therefore have a warm stable as the first requisite for the proper care of cows in winter.

Next to a warm temperature in the stable, stands the demand for plenty of fresh air, supplied only by a good system of ventilation. A steam engine cannot be run without an ample supply of oxygen, neither can a cow do her best without plenty of fresh air. A man after he is through digesting his food and is at rest uses about 1,627 cubic inches of oxygen per hour, but 57 per cent more of oxygen is required to simply do the work of digestion in the case of the man when he remains at rest.

Now what we are doing with the cow is to require her to digest just as much food as she can and convert it into milk. It is plain therefore that one of the chief requisites for this is plenty of fresh air.

On an average, a 1,000 pound cow will take something like 30 pounds of dry feed per day, and she will drink about 72 pounds of water. In other words, you feed her in the neighborhood of 100 pounds a day, but the amount of air that the cow must use in order to utilize the 30 pounds of feed and the 72 pounds of water is somewhere in the neighborhood of 192 pounds, or nearly double the amount of food and water combined. I wish to emphasize the importance of this matter of the abundance of fresh air, and in order that you may realize its great need more fully I shall perform a few experiments with this lighted taper and glass jar. (Prof. King here made several experiments showing that a supply of oxygen was necessary to support the flame of the candle in the jar, and how easily and quickly it would be extinguished by pouring over it the air once breathed.

Now to apply this principle here illustrated: The cows are standing on the floor of stable, the nostrils of the cow are so arranged, that in her breathing, the air thrown out of the lungs accumulates at the floor. From where then should the air be removed? From the ceiling? No. For there is where the air is best. Not only is the purest air at the ceiling, but that which is warmest also, for the bodies of the cows act as so many stoves in warming the lower air of the stable, causing it to rise and accumulate at the ceiling, and the heat given off by their bodies is sufficient to amply warm the stable, if it is only rightly constructed and properly ventilated. If you introduce pure air from above,

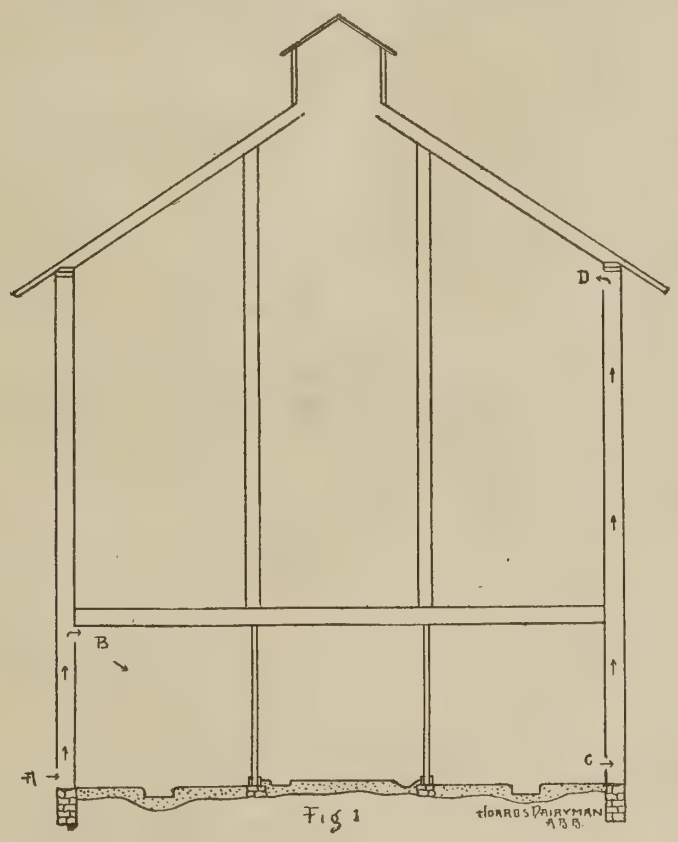


Fig 1

you bring the cold air in contact with that which has already been warmed, thus utilizing what would otherwise be waste heat, to warm the air before it comes in contact with the bodies of the cows. If the air is brought in in a large number of places around the sides of the stable, the tendency to produce a cold draft is reduced to a minimum, and the greatest heating effect is secured. Then if the bad air is removed from near the floor, the coldest air will also be removed at the the same time, and the greatest advantage is derived from the heat liberated by the bodies of the cows, and they are kept better supplied with the purest air already made warm by the waste heat from their bodies.

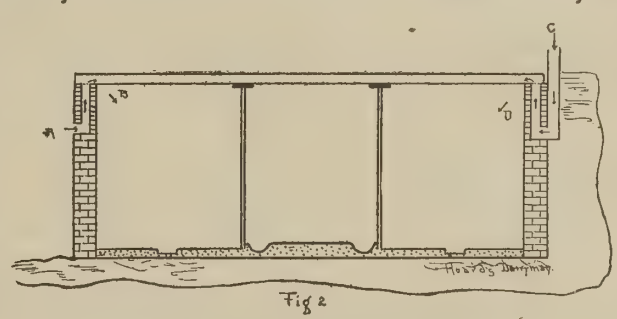


Fig 2

Ex-Gov. Hoard—How do you introduce the cold air at the ceiling and prevent the warm air from going out?

Prof. King—The method of doing this is represented on these two charts. Fig. 1 represents a frame barn built in the manner followed in ordinary house construction, where studding are used set three feet apart and the siding put on horizontally instead of up and down, as is commonly practiced in barn building. In the construction of small barns, this is much the more economical method of framing, as smaller timbers can be used and the siding does away with the necessity of braces, thus giving a much stronger structure with less lumber. Where this method of construction is followed the air may be allowed to enter the stable by passing in between the sheeting inside and the siding outside, as represented at A, just above the sill of the barn. It then rises between the studding and enters the stable as indicated by the arrow at B, thus bringing the cold air in at the top of the stable. Openings of this sort would be provided on all sides of the stable, if possible, at intervals of ten or twelve feet, and they may be about three inches by twelve inches at top and bottom, and, if desirable, can be provived with sliding or hinged valves near the ceiling to be shut if too much air is coming in, though this will not usually be necessary. To take the air out of the stable, the method represented in the right side of the drawing at C and D may be adopted. The method is simply to close up the space between two or more sets of studding from the floor of the stable to the plate in the story above, thus forming a continuous flue or series of flues through which the air may rise and escape. The air may be allowed to pass out under the roof and escape through the cupola, or a ventilating flue could be carried directly up through the roof so as to form a nearly continuous straight flue for the escape of the air rising above the ridge of the roof. This would give a stronger draught, but in small stables of less than twenty cows it would not usually be necessary to carry it out through the roof.

In Fig. 2 is represented a method of taking air into a stone basement where at A B a flue is built in the stone wall when it is put up by using six inch drain tile or a wooden form set in the wall, allowing the air to enter at A on the outside and pass into the stable under the joists at B on the inside. In case the earth rises to the level of the ceiling on the outside, then the method represented on the right side of the drawing may be used. In this case the flue is built in the wall in the same way as on the other side, but the end underground opens into a vertical shaft at C which is made of sewer tile, or a wooden column if a cheaper arrangement is desired. This duct rises just above the surface of the ground outside, and should be covered with a piece of wire netting to keep out leaves and litter.

The air should be taken out of the stable within eight or ten inches of the level of the stable floor, as represented in Fig. 1.

Ex-Gov. Hoard—Do you find some difficulty in hoisting that cold, heavy air out?

Prof. King—Not ordinarily. It is only in times of very still, muggy weather that there is any difficulty of this sort.

Gov. Hoard—Could't you increase the draft by carrying that pipe up on the inside and along the ceiling, thereby warming the current of air inside the pipe?

Prof. King—That method would help, except that every elbow that is introduced in a ventilating flue hinders the draught; the fundamental principle which should always be observed as far as possible, is to secure as straight and continuous a run as you can. In order to supply twenty cows with the amount of air they need and still keep the temperature right, there should be provideda ventilator two feet square on the inside and this should be able to carry air at the rate of three miles per hour to supply the needs of the twenty cows;forty cows would require two such ventilating flues, or a single one having double that capacity. In a well built stable, which gives ample working room, it is easy to maintain a temperature of 40° to 60° in the coldest weather with such ventilation as described.

In regard to the height of the cow stable, it should be said that this should be no greater than is really required for the comfort and ease in doing the work. You may make the room as large as you choose and as high as you choose, and if there is no provision for the air to come in or go out, it is not a suitable stable. It is not cubic feet of space which is needed, but cubic feet of fresh air, and so the stable may be made as low as practicable for the needs of workmen, and from eight to nine feet in the clear is a great plenty for the ordinary farm sta-

(Continued on Page 290.)

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IF the dairyman who is content to let many dollars slide through his fingers through the manufacture of butter with dirty utensils, could only see that lost money in a pile before him, it might go a long way towards reforming his methods. But as the leak is small, he can't see how much money slides through it in a year.

A FEW days since ten Pittsburg merchants were each fined $100 and costs for selling oleomargarine. The charges were brought by the agent of the pure food commission. None of those fined were present at the hearing and judgment was given by default. Several of the defendants were represented by attorneys, but no objection was offered to the testimony of the Commonwealth's witnesses.

The "poor people" of Pittsburgh in whose interest these ten self-sacrificing merchants gave up their money, without a word of protest, must feel the force of the sublime act.

PROF. F. J. Lloyd, a prominent dairy expert, of England, makes the following statement in his report to the British Dairy Farmers' Association: "Some samples of milk have been sent me which had been stated to have caused severe sickness and purging. *In all these samples I found formic aldehyde* (Freezine)".

A few cases like the above are of more value in determining the action of preservatives than many pages of testimony from witnesses, who look at preservatives through golden spectacles and consequently see no harm from their use.

AT a recent meeting of the Board of Regents of the University of Wisconsin, Mr. Arthur G. Hopkins, D. V. M., was elected instructor of veterinary science and practice in the Agricultural College and Experiment Station. Mr. Hopkins is an Englishman by birth. Until recently he lived in Canada. He was a graduate from the Toronto Veterinary College, after which he practiced for some time in Manitoba. Later, he studied at the Ontario Agricultural College, Guelph, and is now at the Iowa Agricultural College, Ames, where he will soon graduate. Last fall he pursued a course of graduate work at the McKillipp Veterinary College, Chicago. Mr. Hopkins will assist both in instruction and experimentation at the University, his work being in the department of animal husbandry, which is in charge of Prof. W. L. Carlyle.

THERE is nothing but commendation for the business methods followed by the Osage Co-operative Creamery, whose annual report is published elsewhere in this issue.

We regret that Mr. Bartle did not have the data at hand for making the comparison between the separator and deep setting systems, and if it is all practicable for him to do so, we are sure the readers of HOARD'S DAIRYMAN would be much obliged to him for some definite information on this subject.

It seems not improper, also, in this connection to remind the occasional inattentive reader that the cost of gathering the cream, manufacturing the butter and placing the same on cars, does not include the freight to market or commission for selling. But even with these items excluded, the cost is very low indeed, and cannot be duplicated anywhere except with the very best of management.

POLLED JERSEYS.

Mr. A. V. Bradrick, editor of the *Jersey Hustler*, a wide-awake monthly published at Connorsville, Indiana, has been visiting some of the Polled-Jersey herds in Ohio, and was so much impressed with their present and prospective values that he invested in a bull and several females of that strain and has placed them in his Jersey Inn herd at Connorsville.

Frequent mention has been made of these cattle in HOARD'S DAIRYMAN and dairymen who have strong aversion to horns would do well not to forget the Polled Jerseys. This breed, if it can be called such, originated with Mr. J. R. Orr's polled cow Daisy, an unregistered Jersey, but claimed to be a full-blood, bred to a registered sire, and with Mr. C. S. Hatfield's crossing of registered Jersey sires on native mulley cows and their descendants, with the result that it is claimed the hornless tendency is so firmly established in the bulls that when crossed on cows with horns much the larger proportion of the progeny will be polled. It is further claimed that this peculiarity has been attained without sacrificing any of the dairy qualities which have made Jerseys so popular with the dairymen, and that, whether in the show-ring or elsewhere, Polled Jerseys have attained to equal honors with their horned cousins.

THE CAUSE OF TUBERCULOSIS.

Dr. F. W. Smith, of Syracuse, N. Y., has administered over 7,000 doses of tuberculin in testing the cows which furnish milk for that city. In a recent interview he was asked the following question:

"Why is it that so many cattle are now infected, when but a comparatively few years ago such a thing as tuberculosis among cattle was almost unheard of?"

"Do not think, because the disease was not recognized, that it did not exist," the doctor replied. "But I have no doubt that the modern system of close stabling has much to do with it. In the old days, when the cows slept in cold stables or ran about the straw stack in the barn-yard, the animals were hardier and freer from pulmonary disease. There is little question of that. Indeed, among the Western cattle that have never seen a stable and are shipped East for beef the inspectors rarely find any tuberculosis.

"The entire tendency of modern scientific dairying encourages tuberculosis in cattle. The animals are closely housed, given little exercise and fed on green stuff and ensilage the year round. Everything is done to increase the quantity of milk, which is naturally an increased drain on the system. Jersey cows, notably large milkers, prove more liable to the disease than native breeds. The close stabling renders the animals more liable to colds and lung troubles, and their depleted vitality makes them susceptible to tuberculosis.

If Dr. Smith had been more broadly intelligent on this question, he would not have said, without qualifications, what he did. He would have said, "close stabling" *without ventilation* for one thing.

Had he been as well posted in "modern scientific dairying" and the literature of it as he should be, he would know that most strenuous stress is laid upon the importance of securing proper ventilation in stables, without which beef cattle are just as liable to the infection of tuberculosis as dairy cattle. He should know also that Jersey cattle are no more liable than native cattle to this disease, as proved, by the experiments of the Department of Agriculture of the Dominion of Canada, and the Minnesota Experiment Station and all other thoroughly conducted comparative experiments.

It is not a question of breed but rather closeness of stabling, bad ventilation, and the presence of the infection. Given all these conditions and the big lunged beef breeds and so-called hardy natives suffer just as badly and in some instances worse than the Jerseys.

A Machine for Threshing Cow Peas.

ED. HOARD'S DAIRYMAN:—On page 276, of issue of May 19, W. H. S. has an interesting communication on cow peas and soy beans. We are particularly interested about the soy bean, both as an Illinois and a Tennessee crop. We know the Whippoorwill pea and appreciate its great value to the south, but if the soy is better, we must have a start in it this season.

Concerning the cow pea, three ingenious farmers living near here invented a successful thresher, last winter, for which they will soon receive a patent. One of the inventors informed us that the only objection offered to it was that it crushed a few seeds, but once threshing is in vogue, seed will fall in price and a few crushed peas won't amount to much; moreover, the crushed ones feed as good as whole ones.

It will revolutionize methods in the south. The one great reason people here do not sow more peas is the great cost of seed. Last year we paid $1 a bushel for seed that was fully half wasted by weevil.

Many poor farmers, especially blacks, when asked why they did not grow peas, answered: "Seed costs too much." If the landlord furnishes seed they will eat it on the table, and run planter empty over field, and then swear they won't grow—bad, but we know whereof we speak. The threshing of unpicked vines will so cheapen the price of seed that thousands of acres will be sowed where none now are.

Humboldt, Tenn. WILLIAMS BROS.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

STARTING A MILK BUSINESS.

A friend in Indiana, remitting a subscription for his neighbor, says:

"My friend is a railroad man, but owns two farms in our neighborhood, and is aiming to stock up in the dairy business, providing we can sell our milk to some advantage. He wants to know what kind of stock to commence with. I tell him to get Holsteins, as it is our aim to get a milk shipping station at Laketon. He also wants to know, how much milk a cow ought to give, and for how long a period, and at what price it can be sold. If you can give us Chicago prices for the last twelve months, that will tell the story, as the express charges will be 22 cents on each 8-gallon can. Please let me know by letter why we could not ship milk to New York. I see Elgin is making shipments there every day, and we would have about 160 miles advantage of Elgin."

That request to reply by letter has been the occasion of some delay, as we have been unable to find the time to reply, and not neglect other duties. So we say here, that every man should keep the breed of cows, which are, to him, the most attractive. Undoubtedly the Holsteins will yield more milk than the other breeds, but it will not be of so high quality, and if the day is not already here, it soon will be, when quality will be accounted worthy of consideration in making prices. Further than this, the shipping of cream is beginning to assume very considerable importance, and the richer the milk, the more cream will it yield. This is not saying that a first rate Holstein cow will not yield as much cream as a first-class cow of any other breed, but it is suggesting that even for a profitable milk business, one is not necessarily limited in his choice of breeds.

A herd of good Holstein cows should average not less than 8,000 lbs. of milk per year. We have no record of Chicago prices, but they will probably average not far from $1.00 per hundred pounds. There is no milk in its natural condition shipped from Elgin to New York, but a large amount is shipped as "condensed milk."

TO EXTERMINATE "LIVEFOREVER."

I have about two acres of land with liveforever in it. Can I kill it in any way?

I look forward to the coming of your valuable paper every week. It is very interesting. W. W. B.

Bridgeport, Conn.

Will not some of our readers, who have had experience with this pest, answer the above inquiry.

GRAIN WITH PASTURE.

Will you please give me some information on the following:

I have been feeding my cows from eight to ten pounds of the following ration: One hundred pounds wheat bran, 125 pounds gluten feed, 50 pounds wheat middlings, 50 pounds corn and cob meal, with hay, of course. Now, when turning into grass what grain ration would you advise and how much, if any, milk being my object? W. W. B.

Bridgeport, Conn.

Other things being equal, and especially if the matter of cost does not indicate otherwise, we do not believe there is any better supplemental feed for cows on good, fresh pasture, than corn and cob meal. When the

pasture becomes dry and the grass more "woody" we would mix in some bran and gluten feed and in an extreme case drop out the corn and cob meal altogether. The amount to be fed will depend entirely upon circumstances. When the pasture is abundant and cows do not have too much traveling to do, very little grain is required unless the cow is an exceptionally heavy milker.

SWEET CORN FOR SOILING.

I am going to plant some Stowell's Evergreen sweet corn to feed to my cows through the fall and early winter, if you think best to feed as late as that. I shall plant three feet each way, thin enough in the hill so it will ear good.

Now, will it pay better to feed to the cows ears and all, or would it pay better to break off the ears for the pigs? How many acres will I need for 10 cows?

Would you advise feeding grain all summer to cows? E. S. D.

Grass Lake, Mich.

Corn of all kinds, whether for soiling, for silage, or dry curing for fodder, should be planted moderately thick, so as to reduce the ears to about one-half their normal size. Thus planted, one acre of corn, with other suitable feed, will usually supply ten cows for about thirty days, and it will not be expedient to remove the ears.

In regard to feeding grain on pasture, see answer to W. W. B., of Connecticut, as published elsewhere in this issue.

A PENNSYLVANIA RATION.

Please form me a balanced ration for cows averaging in weight about 1,200 pounds, from the following feeds:

Mixed hay, clover and timothy, at $10 per ton; bran (winter wheat), $17 per ton; gluten feed, $16 per ton; cotton seed meal, $1 per cwt.; and can get hominy chop at $16 per ton, if you think proper to add the same.

Palmyra, Pa. C. A. H.

Starting with the proposition that cows should be fed all they will eat, we submit a suggestion for a minimum ration for a cow at this season of the year and capable by nature and length of time in milk of yielding a fair flow of milk, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbo-hydrates	Ether Extract
20 lbs. clover and timothy hay	17.16	.96	7.92	.32
5 lbs. gluten feed	4.61	1 01	2.42	.25
3 lbs. bran	2.64	.38	1.16	.09
Totals	24.41	2.36	11 50	.66

Large sized cows will most likely eat more hay, and if they are exceptionally heavy milkers they might well have more grain, preserving in the increase substantially the proportions above given.

CROSSING GUERNSEY WITH RED POLLS.

Please state if it is advisable to cross a Red Polled cow with a big milk and butter record and dairy type, with a registered Guernsey sire? What kind of a dairy cow would it make, and would the offspring be hornless? F. M. L.

Worcester, Pa.

If the cow is a registered animal and can be bred to a registered sire of the same breed the resulting offspring will sell for more than if cross-bred. It is quite impossible to forecast the result of cross-breeding as indicated. Sometimes such crosses turn out excellent dairy animals and sometimes the tendency is to revert to the original type. The dairy cow of the present day is a highly organized and sensitive animal, and any departure from the general current in which she has been bred is very apt to set cross currents in motion, which will lead to so much confusion that the original impulse becomes dominant.

If such a cross should be made, the chances are that the progeny would be hornless.

PEA PODS FOR SILAGE.

L. T. A. writes us from Whittier, California, that he is feeding fresh pea pods to his cows, that the supply from a near by cannery is larger than he can use, and therefore he inquires whether they cannot be preserved in a silo. Although we have never read of any experiments in this line, there would seem to be no reason why this might not be done, unless it should turn out that the excess of water in them would tend to make the silage too sour. This can only be determined by actual trial, and we think the chances of success would justify the expense of trying the experiment. If it should fail, the silo would still remain and could be utilized for other crops.

He expresses the opinion in another part of his letter that the pea pods tend to the production of milk containing a low per cent of fat, but as he has just purchased a Babcock test, we expect he will find that feed of any kind has little or no effect upon the per cent of fat in the milk.

IODIDE OF POTASSIUM FOR LUMP JAW.

How often is iodide of potassium to be given for lump jaw? How long does it take to cure? E. C. P.

Bowers, Wis.

The dose should vary with the weight of the animal. It is one-fouth dram per cwt. of live weight, given once or twice a day in a pint of water.

After the drug has been used for a time, symptoms of iodism begin to show; there are discharges from the nose and eyes, and scaling off of the skin. On discontinuing the use of the drug, the symptoms will disappear, and the use of the iodide can be continued. The milk from cows, undergoing treatment, is unfit for use so long as the iodide is given. The proper use of the drug seems to dry up the tumor rapidly, without any effect on the animal. The length of time necessary for a cure depends on the animal and the progress of the disease.

THE WISCONSIN CURD TEST.

Will you please explain what is meant in T. B. Miller's talk on cheesemaking by the Wisconsin Curd test? E. A. L.

Ontario.

In the Wisconsin curd test, small samples of milk are taken and treated in the same manner as when milk is made into cheese. The work is done in pint Mason fruit jars. After the curd is formed the jar and curd are kept at a temperature of 98° for from 6 to 12 hours and then examined. Any impurities in the milk which will cause the cheese to be of poor quality are then made evident by the formation of pin holes or offensive odor. A full description of the test can be obtained from the bulletin issued by the Wisconsin Agricultural Station, on the Wisconsin Curd Test.

FROM CALF TO COW.

I have seen nothing in your paper, since I have been getting it, in regard to the proper feed for heifer calves from the time they are dropped till they are first fresh. I know it is very important. Give me, and your other new subscribers, some light. W. S. H.

Mattoon, Ill.

W. S. H. could not write as above after receiving last week's paper and reading the very excellent article from a New York correspondent on page 268.

ENLARGING TEATS.

I have some grade Jersey calves, heifers and cows, besides some beef cows that I'll sell as soon as they get fat and fail to give enough milk to be profitable. Part of my young Jersey cows have too small teats to milk easily. How can I remedy the difficulty? I know that letting a good sized calf run in the pasture with them will draw their teats down, but is it good for the heifer? I could let a calf suck the last 4 or 5 months before the heifer is due to drop her second calf. W. S. H.

Mattoon, Ill.

We have never been very successful in attempts to enlarge the teats. As the heifers get older the teats will naturally enlarge, more or less, and we should rather depend upon this than run the chances of injury from letting the calf run with the cow. These heifers ought to be giving a profitable amount of milk during the last 4 or 5 months of their first milking period,—certainly up to within one month of the proper time for going dry. During that last month probably no serious injury would result from experiment with a calf as a teat developer.

A CALIFORNIA RATION.

Please form a ration for me of alfalfa hay, corn ensilage, bran and corn fodder.

Round Valley, Cal. W. D R.

Having silage and corn fodder it is some what strange that there is not also some corn, which, ground with the cob, would be better than bran to go with alfalfa hay. However, taking the materials named we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbo-hydrates	Etker Extract
12 lbs. alfalfa hay	10.99	1.32	4.45	.14
6 lbs. corn fodder	3.47	.15	2.08	.07
20 lbs. silage	5 38	.26	2.80	.14
6 lbs. bran	5.29	.75	2.32	.18
Totals	25.13	2.48	11.65	.53

CEMENTING A SILO.

We have a circular stone silo, 26 feet deep and 20 feet in diameter. The stone is porous and absorbs moisture, and the floor or bottom of silo is moist. Now, would it be advisable for me to cement this silo, cement costing in this place $11 per bbl? Please give me directions for cementing the same, and about the number of barrels necessary.

Round Valley, Cal. W. D. R.

It is an essential requisite of a good silo that it be smooth on the inside. This is one of the reasons for plastering the inside of stone silos, and of course the character of the wall has much to do with the amount of mortar required. If it is rough and full of large indentations, more will be required than if it is now comparatively even. Indeed, if the wall is now smooth a cement wash put on in two or three layers might suffice. It is therefore quite impossible to estimate the amount of cement that will be required, without full knowledge of the condition of the wall. Any local mason should be competent to answer the question. With good cement, a mixture of one part cement to two parts sand makes a good mortar for the purpose.

TREAD POWER FOR SEPARATORS.—GUERNSEY MARKING.

Can a separator be successfully run with a two horse tread power? Can you give the names of some of the best make of separators? Do any of the full-blooded Guernsey cattle have a black nose with a frosted muzzle? R. B. H.

N. Y.

It depends on the size of the machine. With the larger sizes the power would be too irregular to be satisfactory. You will find the names of the different makes in the advertising columns of the DAIRYMAN.

Yes, but it is considered a fault in the markings, and avoided as much as possible.

PATRONS AND THE BUTTER.—SAMPLING CREAM.

I should like to inquire through the columns of your paper if, in running a creamery, and charging for manufacturing system, is it adviseable to allow the patrons to draw their butter and dispose of it, provided they do not sell below the market price.

I should also like to enquire the best method of sampling cream received from a hand separator daily. Would it be necessary to test a sample each day or could the samples be saved for a number of days by means of a preservative and then tested?

Idaho. SUBSCRIRER.

Unless there is some provision in the articles of agreement to the contrary, a patron can draw his butter and sell it for any price he pleases. But it is not to the benefit of the creamery business to allow such methods to prevail.

The best way to handle cream is to test each batch, otherwise the large amount of fat present is liable to cause mistakes. Of course, composite samples can be taken if great care is used, but to get correct results a certain per cent of the weight of cream must be taken for each sample and the work of sampling would be nearly as great as that of testing. The cream to be tested should be weighed out instead of being measured. This necessitates the use of fairly delicate scales, but it is necessary, if accurate work is to be done.

SOME AUSTRALIAN QUESTIONS.

Please find enclosed $2 00 for the renewal of HOARD'S DAIRYMAN, and with it may I be permitted to ask you some questions? The distance is so great, and the length of time it takes to get an answer, so considerable, I trust you will excuse me for asking too many.

How does the escutcheon, or milk theory work out in America? Is it reliable?

Could you give a description of some of the fancy dairies, such as the Darlington and other noted dairies, including the cow, the feeding, barns and dairy, also the marketing of the butter?

What is the price of a top notch dairy bull or heifer? T. L. ROGRRS.

Victoria, Australia.

1. It happens that the above questions come into hand immediately after writing the reply to the inquiry concerning the Guenon theory, contained in the letter from Florida, and we beg to refer Mr. Rogers to what is said there, and adding here that in the official scale of points, adopted by the Holstein-Friesian Association of America, for judging Holsteins, the escutcheon is given eight points out of the one hundred, which denote perfection. This is so far as we now recall the only official recognition accorded the escutcheon as an indication of dairy merit.

2. It further and quite opportunely happens that before receiving Mr. Rogers' letter, the article in another column descriptive of the Darlington dairy, had been put in type, and a reference to it will show, as HOARD'S DAIRYMAN has so often contended, that in dairying as elsewhere, it is the man himself that is the key of and index to the situation. Given the right kind of a man, and the best of butter can be made, no matter how primitive and inadequate the accessories and surroundings. The best cows and the most complete outfit of buildings and machinery in the hands of an inattentive man will not equal in profit or quality of product the result from common cows and inadequate equipment, with the right kind of a man to handle them. Not that good cows and good buildings and modern dairy appliances are undesirable, or do not contribute, when properly used, to larger success, but they cannot take the place of the intelligent, reading, thinking, studious man.

3. The prices of breeding stock are very variable, depending largely upon the reputation of the breeder, and the herd from which they are selected. One may buy first class animals for $100 and sometimes for less, or he may pay as high as $1,000.

SCALDING CHURNS—TIN LINED CHURNS—RED POLLS AS MILKERS.

What is the scientific object of scalding a churn directly before putting the cream in?

Would a tin lined churn be practicable? If not, why?

Do Red Poll cows have good records as milkers? C. B. T.

Clay Co., S. D.

The reason for scalding a churn is to insure cleanliness and freedom from any foreign odor before the cream is put in. If the churn is clean and one is sure of it, the only reason for using hot water would be to wet the wood of the churn thoroughly and rapidly, so that the grain of the wood will swell and keep the cream and butter out of the pores. But as one can never be sure of the purity of a churn, especially if it has been allowed to stand, it is always well to scald it before using. All wooden dairy implements must be thoroughly wet before being used, to prevent the butter from sticking.

The objection to a tin lined churn would be the butter sticking to the tin.

There are a few Red Polls that have excellent milk records, but as a rule they are much below the dairy breeds.

Building, Remodeling and Ventilating Barns.

(Continued from Page 287.)

ble. If you carry it up higher, you increase the amount of surface exposed, and the amount of space which the cows are obliged to keep warm; you increase the tendency of the warm air to escape above the cows, and so in every way make it more difficult to keep the stable warm.

A member—Should the intake and the outtake pipes be of the same size?

Prof. King—No. The intake pipes will have much less cross section than the total cross section of the ventilator.

Ex Gov. Hoard—You will partially create a vacuum by rushing the air out, and that helps the intake.

Prof. King—Yes, and the air expands when warmed by the cow, and must have a larger space to pass out through, and then there are inevitable leaks through windows and doors through which some air will enter. This point must be kept in mind for ventilating shafts:—The best ventilating shaft is such as would make the best chimney. If you understand what are the essential conditions of a good chimney you may apply them in constructing a ventilating shaft.

Ex-Gov. Hoard—There is one factor in a chimney that makes it a ventilating shaft, that is the fire.

Prof. King—That is true, and the heat from the bodies of the cows, in a measure, acts in the same way; but you are all familiar with the fact that on a windy day the air currents passing across the top of a chimney tend always to produce a stronger draught, and all good chimneys have a draught through them even when there is no fire, and the same thing would be true of a properly constructed ventilating shaft which is air tight from top to bottom except where openings are provided; the air blowing across the top acts like an inspirator tending to draw the air out.

Passing now to another point, that of light. It is of course essential that an ample amount of light be provided, but this is not so important a factor as to exclude the use of basement stables. I believe that our dairymen in Wisconsin, who have good conditions for utilizing a basement stable, should always use them rather than to abandon the idea on the ground of insufficient light. It is possible in the construction of almost any basement to introduce a large amount of light and yet get the advantages of the basement as well. The idea that a basement is damp and unhealthy grows simply out of the fact that it is possible to make the basement tighter than ordinary above ground structures, but this simply means that it is a better stable, provided it is properly ventilated, for when ventilated it will not be damp.

With the basement stable it is possible to place the silo deeper in the ground; it is possible to store the feed above more cheaply and handle it more cheaply, and it is possible to have a warmer stable, so that ordinarily where good conditions exist for the construction of the basement stable for a dairy barn, they should be utilized.

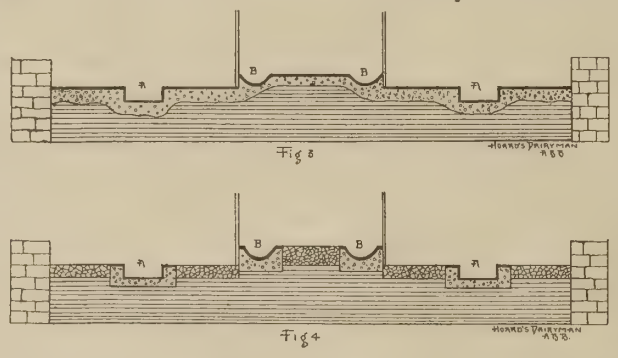
A few words in regard to the stable floor of a dairy barn. Everything considered, a good cement floor is the safest, best, and in the long run, cheapest. Such a floor can easily be kept sweet and clean; it will wear for an indefinite period if it is properly made out of good material. The first cost will be somewhat more than that of other kinds of floors, but if a man has a little tact, and uses his own ingenuity and his time, he can build a good cement floor himself, at least by hiring a good mason to work with him, and in this way get a cement floor that will cost within less than twice that of a reasonable wood floor, and when made will be permanent. The slipping on the cement floor can easily be avoided by leaving the surface a little roughened, and it will seldom be as dangerous as the wet oak floor often is.

Ex-Gov. Hoard—A little land plaster sprinkled on the floor every day will help to prevent slipping.

A member—How about cement floors in very cold weather?

Prof. Henry—The other day three farmers came to Madison, on the coldest day we have had this winter, and they came to see the cement floor in the University barn. They all went back expressing great satisfaction with that cement floor.

Prof. King—A cement floor tends even to hold the temperature of the stable higher in cold weather rather than lower, because it conducts the heat from the ground up into the stable. The mistake has been made of putting cement floors in stables with very high ceilings, and under these conditions when the walls of the stables are poorly constructed the floors may become cold, and when there is poor or no ventilation they condense the moisture of the stable and become wet, the moisture even settling and sometimes freezing. Under these conditions it is sometimes said that such floors draw the moisture up out of the ground. This, however, is not true. The moisture is simply condensed out of the air and thus the air of the stable made drier than it would have been if the floor had been of wood. The water that condenses in a stone basement or on the walls of any stable should be looked upon by the owner as a positive proof that the stable is insufficiently ventilated. There is not enough fresh air passing through the stable to remove the moisture given off from the bodies and lungs of the cattle. Again, when the stable has a strong odor of ammonia or a bad odor of any sort, this is another positive proof of insufficient ventilation, and when the cows are kept under such conditions, they are working at a disadvantage and are wasting food. The food they eat will simply pass through the alimentary canal without being digested or assimilated, for a cow will not load up her system with food if there is not a chance of getting an abundant supply of air with which to utilize it, and to remove the waste it will entail, from her body. Under such conditions therefore, you may feed your cows the same quantity of feed and yet realize from them less milk.



In figure 3 is represented a cross section of cement stable floor. Such a floor when made out of crushed rock, sand, gravel and Portland cement, making a total thickness for the body of the cement an average of four inches when thoroughly packed, and a surface finish of Portland cement half an inch thick would require, for 100 sq. ft., the following amounts of material: 1.1 bbls. cement, 1.25 cu. yds. crushed rock, 7 cu. yds. gravel, 5 cu. yds. sand. The cost of the material for 100 sq. ft. of such a floor would be, for cement, at $3 per bbl., $3.30; crushed rock at 80 cents per cu. yd., $1.00; gravel at 50 cents per cu. yd., 35 cents; sand at 50 cents per cu. yd., 25 cents, making a total of $4 90 per 100 sq. ft., as the cost of the material. If a wood floor 2 inches thick were provided for the stable, using 2x6 joists placed 16 inches from centre to centre, and with lumber at $15 per thousand, the cost per 100 sq. ft. for material would be $4.35 or 55 cents less than the materials required for the cement floor. The cost for the labor for the cement floor would be greater than the cost of the labor for the wood floor, but the difference need not be as great as to double the cost of the wood floor.

In fig. 4, I have illustrated how cement gutter and cement mangers might be made and then crushed rock used for the alley ways and for the platforms upon which the cows stand. The material being put in and thoroughly tamped making essentially the same sort of foundation as used for the macadam roads; after the crushed rock has been put in place and thoroughly tamped, a surface dressing of screenings or fine sand would be applied and worked in between the crushed rock by sweeping, wetting and tamping, thus forming a surface like the road bed. Such a floor as this would be very durable and would not be quite as expensive as the all cement floor. But it would not be as easy to keep it perfectly sweet and clean as the all cement floor.

Mr. Taylor—I have seen barns where they seem to think that they must have a foot of broken stone.

Prof. King—This depth is hardly necessary where simply the weight of the cows is to come upon the floor. If a team was to be driven behind the cattle in cleaning, it would be desirable to make the driveway not less than six inches thick.

A member—Would not gravel work as well as crushed rock?

Prof. King—Coarse gravel may be used in all cement floors but where it is to be finished without cement the rounded gravel stones do not bind as well as the angular pieces do.

Chairman—We simply tamp down sand, wet it and tamp it rough and build the cement walk on top of it.

Prof. King—That is right, there should be a layer of sand on the ground upon which the cement is first placed.

A member—How deep are the gutters behind the cows?

Prof. King—I like them best a little more than 6 inches, 7 or 8, and would not make the gutter narrower than 18 inches.

Question—How is the manger, is the top level with the feeding floor?

Prof. King—No. The bottom of the manger should be 2 or 3 inches higher than the platform the cows stand upon.

Question—Is half an inch of surfacing enough?

Prof. King—It will do if it is made of good Portland cement, and properly put on.

Chairman—And you do not have a cheap mason, the owner of the building is generally the best mason around.

A member—Is there any objection to ventilating a dwelling house in the same way that you ventilate a barn?

Prof. King—The ventilation of a dwelling house should be on exactly the same principle as that described for the stable, except that where you have a system of steam heating with radiators about the sides of the room. In this case the cold air is brought in directly upon the radiators so as to warm it at once before it passes into the room.

Why the Babcock Test was Discarded.

A Retreat Based Upon Incorrect Information.

(Some time since we noticed in a floating newspaper clipping, that the Babcock test had been "voted out" of a cheese factory in Pennsylvania, and, therefore, wrote to one of the parties for a statement of the reasons leading to such action. Following is the reply received:)

Ed. Hoard's Dairyman:—Yours received, and in reply will say that we consider the Babcock test a butter test, rather than a cheese test, and in a community where milk from thoroughbred Jersey and Holstein dairies are sent to the same factory, I think the Jersey men receive more than their share of the money, in accordance to the amount of casein in the milk. If all dairymen patronizing the factory, kept the same breed of cows, I think the test would be more appropriate. I don't consider the Jerseys a profitable cheese cow. The test was voted out of several factories in this locality, this spring. T. W. McClelland.

Espyville, Pa.

History records that in one of the battles of the civil war, a northern army was demoralized, and retreated, upon discovery that the enemy was provided with an unexpected supply of what appeared to be artillery. This was in the early days of that conflict, before the soldiers in either army, or their commanding officers, had learned to distinguish between the actual and the apparent. In the instance referred to, the attacking force did not wait to see the guns fired, or learn what execution they were capable of accomplishing, but fled in dismay from what was afterwards learned to be only "Quaker" guns—mere logs of wood, fashioned into the semblance of deadly cannon.

It is somewhat so, we fear, with our friends in Pennsylvania, who have resolved to discontinue the use of the Babcock test at the cheese factory. While it is true, that 100 pounds of 6% milk will not make as many pounds of cheese as 200 pounds of 3% milk, it is equally true that 100 pounds of 3% milk will not make as much cheese, or cheese of as good quality, as an equal amount of 6% milk. In other words, it has been demonstrated over and over again, that the richer the milk the more cheese it will make, and for occular demonstrations of this fact see page 194 of the current volume of Hoard's Dairyman.

It is admitted that this increase in yield does not exactly follow the increase of the fat in the milk, but what is lacking in this respect is abundantly compensated for, in the improvement in the quality of the cheese which results from mixing the rich milk with that containing less than 4% of fat, and the larger price obtained for the better cheese.

To dispute with these facts is to show contempt for the truth, and to be frightened and give up the Babcock test, because it does

"A Word to the Wise is Sufficient."

But some stubborn people wait until "down sick" before trying to ward off illness or cure it. The wise recognize in the word "Hood's" assurance of health.

For all blood troubles, scrofula, pimples, as well as diseases of the kidneys, liver and bowels, Hood's Sarsaparilla is the effective and faultless cure.

Poor Blood—"The doctor said there were not seven drops of good blood in my body. Hood's Sarsaparilla built me up and made me strong and well." Susie E. Brown, 16 Astor Hill, Lynn, Mass.

Dyspepsia—"We all use Hood's Sarsaparilla. It cured my brother-in-law and myself of dyspepsia. I owe my life to it." M. H. Kirk, 607 Franklin St., Philadelphia.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Not a Preservative but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION MILK COOLER-AERATOR. It does its work perfectly and its use doesn't violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

not give the amount of casein, is very like running away from a Quaker gun.

Jersey cows that yield 5,000 to 10,000 pounds of milk in twelve months, make profitable cows for cheese, greatly surpassing, in this respect, the average cow.

Feeding Melons.—Bloat.—Castor Oil for Warts.

ED. HOARD'S DAIRYMAN:—I should like to ask you the feeding value of citrons and pie melons for cows. We can raise them here in great quantities without much expense; in fact they grow along the roadside, and almost anywhere that the seed gets scattered. They will keep all winter, and all kinds of stock eat them almost as readily as they will pumpkins.

Would they furnish part of the succulence lacking in alfalfa hay?

Our main feed here is alfalfa; the hay is usually worth from $3.00 to $5.00 per ton, but corn is worth a cent a pound and upwards, and all other grain in proportion, so we can't feed much grain.

I see some inquiry in the DAIRYMAN about bloat; we have considerable trouble with it here, especially in the spring. There are several remedies, such as tying a stick in the mouth, etc., but the only *cure* is to stick them.

If a cow is not very bad and she begins belching, she will probably soon be all right, but if the gas forms faster than she belches it up, it is very apt to kill her, and a cow will die in a few minutes after she begins to puff up, if it is a bad case.

I have directions from a veterinary surgeon about sticking them, as follows: "In the use of the trocar to take off the gas when a cow is bloated, you should strike midway between the last rib and the pin bone, and the same distance from the transverse processes of the lumbar vertebrae and on the *left side*".

But if you (like myself) don't know where the "transverse processes of the lumbar vertebrae" are, and you find one of your cows out in the field badly bloated, and you have not got a trocar about your old clothes, just measure a span from end of thumb to end of little finger forward from the hip bone, and about the same distance down from top of spine and stick in your jack knife and in a few minutes she will be all right, but be sure to get below the bone on the back. I have had to stick several of mine lately, and if stuck in the right place it will not hurt them at all.

I want to say one word more about the castor oil remedy for warty teats mentioned in the last DAIRYMAN. I have used it a number of times and have never known it to fail if persevered with, and it doesn't make the teat sore. E. S. H.

Tulare Co., Cal.

There is no doubt that melons, such as our correspondent describes, can be given as a valuable adjunct to dry feed. It must be remembered that their nutritive value is very small. Some varieties contain not over 12% of solids and less than 0.5% of protein, consequently their feeding value would come from their use as a succulent food rather than from any actual nutrients which they might be supposed to contain.

Morals and Moralizing From Maryland.

ED. HOARD'S DAIRYMAN:—A few days ago I came across the "butter book" I kept when we ran a dairy for revenue only, and made it a business rather than a side show. During the month of January, in '92, I made ninety-two pounds of butter from eight cows; for the same month the next year, with the same number of cows, I made one hundred and ninety-eight pounds of butter. The difference is explained by the fact that the first year the hired man fed the cows and the second year I fed them myself.

In the morning before breakfast the cows had their breakfast, and during the whole day, more or less, I had the cows on my mind. And the hired man knew that fact too. It was not safe for him to slight any part of his work, for he knew that what I did not do myself I saw that someone else did. It took a great deal of time.

Twice a week I churned and printed the butter and that took nearly a half day each time, and once a week I took the butter to Baltimore, which took another half day. The milk had to be skimmed twice a day, and all the feed was mixed by me, so there was really not much time when I was not doing something or other for the cows. But then it paid. Sixty-eight pounds were sold at thirty-five cents a pound, and what of the balance was not used was sold at the grocer's for thirty cents, and there was also four quarts of cream at twenty cents a quart, making a total of $63.30 for eight cows for one month and a winter month at that.

Subsequently on account of trouble with milkers, we sold our herd, and the next year I began to take horses to board for the winter. There are lots of people in the city who drive in summer, but in winter find it too cold and then put their horse on some farm, and the ice companies have some horses that they have no use for in the winter. I began with one horse, as it was all I could get, but I sent him away in good order and this year I have fifty-two, at present.

When I made the change from cows to horses, I thought it would be no work to take care of the horses after taking care of cows. But now I go down to the barn in the morning and, except for about an hour at dinner, I am there all day. But the horses pay reasonably well, too, as well as the cows, and the moral to both horses and cows, if what limited success I have met with will allow me to moralize, is, that if anything is wanted to succeed it must have constant care, and nothing will succeed without plenty of good hard work. P. B. CROSBY.

Feeding Whey at the Cheese Factory

ED. HOARD'S DAIRYMAN:—I was very much interested in the paper read by H. E. Cook, of Denmark, N. Y., at the state dairyman's convention, and published in HOARD'S DAIRYMAN May 12th, and noted carefully the part relating to the feeding of whey at the cheese factory.

While that manner of using the whey has some merits, there are some strong objections to it, especially the odor that will rise from the yard where there are many hogs, a very bad feature near a cheese factory or any other place; besides the hogs are more liable to disease than when cared for at home.

I have seen that way tried in the state of New York, thirty years ago, and there are other objections to it. Hogs require a grain ration, and most farmers prefer to feed their grain on their premises, and keep the fertility at home; besides hogs can be cared for in a far better manner than in a large herd at the factory.

Mr. Cook's way is better than feeding sour whey, but there is no necessity of having sour whey. I have been among the cheese factories some years buying cheese and furnishing factory apparatus and supplies, and am fully convinced that there is no necessity in having sour whey.

There are a few factories that are equipped to keep the whey sweet, and the owners say that the expense is fully offset by the better quality of milk received, besides the benefit to the farmer.

There is less danger from bacteria in sending sterilized whey home from the factory in the can than in receiving the milk from the farm. I would prefer to have the cans filled with sterilized whey than to have them go home empty, unless cleaned and steamed at the factory, and then treated again at home.

The expense of sterilizing the whey is not large. A good galvanized iron whey tank, the best place for it is in the boiler room, raised high enough so a pipe will discharge the whey in the can on the farmer's wagon, a steam pipe leading from the boiler to the whey tank.

In the forenoon, every day, wash and steam the tank and after forcing whey in the tank, turn on the steam and heat to 150° or 160°. In the summer season the whey will be somewhat warm in the morning, and if desired, steam may be applied a few minutes and the farmers can have warm sweet whey to haul home, and if he will take care of his storage, need not have sour whey.

A steam jet pump (the Blakeslee requires very little steam) can be used to force the whey into the tank, which will assist in raising the required temperature.

After the outfit is in, it requires a little more fuel, but less labor than should be given the old-fashioned whey tank, every day.

At some small factories the patrons pay the cheese maker extra for sterilizing the whey, where a large amount of milk is received the owner of the factory can afford the expense. Too many factories have a boiler that is too small, or worse, none at all.

The worst feature of the cheese industry, in this country, is, there are too many small, poorly equipped factories, whose owners cannot afford a first-class outfit, and with which a first-class man can not afford to idle away his time.

When the number of our factories is reduced one-half, and the farmers learn that they can well afford to haul their milk a mile or two farther to a factory that is equipped with a first-class and up-to-date apparatus, and where experience and brains enter into the management of the concern, then may we look for the greatest improvements in the quality of our cheese.

Outagamie Co., Wis. F. L. FORWARD.

One of the Largest Dairies in the World.

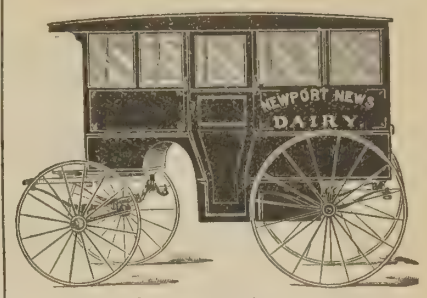
This dairy is situated about fourteen miles from Newark, New Jersey, and is owned and operated by Francis Francisco.

There are never less than one thousand cows at this establishment. The number varies from ten to twelve hundred. Mr. Francisco receives, at least, one carload of plump "new milch" cows from his Iowa ranch every week. His inspector tests and examines every cow rigidly, and every one which is found to be out of condition, or which does not give milk which, in amount or quality, equals the standard required, is converted into beef. Then the rest are given a place in the dairy. Every cow is killed and sold to the meat dealer as soon as it becomes "dry," and its place filled by a new milch cow.

These cows are kept in three large stables, and sixty men care for their wants. These stables are clean, dry and well ventilated. Every cow looks sleek enough to go to a wedding. Every cow is curried daily, and every cow's udder is thoroughly washed before each milking. The stables are lighted by electricity, and cooled by electric fans As every cow is milked, the milker pours the fluid into an automatic carrier, which takes it to the milk house, and places it in vats which are surrounded by ice. These cows are fed either ensilage or hay, and grain, every day in the year. They are kept shut up every inclement day, but every pleasant day they are let out to pasture. The entire establishment covers about three hundred acres. Not only is every cow tested when she first arrives, but frequently after that time as well, and every cow whose milk does not test, at least, 4% butter fat, or in any other way falls under the requirements, is carted away to the slaughter house, where its neighbors are destined to go in a few short months at the very most.

The milk from this establishment is bottled, and sealed, and shipped in refrigerator cars to New York city, and disposed of to the retail trade. The price received varies from season to season, but is never less than ten or more than fourteen cents a quart.

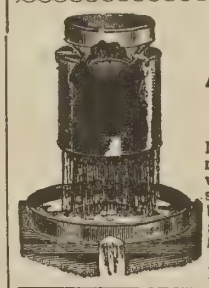
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Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

W. H. YOUNG,
Box 135, Aurora, Ill.

Village and Country Carpenters and Millwrights, Attention!

A thoroughly reliable manufacturing concern wants you to represent them in your vicinity, in connection with your other business A good chance. Don't wait. Address, with references.

X, Y, Z, Box 1592 Philadelphia, Pa.

KILFLY.

A harmless liquid applied to cows with a CHILDS ELECTRIC SPRAYER, that protects them from flies, increasing the amount of milk, making comfort for cows and milkers. Sample lot—One gallon can Kilfly and one Sprayer, securely packed, expressed to any address (except in State of Maine), charges prepaid, upon receipt of $2.00. Special prices for quantity. AGENTS WANTED EVERYWHERE.

CHARLES H. CHILDS & CO., Utica, N. Y.

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MIXED PAINTS

At **WHOLESALE PRICES**, delivered **FREE** For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

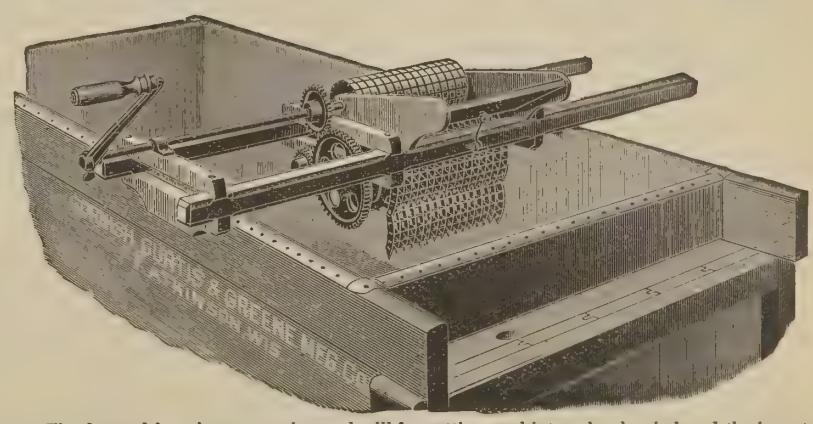
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Warranted the lightest, strongest, cheapest & fastest Full Circle Baler in the market. Made of wrought steel. Can be operated with one or two horses. Will bale 10 to 15 tons of hay a day. Write for description and prices.

GEORGE ERTEL CO., QUINCY, ILL.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00.**

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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, XV.

GLOSSARY.

Disinfection—To remove or destroy infection, a process that kills disease germs.
Antiseptic—An agent that checks or stops bacterial growth without necessarily destroying it.
Mercuric bi chloride—Same as corrosive sublimate; one of the strongest of germ destroying agents.
Milk of lime—A thin whitewash made from unslacked lime and water
Formalin—A liquid frequently sold under a variety of names, as formol, formalose, etc., which contains in solution about 40% of formic aldehyde, a powerful gaseous disinfectant.

CONTROLLING DISEASE BY DISINFECTION.

Another method of controlling disease, aside from that of preventive inoculation, is to use such measures as will destroy disease bacteria, and thus render it impossible for animals to contract contagion. This is done by disinfection, which is accomplished by the destruction of bacterial life by either chemical or physical agents. All life, animal or vegetable, is killed by the application of high heat, or by the effect of many different chemical substances. Unfortunately, what will destroy bacterial life also affects prejudicially the tissues of most of the higher animals and plants. It is therefore impossible to disinfect the living animal by the application of germ destroying forces to the tissues. But it is possible to kill this germ life, if it can be caught outside of the animal.

Remembering the fact that disease is contracted by the absorption of disease germs from without, it is often possible to destroy these organisms, while they are outside of the body, and thus prevent contagion from spreading.

It would of course be impracticable to do this over large areas, as fields or pastures. In fact, it is not necessary to treat these areas in this way, for it must be remembered that disease germs are not universally distributed in nature, but are confined generally to localized places, as stables, barns, portions of single fields or pens.

Many different methods have been devised that accomplish the desired end, i. e., the destruction of infectious organisms. Which of these will be used in the individual cases that come up for treatment will depend upon a number of factors. First of all, emphasis should be laid upon the question of efficiency. Concerning this, there is need of much change in popular opinion. The public at large have very imperfect and often erroneous ideas in regard to the matter of disinfection. Very frequently removal of an odor is regarded as equivalent to disinfection, particularly if the odor is a putrid one. Not infrequently chemical substances are powerful deodorizers, but have little germ destroying power. Then again, many chemicals check the growth of bacteria, or even inhibit their development when used in sufficient quantities, but do not destroy the same. Such substances are known as antiseptics, in contradistinction to disinfectants, which actually destroy bacterial life. The so-called preservatives that are used illegally as food preservatives, belong as a rule to the antiseptic and not to the disinfecting class. Even disinfectants like formalin are not infrequently used as antiseptics, by employing a very dilute solution.

Now it is manifestly out of the question to expect to destroy contagious matter, where these mild antiseptics are used. The germ life may be held in abeyance, so far as its growth is concerned, but it is not killed, and until it is actually destroyed, danger, of course, exists.

Again, the public are apt to put their faith in many compounds, or substances that have really a low disinfecting power, or the efficiency of which is subject to modification in various ways. Such, for instance, is the case with sulphur. This agent has been used for many years, and in the eyes of the public is still regarded as a most satisfactory disinfectant. When used under proper conditions, its efficiency cannot be questioned, but as it is ordinarily employed, its value as a germ killing agent is very slight. The usual method that is generally followed, where a few ounces of sulphur are burnt over a shovelful of coals, does practically nothing, except to put the mind of the operator at ease. Disease germs are able to stand such treatment with impunity. If, however, sulphur is used under proper conditions, in a room that is tight enough to hold the gas, it is possible to kill most bacteria by a thorough treatment. Three pounds should be employed for every 1,000 cubic feet (ten feet square and ten feet high,) and then the gas should be generated in contact with moisture. Dry sulphur fumes are relatively harmless, but in the presence of moisture, this gas unites with water, forming the deadly sulfurous acid, which is a most powerful disinfectant.

Another fallacy often noted in the use of disinfectants is the matter of contact with disease matter. To kill disease producing bacteria, or any other, requires actual contact of the disinfectant with the disease germ. The destruction of the life of the organism is not infrequently produced by the chemical union that takes place between the protoplasm of the germ and the disinfectant. This chemical union cannot occur at arm's length; even the effect of physiological poisons is not worked unless there is intimate contact. It is therefore necessary to bring the disinfectant into *immediate and complete* contact with the germ life to be destroyed. In the case of a gaseous disinfectant this is relatively easy, for its penetrability is, of course, much greater than that of a liquid, but even where gases are used, care should be taken to remove overlying dirt and matter, so that the disinfectant may penetrate all the cracks and crevices possible. It is, therefore, necessary to clean out all refuse, litter, etc., especially in barns before disinfection is carried out.

Not only may it be impossible for the disinfectant to reach the disease organisms through the accumulation of dirt, etc., but the power of some disinfectants is greatly reduced by applying them where dirt and foreign matter is present. Take corrosive sublimate, which is one of our most powerful germicides, but when it is used where it comes in contact with proteid or albuminous material, it very readily unites with albumen and so its disinfecting action is spent upon inert material, and not upon the deadly germ life.

Such facts as these make it necessary that any disinfectant that is used be chosen with due regard to its efficiency under varying conditions. Under some circumstances one disinfectant has a great advantage over another, sometimes in efficiency, sometimes in cheapness or in some other way.

Space does not permit of a full discussion of the matter of disinfectants, and in this connection, it will only be possible to give some of the standard methods that are the most available for general purposes.

For pens and small areas, fresh lime is very satisfactory, but this should not be used until all refuse is first removed. A thin whitewash prepared from freshly slacked lime (so called milk of lime) is regarded as one of the best disinfectants. In the treatment of fecal discharges this cheap substance is often given preference. The process of frequently whitewashing barns and stables is also a good one to recommend, on general principles. Not only does it absorb odors, but it reflects all light and thus intensifies the illumination that ordinarily is below what it ought to be. To secure the disinfecting action of whitewash, it is necessary to use unslacked lime. Air slacked lime has no value for this purpose. The relative inexpensiveness of this material makes it especially desirable where considerable surfaces are to be treated.

Corrosive sublimate or mercuric bi-chloride (1 part to 1,000 parts of water by weight) is also a standard disinfectant, but sublimate solution is a strong poison, and besides it corrodes metal surfaces. Its use in barn disinfection is somewhat limited on account of these factors. Carbolic acid and the many compounds that have been derived from the same, hold a popular position among the disinfectants.

These substances are powerful in their action (5% solution in water is as strong as is needed) but the odor and strong poisonous properties are somewhat objectionable, and the readiness with which they unite with albuminous substances minimizes their value for farm purposes.

One of the most promising disinfectants that has come to light in recent years, has been formalin. This disinfectant possesses the advantage of being applicable in both liquid or gaseous condition. Formalin is a watery solution of the gas known as formaldehyde. A saturated solution contains about 40% of this gas. When used as a liquid disinfectant, it is diluted to about 1 to 2% of formalin. In such strength disease bacteria are killed in a few minutes.

Where the rooms are capable of being tightly closed, it is possible to use it as a gas. This method is not so applicable to barn disinfection, because it is generally difficult to render the room perfectly tight. To secure best results as a gas, the surface should be damp. The gas formaldehyde may be generated in a variety of ways. It may be formed by burning wood alcohol in a lamp that does not permit of complete combustion, or formalin itself may be distilled and the gas given off in this way. One of the most efficient methods of those that can be utilized without the use of special apparatus is the sheet method. Saturate an ordinary cotton sheet with formalin, diluted with several volumes of water. About 5 ounces of formalin should be used for every thousand cubic feet. Hang this up in the room. A sufficient number of sheets should be used to give the necessery surface exposure. The formalin evaporates quickly, giving off the pungent formaldehyde gas. This is irritating to the mucuous membranes (eyes, nose and throat) of a person, but not poisonous. The room should then be kept tightly closed for a period of at least five hours. Such a treatment can be readily used by anyone, and its efficiency is quite complete. One of the great advantages of formalin is that it does not injure the color of even fine and delicate fabrics. Of course this is of no particular consequence in farm disinfection, but in disinfecting a room in a house, it is often of great importance to be able to treat hangings, beddings and clothing. Sulphur ruins most of these fabrics.

In speaking of disinfection and measures used to accomplish this end, mention must also be made of steam and hot water. If the temperature of any surface is raised to approximately the boiling point, all germ life, in a vegetating state, will be killed. It is thus possible to destroy disease bacteria that are unable to form spores, by the use of these agents. As a rule, however, the chemical methods of treatment will be more applicable.

Does It Pay to Use Commercial Fertilizers?

Ed. Hoard's Dairyman:—If it pays to grow a crop at all it pays to use commercial fertilizer on it, provided the soil is not already rich enough, or we lack the necessary animal manures for fertilizing the piece. In other words, it does not pay to work poor soil. It requires no thought to say that it does not pay to use fertilizers on potatoes when the crop sells for 10 cents per bushel, but we cannot tell when we plant a piece to potatoes, what those potatoes will bring.

If we sometimes knew, it would be well not to plant them at all. But as we do not know, it is best to plant enough for home use anyway, and these ought to be well fertilized that the tubers will be large and smooth and the crop worth the labor of planting and caring for. Even though we could sometimes buy potatoes in the market as low as it costs to produce them, it is best not to run the risk, and anyway, potatoes grown at home are better, because not exposed and bruised so much by handling.

One factor that farmers do not consider in the cost of fertilizing for a crop, is that while home-made fertilizers, like barn manure, appear not to cost anything in dollars and cents, they really do cost as much per pound of the essential elements as concentrated fertilizers do, and when used on a crop ought to be reckoned.

If we buy grain and feed it to our animals and apply the manure to our crops we ought not to think that we are getting the manure for nothing. The cows and horses have manufactured it and ought to get some of the credit of it. This feeding of grains is a commendable practice and ought to be more encouraged among farmers, but let no farmer suppose that he can feed worthless food to animals and expect to get from them valuable manure. Poor hay fed to animals produces poor manure worth little more than the hauling. It is only when rich grains and the better qualities of hay are fed that the manures are rich in fertility.

Keeping the thought in mind that farmers rarely credit manures, made on the farm, with any particular value, we notice that when they apply this kind of manure to a piece of land they put it on very liberally. Now it is no uncommon thing to see 40 loads of manure drawn on to an acre of land for the corn crop. Now this manure cannot be made and applied to the land provided it is rich grain fed manure for less than $2.00 per load. This costs the farmer in reality $80 00 for fertilizing the acre. Now what farmer would think of applying $80 00 worth of commercial fertilizers to an acre of land for the corn crop?

Does anyone doubt if a farmer did this that he would be bountifully repaid with a good crop, in fact, a more satisfactory crop than that produced from the acre fed with animal manure? This is not said to encourage farmers not to feed grains and make more manure, but to show them that any manure is worth just what it actually benefits a crop.

A common mistake among farmers is to apply a very small amount of commercial fertilizers to an acre of land and expect good results. The average man who would apply 40 loads of cow manure to an acre would expect equally as good results with the application of 200 pounds of concentrated fertilizers. Of course he would be disappointed, for this amount of fertilizers, while it is beneficial to start the crop and get it going so its roots can reach manure below, is utterly inefficient to carry the crop through to maturity.

There are some crops that it will pay to apply a small quantity of fertilizers to and the results will be beneficial, usually in proportion to the amount of fertilizers used, but it rarely pays to use commercial fertilizers in very small quantities on the corn crop, except as there are animal manures also used to carry the crop through the season. A good rule to go by in figuring whether it will pay to use commercial fertilizers is to first see whether the crop is worth, even though it be a good one, the cost of fertilizers. Of course, in this calculation, it is fair to estimate the value to other crops to follow and the permanent value rendered the soil.

It is quite safe to say that the crops of potatoes, small fruits and buckwheat are always better and repay any expense incurred in the purchase of commercial fertilizers. The use of seventy-five to one hundred pounds of commercial mixed fertilizers on an acre of buckwheat will increase the growth of straw so that the reaper will pick it all up when the crop is cut and increase the crop of grain four-fold. When used on any crop, a well mixed commercial fertilizer containing a good proportion of potash will increase the grain yield wonderfully. This is especially true when used in conjunction with animal manures.

I think a good plan is to plow under a coat of barn manure for the corn crop and put 200 to 300 pounds of commercial manure in the drills. This not only starts the corn nicely and carries it along till it reaches the manure below, but also tends to keep the wire worms away, a point which is very important. The crop of potatoes in our section is always very much larger in yield and in single specimens, the tubers are smooth and free from scab, when a good application of special potato manure rich in potash is used. On good strong soil in these parts the application of 400 to 700 pounds of potato fertilizer more than doubles the total crop and increases the quantity of merchantable tubers four-fold.

A common mistake of farmers is that they are purchasing the poorer grades of fertilizers instead of the higher grades. Manufacturers are putting these out in large quantities at the present time and this is a result of the demand for something cheap. As the filling of cheap fertilizers is worth no more than the earth around our farms, I do not see where farmers gain in paying freight and sacking expenses on something that can be gotten for the asking at home. Farmers should buy the higher grades of fertilizers only and no matter what agents or others tell you, a ton of actual value $40 00 fertilizer is more profitable for you to buy than two tons of fertilizer that has an actual value

of $20.00 per ton. Do not be deceived. Study the analyses closely and buy the higher grades. L. J. F.
Pulaski, N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The aggregate offering of butter on Monday's Elgin Board of Trade was 34,380 pounds. A bid of 16 cents was made for the entire offering, but only 7,320 pounds were sold at this figure, other manufacturers declining to sell at this price. The Quotation Committee announced the market easy at seventeen cents. The sales reported were:

Factory.	Pounds.	Price.
Shannon	1,560	16c
Elkhorn	1,560	16c
Baileyville	1,380	16c
Winslow	1,740	16c
Florence	1,080	16c
Total	7,320	

The markets for the corresponding week of the three preceding years were as follows:

May 23, '98....22,200 lbs. of butter sold at 15½c
May 24, '97....44,400 " " " 15c
May 25, '96....83,820 " " " 15@16c

The New York market Monday was reported steady at 18 cents. H. C. B.
Elgin, Ill., May 22.

Concerning Florida Butter.

ED. HOARD'S DAIRYMAN:—Seeing a letter in your valuable paper from a would-be dairyman, of Florida, saying he cannot make butter that will keep a week or longer. I don't know what part of Florida he is in, but I can assure him, if he will come up in the dairy district of Florida, he will see butter one month old as fresh as just churned. If he wants to go into the dairy business for butter making and will write to me, I may be able to give him some points to his advantage. I can make as good and sweet butter here in Florida as I ever made north, and it will keep as long. I can assure our friend it is not the climate, but must be some local trouble.

I could not run a dairy without your paper. I keep every number, and refer to them often, and especially if I run against a snag, and then I can always find a way to pull by and avoid it next time. Thanks for the best dairy paper printed. TRYPHOSA.
Florida.

Warm vs. Cold Water for Washing Butter.

ED. HOARD'S DAIRYMAN:—I think Mr. Rockwood makes a mistake in advocating the warm water for beginners. He says he has made butter this way for over a year. I have made it that way for ten years, and some years made as high as 23,000 lbs.

I have tried the warm and cold water both, and I know the beginner will have better success with cold water, for this reason: this butter will be solid and in packing he can work out the brine far better than he can in soft butter. In washing with the warm water the granules will pack too soon when salted, and the butter being soft will retain a much larger portion of water. His theory of salting and gathering is correct, but the beginner will have far better success with cold water. After it is thoroughly worked in the churn, the secret of success in packing is a good packer and elbow grease, as they used to tell us when we were children.

FARMER'S WIFE.

DAIRY MARKETS.

ELGIN, Ill., May 22—Butter—Easy at 17c; offerings 573 tubs; sales 122 tubs at 16c. There were bids of 16c on all lots offered.

CHICAGO, Ill.. May 22—Butter—Creamery, extra 17½c; firsts, creameries, 16½@17c; seconds, 13½@14c; dairies, selections, 15@16c; extra ladles 12½c; packing stock, fresh, 10@10½c.

Eggs—Fresh, at mark, cases included, sold at 12¼@12½c; cases returned, 13c; Duck eggs 12@12½c; Goose eggs, 15c.

Cheese—Full cream, Twins, new, good to choice, 9@9½c; Young Americas, 10¼@10½c; Swiss, 10½@13c; Limburger, 7@9c; Bricks, new, 7½@7¾c

Cattle—The cattle market opened slow, with buyers and sellers apart in their views. Opening bids were generally 10@15c lower than the close of last week.

A load of 1,460-lb Polled Angus steers sold at $5.65, or 15c above the top last week, and 15c above the top a year ago but they were better than any cattle sold here last week. Two loads of 1,650 lb fed Western steers sold at $5.55, being the highest branded cattle sold here this month. The next highest was $5.50. Most of the native beef cattle sold at $4.85@5.25; fed Westerns principally at $5@5.15; Missouri Texas, 1,020@1,160 lbs, $4.60@4.85; straight Texas steers, 1,027@1,202 lbs, $4.70@4.90; Texas stags, 1,218 lbs, $3.80; native cows, $2.25@4.65; heifers, $3.40@5; stags, $4.10@4.90; calves, $4@7; feeding cattle, $4@5.10.

Bran—Firm and quotable at $10.50 per ton.

MILWAUKEE, Wis.. May 22—Butter—Creamery, fancy prints, per lb, 17½c; extras, per lb., 17½c; firsts, per lb., 16@17c; seconds, per lb., 14@15c; imitations, per lb., 14@15c. Dairy, selections, per lb., 13@15c. Roll, fair to choice, fresh, 9½@10c; packing stock, 9½@10c, grease, per lb., 4@6c; whey, per lb., 7½@8c. Market tending downward, with receipts of 17,510 lbs., and a fair local and outside demand.

Cheese—American full cream—new, choice to fancy, 9@9½c; Brick, new, per lb. choice 7½@8c; Limburger, Fall, choice, per lb, 9@9½c; new choice, per lb, 7½@8c. Swiss—Drum, choice, 12½@13c; Block, choice 10½@11c. Considerable inferior new offering which has no quotable value. New, easy with receipts of 10,260 lbs, trade being moderate.

Eggs—Fresh, per doz, 12c, cases returned. Market slightly higher, though receipts are 1,187 cases, the bulk of which go into storage while local wants are fair.

FOND DU LAC, Wis., May 22 –Cheese—Offerings 500 Twins and 104 Daisies; market quiet at 8¾c for Twins.

b SHEBOYGAN, Wis., May 17—There were 880 aoxes of cheese offered on the call board to day, nd all but 35 cases of Young Americas and 40 cases of Longhorns were sold as follows: 126 Twins and 60 Daisies at 9c; 330 cases Young Americas, at 9⅝c; 235 cases at 9½c.

SHEBOYGAN FALLS, Wis , May 17—The sales reported to-day were 300 boxes Twins, at 9c and 300 cases Young Americas, at 9¾c.

MANITOWOC, Wis., May 17—Offers of cheese on the Dairy Board to-day were 150 boxes Daisies, 100 Twins, 300 Young Americas. Daisies and Twins sold at 9c: 175 Young Americas, at 9¼c and 125 at 9¾c.

NEW YORK, May 22—Butter—Creamery, Western, extras, 18c; firsts, 17@17½c; state extras, 18c; firsts, 17c@17½c.

Cheese—State, new full cream, large colored or white choice 9¾c; old choice, 11@11¼c.

Eggs—State, Pennsylvania and Western, 13½@14½c.

PHILADELPHIA, Pa., May 22,—Butter—Solid-packed separator creamery, extras, 18¼c; firsts, 18c; seconds, 17c; imitation creamery, extras, 16c; firsts. 15c; seconds, 13c; ladlepacked, extras, 15c, firsts, 14c; seconds, 13c. Print butter: Creamery, extra, 20c; first, 19c; seconds, 16@18c.

Eggs—Pennsylvania and nearby, 14½c; Western, 14½c; Southern, 13½@14c; Southwestern, 14c;

ST. LOUIS, Mo., May 22—Butter—Lower; creamery, 15@19c; dairy, 12@15c.

Eggs—Firm at 11c; loss off.

CINCINNATI, O., May 22,—Butter—Steady.

Eggs—Firm, higher; 11¼c.

Cheese—Steady; good to prime Ohio flat, 10c.

NEW YORK MARKET.

NEW YORK, May 20—Butter—Receipts for the week, 44,112 packages. Exports for the week, 200 packages. The season has been cold and backward and this spring make of butter shows less life and flavor than it should. The herbage of the country hath in it just now an amplitude of dandelions which imparts to butter a golden color. Buyers are close in selecting, but high flavored butter is so difficult of production that their choice is limited and the fancies sell quickly, This bids up top quotations higher than the bulk creameries can be sold at, and makes a dragging market Quite a portion of the receipts were put into freezers or carried over unsold. Prices are starting into grass makes at rather above the average of the World's markets and at 5 to 10% higher than a year ago. We quote:

Creamery, extra 18c, medium 16½@17¼c, poor 15@16c; Dairy, extra 17@17¼c, medium 15@16c, poor 12@14c.

Cheese—Receipts for the week, 18,193 boxes; exports for the week 3,216 boxes. There was a fair demand early in the week from all quarters at full prices. White cheese were very scarce and sold ½ cent a pound higher than colored. Exporters paid 9@9¼c for large colored, and up to 5⅝@9¾ cents for few parcels of white cheese. Home trade were free buyers of small colored at 9¼@9½c; white cheese were hard to find and some sales were reported at 10@10¼c. At the close there is more stock offering, prices are lower and unsteady. Sales yesterday at Catteraugus were, large 8½c, and small 9c. We quote:

Full Cream (small) extra 9@9¼c, medium 8@8½c, poor 6@7c; Full Cream, (large) extra 9@9¼c, medium 8@8¼c, poor 6@7c; Part skimmed, extra 7¾@8c, medium 6@6¼c, poor 4@5c

Eggs—Receipts for the week, 85,006 cases. Arrivals continue liberal, but a strong steady demand all the week kept stock well cleaned up and at the close prices are advanced 1c a dozen. We quote:

New York & Pennsylvania, per dozen, 15@15½c; Western & Northern, freezer pack, per dozen, 14½@15c, All other sections, 12@14c.

177 Chambers St. DAVID W. LEWIS & Co.

FOREIGN MARKETS.

BOSTON, May 20—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as steady and it is thought that prices have touched bottom on finest grades. Finest Danish is selling at 20@20½c, with fine at 19@19¼c. Irish creameries 19@20c, with very good offerings at 18@18½c. Some fine fresh Canadian creameries in boxes have sold as high as 19c in some markets, while in others they have only brought 18@18½c. Little or no American butter offering Some ladles that are held at 14c are meeting a poor sale. 13c is about as much as buyers care to pay as there is such good value to be had in fresh made Dutch and low grades of Irish at 15c it is taken in preference by buyers. The outlook for low grades of butter for the next six weeks is very poor.

Cheese markets are somewhat steadier this week but the tendency is downwards. Old is getting into small compass but the price restricts consumption. New cheese is dropping but arrivals, so far, have sold readily at 10@10½c.

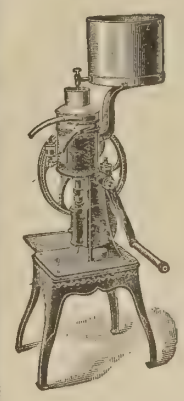
BALTIMORE, Md., May 22, Butter—Market steady: creamery, separator, extras, 20c; extra firsts, 18@19c; creamery, firsts, 17@18c; creamery imitation extras, 15@16c; ladle, extras, 14@15c; Western storepacked, 11@13c.

Eggs—Market firm; strictly fresh stock, 12½@13c.

BALTIMORE MARKET.

BALTIMORE Md., May 18th—The continued light receipts of separator creamery butter, from regularly contributing points, has had the effect of infusing considerable life into the trade again this week, and the liveliness has been increased and intensified by the advance in prices noted at other cities, the impression having become general, very early in the week, that this market would be compelled to follow the others if we expected to hold our own in the competition for the commission trade that seek to dispose of their product in the flush of the early grass make.

Multiplied Value In CREAM SEPARATORS



DE LAVAL CREAM SEPARATORS are twice as well made and cost twice as much to make as imitating machines. They run with half the power, half the speed and half the wear, require but half the care and last twice as long as other separators. Under harder conditions their work is doubly efficient, *and under all conditions they save twice as much as other separators over setting systems.* Their sales are ten times those of all other machines combined. Their price is no greater but on the contrary less than cheaply made imitating machines in proportion to actual capacity, regardless of overwhelming superiority in every feature of separator efficiency.

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This advance has to it every symptom of midsummer madness, and to the indifferent spectator the effect is forseen as clearly as though it were an accomplished fact. Before this advance, the prices for creamery butter were too high to attract orders from England and the continent of Europe, and now we proclaim to the world that we do not want their trade, when the truth is that America cannot consume the output of creamery butter at remunerative figures, and when exporters will not take the surplus, it acts like a damper to deaden the movements throughout the season. Imitation creamery and ladles are arriving in larger quantities, but far from being sufficient to meet the city demand. Some few rolls are being received and as shipments of this variety are not encouraged at this time, on account of the approaching warm weather, it is presumed that hereafter rolls will be turned into solid packed.

Butter—Creamery Separator—Extras, 19@20c, firsts, 18c; seconds, 17c; creamery gathered cream, extras, 18c; firsts, 17c; seconds, 16; creamery Ohio, extras, 18c; firsts, 17c; seconds, 16c; Iowa & N. W. Ladle, extras, 15c; firsts, 14c; seconds, 12@13c; Ohio & Indiana Ladle, extras, 15c; firsts, 14c; seconds, 12@13c; Roll, extras, 13c; firsts, 12c, seconds, 11c; Storepacked, extras, 13c; firsts, 12c, seconds, 11c; creamery blocks. (2 lb), extras, 21c; firsts, 19c, seconds, 18c; creamery prints. (½lb), extras, 21c, firsts, 20c; seconds, 19c; Md, Va. & Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—The receipt of eggs while on the liberal order, have not been in excess of the demand; all receipts have been promptly placed on arrival, and still the cry is for more; so we advise you to let your eggs come right along as we are in a position to handle them; market firm at 12½c. HALT—This means for you to be so kind as to pack your eggs in cases, and not in barrels or boxes; they not only sell better in cases, but the loss is not one-fifth what it is in barrels and boxes, as so few know how to properly pack eggs in these kind of packages.

Cheese—Receipts of choice old cheese continue light; the demand is fair; some few lots of new cheese have made their appearance; the quality is not up to the standard as yet; our quotations are for good to fancy old cheese. N. Y. State—Cheddars, fine, 11½@12c; choice, 11c; fair, 9@10c., c; Flats, fine, 12@12½c; choice, 11¼@11¾c; fair, 9@10c: Small, fine, 12¼@12¾c; choice, 12@12½c; fair 9½@10c; Ohio flats, fine 11@11½c; choice, 12@@11c: fair, 8½@9c; Ohio Picnic, 11½@12c; choice, 10@11c; fair, 9½@10c; Swiss Cheese, fine, 11@12c; choice, 10c; fair. 8½@9c.

301 Exchange Place. G. M. LAMB & Co.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—"Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill. 12-tf

For Sale—Fifteen h. p. boiler and 15 h. p. upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 14-4

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Wanted—A buttermaker to take care of from 2,000 to 5,000 lbs. of milk daily, under my supervision. Please give length of experience and salary wanted to M. H. TEILMANN, Little Sioux, Iowa.

Wanted—Position at once as manager or working foreman of good dairy farm. Thoroughly understands dairying and farm management in all its branches, such as erecting and starting plants, handling all kinds of farm machinery, and especially fitted for caring for thoroughbred stock. First-class butter making a specialty. Address G. P. KNAPP, Clinton Corners, New York. 14-2

For Sale—Short-horn bull calf by Earl of Irvin No. 125805; dam, Countess Flora. Beautiful light roan, dropped Jan. 5, 1899. Price, $60.00 f. o. b. here. HENRY LACY, Syracuse, N. Y. 14-2

Wanted—Farm superintendent on dairy farm in Waupaca County. Fine house and pleasant social surroundings. Permanent position on salary. Married man, with experience. Good references required. M. C. PHILLIPS, Oshkosh, Wis. 13-4

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Wanted—A first-class man to rent a fine dairy and stock farm within three miles of the city of Janesville, Wis. H. F. KELLER, 251 South Jackson St. Janesville, Wis. 12-4

Wanted—A position in a dairy, would prefer a pasteurizing dairy. Can furnish first-class recommendations. Address C. G. MORROW, Urbana, Illinois.

Guernseys—wanted. HALL ROBERTS, Postville, Iowa, wishes to purchase four pedigreed Guernsey heifers, coming two, to drop calves during summer and fall.

Wanted—at once, a good, all round dairyman and farm hand. Must understand separator and steam power. Address "M. L.," care Hoard's Dairyman.

Exceptionally Low Rates to Modern Woodmen's Picnic, Beloit, Wis., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from certain stations June 1st, limited to return the same date. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Madison, Wis., via the North-Western Line, will be sold at reduced rates, from certain stations, May 30, limited to May 31, inclusive, on account of Memorial Day Celebration. Apply to agents Chicago & North-Western Railway.

Very Low Rates to Columbus, Ohio, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, for trains arriving Chicago June 2, 3 or 5, limited to include June 13, account of meeting American Medical Association. Apply to agents Chicago & North-Western R'y. 15-2

Exceptionally Low Rates to Kansas City, Mo., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, June 3 and 5, limited to include June 10, account of Modern Woodmen Meeting. Apply to agents Chicago & North-Western R'y.

DAIRYING IN IOWA.

The report of Dairy Commissioner Norton of Iowa, shows a marked increase in the use of farm separators, the cream alone being delivered at the creamery.

Ninety-three creameries in forty-seven counties report 904 farm separators in use. One creamery reports that all its patrons will furnish cream from farm separators. The commissioner says that an increase or decrease in the number of farm separators reported next year will indicate the degree of success in the experiment.

On the question of the matter of the price paid for making the butter at the creamery, the report shows that it is governed almost wholly by the amount of milk the patrons furnish.

Tables are given showing the average cost of making a pound of butter in creameries of different capacities. There is a decrease in cost with an increase in the amount of milk handled. The difference between the highest and the lowest averages is 1.21 cents, which is more than 11 per cent of 19.71 cents, the average price by the year, of a pound of butter. A decrease in creamery expense will be followed by an increase in the price paid farmers for butter fat. A cent a pound saved will mean nearly $1,000,000 on Iowa's entire butter product.

The creamery reporting the lowest cost per pound for butter making, is located in one of the best dairy counties of the state. This creamery made 400,000 pounds of butter during the year at a cost of one cent per pound. The largest creamery in the state operating without skim stations, manufactured 539,000 pounds of butter at a cost per pound of 1.2 cents.

In creameries receiving not more than 1,250,000 pounds of milk the cost per pound of butter making is reported from 5 to 7 cents per pound, the average being 3 cents.

In creameries receiving not more than 2,250,000 pounds of milk, cost reported ranging from .25 cents to 4.5 cents, the average being 2.42 cents.

In creameries receiving not more than 3,500,000 pounds of milk, cost reported ranges from 1 cent to 4 cents, average being 2.2 cents.

In creameries receiving more than 3,500,000 pounds of milk, cost ranges from 1 cent to 4 cents per pound, the average being 1.79 cents.

The average price of fancy western creamery butter on the New York market for the past year has been 19.71 cents. During the preceding year the average was 18.85 cents.

During the year there were 137 creameries and cream stations added to the Iowa list and fifty-five closed. The total number is now 891. Of these 504 are operated by individuals, 349 on the co-operative plan, and 37 by stock companies.

The average monthly wage of butter makers in this state was $50.04 in 1897, and $53.63 in 1898. The average number of months employed was increased from 10.2 to 11. Average value of creamery plants is reported at $3,024. Last year it was $3,103. The decrease is believed to be due to a tendency to report actual rather than cost values. The average value of skim stations is given at $1,510; the total value of creameries and skim stations is $2,641,379. The average number of patrons to a creamery is 116; total number of patrons, 91,998. The average number of cows to the patron is seven; average to a creamery, 798; total number, 632,814.

New York is the greatest market for Iowa butter. Seventy-one per cent of the shipments to points outside the state go there. To Chicago goes 9 5 per cent, to Boston 8.1 per cent, to Philadelphia 3 4 per cent and to New Orleans 1.6 per cent. Still smaller quantities go to other points and three foreign countries are included in the list of markets. The dairy commissioner finds little encouragment for the cheese industry. Within the past year, eight cheese factories have been changed to creameries, seven have been closed and six new factories have been opened. The total value of the cheese produced annually in the state is approximately $350,000.

NOT ALONE IN KANSAS.

Modern thought and investigation are turning a search light on the loose, shiftless and unbusinesslike methods of conducting a dairy, which have been prevailing so largely for years all over the Union. The first real practical effort of this kind was the "Cow Census" of the township of Ellisburg, Jefferson Co, N. Y., taken by HOARD'S DAIRYMAN, through its correspondent, C. W. Jennings, in 1888. By this census it was disclosed that the cows of that township were actually bringing their owners in debt every year over $25,000.

Every farmer in the town of Ellisburg received a sample copy of the DAIRYMAN, which contained the figures of this census, and it woke them up "from a sweet dream of peace" to a realizing sense of the need of more intelligence and wiser methods, if they hoped to make any profit in keeping cows. The next effort was a "Cow Census" of the town of Bovina, Delaware Co., N. Y., taken by Mr. Geo. H. Powell and Mr. Jennings, under the direction of the New York Dairymen's Association. A much better state of things was disclosed here, but the same old lesson was uncovered, viz: that there were lots of farmers in Bovina keeping cows at constant loss, all because they did not value sufficiently the necessity of keeping up the grade of their dairy intelligence.

The third effort towards a "Cow Census" has lately been taken by Prof. Otis, of the Kansas Agricultural College, which disclosed the fact that in the narrow radius of one creamery, there were eighty-two herds which averaged only $19.79 worth of butter fat for the year, while a herd of the *same sort of cows*, owned by the Experiment Station, produced $37.75 for each cow.

What made the difference? Simply the use of dairy intelligence; that's all. The owners of the 82 herds did not think it worth while to read up and post up on the matters that belong to intelligent dairy farming. Very likely they did not believe in a balanced ration. Prof. Otis did believe in it. His study and reading, as well as experience, had taught him the value of it.

And so it goes. Wherever the search light of investigation is turned, whether it be by the individual farmer upon his own ideas or methods, or whether a whole community is included, everywhere it is seen that the way to the best profit with cows lies through intelligent study of dairy facts, dairy experience, dairy principles.

POSSIBLE BUT NOT PROBABLE.

The recently issued *Bulletin* of the Storrs College Experiment Station contains matter on the question of tuberculosis, that makes very interesting reading just now. The bulletin summarizes the result of observations made by Prof. W. H. Conn, Ph. D., during a visit in Europe, where he had unusually favorable opportunities for visiting hygienic and agricultural laboratories and schools, experiment stations and dairying establishments.

"During the last three years the agitation in regard to the problem of bovine tuberculosis in Connecticut has been to a certain extent allayed," says Prof. Conn. He goes on to add that this is fortunate in so far as it has partly relieved the apprehension of the public in regard to the danger of the transmission of tuberculosis to man by means of meat and milk.

On the danger of the transmission of the disease from animals to man the bulletin has the following:

POSSIBLE BUT NOT PROBABLE.

Upon this phase of the subject there has been the greatest amount of interest and the largest amount of experimenting. It is the problem which is most vitally connected with human health, and which, more than all others, we desire to have positively answered. There has been abundant evidence collected to show that it is possible for the disease to be transmitted from animals to man, either by means of highly tuberculous flesh or by means of the milk of animals suffering with tuberculosis of the udder. Experimental evidence in this direction, which has been accumulating for ten years, apparently puts the conclusions beyond dispute. But the more this subject is studied the more it becomes manifest that the danger of such distribution is comparatively small. There are indeed those who think it may be neglected entirely in view of the other more common sources of the disease in man.

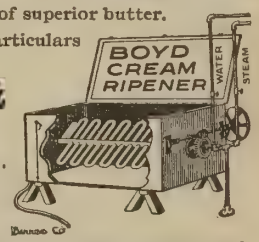
While tuberculosis among cattle has been rapidly increasing in recent years tuberculosis in man has been declining. Bovine tuberculosis has apparently increased many fold in the last fifty years, while human tuberculosis has diminished nearly 50 per cent. While such statistics of course do not show that tuberculosis is not transmittible from animals to man, they do indicate clearly enough that the tuberculous flesh and milk cannot be regarded as very important sources of the disease in mankind. Man is evidently open to other sources of infection so much more important than that of the milk or flesh of cattle that it is doubtful whether his danger of taking the disease would be rendered appreciably less if we should exclude milk and flesh entirely from our diet. These statements apply more strictly to adults than to children. For although there has been this large decrease of human tuberculosis in general, it is found that the amount of intestinal tuberculosis in children has not decreased as much as the other forms of the disease. This is thought to indicate that the danger of children contracting tuberculosis through the use of raw milk is a considerable one. There is, however, practical unanimity of opinion that an adult has little to fear from this source.

Admitting all that Prof. Conn says to be true, the wise dairy farmer will not lessen a whit, every effort by the tuberculin test and sanitary care, to cleanse and keep clean his herd from tuberculous taint. He will do this for his own sake and to preserve his property in the best possible efficiency for his own profit. He will constantly realize that the disease is communicated by infection, from one infected animal to another, the same as small pox in humans, and it is his business to keep the disease out of his herd.

Home Cheese Making.

We can not tell all about making cheese in a brief article, but we will give the outlines of the process and skill will come with experience. Little, if anything, need be purchased specially for home cheese making on a small scale. A good, well cleaned wash boiler will answer for a vat; an old peck measure with the bottom knocked out of it, will answer for a hoop; any farmer's boy can make a "follower" for such a hoop by cutting it from a piece of board. It should be round and of a size just large enough to fit inside of the hoop, and should be battened across the grain to prevent it splitting. A clean basket, some cheese cloth, a thermometer, and some rennet, will be all that is necessary besides. With 3.5 per cent milk, calculate to have about ten pounds of milk, or, say, five quarts, for each pound of cheese to be made. If a sufficient quantity can not be had from one milking, keep the night's milk very cool and add it to the morning's milk, so that the former may undergo as little change as possible. Put the milk in the wash boiler and heat to 85 degrees F. by the thermometer, then add rennet enough so that coagulation will begin in about fifteen minutes and be completed in about forty minutes. It will be better to buy from a dairy supply house, rennet extract or rennet tablets, for these have known strength and are accompanied by directions telling about the quantity to use for a given amount of milk, whereas if one attempts to prepare his own rennet there will be a good deal of guess work about it. The quantity of rennet to be used depends somewhat on the season, the condition of the milk, the length of time the cheese is to be kept, etc , all of

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For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

which are matters of detail that the operator must learn by experience. After it is added the curd should be ready to cut in about forty minutes, if the amount of rennet and degree of heat have been right. To tell whether it is ready, pass the finger under the surface of the curd about half an inch. If the curd breaks clean before the finger, leaving only moisture behind, it is ready. The whey should have a greenish cast and be nearly transparent. If it seems milky there has not been enough rennet or not enough heat. Don't try to cure this mistake this time, but remember the experience for the next attempt.

Cut the curd into small squares to allow the whey to escape, then drain off as much of the whey as possible, scald and rinse a sufficiently large square of cheese cloth, spread it in the basket that has been provided, hang it over a vessel of sufficient size to catch the remaining whey that drips out, and place the curd on the cheese cloth to drain. When drained, break up the curd with the fingers, until it is fine and salt it to taste. Approximately the amount of salt required is about a teacupful to ten or twelve pounds of cheese. Mix the salt very thoroughly, gather up the cloth by the four corners and shake well, lift it out and put it in the hoop which should previously be placed where it is to be pressed.

And here a word as to the pressing. A very good home-made press may be made by hinging or hooking a pole or scantling ten or twelve feet long to the wall, two or three feet from the floor. The hoop containing the curd is set on a clean board on the floor near the wall, the cheese cloth is spread over it as smoothly as possible, the "follower" is placed on the top and an upright piece of wood is set in, the lower end resting on the "follower," and the upper underneath the lever above referred to. The amount of pressure can then be regulated by hanging weights on the outer end of the lever. The pressure should be quite moderate at first and gradually increased, and the curd should remain in the press for twenty-four hours and should be turned once during that time on a clean, wet cloth. Then take the cheese from the press, set it away to dry for a short time, after which rub it thoroughly with melted butter. Turn and rub it in the same way every day for a week, bandage it with cheese cloth and cure it in a room that is cool, dry and well ventilated. Cheese will cure in from thirty to sixty days, depending on its size and the conditions under which it is kept, but it will continue to improve for a considerably longer time. These directions will enable our correspondent to make a start, and should obstacles be met with, we will try to advise with regard to them if within our power. It is customary to make cheese during the summer season. If made at other seasons, the milk in the vat must be heated two or three degrees warmer, and more attention will have to be paid to keeping the temperature up to the right point while coagulation is going on.—*Homestead.*

A Successful Texas Cheese Maker.

Mr. G. C. Freeman, who resides seven miles south of Denison, Texas, has solved the problem of succcssful cheese making in that state. In a recent interview with the Dallas (Texas) *News*, Mr. Freeman, who was a former New York cheese maker, makes the following statement:

I came to Grayson county in 1876 from my native state, New York, where I was engaged all my life in the dairy business, including the care of milk, and the making of butter and cheese. All that time I have lived near Denison, with the exception of four years that I spent in New York state after I came here first. When I first came to Texas, I was of the opinion that good butter and cheese could not be made here for two reasons, the first was that the food and water were not of the right quality, and the second reason was the climate. Since then for many years I have been engaged in the work, however, and I have changed my mind.

Ten years ago it was almost impossible to get a pound of Texas made butter that was fit to eat, and today there is an enormous quantity of Texas made butter that is as good as any made anywhere in the world. This change has been brought about by the development of Texas, the improvement of the cattle, the improvement of the methods of caring for cattle, for watering them, and finally for caring for the dairy and dairy product. These things have worked wonders, and let me remark right here that in ten years from now North Texas will be covered with dairy farms. The cotton will gradually disappear, will drop out, because your land here is too valuable to put in cotton, and no land in America is better adapted to or suited to dairy farming and manufacture.

When I first came here I was prejudiced against the water. Now, after investigation and practical tests, I know that there is as pure water here as anywhere. The matter of food for dairy cattle is no harder of solution here than anywhere else in America, because the soil here produces all the food stuffs as bountifully and as good quality as any country. The climate is as favorable to the manufacture of dairy products as any climate I have ever worked in. You understand that I believe food and water to be the essentials for successful dairying, and there is no greater abundance of either than right here in North Texas. I say this as a matter of knowledge and as a fact, for experience has proven it to me. I am selling cheese of my own manufacture in Denison that I will compare with any cheese from any country. What I say I can demonstrate to the satisfaction of any doubter, and I repeat that in a few years North Texas will turn from cotton to dairying as the principle industry. In a few years Texas will be supplying other sections with their dairy product, instead of spending thousands of dollars every year for dairy products from other states. This is not a matter of prophecy, but a matter of business. I believe this will happen, because the people are turning their attention to that which is most profitable and to which their country is best adapted. They are learning that to make money they must keep their money at home; that to prosper they must supply that for which there is the greatest demand and in which there is the greatest profit. In cotton, Texas must compete with the world; in fruit raising, dairy products and the like, she has only to compete with her home people, keep the money of Texas at home—for in these things when Texas once gets started at them there will not be a possibility that any other section can compete with her.

Feeding Wheat to Calves.

ED. HOARD'S DAIRYMAN:—I have seen from time to time in your paper how to feed calves. I have raised some this winter, and never have had any that did as well. I have fed nothing but ground wheat; have been surprised that I have not seen it recommended in your paper. I wet it with cold water, then scald it thoroughly; stir it up till it is smooth; add what milk you want to, but my calves got very little milk after they were a few weeks old. E J. L.

Binghamton, N. Y.

WASHING DISHES



A mountain of dishes confronts the average housewife after all the family have dined. They are greasy dishes, too, and hard to get clean with soap and water. The best, easiest, quickest and cheapest way to wash dishes is to use a little



GOLD DUST

WASHING POWDER

in the dish-water. It acts like magic, cuts the grease and makes the dishes perfectly clean. In fact all cleaning is made easier by this great cleanser, and at half the cost of soap.

For greatest economy buy our large package.

THE N. K. FAIRBANK COMPANY

Chicago St. Louis New York Boston



ASK YOURSELF A FEW QUESTIONS

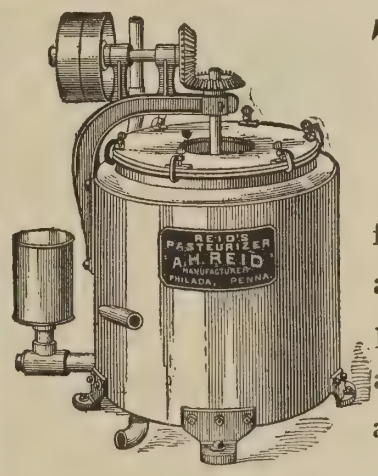
If Deering Ideal Harvesting Machines are not the best in the world, why is it that the Deering works are the largest in the world?

If there is not a greater demand for Deering machines than for any other make why is it that the Deering works employ over six thousand five hundred skilled mechanics—more than twice as many as any other reaper plant in the world?

If Deering machines have not earned the right to universal approval why is it that the Deering works are increasing the output for 1899 by 50,000 machines as against the product of 1898?

If Deering ball and roller bearings are not applied to binders and mowers in the only correct way why is it that competitors are at their wits' ends to make their machines as light draft as the Deering Ideals?

DEERING HARVESTER CO., - Chicago.



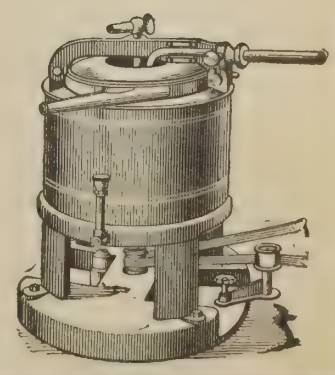
They All Admit It.

Even the strongest opponents of pasteurization are forced to admit these facts; it kills all germs, and removes all garlic and odors or taints in the milk; pasteurized cream produces a more uniform quality of butter, under varying atmospheric conditions and makes the butter keep longer and retain its flavor better.

Whether you sell your cream or make it into butter, get a

REID Pasteurizer.

It will prove to you conclusively that pasteurization PAYS. The best machine for skimming either hot or cold milk is the **Reid Latest Improved Long Spindle Separator.** Catalogue and complete information mailed free.



A. H. REID, 30th & Market Sts., PHILADELPHIA, PA. And CEDAR RAPIDS, IOWA.

Northern New York Pencillings.

The Grain Crop.—Dairy Conditions.- Spraying Wild Mustard.—Five States Milk Producers' Association and the New York Milk Trade.

ED. HOARD'S DAIRYMAN:—Ten days since, the farmers were praying for rain; hay had advanced within a month $3 per ton, and on some farms preparations for an increased acreage of sowed corn were being made, in anticipation of a short hay crop, because of the four weeks drouth which was holding the boards; but, suddenly a change came o'er the spirit of these farmers' dreams, the cause of which were copious showers, which have continued at short intervals, accompanied with cool weather during the last ten days.

One result was a killing frost on the morning of Monday, the 15th, which knocked out the small fruit at a great rate. But the rains, although cold, have greatly benefited grass and spring sown grain, while winter wheat never promised better than at this season of the year.

Cheese sold on the Watertown Board of Trade, last Saturday, at 9⅛ cents, fully 2 cents higher than at last year the same date; a condition which makes the dairymen "smole large smiles."

Butter, however, is off nearly 2 cents per pound, from this date last year, a change which shut off the separators and opened the cheese vats at our factory, a week or two earlier than usual. The factory is turning out thirty-one cheese of sixty-five pounds each, per day, and will now change to eighty-five pounds cheese.

There is quite an increase of milk over former years' delivery, at this time, owing to the shutting down of two or three small factories in the eastern and central parts of the town, due to the opening of the creamery at Adams last fall, a number of the patrons having deserted that concern, and are drawing their milk here. Another vat will have to be added when the June flush comes on.

The Belleville factory now turns out more cheese than does any other Cheddar factory in Northern New York, while the quality produced is second to none.

With the present efficient management and staff of skillful cheese makers, and the Babcock as umpire and referee, everything is lovely, the outlook promising, and no one is kicking. Of course, as a rule, but few, if any, of the sixty-five patrons ever saw or heard of Jenkins' Organ, else some of the 3.3% cows might look over the fence at some of their neighboring 4.6% producers, and say, "Go to; if it were not because of dishonesty, ignorance and favoritism, our milk would test as high as yours, while we are giving twice the amount you give."

In a recent issue of the *Country Gentleman*, one of its English correspondents says that spraying "charlock" or what is known as wild mustard, with a solution of two and one-half per cent of sulphate of iron will eradicate it.

That weed has become a great burden on some farmers in this town; it and the white daisy having taken almost full possession of some fields. If this solution will destroy the charlock, provided the farmers can be persuaded to apply it, at least one of these pests may be driven out. Sulphate of iron is not costly nor difficult to be held in solution, while it may be applied to the meadows or pasture, through the use of any of our power sprayers. The difficulty, however, of coaxing the farmers to apply it, will be found the greatest obstacle to its adoption.

Mr. Ira L. Snell, of Kenwood, N. Y., has been interviewed by a Unica *Herald* man, and has told him that the so-called "Five States Milk Producers' Association," is, Phoenix-like, about to rise from its nest of ashes and make a noise, at least among the milk dealers of New York city, and that very soon. He also told the reporter that, notwithstanding there was an increased daily average of 1,301 cans of milk during the week ending May 8th, over the same week last year, there was an increase of 15 cents per hundred pounds, over the price of the same week last year. This, he says, is due to the efforts of the association to equalize the profits between the retailers and producers. At the present price paid per hundred, farmers get less than 2 cents a quart for their milk, and in New York, milk is sold at prices ranging between 6 and 15 cents. The farmers only demand 2½ cents per quart, which is only reasonable when the retail price is considered."

The foregoing would be all right, but for two or three objections. First, just how an association, which is no association at all, since it never has been perfected, nor handled a quart of milk, has been able to force the price of milk 15 cents per hundred pounds above last year's figures of this date, is not made quite clear. Second, milk does not sell from 6 to 15 cents per quart. Much of it, Mr. George A. Smith, who a year ago, spent several weeks among the milk and grocery stores in the city, says is sold for 4 cents a quart, the dealers making it a pointer to call other trade; while 15 cents is seldom reached, except for a few dairies such as ex-Governor Morton's Guernsey and Mr. Havemeer's Jersey herds. The 6 cent milk is peddled in the wealthy resident portion of the city, and cuts but a small figure in the milk trade. Mr. Smith had ample opportunities for learning the true situation of affairs, engaged as he was in looking after adulterated milk and oleo, as one of the experts of the Department of Agriculture. Third, the advance in the price of milk is not due to the influence of the "Five States," or any other organization, but to the advance in the price of cheese, instead, which is at least two cents higher than last year at this season.

Every one at all familiar with the New York milk trade, knows that the retail price there is always based on the price of cheese, or, rather, its value for cheese. When cheese is high, the price of milk goes up in the city; when it is low, down goes the price of milk to the producer. If cheese were to suddenly drop to the level of last year, does any body believe that the 15 cents per hundred advance would be maintained a day? Hardly, unless one knew nothing of the situation, or else pretended to believe it, for the purpose of fooling the milk producer. Every true friend of the dairymen would heartily rejoice at the result, could the price of milk, to him, be raised to 2½ or even 3 cents per quart on the platform; as, at those prices, even a good fair profit at the present average retail price in the city, would be reaped by the dealers there, because of the enormous amount handled by them. But, if this increase is not to come until after the Five State Association has turned the world upside down, by getting control of the larger part of the milk trade in Greater New York, I fear the date will be found a long way in the future. There are more than 4,000 stores in the great city, where milk is retailed, and there is too much money behind the present milk exchange to allow of any such happy—to the dairymen—results.

Mr. Snell also told the reporter that the various railroads, which discharge their freight each day, in New York, receive annually, at least, $3,000,000 in payment, and it goes without saying, that this branch of freight business is the most profitable to the roads, of any carried. Another point; should this *in embryo* association materialize, and thus bring forth such wonderful results, it is safe to say that the prices paid by the association would not only close every cheese factory and creamery, located within four miles of these railroads,—and extending across each of these five states, but that the railroads would extend their lines of stations further still. Already milk goes from New Haven, a port on the south shore of Lake Ontario, in Cayuga county, to Philadelphia, Pennsylvania, and there is nothing to prevent the New York Central from starting milk trains from along its St. Lawrence River Valley branches, within three weeks, should the conditions of the New York City milk trade warrant such a move, and as there are nearly 100,000 cows in St. Lawrence county, nearly one-half the milk product of which could be shipped, and fully 30,000 more in Jefferson county which could be added, to say nothing of the extension that could be made along other lines and in other localities, it looks to one, somewhat familiar with the situation, like a "dream in Utopia," to make any such promises as are recorded of this association.

C. W. JENNINGS.

Belleville, N. Y.

St. Lamberts AT PUBLIC SALE!
COLUMBUS, O., JUNE 8, '99.
Send for Catalogue.
J. P. BRADBURY, . Pomeroy, Ohio.

Seasonable Notes from Michigan.

Factory Skim Milk for Calf Feeding.—Farm Butter.—Galvanized Iron in the Dairy.

ED. HOARD'S DAIRYMAN:—Pastures are good and cows on grass giving fine messes of milk. Patrons of some creameries are having trouble with the returned milk. It is brought back supposedly sweet, yet calves refuse to drink it. In fact, some of it is not in very good condition, and no one could blame them for turning up their noses at it.

One of our neighbors commenced sending his milk to the creamery this spring, but discontinued his patronage after a short time. In spite of care in cleansing cans and cooling the milk, his calves refused to touch it after it had come back to the farm. Add to this the fact that all milk received is pooled, no test being made individually, and it became evident that he with his Jersey cows was playing a losing game.

Now the churning is done at home, even though a man must leave the farm work to do it. Private customers were engaged in the county seat and peace restored in the calf pasture.

Any creamery which refuses to buy or handle milk by test is unfavorable for those patrons who have rich milk. Such milk goes to keep up the average and those with poor cows, that is, cows which test low, are profiting at their expense.

The only fair way is to test each patron's milk separately. Indeed, this plan is now practiced generally, only an occasional instance being found where no such test is made. It is not to be wondered at that owners of three per cent cows, giving only an ordinary mess, should say in this case that they find the creamery just as satisfactory, or even more so, than home manufacture. It is the other fellow who does the kicking—and with good reason.

While in the principal grocery store of an adjoining town, the other day, in conversation with the proprietor, the conversation fell upon butter. Upon making inquiry as to the quality of that brought in by farmers,


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. E. G. STRACY, Box 720 Brockville, Ont., Canada.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

ST. OMER HERD
Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inqurles promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

Two Yearling Bulls FOR SALE out of tested dams Sired by Maquill's Major 40804, son of Maquilla's Violet, 31 lbs. 1 oz. Will be sold cheap if taken at once. Write for prices to W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00,*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock
INTO YOUR HERD.
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book",
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS
The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239-son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys 50 per cent. Diploma, sire of 49 in 14 lb. list, including Merry Maiden. Solid colored bull dropped Jan 19, 1899. Sire, Mint, 50 per cent. Combination. Dam, Personia, test, 16 lbs. 3¼ oz., by Diploma; 2d dam, Modita, 16 lbs., 8 oz., dam of 6 in. 14 lb. list; 3d dam, Laura Lee, dam of 5 in the list, by 4 different sires. Write for price to HOOD FARM, Lowell, Mass.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

For Sale . . .
BULL CALF,
Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8⅛ oz., in seven days. He will be sold cheap.
P. J. COGSWELL,
Rochester, N. Y.

BILTMORE FARMS' JERSEYS.
This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
Some Choicely Bred
BULL CALVES
out of great cows and by the best sires for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEY'S JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¾ lbs. milk, 30 lbs. 2⅛ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. 224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys.
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood
Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome.
JOHN E. ROBBINS,
Greensburg, Ind.

the following is in substance what was gleaned:

The quality is very un atisfactory, the great bulk of receipts being unsatisfactory to dealer as well as consumer. If a crock of good flavored butter comes in, nine times out of ten, it is so salted as to spoil it. It seems to be the aim of the maker to get in just as much salt as possible, so as to make it weigh heavier.

Sometimes a crock of butter comes in which looks very nice on the surface, yet an inch below, it is found ring-streaked and speckled, having every appearance of being dumped in right from the churn with no working whatever. The surface veneering is expected to sell it at market price without any other inspection.

Much of the butter bought is known to be inferior, yet is taken in, because there is nothing better offered, and then it often happens that it is the best customers who make it and it would never do to give offense, which would certainly be the case were the butter refused.

What can be done to improve the quality of farm butter?

Pay for every pound of it on its merits. No farmer expects to receive the same price for grain that is shrunken and poor that his neighbor does for that of superior quality. There is distinct grading and every one offering grain for sale expects to be paid accordingly. Take it with wool, wood, or produce of any kind sold off the farm, with the exception of butter, all sell on a scale graded as to actual value. Why should this discrimination be made in its favor?

The writer is firmly impressed that one of the best methods of improving the quality of farm butter after it has been made the practice by all dealers to buy and sell it only on its merit, is to make the county fair a school of dairy instruction. This has been tried in our state, and as one who has had opportunity to see the result of its operation, I can heartily endorse it.

Everybody goes to the fair and a class of of farmers and their wives are there reached who never attend a dairy convention or even an institute, and it is this class largely who most need the instruction which might there be obtained.

It only needs one day at a fair where practical instruction in butter making is in operation, to convince the most sceptical of the good resulting therefrom. To see the crowd surrounding the operator, to hear the questions coming in thick and fast, to note the eagerness with which the score cards are examined, and the expression of interest in the explanation as to why this butter is better than that, all this is encouraging and indicates that good seed dropped in this way will take root and bear fruit.

It is my desire to have a suitable dairy instructor in attendance at every fair throughout the land. Where this has been done it has proved a drawing card in securing attendance, farmers coming long distances for the express purpose of hearing the dairy lecture, and bringing samples of milk to be tested.

It is none too early now to begin to agitate this subject. Let dairymen present the matter to the directors of their agricultural societies and see if provision for something of this kind cannot be made in time for the fall fairs. Competent instructors ought to be obtainable through the different agricultural colleges and dairy schools at reasonable rates.

In regard to the inquiry as to the use of galvanized pails, I can state this from personal experience. They are very hard to keep clean, one short trial convincing us that we preferred tin. The surface is not smooth as with tin, and soon gets a sort of deposit in spite of all ordinary precaution. Even with a galvanized water pail or hand basin this will be observed; it soon becomes dingy and scouring or scrubbing has little effect upon it. Good, heavy tin is the best material we have found for dairy utensils.

Mich. W. C. ROCKWOOD.

A Successful Gathered Cream Creamery.

ED. HOARD'S DAIRYMAN:—We have quite a number of farmers that have the hand separator on the farm. The rest raise their cream by the gravity system. The secret of our success is in

1st. Having our patrons keep their cream in good condition. We gather it every other day.

2nd. The large amount gathered makes the cost to gather very small, less than ¼ of a cent per pound.

We have not sold a pound of butter for the last three years that has not brought us the price of western extras.

I will enclose you our annual report, from which you can get an idea how we keep our business. These we have published, so as to give one to each patron every year, that they may know what the business cost to run it.

REPORT OF THE OSAGE CO-OPERATIVE CREAMERY COMPANY FROM JANUARY 12, 1898 TO JANUARY 11, 1899.

Cash on hand at last report	$ 378.90
Cash received from sales of butter	61,366.52
Cash received from sales of buttermilk	116.28
Cash received from interest on bank deposits	69.40
Total	$61,931.10

DISBURSEMENTS.

Paid out for cream, net to patrons	$55,606.75
" to cream gatherers	2,964.67
" to buttermaker	720.00
" to assistant buttermaker	89.16
" to manager and secretary	420.00
" for butter tubs	545.15
" for salt	297.24
" for coal	286.38
" for revenue stamps	80.50
" for directors' salaries	30.00
" for committee to examine books	10.00
" for taxes	18.35
" for insurance on creamery	24.75
" for drayage	45.73
" for interest on stock	60.80
" for new cement floor, material and labor	150.50
" for putting up ice	60.50
" for butter color	57.15
" for lumber for horse shed and other repairs	23.00
" for new fixtures in creamery	51.94
" for painting inside of creamery, labor and material	14.00
" for sundries, which includes repairs, books, postage, tins, tacks, corks, circles, test tubes, etc	142.15
Total expenses for the year	$61,698.72
Cash in bank and accounts on books	232.38
Total	$61,931.10

SUMMARY OF THE BUSINESS.

Number of pounds of butter sold	360,237
Patrons received an average net price per pound of	15.43c
Cost to gather, manufacture and place on cars, per pound	1.71c
Cost to gather, manufacture and place on cars per pound in 1897	1.86c
Net price received per pound in 1897	14.37c
Number of pounds sold in home market	23,537

A. BARTLE, Manager and Secretary.

The Guenon Theory.

ED. HOARD'S DAIRYMAN:—Have just been reading the article by J. J, page 237, and being desirous of gaining information to properly judge a dairy cow, I write to ask what the "Guenon" theory is; its explanation may be of interest to other subscribers.

I am a close student of the cuts in the issues of the DAIRYMAN, and hope to be able to make good selections, when increasing my present herd. I find the information in each issue of great interest and value and of greater benefit than any other paper I receive.

My herd consists of 7 head grade Jerseys, with first calves. One cow has just dropped second calf. From the six I have been milking (all fresh since Jan'y except one) I am making an average of 25 lbs. butter a week, which seems to be a rather small output, considering the feed I have been giving.

Cows have had, since the middle of February, pasturage for one and a half to two hours each day upon rye, and are now upon oats (freeze having killed out to unprofitable stand to cut) with additional picking in regular pastures, also mixed hay and shucks in barn, while grain feed has been from six to eight pounds daily, of mixture of 16 lbs. corn meal, 8 lbs. bran, 8 lbs. cotton seed meal. Any suggestion tending toward an increase of yield will be greatly appreciated.

Am preparing for a separator which will be in place this month. Shall increase my stable soon to hold 20 head, and shall put in a silo, about 8 or 10×20 feet, and fill with mixture of corn and cow peas, load for load.

Market for butter is good at 25 cents the year around, and I am anxious to put myself as near the top for quality as possible, and HOARD'S DAIRYMAN is boosting me a little week by week.

Am raising three Jersey bull calves—two three-fourth grades, one full blood, all from Pogis stock, from which I shall make a selection to head my herd.

I have written considerable but shall "ask" for more in the future.

FLORIDA CRACKER.

As it requires a book to fully explain the Guenon theory of judging cows, it cannot be expected of us to go into the details of that theory and their application. The system is founded upon the assumption that the escutcheon, which is sometimes called the milk mirror, and consists of the fine upgrowing hair on the rear part of the udder, on the thighs and between them, is an index of the dairy capacity of the animal. There are various classes and sub classes and other divisions, to each of which is assigned comparative and specific values, but in a general way it may be said that the larger and more regular in outline the escutcheon is—especially if branching well out on the thighs—the greater the value ascribed to it as indicative of a pronounced dairy ability.

So far as our observation extends, less reliance is placed upon this "sign" than formerly and more attention is given to the general contour and outline of the animal. We cannot say that there is no relation between this up-growing hair and natural capacity for milk giving, because it is entirely possible that nature, in anticipation of the demand upon the parts for a large udder and room for it, gives a peculiar texture and flexibility to the skin that causes the peculiarity to which the name escutcheon is applied; but personal observation has not sufficed to warrant us in placing over much faith in Guenon's theories. Nevertheless we like to see a nice escutcheon, but would not reject an animal otherwise satisfactory for the reason that the escutcheon might be pronounced unsatisfactory by others.

In the matter of selecting one of those bull calves for future service, while we advise giving a good many points to the full blood, we would not entirely overlook the merits of the dams or the form of the calves themselves.

In the matter of the grain part of the ration as reported above we incline to the opinion that the mixture is too concentrated for best results. Both corn meal and cottonseed meals are what are known as heavy feeds, and unless considerably diluted or extended with some much lighter material, are very difficult of digestion. We should certainly prefer to transpose the amounts of bran and corn meal or at least to reduce the amount of corn meal by fully 50 per cent.

To Cure a Self-Sucking Cow.

ED. HOARD'S DAIRYMAN:—To prevent a cow from sucking herself, or another, take a piece of wire, about No. 9 or less, and put in the same as a ring, bring together, hold with pincers and give half turn, then bend the two ends, like the prongs of a fork and about two inches long.

S. B. MCCLUNG & SON.

Ottumwa, Iowa.


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GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

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Riverside Guernseys. CHAMPION HERD AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

"Florham" Guernseys. First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

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Outlook of the Cheese Industry in Wisconsin.

[Paper read before the Wisconsin Cheese Makers' Association, at Madison, Wis., by W. W. CHADWICK.]

According to the last report of the Department of Agriculture there are 15,990,115 milch cows, nearly 16,000,000, in the United States. In 1895 an enumeration of the milch cows in this State, two years old and over, was made for the first time, and the number reported was 842,039. Of this number the milk of about 200,000 is used to manufacture cheese.

It has been said that "Americans *taste* cheese, while Europeans *eat* it." In Great Britain and most of the countries of Europe, cheese is one of the chief articles of food. They use it as freely as we do meat. This substitution is found to be economical and satisfactory to consumers. In these foreign countries the consumption of cheese, per capita, is several times as large as in the United States. It seems clear that a taste for cheese has never been generally acquired in this country. One reason is that we have cheaper meats, and the consumer does not have to pay as close attention to the cost of his table.

According to our last Dairy and Food report, we have 1,571 cheese factories in our state, and we manufacture about one-fourth of all the cheese in the United States. I have visited many of these factories, to ascertain their condition as to location, cleanliness, condition of milk, and if filled cheese was being manufactured. We received many communications soon after the laws suppressing the manufacture of filled cheese, and regulating the manufacture of skimmed cheese were enacted, in 1895, asking us to visit various cheese factories and creameries where the informants thought the laws were being violated, but we were unable to find any filled cheese being manufactured. I found some skimmed cheese being made in Manitowoc county, contrary to law. I made complaint against the party and he pleaded guilty, paid his fine, and said he would sin no more.

The cheese industry is not all it should be in our grand, good state, where we have the right soil, grasses, water and climate for its production. I have visited several hundred cheese factories and creameries in this state, during the past four years. I have taken the average test of 27 of these, in as many different counties, during different months of the year, and find the average amount of butter fat in the milk delivered to be 3.7 per cent.

Many of our farmers pay no attention to breed or breeding of their dairy herds. We all know that when proper care is given to the right kind of sires, that the result is better milk. We cannot expect good cheese to be made from poor milk any more than we can look for good bread from poor flour. In order to produce good milk we must have good healthy cows, provided with the right kind and quantity of wholesome food, and keep them in perfect health, giving them the proper amount of exercise, pure water, fresh air, and in stables properly ventilated.

Too great care cannot be given milk. Much of the milk delivered at the various factories I have visited in the state, is too filthy to be used for making cheese. It is drawn from cows in a dirty stable, put in a dirty can, then in a dirty wagon, and delivered at the factory by a dirty person. Many of the cheese factories are located near sloughs, pig-stys, barnyards, and other filthy places, and are not kept clean. Most of the trouble in the various factories is caused by filthiness.

In many parts of the state there are too many factories of inferior quality, because farmers want to have their milk delivered but a very short distance. It would be much better to have better factories, and a less number of them, as cheese can be manufactured cheaper where 6,000 pounds is delivered daily, than where only 2,000 is delivered.

I have visited a number of factories and found many of them have made poor cheese, and they were at a loss to know the reason why. In most of the factories where Swiss cheese is made, they have as many barrels for whey as there are patrons. These barrels are usually sunk about a foot and a half in the ground, and the whey is dipped from the barrels with a pail. Some of that whey is put in the barrel in the spring and remains there all summer, for the barrel is not washed from spring until fall. I think a galvanized steel tank should be in use for the whey at every factory, and it should be thoroughly scalded and cleaned every time it is used, just as carefully as the cans in which the milk is delivered.

Too much cannot be said in favor of our Dairy School, for I have noticed that all over the state, where graduates from there have been employed, that good goods have been made. It was my good fortune to be Supt. of the Dairy Department at the State Fair one year, and I noticed that a large number of prizes were captured by our dairy students.

It has always seemed to me, and my observation has borne me out in thinking, that milk should be sold by the test instead of by the hundred pounds. There is no more reason why milk should be sold by the hundred, regardless of the per cent of butter fat it contains, than that oats should be sold by the bushel regardless of weight. Where milk is sold by the hundred, and a large part of it that is made into cheese is sold in that way, I often find that one and sometimes more of the patrons adulterate their milk by either skimming or watering, and sometimes they do both. When complaint is made against them, they either plead guilty and pay their fine, or they are tried and usually convicted. After having visited a factory and convicted one or more dishonest patrons, the milk delivered is always very much better, and I have received many letters stating that it takes one and sometimes two pounds less milk to make a pound of cheese. I have visited some of these factories a second time, and have always found them in better condition.

Every dairyman should test each cow in his herd with a Babcock tester, and if any cow is not paying for her keep she should be disposed of as soon as possible and a good animal secured in her stead. When we have a person in our employ who does not earn half his wages, we very soon find someone to take his place. If all our dairymen would secure the right kind of sires, the milk of the whole state would very soon average 4 per cent of butter fat, that being a gain of 3-10 of one per cent over the present average. This would alone add at least 4,000,000 pounds per annum to our present yield.

As to the future of dairying in our state, I think there is no limit to its possibilities. The reputation of our cheese product has been very much damaged by the filled cheese that was made a few years ago, but now that its manufacture has been entirely prohibited, there is no reason why we should not be a much closer second to New York state than we are at the present time.

I am a firm believer in expansion of the cheese business, as I think there is no doubt that we can double and perhaps treble our production when we have all the land in northern Wisconsin in cultivation, that is now waiting for the industrious and honest dairyman.

New York Farm and Dairy Notes.

Among the Dairymen.

ED. HOARD'S DAIRYMAN:—During a trip through the finest dairy country in Delaware county, I was able to make some observations which may interest your readers. One who follows the west branch of the Delaware river through Delaware county, will see some of the best improved dairy farms in the state. Many of our most progressive dairymen live on these farms, and anyone interested in dairy matters, would profit by an interview with these men.

I think nowhere else in this country are there so many thoroughbred cattle, as in Delaware and adjoining counties. The Jerseys and Guernseys bred in this county have become so noted, that dairymen in other states buy their stock in this county for breeding purposes. On one small farm I visited, sometime ago, the owner was keeping a very fine herd of Jerseys. He was keeping one cow on every two acres. Only a small part of his farm was used for pasture, and the remainder was used for growing crops to feed the cows. His plan of farming was that of partial soiling. His earliest

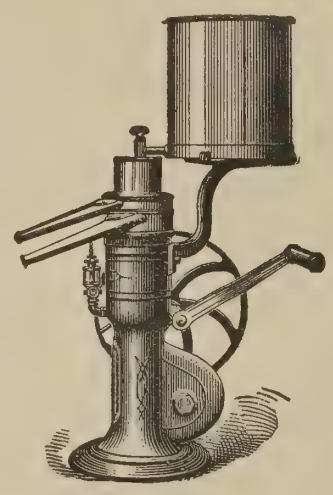
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crop, which he used for soiling his cows, was wheat. He preferred wheat to rye. The wheat was cut when the straw was green, and fed the cows. This was followed by oats and peas.

He had much to say in favor of oats and peas for an early soiling crop. They come in just the right time after the rye or wheat, and by sowing them at different times, they will last until the corn fodder is ready for use. He thought the fertility of the soil was best maintained with oats and peas, because the stubble left on the ground after cutting them was more valuable for plowing under, than that of most other crops. He did not have a silo, for he did not wish to do the work required to cultivate and handle the ensilage corn, as he was quite an old man.

For the reason that he carefully saved all the manure, he was able to grow very large crops of hay, some of his meadow would yield three tons per acre. The butter made from the Jerseys was sold to consumers in the village near by, but a part of the milk was fed to the calves sweet, without skimming, for he could make the most money, with the least labor, by growing calves from his pure bred cows, that he could sell for fancy prices.

METHODS IN POTATO CULTURE.

This is not a dairy topic, but most dairymen grow more or less potatoes, and some methods practiced in this locality, may have some good points for them. The modern implements for growing potatoes have so reduced the cost of production, that the farmers find some profit in growing them for the market. I know one man, who has a large dairy, who has made considerable money in growing potatoes. The most of the large growers now use the potato planter, the weeder, the best cultivators, and the potato digger. Those who cultivate the river flats, have land so easily tilled, that they are able to grow a crop of potatoes, and do the work nearly all by horse power.

I found one farmer who practiced a method that may be of use to some farmers who do not use the potato planter. The potatoes are planted on sod ground—a clover sod is preferred. The sod is turned with a reversible plow, and a wheel and coulter should be used, so each furrow can be turned evenly and smoothly.

After turning one furrow on one side of the field, commercial fertilizer containing a large per cent of potash, is scattered along the furrow, at the rate of about 1200 pounds per acre; the potatoes were dropped in the furrow about one foot apart, and close to one side of the furrows, so the line of potatoes will come just where the furrows lap, then potatoes will grow up through the places where the furrows lap, instead of through the sod. In this way the potatoes and fertilizer are dropped in every third furrow.

A few days after planting, the surface of the field is finely harrowed three or four inches deep. This does not disturb the potatoes, as they are plowed under about six inches deep. The potatoes soon grow up through the sods, and are frequently cultivated with the smoothing harrow and weeder, until they are several inches high. Afterwards a one horse cultivator is used. The potatoes are dug with a one horse potato digger, so the hand hoe is not used in growing the crop.

EARLY FROSTS AND DROUTH.

The most of the farmers here think the prospect is not very good at the present time for the hay crop. A drouth early in the spring, followed by several hard frosts, has not been favorable for the growth of the grass. In a climate where the conditions favorable for making the hay crop are so uncertain, there seems to be greater need of the silo. The ensilage corn can be made to grow well nearly every year, and it is one of our most certain crops.

The dairyman who has prospect of a short hay crop should plant more ensilage or fodder corn, and if he has no silo, he had better build one. If he must buy grain to supplement the hay crop, he will save enough by feeding ensilage to pay for his silo in one year. I speak from my own experience in building a silo. This is certainly good economy. Other dairymen have told me that the money saved from the grain bill, has paid for the silo the first year. W. J.

Delaware Co., N. Y.

Inaccurate Test Bottles.

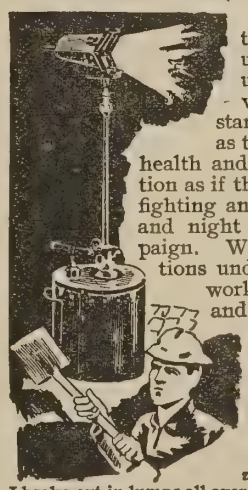
One of our dairy students, who is operating a creamery in Kansas, sent the writer two cream test bottles, during the past week, with the request that they be calibrated or tested. He writes: I have tested them, and find them to be wrong, but would like to have your test of them, so I can show the patrons that I am right." These test bottles were received, and an examination of them showed that the manufacturer must have graduated them with his eyes shut, or guessed at the places where each mark of the scale should be made on the neck of the bottle. The results of the tests of the scale on each bottle were as follows:

Correct Reading.	*Scale on Bottles. No. 1.*	*No. 2.*
1.	.2.	2.
2.	4.	3.5
3.	5.5	4.5
4.	7.0	6.
5.	8.5	7.5
7.	10.5	10.5
10.	15.	14.5
15.	22.5	21.5
20.	29.5	29
25.	36.	35.5

This is the worst case of inaccurate graduation of test bottles that has ever come to my notice. In the earlier days of the Babcock test it was not uncommon to find test bottles occasionally, that were not exactly correct, but at the present time nearly all the leading manufacturers guarantee their test bottles to be right. Even when this is the case, accidents may happen in the best regulated establishments, and anyone who owns and uses a Babcock test considerably, ought to be able to test the accuracy of his glassware. This is very easily done with a one centimeter pipette, which is graduated to fourths of a centimeter. Such a pipette can be obtained from dealers in chemical supplies. It may be used as follows: Fill the test bottle with water to the zero mark, remove with a strip of paper any water sticking to the inside walls of the neck of the bottle above the zero mark, then measure very carefully one c. c. of water from the standard pipette into the test bottle neck. If it has been graduated correctly, this one c. c. of water should just fill the scale from zero to the five per cent mark on the neck of the test bottle. A second filling of one c. c. water should fill the scale to the ten per cent mark. One centimeter in volume represents five per cent of fat in the Babcock test, and by taking this standard, the correctness of the graduation on a milk or cream test bottle can be ascertained. E. H. FARRINGTON.

Wis. Dairy School.

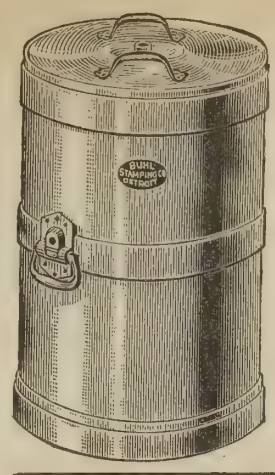
MIGHTY HARD WORK.



Some men have to do their work under all sorts of unusual and adverse circumstances that are just as trying upon their health and physical condition as if they were soldiers fighting and marching day and night in a hard campaign. When the conditions under which a man works are abnormal and unhealthy he needs to take special precautions to build himself up to withstand the extra strain.

"In 1894, *I was working at night* and I broke out in lumps all over and when these left the skin peeled off," says Mr. John A. Calloway, of 218 26th St., Columbus, Georgia, in a recent letter to Dr. R. V. Pierce, of Buffalo, N. Y. "I had catarrh for four years and also liver and kidney trouble; when it would commence troubling me I would have a slight aching a little below the chest. I used many kinds of medicine but received no benefit. My eyes were sunken and my face was pale; I had pimples on my face and there was brown spots on my face. Now these are all gone. I took six bottles of Dr. Pierce's Golden Medical Discovery and two of Dr. Pierce's Pellets. They are the best medicines I ever used in my life, and I do believe that I am entirely well. I have a good appetite but before I commenced treatment I had no appetite at all. Now I am like a child—ready to eat at any time of day or night. Last year I weighed one hundred and thirty-four pounds and now I weigh one hundred and forty-five. Please accept my thanks. I am so glad I found the right kind of medicine."

"Golden Medical Discovery" is free from alcohol; it is pure *medicine* and nothing else. Unlike the so-called "tonics" and "extracts" which tend to create an appetite for stimulants, the "Discovery" creates only a healthy natural *temperance* appetite for good food which nourishes and strengthens. The medicine dealer who says he has something "just as good" knows that he falsifies. If he urges an inferior substitute it is to gain a few pennies greater profit. No matter how discouraged you may be, write to Dr. Pierce for advice which he will send you free and which if followed, is bound to do you good.



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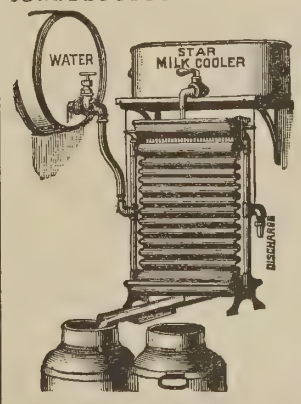
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If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

JERSEY CATTLE SALE.

Kirkmont Herd At Auction!

TUESDAY, JUNE 6th, 1899,

Commencing at 1 p. m., at the residence MARSHALL M. KIRKMAN,

Corner Ridge Avenue and Lake St., EVANSTON, Cook Co., Illinois.

(Four miles north of Chicago.)

The Herd is made up of 22 members of the Stoke Pogis family and 15 of the Stoke Pogis-Landseer families, and has been built up with the one object of developing a TYPICAL DAIRY COW.

It consists of 24 Cows and Heifers. The service bulls, **IDA'S RIOTER OF ST. LAMBERT 24th** and **AARON'S RODNEY,** represent the choicest Stoke Pogis blood, and, therefore the highest type of Jersey. Every animal is registered in the American Jersey Cattle Club. The young bulls that will be offered are sired by the service bulls and are from the cows offered. They are worthy to head any dairy herd. Every cow in the list is a good breeder, gentle, a persistent milker and will make 4.5% test in butter fat. The Heifers are splendidly bred (from the sires and dams to be sold) and give every assurance of making choice cows. The herd will not be fitted up for sale, but will be offered on its merits as one of the best in the world. Each animal is guaranteed free from tuberculosis, and is subject to transfer in the American Jersey Cattle Club.

MARSHALL M. KIRKMAN,

TERMS CASH, or 30-day bankable paper. 1429 Ridge Ave., EVANSTON, ILL.

Cedar Hill Dairy Notes.

Chickens.—Silos.—Ice-houses.

ED. HOARD'S DAIRYMAN:—Well, they came! The chickens I spoke of in my last letter, 248 of them, about half and half Plymouth Rock and Single Comb Leghorns, and are now comfortably situated in our brooder house. This brooder house is, we think, one of the best to be found in Northern Ill., it is 30 feet long and 12 feet wide, is built of ship lap for outside wall and bricked between studding; roof shingled over tarred paper and 1 inch sheeting layers close together.

Heat comes from a hot water boiler and pipes; pipes run through 8 hovers, these hovers will mother 600 chicks up to 3 weeks of age.

To raise chickens in this way is more fun than running for office and don't cost as much. Last week's letter found us with 3 rooms in our creamery; this week we are starting to build the fourth one. This room is for our engine, bone cutter, feed cooker, etc.

We will conduct power from engine to ensilage cutter, a distance of 70 feet with a two-inch shaft. Our cutter will be the latest improved Ross, 16-inch knives, and will cut silage to fill two silos.

One silo is octagonal, holds 150 tons; the other (to be built at once) will be staves, round, and 30 feet deep, 5 feet underground and 25 feet above. The DAIRYMAN'S last silo plans hits our case exactly. As to manner of construction, we have corresponded with silo manufacturers and the prices they ask for knock down silos will almost knock down a would-be purchaser.

Our staves will cost us less than $80., hoops $12. to $15. It is so hard to make people believe but that a silo must be put up at a large outlay of money to insure its being good. It is the same as ice-houses and refrigerators were 25 years ago, a sort of mysterious method that but few dared to undertake.

My father followed dairying for a good many years in Waukesha Co., Wis., without ice, because he thought a house to keep it well would cost too much. I never have yet been where a silo could not be built cheaply.

Away up in the mountain parks of Colorado, 7,600 feet above sea level, where no stone or brick can be got, and other material high, I found that cedar poles set in ground in rows, for outside walls to be boarded against, was just as effectual as any way.

I believe a sod silo in the Dakotas would be as good as stone or brick, better in that locality on account of keeping out the severe freezes; just so we keep before us the idea of air tight walls coupled with proper strength. "BUFF JERSEY."

Dysentery in Calves and Other Young Animals.

[*Press Bulletin*]

Letters of inquiry to the veterinary department, regarding this disease, have, during the past month or more, been so numerous, and are continuing to come in at such a rate that it has been thought best to give to the public, through the press, a few of the best-known facts regarding this extremely fatal disease.

NATURE, OCCURRENCE AND CAUSE.

Dysentery in young animals is most frequently met with in calves, but also causes untold losses in pigs, lambs and foals, and is common in dogs and cats. That a similar disease occurs in human beings is a well-known fact. This disease is so common in many localities, becoming more prevalent from year to year, that in some places the growing of young stock must be abandoned. According to Roell, dysentery is so prevalent in portions of Austria that, in one herd of 3,318 calves, 1,196 animals were attacked and 1,152 died (97%). This gives an idea of the mortality to be expected from this disease.

The disease attacks, chiefly, animals from 1 to 4 days old; after that age it is a much rarer occurrence. Often the animals become attacked immediately after birth, without previously having taken any food whatever. This seems to prove that the milk of the dam cannot be considered as a factor in producing the disease. A further proof to this effect seems to be the fact that the feeding of milk from stables free from this disease is no hindrance to its development.

Although the infectious principle is not known, there is no doubt that the disease is infectious, and that the excrements harbor the infectious principle and constitute the chief medium for its dissemination.

It seems that the disease can be transmitted, not only from animal to animal of the same species, but also to animals of different species, e. g., from calves to lambs and pigs (Kotelmann). Friedberger and Froehner mention the fact that infectious abortion and infectious scours (dysentery) often occur at the same time and thus seem to have something in common.

SYMPTOMS.

The symptoms in different species of animals are much the same, and are only too well know by some cattle men. In calves we find the following: Loss of appetite, diarrhœa (very soft or even watery evacuations), restlessness, tenesmus (ineffectual straining to pass dung), and cries of distress Later, the excrements, which at first are of a gruel-like consistence, and of a yellowish color, become watery and whitish in color, mixed with mucus and particles of coagulated milk and even blood. At this stage the excrements have a most disagreeably fetid odor. Finally, involuntary evacuations take place, the animals become weak and lie down continually, have cramps and spasms, and discharge saliva from the mouth. The eyes become sunken, the hair rough, and general indications of emaciation can be observed.

Death may occur within twenty-four hours of the appearance of the first symptoms, but as a rule not until the lapse of two or three days. The mortality is very high (80 to 100% of all attacked animals die.) Frequently every calf in a stable will succumb to the disease. When animals recover they remain weak and unthrifty for a long time.

The symptoms in lambs and colts are much the same as those given for calves. A few other diseases, which may be confounded with dysentery, are sometimes met with, but careful observation, and the consideration of all facts presented, will guard against a false diagnosis.

TREATMENT.

Our greatest, and I might say, our only hope, lies in prevention. Prevention consists in the isolation of the healthy and the diseased animals, and in the thorough disinfection (see Bulletin 79, Bovine Tuberculosis, pp. 99-101,) Kansas State Agricultural College,) of the infected stables, yards and pens, as well as disinfection of the female genital organs (before and after parturition.)

The isolation of pregnant cows and their removal to new, or thoroughly disinfected, old quarters, a week or ten days before parturition, is an excellent plan. This is more rational treatment, and promises better success than any amount of drugs and medicine administered internally. Animals already attacked may be treated as follows: Give calves two or three tablespoonfuls of castor oil, lambs as many teaspoonfuls. Colts may be given one to three grains of calomel three times a day. The calomel, after being triturated with a little sugar, may be added to a little milk and fed to the colt. On the following day, or after the oil (or calomel) has had its effect (laxative,) the following recommended by Friedberger and Froehner, may be given: Powdered rhubarb root, 1 dram; powdered magnesium carbonate, 15 grains; powdered opium, 30 grains; good brandy or whisky, 2 ounces. Mix, dilute with equal parts of water, shake well, and give to calf as one dose, repeating a similar dose every three to six hours until the diarrhœa is relieved.

In the same manner, colts may be given 1 to 2½ drams of tincture of opium, lambs 30 to 60 drops, repeating the dose, as above, every three to six hours until relieved.

The following treatment was used with success by the author: Take wood tar, one pound, place in a vessel and pour over it three gallons of boiling water; allow to cool, and pour off the straw colored liquid (tar water,) which is used as follows: As soon as the calf shows symptoms of diarrhœa, inject, with a syringe, one-fouth pint of this liquid into the rectum. Repeat the operation every half hour. Use a hard rubber syringe, with a long nozzle, oiling it, if necessary, to facilitate its insertion, and to prevent possible injury. Next day continue this treatment, and, in addition, dilute all milk fed to the calf with one-fourth its bulk of this tar water. Keep this up until recovery sets in. With this, as well as with any other treatment, the most important thing must not be neglected, viz, providing for the tender young animal's comfort. Provide a clean, comfortable stable, plenty of fresh bedding, which must be renewed every day, pure air, light, quiet surroundings and gentle treatment. If the animal is allowed to suck, wash teats of dam with a 3% creolin solution (tablespoonful creolin to one pint of water) immediately before. If calf is fed by hand, wash your hands in hot soap water, using a stiff brush, and then rinse them in 3% creolin solution. Keep pails and all utensils, with which milk is handled, scrupulously clean by means of frequent scalding. Disinfect stables and yards frequently with a one-fifth per cent solution of bichloride of mercury.

Pregnant cows should be treated as follows: A week or ten days before they are due to calve, isolate them and inject (gently) one-half pint of a 3% creoline solution into the vagina. Repeat this operation every day until the calf is born. After the calf is born inject half a gallon of this solution into the uterus, repeating the operation once daily for three or four days, or until all unnatural discharges cease.

All this means strict attention, study, work, and a little expense, but without these do not expect or even hope for success.

PAUL FISCHER.

Kansas Experimental Station.

For Preserving Milk Samples.

ED. HOARD'S DAIRYMAN:—I would suggest to "Subscriber" that he use Stewarts tablets to preserve his samples of milk, instead of bichromate of potash. The "tablets" are corrosive sublimate, and there is no danger of using too much, so as to affect the result with the Babcock test.

I have made several tests with both; once used an overdose to see if either would cause a poor test. With the tablets, I have used as high as three in half a gill of milk and had just as clear a reading as when using a half of one. With the bichromate, a little too much would not give a clear test, and with a large overdose I could not get a reading that was at all satisfactory.

In my samples I use a half pint bottle, taking not more than a large teaspoonful each day for two weeks, using a half tablet in each bottle.

I do not want the bottle over half full at the end of the two weeks, as I can get the cream that adheres to sides of bottle, off better than when it comes up well toward the top.

I find I get better results with my milk colder than the acid at time of making the test. This can be done by setting the test bottle in ice water as soon as filled, and leaving them until ready to add the acid.

Riverton, Mich. B. T. T.

Sauerkraut as an Appetizer.

Best Thing in the World for a Sick Cow.

A reporter who spent Christmas among the Pennsylvania Germans of Lancaster county, discovered what will probably be to most people a distinctively new use for sauerkraut, a native production of old Lancaster and a staple article of food, says the *Pittsburg Times*. He had called to see an old friend who keeps a dairy, and found the dairyman in the act of taking great bunches of succulent cabbage from a barrel in the cellar. The odor pervaded the neighborhood and made glad the nostrils of every true and loyal Pennsylvania "Dutchman," within a distance of about half a mile. The reporter was astonished when the dairyman picked up a bucketful of sauerkraut and carried it to his cow stables. The second animal in the long row of stalls was a big, strong-boned cow. Her head was hanging low under the manger, although there was a plentiful supply of hay in the rack above. Her ears had a dejected droop, and her eyes were half closed. She was evidently a very sick cow at a time when she should have been in good spirits, for among the Pennsylvania Germans it is still a popular belief that on Christmas eve the cows in their stalls may be heard to talk to each other of the great event the day commemorates. The bucketful of sauerkraut was dumped into the manger. The cow, by some peculiar system of feeding, first gave evidence of her appreciation by slowly switching her tail, which had before hung limp and lifeless. Then she raised her head, poked her great muzzle into the kraut and slowly began to munch the stuff. Fifteen minutes later she looked quite happy She had eaten all the kraut, and was taking great mouthfuls of the hay. The dairyman said sauerkraut had long been known as one of the best things in the world to give a sick cow an appetite.



ROUND SILOS

LABOR 1-2 SAVED.

Also best Horse-power, Thresher, Clover-huller, Dog-power, Rye Thresher and Binder, Fanning-mill, Feed-mill, Saw machine (circular and drag), Land-roller Steam engine, Ensilage and fodder-cutter, Shredder, Root-cutter and Corn-sheller.

GEO. D. HARDER, Manufacturer, Cobleskill, N. Y.

☞Please tell **what** you wish to purchase.

A PIANO AT A NOMINAL PRICE



Chicago's largest music house, Lyon & Healy, to sharply reduce stock is offering sample new uprights, slightly used pianos and secondhand instruments, at almost nominal prices. Good, durable uprights as low as $100, warranted as represented. Square pianos $20 and upward. Grands from $200. Send for complete list just issued. Among the makers are: Decker Bros., Hardman, Knabe, Steinway, Weber, Hale, Bauer, Fischer, Hazelton, and others. If you are interested in a piano, do not fail to write at once, as this opportunity may not soon occur again. Any piano not proving exactly as represented may be returned at their expense.

LYON & HEALY, 10 Adams St., Chicago, Ill.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent post-paid for 50 CENTS. Will send as premium for

ONE NEW SUBSCRIBER

REDUCE YOUR COAL BILL

BY USING

The No Scale Company's

High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M D. Watson Gen'l Agt, 551 Marquette Building, Chicago.**

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased greatly.

Get a Binder

now for the present volume and preserve the copies in handy form for reference and reading.

BINDER BY MAIL POSTPAID, 75 CENT

PARAFFINE BUTTER.

Unless a halt is called we shall have the Standard Oil Co. including the manufacture of butter (?) among their other numerous products.

From the view of the adulterator of food products, paraffine is an ideal substance to mix with and improve butter. It is tasteless, odorless and cheap. There is a chance for a big profit in selling paraffine that costs five cents per pound for butter that is worth twenty.

It matters but little that paraffine is indigestible, insoluble and absolutely worthless as a food. It can be mixed with other fats, colored, salted and sold to the poor, who cannot afford high priced butter, and the millionaire who prefers oleo, (according to the testimony given in Chicago), and then be filling a long felt want of both consumer and producer.

It will increase the value of every barrel of petroleum produced and also the value of Standard Oil stock at the same time.

The butter (?) will keep in any climate and under any conditions. Its many advantages are numerous when compared with butter made from cream. Incidentally it will destroy the dairy interests of the country, but of course that need not enter as a factor into the plans of the manufacturer of paraffine butter; that is a condition that can be considered when the production of the petroleum article is well established.

Dairy cows will be cheap then and plans can be formed to manufacture embalmed roast beef from them. In themean time, what do the dairymen of the country think of the outlook?

Warm Barns.

ED. HOARD'S DAIRYMAN:—I noticed an error in last week's DAIRYMAN in recording the Guernsey transfers. King Samm, No. 5865, from A. J. Philips to Geo. C. Hill and Son, of Rosendale, Wis., should read to Geo. C. Hicks and Son, of Battle Creek, Mich. In your comments on the article I wrote on the high temperature of the barn, I accept your amendment, and am aware that the machinery and working parts of the cow, are like the Texas story, they are fearfully and wonderfully made.

I did not mean to recommend that a stable should be kept near blood heat, but the point I wanted to impress on northern dairymen, or cow owners' minds was, that an even temperature, that is easier kept well up, by continuous stabling and closed doors was productive of better production, better profits. Takes less feed and less expenditure of butterfat to keep the cow warm.

My experience and observation has taught me, that when there is one barn kept too warm or one cow too well fed and cared for, there are one hundred that reach the opposite extreme and I think 500 of the latter would be nearer the truth.

Nearly four weeks ago, I saw cows turned out into old pine choppings, trying to live and produce milk and cream where a mountain sheep or goat would have to work twelve hours a day to live. Hay was gone, no bran or other grain feed, and the owner said his returns from the creamery were so small he believed he would quit the business, and the cows looked as though they were ready to quit to.

I realize that God moves in a mysterious way, and I sometimes wonder if he has ever made a move to provide a heaven for men who ill treat and starve the useful cow and the faithful horse that he provided for their use. Kindness to dumb animals, is a great text to preach from. Success to the DAIRYMAN, in its missionary work among the farmers.

A. J. PHILIPS.

West Salem, May 15.

How and When the Surplus Make of Butter can be Exported to the Best Advantage.

ED. HOARD'S DAIRYMAN:—I think there are few but what will admit that the production of butter in this country is now greater than home consumption can take care of at anything like remunerative prices to its producers, and it appears to me as if, how and when the surplus make can be exported to the best advantage, to all interests, ought to now be carefully considered, seeing we are approaching the period of the flush of the make.

The seasons of 1897 and 1898 afford much information, and from which there is ample data to assist us in forming an opinion on the subject matter. These two seasons were somewhat similar in the matter of production, and they were normal. Prices in 1897 fell to 15 cents, in New York and Boston, during June, for extras in creameries; 13@14c, for seconds and firsts; 12@13c for extra imitation creamery and 10@11c for extra ladles. This enabled exporters to send liberal quantities of the product out of the country under the most favorable conditions, in so far as the matter of quality was concerned, American butter soon got a footing and reputation in all the foreign markets.

The quantity sent out of the country up to September 1st, was sufficient for all home markets to thereafter sustain a higher range of values the balance of the season, but it would have been better if prices had not advance in August, until about 100,000 packages more had been sent out, as home markets could have then sustained a still higher range of values for the balance of the season. The season was a good one to the butter trade generally, in this country and Great Britain.

There never had been before, a year when so much American butter was sold for table grades in England. The season of 1898 was almost diametrically opposite to that of 1897, in nearly every feature. Prices in June opened about 2 cents higher than in 1897, and they were kept so until the third week of August, which prevented exporters handling much of the better descriptions, and with little or no profit. What was the result? Home markets could not sustain as good prices after September, as they did in 1897, and in December it was clearly evident that it was absolutely necessary to bring on an export demand to prevent a disastrous wind-up this spring.

Unfortunately it was at a time Australian and New Zealand goods were arriving in England in immense quantities, all fresh made grass goods, and which our stale American goods had to come in competition with. It is true it gave the relief looked for to our home markets, but at the expense of our reputation in foreign markets, as much of that shipped were cold storage goods, which had deteriorated, more or less, from age. Most of these goods were sold at a loss to the owners of them at the time, and in many cases at no higher prices than shippers could and would have paid last summer, and when they were fresh and sweet. The June deal of 1898 was not a success, as all will have to admit.

If the two seasons of 1897 and 1898 teach us anything it is, that to make a June speculation at all successful, the product has got to be bought at very low prices, or else a large portion of the June make must be shipped out of the country to cause higher prices for that portion of it which is held in cold storage in this country. It is clear to me that until we greatly decrease the make of butter during the summer and increase the winter make proportionately, we must look for a low range of values during the flush of the make. Producers of butter should assist in every possible way the matter of exporting the surplus during the flush of the make, as by doing so the butter is out of the way and markets in good shape for their fall and winter production. Whereas, if they sell to speculators their summer make and the butter is held here, it is always a rope around the market's neck for their fall and winter goods, as speculators will bring their summer goods out at every stage of advance that may turn a profit.

It is foolish for one to forecast the probable course of markets, especially on such an article as butter, which weather conditions affect so greatly, but there is this to be said, and that is, the best foreign markets for our surplus are those of Great Britain, but, unfortunately for us, the product of the antipodes has assumed such colossal proportions, and yearly increasing, and is marketed in Great Britain between Nov. 15th and May 15th, it must be clear to all that our surplus must therefore be marketed abroad between June 1st and Oct. 31st in order to avoid its coming in competition with these goods from the antipodes.

The English working people are at the moment well employed and at good wages, and when in such a condition they are great consumers, especially so in the matter of butter when it can be purchased for 18@20c at retail. When butter can be sold at such prices, the consumption of margarine and mixtures is always greatly lessened and that of the real article greatly increased. It is therefore reasonably certain that with a normal condition of weather conditions and make on this side, that the English markets during June, July, August and September could take care of 300,000 to 400,000 pkgs. of all grades of our butter, if shipped promptly after being made, and at about a cost of 15@16c, f. o. b. steamers, to English importers, for extras in creameries, 14@15c for firsts, 13@14c for imitations and 11@12c for extra ladles.

It would be a great advantage to the industry generally, if ladles and imitation creameries could be exported largely during the summer months, as the better description of these goods could be used largely for a cheap table butter, while they are fresh and sweet. They cannot be used in this way after they are held in cold storage for months, as they grow bad after being removed from the influence of cold storage and invariably have to be used for a low grade of confectioner's butter in Europe.

It is unfortunate that the requirements of English markets in matter of package, and to some extent that of color and saltness, is so different to the general requirements of markets in this country. The finest grades of creamery, in the Australian box, natural grass color, or pale straw, and salted one-half ounce to five-eighths ounces to the pound is the most desirable and will bring from one-half to one cent a pound more in the English markets than the same quality of butter higher colored and higher salted and packed in the 60-pound ash tub.

Creamerymen will naturally be loath to put up their butter in these boxes, salted and colored as mentioned, as should there not be an export demand on our home, buyers would discriminate against these Australian boxes as badly as the English cutter discriminates against the 60-pound ash tub in favor of the box, so that it would be well for creamerymen not to put their butter up in this shape without first having some understanding regarding the matter of price.

However, the tendency in this country is to lighter salting and lighter coloring than what was in vogue two or three years ago, and butter put up to meet the requirements of the New York market, in matter of color and salt, is not too high in these two particulars for some of the English markets, but it must be remembered that any butters highly colored or highly salted are most undesirable for all English or Continental markets GEO. A. COCHRANE.

Boston, May 5th, 1899.

CONCERNING OUR ADVERTISERS.

P. J. Cogswell, Rochester, N. Y., writes: I have recently shipped the bull, Acte's Exile 54632, to Mr. John H. Garrison, South Easton, N. Y. Mr Garrison writes: "The bull came through all right. I like him very much. I think he will make a very fine animal."

Acte's Exile is a very fine solid lemon fawn son of Exile's Diadochus, having by him three tested dams. His dam, Exile's Acte, is a young daughter of Exile of St. Lambert 13657. She has never been tested, but is doing fine work, with a good prospect of being added to Exile's list. Her dam was Koffee's Duchess 2nd, (17 lbs. 1 oz.), who averaged 36 lbs. of milk per day for six months, and she a granddaughter of Ida's Rioter of St. Lambert. through Ida's Pogis.

If appearances count for anything, this young bull will make a sire that will be heard from, as he is well fitted by breeding and individuality.

AROUND THE WORLD IN A DAY.

This globe of ours is a pretty good sized sphere, but we are told the Deering Harvester Company of Chicago can produce in a single day enough Binder Twine to encircle it, with 3,500 miles to spare—30,000 miles of twine is a fair day's output! A reliable publication recently proved by correspondence with dealers in all parts of America that 36 per cent of the twine used in 1898 was Deering Twine.

FREE TO SUFFERERS.

The New Cure for Kidney, Bladder and Uric Acid Troubles.

Almost everybody who reads the newspapers is sure to know of the wonderful cures made by Dr. Kilmer's Swamp-Root, the great kidney remedy.

It is the great medical triumph of the nineteenth century; discovered after years of scientific research by Dr. Kilmer, the eminent kidney and bladder specialist, and is wonderfully successful in promptly curing kidney, liver, bladder and uric acid troubles.

Swamp Root has been tested in so many ways, in hospital work, in private practice, among the helpless too poor to purchase relief, and has proved so successful in every case that a special arrangement has been made by which all readers of HOARD'S DAIRYMAN who have not already tried it, may have a sample bottle sent free by mail, also a book telling more about Swamp-Root and how to find out if you have kidney or bladder trouble. When you write mention reading this generous offer in HOARD'S DAIRYMAN and send your address to Dr. Kilmer & Co., Binghamton, N. Y. The regular fifty cent and one dollar sizes are sold by all first-class druggists.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

SCHMIDT'S Treatment for Milk Fever

The new remedy that has a record of 90% of cures in 412 cases. Two complete treatments with full directions and necessary apparatus neatly packed in a box for shipment, Price $2.75. Every dairyman should have this outfit on hand ready for instant use Order at once from GARDINER BROS., 220 E. Preston St., Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis

LONG GREEN, Feb. 12, 1898.

H. W. KELLOGG CO.,

DEAR SIRS;—Enclose please find nine ($9) dollars for which please send by express 25 lbs. of your Abortion Cure. We tried the 2 lbs. of Nov. 16 and both cows came out all right and we have much faith in it. Please send immediately. Yours,

A. B. SMITH,
Long Green, Md.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.



ALDERNEY BUTTER COLOR

Buttermakers using it say it gives perfect satisfaction in every respect and recommend it to all not using it.

Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.

BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

Some of the alleged provision papers are making a great hue and cry over the injury the recent developments in the beef inquiry are likely to work in our export meat trade. One of them brings forth a labored argument to prove the value of boric acid as a meat preservative; yet we have been solemnly assured, times without number, that no chemicals are used by the packers. Why this argument? If our meat trade is injured in this way, who is responsible, the men who tell the truth about the business, or those who used the stuff? And if this chemical is so harmless, why will it injure our meat trade abroad to have it known that our packers use it?—*Rural New-Yorker.*

And it is these same packers who manufacture the much lauded and long-keeping oleomargarine. What is it that causes this product to keep so well?

Butter and Butterfat.

At a farmers' institute held in Paw Paw recently, the questions were discussed why milk would churn more than the Babcock test showed, or why creameries had an increase or overrun. It seems that the discussion upon the subject at this meeting failed to make it satisfactory, and I have been asked to make a little explanation on this point through this paper.

Butter is composed of four principal parts, namely: Butterfat, casein, salt and water. A pound of butter ordinarily contains 12 to 15 per cent of other ingredients than butterfat. I have said that the ordinary increase was from 12 to 15 per cent, but this increase will vary both ways from the general rule.

The next question that would naturally arise is, why is this the case? There are many things to cause this variation, and I shall mention the principal ones. The main causes are:

1. The kind of separator used and the way it is handled.

2. The condition of the milk when skimmed. What I mean by condition of milk is whether or not the milk is perfectly sweet and fresh.

3. The nearness to complete exhaustion of cream in churning.

4. The kind and quality of salt used.

5. The amount of casein and moisture left in the butter, which varies somewhat with the season.

6. The time of year itself.

What I mean by the time of year is this: For example, a factory has 6,000 pounds of milk per day at the beginning of August. By the last of the month it is only getting 3,000 pounds per day. The quantity of milk having decreased, the quality having improved just a little, and the milk being generally a little off, it quite often runs the increase down to nothing and I have known cases where there was not as much butter made as the Babcock test called for.

Most people, when reckoning up how many pounds of butter are made from 100 pounds of milk, fail to add the overrun, which, in all co-operative creameries in this part of the state, they have credit for. For example, if a man has a test of 4 per cent and there was a 12 per cent increase, by adding 12 per cent of the test to itself he would find the number of pounds per cwt. that his milk made, and for which he actually had credit. If a man's milk test 4 per cent fat and there is an increase of 12 per cent, his milk makes 4.48 pounds per cwt. or nearly 4½ per cent. E. D. HULL, Glendale, Mich.—*Northener.*

THE FAMOUS DARLINGTON FARM AND DAIRY.

Thirty-four years ago the coming month, the editor of this paper, then a federal soldier, paid a visit to the famous Darlington dairy farm in Chester Co., Pa. The butter from this renowned dairy was then selling at a dollar a pound. The following extract from a description of the farm and its appurtenances is taken from the West Chester *Republican*:

A typical farm of this class, and one among the most successful of them is that of the Darlingtons, at Darlington station on the Media railroad. The present owners, Jesse and Alfred, are men past middle age, and their father was famous as a dairyman before them. They command 850 acres, mostly of the rich meadows lying along the graceful wanderings of Chester creek, and churn the milk of 250 to 300 cows. Half a mile from the station, southward, the farm has its own creamery, fitted with every convenience, but it is the knowledge and skill of the men who use these appliances, and not the conveniences themselves, which are responsible for the high grade of the product.

It has been said above that good dairymen begin with the cow and the field. Every cow that is added to this herd, whether raised or purchased, is thoroughly tested. A record of milk yield is kept, and the percentage of cream ascertained by a curious little machine driven at a high speed, which separates cream from milk in a sample bottle. In this way the exact butter yield of a new cow is ascertained throughout the season, and if she proves satisfactory she is retained, otherwise she goes out to market. The milk averages perhaps 4 per cent, but a free milker at a fraction less is held more valuable than one with a higher percentage and a scanty flow. Such a cow properly fed to her healthy limit, on the right kind of food, will make good butter and enough of it to leave a profit at the end of the year. Green food is an essential to good feeding, and the Darlingtons, after watching carefully and experimenting for themselves, are firm advocates of the silo, which they have long had in practical use.

Twice a day the milk, warm from the cows, is run through the centrifugal separators, of which they have two. The cream comes out at a temperature of about 88 degrees, and passes at once through a cooler where a steady flow of water from a never failing spring in the building reduces it promptly to 57 or 58 degrees. No ripening ferment is used; the cream being set in deep cans in this spring water, which does not vary more than a degree or two from fifty the year around, and after thirty-six hours it goes to the churn. A ten-horse engine drives this and the other machinery; and the butter, after coming from the churn, is worked by the oscillation of a corrugated cylinder on a table, driven by the same power. After reworking and salting it is made into pats, and goes to the refrigerator. At shipping time it is brought out on plate glass shelves, each roll is wrapped in cold wetted clothes, it is carefully packed in tubs and taken to the station in time to make close connection with the requisite train.

The refrigerator is kept at the required temperature by a miniature ice-making machine, a model of the one told of yesterday in an account of the cold storage plant. A brine tank occupies the top of the butter closet, and the ammonia pipes circulate through it. A short time running the pump is sufficient to reduce the mercury to nearly or quite zero, and the refrigerator will keep this over night without rising to the thirty-two degrees. A sloping semi-roof over the butter throws the air chilled by the bottom of the tank down to one side of the closet, the warmer air rising on the other side, and leaving its moisture on the surface of the cold brine. This circulation insures dryness, so that a wet cloth hung inside at night will be absolutely dry on opening in the morning.

The milk used at this creamery is exclusively their own. To maintain the standard set for this butter it is absolutely necessary that they know what feed the cow has and what she does not have; it is necessary to know that absolute cleanliness obtains about the milking stalls, that neither dust nor odors shall have opportunity to add their undesirable qualities to the product. They must be kept out, for once admitted to the milk no process has ever been invented for separating them again from the true butter flavor. It would be manifestly impossible to maintain this close supervision if milk were bought.

The secret of their fame as butter makers is simple in the stating, but difficult in the carrying out. It lies in profitable cows, intelligent feeding, cleanliness, adequate apparatus and monotonous method even in smallest details. Always the same thing at the same time in the same way; that makes always the same butter and always the same price. It is the monotony of it that pays.

Transfers of Guernsey Cattle From April 15th to 30th, 1899.

BULLS.

Brandon's Admiral 5951, G. A. Seager to Robert C. Young, Orwell, Vt.
Cyrus of Sugar Grove 5578, Amos Hudson to F. D. Kirk, Hadley, Pa.
Curraghmore 4309, James Logan Fisher to James Moore, Philadelphia, Pa.
Champion of Homestead 5978, L. V. Axtell to G. B. Tallman, Perry, N. Y.
Duke of Cambridge 5333, Albert English & W. H. Teff, to F. B. Buckley, Valley Falls, N. Y.
Eagle Flanagan 5969, Albert Eastburn to Ezra Michener, Carversville, Pa.
Eagle Flanagan 5969, Ezra Michener to J. L. Potter, Acker, Pa.
Earl of Daretown 5971, Jos. Evans to J. DuBois, Daretown, N. J.
Ellerslie of Rhinecliff 5974, L. P. Morton to Edward M. Butler, Croton Falls, N. Y.
Gladson 5862, Chas. L. Hill to Otto Wolfe, La Crosse, Wis.
Gilded Dawn 5968, A. H. Kellogg to J. E. Shannon, North Yakima, Wash.
Hobson of Riverside 5948, James Forsyth to W. C. Castleman, Tracy Creek, N. Y.
Heymann 5728, L. P. Morton to A. S. Haight, New Lebanon Centre, N. Y.
Hodyl 5399, L. P. Morton to John H. Darlington, West Chester, Pa.
Hero of Manila 5505, John A. Williams to Robert Hamill, Cochranville, Pa.
Jollity's Fayette 5957, W. S. Stevenson to W. S. Ramsey, Evans City, Pa.
King Jewel 5805, Charles A. Groff to Geo. G. Kerr, Elkton, Md.
Leader Lenfestey 5954, Howard B. Tuttle to H. Rasmussen, Waterbury, Conn.
Merry Rex, 5921, The Charles Parker Co. to Chas. M. Jarvis, Berlin, Conn.
Par excellence 5970, Charles Solveson to H. McK. Twombly, Madison, N. J.
Prince of Huntington 59770, J. P t Welsh W. B. Franklin, Town Hill, Pa.
Roy 5953, Charles Edwards to Abner W. Williams, Cochranville, Pa.
Stonewall 5671, John G. Mobley to C. F. Moore, Bennettsville, S. C.
Scottdale Promise 5975, Clayton C. Taylor to H. B. Strickler, Scottdale, Pa.
Silver State 5940, William Black to J. W. Munger, Barr, Col.
The Banner Badger Boy 5958, Christ Muth to Chas. L. Hill, Rosendale, Wis.
Voleta's Prince 5590, Nelson Ranning to Amos M. Welch, Ionia, Mich.

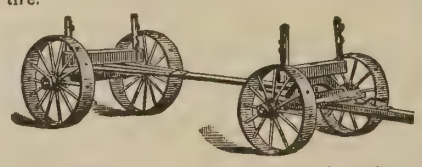
COWS.

Abigail 11589, Royal Pruda 11594, Submit 11590, F. B. Buckley to F. O. Wells, Greenfield, Mass.
Ada Smith 11624, Fly of Elm Place 11625, G. B. Tallman to N. E. Smith, Harford Mills, N. Y.
Bessie Chamette 11543, Florence Belle 11616, Iowa Queen 11576, Voleta 8869, Nelson Banning to Amos M. Welch, Ionia, Mich.
Belle of Birchton 11613, Daisy of Birchton 11614, R. C. Conde to Frank L Smith, Birchton, N. Y.
Belle of Galway 11575, R. C. Conde to Dr. Frank J. Sherman, Ballston Spa, N. Y.
Clarissant of Riverside 11590, James Forsyth to Andrew B. Sill. Middletown, O.
Camilla 2nd of Bethayres 11603, Craige Lippincott to A. J. Snyder, Plumsteadville, Pa.
Camilla 2d of Bethayres 11603, Coral Beauty 11382 Golden Belle 11615, Lassie of Sedgefield 11419. Princes Coraline 11420, Questa 11385, Trefoil's Last 11383, True Type's Lotta 11192, True Type's Louise 11386, A. J. Snyder to Ezra Michener, Carversville, Pa.
Creamella 6278 C. H. Toan to L. V. Axtell, Perry, Ohio.
Dehire of Elm Place 11621, Elite's Sister 11622, Ona's Babe 11623, G. B Tallman to S. B. Allen, Burdett, N. Y.
Delina 3d 8792, Dolly's Ada 9289, G. B. Tallman to L. V. Axtell, Perry, O.
Eunice of Castle Brook 11620, S. H. Hammond to G. B. Tallman, Perry, Ohio.
Flower of Beachcroft 11067, M. Alice Michener to Henry P. McKean, Penllyn, Pa.
Golddrop of Riverside 11560, James Forsyth to J. E. Bertolette, Athol, Pa
Golden Belle 11615, Howell Burgstresser to A. J. Snyder, Plumsteadville, Pa.
Herma of Ellerslie 11591, Iuavale 11595, Iowa of Ellerslie 11596. L. P. Morton to John G. Van Etten, Rondout, N. Y.
Irene of Elm Place 10445, G. B. Tallman to Paris Andrews, Perry N. Y.
Kathie of Castle Brook 10942, Lady Gay of Castle Brook 10938, Satteen's Gypsy Girl 4688, G. B. Tallman to Chas. O. Bennett, Hilton, N. Y.
Lorette 3066, Lorette's Daisy 9934, Chas. Edwards to Chas. Webster, Cochranville, Pa.
Lady Dunn 6795, Howard B. Tuttle to Geo W. Andrew, Naugatuck, Conn.
Maggie Marshall 10359, Ezra Michener to Henry P. McKean, Pennllyn, Pa.
Mollie Wood 11628, C. P. Sweet to R. J. Wood, Jonesville, N. Y.
Orbie 11608, C. L. Richardson to Noah Sagendorph, Spencer, Mass.
Palma 10609, Charles R. King to Dr. E. H. Phillips, Cape May City, N. J.
Princes Fillette 11607, Elliott Warner to Wm. F. Claussen, Claussen, S. C.
Pina 11618, Chas. R. King to A. J. Snyder, Plumsteadville, Pa.
Red Rose of Homestead 11626. Rose of Homestead 11627, Lucretia R. Garfield to L. V. Axtell, Perry, O.
Red Rose of Homestead 11626, Rose of Homestead 11627, L. V. Axtall to H. B. Stehman, M. D., Chicago, Ill.
Seneca 5685, Augusta Hubbard to J. L. Browne, Aberdeen, South Dakota.
Young Infanta 6952. O. F. Woodward to G. B. Tallman, Perry, N. Y.

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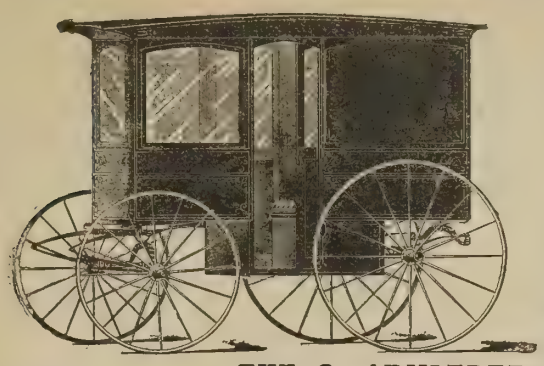
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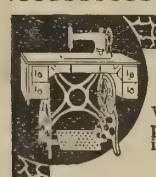
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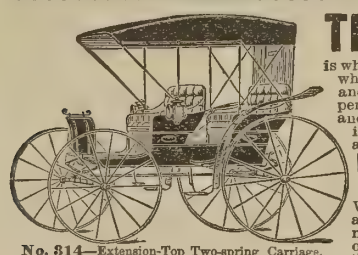
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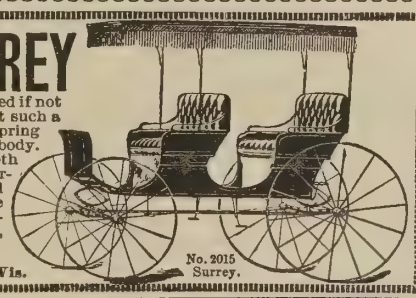
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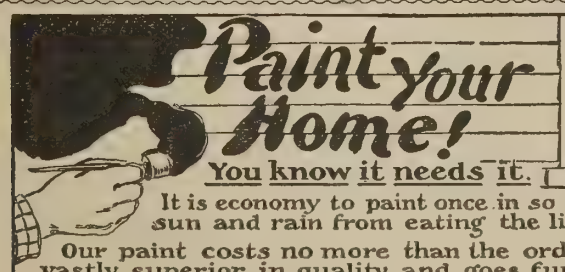
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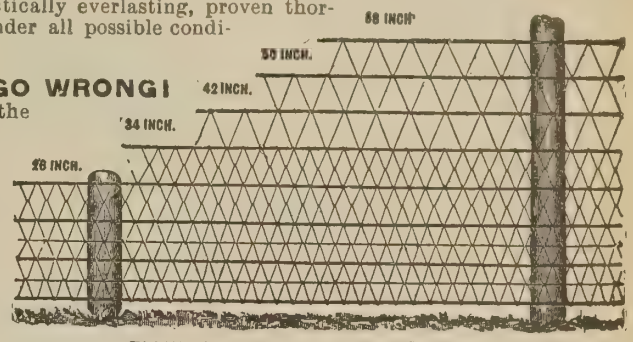
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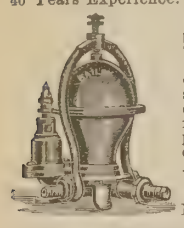
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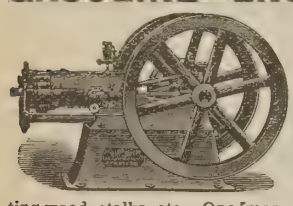
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The OLDS GASOLINE ENGINES! SIMPLE AND ECONOMICAL



Are especially desirable for general farm use. 1, 2½ h·p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**

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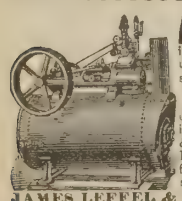
Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. **N. DIRIGO ENGINE WORKS, Portland, Me.**

The greatest amount of power procurable from the least amount of fuel, with the least attention to details, result from using the

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This is true in each case, whether you are **threshing, drilling wells,** running a **sawmill, grinding feed, cutting fodder** or **ensilage** or **anything else.** They are Semi-Portable, Portable and Traction, either simple or compound. They range from 8 to 20 horse-power. The traction engines are remarkable for **large traction power, easy steaming, fast travel, great strength, simplicity and durability.** Boilers made of plate of 60,000 lbs. tensile strength. Fire boxes surrounded with water. We make also **Threshers, Horse Powers and Sawmills.** Illustrated catalogue sent free—fully describes all.

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is undoubtedly the best power for farm use. Best for cutting and grinding feed, sawing wood, pumping—for anything.

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excels for this purpose as well as for use in dairies, creameries, cheese factories, &c. Horizontal or upright. 3 h.p. up. Easy to handle and keep in order. Least fuel and most power for the money. Send stamp for **"Book on Engines."**

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THE MOST POWER for the money can be gotten from our 2, 3 and 4-horse

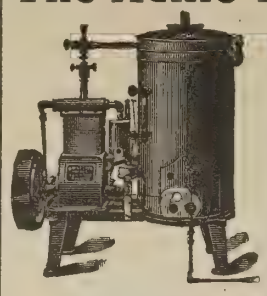
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1 TO 6 Horse Power. For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to Rochester Machine Tool Works

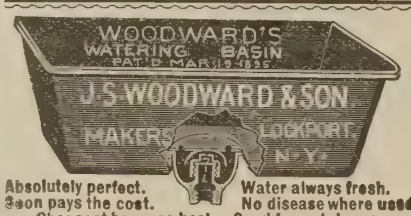
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Threshes Grain, Rice, Flax, Millet and Grass Seed. Fully warranted. Feed & Ensilage Cutters, Feed Grinders, &c.

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With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

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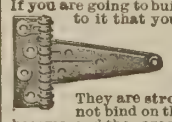
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It is the only perfect machine for turning or tedding hay. No breakage of forks and Arms.

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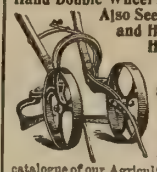
It is the latest, and it drops at twelve different distances.



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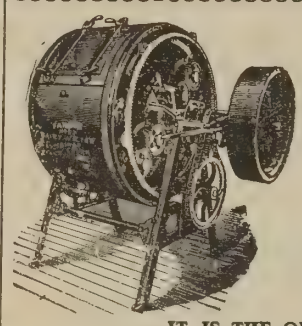
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NEW UNIVERSAL Hand Double Wheel Hoe. Also Seeders and Horse Hoes.



Send for our new 48-page catalogue of our Agricultural labor saving specialties.

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THE DAIRY "VICTOR" Churn.

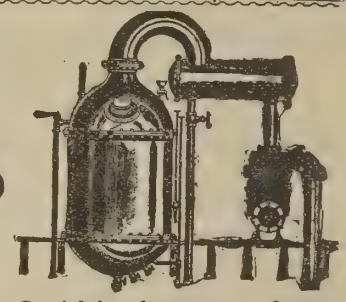
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

Condensed... Milk Factories

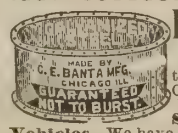


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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 25% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

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SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' none equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send **25c.** Money refunded if cow is not protected.

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guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more to not have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

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Newton's Improved **COW TIE** Holds them firmly, draw them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean E. C. NEWTON CO. Batavia, Ill. Catalogue Fre

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$48.50 FOR THIS $80.00 TOP BUGGY.

Wheels and Gear made of second growth air seasoned **hickory, tough** as whale-bone, double reach, iron full length, **improved** 5th wheel, with King Bolt in rear of axle, will never break. **Springs,** highest grade oil tempered steel. **Forgings** all made of Norway iron. **Trimmings** all wool 16 oz. imported English broadcloth, finest produced **Springs** in back and seat cushion. Seat ends padded. **Painted** under the 100 day system. All parts first dipped in hot oil and allowed to stand until perfectly dry, giving foundation for paint. **Best Oil, Lead & Varnish** used.

NO MONEY We will ship this elegant Top Buggy or any Phaeton, Surrey, Trap, Wagons, Carts, or Harness shown in our 164-page catalogue **subject to examination,** if not found satisfactory, **return it at our expense.**

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JUNE 2, 1899. NUMBER 16

WE PAY CASH f. o. b. Your Place for CREAMERY, DAIRY and PACKING STOCK in lines; EGGS in new cases. . . . . What have you to sell?

J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St. CHICAGO, ILL.

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Respectfully solicit the AGENCY OF **Creameries** in the New York Market. Up-to-date work, good trade connections and promptness are at your service.

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Send for samples and prices.
BOOMER & BOSCHERT PRESS CO.,
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CHR. HANSEN'S Columbian Butter Color

100 FIRST CLASS PRIZES awarded CHR. HANSEN'S

Guaranteed the Purest, Cheapest and Best in the Market.

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

SAN FRANCISCO, SEPT. 22nd, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Print Butter Should be wrapped in GOOD **Parchment**

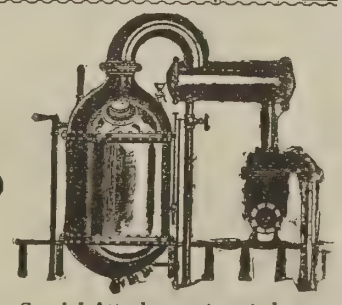
(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on Every Sheet.

SEND FOR SAMPLES.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

Condensed... Milk Factories



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Built Complete By **O. T. ROGERS & SONS, Detroit, Mich., U. S. A.**

We are the only firm that builds factories complete, put them in operation and guarantee results.

Durable--Effective--Economical.

OSWEGO FALLS, N. Y., April 25th, 1899.

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West Chester, Pa.

Dear Sir:—It is now one year since we put in the No. 25 Tubular Separator. It has not cost one cent for repairs and runs just the same as when first put in. It does fine work and gives the best of satisfaction.

The ease with which we can change from light to heavy cream makes it of especial value to us, for we ship three grades of cream, and must therefore make both light and heavy cream most every day. When we need more separators we will buy only Tubulars.

Thanking you for your courtesy in the past, Respectfully,
E. M. RICHMOND, Manager,
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JOHN HART is one of the Greater New York's best known milk handlers. He handles large quantities of commercial cream, which must be smooth and uniform to suit his trade.



THE SHARPLES TUBULAR SEPARATOR

fully answers this requirement and it will yours.

The cleanest of rapid skimmers.
The simplest in construction.
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A product unexcelled.

SOLD ON THEIR MERITS.

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ALDERNEY BUTTER COLOR

Buttermakers using it say it gives perfect satisfaction in every respect and recommend it to all not using it.

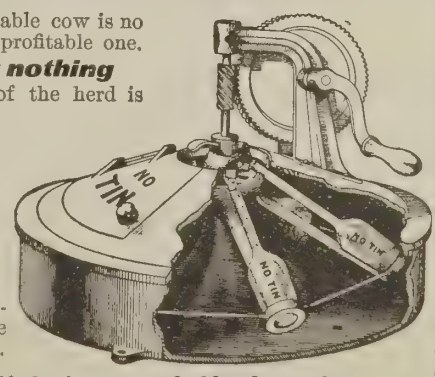
Manufactured by THE HELLER & MERZ CO., Office, 55 Malden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

Grade up Your Herd..

The expense of feeding a profitable cow is no more than the cost of feeding an unprofitable one.

It costs comparatively nothing to find out whether each member of the herd is profitable. The

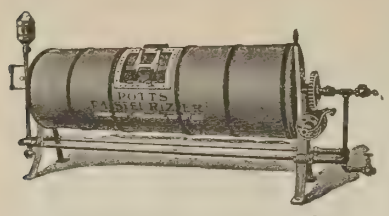
NO-TIN... Babcock Tester



will give exact information. Is substantially built of cast iron, and made to use the ordinary Babcock bottles.

TEST EVERY COW and if she is not profitable, do not keep her. It is the best low priced tester in the world. Send for Catalogue, No. 71.

Elgin Manufacturing Co., Elgin, Ills.



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Of milk and cream has passed the experimental stage, and is now an absolute necessity for all UP-TO-DATE and well regulated Milk Depots that wish to supply a perfectly healthful food, free from all disease germs, and one that will keep sweet without the use of chemical adulterations.

It is an established fact that pasteurized milk and cream will keep sweet from ten days to two weeks without the use of ice, and still have its consistency. Potts Pasteurizer insures against cooked flavor, and, if operated according to directions, cream will rise on the pasteurized milk just as quickly and as well as on milk that is unpasteurized.

The Expense of Pasteurizing in

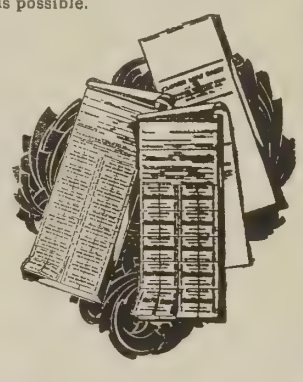
Potts Pasteurizer

Does Not Exceed ONE CENT PER GALLON, Taking EVERYTHING Into Consideration.

There is no other pasteurizer on the market that will give the results and do the work of the Potts. We refer to the Wisconsin Experimental Station, of Madison, Wis., for the confirmation of this statement, and if you desire can furnish you with a large number of names of other parties using these machines to their entire satisfaction.

If you are contemplating buying a Pasteurizer, please do not purchase until you have corresponded with us. We will be pleased to send you special circular matter, and a so endeavor to have one of our special Pasteurizer representatives call upon you if it is possible.

If you have ever thought of buying a thoroughly complete **Milk Dealers' Outfit,** we are positive that we can give you valuable information, and in the way of circular matter, describe a full line of utensils and supplies that are necessary for operating a thoroughly up-to date plant.



Our new **Incised Keystone Brand Caps, Ideal Steam Turbine Bottle Washer, Sanitary Milk and Cream Tickets, Signs and Placards** of all descriptions, as well as a complete list of **Milk Dealers' Stationery,** including Letter Heads, Statements, etc., etc., **Bottle Washing and Filling Outfits,** and an innumerable list of new and convenient articles that have been used by all the larger aggressive dealers with the very best results. We will be pleased to send you circulars descriptive of these articles, as well as samples, and ask that you communicate with us for further information.

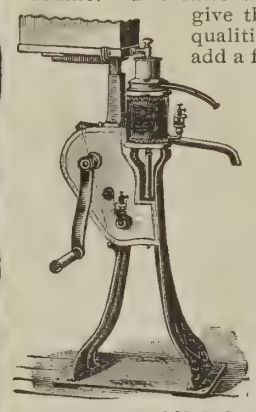
Send for our 1899 Milk Dealers' Price Current. Also our new and attractive little Booklet entitled "Suggestions to the Milk Dealer,' FREE

CREAMERY PACKAGE MFG. CO.
MILK DEALERS' SUPPLY DEPT.
MAIN OFFICES:
1, 3 & 5 W. Washington St., - CHICAGO, ILL.

The Ever Increasing Demand for

The Improved U. S. Separator

shows conclusively that Dairymen appreciate the worth of this machine. The sales were never so enormous as at present. To give those who are not familiar with its superior qualities some idea of what users think of it will add a few sample letters.



What the President Says.

BRATTLEBORO, VT., Feb. 27th, 1899.

It gives me pleasure to say that the dairy machinery bought of your company two years ago, including a No. 5 Improved U. S. Separator and a Pony Power, is working well and giving entire satisfaction.

The Improved U. S. Separator is doing all and even more than was claimed by your agent. The **separation is perfect,** it runs easily, without noise or friction, and it is easy to manage and care for. Of all the separators placed upon the market, there is none that excels the Improved U. S. in my opinion.

G. W. PIERCE, President Vt. Dairymen's Ass'n.

30 Per Cent. More Butter and of Better Quality.

OTIS, IND., October 4th, 1898.

The Improved U. S. Separator purchased of you has exceeded my highest expectations. In simplicity of construction and ease of running it cannot be beat. It has given us no trouble, and we have made from the start 30 per cent. more butter and that of a better quality than we did previous to obtaining the U. S.

Hoping the Improved U. S. will continue to lead, I am, etc.,
HENRY STORMES.

Excels All Others.

COLDWATER, N. Y., June 28th, 1898.

The Improved U. S. Separator is in constant use and is giving perfect satisfaction. I can say from actual experience that in ease of running, **close skimming** and quality and quantity of cream produced it excels all others. No farmer or dairyman can afford to be without one. They will pay for themselves.
C. C. BEAMAN.

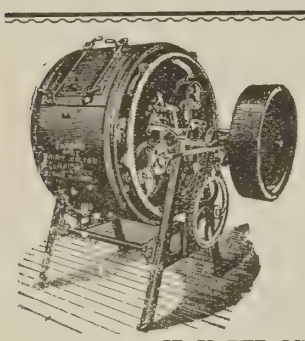
Superior to Anything in Cream Separator Line.

BORDER PLAINS, IOWA, Aug. 15th, 1898.

I bought an Improved U. S. Separator this spring, and therefore have had ample time to test and also to compare it with other machines. I think the Improved U. S. is superior to anything in the line of cream separators I ever saw. For simplicity, ease of operation, thoroughness of work and substantial appearance I can recommend the U. S. I think it is O. K.
GUY L. BARGAR.

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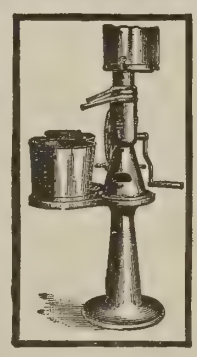
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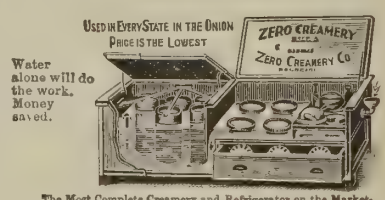
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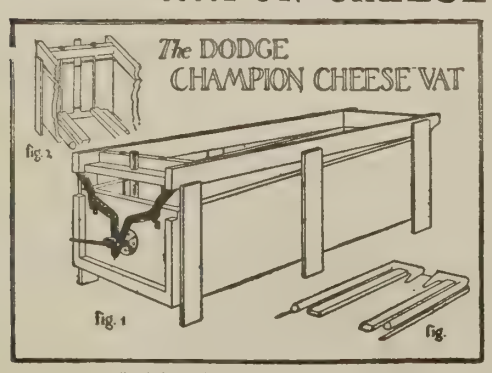


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WHICH IS THE BETTER COW?

We have received a goodly number of answers to the above inquiry which was printed in the DAIRYMAN of May 5th, in connection with the pictures of two Guernsey cows, and very much as we expected, Rose of the Quartiers appears to be the favorite. We were not prepared, however, to see her take so strong a lead as 8 to 1, which is the proportion of the replies in her favor.

Republishing the pictures herewith, we print below several of the letters received, omitting and condensing as much as possible and preserve the general sense. It would be hardly fair for us to give any personal comment, inasmuch as a letter was received from the Superintendent of Mr. Morton's herd very soon after the pictures were published giving the records of these cows, and in the nature of things would more or less effect one's conclusions, where appearances are so evenly balanced. We do not consider it at all certain that these cows may not reverse these records another year:

T. B. MILLAR, ONTARIO.

I consider Rose of the Quartiers the better cow.

1. Eyes bright and prominent.
2. Plenty of heart room.
3. Large digestive capacity.
4. Well developed udder.
5. Milk veins large, extending well to front, and from what I can gather from the cut, I think that she has the wedge shape fairly well developed. I think that "Villet's Gem" lacks depth of body, and digestive power would not stand forcing.

I will watch with pleasure for the report of this judging which I consider excellent practice for young dairymen like myself.

H. A. DEAN, ARKANSAS.

The reasons for thinking Rose is the better cow are, she is more wedge shaped than the other, a little higher in the flank, and deeper down through the body; not so high up on legs. The cows we milk that are the nearest perfect in the points named are the best, but pictures are pictures, and on seeing the cows one might change his mind.

H. A. BREIHAN, TEXAS.

Rose of the Quartiers has the advantage of Villet's Gem, in the front two-thirds, her bright face, ewe neck, and light withers in first; and greater depth in second third. In the last third I see no marked difference. Rose of the Quartiers has the better double wedge form; no doubt they are both good cows.

C. E. BULL, COLORADO.

Rose of Quartiers is the better cow:

1. Because of her greater depth of barrel indicating greater digestive powers.
2. More prominent milk veins.
3. The extension of udder, both forward, denoting longer lactating period, and so well up in the rear, indicating capacity to carry milk.
4. More massive and bony hips, which show greater strength.
5. Fullness of the eye, and high pelvic arch indicate a greater percentage of butter fat.

Z. M. WATERS JR, MARYLAND.

I think it hard to judge which is the better cow of the two. I would judge that Rose



VILLET'S GEM, A. G. C. C. 8664.

was the heavier milker. She has better shape of udder as it is not cut off in front quite as much and her milk veins are more prominent. She also has a deeper barrel, and in general looks like a heartier cow.

Villet's Gem has a more prominent navel, and I like her tail, neck and head better than I do Rose's. I would not be afraid to buy either for a first-class dairy cow.

JOHN W. VAUGHN, CALIFORNIA.

I have chosen Rose of the Quartiers for the following reasons: First, she is better in



ROSE OF THE QUARTIERS, A. G. C. C. 8654.

the muzzel, greater lung and heart capacity, also larger food capacity, wider pelvis, more decided arch and incurving thighs and seemingly more marked escutcheon and larger udder.

CHARLES F. ROY, VIRGINIA.

Rose's head is short and square, eyes large and prominent, nostrils wide, muzzle fine and slightly turned up; lips small and regular, horns fine and medium; chest wide and deep, well carried forward. I prefer Rose because her dewlap is better shaped, her front legs straight and more sloping inwards, (knock kneed) her neck finer, her withers sharper, her spine straighter and more level, her barrel larger, deeper from hip bone down, her hip broader and her pelvic arch is better shaped, her udder extends better in front and higher behind, her croup stands neither too high nor too low, her tail is well set on, thick at the root and slender at the switch, her thighs low and muscular.

W. T. NELSON, MISSOURI.

Rose of the Quartiers, for the following reasons:

1st. Her body is deeper and ribs more sprung, which shows better digestion, it gives more room for more bulky feed which is necessary in the dairy cow.

2nd. Her udder is more prominent and milk veins larger; flank is more arched.

3rd. She is broader across the hips and pelvic arch more prominent.

4th. Her eyes are fuller and more prominent, which indicates a large nerve force. She has strong jaws, which is another indication of good digestion, and large nostrils, which show a deep breather.

R. T. ARGOL, TENNESSEE.

As you intimate, there appears to be very little difference between them, still, comparing the pictures, I can't avoid the belief that "Rose of the Quartiers" is the better cow, but you ask "why?" (without this a choice would be worthless). Because, first, the cow seems to have greater capacity, shown in the great depth of body. And the pelvic arch is much more pronounced than is the case with the other cow. The thighs are more incurving, and the udder does not seem to be as well formed in the other cow, nor does she have so large or tortuous milk veins.

While the other cow is of pronounced dairy form, yet she has some points that are against her; the tail sets on a level with her back and she has not the great depth of body as is the case with the other cow. I think there is little difference as to temperament, but I vote for "Rose of the Quartiers." Now give me the records of each cow, if they are obtainable.

M. S. WILCOX, NEW YORK.

My choice would be Rose. She is more wedge shape, finer body, fuller eye; (though that may be the way she stands) better shaped udder, milk veins more to my idea, and judging from picture a yellower and mellower skin.

Villet's Gem is a good looking cow to appearance, not so good milk veins, not so yellow in skin, body more steer like.

I judge her to be a good cow; her udder development is good.

FRANK E. WRIGHT, IOWA.

Am 13 years of age and like cows very much. I don't suppose I can select all of the points of excellence of the better cow. I think Rose of the Quartiers is the best cow. Her eyes seem to be brighter, her barrel larger, her flank arches higher, has better milk veins, ending in a larger eyelet and a better pelvic arch.

HENRY S. HOPKINS, IOWA.

It seems to me that Rose of Quartiers has the advantage over Villet's Gem.

She appears to have a better constitution, as indicated by the depth of chest, has also a greater heart girth. She is also deeper in the flank. Her barrel is deeper throughout. Then I think she has a slight advantage in the udder, it being a little fuller in front.

The line running up the rear of Villet's Gem's udder would lead me to believe that it is somewhat fleshy; however it is hard to judge of this from a photograph.

These I believe are the most prominent differences. I am curious to hear the criticisms of others.

H R. HEATH, INDIANA.

My choice of the two cows, if I were to buy either, from the photos, would be Rose of the Quartiers, for the reason that while she has full as good mammary development as the other, she also is nearer the wedge form, has larger digestive capacity and hence able to eat and assimmilate more food and give better results at the pail. The photos do not show the relative size or contour of milk veins and other parts essential to form a correct score in each cow, and while Rose does not show as large navel as the other (to which some attach considerable importance) I should still choose her of the two.

W. H. SEELYE, MICHIGAN.

As shown in the cuts, I would pay the most money for Rose of Quartiers, because she is the more economical producer as evinced by shortness of leg, depth of body with short middle piece, and large paunch.

I should expect a larger total yield for a term of years, as she has a higher flank, a higher pelvic arch, is more "cat hamed", i. e., has a larger place to put an udder and shows to be possessed of a less irritable disposition, and last but by no means least, I should expect her to be by far the better breeder, owing to the above reasons, combined with her general appearance of longevity and nerve force, as shown by her conformation and large eye, with strong umbilical development, with apparent greater heart and lung capacity.

W. C. HUNTINGTON, MICHIGAN.

I would unhesitatingly say Rose. Gem has too much daylight under her, and her belly is not large enough to yield large results through the year. She has a good udder, and from the fact that her picture has been sent to you, I conclude that she has done something to her credit, but will venture the opinion that the most creditable position of her performance, is usually in the first part of her period of lactation. I will also venture the opinion that her escutcheon is rather broad and well formed except that it is nearly parallel, being nearly or quite as wide at top as at bottom, while Rose's is much wider at bottom and may even be defective at top.

The position of each seems characteristic. Rose seems to have been caught just between swallowing one cud and raising the next. Her whole time and attention seem to be taken up with eating, drinking, ruminating and giving milk, while Gem has time to give lazy attention to what the photographer is doing.

CHARLES H. BRUSH.

Both cows are good ones. "Rose of the Quartiers" has nearly perfect dairy form, is a hearty rustling feeder with great storage and digestive capacity. "Villets Gem" has faulty line of backbone, narrow muzzle, limited storage capacity, is a delicate feeder, quite apt to be out of condition and "off her feed." These are the reasons why this young farmer believes "Rose of the Quarters" to be the more profitable cow.

J. R. ALLEN, PENNSYLVANIA.

Rose of the Quartiers is the best cow. She has the best dairy form, a fair wedge shape, with neat head, slim neck, deep

(Continued on Page 310.)

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The *Dairy and Creamery* says the "heralds of dual-purpose propaganda are now singing very low," and it wittily adds: "They seem at last to have gone up against the point of Old Ike's philosophy, who advised his brethren, 'Never to strike at er step on er hoss-fly, in yo bar feet, till yo is keerful zamined dat ar hoss-fly, kase it mout be a honnit.' "

Cows give the thinnest milk just after calving. It becomes slightly richer during the next two weeks and then remains almost uniform in average quality for four or five months, after which it gradually increases in richness as the cow comes near to calving again, and by the ninth month from last calving is only one-seventh richer than it was during the earlier months.

FARM SEPARATORS.

To those who are looking for facts concerning the economy of the farm separator we would suggest a careful perusal of our Canadian letter by Mr. Wheaton, on page 314 of this issue. Some very interesting and instructive conclusions are there given. For instance, the saving on ten cows is shown to be $60 a year, saying nothing of the increased feeding value of the skim milk which is an important item. Sixty dollars is the interest on $1,000, at 6 per cent. So, if a man has ten cows, the farm separator gives him the advantage of a thousand dollars of additional capital. This fact illustrates very well the maxim of the great capitalist Stephen Girard, 'Wise methods are better than much money." Many a poor man with limited capital, by the use of intelligent methods is enabled to outstrip those who depend mainly alone on their capital. Verily, dairying is a work of the brain, as much as of the hand.

A BASE LIBEL REFUTED.

There exists in Chicago a publication calling itself the *Dairy World*. We seldom give it any attention, because it has neither character, circulation, knowledge of dairy affairs or disposition to honestly serve the dairy interests of that state or the nation. Why it exists, or what honest purpose it ever served in the promotion of the dairy industry, in any form whatever, is beyond mortal power to answer.

In consistent keeping with its past history and disposition, it has been making unprovoked and utterly untruthful assaults upon the National Dairy Union, and particularly upon its efficient secretary, Mr. Charles Y. Knight, editor of the *Chicago Produce*. These attacks are without any foundation whatever, except as prompted by envy or less honorable motive. Mr. Knight won to himself the confidence of the officers and members of the National Dairy Union by his zeal and efficiency in promoting the passage of the anti-color oleomargarine law in Illinois a year ago, and in the further defense of that law, and labor with others in securing additional legislation this year. In this Mr. Knight, unlike some other editors in that state, did his simple duty to the dairymen of Illinois and the consumers of dairy products everywhere, and he did it well.

He is backed by the entire dairy sentiment of his state, and has the confidence of the dealers in dairy products in Chicago and Elgin, and is supremely hated by every manufacturer of and dealer in counterfeit and fraudulent imitations of butter and cheese.

In addition to his efforts to bring the state of Illinois into line with other states, in this matter of pure food legislation, Mr. Knight, with the full endorsement of the National Dairy Union, has entered zealously into the work of doing what he can to secure the passage in Congress of the Davidson bill, for imposing a tax of ten cents per pound upon colored oleomargarine. This is, of course, not pleasing to the oleomargarine promoters, and, as in the past, they are doing what they can to oppose and belittle his efforts and influence. That they should easily succeed in securing the *Dairy World* as an ally or attorney in this treasonable work, is no matter of wonder whatever to those who are informed as to the situation. Nor are they surprised that it should publish, in furtherance of the plans of its oleomargarine friends, a mass of false and defamatory matter concerning Mr. Knight's efforts before the present legislature of Illinois, and accusing him of being in favor of "process butter."

No man of sense in the west, who has any information on the subject, will give the least credence to anything the *Dairy World* has said, and we are all greatly surprised to see the *Country Gentleman*, that was erstwhile very careful in such matters, reprint the falsehood, and by added words enroll itself among the traducers of Mr. Knight and the National Dairy Union. Had Luther H. Tucker been living, no such apostacy as this would have been possible.

Men may honestly differ upon the policy of the ten cent tax law, but for a paper like the *Country Gentleman* to descend to the level of the *Dairy World*, and enlist with such ready zeal in the furtherance of plans approved by the oleomargarine crowd, is both unexpected and inexplicable.

A HERD TEST FOR ONE YEAR.

HOARD'S DAIRYMAN is always gratified to lay before its readers any well authenticated records, which bring out in strong relief the true combination of all worthy dairy work—the man and the cow.

There are so many farmers who have not yet accepted the right standards of dairy thinking, and consequently do not attain to the most profitable results with their cows, that it becomes a useful thing to keep before our eyes what other men are actually doing.

The effect is different on different men. Some men will read a report over and because it exceeds very greatly what their cows are doing, they will throw it aside and claim it is all a lie. We have known hundreds of men do this.

Others will read it and thoughtfully study it, and say to themselves: "This man demonstrates what can be done. It is but common sense on my part to look into it and see if I cannot change my ideas, or my methods, or my cows, and do as well myself." That is the view the true student and true dairyman will take of it. We call attention to the following report of the year's work of a herd of Jersey cows, owned by Mr. Paul Cunningham, of Bolton, Mass.

MILK YIELD OF HERD FOR TWELVE MONTHS, ENDING DEC. 31ST, 1893.

Names.	*Age.*	*Milk.*	*Babcock test.*
	Years	Lbs.	%
Fenella	4	5,721	5.6
Ethel	4	4,853½	5.6
Miranda	6	7,300½	5.8
Sarci	6	5,654	5.
Ethel 4	10	5,170	5.6
Miss Wilton	12	5,648½	5.4
Duchess	6	6,848	5.8
Zillah	4	5,174	7.
Chloe	8	7,732½	5.4
Fairy	3	4,173	5.2
Thisbe	4	4,953	5.
Alice	7	5,391½	5.
Camelia	5	6,444½	5.
Mona	6	6,954	6.2
Rose	4	6,613	3.8
Jessica	7	6,989	5.2
Beatrice	4	6,602½	6.
Sybyl	4	5,424	5.4
Viking's Princess	6	6,173½	5.6
Iris	3	6,624	4.8
20 cows, av'ge per cow,		6,022 lbs. milk,	testing 5.42
9 " " "		6,901 " "	5.15
6 " " "		7,076 " "	5.53
4 " " "		7,244 " "	5.52
3 " " "		7,341 " "	5.8

Let us add a few figures to the above. The twenty cows averaged six thousand and twenty-two pounds of milk apiece, testing 5 42 per cent. This means that these cows averaged 326⅓ pounds of butter fat, or 380½ pounds of butter per cow.

Nine of the cows averaged 6,901 pounds of milk, with a test of 5.15 per cent, or a butter fat production of 355 pounds, being the equivalent of 414 pounds of butter per cow.

Six of the cows averaged 7,076 pounds of milk with a test of 5.53 per cent, a butter fat product of 391 pounds, equivalent to 456 pounds of butter.

Four of the cows averaged 7,244 pounds of milk, with a test of 5.52 per cent. This means a production of over 399 pounds of butter fat, or an equivalent of over 465 pounds of butter per cow.

Three of the cows averaged 7,341 pounds of milk, with a test of 5.8 per cent. This means a butter fat production per cow of 425 pounds of butter fat, or the equivalent of 495 pounds in butter.

Cows of this character were not bred on the hit or miss plan. They did not come through dual-purpose ideas. They are the product of dairy intelligence in breeding, dairy intelligence in feeding and handling.

To produce cows and manage them in a way that shall return such results, is what it means to be an up grade dairyman. The road is open to any man. The result depends upon what standard of intelligence he sets up in his mind. Every farmer has the choice, as well as the chance set before him.

Growing Ensilage Corn in the Maritime Provinces.

ED. HOARD'S DAIRYMAN:—The following letters give the manner of raising ensilage corn in the Maritime Provinces:

My method of growing ensilage corn is as follows: Early in the autumn I plow up a piece of good rich sod, I generally try and get as good a piece as I can, a field having a slight slope for drainage preferred.

The land is frequently harrowed afterwards thus killing any weeds or growth that might sprout. It also helps to rot the sod.

Early in the following spring this land is again ploughed and well harrowed. Stable manure well rotted at the rate of about 30 or 40 cart loads per acre is applied and well harrowed in until the land and manure are well mixed. About the 25th of May the corn, Peirce's Prolific, is sown in drills about 20 lbs. seed per acre is used.

If the land is not fine and mellow we roll it before drilling in the corn. We sow the corn in drills about 3 feet apart. Usually about a week or ten days after planting I put the Breed's corn cultivator over the land and continue using this cultivator until the corn is about 6 or 8 inches high. After that we use a Planet Jr. cultivator until corn is almost fit to harvest; we cut when the corn is matured on the stalk. It is cut into lengths about 1 inch long and elevated into silo. When silo has been allowed to settle, and again filled, we usually put on top about 6 inches of cut straw and chaff. We have had no difficulty in keeping it so far. The only trouble we have is we can't keep it long enough as the cattle eat it up always too soon.

We have had no trouble in getting cattle to eat it up clean. Sometimes when we buy a strange cow, or one that has not been used to ensilage, we have had to feed small quantities to her at first but the time soon comes when she will eat her share and will look for a little better measure of it. I find my cows do well on the feed. We always mix a little bran or crushed oats with it for milking cows and they seem to relish it. If any one is at all skeptical as to the cow liking it, he should come to our stables when we begin to feed it. You will hear the chains rattling and the cattle tugging at them, reaching out to get a sly bite as the attendant is passing. I consider it a cheap food. We can usually grow from 12 to 15 tons per acre. The cattle seem to like it and thrive on it, as our young stock and dry cows come out in the spring in fine condition.

I would not like to have to do without ensilage for my cattle, as I consider I cannot get any other crop to take its place giving the same quantity per acre at same cost.

I think farmers could increase their winter stock from 30 to 50 % by growing ensilage corn, provided they have suitable land.

I forgot to mention that I have grown corn on sod land prepared as above without any manure and had very good results but have had much better with stable manure applied.

I might also state that in 1897 I experimented a little with superphosphates and stable manure on big corn. I applied about 30 loads stable manure and about 300 lbs. superphosphate and potash on one strip and alongside I used 30 loads stable manure alone and on other side superphosphate and potash alone. As far as I could see, without weighing it, there was no perceptible increase where the fertilizers were used with the stable manure over the piece on which stable manure only was applied. The piece where the fertilizer alone was used was nearly but not quite equal to the stable manure alone. Of course if the land had been measured and the crop weighed a vast difference might have been perceived, but to the eye alone I could not see much difference over what I have stated.

E. R. BROW.

Charlottetown, P. E. I.

The method I have adopted for the cultivation of corn is as follows: I take a piece of stubble (oat) ground, plow it in the fall, and haul barnyard manure on it in the winter, and put it in composts.

In the spring I harrow the ground with a "spade" harrow, and then apply the manure at the rate of about twenty-five tons per acre, and plow it under. I then harrow the land thoroughly and mark it off in squares (with a marker I made myself) three feet apart each way. I then plant the corn with a hand planter, putting about four kernels in a hill. Two boys will plant six acres in a day.

As soon as the corn is nicely up, I go over the field with a light harrow, or a "Breed's weeder." A few days later, as soon as I can see the rows well, I start the horse hoe or cultivator, and keep it going at intervals of four or five days, going lengthwise and crosswise alternately, until the corn gets so high as to render it impossible. While we go very close to the hills with the cultivator, we have to go over it once with a hand hoe. But this is a very light job.

We plant about the last of May and the first of June and have to put in the silo (on account of frost) from the 10th to the 20th of September. On an average we get fifteen tons of corn, at the glazed stage, per acre.

We haul it to the barn and run it through the cutter and put it in the silo as fast as we cut it in the field.

This whole process from start to finish costs about $1 per ton for manual labor. I consider the ensilage worth $2 per ton in comparison with other foods. I use it as a supplementary food, and do not think in these provinces with the advantages we have for growing hay and roots, that it would be economical as a chief food for dairy stock.

The success of corn growing in these provinces depends first on your own special locality, and second on the facilities you have for carrying out the details of the work. There are a great many things to be said about it which cannot be said in one letter.

F. L. FULLER.

Hermanville, P. E. I.

SUMMARY.

It will be seen that Mr. Brow's method differs slightly to that of Mr. Fuller's; but only in the kind of land chosen. While Mr. Brow takes a pasture sod, Mr. Fuller takes an oat stubble. In his postscript, however, Mr Fuller says he intends trying a clover sod next year. In the manner of applying the manure, both gentlemen differ. Mr. Brow applies the manure on the surface, after plowing in the spring, and harrows it in, while Mr. Fuller plows the manure under. Here their methods differ considerably. But as both are able to grow fifteen tons per acre, it must be supposed that each are doing the very best under their particular circumstances.

It will be seen farther, that while one favors drilling, the other favors check-rows. No doubt the conditions in Nova Scotia are more cool and moist than in Prince Edward Island, and, by check-rowing the corn, the warmth and energizing effects of the sun can be the better utilized. Both lay great stress on after cultivation with such implements as Breed's weeder, Planet Jr., etc.

As to the economic value of the crop for dairy cows, a very high opinion is held, Mr Brow asserting that by growing corn ensilage, he is enabled to keep 30 to 50 per cent more cows; while Mr. Fuller says the crop can be grown and siloed for $1 per ton, and he considers it worth $2 for feeding Maritime farmers are therefore justified in making greater and repeated efforts to grow this really indispensable food for their dairy cows.

J. A. M.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, aggregated 12,900 pounds. Bidding opened at 17½ cents, and 6,540 pounds were withdrawn on this bid.

The price offered advanced to 18 cents, but no sales were made. The Quotation Committee reported the market firm at 17½ cents.

The sales for the corresponding week of the three preceding years were as follows:

May 28, '98, 37,020 pounds of butter sold at 16c.
May 31, '97, 43,860 pounds of butter sold at 14@15c.
June 1, '96, 37,500 pounds of butter sold at 15½c.

The New York market was reported firm at 18½c.

H. C. B.

Elgin, Ill., May 29, '99.

Sand or Winter Vetch.

(*Vicia Villosa.*)

ED. HOARD'S DAIRYMAN:—Where so many contribute to the common good of all, to withhold any experience of value is not excusable, hence in reply to J. P. D.'s inquiry in DAIRYMAN of April 21st, will say that I have grown winter vetches for several years. They thrive alike on all kinds of soil and withstand the severest winter weather.

The seeds resemble the garden sweet peas and the vines are not very unlike sweet pea vines Their chief features of value are that they belong to the family of legumes, start up very early in spring and draw nitrogen from the air while their tap roots also bring up fertility from the subsoil.

Their chief value is for early soiling and for making into hay. They require a companion crop of rye to hold up and sustain the vines. If cut when the rye begins to form heads, both alike grow up again and form seed or another green crop.

The vetches add materially to the value of rye for fodder purposes, and if allowed to ripen the vetches (grain) are also rich in protein.

The vetches spoil rye straw for commercial purposes and make the gathering of the rye difficult and expensive, hence their chief value is confined to the dairyman and milk production.

J. H. NELLIS.

Mont. Co., N. Y.

There is No Disagreement Between Us.

ED. HOARD'S DAIRYMAN:—In reply to the article on breed and form, on page 212, April 28th, will say, that I admit I have a great deal to learn, for my opinion is that when a man thinks he knows it all, it is about time for him to get out of the dairy business.

My experience has taught me that it is a mistake to breed from a sire that came from a cow of dairy type, without she was from a dairy breed.

Do I understand from the reply the editor makes, he would as soon breed from a sire which was from a cow like our friend, John Gould's old "Slicker," which he calls a sport, as from one from a registered dam? While you might get once in awhile a good cow, the chances would be against it. If I knew I would be as successful with that sort of a sire, I could have saved some money on the prices of the sires I have bought.

But I think a man's life is too short to waste much time wandering about. Before I began to use a thoroughbred sire my experience was, the offspring was as likely to be poorer as to be as good as the sire and dam.

I am in the dairy business for what there is in it, do the feeding myself, and as much of the milking as is possible, and have, until of late, sold the butter from the dairy to families in the city. You can see my circumstances will not permit me to breed for the sake of a pedigree. I have cows in my herd that will give 34 pounds of milk in one day, that will test 6% butter fat. They are from grade Jersey cows, and a thoroughbred sire bought of A. H. Moore, of Cloverdale. If my experience had not taught me that I could not do as well with a grade sire, I would not have given the price I did for the calf, when I could have bought a grade calf for one-tenth the money, but was afraid I would have more cows that looked like steers, than I would have to look like cows. If anyone has a cow from a sport cow and a sport sire, that will produce the amount mentioned without the blood of some of the dairy families in their veins, I would like to hear from them. I have learned a great deal from HOARD'S DAIRYMAN and like it very much, but it is very fortunate for us not all to be of the same opinion, for if we were I am afraid we would not learn much.

Feasterville, Pa. W. H W.

W. H. W. apparently mieapprehends the language as well as the intent of the article to which he refers. The purpose of that article was to set forth the fact that when one is breeding for heifers to make profitable producers at the pail, he does not necessarily have to buy a bull with a fashionable, price-compelling pedigree. We did not advocate breeding from "sports" or grades.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBONYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

WHEN TO CUT TIMOTHY AND CLOVER FOR HAY.

I have a meadow of timothy. When would you advise cutting, as I want to use it for my milch cows. I am retailing my milk in the city and therefore want to use the best milk producing feed. Would also like to know your opinion as to the time to cut clover meadow.

W. D. A.

Crawfordsville, Ind.

All kinds of forage intended for hay should be cut and cured before the seed matures or the stalk or stem becomes dry and woody, no matter whether it is clover, millet, oats, rye, or timothy. Clover and timothy are at their best for hay when in full bloom, but as it is impossible to commence and finish haying in a single day, or even in a week, we like to begin a little before all the heads are in blossom, so as to finish before too many have formed seed. These seeds are so small that stock cannot crush or grind them, and hence they pass off in the manure undigested. Cut the hay early, and the material which would otherwise go to mature the seeds remains in the stalks and is utilized by the animal.

TO DRIVE AWAY FLIES.

Kindly publish a good formula for keeping flies off of cows.

J. C. N.

Madison, N. Y.

You will find several compounds advertised in the DAIRYMAN, which are highly recommended.

If you wish to make your own mixture, we advise you to try the following:

Hebenstreit's Formula—Fish oil, 1 gallon; crude petroleum, ½ gallon; crude carbolic acid, 2 ounces.

Matteson's Formula—Fish oil, 3 quarts; petroleum, 1 quart; carbolic acid, 1 ounce.

One-half pint will go over twelve cows, and one application suffices for five to seven days. The common kerosene of commerce, such as is sold for illuminating purpose will answer in the place of the crude petroleum.

WARTS.

I have a Jersey cow in full flow of milk. Her teats are getting covered with small warts; they have been forming about a month; they stick out like little horns all over her teat. Can you tell me what to do to take them off?

W. S. N.

Winfield, Mo.

Try the castor oil remedy mentioned on page 220. We don't know that this is specifically better than other oil or grease. Rubbing with salt pork is one of the old remedies.

BARLEY OR CORN WITH ALFALFA.

Kindly inform me whether or no I can make a balanced ration from alfalfa hay, crushed barley and chopped alfalfa wet? Referring to your answer as to corn and alfalfa, May 12th, '99, should the chopped alfalfa and meal be given wet, or is it better to give it dry? My cows seem to eat it best wet.

HOWLAND.

Dona Ana, N. M.

Barley does not serve as good a purpose as corn, although it might, possibly, serve fairly well. Corn has both more carbohydrates and fat than barley, and these are especially needed with alfalfa hay. When there is quite a quantity of the chopped alfalfa mixed with the meal, it may be useful to moisten it, so that the meal will not sift to the bottom. See, also, answer to inquiry from Washington, in regard to chaffing hay and straw.

LUMP JAW CURES.

In Prof. Russell's article, "Plain Talks on Bacteria," pertaining to the disease of lump jaw, what is his opinion of the Fleming Bro's. cure?

When I came on this place five years ago, there was a well advanced case. I tried the iodide of potassium, but it was expensive and not reliable. I now have a valuable Guernsey bull that is just showing a lump. First noticed it May 1st.

Fleming Bros'. circular promises great things, but it was not mentioned by Prof. Russell. They advertise sure cure or no pay, but I don't like to advance money again, unless they are more reliable than some advertisers.

W. B. T.

Standing Stone, Pa.

The probabilities are that Prof. Russell knows nothing whatever, about the medicine referred to, and if he did, his position as an instructor in a State University would make it unseemly for him to single out one remedy for approval or disapproval. Professors, as well as editors, have to be exceptionally careful in such matters, as well in with holding condemnation, as in bestowing commendation.

The advertisement referred to has been published in the DAIRYMAN for a long time, and no complaint has reached us that the advertisers are not honorable gentlemen, and honestly abiding by the terms of their offer.

TO CORRECT LOOSENESS OF BOWELS.

Enclosed please find one dollar for the DAIRYMAN from the time it stopped. I like your plan of stopping the paper when the time expires.

Is there anything we can feed cows to correct looseness of the bowels this time of year?

We continue to feed about six pounds of corn meal and wheat bran, also hay.

Clifford, Penn. L. W. A.

Give less pasture and more hay, or let the trouble correct itself, as it will when the grass gets more substance.

SKIM MILK VEALS.

Can a veal calf be raised until six or eight weeks old on skim milk, with the addition of oil meal, and be considered by the butchers as good as one raised on whole milk? Or, in other words, would they buy it if they knew it was not a whole milk veal?

Woodland, Wash. F. A. H.

Butchers are very much like other people, ready to take advantage of every circumstance to cheapen the price of what they buy or enhance the price of what they sell. Good veal can be made from skim milk and grain, but not quite so choice in every respect perhaps as that raised on whole milk.

WHEN TO CUT RYE FOR HAY.

I have a piece of rye which I wish to cut and cure for fodder, as I have no silo at present. When should it be cut, and what is its feeding value when well cured, as compared with corn fodder and clover hay.

I am just as anxious to have my subscription renewed as you are to renew it, as we, as farmers, certainly need all the enlightenment we can obtain. In these times of close competition, ignorance and poverty must go together.

C. J. M.

Niagara Co., N. Y.

As to the proper time to cut rye for hay, see answer to W. S A., Crawfordsville, Indiana.

We give below the average per cent of digestible nutrients in the feed stuffs named, assuming that corn stover is meant:

	Dry Matter.	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
Corn stover	59.5	1.7	32.4	0.7
Oat hay	91.1	4.3	46.4	1.5
Rye hay	90.0	3.5	34.6	0.6

From this table it appears that rye hay, if cut at the proper time and well cured, would be worth considerably more than corn stover and approximately one-third less than oat hay.

WHICH IS THE BETTER COW?

(Continued from Page 307.)

bodied, with large stomach (capacity for food), large milk veins, and large square udder with a good milk capacity, and I think from the appearance of the picture, she has a sleek, glossy coat of hair and a large, full eye.

The other one has larger head, a smaller eye, thicker neck, slim body, small stomach, smaller milk veins, but a fair sized udder. But I think it is rather too fleshy and don't have the milk capacity the other one has.

CHARLES HALL, PENNSYLVANIA.

Premising that it is difficult when one has to decide only upon a picture, in my judgment, Rose is the better cow. She has the broader muzzle, the shorter legs, the slimmer neck, the more capacious body, the more prominent and tortuous milk veins, the better shaped udder forward, though not so well developed in rear, and from her general appearance I judge her to be the more persistent giver of richer milk. She also seems to be a cow of good constitution and great vitality. After all, I may be greatly mistaken.

J. CRONK, WISCONSIN.

I prefer Rose, because deeper through flank, larger belly, slimmer tail, smaller neck up to, or nearer, her head, a finer nose.

J. V. LOOMIS, WISCONSIN.

Rose of the Quartiers has greater capacity, a bigger place to manufacture milk, she is cut in deeper behind. I like that big, crooked milk vein, I like that "wedge shape," that short distance between the udder and front legs, those crooked hind legs, that big, prominent eye, looking out for more feed, that udder way up behind and way out in front.

The other cow is too long and too long legged. Rose will give more milk and milk through a longer period.

W. H. GILLETT, WISCONSIN.

Rose of the Quartiers has the dairy form, and we must go by that, although Villet's Gem has good points. Think she is too high over shoulders and not quite enough tank. Can't criticise her much.

CHARLES F. A. PIERCE, WISCONSIN.

In your last issue I notice you ask which is the better cow, Rose of the Quartiers or Villet's Gem, and as I have been a student of your paper in regard to dairy form discussions, I am going to give an opinion and see how they vary with others. This is my second year on a farm, so I do not expect great results in my attempt.

Rose of the Quartiers has some good dairy points which I think are lacking in Villet's Gem. First, she has a deeper barrel and better sprung ribs, which are most essential for a good dairy cow. Second, she has larger and more prominent milk veins, which extend well to the front. Third, she has large, prominent eyes and wide between them.

Villet's Gem also has excellent points, which are lacking in Rose of the Quartiers. First, she has light shoulders and sharp withers. Second, a prominent back bone. Third, a long, fairly deep, well sprung barrel. Fourth, is spare and lean which shows a persistent milking inclination. Fifth, a long, slender tail. Each cow has excellent dairy points, very much similar, such as a large udder, extending well to the front and up behind. High, arching flank. Fine neck and head and wide strong jaws. If I were to be given my choice of the two cows, I think I would not hesitate in choosing Villet's Gem.

S. H. JOINER, WISCONSIN.

The only way I could decide on two cows that were quite different on some points, and each one better than the other on some of those points, was to score the cuts and average the whole number of points. I did so and made out that Villet's Gem scored 79 and Rose scored 72—Villet's Gem having the best navel development, far the best tail and the indications from the cut showed the best rear part of udder, and the ribs and back bone showed loosest and boniest spinal column, indicating more nerve force.

W. T. HARBISON, MISSOURI.

I believe it would be hard to tell even by seeing the cows, let alone the pictures, but I *think* Rose of the Quartiers 8654 is rather the larger producer, but Villet's Gem 8664 will give the richest milk and at a less cost per pound of butter fat. She seems more on the bony order; and will turn most of her food to milk. I think they are both first-class dairy cows.

ED. HOARD'S DAIRYMAN:—When we sent you the cuts of the cattle that appeared in last week's issue, I wrote you what the two cows had done up to that time. Their records for the full year are as follows: Imp. Rose of the Quartiers 8654 gave 8,340 pounds milk, average monthly test 5.59% fat. Imp. Villet's Gem 8664 gave 9,265 pounds milk with an average monthly test of 5.58% fat. CHAS. H. ROYCE.

Ellerslie Farm, Rhinecliff, N. Y.

GROWING ALFALFA.

Two pieces of alfalfa, sown by us early this spring with oats, have come on finely, and the young plants are now two inches high. Knowing the nature of the plant to grow coarse and woody we took the precaution of seeding quite heavily, using at the rate of 30 pounds of seed to the acre.

The oats will be cut for hay when fairly in the milk, and the alfalfa given a chance to develop to its very best.

We are convinced that a hundred farmers ought to try alfalfa where one is doing it now.

A. E. Elford, of Holmesville, Canada, is a successful grower of alfalfa, and gives his method of proceedure as follows:

"About ten years ago we determined to try this new plant, we had read so much about in the American papers, and accordingly purchased a few pounds, and then made the same mistake so many have made and are making to-day—we mixed it with other grasses, so that if it did not come to anything we would still have something without it. For the first two years it did not amount to much, but as the clover and timothy grew thinner it grew thicker. When we harvested the mixture, the timothy and red clover were of good quality, but the alfalfa was more like small brush wood; nothing would eat it. It grew in clumps, brittle and good for nothing. This was an object lesson. Alfalfa will not associate with other grasses. Its habit of growth will not allow it; it is a very exclusive plant. We were not discouraged however with our trial. We experimented again and again, and this is our present method of procedure, which has given us the best results.

We sow with oats, barley or spring wheat, on soil *well worked* up and at the rate of 20 pounds to the acre. We sow in front of the seed drill, so as to have it covered sufficiently, then harrow and roll well. When we cut the grain the young alfalfa is frequently from twelve to fifteen inches high. It is disastrous to pasture it during the first fall; in fact it should not be pastured for the first three seasons, if possible not to do so.

Especially during the first winter the young plant requires all the mulch it can have.

We keep several paddocks near the barn for the purpose of soiling our cows. We generally commence cutting the first or second week in May. At that time we frequently have it two feet high. What we do not use as a soiling crop, we make into hay. For hay we cut as soon as the dew is off. It is preferable to cut no more than can be got into small coils before the dew falls in the evening. We commence to rake up and put into bunches when leaves are wilted; if allowed to lie too long the leaves fall off. Leave in small coil two or three days to sweat and cure. If weather threatens rain, put two or three coils into one. When sufficiently cured, haul to stack and salt lightly."

PUT BRAIN INTO THE WORK.

There are brainy farmers, who do brainy farming, and there are farmers whose effort is about all hard work, with but little mixture of brains. Ride through a farming section and note the difference. Here is a herd of fine cows, everyone of which shows the effect of the thought and brain of her owner. Across the road is a herd of accidents, bred without forethought, fed without intelligent purpose, and everything about them indicating that the thought and education of the day is wasted on that owner.

Two farms of 100 acres each are in our mind. Both lie side by side. One carries a herd of thirty-five fine cows, with an average return of $50 each at the neighboring creamery. The cash return of that farm, in pork, veals, poultry, hay and butter, is over $2,000. The owner is a student of his business. He puts thought, reading, study,—in a word, brain work into it.

The other farm, with its owner, its cows (only 12,) everything on it and about it is far away in the opposite direction. The owner is getting deeper in debt every year. The difference to start with was not capital; it was brains. The greater profit of the first farm is the reward of brains.

Prof. I. P. Roberts, of Cornell University speaking of the higher reward of brain work says:

"The man who fells trees in the forest may receive fifteen cents per hour, the man who controls the carriage of the great saw mill, and decides on the instant what shape and dimensions the lumber shall take, may receive twenty-five cents an hour for simply moving a little lever. A third may cause a piece of wood to take on the form of beauty for the great stair case, and may receive a dollar an hour."

The man who does the so-called hard work receives the least pay. Why? Because it is the least difficult—requires the least brain.

Every dairy farm in the land contains a chance for the same difference. There is a chance to use good thought or poor thought, good sense or poor sense, good intelligence or blank ignorance in everything we do.

The amazing difference in the profits of farmers who take milk to the same creamery show this. It is the difference in brains. There is hardly a creamery in the land but will show some one patron who makes a clean profit of from 50 to 100% over some other patron. Invariably, it will be found that the highest profit goes to the best brain work. Usually the man who gets the least, works the hardest.

A large herd of dairy cows was tested in central New York, and the owner of the herd was informed that about one-fourth of his cows were profitable, one-half paid their board bill, and one-fourth were kept at considerable loss. He was advised to reduce his herd, dispose of the unprofitable cows. His answer was: "But what will I do for cows?"

There are thousands of just such men keeping cows. Ask them to spend a little money for information, that shall give them a better judgment, and they will reply: "I can't afford it." What is the matter with such men? Is it not a most serious lack of intelligence?

SELLING OATS AND BUYING BRAN.

It is very evident that there are a great lot of farmers in the dairy business, and who really think they are in it for all that is out, who refuse to accept some of the first principles of profitable economy. They feed wastefully and to little profit because they will not accept the teachings of the best ability, best experiments and best experience that has been had. To illustrate what we mean: During the whole of the present winter we have noticed a large portion of the dairy farmers around Fort Atkinson hauling their corn and oats to the grinding mill, in the proportion of two of oats to one of corn. This mixture they fed their cows. When we asked them why they fed so expensive a food as oats they almost universally replied that they raised the oats. They seemed to have the idea that because they had raised the oats, somehow the cost of feeding them was less. We repeatedly took out our pencil and figured what the oats were worth by the ton and when once they had hauled them to the market to be ground the oats must be charged to the cow at full market rates. We often asked these men why they did not sell the oats and buy bran to mix with the corn? They seemed somehow averse to making any such deal, simply because they had raised the oats. On page 272, last week, John Gould puts the matter in a clear light when he says: "A ton of oats and $2 added for the grinding will to-day here buy 3,200 pounds of fine bran containing about 440 pounds of protein, while the ton of oats would have but 184 pounds of protein."

Now as Mr. Gould further says: "This is putting $12 against $26.50 with the further advantage of having the oat straw left." It is the men who never make a fine close study of feeding values and the best ways of feeding economy that make blunders like these.

Dairy farmers must learn that a great deal of valuable brains, study and experiment have been expended on this feeding question, and no man can afford to throw all this over his shoulder simply because he "has raised the oats."

THE SUBSCRIPTION PRICE REASONABLE.

We have often wondered that in this day when nearly every one seems to want to put down the price of everything they buy, that we should get so many letters of encouragement saying the subscription price of the DAIRYMAN was below the value the paper gave to the reader. Mr. P. H. Elkins, of Winston, N. C., who is educating himself to be a farmer, writes us as follows:

The subscription price of your paper is very reasonable indeed. It is worth one dollar a year to me to look at the different illustrations of cattle, silos, barns, creameries and other buildings. Add to this the

"Winter Finds Out What Summer Lays By."

Be it spring, summer, autumn or winter, someone in the family is "under the weather" from trouble originating in impure blood or irritated condition of the system.

All these, of whatever name, can be cured by the great blood purifier, Hood's Sarsaparilla. *It never disappoints.*

Abscesses—"I am past 54 and my good health is due to Hood's Sarsaparilla and Hood's Pills, which purified my blood and healed the ugly abscesses that troubled me." MRS. BRITTON C. ESTELL, Southard, N. J.

Dyspepsia—"My husband doctored a long time for dyspepsia with only temporary relief. The first bottle of Hood's Sarsaparilla helped and the second cured him. It cured my sick headaches." MRS. MARY A. CLARK, Wilmington, Vt.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Not a Preservative but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION MILK COOLER-AERATOR. It does its work perfectly and its use doesn't violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

experience of farmers all over the land, getting new ideas and greater light all the time on every subject pertaining to dairying and dairy farming.

Mr. Elkins appreciates "new ideas and greater light." They have a money value to him, because he sees how a man can make money by them. To such a man, and we are glad to say that most of our readers are such men, the paltry sum of one dollar is a mere trifle compared to what they can get from the DAIRYMAN in a year.

But to the farmer who knows it all, whom no man can instruct or stimulate, with whom navigation has closed forever, to such a man one dollar is just the same as thrown away, when he spends it for a paper like the DAIRYMAN. There are lots of such men keeping cows, all over the land, but "their eyes is sot" and we know of no earthly power that can make them see the truth of enlightened dairying as enlightened men see it.

RELATIVE IMPORTANCE OF BUTTER AND OLEOMARGARINE.

The Department of Agriculture estimate the production of butter, the present year, at 1,450,000,000 pounds, only a fraction of which goes abroad.

The production of oleomargarine for the fiscal year ending June 30th, 1898, was 55,388,000 pounds, which was an increase of 12,854,000 pounds over the year preceding. The production for the first nine months of this fiscal year was 63,000,000 pounds indicating a production for the year to June 1st, o f85,000,000. lbs. Ninety-nine pounds out of every hundred is eaten by the consumer under the supposition that it is butter. The recent testimony before Senator Mason's committee in Chicago proved beyond cavil that nearly the entire traffic in oleomargarine is a mass of deception from the time it is colored to represent butter until the time it is eaten by the consumer in the hotel or boarding house as butter.

The butter producers protest against being compelled to compete in the market against a fraud. They also protest against the consumer being obliged to pay butter prices for a colored swindle. They demand, if this business is going to continue, that the colored fraud shall pay 10 cents a pound tax to the United States government. Every farmer is vitally interested in securing this legislation. Every consumer of honest butter is equally interested. Every farmer who takes his milk to a cheese factory is also interested to a like amount, for if the oleomargarine drives butter out of the market, then the milk which was used in butter making will be compelled to go to the making of cheese, and there will come a swamp in the cheese market.

The milk producers of the land are vitally interested in keeping each branch of the dairy industry up to its best work.

The cheese factory proprietors and patrons should help along this fight just as zealously as the butter men. The National Dairy Union appeals to dairy farmers of all kinds, in particular, for financial assistance to carry on this fight.

So far it has appealed in vain to a great majority of the men who ought to help. A few have given liberally. Now is the time to aid the cause. Send 50 cents or $1.00, and receive a handsome badge in return.

SOILING CROPS.

Getting Ready for the Drouth.

Press Bulletin.

June 4, 1898, the College herd of thirty milking cows was being well fed on twenty acres of tame grass pasture from which an early crop of hay had been cut. June 19, this pasture not furnishing sufficient feed, forty-two acres of prairie grass pasture were added; and Aug. 19, these two pastures getting short, eleven acres of tame grass meadow were added, making seventy-three acres of pasture. With this amount it became necessary, the latter part of August, to begin feeding green kafir corn to keep up the flow of milk.

Contrast the College record, seventy-three acres of pasture for thirty cows, supplemented with green feed from the latter part of August, with that of a patron of the Manhattan creamery, who, having no pasture, turned his cows into a dry lot, cut green alfalfa and fed it to them, feeding ten head all they needed through the summer on four square rods less than two acres.

It pays to keep dairy cows supplied with full feed throughout the summer. From July 5th to August 16th, the College herd on full feed dropped 4½ per cent in daily milk yield, while eight herds in the vicinity of the College dropped 39 per cent in milk yield, because short pastures were not helped out with other feed.

A drouth may be expected some time in every summer. When it comes, the milk yield goes down all over the country and the price of dairy products goes up. Not many dairymen can add more pasture when the drouth comes, and the Kansas dairyman who can not, should without fail provide for feed to supplement short pastures, so as to insure a good milk flow when prices are the highest.

If the pasture does not become too scanty, the milk flow may be kept up by feeding grain, but for most dairymen this is too expensive. Liberal feeding of either green alfalfa or of alfalfa hay helps out short pasture, and both are cheap feeds where the dairyman has them. The cheapest and most convenient feed for summer drouth where the dairyman has a silo, is silage. The silo may be uncovered and the silage fed whenever other feed is short. If rains come and the grass again is sufficient feed, cover up the silo and wait for the next drouth or for winter.

Many dairymen have neither grain, alfalfa, nor silage, and should put in crops this spring that will supply green feed when the drouth comes. Plan today. Green wheat, green oats and green millet are good, but last only a short time. Begin cutting these crops as soon as the first heads appear, and continue until the stalks begin to harden. Sweet corn comes early, and is a good milk-producing feed, but the yield is too small Field corn, kafir corn and sorghum are the most profitable green crops for the Kansas dairyman who does not have alfalfa.

Below are given the average dates at which the various crops are available as green feed for dairy cows on the College farm:

Alfalfa—May 20 to September 30.
Wheat—June 1 to 15.
Oats—June 15 to 30.
Sweet corn—July 15 to 31.
Field corn—August 1 to September 15.
Sorghum—August 1 to September 30.
Kafir corn—August 1 to September 30.
Wheat—Fall pasture until ground freezes.

Many write asking how many acres of each crop is needed. The season, soil and thoroughness of cultivation affect the yield so much that we can not answer these questions. Green crops are most needed in dry summers, and in estimating the acreage required for a herd, plans should be made to have an ample supply for a very dry year. In a good year the surplus can be cured for winter. With these considerations, we have made the following estimate of the number of acres of each crop required to feed our thirty cows for the period during which the crop is available: Alfalfa 10, wheat 3, oats 3, sweet corn 3, field corn 4, sorghum 3, and kafir corn 3.—*Kansas Experiment Station.*

Future Herds.

Superior Cows for Milk Without Sacrificing Beef Qualities.

While I do not believe that what is termed the general-purpose cow can successfully compete with the exclusive dairy breeds, yet it must be admitted that there are many good cows to be found among the beef breeds, and on almost every farm, one can find one or more cows that are above the average in dairy work. It is from these cows that the future dairy should come on the average farm. Of course, where dairying is to be made a speciality, one should begin with some special dairy breed, either by purchase or breeding from dairy bulls, and grading up. But the average farmer, who keeps from two to half a dozen cows, from which to raise calves and make butter for home use, selling the surplus, does not want the dairy breeds, because they are only profitable where one makes dairying a speciality.

But rather let farmers find out which are their best cows, then breed them to a bull whose mother was one of these best cows, as well as the grandmother, if possible, and in a short time one can in this way get a herd of cows better than the average, without much sacrifice of the beef qualities. I have tested Short-horn cows as high as 5 1-10% butter fat, giving thirty pounds of milk a day. Such cows are profitable anywhere, but, unfortunately, they lack prepotency, and, as a rule, no assurance that heifers from such cows will be better than the average, unless thay are bred to a bull from a superior cow. But where one persists in this line, using good judgment, they will be reasonably sure of success.

But there is another point one must bear in mind, and to this I attach great importance, and that is the feeding and care of the calves. It is the easiest thing in the world to ruin a cow before she is six months old, by improper feeding, and there is a world of difference in feeding a calf with an eye to beef, and one intended for dairy work.

If one is feeding for beef the food must be of such a character that it will form muscle and fat. If for the dairy we want to build nervous force, which is directly the opposite. The nervous cow is never the fat cow or the cow that lays on fat readily. I am quite sure that many good cows have been ruined while yet calves, by wrong feeding and care. The cow is largely a creature of habit, and the habit of laying on fat should never be encouraged in a calf intended for dairy work. There is nothing on the farm that I watch more closely than the growing calves, as on the care the first 18 months of their lives largely depends their future usefulness. I want them where I can see them every day and see that their habits conform with the work for which they are intended.

While we have only, and breed only, the dairy cow, yet were we in the position of most farmers we would follow the above suggestions. No ironclad rule can be laid down, but determination to better one's condition can always be accomplished, and there is plenty of room for improvement along this line on thousands of farms. A cow that will give a profit over her keep might just as well be kept as one that runs her owner in debt. I see many opportunities in the home dairy, opportunities which if taken advantage of, would drive hard times from thousands of farms.—W. E. KING in *Boston Cultivator.*

MANY dairymen have the impression that the per cent of fat in a cow's milk is constant from day to day, or at least that there are no sudden changes.

On the contrary, experiments show that the percentage of fat in the milk of single cows will vary from one half to one and a half per cent. Herd milk will also show wide variations but not to the same extent.

If the above facts were widely known there would be less surprise exhibited and less cause for complaint at the changes shown in milk, by the Babcock test.

IS THIS YOUR STORY?

"Every morning I have a bad taste in my mouth; my tongue is coated; my head aches and I often feel dizzy. I have no appetite for breakfast and what food I eat distresses me. I have a heavy feeling in my stomach. I am getting so weak that sometimes I tremble and my nerves are all unstrung. I am getting pale and thin. I am as tired in the morning as at night."

What does your doctor say?

"You are suffering from impure blood."

What is his remedy?

Ayer's Sarsaparilla

You must not have constipated bowels if you expect the Sarsaparilla to do its best work. But Ayer's Pills cure constipation.

We have a book on Paleness and Weakness which you may have for the asking.

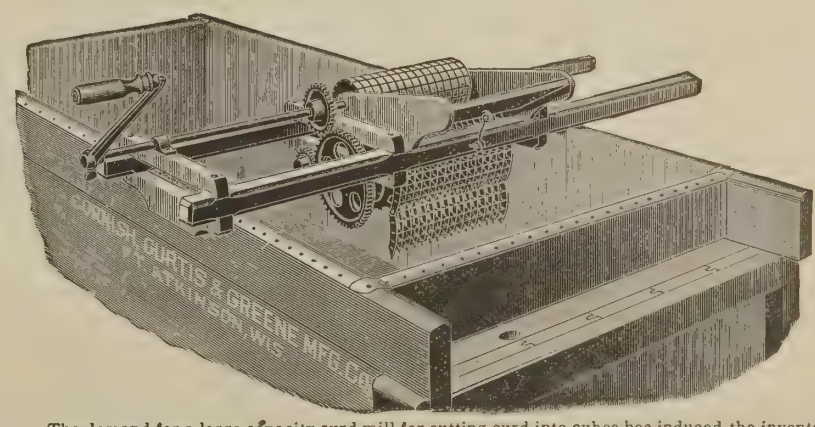
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Perhaps you would like to consult eminent physicians about your condition. Write us freely all the particulars in your case. You will receive a prompt reply.

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PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

FALLEN FROM ITS HIGH ESTATE.

Apropos of the remarks in another place, concerning the attitude of the *Country Gentleman* towards the National Dairy Union, we have a letter from Mr. John Haigh, proprietor of a creamery in northwestern Wisconsin, enclosing a page of the issue of May 4th, of which many so-called sample copies were distributed, and asking the not impertinent question: Does this paper belong to Armour & Co.

The answer must be a negative. Armour & Co. are not in the oleomargarine business any more.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, XVI.

BACTERIAL DISEASES OF PLANTS.

The one great phase of agricultural effort is the growth of plant life. The vegetable, rather than the animal, indicates in a way the highest development of the kingdom of life, for the plant is constructive, while the animal is destructive. Out of the mineral elements taken from the soil, and the carbonic acid and oxygen of the air, under the energizing influence of the sun's rays, the plant builds up vegetable tissue, and lays up for itself and for others, forms of life, a storehouse of nutriment. To foster and control this development is the great purpose of agriculture. Therefore, "he who can make two blades of grass grow where only one grew before", is a benefactor to the race as he increases the food-sustaining power of the soil just that much.

But the plant does not have an unhindered chance of development. In the economy of nature, other plant and animal forms prey on it, consuming its stored up food supply, destroying its constructive power, and in many cases killing the plant itself. While this is true under natural conditions in the field and forest, it is even more apparent in the cultivated crops that are raised by man. The cultivation of relatively large areas in a single crop, give conditions especially favorable for the dissemination of various pests. As a result, most of our cereal crops, but more especially fruits, vegetables and the like, suffer severely from the ravages of enemies, animal or vegetable.

DISEASES OF CROPS AND VEGETABLES.

For nearly every crop that the farmer can raise there is a host of bugs, flies, worms or other creeping things that are sure to attack his fields and gardens. More numerous than these and harder to combat is the host of vegetable parasites that prey on the succulent tissues of cereal or fruit. The phenomena of parasitism is very wide spread throughout nature, and among vegetable forms are to be found myriads that have forsaken the ways of honest folk, have turned their back on legitimate methods of plant growth, and are trying to work their way through the world by living at somebody else's expense. As a result, innumerable plant diseases exist, caused in the main by fungi, organisms of a vegetable nature that have gradually adapted themselves to a partial or complete condition of parasitism. While by far the great majority of these plant diseases are caused by fungi, still a considerable number and a constantly increasing list, are induced by bacterial parasites.

BACTERIA AS PARASITES OF PLANTS.

So much attention has been paid in recent years, to the relation that bacteria hold to animal and human diseases, that the fact has been overlooked until recently, that the same class of organisms possess the property of attacking and destroying vegetable tissue as well as that of animal origin. There are reasons why this particular class of germ life is not found in plants as often as in animals. For one thing, it is harder for them to establish themselves, and again, supposing that they do gain access to the succulent inner tissues, they find a medium that is less suited to their growth than that which is furnished by the animal body.

The plant has no mouth through which germs may enter into the susceptible inner tissues as is the case in the animal. Even the skin of the animal offers less resistance than the cuticle, bark, or outer membranes of many plants. It is true that the plant has innumerable breathing pores, but these do not connect directly with the protoplasm of the cell; then again, only gases, as a rule, can find their way through these minute openings.

But after all, the relative freedom of plants from bacterial enemies rests probably on the fact that the fare that they get in the plant is not wholly to their liking as a class.

If we recall a general law in bacteriology concerning the influence of reaction on development, it will help to explain this relation. As a rule, bacteria prefer an alkaline medium for their growth; fungi, on the contrary, thrive best in acid media. Now the juices of the plant are invariably acid and therefore are unsuited to the development of most bacteria. But, like all rules, this has its exceptions, and one finds that there are a goodly number of bacteria that grow quite as well in acid as in alkaline media Among these acid-loving forms are to be found a number of those species that are present in plants.

Again, the bacteria are prone to a nitrogeneous diet. They are meat lovers, and therefore, by nature, they cannot be regarded as vegetarians.

The general laws that govern the study of bacterial plant disease are practically the same as those that have been formulated for animal investigation. The study of this class however has been far less perfect than that of animal diseases, mainly for the reason that students of bacteriology, that are thoroughly familiar with the methods of work in this science, have not until recent years given any particular attention to the study of this group. For a long time, the text books on bacteriology, claimed there were no bacterial plant diseases, that it was impossible for organisms of this type to thrive in vegetable tissue. It is to an American investigator that the honor belongs of having first proved that a specific bacterial organism was the cause of a plant disease. Prof. T. J. Burrill, of the University of Illinois, in 1882, announced that he had found the cause of fire or pear blight to be due to a germ of this type. For a number of years his discoveries were discredited by European workers, but his experiments were so conclusive and were so completely confirmed by others that final acceptance could no longer be denied them. Since that time, the question of bacterial plant diseases has been closely investigated, both in this country and in Europe, and a very considerable number of these maladies determined. Some of these are of very great economic importance, as they are the cause of heavy losses in different parts of the country. Many of them have been more or less imperfectly recognized for years, often being attributed to some other kind of cause. The importance of a correct recognition of the true cause of any malady is self evident, as the habits and the methods of dispersal of different kinds of parasites vary so much that the means employed to control any one organism may not have any effect on another. Before a rational cure is found for any disease, it is generally necessary to determine with accuracy the cause of the malady and the conditions that may modify its appearance. Sometimes a remedy may be found by accident, as is said to have been the case with the Bordeaux mixture, but such instances are rare.

CARE AND TREATMENT.

There is not the opportunity, as a rule, to cure a bacterial plant disease, that may exist with a disease caused by a fungus, for the reason that the bacterial trouble is usually entirely within the tissues of the plant, and hence beyond the reach of external agents. Many of the fungus maladies are caused by parasites that settle on the surfaces of plants, and from this location work their way into the inner tissues. With such diseases, disinfectants applied externally at the proper time, are often very effective. While not much can be done in the way of saving a crop after it becomes affected with a bacterial disease, yet along the lines of prevention, much aid can frequently be given. This, however, necessitates a full knowledge of the disease, and the way it is distributed. One advantage that accrues to plants as against animals, is the possibility of checking the disease by removal of affected organ. Thus, an affected limb or branch may be cut off, before the disease spreads to other portions of the tree. Such a surgical operation cannot be practiced with animal forms, except in dire emergencies.

Gluten Feed.

Dairymen farmers, who have given Gluten Feed a trial, tell us it is the best milk-producing feed they can buy. If you want to lessen the cost of milk production and increase your dairy profits, give Gluten Feed a trial.

Write for full particulars and ask your feed dealer to keep Gluten Feed in stock for you. Address Dairy Department,

The Glucose Sugar Refining Co.,

The Rookery, Chicago, Ills.

A Case of Compulsion.

A Gossipy Letter. Rations—Butter milk from Skim milk.

Ed. Hoard's Dairyman:—I want you just to be quiet now for a few minutes, and let me tell you what you have done for me, or I shall surely "bust". I would have told you long ago, but had no excuse for so doing, as every time I hunted up something that I wanted to ask, (any old thing to write about to get a start) some other fellow would have you telling all about that very thing, till now it seems as if there is nothing under the sun you have not answered twenty times. But still they seem never to get short of stock.

I found in Prof. Henry's book, however, one thing that I will be glad to have light on. In his rations from different states I see there are some fellows out beyond the Rocky mountains that are feeding 35 pounds of alfalfa hay, and ten pounds of grain besides. Now, what on earth do they mean? Do their cows weigh 2,000 pounds, or don't they know how to make a ration? The way I figure, 35 pounds of alfalfa hay contains protein 3.85, besides the 10 pounds of grain. Please, what kind of a cow needs so much protein?

But I started to tell you what good I have received from the Dairyman; last year was the first year I read your paper, and it kept me bothered all the time about feed; it sounded all right on paper, about that silage business, but when I began to study about building one, I would get scared and say, "O! it won't do down here," but I kept reading until I have decided firmly to build one, have already planted the corn to fill it, and I learned a great deal about preparing the land, from your paper. The land is so well prepared that today, five days after planting, it is coming up nicely.

I hope to be better prepared next winter, and if it rains through haying time this year I will at least have my silage and not have to feed old woody cotton seed hulls at as high as $5 a ton and have at least two cows always off their feed, as I did last winter.

I learned how to—well, I would be telling all I know about the dairy business to tell what I learned from your paper. I have learned enough to make butter that sells at a good price and then I can't supply the demand. I also learned how to make a ration and feed each cow according to her ability to respond. But I taught myself how to make butter milk from skim milk. Mr. Editor, you seem to think it is all in churning it before it gets too thick, but I find it is all in cooling the milk as low as 85° F. (before separating as you have no foam in the way). I do not know what the scientists would say to this, but it may be (this does not apply to winter) that when the milk is left at 96° or higher, that the lactic acid bacteria do not thrive and some other kinds do and *vice versa*, anyhow, I can't make first-class butter milk, in the summer time, without first cooling the sweet milk.

Only one more thing now and I will stop, and it is about manure. I have seen my neighbors fix their barns so the liquid manure would all run off, to get it out of the way. Now, I try my best to keep mine, every drop of it.

And now, Mr. Editor, I hope you have read this—all of it. I have talked Hoard's Dairyman enough for you to have had a thousand new subscribers from here, but they don't believe in "book farming." Don't suppose I got more than twelve or fifteen, but will keep on trying

Tennessee. (?) R. T. Argol.

To avoid the alternative dire calamity, the editor held his peace long enough to read what is printed above, and tenders congratulations to the writer that the surplus pressure has been safely removed. He suggests, however, that in future there be less delay in opening the safety valve, to wit: the ink bottle.

While it is true that a good many questions have been adverted to more than once in recent years, it is also true that the same question seldom or never comes up for review or restatement in exactly the same form or without some change in environment, and there is, therefore, opportunity for putting it in a new light and thus bringing now one and again another detail into greater prominence. Moreover, no one can read the correspondence which comes to Hoard's Dairyman without learning something, and we are not without the hope that even the editors can discuss the various problems connected with dairying with more satisfaction to its readers than they did a year or more ago.

We suspect that in the case of the ration referred to, either the amount of alfalfa hay was over liberally estimated, or that a considerable proportion of it was not eaten Out in Utah they have such an abundance of alfalfa hay at times, that the farmer feeds it much as farmers in the middle west feed straw and corn stalks—quite as much to get it out of the way and mixed with the droppings, and thus increase the manure pile, as for its nutritive effect.

Calf Notes.

[Press Bulletin.]

Sterilized skimmilk is good for scours. The calves at the Agricultural College that receive sterilized milk are less subject to scours and recover more readily when attacked. The heating of the milk seems to produce chemical changes that help to prevent scours and at the same time enables the feeder to keep the milk in good sweet condition. Milk delivered at the creamery con-

tains large numbers of lactic acid germs. Unless these are destroyed by sterilizing, the skimmilk will sour in a few hours. When sterilized and cooled to the temperature of well water, skimmilk may be kept sweet from 36 to 48 hours. Feeding sweet milk at one meal and sour at another is very apt to cause scours and stunt the growth of the calf.

The stomach of a calf is delicate and sensitive and any change of feed should be made gradually. Do not change from whole milk to skimmilk faster than a pound a day, allowing from ten days to two weeks for the change. Before turning on pasture in the spring it is better to feed a little green feed and gradually increase the amount until the limit of the calf is reached. Otherwise the calf may suffer severely from scours by the sudden change to pasture.

Several complaints have reached us about skimmilk, intended for calves, souring, even when placed in tubs of cold water as soon as received from the creamery. Sterilized skimmilk will not sour until it is cooled to about blood temperature. A can of hot milk will warm a tub of water to about that temperature and as the milk is coolod at the same time the best of conditions are offered for the development of lactic acid germs. The tub of water only helps to keep the milk at blood temperature. Under such conditions the water is worse than nothing. If hot skimmilk is cooled in a tub it should be done by running water. A much better way would be to use a cooler and then place the can of milk in a tub of cold water in order to keep it cool.

Don't over feed. Calves are very greedy at feeding time and there is often a great temptation to give more milk than the calf can properly handle, thus causing them to scour. Overfeeding is undoubtedly the main reason why so many farmers are unable to raise good thrifty calves on skimmilk. At the college we find that calves from three to four months old will not stand more than 18 to 20 pounds daily per head, from seven to eight weeks old, 14 to 16 pounds and three to five weeks 10 to 12 pounds. (1 quart equals 2 pounds.)

Kafir corn meal is proving an excellent feed for young calves at the Agricultural College. It is constipating and aids materially in keeping calves from scouring. They commence to eat the meal when ten days to two weeks old. At first a little of the meal is placed in their mouths after drinking their milk, and in a short time they go to the feed boxes and eat with a relish. Our herd of thirteen calves, averaging eight weeks old, consume 2 pounds daily per head.

Never put corn, kafir corn meal or any other grain in the milk for calves. The starch of corn has to be changed to grape sugar before it is digestible. This change only takes place in the presence of an alkali and is done chiefly by the saliva of the mouth. When corn is gulped down with the milk the starch is not acted upon by the acids of the stomach but remains unchanged until it comes in contact with the alkaline secretions of the intestines. With hogs the stomach is small and the intestines long. This allows starchy matter to be digested in the intestines. The opposite is true with the calf, the stomach being large and the intestines short. Unless the starchy matter is largely digested by the siliva of the mouth, complete digestion will not take place in the intestines and the calf scours.

Flax seed meal or Blachford's meal, made into a jelly or gruel are good to mix with skimmilk to take the place of butter fat. Oil meal is frequently used for this purpose but, like skimmilk, it has a large amount of fat removed and is not as good as meal with the fat in.

Calves like fresh water. Any arrangement like the Dewey hog waterer that will keep clean, fresh water before them all the time, is the best way to supply it. Our calves drink between 7 and 8 pounds daily per head.

D. H. OTIS.
Kansas Experiment Station.

DAIRY MARKETS.

ELGIN, Ill., May 29—Butter—Offerings to day 215 tubs; bids opened at 17c and advanced to 18c, with no call sales; official market firm at 17½c: 109 tubs withdrawn. Butter last week, 17c, and one year ago, 16c.

CHICAGO, Ill,, May 29—Butter—Creamery, extra, 17½c; firsts, creameries, 16@16½c; seconds, 13½@14c; dairies, selections, 15c; extra ladles, 12½c.

Cheese—Full cream, Twins, new, good to choice, 8¾@9c; Young America, 9@9¼c; Swiss, 10½@13c; Limburger, 7@9½c; Bricks, new, 7½@8¾c.

Eggs—Fresh, at mark, cases returned, sold at 12c; cases included, 12¾c; duck eggs, 12@12½c; goose eggs, 12½c.

Bran—Market weak and 25@50c lower, with sales at $10.25@10.50.

Cattle—Trade was active at last week's best prices, or 5@10c higher than last Friday's lowest prices. Exporters were free buyers again, largely at 5 15@5.35. The top of the market was 5.60, with the bulk of the beef cattle at 4.95@5.35. Corn-fed westerns sold principally at 5.05@5.30. Straight Texas steers sold at 4.50@4.90. A big lot of 1,095-lb. western heifers sold at 5; distillery fed bulls, 1,240@1,261 lbs., 4.40, and feeding cattle, 4 25@5.15.

MILWAUKEE, Wis., May 29—Butter—Creamery fancy prints per lb. 17c, extras, 17c; firsts, 16@16½c; seconds 14@15c; imitations, 14@15c. Dairy—Selections, per lb. 13@14c; lines, 12@13c. Roll—Fair to choice fresh, 9½@10c; packing stock, 9½@10c. Market unchanged, with a fair local and outside trade of all kinds. Receipts 18,520 pounds.

Cheese—American full cream, new to choice fancy, 9@9½c. Brick—New choice, 7½c@7¾c Limburger—Fall, choice, 9@9½c; new choice, 7@7½c. Swiss—Drum choice, 12½@13c; block, choice, 10½@11c Market unchanged and moderately active, with receipts 5,480 pounds.

Eggs—Fresh per dozen, 12c, cases returned. Market unchanged; receipts 415 cases, which are readily salable.

PLYMOUTH, Wis., May 29—Cheese—Market to-day; 780 Twins, at 8c; 640 Young Americas, at 8¼c.

AVOCA, Wis., May 29—Cheese—On the Lone Rock and Muscoda Dairy board to-day, the offerings were 863 boxes Twins; market dull at 7¾c

FOND DU LAC, Wis., May 29—Cheese—Offerings 616 Twins and 150 Daisies; market steady at 8¼c.

SHEBOYGAN FALLS, Wis., May 24—There were 1,019 boxes of cheese sold on the call board here to-day, all the offerings being taken as follows: Seven hundred and fifty five Young Americas at 8¾c; 10 Daisies, at 8¾c; 90 Daisies, at 9c; 18 Longhorns, at 9c; 121 boxes Twins, at 8¾c; 25 at 8⅞c. Sixteen factories were represented on the board.

SHEBOYGAN, Wis., May 24—The sales reported to day were 360 Twins at 8½c, and 440 cases Young Americas at 9c.

MANITOWOC, Wis., May 24—Offers of cheese to-day were 150 boxes Daisies, 52 boxes Twins, 475 boxes Young Americas. All offerings Daisies and Twins sold at 8½c, Young Americas 8¾c

BRILLION, Wis , May 19.—The sales reported on the board to-day were 490 Twins and 668 Daisies at 8¾c, and 311 cases of Young Americas at 9¼c.

HORTONVILLE, Wis., May 18.—Offerings on board to-day were 722 Twins. Sales: 500 Twins at 8⅝c. Ruling price, Twins 8⅝c. Market moderate Next meeting June 1st.

NEW YORK, May 29—Butter—Creamery, western extras, 18½c; firsts, 17@18c; state extras, 18c; firsts, 17@17½c

Cheese—State, full cream, large white, choice, 8½@9c; small, 9@9½c.

Eggs—State, Pennsylvania and Western, 15@16c.

LITTLE FALLS, N. Y., May 22.—Butter—Sales 23 pkgs. dairy at 16@18c.

Cheese—Sales 40 boxes large colored at 8½c; 240 large colored and white at 8⅝c; and 3,848 boxes small colored and white at 9c.

UTICA, N. Y., May 22.—Sales 12 packages at 17c.

Cheese—45 boxes small white at 9⅜c; 440 boxes at 9⅜c; 120 small colored at 9⅜c; 40 boxes at 8¼c; 21 boxes large white at 8½c; 70 boxes at 9½c; 1,016 boxes large colored at 8½c; 923 boxes at 8⅝c; and 572 boxes on commission.

BALTIMORE, Md., May 29—Butter—Market firm; creamery separator extra, 19c; extra first, 17½c; creamery first, 17c; creamery imitation extra, 15@16c; lad'e extra, 13@14c; western store packed, 11@12c.

Eggs—Market firm; strictly fresh stock, 13½@14c.

PHILADELPHIA, Pa , May 29—Butter—Solid packed; separator creamery, extras, 18½c; firsts, 17½c; seconds, 17c; imitation creamery, extras, 16c: firsts, 15c; seconds, 13c. Ladle packed: Extra, 15c; firsts, 14c; seconds, 13c. Print butter: Creamery extras, 19c; firsts, 17@18c; seconds, 14@16c.

Eggs—Pennsylvania and nearby, 15c; western, 15c; southwestern, 14½c; southern, 13½@14c, loss off.

NEW ORLEANS, La., May 29—Market quiet, 18@18½c.

NEWARK, N. J., May 29—Market steady, 18½c for fancy creameries. Receipts liberal.

WASHINGTON, D. C , May 29—Market steady, extras, 18½c; choice firsts, 18c; fine imitations, 15c.

BOSTON, Mass., May 29—Butter—Market firm at 19c.

Cheese—Steady, 10c.

Eggs—Steady, 15c.

KANSAS CITY, Mo., May 29—Butter—Separator. 15c; Dairy, 13c.

Eggs—13c.

ST. LOUIS, Mo., May 29—Butter—Dull; creamery, 15@18c; Dairy, 12@15c.

Eggs—Steady, 11c.

CINCINNATI, O., May 29—Butter—Quiet, 18½@19c.

Eggs—Easy, 12c.

Cheese—Steady; good to prime Ohio flat 9½@10c

Latest quotations for fancy creamery; Buffalo, 17½c; St. Paul, 16½c; Minneapolis, 16@16½.

BALTIMORE MARKET.

BALTIMORE, Md., May 25.—Butter—The advance in price of extra separator creamery of two cents per pound, established last week at several of the primary markets in the west, communicated its evil influence to many other contributing sources, thereby compelling receivers at distributing centers to ask at least a portion of the increased cost, or waive all claim to compensation for handling contract makes of this variety. The unwisdom of permitting such counsel to prevail in a quarter wielding the influence claimed by Elgin, or any other one market, was never more manifest than just at this time, when a *faux pas*, such as that advance unquestionably was, would disturb all the conditions of trade at home and abroad as this advance did, and threaten the whole season's business in high grade creamery products. Buyers having been driven from separator creamery paid more attention to gathered cream and imitation creameries, thereby increasing somewhat the demand for these less favored varieties; near-by creameries also came in for a full share of the enforced increase in demand and profited therefrom, even to the extent of working off a proportion of the garlic-tainted products. Toward the close there was plenty of butter of every kind, at all prices, for any demand; and as there was a great pressure to sell, buyers had it their way. Storepacked has been in quite liberal supply so far this week; the demand continues good; we would advise that you ship no more rolls; pack solid. Creamery separator, extras 19c; firsts 18c; seconds 17c; gathered cream, extras 17c; firsts 16c; Ohio, extras 18c; firsts 17c; seconds 16c; Iowa & N. W. ladle, extras 15c; firsts 14c; seconds 12@13c; Ohio & Indiana ladle, extras 14c; firsts 13c; seconds 12c; roll, firsts 12c; seconds 11c; storepacked, firsts 12c; seconds 11c; creamery blocks (2 lb.), extras 20c: firsts 19c; seconds 18c; prints (½ lb.), extras 21c; firsts 20c; seconds 19c; Md., Va., and Penna prints, extras 19c; firsts 18c; seconds 16@17c.

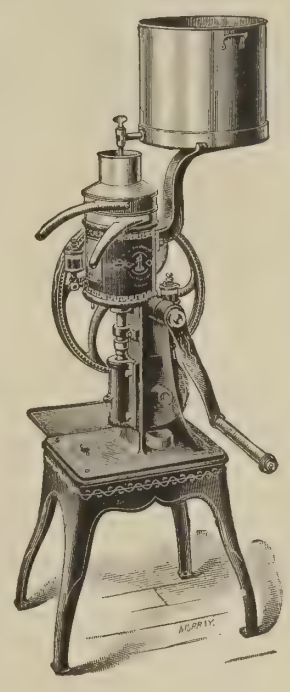
Eggs—The receipts of choice fresh stock is very light; all receipts find a good market; with the continued cool weather the demand is fully equal to the supply. Notwithstanding the sharp advance since our last issue, our market is in good shape and firm at 13½c. Again we urge upon you the necessity of shipping in cases, and not in barrels or boxes.

Cheese—Old cheese is virtually out of the market The present receipts are composed entirely of new make. The supply is sufficient for all requirements. Markets about steady. N. Y. State Cheddars, fine 10¼c; choice 9¾@10c: fair 9@9½c; Flats, fine 10½c; choice 10@10¼c; fair 9@9½c; Small fine 10½c; choice 9½@10c; fair 9c; Ohio Flats, fine 10c; choice 9½c; fair 9c; Picnic, fine 10c; choice 9½c; fair 9c; Swiss cheese, fine 10@11c; choice 9@9½c.

301 Exchange Place. G. M. LAMB & BRO.

LIVERPOOL, May 29—Butter—Good, 65s.
Cheese—American finest white 51s; do colored, 48s; ordinary new, 47s, 6d.

CREAM SEPARATORS



Would you know
all about them?
The BEST, the CHEAPEST
and
the reasons why?

SEND FOR NEW 1899 CATALOGUE.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts., CHICAGO.	74 Cortlandt Street, NEW YORK.	1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Man and wife on farm, to live with owner's family. Man for general work and care of cows. wife for general house work. Apply, A. JENNINGS, Brookwood Farm, Farmingdale. N. J.

For Sale—4 h. p. upright boiler and horizontal engine Bargain. R. J. MUDGETT, Jesup, Ia.

Wanted—Working foreman; must understand farming and dairying, feeding and care of stock how to run separator and engine. Also want to know where I can get Short-horn dairy cattle. ROBERT McFADDEN. Santa Ana, California.

For Sale—The choicest located 160 acre stock and dairy farm in Southern Minnesota. Joins town site of Windom, County Seat of Cottonwood County and only 25 miles from Iowa. House is 30x16 and 14x16 all two-story with addition and stone wall cellar 16x16. Barn is 40x45, 10-ft posts. Has also granary, corn crib, poultry house, good wells, etc., etc., and the Des Moines river flows through the pasture. 20 acres native timber on river, rest in field, pasture and tame grass. Creamery within one-half mile. Price only $35 00 per acre. This is a decided bargain. Act quickly. Call on or write for prices and terms to THOMAS E. SIME, Windom, Minn.

Creameryman, German, 32 years old, experienced in working up skim milk into small cheeses and who knows a market for same, desires a position in N. Y. or near by state. E. GURTT, 503 3d Ave., New York City.

Soja Beans—For soiling, ensilage and hay. Medium early variety. $2 00 per bushel; 5 bushels at $1.75 per bushel. Circular on growing for a 2 cent stamp. W. H. STODDARD, Carlinville, Ill.

Wanted—A good all round farm hand and dairyman. Must be a first-class milker. State references, ability and wages. BOX 120, Mt. Pleasant, Ohio.

We have sold our Schmidt's Treatment for Milk Fever to many prominent dairymen and cattle breeders. Mr. Chas. A. Sweet, of Buffalo, protects his most valuable Jersey herd with our remedy. GARDINER BROS., 220 E. Preston St., Baltimore, Md.

For Sale—Fifteen h. p. boiler and 15 h. p. upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 14-4

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Wanted—Farm superintendent on dairy farm in Waupaca County. Fine house and pleasant social surroundings. Permanent position on salary. Married man, with experience. Good references required. M. C. PHILLIPS, Oshkosh, Wis. 13-4

Tamworths, ready to wean, $10 each, or $15 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Very Low Rates to Columbus, Ohio, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates, from all stations, for trains arriving Chicago June 2, 3 or 5, limited to include June 13, account of meeting American Medical Association. Apply to agents Chicago & North-Western R'y 15-2

Excursion Tickets to Oshkosh, via the North-Western Line, will be sold at reduced rates, from stations in Wisconsin, June 5, 6 and 7, limited to June 10, inclusive, on account of I. O. O. F. Grand Lodge. Apply to agents Chicago & North-Western Railway.

Exceptionally Low Rates to Buffalo, N. Y., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, on account of Annual Meeting A. A. O. Nobles of Mystic Shrine, to be held June 14 and 15. For dates of sale and limits of tickets apply to agents Chicago & North-Western R'y. 16-2

Mr. Wheaton's Canadian Dairy Notes.

The Use of Hand Separators on the Farm. Data as to the Presence of Mold in Butter Packages.—Flavor of the Wood.—Transportation.—New Zealand Dairying.

ED. HOARD'S DAIRYMAN:—The feature of dairying that is coming rapidly to the front in this country, is the farm separator system. There is perhaps, more inquiry about farm separators than any other line of dairy machinery, at the present time. While a great many separators have been disposed of among farmers, the demand is nothing like what it will be within the next five years. Our dairymen are just beginning to wake up to the fact that the small separator for a herd of 10 or 12 cows will almost pay for itself in one year, in the increased amount of butter that can be made, as compared with the gravitation method.

What effect the general introduction of the farm separator will have on our co-operative dairy system is not easy to say at present. Where it is largely introduced into the special dairy sections, it may have the effect of curtailing the make of cheese at the factories. Upon the working of the co-operative creamery it should have a wholesome effect, especially where the cream gathering system is followed.

In Eastern Canada about all the creameries are run on the separator plan and the whole milk is delivered by the farmer, the same as to the cheese factory. In Manitoba and the northwest territories, the cream gathering plan is of necessity adopted, owing to the long distance that milk has to be drawn, and the farm separator would serve a useful purpose, in enabling the farmer to get all the cream out of the milk and to preserve it in good condition for butter making. We understand that many western dairymen are aiming at this plan if they have not already adopted it.

It may be difficult at the start to get all the patrons of a creamery to buy separators, but the advisability of doing so cannot be questioned, especially where the farmers live far apart, as is the case in the west. But why would it not be possible for the farmers to co-operate in buying these machines? By doing so they should be able to get them at a reduced rate.

One of the drawbacks is the high price charged for the small separators. When a farmer is asked $100 or so for a separator for the use of his dozen cows, he will think twice before signing an order for it. Though he would soon get back this expenditure in increased yield and a better quality of butter, it takes time to convince him of this.

While the representatives of the older separators, such as the DeLaval, Russian, Alexander, Mellotte, American, etc., are on the field and pushing matters for all they are worth, several new Canadian separators have recently appeared upon the scene and seem to be getting a good share of the business. Some of the new ones are the "National," "Canadian Ideal," "Waterloo," and from appearances they are likely to make some of the older ones get a hustle on.

Mr. L. C. Rogers, who has lately resigned the position of Instructor in butter making at the Ontario Agricultural College, to engage in the separator business, has recently published some data on the subject of farm separators, which are worth noting. From 150 trials made at the Ontario Agricultural College, in comparing the separator plan with the gravitation method during five years, in which a total of 7,600 pounds of milk was tested for each plan, the following table of results is compiled:

No. of tests.	Lbs. of milk skimmed.	Method of skimming.	Average of butter fat lost in skim milk.
150	7,600	Shallow pans	.38 p. c.
150	7,600	Deep setting	.31 p. c.
150	7,600	Separator	.10 p. c.

Investigations were also made to determine the loss of butter fat in skim milk at thirty-six farm dairies. Ninety-six samples were tested, which showed an average loss of .9 per cent of fat in the skim milk, which was equal to one-quarter of the total fat in the milk before being skimmed. If average normal milk contains 3.6 per cent of fat and 100 pounds of such milk make four pounds of butter, and if the butter is worth 15 cents per pound the butter fat would be worth 16.66 cents per pound. At this valuation, according to the above table, the value of the loss of butter fat from the separator plan would be 1.66 cents, deep setting 5.14 cents, shallow pans 6 3 cents and farm dairies 14.9 cents per 100 pounds of skim milk.

As to the actual value of the farm separator, Mr. Rogers points out that these machines will yield from one-half to one and one-half pounds of butter per cow each week more than if the cream were raised by the gravitation method and has compiled the following table showing what the gain from one to twelve cows will amount to in one year:

No. of Cows.	Gain of Butter per Week.	Value at 15 cents per lb. of Butter.	Gain of Butter for 40 Weeks or About 9 Months.	Value of Butter at 15 cts. per Pound.
	Lbs.	Cents.	Lbs.	
1	1	15	40	$ 6.00
2	2	30	80	12.00
3	3	45	120	18.00
4	4	60	160	24.00
5	5	75	200	30.00
6	6	90	240	36.00
7	7	1.05	280	42.00
8	8	1.20	320	48.00
9	9	1.35	360	54.00
10	10	1.50	400	60.00

This table proves pretty clearly that it will not take a farmer very long, with eight or ten cows, to pay for a separator. Not only does he get a larger yield, as compared with the deep-setting or shallow pan method, but everything else considered, gets a better quality of butter, whether it is made at home or at the creamery. So why should people hesitate about adopting improved methods when there is such conclusive evidence as to the advisability of doing so.

This branch of dairying is not written up just here with a view to "booming" the separator business for the manufacturers, but merely to show what we consider to be one of the coming features of dairying in this country and something that our dairymen will have to give special attention to in the near future, if they have not already done so.

At a recent meeting of the Butter and Cheese Section of the Montreal Board of Trade, Prof. Robertson gave some practical advice in regard to mold in butter packages. He recommended the dipping of the parchment papers, before being applied to the butter, in a solution made by mixing 1¼ ounces of formalin with one gallon of brine. This would prevent any mold from forming in the package, and as the formalin is not poisonous and tasteless, it would in no way injure the quality of the butter. Formalin was, however, in no sense a preservative.

[We are inclined to the belief that Prof. Robertson must have been misquoted in some way. Formalin is a very powerfnl preservative, and morever is of very decided poisonous properties. There is but little choice between using it in the parchment paper or in the butter itself. Such a suggestion is an open door to the use of preservatives in butter.—ED.]

A question raised by some of the cheese and butter exporters was that frequently in tubs or packages of butter, one to one and a half inches deep around the sides, the butter would have the flavor of the wood from which the package or tub was made. This was caused by making the boxes from green wood. The meeting strongly urged upon creamerymen the need of having the butter boxes made only from dry wood and asked Prof. Robertson to issue a circular to dairymen drawing their special attention to this.

Another question discussed was that of transportation. Prof. Robertson drew attention to the necessity of having cool, ventilated chambers on board ocean vessels for carrying cheese. The steamship companies had promised the government to have this done, but the active co-operation of the trade was needed in bringing home the requests to those in authority. The keeping of cheese for 24 hours in transit at a temperature of 75 degrees might not injure the quality of the cheese, but it would help to start the growth of undesirable bacteria which might eventually cause injury to the product.

Mr. J. A. Ruddick, who went from Canada to New Zealand, as dairy commissioner, last fall, has sent a letter to one of our trade journals containing some points of interest to our dairymen. We have been accustomed to look upon our sister colony on the other side of the globe as a rising competitor of ours in dairy products in the British markets, not only in regard to butter but also in regard to cheese. Mr. Ruddick points out that there is a growing market south of the equator for cheese and to use his own words:

"The present indications are that the export of cheese from New Zealand to Great Britain would not increase. Indeed it would not be surprising if the southern hemisphere took the whole output in a very short time. There is no other country south of the equator which can compete with New Zealand in the manufacture of mild, cool-flavored cheese."

While this is assuring to those in the cheese trade, what he says in regard to New Zealand as a competitor in the export butter market is not so pleasing. To quote again: "The make of butter is increasing and Canadians will have to look sharp if they expect to keep ahead of their cousins under the Southern Cross. No money is spared in the building and equipment of these factories and good salaries were paid to secure first class makers. The best factories are all fitted with mechanical refrigeration. Every few days the butter is shipped to the government cool stores, where it is graded and held at a temperature of about 20 degrees F. until it goes on the direct steamer for London."

The cheese factories and creameries here are now under full sway. From May 1st to date (May 22) our exports of cheese and butter have been twice as large as they were for the same period a year ago. There is a good export demand for all the new cheese, which is selling at the factories at from 9 to 9¼ cents, though some sales are reported at below 9c. Creamery butter also sells readily for export at from 16 to 16½ cents at Montreal, which would mean from 15½ to 16 cents at the creameries. J. W. WHEATON.

Toronto, Canada.

Cost of Raising Calves.

The New Hampshire Experiment Station has been keeping record of the cost of growing calves from the time the milk of the dam was good, up to six to eight months, when turned to pasture. The general method of feeding, which was similar to that now followed by most farmers, is given as follows:

The calf was taken from the cow as soon as the latter's milk was fit for creamery use. It was first fed with whole milk, which was gradually replaced by skim milk, until by the end of the second week of growth, it received only milk that had been run through the separator, and was almost completely free from fat. To replace the fat, a mixture of ground flaxseed, cooked in water, was added to the milk. The proportions in this mixture were one pound of flaxseed to four quarts of water, making a thick, mucilaginous jelly, which could be readily mixed with the milk.

The calves were fed from seven to ten quarts of skim milk, and one or two quarts of flaxseed jelly, daily, in two feeds. During part of the time, middlings were cooked instead of flaxseed. As soon as possible the animals were encouraged to eat grain and hay, and the increase in food, made necessary by gain in size and weight, consisted of these materials, while the skim milk and flaxseed remained nearly constant in amount as long as they were used, which was up to the age of six to eight months, or until the animal's first season in the pasture. Some of the calves were taught to drink from a pail, but most of them were given their milk through Small's calf feeder, since it made the work of feeding much less.

The skim milk was figured at 20 cents a hundred pounds, and the feeds at the price for such feeds obtaining in that state.

The following is the weekly summary of gain and cost for the several periods:

Eight calves under 5 weeks old. Average weekly gain, 7.6 pounds. Average weekly cost, 40.6 cents.

Eight calves from 5 to 9 weeks old. Average weekly gain, 9 1 pounds. Average weekly cost, 36 7 cents.

Eight calves from 9 to 13 weeks old. Average weekly gain, . 11.8 pounds. Average weekly cost, 43.1 cents.

TESTED BY THE MILK PAIL
Quaker Dairy Feed
is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.
PROFIT.
It may be combined with great profit with all forms of home-grown feed.
*Sold only in sealed and branded sacks.
"MODERN DAIRY FEEDING"
An invaluable book containing scientifically proportioned rations, including every form of roughage and every variety of feed. Sent postpaid on request. Address Science Dept.,
The American Cereal Co.
1348 Monadnock Bldg., Chicago, Ill.
SCIENTIFIC ADVICE ON FEEDING

Eight calves from 13 to 20 weeks old. Average weekly gain, 10 pounds. Average weekly cost, 52 9 cents.

Six calves from 4 to 8 months old. Average weekly gain, 11 pounds. Average weekly cost, 63 7 cents.

Two calves from 5 to 13 months old. Average weekly gain, 5.25 pounds. Average weekly cost, 58.3 cents.

Four heifers from 13 to 16 months old. Average weekly gain, 6.12 pounds. Average weekly cost, 65.1 cents.

The heifers one, two, three and four were maintained on pasturage from July 24th, until October 26th, 1897, a period of thirteen weeks and two days. The total gain in weight of the four animals was 313 pounds, or an average weekly gain of 5 9 pounds per head.

In another bulletin it is proposed to take the same animals up to an age where they come into milk and begin to pay their way.

Paying for Butter Fat.

ED. HOARD'S DAIRYMAN:—In your issue of April 28th, is an article giving the official tests of Holstein-Friesian cows, and the amounts of butter are calculated on the basis of 80% butter fat to a pound of butter.

Is this the usual percentage? If so, of what does the remaining 20% consist?

Last autumn a stranger started a creamery here, the first in the place.

We farmers around here are mostly ignorant of dairying.

He uses the Babcock test and pays us 2½ cents less per pound for the butter fat than the price he receives for the butter.

Yamhill Co., Ore. W. E. H.

The amount of water in butter can be made to vary widely; according to the method of manufacture, it can be made to contain anywhere from 10 to 35% of water. It is therefore necessary in testing cows, to have some standard for the amount of fat in the butter made, so that the tests shall be comparable, when made at different times and under different conditions.

The Holstein Breeders' Association have adopted the plan of adding one-fourth to the weight of fat found by the Babcock test to indicate the amount of butter that could be made from the fat. This would make butter

Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use
Eureka Harness Oil
on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.
Made by STANDARD OIL CO.

containing 80% of fat the other 20% consisting of water, salt, casein, etc.

If you are receiving 2½ cents under the selling price of the *butter* for the *butter fat* you furnish, you are not receiving enough money.

A hundred pounds of butter fat in the milk will make on an average 116⅔ pounds of butter, when all conditions are at their best, and you should be paid on the amount of butter manufactured.

As it is now, you have decidedly the small end of the bargain.

Making Butter in Winter.

Demonstrated to Be Practicable and Profitable.

Professor Robertson says in his report:—Although it seemed evident that butter making at creameries in Canada during the winter was a business which could be developed with profit to all concerned, there were difficulties in the way of getting it established. Some objectors said that it was not practicable because the roads were bad during the winter, and milk or cream could not be delivered regularly. Others said that the weather was too cold and that the cows could not be kept in milk satisfactorily. Others said that the cows would be so weakened by being milked during the winter, that summer dairying would be much injured. It was also alleged that the cream and milk would become frozen, and thus the quality of the butter would be greatly injured. It was evidently necessary, if the business was to be established, that it should be demonstrated on a comparatively large scale, whether it was entirely practicable, and whether it could be made satisfactorily profitable. The two dairy stations at Woodstock and Mount Elgin, Ont., were established to settle these points. Practical experience seemed to be the only means of meeting the objections. I was able to say after an experience of three years in the management of those winter dairy stations that we had not found a single obstacle that could not be overcome by good management. Cold weather is a suitable time for making good butter. Even without artificial cold storage, it does not spoil readily then. I had some cream frozen solid and afterwards had butter made from it, and it was quite as fine as any that was produced. I took samples to be examined by the members of the Butter and Cheese Association of the Board of Trade of Montreal, numbered from one to nine, and let the experts say which one was the best. They picked out sample No. 9 as the finest of them all, and that was the one made from cream which had been frozen as a test. When cream has been frozen it is usually necessary to add a fermentation starter to it, and to ripen it in the usual way for about twenty hours before it is churned

The average prices realized by farmers who supplied milk to the dairy stations in 1893-94 were as follows:

	Per Cent of Fat.	*Net Value per 100 lbs. of Milk.* Cents.
Mount Elgin	3.86	91.6
Woodstock	3.68	85.0
Wellman's Corners	3 83	93.0

	Highest	*Lowest*	*Average Price Realized for Butter.*
Mount Elgin	$1.19	63c	24.23 cts.
Woodstock	0 95	79c	24.42 cts.
Wellman's Corners	1.25	73c	24.94 cts.

Spraying Wild Mustard.

The following account of experiments carried on in England, for the destruction of wild mustard, or "charlock," are of unusual interest.

Charlock is one of the most pernicious weeds that infest farm lands, and if the simple method described below, will destroy it, it will save many dollars to the farmers of the country.

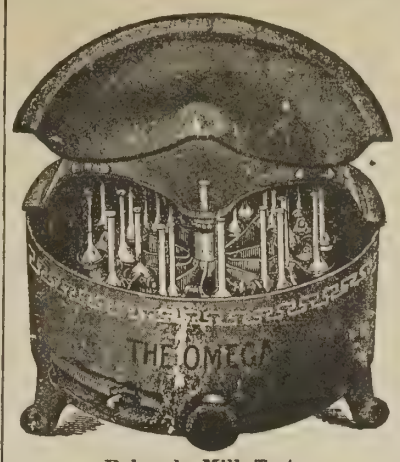
Land which is now overrun and worthless, can be brought into cultivation again and be a source of revenue instead of an eye sore.

The statement that thistles are also blasted by the solution used, is of interest. It may furnish a solution of the Canada thistle problem. We suggest that farmers who are plagued with the Canada thistle, try spraying them. The solution is cheap and not poisonous:

The following is a brief account of an experiment conducted last year by Mr. Ovens, of Torr, on behalf of the Lancashire County Council, in a field badly infested with charlock. Professor Campbell, under whose direction the experiment was conducted, could not find a field badly enough infested in the County Palatine, but Mr. Ovens was, unfortunately, able to supply the deficiency in a very marked degree.

The field selected was under oats after lea. A portion containing 110 square yards was reserved for spraying, and another portion, of equal extent, was left unsprayed for comparison with it, and the remainder of the field was gone over with a "charlock" weeding machine. The spraying took place on the 14th of June, when the oats were fully twelve inches in length, and the material used was a solution of sulphate of iron, diluted to 13 per cent. A remarkable result was obtained. The "charlock" was totally destroyed, and in a few days the contrast between the two plots was striking to a degree. Where the spraying has been performed the field bore a dark green hue, while the unsprayed plot was quite yellow, with charlock in full flower. This is conclusive enough as regards the destruction of the charlock, but the important question remains. What effect had the spraying upon the oats and the clover? It is satisfactory to find that the answer here is equally conclusive. The oats were practically uninjured, and the result in the harvest was equally good, for the binder got around the sprayed plot without a hitch, while in the other it was being choked at every round on account of the luxuriant growth of the charlock.

Another experiment was carried out in an oat field sown down with clovers and rye grass, and the effect upon these plants is the question raised by our correspondent. Naturally one fears that what destroys charlock may destroy clover, but, so far as the Torr experiment is concerned, this does not appear to be the case. The spraying in this second trial took place when the oats were about 14 inches in length, and two plots were selected—the one getting a 15 per cent and the other a 20 per cent solution of sulphate of iron. In both cases the charlock was exterminated, and the clovers at harvest were found to be as luxuriant on the sprayed as on the unsprayed plots. Another satisfactory feature of the spraying was its effect on thistles. These in every case were blasted, and in the case of the plot subjected to the 30 per cent solution, effectually made harmless. As the result of what he saw in these experiments, Professor Campbell has every confidence in recommending farmers to adopt spraying with sulphate of iron in doses of a 10 per cent solution for the general extermination of this most troublesome weed.—*Scottish Farmer.*



Babcock Milk Tester.

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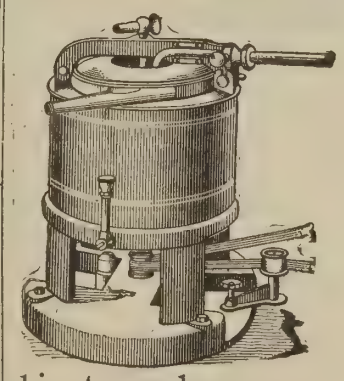
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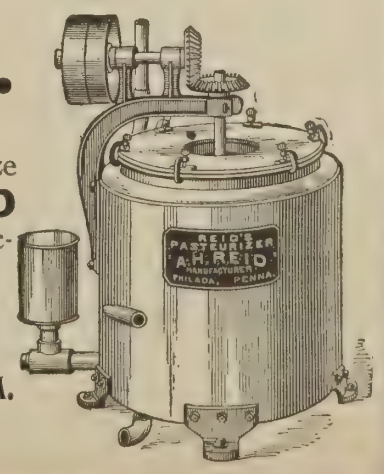


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Cost of Butter and Milk Production.

[Address delivered by Prof. T. L. Haecker Before the Minnesota State Agricultural Society.]

It has fallen to my lot to carry on a series of experiments covering some half dozen years with a view of ascertaining the cost of milk and butter production with cows of different breeds and types. In summing up the results of this work I am forced to the conclusion that the subject of rational feeding is, for the time being, of greater importance to the average dairyman than is that of breed or type. Had the work been carried on for only two or three years and feed stuffs during that time ruled comparatively high, my conclusions would have been different. When I find that by proper feeding under present conditions almost any kind of a cow will return a good profit in the dairy, and that the average cow in Minnesota is returning in dairy products a sum barely equal to the market price of the feed simply because of a lack of understanding of how to feed; and when we consider how many common cows there are in the state whose product might be doubled by better methods, we can readily understand how much more important it is that the kind we have be properly fed than to point out by experimental demonstration what we might realize by feeding the kind we haven't got, but should get. It has been clearly demonstrated that cows bred specially for the dairy make a much larger return for food consumed; but our dairy farmers, unfortunately, have not many of that kind, and to change them will require years of careful selection and breeding. It is, therefore, of primary importance that farmers first learn to make the best of what they have. During the past few years I have received reports from many of our creameries giving the estimated number of cows contributing milk, pounds of butter made, receipts for butter, expense of manufacturing and amount paid to patrons. From these reports it appears that the average gross return to the farmer per cow is only about $22. During the years 1896 and 1897, the time covered by the reports, it cost us at the experiment station on an average $20.14 per year to feed our cows that would be classed as common cows, charging local market price for feed. It, therefore, appears that the ordinary cows, as ordinarily kept on Minnesota farms, receiving $15 worth of feed per year, return for butter fat only $7 annually over the market price for the feed consumed.

Taking the records of all the common cows that were in the station herd during the two years, we find that they made a gross return for butter of $44.53, valued at 15c per pound, being about the average that farmers received during that time. Since these cows are no better than the average cow of Minnesota, it is but fair to conclude that the $22.53, which our common cows returned in excess of that received from those contributing to Minnesota creameries, is wholly due to a lack of knowledge of proper feeding and care.

The statistics referred to also show that there are in round numbers 435,000 cows that are contributing milk to Minnesota creameries, and bringing a gross return for butter of $9,570,000, and, if these cows received proper feed and care they would bring in a gross return of $18,340,000, being a gross loss, because of improper feeding and care, of $8,770,000. I estimate that by an additional $5 worth of the right kind of feed, together with comfortable housing and regularity in feeding and milking, this enormous loss could be saved to our farmers. The $5 worth of extra feed would amount to $2,175,000, which would leave a net increase of over $6,595,000 as compensation for the extra feed and care.

I have in these calculations taken into account only the cows that are contributing milk to creameries, because we know scarcely anything as to what the others are doing. Of those there are some 300,000 in the state, and assuming that they, too, are returning $22 per head less than they would return with good feed and care, we have an additional loss of $5,100,000. In view of these enormous losses because of a want of knowledge of the science of feeding, is it any wonder that I am forced to the conclusion that under present conditions the feeding problem is the most important one that we have to deal with?

The error that our farmers are making is not so much in underfeeding as it is in not providing their cows with the right kind of feed. This fact was very clearly demonstrated in a letter from a dairy farmer stating that he was feeding good millet hay, all they would eat, a bundle of unhusked corn, averaging about ten ears to the bundle, and five pounds of roots. In examining the chemical composition of the food stuffs and the quantity given, we find that the cows were receiving all they could eat.

A cow fed with such a ration is to all external appearance well fed. But when we examine the amount of protein provided by this ration, we find that for a milch cow she is only half fed. Cows require of the group of nutrients known as proteids, from two to two and one-half pounds per day, according to the amount of work they are doing. This ration furnished only .98 of a pound, being only a trifle over what is needed daily for bodily maintenance. An animal weighing 1,000 pounds, kept quiet and comfortably housed, needs .65 of a pound of protein per day for rebuilding the body tissues that break down daily, so there was left available for milk or meat only .33 of a pound of protein, or about enough to make a pound of gain, or to produce the amount of milk required for half a pound of butter daily. This is not an exceptional case, but it is a fair illustration of the almost universal practice among farmers. That such is the case is confirmed by the statistics referred to, which show that the average cow yields only 165 pounds of butter per year. Allowing half a pound a day during 300 days, which is the time ordinary cows are expected to give milk, we have 150 pounds per cow. The 15 pounds additional for which statistics give her credit is made up during the short period in the spring when she is in good pasture.

Great efforts have been made to introduce improved stock among our farmers; so far these efforts have received but little encouragement on their part. Unless they understand the principles of feeding and have acquired the habit of taking proper care of improved strains of live stock, there is little use in placing such in their charge even as a gift. They must first learn how to properly feed and care for common stock before they can expect to do justice to a full blood, which universally requires more skillful handling than does the common animal. Improved stock is made such by skillful breeding and feeding, and if the best representative of its kind is placed in charge of a person lacking knowledge and skill in feeding and breeding, reversion quickly follows and the farmer concludes that after all common stock is best adapted for him.

The first step toward substantial improvements in feeding is to show the enormous and unnecessary losses that our cow owners are annually incurring for want of knowledge on this subject, which will create a desire to learn improved methods. This should be followed by furnishing literature containing tables giving the comparative value of feed stuffs, thair chemical composition, and average content of digestible matter, the uses that are made of the different nutrients, with plain instructions for compounding balanced rations, and best methods of feeding and caring for the herd. This information is needed, not only by every creamery patron, but by every farmer in the state who owns live stock.

The real feeding value of our different kinds of food is little understood by the average farmer. The market prices for the different grains and mill products are based upon supply and demand, and not so much upon their feeding value. Farmers, as a general rule, know that bran is good food for dairy cows; they also know that corn, oats and barley are good, but they do not seem to understand why a mixture of such excellent feed as corn, oats, barley, will not produce as good results as can be secured by feeding bran and oil meal in connection with them. The reason is plain, when the needs of the animal system and the composition of the different kinds of feed are known.

In feed stuffs there are three groups of substances which must be considered in formulating a ration to secure best results. These are known as protein, carbohydrates and fat.

Protein is the name of a group of materials containing nitrogen. On account of the presence of nitrogen this group is sometimes called the nitrogenous group, in opposition to the constituents of feeding stuffs, the carbohydrates, fat and ash, which are non-nitrogenous. The function of protein is to furnish materials for the formation of lean flesh, blood, tendons, nerves, hair, horns, wool, and of the casein and albumen of milk. For the formation of these materials protein is absolutely indispensable. It is important to remember that no substance free from nitrogen can be converted into protein or be used as a substitute for protein. It is, therefore, necessary for an animal to receive a certain amount of protein in order to maintain existence, grow or produce milk.

Carbohydrates are made up of several substances, usually divided into two groups—nitrogen-free extract, including starch, sugar, gums, etc., and crude fiber. Coarse fodders contain large amounts of crude fiber, while most of the concentrates contain little fiber, but are rich in starch and sugar. Carbohydrates are either stored up in the body as fat or are burned in the system to produce heat and energy.

Fat, or the material dissolved from a feeding stuff by ether, and for this reason the group is often designated as ether extract, includes the fats and the green coloring matter of plants. The fat of food is either stored up in the body or burned to furnish heat and energy. As a heat producer a pound of fat is worth as much as 2.25 pounds of carbohydrates. When fat has been multiplied by this factor, the result is called fat equivalent.

A cow, or in fact any mature animal, can use only from five to seven pounds of digestible carbohydrates and fat equivalent to one of protein. If we feed more carbonaceous matter without increasing the protein there will be an abnormal shrinkage in the flow of milk, because the increase will cause the animal to commence laying on fat. If the ratio of protein to carbohydrates and fat equivalent is narrowed down the animal will need more heat than the carbohydrates and fat can supply, and it will consume some of the protein to make up the deficiency. It follows, therefore, that for the best results

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Introduce Milking Jersey Stock
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by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book.",
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Hood Farm Jerseys Bull of Great Butter Inheritance.—Dropped Jan. 2, 1899. Solid colors. Sire, Mint, son of Diploma, the sire of 48 in the list, by Combination, sire of 25. Dam, Tonnage Girl, test, 15 lbs. 1½ oz; milked over 40 lbs in a day; by Diploma, out of Transcript, test, 17 lbs. 7 oz. by Combination. Write fo price. HOOD FARM, Lowell, Mass.

High-Class JERSEYS
The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239-son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
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BULL CALF,
Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8¾ oz., in seven days. He will be sold cheap.
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This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested Above the fever line, so we can ship anywhere.
Some Choicely Bred
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out of great cows and by the best sires for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.


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St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

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Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
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GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
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Two Yearling Bulls FOR SALE out of tested dams. Sired by Maquill's Major 40804, son of Maquilla's Violet, 31 lbs. 1 oz. Will be sold cheap if taken at once. Write for prices to W. R. THOMAS, Bellmore, Ind.

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Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
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Greensburg, Ind.

the two groups of nutrients—protein and carbohydrates—must be fed within the limits stated.

But all our ordinary foods, both in grains and roughage, contain carbohydrates largely in excess of an animal's needs, and mix the grain and roughage grown on the farm as we will, it always follows that we are short in protein or have too much of carbohydrates. In fact, all the nutrients needed by our farm animals are found in all our farm food stuffs in great abundance, except that of protein. In marsh and prairie hay, in timothy, millet, sorghum, fodder corn, stover and straw, there is more digestible carbohydrates than cattle can make use of. The same is true with all our grains. In compounding rations from farm crops we always find it necessary to resort to some mill products, containing a high percentage of protein to make good this shortage, except in cases where clover hay and alfalfa are available.

Since the supply of water, ash, carbohydrates and fat is always in excess of our needs, and being practically as free as water, air and light, it follows that they lose all the commercial value, leaving digestible protein the measure of value of our food stuffs.

A ton of bran costs $10. It contains 238 pounds of water. It would be foolish to place any value on the water when there is plenty of it at home in the well. It contains 116 pounds of ash, 58 pounds of indigestible protein, 1,258 pounds of carbohydrates and 80 pounds of fat. It would be absurd to pay at the rate of $10 per ton for these materials when we have more at home than we have any use for. So the logical conclusion is that the $10 are paid for the 250 pounds of digestible protein. When bran is used in the ration, hay can be fed as roughage, but I cannot make corn stover a part of the ration because it contains too little protein and too much carbohydrates, and in order to be able to feed stover, mill stuffs containing a higher percentage of protein must be purchased, which decreases the value of stover in proportion to the extra amount of protein that must be purchased. Or, in other words, stover is worth as much less as its protein content is less than that in the hay. When no hay is available and stover or corn fodder must be fed, it will be necessary to resort to oil meal.

A ton of oil meal contains 184 pounds of water, 114 pounds of ash, 72 pounds of indigestible protein, 886 pounds of carbohydrates and 158 pounds of ether extract or fat. Surely no sane person would be guilty of buying these substances and paying at the rate of $20 to $25 per ton, when he is already overstocked with them on the farm. So it must be that he is buying the digestible protein, which is the only nutrient lacking. The ton of linseed meal contains 586 pounds of digestible protein, and, since the cost of this nutrition in bran was 4 cents a pound, the value of the ton of oil meal is $23.44, when it contains 29 3 per cent digestible protein, and $22 08 per ton when it contains 27.6 per cent digestible protein. The wider the nutritive ratio of food stuffs the more protein must be bought to balance the ration and the less money value those food stuffs have.

If I find any farm grown feed that contains enough digestible protein so that it will not be necessary to purchase any mill products, then that feed is worth to me as much more per ton as I would have to pay for the difference in protein, if the farm feed contained a lower percentage. Or, in other words, the money value of all the feed stuffs used in the ration depends upon the percentage of digestible protein they contain.

When bran can be purchase for $10 and oil meal for $22, I can afford to pay only 21 cents a bushel for corn, 12 cents for oats, 18 cents for barley, for I can get the only nutriment that I need at these prices in bran and oil meal. If farmers will bear this in mind, they will not feed 35-cent corn, 30-cent barley, or 25-cent oats, when shorts can be purchased for $8, bran for $10 and oil meal for $22 per ton.

Another mistake generally made is in buying shorts for dairy cows instead of bran; presumably because shorts are heavier feed. A ton of shorts contains 236 pounds of water, 92 pounds of ash, 98 pounds of indigestible protein, 1,284 pounds of carbohydrates and 90 pounds of fat. As above stated these substances we have in great abundance on the farm; as the digestible protein is the nutrient needed, it follows that the 200 pounds of digestible protein in the ton of shorts fixes their value, and since we can get it in bran, or oil meal at 4 cents a pound, shorts, when containing 10 per cent of digestible protein, are worth only $8 per ton for dairy cows, when bran is worth $10.

We find the same inconsistency exists in regard to the market price of roughage. Take, for example, timothy hay, and assume that it yields two tons per acre. In two tons there are 136 pounds of digestible protein, which, at 4 cents a pound, amounts to $5.44 worth of protein per acre, making its feeding value $2.71 per ton. This hay sells in our market for from $4 to $8 per ton. An acre of clover will produce about two tons of cured clover hay, containing 304 pounds of digestible protein, which at 4 cents a pound amounts to $12.16 worth of protein, making its feeding value $6.08 per ton. An acre will produce six tons of fodder corn containing 312 pounds of digestible protein, which at 4 cents a pound makes $12.48 worth of protein in six tons of fodder corn worth $2 08 per ton.

In view of these discrepancies between ruling market prices and the actual money value of feeding stuffs, we have for several years disregarded prices of feed and have based our calculations on the cost of digestible protein and have fed it in whatever palatable form we found it the cheapest. It is by this method and partially through the decrease in price of protein that we have reduced the cost of producing a pound of butter from 10.6 cents in 1893 to 5.4 cents in 1897.

The profit in dairying, as in any other business, depends upon the margin between the product and the cost of production, and, it is, therefore, of primary importance to provide feed stuffs at the least cost, and when grain is relatively high it may become necessary to discard our farm grains entirely, sell them, and buy mill feed. This winter we are feeding ten parts of bran to two parts of oil meal, and use fodder corn exclusively for roughage. The standard ration is ten parts of the bran and oil meal mixture, to fifteen parts in weight of the cut fodder corn. The cows are fed all they will eat up clean, but the proportion between the roughage and the grain is always maintained—once and a half as much roughage as grain. The reason cows are fed all they will eat is because we must first provide the food of maintenance and the more they will eat over and above this, the more will they have available for converting into milk and meat. Each cow is fed twice a day; half the grain feed and roughage in the morning, and half in the evening. That generous feeding pays is clearly illustrated in our record for the five years ending December 30, 1897. During the years 1893, 1895, 1896 and 1897 cows were fed all they would take, while during the year 1894 they were fed light.

	Milk.	*Butter.*	*Cost of one lb. Butter.*
1893	6,407	364	10.6 cents.
1894	4.909	271	10.9 "
1895	7,418	352	8.0 "
1896	7,454	349	6.3 "
1897	6,962	351	5 4 "

These are averages of the entire herd and show that during the four years when receiving all they would eat up clean they averaged 354 pounds of butter each, while the average yield for the year 1894, when on comparatively light feed, was only 271 pounds. The cost of production was also the greatest that year. The kind of feed has little, if anything, to do with the yield, so long as they get the required amount of nutrients in the right proportion, and in palatable form. We get as much out of fodder corn as we do out of ensilage, and as much from a pound of protein in bran as we get in any other grain. They give just a trifle more milk when receiving some succulent food, such as roots and ensilage, but practically the same amount of butter or other milk solids. We select the cheapest foods and so mix them that the cow gets one pound of digestible protein to six of carbohydrates and fat equivalent. If we should feed a wider ration, that is, one that contains more carbohydrates and fat equivalent than the amount above stated, she would gradually lay on fat, shrink in milk and failure to breed would likely soon follow. But when the above mentioned nutritive ratio is maintained no such difficulties are encountered.

Our records show that changes in feed during the winter are objectionable, as changes always cause shrinkage in milk. A more uniform flow is maintained by feeding the same ration all winter, if possible. If it becomes necessary to make a change, it should be very gradual, so the system can adjust itself to the variation in bulk, and the muscular action required by the stomach to digest that particular ration.

A daily outing should be given to the herd in a covered run way during cold weather and in the open yard during pleasant days. Sunlight and fresh air are indispensable with a dairy cow, but she should not be compelled to remain outside if she is uncomfortable, as comfort and contentment reduce the amount of food required for bodily maintenance and increase the amount available for dairy products.

Strict uniformity in feeding, regularity in feeding and milking, are just as essential as providing the proper kind of food. Salt and water should be accessible at all times, and the latter should not be at a lower temperature than 60° Fahrenheit, because if the water is colder they will not drink until they become exceedingly thirsty, and then drink more than they should take at a time

Freezene.

ED. HOARD'S DAIRYMAN:—May I say a word in regard to freezene, about which you gave us a good word of warning, April 14? I would like to say that I was given a sample to try by the father(?) of the two enterprising boys that discovered it, (so he claimed) with specific instructions how to use it to get results claimed. I followed these closely for two reasons, first to find if it would do as they claimed, and also to determine whether it would increase the acidity of milk embalmed with it, which he claimed it would not with the acid test taken very carefully. I discovered it increased the acidity of the sample of milk in which I put it, .5 of 1% more than a sample of same milk with no freezine in it, both samples being taken care of in best possible manner, and used exactly alike. I should like to meet the gentlemanly father spoken of above to claim wager made on the two opinions. Hoping you will still keep on with the good work of exposing such frauds and dangerous humbugs,

I am truly yours for dairy improvement.

Fort Wayne, Ind. H. R. H.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
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Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
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McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

We offer you the **Superior Bred** **HOLSTEIN BULL**
Mechtchilde, Sir Tirania 2d.
Dropped Nov. 12, 1898.
He is sired by a son of Tirania, Sir Mechtchilde who sold for $4800 00 His dam, Tirania, won the National Butter Prize in competition with 73 cows from 12 states, and sold for $1500 00. She has a milk record of 91 lbs. in one day, and a butter record of 36 lbs 11 oz. in 7 days, and his sire's dam, Mechtchilde, sold for $2500.00, and has a milk record of 112 lbs. in one day, and a butter record reported at 39 lbs. 10 oz. in 7 days. In his veins also flows the blood of Castine, winner of the International Butter Prize of $1000.00, at Buffalo, and also winning the 30 days state butter test at Ohio, making as a 4 year old, 98 lbs. 10 oz.; also of Onetine, winner of the National milk test at Rotterdam, Holland; also of Mercedes, winner of the Breeder's Gazette Challenge cup 30 days butter test, defeating the celebrated Jersey cow, Mary Ann, of St. Lambert, and producing 99 lbs. 6½ oz. of butter. Her son Jacob sold for $5000.00 and her daughter, Mercedes 3d., sold for $4200 00 when 8 months old. In short, there are 17 cows in his pedigree that average over 100 lbs. of milk in 1 day; 35 cows in his pedigree that average over 90 lbs. of milk in 1 day; 8 cows in his pedigree that average over 30 lbs. of butter in 7 days. If you want him speak quick. Price $65 00. **WISCONSIN LIVE STOCK ASS'N, Appleton, Wis.**

A GREAT RISK
For dairymen is in using as head of their herds cheap bulls. Do you know that the bull is half the herd? You may have a handsome appearing animal, but lacks in that of the most important, breeding. Only inherited dairy qualities breed on. **Valley Mead Farm** has sent out bulls to head the best herds of Holsteins in the country this spring. Thus a fact which goes to prove that the bulls bred at "Valley Mead" have no superiors in the world. A bull costing $100 is one we recommend. Start in now. Organize a company if you can not afford one alone. Address
Valley Mead Farm, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America.
Breeding Stock for Sale. Inspection invited.
L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys.
CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair. 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898.
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis

THE MAN AND THE COW.

Prof. Markham, of San Francisco, poetizes the "Angelus" that celebrated painting by Millet, under the caption, "The Man and The Hoe."

Editor Watson of the Western Creamery, a bright California production, relieves his vexed soul from the annoyance had with half drunken Italian milkers by the following entitled, "The Man and The Cow."

Bowed upon the one-legged stool he sits, his gaze fixed on the pail,
The emptiness of which he seeks to fill with milk commingled with the earth.
Who pays him, thus to sit and stare and draw the milk
With steady pull from short-horn cow, a sister to the steer?
Who brings this milker from his native Alps and garnishes his breath
With wine and leeks to scent the morning air?

What's HOARD'S DAIRYMAN or *Western Creamery* to him?
What cares he if the snowy peaks of Italy or the far western hills
Beyond the Sierras, supply the pigment for red'ning of the nose?
For 'tis the red juice of the grape; sour and to his taste.
All lands and climes are alike to him, and life is one long,
Sweet booze, and milking but an incident.

Invent, O mind and imitative faculty! Build us some inanimate, pulsating thing
Which imitates the hand in milking, less inclination to hold aloft the wine.
Give back to us the lacteal fluid as nature made it in her laboratory,
With due proportion and free from soil and alcoholic beverage.
Milk, earth and wine are good, each in its way, though often spoiled
In combinations which individual men abominate.

The weight of centuries has not bowed us down. Nor are we brothers to the ox
We climb the peaks of song and watch the rift of dawn,
While the reddening of the rose is in our line.
We have no masters, lords and rulers in our land to hold accountable
For immemorial infamies and wrongs. O exile from the Alps!
Thy habits, tastes and customs are not ours, and we're glad of it.

FARM INVESTMENTS.

There lived in Wisconsin, several years since—he has now gone to his reward—one of the grand old stock of American farmers. He was every inch a farmer from the ground up. First, he was a great reader and student of farm literature. Everything he could get that would throw light on the mysterious processes of nature with which he had constantly to deal, he would buy and read.

Second, he was an energetic man of business with a good financial head. He amassed a fortune of $100,000 in 28 years, in straight farming, and never did what might be called a full day's work, owing to physical weakness.

It was always our delight to get into conversation with this man, and draw from him his ideals and standards of farm judgment. He was a powerful reasoner on all farm questions, whether relating to live stock, cultivation of the soil, preservation of fertility, or the more favorite subject with him, of farm *improvements*. On this subject we remember well his observations one day, which were as follows:

"If I go to any of my neighbors who are out of debt, and inquire what is their ideal or ambition in regard to their surplus money, I find it is to loan it to some other farmer, put it out at interest, and own a mortgage on some other man's farm. That is the height of their ambition. I believe this is a great mistake. The effect of it is to skin the farm in the end, to get money to loan. It also lowers the grade of their farm ambition.

The minute a farmer gets to be a money loaner, he ceases to be an enterprising, progressive farmer. A note and mortgage is the end of his ambition.

A much better and broader policy is to loan the surplus money back to the farm. Put it into permanent improvements. There is a field here that needs tile draining; another that needs some money expended in getting rid of rocks and bothersome stones. Better buildings and stables are needed. Some money should be expended each year, in introducing better blood into the horses, cattle, sheep and swine of the farm, so that they are consequently kept on the *up grade*. It is a matter of economy to have the best farm machinery and good sheds to store them in.

Then there is the question of labor. Most farmers are afraid to hire what help they need. Not one in ten goes through the year with help sufficient to do his work well, in the right season, and with the best economy. Consequently he is wasting results at every turn.

A wrong philosophy prevails; it is not based on sound business sense. My idea is that every farmer ought to work for a good bank account, so as to have money enough to lend to the old farm every year, to improve it and make it more productive and profitable. That policy will make the farm rich; it will make the farmer grow larger instead of smaller.

I never yet saw a farmer fail, that put back on the farm, every year, all of its surplus earnings, over and above a reasonable sum for the support of his family.

On the contrary, such farmers are the ones who buy out their neighbors. I love to see a farmer who is a growing man."

Green Feed for Cows.

"Last winter we kept two cows and made only enough butter for home use," said an acquaintance to me recently. "This winter we have only one cow and have made more butter than we could use. We have sold $15 worth since cold weather began."

"That shows the difference there is in cows," I replied, quickly. (Difference in cows is a hobby of mine).

"No it doesn't—not this time," said the man, "for the cow we now have is one of the two we had last winter. It does show something, however, that would have been worth a good deal to me if I had known it twenty years ago. It shows the value of feeding rightly."

"But you have always fed liberally."

"Yes, liberally enough, but not rightly. When I was in the dairy business I put too much faith in grain and other dry feed. Ground feed—a mixture of corn, oats and wheat bran—was my hobby, with plenty of that and a supply of good hay, clover and corn fodder. I thought I could do all that was possible for the cows. Now I've learned differently. This winter our cow has not had an ounce of ground feed. Instead of grain I have given her garden roots, pumpkins and squashes. I had tons of such stuff on hand last fall that I couldn't sell and didn't know what to do with. (You know I did some truck gardening last year.) About that time I came across an article in my farm paper, telling of wonderful results from feeding roots to cows. It sounded like a big yarn, but I thought I would make a trial anyway and get rid of the stuff on hand. Well, I went a little slow at first to get the cow used to the change, but during most of the winter I have given her a twelve-quart pail full three times a day. The result I have already told you."

"People complain of winter churning and say the butter doesn't come," he continued. "But our butter comes now just as easily as it did in summer. And the butter is extra good, too. I tell you, a man can make June butter in midwinter if he will only feed plenty of green stuff to his cows."

The man's conclusions were pretty nearly right. My own experience has been much like his. No one can realize the value of a liberal feeding of root crops to milch cows until he has made a trial of it. However, I would not let the roots take the place of grain altogether, as my friend did, but would give a liberal feeding of both every day.—W. H. JENKINS.

There are two points prominently brought out in the above.

1. The importance of making a study of this feed question, so that we may know how to feed rightly.

With a cow as with a threshing machine, a man can waste results greatly, if he does not know how to feed rightly. It is because HOARD'S DAIRYMAN believes in this that it places such stress upon the balanced ration. It saves waste.

2. The value of succulent food for the cow in winter. Here is where the silo comes in with so much force. It is worth while to think well and long on these two points.

Sample Oleo Fraud.

Customer Given Substitute but Charged for Choicest Butter.

An incident has come to the knowledge of *The Star*, of Washington, D. C., which indicates that imitation butter frauds are still practiced in that city despite all the exposures and the attempts at prosecution. A housekeeper for two years past has been buying at a certain establishment a particular i

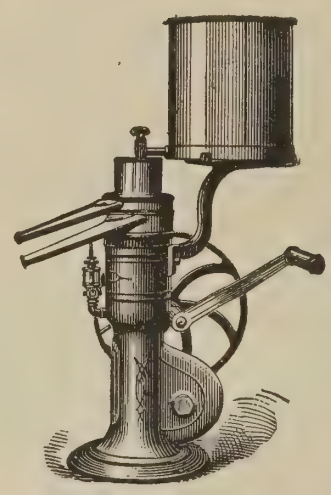
The One Successful Color

IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co.'s Color has the highest standing in the markets. . . .

Wells, Richardson & Co.'s Improved

There is just One Perfect Color and it is

"The Kind That Has No Mud."



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best.
Perfection of Skimming .	The NATIONAL is the Best
Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . . .	The NATIONAL is the Best.
Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
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AMERICAN

Cream Separator



PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**
At The ST. LOUIS FAIR, as the
BEST CREAM SEPARATOR For FARM USE. . . .
Send for Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER, St. Marys, Ont., and
S M. BARRE, Winnepeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y



ROUND SILOS
LABOR 1-2 SAVED.

Also best Horse-power, Thresher, Clover huller, Dog-power, Rye Thresher and Binder, Fanning-mill, Feed-mill, Saw machine (circular and drag), Land-roller Steam engine, Ensilage and fodder-cutter, Shredder, Root-cutter and Corn-sheller.
GEO. D. HARDER, Manufacturer, Cobleskill, N. Y.
☞Please tell what you wish to purchase.



We are the largest manufacturers of steel wheels in America. We will sell you better goods than other concerns. Our prices are right. Wheels any size and width. Four styles of Handy Wagons. Write for catalogue.
HAVANA METAL WHEEL CO.
HAVANA, ILL.

line of what she believed to be pure butter of the best quality. She invariably paid the highest price currently commanded by the choicest butter. She always asked for this same commodity and received it unquestioningly. After many months, something about the "butter" aroused her suspicions, and she submitted a sample of a recently purchased quantity to a chemist, with the immediate result that she was told she had been buying an ordinary grade of oleomargarine. Indignant at the fraud, she went at once to the dealer and protested, whereupon the dealer blandly told her that of course she had been buying imitation butter all the time and that he had supposed she knew what she was getting.

This impudent defiance of the law was the more flagrant because of its frank confession. It is apparent that the purchaser did not know she was getting imitation butter, because she was willingly paying a price that she knew to be at least fifty per cent higher than that usually commanded by oleomargarine. Had she wanted the imitation and bought it, she would have paid the lower sum. Such cases ought to be taken immediately into court and prosecuted. It is unfortunate that the legal processes have thus far been so slow in their punishment of the miscreants who practice this fraud. Aside from any question of the wholesomeness of the fake product, the moral iniquity of the transaction warrants the severest penalties. Housekeepers must evidently be on their guard at all times, for it is plain from the incident just related that the frauds are still in progress —*Chicago Dairy Produce.*

Paraffine in Oleomargarine.

Not content with forcing upon the public an article so strongly in imitation of butter as to become a fraud, some of the manufacturers of oleomargarine are now adulterating their product with paraffine. Slight traces of this substance have been found from time to time, but some of the recent analyses of commercial oleo have shown nearly ten per cent of this wax.

Prof. Geisler, chemist for the metropolitan district of the New York State Agricultural Department, has just completed a very careful analysis of a sample of oleo taken from one of the retail grocery stores of this city by Assistant Commissioner Kracke, and the results of his investigation are astonishing. From a sample of a trifle less than one ounce of oleo there were extracted 40.88 grains of paraffine. This is so close to 10 per cent, that in a 60 pound tub there would be about 6 pounds of this tasteless but exceedingly objecticeable matter.

It is a well known fact that paraffine is absolutely indigestible, that it resists the action of nearly all acids, and that 105 degrees of heat are required to render it liquid. The best medical authorities in the country agree that the introduction of such a substance into the human stomach is dangerous to health, and the laws against the adulteration of food products in that way should be most rigorously enforced.

It is time that the unscrupulous methods of the makers of oleomargarine were more thoroughly aired, and that an unsuspecting public should receive greater protection from this gigantic fraud.—*N. Y. Produce Review*

Fencing the Bull Lot.

ED. HOARD'S DAIRYMAN:—Seeing an inquiry in your issue of May 12th, in regard to fencing the bull lot, I will describe mine. It may benefit someone else if not the one that made the inquiry.

I have a shed on the east side of my barn containing two box stalls, and a yard leading from each stall for two Jersey bulls. The doors are left open except in severe weather, so they go in and out at will.

We went to the woods and cut poles six or eight inches in diameter, and about eight and one-half feet long, put them in the ground two and one-half feet, leaving six feet out. To these posts we wove a three strand, riven, picket fence four feet high. On the inside of the pickets and posts, we stretched five strands of barbed wire, and on the two feet of posts above the pickets, stretched three more strands of barbs making in all, eight strands of barbs. Of course, on the fence dividing the two lots, the barbs would have to be on each side of the pickets, making thirteen strands of barbs on that string of fence.

One of my bulls is very mean, but he never bothers the fence nor tries to get to the other bull. I like this better for myself, than a tight board fence. C. H. H.

New Castle Ind.

GOOD ADVICE TO BREEDERS.

Every man who handles or breeds stock, be it grade or pure bred, should read and consider carefully the introduction to the report of the Kansas Stock Breeders' Association, by Secretary Coburn. He says:

"My little introductory is the result of thirty-three years of acute observation, and is as good as I can write."

And then continues as follows:

The mistake which keeps many a breeder down to or below the plane of mediocrity in business, is his failure to start with the right ideal and stick to it. The active years of any ordinary man's lifetime, are sufficient for his acquiring fame, if not fortune, as a specialist in at least one breed of animals, if he starts right, breeds right and feeds right. Success in its best sense will not, however, be likely to attend him if in that time he often changes breeds or ideals. It is the fixed, determined purpose that will bring him to the desired goal, and without this it is never reached. Bakewell, the Collings, and Cruickshank had it, and their names are revered wherever improved stock is known or appreciated. The man who breeds trotters this year and crosses them with Clydesdales next year, simply because draft horses seem to be in better demand, or breeds his Jersey cows to Hereford bulls, to meet the call for white-faces, will acquire neither honor nor riches. It is a great thing to excel, even with one breed; few men ever permanently succeed with more, and thousands who mean well, try, only to fail, because they are not equal to properly handling any, through lack of the essential genius.

In breeding, as in character-building, a day or a false move may mar what has cost a lifetime or a fortune to make. To the beginner I would say, deliberate long in the selection of a breed and an ideal; having once adopted them, persevere to the end in the work of their better development, regardless of changing fashions or fluctuating markets. In other words, don't scatter and don't wabble.

The breeding highway is strewn with the wrecks of those who had too many purposes and experimented with too many breeds.

Malt Sprouts.

ED. HOARD'S DAIRYMAN:—C. E. B., Denver, Colo., inquires concerning the feeding value of malt sprouts for dairy cows.

This by-product of the brewery is rich in both protein and ash materials, while its carbohydrates run about the same as bran. From a chemical standpoint, therefore, it is a very valuable feeding stuff, while experience shows that cows are not fond of this food and do not readily take to it if given in large quantities. If of good quality and fresh, three or four pounds of the dry sprouts can be used daily per cow. As a rule, they should be soaked in water for several hours before feeding, in order that they may swell up to something near normal size. Where one has a moist feed, like silage, he can mix the sprouts directly with it, and they will absorb moisture from the wet material. One would naturally give a feed rich in carbohydrates, like corn or barley, with the sprouts. A good mixture would be three pounds of malt sprouts, dry weight, two pounds of bran and five pounds of corn meal, with sufficient roughness to make up a liberal allowance.

The manure resulting from feeding malt sprouts is very rich in both potash and phosphoric acid and should be carefully saved for the purpose of improving the soil of the fields. Often one can buy malt sprouts at a cost not exceeding their manurial value. By studying combinations he can induce his cows to eat them in a reasonable quantity, and as the experience of many dairymen show, with good returns for the expenditure.

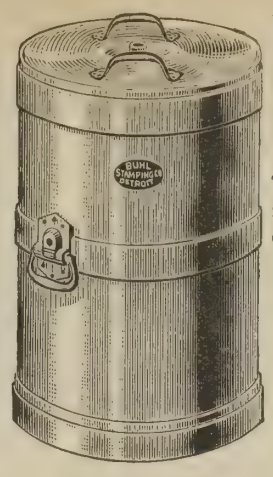
W. A. HENRY.

Wisconsin Agricultural Expt. Station.

For the Cow's Comfort.

ED. HOARD'S DAIRYMAN:—Having noticed the same disposition in my cows as D. H. Otis calls attention to in DAIRYMAN of May 19th, page 271, I have planned for an open shed on a knoll near the barn, and watering place. I shall keep this shed well littered with straw or other waste material. for the porpose of saving manure. There will no small amount of fertility accumulate there during the pasture season. If not cared for it will be almost a total loss. L. A. P.

Hancock Co., Ill.



BUHL CHEESE FACTORY CANS

Excel in Strength, Finish and Durability.

They will not leak or rust, are easy to clean, and keep the milk fresh and pure. The body sheets are the finest imported Cookley K Tinned Steel.

CAPACITY: 15, 20, 30, 40 and 50 Gallons.

AVOID IMITATIONS—All Genuine Buhl Railroad and Factory Cans are stamped with the Milk Can Trademark. Write for our Handbook, "A Study in Milk Cans;"

We Make Prompt Shipment.

THE BUHL STAMPING CO.,
DETROIT, MICH.

Mention HOARD'S DAIRYMAN.



JOHN SHUGART & SON,
Breeders of
Holstein Friesian Cattle.
Also Wholesale and Retail Milk Dealers.

National Military Home, Ind., Mar 21 1899.

Glucose Sugar Refining Co.
Chicago, Ill.

Gentlemen

The Gluten Feed finally got here; It arrived here the 16th, was glad to get it for our cows were failing in their milk every day. They have gained in the last four days to twenty five gallons more per day than they were while we was out of the Gluten Feed.

We think Gluten Feed is second to none as a milk producing feed, it makes more milk and better milk than any other feed we can get.

Yours Respectfully
John Shugart & Son.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery. CHICAGO, ILL.

Every Man Should Test The Butter He Eats.

It takes but a moment of time to do it. Half the butter in the United States is colored with analine dye—a dangerous adulterant. Send to us for material for making the test and we will mail it to you free of charge.

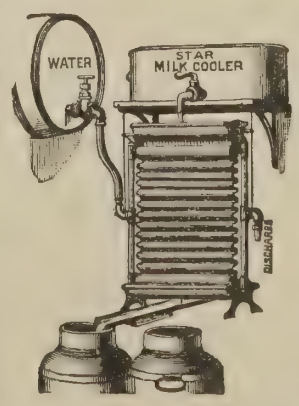
Thatcher's Orange Butter Color

Is pure and good and healthful. It colors the butter the desired tint. It violates no pure food laws. It is made of vegetable substances.

THE DELIGHTFUL JUNE TINT

Is obtained by using Thatcher's Orange Butter Color. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also AERATES.

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

Cedar Hill Jersey Farm Notes.

Rape for Cows—Peas and Corn—Pastures.

ED. HOARD'S DAIRYMAN:—While we have been building the necessary rooms etc., at Cedar Hill farm, our farming operations have not been neglected. We have 25 acres of corn that is just coming up, and was worked over yesterday by our farm manager, with a Hallock weeder. This tool is a new thing with us, but is proving a good thing.

We have a 24 acre field of clover that we are letting stand because we have more plow land now than we can work properly. The stand is a very poor one; if we cut one ton per acre we will do well. This field was dressed with rich manure this spring, but we will have to wait for some other crop to pay us for the work of spreading. Speaking of manure, we have solved the question of how to easily spread it; we use a spreader, which saves a good deal of hard labor, and makes the manure go a great deal farther. Our boys make no kick now when they have manure to move.

Rape for cows! Who among the DAIRYMAN readers have tried it? We have sown several acres as an experiment. Let us hear from those who have used it in their dairy herds.

Peas? Yes, we have sown three acres of them, and then we took our corn planter (2-horse) and planted over the ground sweet corn, by planting two rows, then straddling one of the rows and again planting, making rows about 18 inches apart. As soon as corn and peas are up we will cultivate with our weeder a few times. This crop is for soiling.

Besides this crop we have four acres of sweet corn alone. Stowell's Evergreen is the variety used. This is one case where our father's way of dairying was a valuable lesson to us. No soiling crop has given us the satisfaction that sweet corn has, and the variety named above has always been our choice, as well as our father's before us.

Pastures? O my! After four years in the southern states where tame grasses were almost unknown, we are in a position to fully appreciate the great value of blue grass; our pastures today are waving like ripening grain in the wind, they are so high.

We have self fastening stanchions, but fully one-half of the cows are too full and lazy to spring them by reaching for the feed in their boxes. Our calf crop now numbers 17 head of heifers, all born since March 1st; they are doing nicely, are not allowed green grass while getting milk; they get bright clover hay in its stead. They do better on such feed. BUFF JERSEY.

Butter—Washing, Salting and Packing.

ED. HOARD'S DAIRYMAN:—I notice quite a little discussion of late upon the subject of churning butter to its granular stage—washing, salting and packing the butter at once, without working the butter, or at least reworking it before packing.

The complaint seems to be that it leaves too much brine in the butter. It can be done provided everything is all right, and proper rules followed, but there are many little things pertaining thereto that cause different results from what is anticipated.

Different skimmings of cream when not thoroughly stirred when different creams are added, or the cream is too sour, and quite possibly the new pupil *knows* the finger test is more reliable than the thermometer—if too warm the butter comes soft, runs together, and the granules are not granules.

If the cream is too cold it takes too long to churn it, if too sour it comes in a sort of mushy state and the buttermilk does not separate from the butter, and insists on running out with the buttermilk. Salt and water added with a few revolutions of the churn, will cause the butter to disunite from the buttermilk and float on top.

Salting granular butter in the churn is an entire different process from salting in many other different ways. There is ignorance on the part of many as to salting butter, particularly so, as to salting butter in this manner in the churn, and also as to the so called "brine salting".

It seems to be supposed that putting unsalted butter into a bath of strong brine and letting it remain there a few hours, that the butter will absorb the salt flavor and thereby become salted. This is a great mistake; butter does not absorb salt in the least, in coming in contact with the salted water or brine; it is only salted in proportion as the brine becomes a part of the butter, and that brine so entering the butter and remaining in it as a part of the butter, unites with the water in the butter and the butter is salted just in proportion as the brine becomes diluted with the water already in the butter.

I think it is safe to say that no one who has undertaken to brine-salt butter, has continued the process for the reason that they failed to get the butter salt enough. The fact is, butter does not take salt; it remains in the butter only as brine or undissolved salt. Make fresh butter into balls and immerse them in brine as strong as it can be made, for six months, cut them open and you will find them still fresh.

In trying out lard the heat evaporates the water—put in salt, and on the cooling of the lard, you will find the undissolved salt.

Many insist on taking out the butter, weighing it and adding one ounce of salt to a pound of butter, without a thought of how much water there is in the butter, and assume that as they have been exact, the butter will be salted the same every time. If butter is placed upon the worker, the main part of the water contained in it is soon removed and then the salt sifted on while more working is done; the salt so added mainly remains in the butter. But this is not our case.

We are proposing to churn the cream to granulation, wash it, and let it drain; then we claim that if it has been done right the granules will permit the added salt to mix more evenly through the butter and the moisture in the butter will very soon dissolve off the acute angles of the salt in the butter so as to soon destroy the scouring character of the salt on the grain of the butter, hence we see the desirability of having a salt that will dissolve quick.

After adding the salt and revolving the churn a few times it will be well to allow a little time for the salt to dissolve; then, the churn should be revolved until the butter works into balls, when it will be found that more or less brine has separated from the butter, which can be drawn off.

Assuming we have 15 to 20 pounds of butter at one time, this brine to draw off, maybe a pint or even less, or it may be as much as four quarts. If we have about 15 pounds of butter, that amount of butter would be entitled to about one pint of water to hold the salt and if an ounce of salt had been put in the butter and a pint of brine had come out after salting, about half an ounce of salt to the pound would remain in the butter which would be about right. But if four quarts of brine had come out instead of one pint there would be very little salt left in the butter.

It seems to be conceded that butter is entitled to have twelve per cent of water to remain in it—that this water holds the salt—that salt must not show in the butter undissolved.

I claim that there is no better way to add salt to butter than in the granular state in the churn, but there is no certain means of knowing how much water is left in the butter after all the water has drained out, so that not a drip remains.

If the cream has been churned rather cold the granules will remain quite fine and more water will remain in that will not drain out; or, if churned a little warmer or until the granules are coarser, much less water will remain in the butter after drainage.

If 20 pounds of butter are in the churn in fine granules, the salt added, the churn revolved to mix well—then the churn to rest awhile for the salt to dissolve—then the revolving of the churn continued until the butter has formed into balls, there will be found some four quarts of brine to come out.

On the other hand, if the churning had been continued until the granules were coarse, probably the surplus brine would not have been over one quart or even less. It must be plainly seen that all the water that was in the butter is all salted alike, that which comes out, the same as that which remains in to hold the salt, and if one quart remained in the butter to represent the twelve per cent, and one quart came out, half the salt has come out, that if four quarts came out, three-fourths of the salt has come out, hence the necessity of adding more salt.

It seems to me that the claim of brine salting is untenable, for the twelve per cent of water to remain in the butter can hardly be made salt enough to flavor the butter. If so, why dilute the strength of the salt by adding water to it, before applying it to the butter, when we already have too much water in the butter.

Prof. Farrington gives us valuable information relative to the action of salt on butter, claiming that salt aids in taking the surplus water out of butter. This is clearly correct. For instance, pack a barrel of pork using say fifteen pounds of salt—there is apparently no water visible—if weighted, in a few days we find it covered with brine, without the addition of water; no doubt this is caused by the action of the salt.

Rub a fresh ham with salt and much water soon exudes; salt a green hide, water exudes, runs off, and the hide I think weighs less than it did before salting, although the added salt has gone into the hide, and when made into leather, the leather will weigh more than it would have weighed, had no salt been used.

I do not believe that salt has much of any effect on preserving butter other than aiding to get out the surplus water; that "butter to keep" must be as free from the leaven of decay as possible, or what Prof. Russell denominates bacteria.

All the evidence I can bring to bear on this subject from a long and close study confirms the correctness of Prof. Farrington's late article in the DAIRYMAN.

As to the question of packing butter direct from the churn without working other than that done by packing—yes, it can be done without leaving two quarts of extra brine, provided it is done right, which is mainly to observe the correct temperature, and give the salt a little time to dissolve, and produce its effect on the surplus water in the butter, and solid work is done in packing.

However, I think the novice will do well to pack the butter and let it stand twelve hours, more or less. Then repack in another tub, when the operator may find that two quarts of brine may come out in the operation.

A good lesson in this line is to pack a tub from the churn without working—let it stand in a cool place a few days, then loosen the top hoops, turn the butter out on the cover, and you will quite likely be surprised at your imperfect work in packing. You will no doubt find ragged holes all around, to give ample space to hold that two quarts of brine. F. C. CURTIS.

Some Ideas about Cows.

A General-Purpose Sample.

ED. HOARD'S DAIRYMAN:—While I do not believe in a general-purpose animal of any kind, the repeated arguments wear on one until he unconsciously takes some "stock" in them, and when I found a large cow that "looked" right, I began to investigate.

I was attending an institute in New York and her owner invited me to supper and to see a cow "as was a cow". One-half Holstein, one-quarter Durham, and one-quarter native—milk, beef, hardiness and appetite all in one. Weight 1,200 pounds, color mixed gray and black, dairy type and beef form, milk record 50 pounds per day, 50 pounds butter in 28 days, milk testing when fresh 4½%. One calf sold for $48 at 18 months, for beef; another sold for $35 at 9 months, for breeding. She had been bred to a prize winning Short-horn. What more could one ask or expect?

I bought her and Friday afternoon started to lead her home. This paragon was gentle and could be led with a tow string.

Arriving at the ferry, the wind blew so I could not cross, and an old man invited me to go and see "some good stock." I would rather had him "enthuse" over *my cow*, but it was of no use. At his barn I found four head of full blood Short-horns, three steers and a four-year-old cow. The corn stalks were four feet deep in the yard. The steers were fat as mud, and the cow not much less. She would apparently give three quarts of milk at a milking.

"What good are they?" "The cow raises the calves, and at 2 years I sell them for beef."

"But beef does not pay, will not sell for enough to pay for the feed. Butchers will not pay a cent more than the price of western beef at the store house" I urged. "Yes it does! I make double, keep the feed on the farm, and only have the labor of feeding".

I got out my pencil and paper and after considerable urging got him to state how much grain he fed per day, and weight of hay and stalks, for one side, and the weight and price of beef for the other. When it was all figured out, the balance showed he was losing his labor and $5.00 on each animal, providing the cow gave milk enough to pay her keep.

He was as much astonished at the result as I was, and was as mad as a hornet in a minute. You see he liked to be noted as producing the finest cattle in the town, and it *hurt his pride*, to find it cost more than it come to. He was well off and had not been obliged to figure cost.

You "fellers" that figure are fools, was his parting shot, as I gracefully(?) withdrew. I thought more of my cow than ever.

On my way home, I arrived at friend Ferris' farm and was invited to rest my weary legs and "elephant". "Where *did* you get that?" he inquired. He keeps registered Jerseys and they did look small to me. I was tired and his question did not sound so funny as it would sometimes, when one was in a different mood, and I proceeded to explain, but it was no use. I have noticed that about Jersey breeders before. In vain I told him she would give more milk than two of his, raise a bigger veal, feed more pigs and bring more for beef when played out.

He replied, "I do not want to lug two pails of milk to get a fair yield of butter; do not want to raise a calf which will not sell for over $8.00 at 4 months, and could not afford

Jersey Bull Calf for Sale

Eight months old. Solid color. Perfect dairy form. Sire, Ida's Rioter of St. Lambert Jr. A 75 per cent son of old Ida's Rioter, out of a granddaughter of Matilda 4th. Dam of Stoke Pogis stock. She has given 38 pounds of milk per day testing 6 per cent Babcock. $30.00 gets this calf crated, registered, f. o. b. Adrian Nearly ready for service. **J. W. HELME, Adrain, Mich.**

FOR SALE Improved Farms near churches, schools, good market, healthy climate, rich prairie land, sure crops, good buildings, good water, and good neighbors. For particulars write to F. C GREENE, Real Estate, and Justice of the Peace, Renville, Minnesota.

HOMES FOR THE HOMELESS.

Texas Texas Texas

The cheapest homes, the lowest taxes, the best free schools, the finest farming land, and best cattle, sheep, hog and horse country in the United States. **Twenty Million Acres** of public free school land on the market at $1.00 per acre on 40 years' time.

Now or Never! Now or Never!

Send $1.00 at once to the undersigned for a copy of his new book stating all about these lands and how to buy them. It will be worth $1000 to you. If you have not the money now, cut this ad out and send for book later. **CHAS, P. SCRIVENER,** Special School Land Agent, Late State Compiling Draughtsman, **Austin, Tex.**

References:—Hon. Jas. H. Reagan, Railroad Commissioner. Hon. E. P. Wilmot, Pres. Austin Nat'l Bank. Hon. A. S. Burleson, Congressman.

BINDER TWINE BLUE LABEL BRAND

...MANILA...	STANDARD	.... SISAL ....
9 1/2c PER POUND	8 3/4c PER POUND	8 3/4c PER POUND

Above prices are for twine on cars at Chicago or St. Paul. If shipped from Omaha, ¼c per pound higher. We have complete stocks in Chicago, Omaha and St. Paul, and can make shipment twenty-four hours after we receive the order. All orders must be sent to us at Chicago. Prices quoted are net cash with order. No discount allowed. Put up in sixty-pound sacks, which we cannot break. We guarantee these prices until June 25; after that you may have to pay more, so do not delay ordering. MONTGOMERY WARD & CO., Chicago.

to feed double the grain, which the big cow requires for the skim milk. My cows make more butter than she will, of better quality and it will sell for more. My dairy averaged over 300 pounds of butter per cow, none was sold for less than 20 cents per pound, and I fed but little except ensilage and bran."

His arguments were heated with facts, but I smiled at his "bigoted notions" after I had gone on a ways.

In course of time she dropped a big, raw boned bull calf, which required nearly a pail full of milk to keep him from bawling for more. He did not grow a pound faster per day, than our grade Jerseys, which required only a few quarts. I was glad to let another "one like me" fellow have him, as the price of veal is not "extravagant" now

The cow gave a nice mess, but on the Jersey amount of food, did not seem to gain. Her ration was increased, and she proved better.

The butter was white, or rather light colored, and required coloring. When the warm spell came, the butter melted in the jar and nearly required a spoon. Wife remarked, with emphasis, "I hate such butter. What ails it? We cannot send this to our customers. Say, your new cow is making this trouble."

I felt down in the mouth, and to encourage myself, went out to the pasture to look at her. She was a handsome cow. That big udder (for the scoopshovel full of grain, and the grass had done the work) was cheering, and I felt better.

Our pastures are flat and soft. As I drove her toward the barn, I noticed her big foot cut a hole in the sod, which did not argue well for future feed.

Her big udder swung back and forth, weight enough to break a back, and mopped up mud from her legs and the ground, when she sunk in too much.

She waddled through as graceful as a traction engine in the mud, and I washed her pretty much all over before I could milk. My wrists ached when I had drawn 25 pounds of milk, but I took pleasure in the big mess, for a few minutes, till I remembered the style of the butter.

The more I studied the subject, the less I believed in general-purpose cows, and I finally came to the conclusion she was intended for a dairyman who was selling milk by the hundred. The man who was feeding for beef would not have her; the butter man would not have her; the woman with private customers would not have her; I would not dig her out and wash her; so the milk shipper got her. She belongs in that tribe.

Moral. Study your surroundings. Buy the cow bred for your business.

Peruville, N. Y. C. E. CHAPMAN.

Skim Milk Calves.

[Press Bulletin.]

Allow the calf with the fresh cow four or five days. This gives the calf a vigorous start and aids in reducing any inflammation in the udder of the cow. Wean by feeding 10 pounds (1 quart equals about 2 pounds) whole milk daily in three feeds, and gradually increase the amount to 12 or 14 pounds, always weighing or measuring each feed. More calves are lost by overfeeding than for any other reason. When two weeks old the calf may be changed to skim milk, but not faster than a pound a day, i. e., the first day give 11 pounds of whole milk and 1 pound of skim milk, the second day 10 pounds whole milk, 2 pounds skim milk, and so on until the change is complete. The amount of skim milk may be increased gradually, but not to exceed 18 to 20 pounds daily per head. Flax seed gruel may be added to replace the butter fat. This is made by mixing ground flaxseed in cold water, adding boiling water and allowing to steam a few hours with cover on the pail. A teaspoonful of this gruel is enough at first, but this may be increased gradually to one-half pound of the meal daily per head. Flax seed is better than linseed meal since the oil is needed to replace the butter fat. Blachford's meal is an excellent calf feed and may be used the same as flax seed. The College recently started an experiment with calves, feeding part on fresh skim milk from the hand separator and part on sterilized creamery skim milk, and at the same time is testing the value of flax seed meal and Blachford's meal for calves, against skim milk alone. All the calves are allowed what kafir corn meal, hay and green alfalfa they will eat. The results are being watched with great interest.

Calf milk must always be fed blood warm, 95 to 100 degrees F., and a careful feeder will occasionally test the temperature with a thermometer. Skim milk not used when separated may be cooled and rewarmed when fed. Sterilizing creamery skim milk greatly increases its value for calves by enabling the farmer to keep it sweet until the following morning. At the College we keep sterilized creamery skim milk sweet from Saturday until Monday morning by cooling to between 56 and 60 degrees F., the temperature of well water. Sweet milk at one meal and sour at the next, causes scours, and seriously checks the growth of the calf. Sterilizing skim milk has an additional advantage in that the heating helps to prevent scours.

Calves will begin to eat meal when ten days to two weeks old. Put a little in their mouths after feeding the milk, and they will soon eat from the feed boxes with a relish. Never mix the grain with the milk. We find kafir corn meal an excellent grain for calves. It is constipating and checks the tendency to scours. Our calves that average eight weeks of age consume two pounds daily per head. As the calves grow older and eat more grain the kafir corn may be mixed with oats, bran or oil meal.

Calves will nibble at hay about the time they begin to eat grain. Mixed or prairie hay is good; alfalfa or clover is better. Our calves have been eating about one pound daily per head of mixed hay. Before turning on pasture in the spring it is well to feed some green feed which may be increased gradually until calves get all they will eat. A sudden change to pasture is apt to produce scours.

Calves can be prevented from sucking each other's ears and mouths by leaving them tied separately for a half hour after feeding. Calf buckets may be kept clean by rinsing and scalding after using. Calves need clean fresh water and salt.

To summarize, warm, sweet milk, fed in clean buckets, supplemented with a little ground flax seed or Blachford's meal, with access to corn or kafir corn meal, bright hay, fresh, clean water, salt, plenty of sunlight, shelter and bedding in cold weather, shade in summer, and regularity and kindness in treatment will usually insure good thrifty calves that will gain from 1½ to 2 pounds daily.—Kansas Experiment Station.

Put Money In Their Pockets.

ED. HOARD'S DAIRYMAN:—We like your paper very much. We got some ideas on feeding rations this last spring which put money in our pockets for which please accept our thanks. KNAPP & PIERCE.

East Claridon, Ohio.

How true is it, as the old proverb runs, "That unto him that seeketh light shall light come." It is the men who want knowledge, that find knowledge.

CONCERNING OUR ADVERTISERS.

BALL BEARINGS ON THE FARM.

It is probably a safe prediction that all manufacturers of harvesting machinery will eventually adopt ball bearings wherever it is possible to use them. In 1891 the Deering Harvester Company, of Chicago, equipped all their machines with ball and roller bearings, and the great popularity of the idea led other manufacturers to experiment with several styles of roller bearings, hoping to apply them to their machines without appearing to imitate the originators too closely. The application of ball bearings is more costly, but popular demand will yet force all competitors to follow the lead of the Deering Company.

The attention of our readers is called to the advertisement of Mr. Chas. P. Scrivener of Austin, Texas, Special School Land Agent, which is certain to interest everyone who is without a home, and who wishes to secure one in a mild climate where every branch of agriculture and stock raising can be engaged in. Texas is attracting wide attention, and the fact that her legislature now in session has just passed an act in accordance with the decision of the Supreme Court of Texas, placing the entire Public Domain of that great state on the market at $1.00 per acre on 40 years' time at 3 per cent interest, is certainly an excellent opportunity for the securing of cheap homes. Mr. Scrivener's book will give you full information in regard to the resources of Texas, and the character of land in the various sections of the state, and will also contain full text of the law regulating the sales of school land, together with a copy of the present act of Legislature and a map of Texas by counties.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¾ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

IUJURY FROM BITE.

My colt was bitten last year about May 1st, it took me about three months to heal it up, stayed well until this April when it broke out some just as before, runs a yellow matter all around leg from hoof up to first joint but swells up to hock joint. She fattens very fast when this heals, and falls away very fast when it breaks and runs. She is two years old. J. K.

Enterprise, Miss.

ANSWER.

You don't say how or by what the colt was bitten. Chloride of lime 2 drams, oak bark tea, strong, 8 ounces, mix and sponge the leg affected 12 to 20 times a day for 2 days only. Don't use any more of the chloride of lime solution, but instead, keep wet with the strong oak bark tea 1 quart, acetic acid 4 ounces. Soak a 12 foot, strong, unbleached cotton bandage and wrap around the swelled leg evenly. Let it overlap just one-half over the other. If it causes much pain, remove every once in a while and replace, keep it wet with the solution. Give good exercise daily.

CLOSED TEATS.

We have a two-year-old heifer that has come in and both of her front teats are entirely closed, no milk runs out of the quarter into the teats. Also one hind teat that the milk comes out of the quarter into the teat very slowly. Would she be liable to be all right at the next calving.

We have two more that have trouble with their udders One has two quarters that let the milk down very slowly, and the other has a teat with an obstruction about midway. Can get milk with a tube, but it gets inflamed sometimes. K. & P.

East Claridon, Ohio.

ANSWER.

First. I don't know of anything to be likely to help this case but some form of bistoury. See ads. in the DAIRYMAN. I think she may come all right as the next calving.

Second. Can't say just what to do; but milk patiently and gently, using gentle, long continued massage, daily.

Third. You need an easy milk tube. You need a dilating plug to permanently dilate the channel of the teat.

BULL WITH COUGH.

I have a bull that has been troubled with a cough, for the last eighteen months. About thirteen months ago a lump gathered in his throat and broke; it contained about a pint of matter. The sore healed at once and never bothered him again. Could it be tuberculosis? The bull is fat; no discharge of any kind. C. R.

Spanaway, Wash.

ANSWER.

No, it is not tuberculosis. Find the exact spot where the lump formed, then cut off the hair close, and then apply Gombaults Caustic Balsam; rub in the first application, then apply with a thumb sized paint brush, until you have a good sure blister, then cover daily with hog's lard until all the scabs are off, then repeat the treatment. Do all this in a thorough, systematic way and you will be likely to make a permanent cure.

SWELLING IN UDDER.

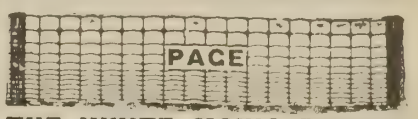
Have a Jersey cow with right side of udder swelled and caked hard. Gives bloody milk from right fore teat when first beginning to milk, also some lumps at first. Limps on right foot and appears sore in that section of udder. Have been rubbing udder with liniment and put bran poultices on udder, but does no good. D. M. B.

Bonham, Texas.

ANSWER.

Immediately full dose of physic and repeat once or twice. This is your chief reliance for a cure. Each morning give two, only, teaspoonfulls of nitre for ten to twenty days. Rub the swelled udder with strong camphorated spirits six parts, common turpentine two, only, parts. Rub hard the first time and repeat in the evening. Rub once a day after this for three to five days, until not needed. The physic is your surety for recovery.

WHO IS TO BLAME. Women as well as men are made miserable by kidney and bladder trouble. Dr. Kilmer's Swamp-Root the great kidney remedy promptly cures. At druggists in fifty cent and dollar sizes. You may have a sample bottle by mail free, also pamphlet telling all about it and its wonderful cures.
Address, Dr. Kilmer & Co., Binghamton, N. Y.



THE WHITE MAN'S BURDEN
of responsibility to the fence question is discharged to the extent that the Page is introduced. Have you taken it up?
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

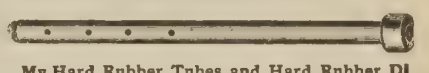
CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS, 220 E. Preston Street, Baltimore, Md.

ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

ANTIABORSIO.
WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.
Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs
Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. These are established facts, not experiments.
Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.
Send for free booklet and testimonials
Animal Germicide Co., 319 Washington St., N. Y.

Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS
(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
Dr. WM. HORNE, Janesville, Wis.

Volume XXIX of Hoard's Dairyman
Just closed. If every reader had had a Binder and now had the complete volume with index bound, its value would be increased greatly.
Get a Binder
now for the present volume and preserve the copies in handy form for reference and reading.
BINDER BY MAIL POSTPAID, 75 CENTS

Butter—Churning and Working.

ED. HOARD'S DAIRYMAN:—In your valuable issue of May 12th, W. C. Rockwood gives E. J. T. good advice about working butter in churn, a method which I have followed for years. I like to churn at as low a temperature as possible—to get butter in thirty to forty minutes—and wash in water at about 50°. If the room was very cold, this might be too low.

I have discarded the use of the fork entirely. Turn churn from side to side to expose fresh granules, when sifting on salt, till it is all added, put on cover and revolve twice very slowly, and let it stand five or ten minutes. After revolving churn a few times draw off what little brine there is, for when the granules are small and firm they will not unite without an undue amount of working, if there is much brine in the churn. Draw off brine three or four times. In three competitive tests my butter has scored perfect in grain, salt, color and package. Am sorry I can't say the same regarding flavor. I never use any coloring, for my cows are pure bred Guernseys. A. H. KELLOGG.

Washington.

Grade Jersey Records.

ED. HOARD'S DAIRYMAN:—I enclose a clipping from the *Waupaca Post*. It is just what I am doing and have done through the aid of your paper and hope to do better still in the future, as I am just getting fairly started on the road to success. My cows are all grades with ages from 2 to 6 years old. I will just mention what they did in 90 days, from Jan. 1st, '99 to March 31st, '99.

From an average of 12 in number, we churned and sold 1,342.3 lbs. of butter, netting us at the creamery $216.81.

Waupaca Co., Wis. THEO. A. BAUER.

The champion cow in the herd of Chas. Bauer & Son, in seven months and ten days, produced 6,466 pounds of milk, 362.54 pounds of butter, which was received at the creamery and netted them the handsome sum of $60 35. Age 6 years.

Second best cow in one month and twelve days, gave 1,684 pounds of milk, 82 50 pounds of butter, netting $13 30. Age 5 years.

Third best cow gave in three months and ten days, 2,982 pounds milk, 168.43 pounds of butter, netting $27.22. Age 5 years.

Fourth best cow gave in three months and nineteen days, 3,024 pounds of milk, 165.46 pounds of butter, netting $27.10. Age 5 years.

Fifth best cow gave in three months and one day, 3,145 pounds of milk, 142 23 pounds of butter, netting $23.08. Age 4 years.

Sixth best cow gave in three months and seven days, 3,050 pounds of milk, 139.62 pounds of butter, netting $22.60. Age 4 years.

The milk is weighed twice a day at the barn and recorded. About the middle of each month samples are taken of two or more milkings, and tested by the Babcock test for butter fat, from each cow separately, and at the end of each month is figured by the amount of milk given by each cow, one-sixth being added for overrun. Cash is figured at Weyauwega creamery, prices ending March 31, 1899.

We wish to say to those who do not claim to know all about the management of cows and their product, to subscribe for and study HOARD'S DAIRYMAN, a weekly paper for the sum of one dollar a year. It is the best dairy paper in America, as it teaches how to weed, breed, feed, and handle dairy cows for profit, and if its teaching is put in practice, success must surely follow. B.

Concerning Food Adulterations.

The New York *Tribune* has espoused the cause of pure food reformation. It thinks that the evils of the army food controversy may carry with them some benefit to the people; says that the controversy has directed much needed attention to the quality of the food put on the general market, and that large quantities of canned and preserved goods are treated with injurious substances—expensive products being not infrequently stretched out with cheap adulterants. Filled cheese is an article that has discredited abroad the legitimate products of the American dairy, and, like oleo, is doubtless still imposed on Americans at home. Preparations are used to increase the natural yield of butter from milk, which really do nothing but produce curd to mix with the butter fat, thereby fraudulently adulterating it. In one of the leading trade journals of the meat-packing industries are several advertisements of chemicals for preserving meats. Of one liquid it is announced that "it cannot be detected." Another notice tells us that, "the preserving of meats demands modern methods" and offers to supply boracic acid to packers from New York, Chicago and San Francisco. There must be a demand for this modern method of preserving which gives business enough to a company to support three houses. In the same paper we are informed that "perfection in curing meats is attained by" a proprietary article whose name, the *Tribune* says, suggests embalming fluid. A study of agricultural journals will discover other chemical preparations made for use in fruit, vegetables and meats. Disguised creosote is offered to save ham smoking; salicylic acid under cover for canning corn and keeping cider. Hundreds of nostrums are on the market, and their owners seem to make a living out of them. It is evident that they are largely used, and the result is that innocent purchasers of food are imposed upon by goods secretly treated. The man who buys a ham painted with chemicals believing that it has been cured by smoke, is cheated, and so is the man who buys what he supposes is pure butter, but is really part curded caseine. Some time ago the Agricultural Department made an exhaustive examination of the canned fruit and vegetables found in our markets, and the result was a most disquieting report. Salicylic acid, lead, copper salts, sulphuric acid and other deleterious substances were found in the most expensive as well as the cheapest grades of goods. "Firms of high repute, both at home and abroad, used them, and it seemed impossible for a private consumer to secure pure canned goods with any certainty." Corn, peas, French beans, baked beans, pickles, and a dozen other things showed more of adulteration than of purity. Whenever attempts are made to take really effective measures to stop the adulteration, certain canners object. First they say they never use such things. Yet such things are found in their products. Then they proclaim the necessity of using some harmless antiseptic to preserve certain vegetables without destroying their flavor by over cooking. Nevertheless no manufacturer would admit that any particular goods of his were so preserved. If he did he would not sell them. The Department of Agriculture says: "Dosing of food with cheap antiseptics sav s time and trouble, and enables the canner to be quite certain of the keeping qualities of his goods, no matter in how slovenly or sloppy a manner his work may have been conducted. For this reason antiseptics are daily growing in favor among the preservers."

The *Tribune* prints some facts concerning the Pure Food laws of New York, and the difficulties in guarding against adulteration are pointed out. One of the most serious is the argument against injuring industry, the same that was some time ago brought up against going to the bottom of the army beef charges and proving or disproving them. It is urged that too strict regulations in New York would injure local canners at the expense of Westerners; that any exposure of their adulterations would discredit local goods in the West and American goods in general abroad. Of course, the answer is that dishonest canners have no right to such consideration. If their chemicals are harmless, let them use them openly. If they do not use them, they are all right, and need not fear laws which they do not break. The Brosius Pure Food and Drug Bill will not be passed by the present Congress. It should not be unless honest tradesmen, whether engaged in the wholesale or retail business, should be safe-guarded, as *The New Jersey Trade Review* has pointed out. Indeed, one of the most prominent promoters of the Pure Food and Drug Congress remarked to us the other day: "The amendments suggested by you are essential; and, before the Bill is passed, its promoters must accept them."—*The New Jersey Trade Review*.

Transfers of Guernsey Cattle from May 1 to 15, 1899.

BULLS.

Alphonso of Lanesboro 5980, George Mixter to F. D. Deming, Lanesboro, Mass.
August V. 5924, John Barth to Charles Solverson, Nashotah, Wis.
Brutus of Somerset 5982, E. O. Denton to James Van Stone, Oak Orchard, N. Y.
Carroll 5699, H. McK. Twombly to R. M. Smiley, Middletown, N. Y.
Dick K. 5537, Franklin S. Kendall to Goodman Bros., Fort Ann, N. Y.
Duke Maximilian of Vlomans Kill 5683, Baltice Meed to F. W. Bauder, Fort Plain, N. Y.
Fitzhugh Lee 5600, Thomas E. Brooks to John K. Costill, Quinton, N. J.
Fidelety's Prince 5983, Mrs. E B. Patterson to E. W. Murphy, Fairville, Pa.
Hillsboro 5465, G. G. Hitchcock to A. T. Newman, Union Center, Wis.
Hawthorne of Ellerslie 5730, L. P. Morton to Robert and Herbert Scoville, Chapinville, Conn.
Herbert H. 3573, John G. Mobley to Wm. F. Claussen, Cloussen, S. C.
John Nolan 5801, A. J. Snyder to A Mitchell, Wells, Vt.
Leo Prestige 4877, F. W. Tratt to Wm. Voegli, Gordon, Wis.
Linnie's Greg 5797, M. D. Cunningham to Poster Bros., Wright City, Mo.
Montrel 5976, George Campbell to Jacob Lorillard Jr., Mount Holly, N J.
Nano's Pride 5758, H. E. Peterson to J. F. Buker, Bowdoin Center. Me
Pedro of Orange 5985, J. P. Welsh to J. A. Tagert, East Greenville, Pa.
Prince of Levin 5857, Henry M. Kra'z to A. J. Snyder, Plumsteadville, Pa.
Sunset Tough 5979, Mark Hughes to B. P. Hoopes, Toughkenamon, Pa.
Sunset Tough 5979 B. P. Hoopes to Henry Palmer, Avondale, Pa
Sir Fern 5519, C. O. Potter to DeWitt Slade, Franklin, N. Y.
St. Nicholas 4020, J. P. Welsh to S. R. Bradley, Nyack, N. Y.
Sunset Slidey 5987, Henry Palmer to J. P. Jackson, New London, Pa.
Senator M. 5988, R. C. Young to G. A. Seager, Brandon, Vt.
Imp. Trial 5704, H. McK. Twombly to James H. Webb, Hanover, Conn.
Wakefield 5989, Alston W. Knowles to Town Farm South Kingston, R. I.

COWS.

Arzelia 11612, Geo. E. Barnard to Edgar B. Lord, West Lebanon, N. H.
Annaca 8991 and Cynthia of Riverside 10114, M. H. Olin to J M. Duncan, Silver Springs, N Y.
Belle of Gilboa 11632, Henry A. Parr to Albert Jones, Mount Airy, Md.
Briar of The Glen 10196, Dandelion of The Glen 10198, Dorothy of The Glen 10141, Ecstasy 7309, Glenora 7286, Golden Rod of The Glen 10195, Justine 10194, Noisette of the Glen 19140, H. A. C. Taylor to H. McK. Twombly, Madison, N. J.
Imp. Bonnie Femme 4th 10915, Briar of The Glen 10196, Goldenrod of The Glen 10195, H. McK. Twombly to Robert & Herbert Scoville, Chapinville, Conn.
Columbia of Norway 10615, Early Dew 10616, C. W. Miller to J. P Welsh, Bloomsburg, Pa.
Countess of Level Green 4198, Erin 2nd's Fill Pail 6090, Hutzle Bean of Riverside 10232, M. H. Olin to E. J. Abbott, Perry, N. Y.
Colonial Dame 9878, Florham Lady 9809, H. McK. Twombly to Augustin H. Parker, Southville, Mass.
D. D. D. Dolly 10837, Dolly D. 8210, Polly Q. 6699, A. A. Oakes to Wm. Rankin, Brockton, Mass.
Eglantine 2nd 9132 Christ. Muth to Chas. Solveson Nashotah, Wis.
Gurama 10010, The Duchess Ava 11629, L. P. Morton to Robert and Herbert Scoville, Chapinville, Conn.
Gertrude N. 11535, Louise B. 11534, John Barth to Chas. Solveson, Nashotah, Wis.
Hopeful Maid 11649, Clayton C. Taylor to W. J. and C. G Morton, Morton Corners, N. Y.
Ida of Ellerslie 11598, Isadora 11611, Lady Marion of Ellerslie 10632, L. P. Morton to James B. Councilman, Mount Wilson, Md.
Papanti's Coquette 10393 Sweetheart's Doll 10394, W. E. C. Eustis to T. Jefferson Coolidge, Boston, Mass.
Riverside's Lottie 11617, James Forsyth to R. W. Beardsley, Warrenham, Pa.
Rosebud's Juno 9577, J. P. Welch to Mrs. H. Hayward, State College, Pa.
Riverside's Mercedes 11639, James Forsyth to Andrew B. Sill, Middletown, O
True Type's Lotta 11192, Trefoil's Last 11383, Ezra Michener to Henry P. McKean, Penllyn, Pa. WM. H. CALDWELL.
Peterboro, N. H.

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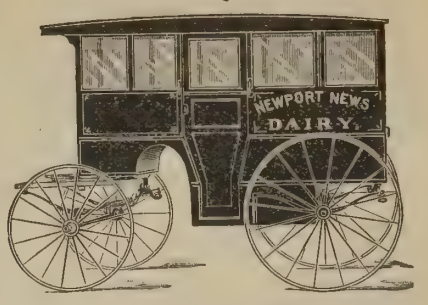


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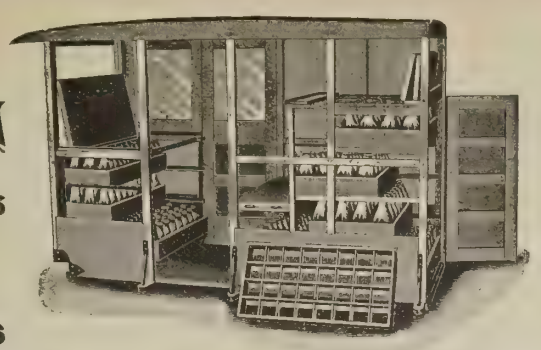
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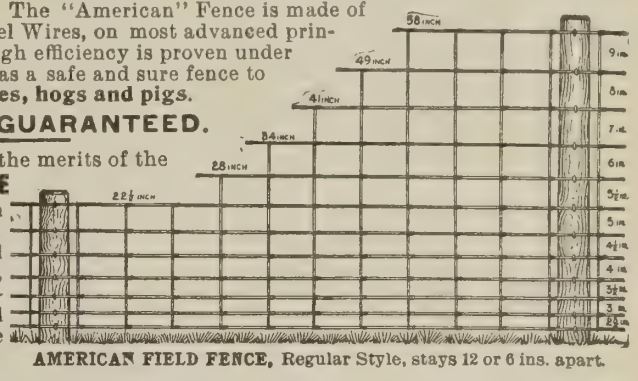
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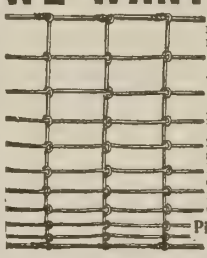
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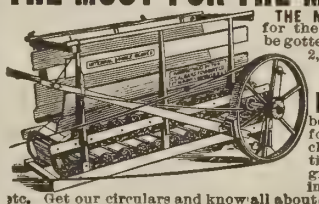
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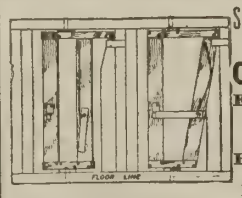


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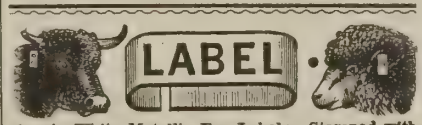
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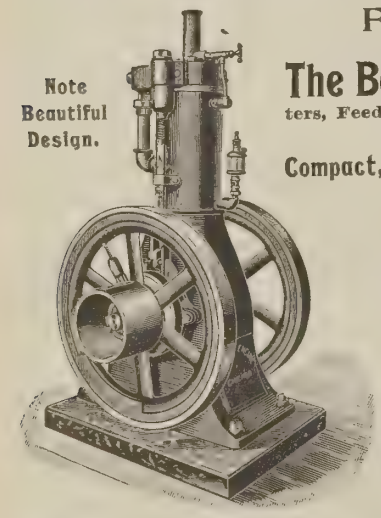
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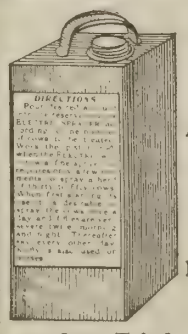
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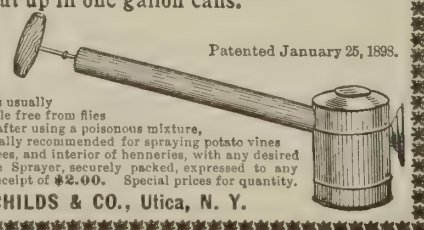
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Throws a very fine spray of any of the liquids and mixtures usually used for destroying insects, bugs, etc., and for keeping cattle free from flies during the summer weather. Can be thoroughly cleaned after using a poisonous mixture, which is conveniently done by removing the cover. Especially recommended for spraying potato vines with Paris green, also all kinds of plants, bushes, vines, trees, and interior of henneries, with any desired formula. Sample Lot—One gallon can **KILFLY** and one Sprayer, securely packed, expressed to any address (except in State of Maine) charges prepaid, upon receipt of **$2.00.** Special prices for quantity.

Agents Wanted Everywhere. **CHAS. H. CHILDS & CO., Utica, N. Y.**

KEYSTONE QUICK HAYING MACHINES.



Keystone Side-Delivery Rake *means "Quick Haying, Quality Prime."* Turns the hay completely and leaves it in a light, loose windrow ready for loader. Its use means **air cured,** not sun bleached hay. **Better than a Sulky Rake and saves use of tedder.**

Rakes wide, fast and clean

Takes up no trash, that means clean hay.

Keystone Hay Loader.

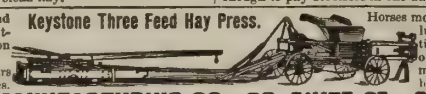


Loads the hay from the windrow or cock, or direct from the ground if the hay is heavy. Takes the hay up clean but takes up no manure, rubbish, &c. **It makes haying quick and easy.** In showery weather it often saves enough to pay for itself in one day. Loads a wagon in 5 minutes.

Made entirely of steel and iron. Horse power only. Mounted on steel wheels, and stands on the wheels when operating.

Write for our special circulars fully describing these machines.

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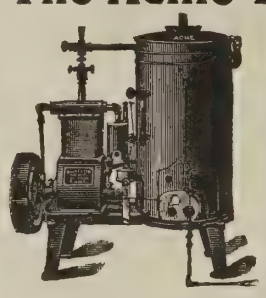


Horses move in a full circle. Each revolution moves the plunger three times—**one more feed than any other press made.** Requires no more men but increases capacity beyond comparison.

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ON THE MARKET TEN YEARS.

The Acme Engine



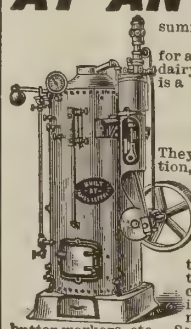
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1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to Rochester Machine Tool Works

No. 9, Center St., Rochester, New York.

AT ANY TIME—



summer time or winter time, the **BEST POWER** for all purposes on the farm, in the dairy, creamery or cheese factory, is a

LEFFEL ENGINE.

They are very simple in construction, and easy to run and keep in order. Are very economic of fuel, are easy steamers and **great power developers.** They are made both horizontal and upright with engine mounted on boiler. Everything is made of best material throughout. They are ideal for cutting and grinding feed, sawing wood, pumping water, running cream separators, churns, butter workers, etc. Send stamp for **Book on Power.**

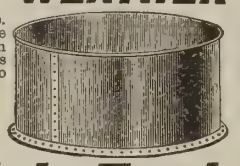
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Our engines combine simplicity with great durability and medium price. Descriptive matter and terms for the asking. **N. DIRIGO ENGINE WORKS, Portland, Me.**

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will soon be here. That will start the hoops on all wooden tanks and hundreds of them will "fall to staves."



If you buy an

Electric Tank

You will always have a Tank.

They are made of best galvanized steel and will not rust and cannot rot. Thoroughly riveted, soldered and re-inforced with iron strips. Makes them unusually strong and lasting. Made in many sizes and for all purposes. Write for **Special Tank Circulars,** prices, etc., **they are FREE.**

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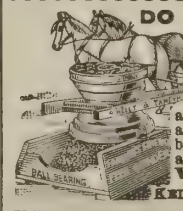


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Received goods, they are better than I was expecting from Catalog. Yours, ISAAC THOMAS.

We manufacture **Galvanized Steel Tanks, Harness** and **Vehicles.** We have no agents. Our large FREE Catalogue tells how we sell direct from our Factory at lowest wholesale prices. C. E. BANTA MFG. CO., Dept. 32 A, Chicago, Ill.



DO YOUR OWN... GRINDING

With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening. **We make Well-Drilling Machinery.**

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SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS.

Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' *none* equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send **25c.** Money refunded if cow is not protected.

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PUMP WATER BY WATER POWER.

Put in Place of Rams. Deliver More Water. Never Stop. Your Money Back if You Want It.



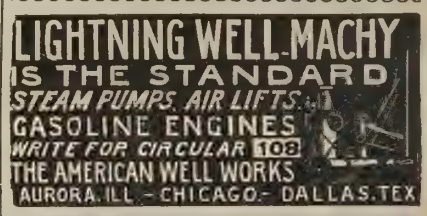
Send your conditions for catalogue and guaranteed estimates.

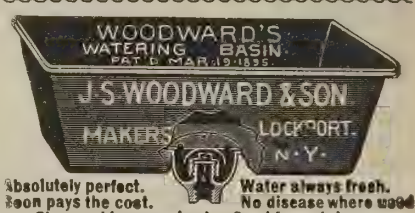
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Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who to-day turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables, to

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Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. No disease where used. Send for catalogue.

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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and **sweet.** Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

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Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing guaranteed analysis to be not less than

Ammonia	8.50%
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Devoted to Dairying and Dairy Stock Interests.

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Send for samples and prices.
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Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES

Write for a one-gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS, - BOSTON.**

Medals—Bronze 1878, Silver 1887, World's Fair 1893.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Highest Quality. Reasonable Price.

This is the basis upon which we offer the finest stock of

CREAMERY SUPPLIES

In the great Western Dairy Belt. We manufacture and have constantly on hand a full assortment

NATURAL WOOD VATS	BUTTER BOXES
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TUBULAR SEPARATORS	BUTTER TUBS
FARM SEPARATORS	SALT AND COLOR

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Print Butter Should be wrapped in **GOOD Parchment** (NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on Every Sheet.

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We say for the **Sharples TUBULAR Cream Separators,** that they are remarkably close, rapid and effective skimmers, and we believe they are the most desirable separators for any large capacity creamery to have in use, If you wish to try one, we wish to have you do so, for these separators win on their merits. We will gladly ship you a machine if you will just write us as follows:

> Please ship to me a Sharples TUBULAR Separator. I will immediately put it into my factory and give it a fair and careful trial. If I like it in every respect, and it does all claimed for it, I will keep it and pay for it. If it fails to suit me for any reason I will notify you to that effect, and on receipt of instructions from you, will re-ship it to your order as you may direct.

We know 'tis a wide open proposition on our part and invites trouble from the unscrupulous creamerymen and unprincipled separator agents who swarm around every Tubular that is placed, trying by fair means or foul to displace it. But our faith in humanity is large. Out of hundreds of **TUBULARS** placed on such liberal terms, not a dozen creamerymen, disposed to listen to the unholy propositions of competitors, and take advantage of our liberality, have been found. A few betray our trust for reasons best known to themselves, but we try to steer clear of that kind.



THE SHARPLES TUBULAR SEPARATOR

The cream from it is superb.
The reserve capacity is large.
The clean skimming is unequalled.

The bowl is hollow.	It weighs 30 pounds.
It spins on air.	It skims 1 to 3 tons.
It is 4½ inches in diameter.	No rubber rings.
No metal bearings.	No spindles.

Little oil.

Send for Catalogue No. 46.

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ALDERNEY BUTTER COLOR

Buttermakers using it say it gives perfect satisfaction in every respect and recommend it to all not using it.

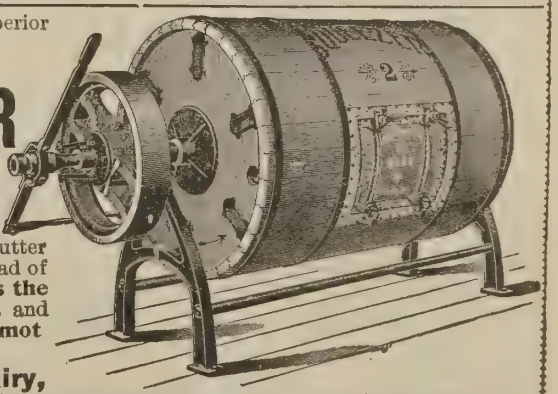
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The Machine that will Build a Butter Trade.

Because it will make a superior quality of butter.

THE SQUEEZER COMBINED CHURN AND WORKER



squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

Made for the Dairy,

and is easily operated and readily cleaned. No dairy should be without it.

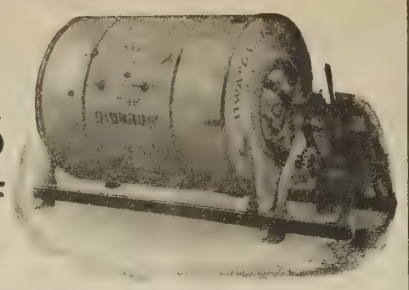
Will do Exhaustive Churning at any Temperature.

We are prepared to repair all cream separators and employ highly skilled men for this work.

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It is always

Hard Times



FOR PEOPLE WHO ARE BEHIND THE TIMES.

Keep up with the times and the times will be good to you and you will enjoy the prosperity of the times. The creamery is behind the times which is not equipped with a

DISBROW

Combined Churn and Butter Worker.

These are good times. NOW is a good time to buy a Disbrow and prepare for the coming season. They are making money for their users everywhere.

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SOLE MANUFACTURERS. Owatonna, Minn.

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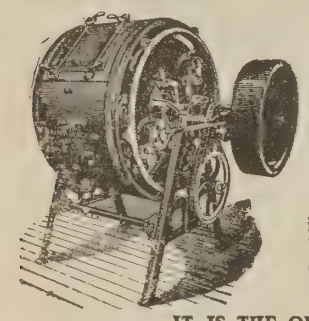
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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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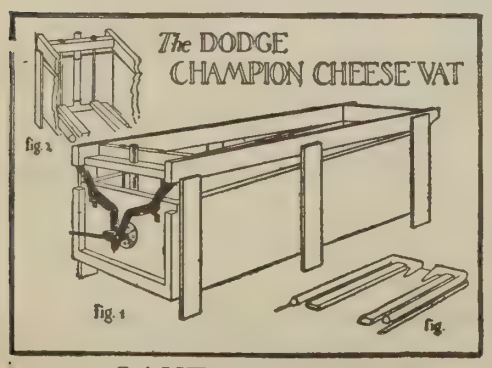
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HIGH GRADE WORK ONLY. Haddonfield, N. J.

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An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

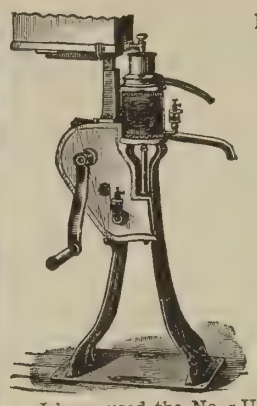
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The Improved U. S. Separator

is because it IS THE BEST



It Skims the Cleanest,
It Runs the Easiest,
It is the Most Economical,
It is the Most Simple,
It is the Easiest to Clean,
It is the Most Durable.

SO SAY ITS USERS EVERYWHERE.

More Durable than Any Other.

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The Improved U. S. Separator I have runs light, does first-class work, is easy to clean, and I believe it will wear longer than any other separator on the market. GEO. C. WHITE.

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I have used the No. 5 U. S. Separator five years, have not paid out hardly anything for repairs and it skims as clean as ever. L. T. JOHNSON.

Leaves the Least Fat of Any Make.

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10-Year-Old Boy Thinks it is Fun to Run the U. S.

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My Improved U. S. Separator separates perfectly clean and runs easy—my 10-year-old boy thinks it is fun to run it. GEO. C. TILTON.

Write for our Special Separator Catalogue containing many more like the above.

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WORCESTER SALT

Gets all the HONORS at the State Convention of Dairymen just held at Salt Lake City, Utah.



BUTTER

The HIGHEST Score..... 97
SECOND HIGHEST Score..... 96½
Both were salted with **Worcester Salt.**

CHEESE

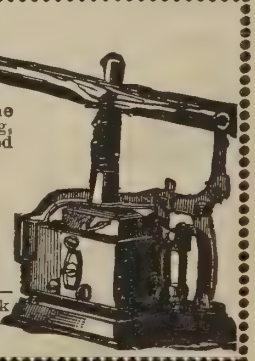
All at the Utah Convention was salted with **Worcester Salt.**

IT TAKES THE WORCESTER TO MAKE THE BEST.

WORCESTER SALT CO., No. 168 Duane St., NEW YORK.

Put Your Mark

on the butter you sell. The handsomest prints are made on the Rapp Automatic Butter Printer. The very best machine ever made for the purpose. Handiest, most rapid working, easiest adjusted printer ever made. Write for large illustrated catalog, containing full description of the

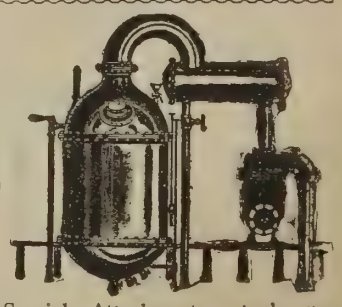


RAPP AUTOMATIC Butter Printer

and of a hundred and one things needed in every dairy—cream separators, milk strainers and coolers, automatic milk scales and butter tools. Mailed free.

THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia.

Condensed... Milk Factories



Built Complete By

Special Attachments not shown.

C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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PROFESSOR H. C. ECKLES, of the Iowa State Agricultural College, who is temporarily engaged by the Massachusetts Agricultural College to conduct the state dairy school at Amherst, has won eminent success in his work and new honors for the Iowa dairy school. At the recent state dairy convention held in Massachusetts, butter from the state school, of which Professor Eckles has charge, won the highest score.

A MICHIGAN dairyman who had been in the habit of buying fresh cows to replace those dried off, commenced to keep an account with each cow, and the first year he found that after charging each with her cost of food, and crediting her with what she produced, there was a wide difference in the cows. One cow gave a profit of only $9 per year, while another gave a profit of $41. Following out this policy he has changed the whole character of his herd, and today he finds that two cows pay him as well as three did previous to his experiment.

THE following table will illustrate the wonderful increase in the consumption of milk in ten years, in New York City, and presumably so all over the land:

Year.	*Cans.*	*Value.*
1888	6,062,216	$9,652,500
1889	6,630,278	11,675,500
1890	8 141,983	12,085,000
1891	8,269,953	14,128,677
1892	9,084,781	15,116,668
1893	9,303,315	16,249,354
1894	9,485,029	16,107,648
1895	9 336,827	16,778,823
1896	10,079,417	15,781,881
1897	10,338,356	15,872,841
1898	12,382,106	17,458,759

ASSORTED CURSES FOR THE DAIRYMAN.

With the coming of warm weather, the numerous troubles that affect the course of dairying take on a new and vigorous life. Warmth and moisture put new life into bacteria of all kinds, and particularly those that cause putrefaction. This class is numerous; they are of different shapes, sizes and conditions of growth, but they all unite in making trouble for the dairyman who permits them to be present in his neighborhood.

Not alone will they taint his butter and spoil his cheese, but they will kill his pigs, cause scours in his calves, obscure diseases among his other animals, and also deplete his pocket-book at a most astonishing rate.

Small in size but mighty in results are the whole race, and yet they are present only by sufferance of the dairyman and want of hot water, soap and elbow-grease.

The dairyman, or any other sufferer can reduce his losses from poor butter, poor cheese or dead animals, caused by surrounding dirt. Cleanliness is money to any man, soap will return a big interest, soda is his best friend. Combine these with drainage, whitewash and a vigorous and well handled scrubbing brush, and a dairyman can demand as others do, an extra price for his products, and, what is more, he will get it.



TYPES OF DANISH CATTLE.

A Cow of the Red Race.

RELATION OF DAIRY FARMING TO SOIL FERTILITY.

One of the strongest arguments for dairy farming, and one of its most important rewards, is what the farmer gets back in the maintenance of the fertility of his farm. Every well balanced farmer can see and appreciate this factor.

It is a grand thing to have a farm under you, that you can see and feel every year is a little stronger than the last. No intelligent dairyman goes along year after year, without considering how to keep up the productive power of his land.

He considers that the raising of good crops is a good deal more a matter of fertility, than it is a matter of season. He has taken notice in all these years he has lived, that a good, rich, quick soil raises a crop in all kinds of seasons.

Prof. Harry Snyder, of the Minnesota Experiment Station, has made some very interesting investigations, concerning the annual loss of nitrogen, potash and phosphoric acid on 160 acre farms, carried on under five different systems of farming.

SYSTEM OF FARMING	*Nitrogen.*	*Phosphoric acid.*	*Potash.*
	Lbs	Lbs.	Lbs.
1. Grain farming	5 600	2,500	4,200
2. Mixed grain and general farming	2,600	1,000	1,000
3. Mixed potato and general farming	2,300	1,000	2,400
4. Stock farming	900	* 50	60
5. Dairy farming	800	* 75	85

*Gain

Some idea of the money involved in these losses in fertility may be gained if we will stop for a moment to consider what it will cost us in cash to put back these elements of fertility, taken out. Taking the market rates on these three elements, which constitute the sum and soul of fertility we find that in grain farming there is annually lost, $84 worth of nitrogen, $12.50 worth of phosphoric acid; $21 worth of potash, or a total of $117 50.

In mixed grain and general farming there is an annual loss of $39 worth of nitrogen; $5 worth of phosphoric acid, $5 worth of potash, or a total of $49.

In mixed potato and general farming there is a loss of $34.50 of nitrogen; $5 worth of phosphoric acid; $12 worth of potash, or a total of $51.50.

In stock farming there is an annual loss of $13.50 worth of nitrogen; a gain of $2.50 worth of phosphoric acid; and a loss of $3 worth of potash, or a total loss of $14.50.

In dairy farming there was a loss of $12 worth of nitrogen; a gain of $3.75 worth of phosphoric acid; and a loss of $4 25 worth of potash, or a total annual loss in fertility of $11.

It should be remembered that in stock as well as dairy farming clover and other nitrogen producing plants, are grown as well as other nitrogenous products are bought.

But these figures will show how the drain in fertility is lessened by animal farming of both kinds.



TYPES OF DANISH CATTLE.

A Bull of the Red Race.

Silos, Separators and Feeding in South Dakota.

ED. HOARD'S DAIRYMAN:—Will you be so kind and answer the following questions:

1. Is a ground silo all right if walled up with cement? The ground is dry for thirty feet or more.

2. How large would it have to be for fourteen cows.

3. We haul milk to creamery about five miles, and feed skim milk to calves and pigs, but milk is often so bad, that it is not fit for use. Would it pay us to get a separator?

4. Is the Kneeland Omega Cream Separator, manufactured by the Kneeland Crystal Creamery Co., Lansing, Michigan, all right?

We have fourteen common cows which yield about 160 to 175 pounds milk per day at present. I wish to improve on them if I can. They were fed on little fodder, about four pounds corn meal and all the millet hay they want to eat. Most of them dropped calf last winter.

I am studying feeds for next winter. Can you help me out on that? Planted some sweet corn fodder, millo maze, and cane and millet for hay. A. H. MEYER.

Pukwana, S. D.

Silos built as suggested have given very excellent satisfaction in many places. Fourteen cows in Dakota would be abundantly served for the winter, by a silo fourteen feet in diameter and twenty feet deep, but we cannot advise going that deep in the ground. It has been done, and no accident as yet resulted, but there is a possibility of gas accumulating in the bottom of a silo that has no free outlet, that would be fatal to human life.

The writer of this reply has had a farm separator in his dairy several years, and sends the cream to the creamery. He is quite confident it pays, or otherwise would have discarded it. We have no personal knowledge of the separator referred to, but it has been favorably mentioned in several communications to the DAIRYMAN.

The cows were not properly fed last winter, as there was not enough protein in the feed, and protein is the one element without which milk cannot be made. You will need bran and oil meal, or gluten, or some other feed rich in protein, if you expect cows to give a good supply of milk, and return some profit for their keeping and care. These matters will continue to be discussed, from time to time in these columns, and a careful reading of the DAIRYMAN, from week to week, will show the proper proportions. Write us next fall, giving the prices of different feed stuffs, and a ration formula will be given.

Gathered Cream Creamery.

A Criticism.

ED. HOARD'S DAIRYMAN:—In your issue of May 26, page 297, Mr. A. Bartle, gives some very excellent figures showing the result of a well managed creamery. A few things need more extended explanation.

1. It is a very strange thing that the butter milk from 360,000 pounds butter sold for only $116.28. At 5 cents per 100 pounds it ought to bring $597.98, providing 23 pounds of butter are made from 100 pounds of cream.

TUBS.

The tub expense at $545.15 seems strange; 360,000 pounds, if all put in 60's, would require 6,000 tubs, which at, say, only 20 cents each, would be $1,200. Please explain.

HAULING.

One thing eminently illustrated in his report is the small sum for hauling cream from the farmer's door. 360,000 pounds of butter is equal to almost 9,000,000 pounds milk, which at, say, an average of 8 cents per 100 would cost the farmers $7,200, but it actually cost $2,964, according to his report. A very great saving indeed.

Jesup, Ia. J. N. NUNCEY.

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THE fact that cream will not rise well on pasteurized milk has always been an objection to its use, and has probably prevented a wide spread adoption of the process for city milk. Mr. J. F. Woodward, a former student of the Wisconsin dairy school, working with Prof. E. H. Farrington, has found that heating the milk to 140° for thirty minutes, produces all the good effects of pasteurization at higher temperatures, and yet does not affect the creaming of the milk so treated. This discovery will be of material advantage to the city milk trade, and cause pasteurization to be more widely adopted.

THE *Jersey Bulletin* begins to see the light, and in a recent issue says it admits not only that the Babcock test is all right in creameries and cheese factories, but goes to the extreme of endorsing it as "all right" in testing milk at any time and place.

It is, perhaps, too much to expect that the *Bulletin* could say so much as this, and then leave the subject decently and in good order. We are, therefore, not much surprised to read further down the column that it does not favor the Babcock test *alone* in making or giving a cow a butter record. This is as much as to say that others do favor the test alone for such purpose, which is not true. Nobody pretends that the test makes butter, or does anything more than reveal the per cent of fat in the milk. But when we know this and know also the amount of milk, it is not very difficult to compute the amount of butter that can be made from that milk, when modern methods and appliances are used. When the churn and the test agree, each corroborating the other, we may be assured that both the testing and the churning and the subsequent working of the butter were skillfully and *honestly* done. Without a test of the milk or of the subsequent skim milk, and an analysis of the butter, no man can be certain that an undue amount of fat has not been left in the skim milk or that there is not more water left in the butter than is consistent with commercial integrity.

Why cannot the *Bulletin* be candid for once and tell the whole truth, by admitting that the churn alone is not sufficient for making or giving a cow an authentic butter record, and this more especially where the larger yields are reported.

It is not very material that the *Bulletin* misrepresents HOARD'S DAIRYMAN as it did some months ago by taking a few words from an article by a correspondent, of specific local application, and quoting them as an editorial expression of a condition universally existing; or as it did in the beginning of the article referred to above by saying that we lament that the "Jersey world is not a very large field anyhow." What we did say was that the *Jersey Bulletin's* field was not a very large one, which is a very different matter. Our subscription books attest the fact that the Jersey world is indeed a very large and important field, and our correspondence from Jersey breeders attests the further fact that HOARD'S DAIRYMAN is the Jersey cow's best friend

LOOK ON THIS OPERATOR, THEN ON THAT.

Every person of experience in creamery work knows that there are many very poor operators employed in creameries. They are wasteful and ruinous to the business. The reason why such men get a chance to run a creamery is because the patrons are looking for only one thing, a *cheap* man. Such men are very apt to impose themselves on co-operative creameries for the standard of judgment there is considerably lower as a rule than with proprietary creameries where the owner knows and feels that he must have good talent.

A writer in the *Chicago Produce* gives a bit of experience, which we have seen duplicated several times. He says:

There are men who are running creameries at a loss to their proprietors I have one in mind now, where the buttermaker was taking in about 6,000 pounds of milk a day and a station run in connection was taking in about 7,000 pounds daily, six days in the week, and was getting 9 tubs of butter, of 60 pounds each, a day. On Monday morning there was always more milk, as some of the patrons sent their Sunday morning's milk. The separator, which was an Alpha No. 1, had the pin out in the feed cup and was skimming something over 3,700 pounds of milk per hour. This man who had been in the factory for some time, did the Monday's skimming and Tuesday churned it. On Tuesday of that week I took charge of the separator and got it to skim at the rate of 2,500 pounds to the hour, after stopping two or three times to regulate the skim tube screw.

I had on Tuesday something like 400 pounds less of milk, but got 46½ pounds more of butter after it was packed than did the former buttermaker. Butter at this time was worth about 15 cents per pound; I would like to have what that man's loss to the factory was for my wages. This is not the only case of this kind, there are others; figure it up and see where your loss is. I believe I am justified in saying that three out of every five creameries that handle not less than 8,000 pounds of milk daily in the winter, either directly or through stations, are meeting with even a greater loss for various reasons, namely: the steam of the boilers is allowed to vary to such an extent that at times the separator is running at the rate of 7,600 to 8,000 revolutions to the minute, and again it runs down to 4,500 to 5,000; the milk is allowed to crowd the capacity of the machine, therefore not doing its work clean; it may be at too low a temperature when it passes the separator; all these things, with many others, will lose you two men's wages at least.

KANSAS DAIRY QUESTIONS.

When the Kansas Experiment Station started investigations at the Meriden creamery, it opened up a very large and interesting line of work. Records of results actually achieved, of the feeding, making and yield of the average creamery herd are of great value.

In furtherance of this work, a series of questions have been formulated and the intention is to have the skimming station men visit each patron of the creamery, and as far as possible find out by the aid of the following list, to what extent the patrons are following the line of modern methods of feeding and milk production. Following is the list of questions, together with a suggested form for keeping a record of a herd:

Month 1898.	*Milk from herd.*	*Test.*	*Lbs. butter fat.*	*Price of butter fat.*	*Cash receipts.*
January.....	2,064	3.9	80.5	17½c.	$14.08
.....	.....	.....	.....	.....	.....
December.....	1,547	3.8	58.7	22c.	$12.93
Total for year.	14,941	.....	547.8	.....	$99.96
Average per cow.	4.980	.....	182.6	...	33 32

1. Number of cows kept in 1898?
2. Number of calves raised in 1898. If sold, at what age and price?
3. Value of calves at weaning time?
4. Amount of skim milk fed to pigs?
5. Value of skim milk per 100 pounds for pig feed?
6. How do you feed skim milk to calves? (time of day and amount?)
7. What kind and how much grain do you feed calves on skim milk?
8. What kind and how much hay do you feed calves on skim milk?
9. What breed or breeds of cows did you have in 1898?
10. When were your cows fresh?
11. Kind of pasture?
12. How long were they kept on pasture?
13. Kind and amount of grain or roughness fed while on pasture?
14. Kind and amount of grain fed in winter?
15. Kind and amount of roughness fed in winter?
16. Water supply in summer?
17. Water supply in winter?
18. Do the cows get ice-water in winter?
19. Kind of shelter?
20. Breed of bull? Why?
21. Do you expect to increase dairy herd?
22. Can you keep milk sweet from Saturday night to Monday morning?
23. What dairy or farm paper do you take?
24. Problems confronting patrons?
25. General remarks?

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, XVII.

FIRE OR PEAR BLIGHT.

Although this disease has been known for over a hundred years, its true cause was not discovered until the last decade. The wide devastation that it has caused in the orchards of the United States has brought it prominently before the attention of all fruit raisers, and much idle speculation based on crude and half developed hypotheses as to the cause of the trouble, has been spent to but little purpose. The two hypotheses of this class that have received the most support, ascribed the disease to the action of the pear tree-borer, or to the presence of frozen sap. These theories had no sound basis on which to rest, and of course led to no rational steps in regard to treatment. Gradually the idea began to be accepted that the disease was infectious, was communicable from tree to tree, but the cause of the infection was not determined until 1880, when Prof. T. J. Burrill, of the University of Illinois, succeeded in demonstrating that a specific bacterial form was the inciting cause. This discovery was of more than ordinary importance, as it marks the first plant disease to be worked out that is produced by organisms of this class.

The disease is ordinarily known as *pear blight*, because it attacks this species with great severity, but other related fruits are often affected, such as apples, crab-apples and quinces. Some of the wild species may also "take" the disease, if conditions are favorable. Wild hawthorne, service berry and wild crab are not infrequently affected. Last year the disease raged with unwonted severity in the north-central states, and many of the wild crabs of this region were found badly diseased. The disease is often called *fire blight*, because of the appearance of the leaves after the affection has broken out. The leaves themselves are not especially affected at first, but the disease establishes itself in the smaller branches, cutting off the supply of food and water from the tree. The result is that the leaves wither, turn black and give the appearance of having been burned with fire. The germ causing the trouble, finds in the inner bark, and in the growing zone just outside of the sap wood, the best place for its growth. Here it thrives luxuriantly, working its way down the tree, until it reaches a larger stem, thus cutting off the supply to a constantly increasing extent. The result is that all parts above point of infection are diseased. In severe cases, especially with pears, the blight may kill the entire tree; more often, however, the disease runs its course, and progresses very much more slowly, if at all, when it reaches the hard, firm wood of the previous year. In the apple the terminal twigs may suffer severely some years, and no evidence of any infection be observed the next year.

PLACE AND MODE OF INFECTION.

In order to forestall disease attacks, it is necessary to know where the disease germ is able to penetrate the host, and also the agent by which such introduction is accomplished. To fight an enemy in ambush is to fight at a great disadvantage, so before a rational notion as to the best method of combatting pear blight was formulated, it was necessary to work out these conditions. They are now fairly well known, and they illustrate in an exceedingly good way, the close inter-relation that exists between the different beings that inhabit our world.

If we examine a number of pear trees in the early stage of the blight, it is at once apparent that the two most sensitive points of attack are the blossoms and the young succulent twigs. In fact, succulence of tissues is a marked predisposing factor. These two phases often receive the distinctive titles, *blossom and twig blight*. They are however slightly different manifestations of the same trouble, and are produced by identically the same cause.

The germ, in finding its way into the blossom, is brought to this point by insects. Bees, flies, and other winged insects visit the flowers in search of nectar. This precious fluid is secreted in the naked, succulent tissue, known as the nectary; situated at the base of the flower. In loading up its store of honeyed sweets, it may dislodge from its mouth parts, germs of the pear blight, if it has come in contact in its visits, with any of the viscid secretions of this germ. If once the nectary becomes involved, the germ passes rapidly through the tender cell structure of the blossom into the flower stalk, and so on down into the branch or spur. When once inside of the dense outer bark, it is safe from ordinary harm, and in the delicate cells of the growing zone it finds a vantage ground.

The disease also starts in the terminal end of a branch, and from this point works its way back. Many such cases are due to the germ finding its way into the inner tissues by means of insect stings. The blossom blight is the most serious phase of the question, as the disease germ is widely distributed from tree to tree by insect visits. Not only may the whole orchard thus become badly affected, as to number of trees, but the blighted blossoms of course always fail to form any fruit.

A PRACTICAL DEMONSTRATION.

One can readily demonstrate for himself the presence of the blight bacterium in an affected tree, and show the influence of infection. From a pear tree that already shows signs of the blight, remove several of the affected twigs and cut them in pieces a few inches long. Stick them in a tumbler of water and note in the course of several days, the exposed cut end. Viscid drops of a whitish color will soon appear, that will later turn to a yellowish cast. This is the blight bacillus growing out of the cut end and living off of the food it can get from its host plant.

Now, if this diseased shoot is taken, and by means of a needle, some of this slimy

growth is pricked into a healthy, rapidly growing shoot, the infection will become evident in the course of a few days, thus proving the communicability of the disease germ.

CONDITIONS CONTROLLING INFECTION.

Some years the pear blight rages with unwonted severity, while the following years are practically free from the same. This, indeed, seems curious, with a disease produced by a germ cause, for it must be supposed that the germ is existent under certain conditions from year to year. Then why does it not appear with fair regularity? In germ diseases of all kinds, one of the main factors governing the spread of the disease, is the varying susceptibility of the host. There is no longer any question but that this factor also is strongly operative in the case of this disease. Some years the host plants that are normally susceptible (pear, apple, etc), become especially sensitive; even before the germ nature of the disease had been worked out, this had been noted. Springs with an excessive rainfall, especially if accompan'ed with a high temperature, are particularly favorable to blight. In all probability this is largely attributable to the fact that the growth of the plant tissue is much more rapid and therefore more succulent under these conditions.

Different varieties possess a varying power of resistance and Arthur has determined that this resistance was less in those varieties that had the least moisture in their woody structure. Succulent and rapid growth is often produced by good tillage or by over manuring, and it has been noted that blight is often much more severe in orchards that have been treated in a way so as to encourage rapid, luxuriant growth.

TREATMENT.

The treatment that might be recommended for this disease will be of two sorts: Methods that will increase the blight resisting properties of the tree, or will destroy the blight bacillus or prevent its spread. Cultural methods do have some effect on the spread of the blight, as has already been noted. Pruning, cultivation and irrigation all exert an effect on the tree, tending to favor the production of new wood, thereby giving better conditions for the spread of the blight. The use of highly nitrogenous fertilizers is also detrimental for the same reason. These cultural methods, while of some value, cannot exterminate the disease after it has once gained access.

Manifestly, any disease that is intrenched behind so resistant tissues as the bark, cannot be controlled by local application. It is possible, however, to check spead of disease by removal of affected organs. As these are invariably terminal structures (blossoms or twigs), this process can be carried out with ease, if it is done before too much of the new growth becomes affected. In many cases the disease "holds over" from year to year. Along the border of the affected tissue the blight microbe is able to persist for a long time. If not removed the disease may start up afresh the next season, if climatic conditions are at all favorable.

In cutting out dead wood, it is necessary to cut back beyond the wood that appears to be dead. The blight microbe is steadily forcing its way down the tree and is therefore always in advance of the diseased portion. All affected parts should be burned. To leave dead limbs in the orchard is to simply leave the disease germ where it may be widely disseminated. The old idea used to be that the germ wintered over in the ground, but the most careful experiments have failed to show such a condition to be true, although, of course, such may be true in spite of the negative results yet obtained.

Is Abortion Communicable.

Some Wisconsin Experience in the Negative.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of May 19, page 281, I find an article on this subject, from Mr. P. M. Lewis, inquiring if the disease is conveyed by the bull, and the answer is: It is our decided opinion that the male can and does convey the abortion germ to the female, provided he has been in contact with an infected female.

Now, Mr. Editor, I would like to say a word or two on this subject, or rather relate some of my own experience which does not confirm this theory. I know your idea has been proclaimed at farm institutes, by one of the most successful, practical and experienced dairymen of Jefferson County, and by a number of other men, but facts are facts, and when they do not agree with theories, either the theories have to give way or the facts must be explained on some other basis.

In my case the facts are as follows: About 18 years ago I had a fine lot of cows and a first class Guernsey bull. Unfortunately for me, and from causes I could never explain or account for, abortion broke out in my herd with great fury. Not only did the cows lose their calves, but it was well nigh impossible to get them in calf again. They would come in heat regularly, and were served again and again without avail.

During this time one of my nearest neighbors brought all of his cows, eight or nine in number, to this same bull for service; another brought six cows 2½ miles, a third seven cows 3 miles, and several others one and two cows. I watched all these cases with great interest, and if there was a single failure with any one of these cows to carry her calf the full term, it never came to my knowledge, and with the great majority of them I had personal knowledge that they came through without mishap.

The abortions in my own herd were too numerous to be accounted for on the score of accident, and the failures to breed could not be charged up to feed, however it might have been with the original miscarriages. I think it safe to say that not only the individual cows, but the herd itself was "infected", and if there ever were conditions favorable for transmission of the disease by the male, they existed on my premises at that time.

Jefferson County, Wisconsin. C. K.

Our friend and neighbor (Mr. K. lives in an adjoining town) makes out a pretty strong case in the negative, and it is quite impossible at this distance in time and in the absence of many material facts to account for the exemptions he relates. What we don't know—and in this case the "we" includes others as well as the editors—what we don't know about abortion is incomparably more than what we do know. The indications are that there are several causes which may produce it; but what they are, how they became operative, and how they may be limited, have not yet been fully determined. It is however, fairly well, if not conclusively, established, that abortion is sometimes caused by a specific germ, and that the introduction of this germ into the vagina of the dam will frequently produce abortion. This has been demonstrated experimentally, and the multitude of instances where abortion has followed service by a bull having access to infected cows, seems to justify the conclusion that the germ may be conveyed in this manner. That the trouble does not follow every service, that in a given case, like the one cited, there is exemption in every case, does not prove that in other cases and under other circumstances the disease is not communicable as stated in our previous article.

How Oleo is Working in England.

The following is an extract from a letter in the *Live Stock Journal*, England:

In going into a retail butter establishment a few days ago, I was informed by the manager that they sold their butter at a low price to draw the margarine buyers into the shop, as it was on the margarine that they made their profit; in fact, he advised me to give up butter-making and go in for margarine, as it was fast knocking butter out of the market.

How much of the same work there is going on in this country, and how long before it will knock butter out of the market entirely, is a very interesting question to the dairyman, at the present time. That it can and will do it if permitted, there is no question.

Forty million dollars of capital can and will brush aside the weak efforts of individual producers of butter. Nothing but combined, united effort will ever succeed in putting oleo in its right place, and keeping it there; and until it is done, oleo sold for and at butter prices, will take the place of the dairy article,—taking its profit as well as name and place.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained by some, that the fat in the milk comes, largely, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

CHAFFING HAY, STRAW AND OTHER FODDER.

Sometime when convenient, and you have the subject matter at hand, I would like to know through the DAIRYMAN what advantage there is in cutting hay or straw, and after wetting, mixing the ground feed with it? It has been my practice, but some good dairymen tell me I am wasting time and labor. I know it is quite generally done in English dairies, and they usually "pulp" their roots, and mix with "chaffed" straw and ground feed, and let it stand 12 hours, before feeding. A. H. K.

Coupeville, Wash.

Perhaps the best reply that could be made to the above inquiry would be to suggest that the cows themselves be consulted. True, they cannot set forth in words the exact reasons why they prefer food prepared in one way, to the same materials put before them in different forms, but that they have a choice, they are able to make very manifest. And there is no better rule for feeding than to consult the preferences of the animal. Probably with the best quality of early cut hay, the cow would have little choice between that which was long and that which had been chaffed. On the other hand, if the hay should chance to be a little over ripe (as is the case with straw) or a little dusty or musty, then chaffing and wetting and heating would render it more palatable, and the addition of the meal make it more appetizing. And whether we feed cows for milk or steers for growth, the profit comes from the food eaten in excess of the demand for simple maintenance.

Again, as we have said so often in these columns, the highly concentrated grain feeds, like corn meal, cotton seed meal, gluten meal, etc., need to be much diluted or extended in order to be thoroughly digested.

TO FIND THE STRENGTH OF SULPHURIC ACID.

How can the correct strength of sulphuric acid be obtained? A SUBSCRIBER.

Institute, Wis.

The actual strength of sulphuric acid is obtained by the use of an instrument called a hydrometer. With it the specific gravity of the acid is taken and from the figures thus found the strength of the acid is ascertained.

As the use of such an instrument requires previous training to do accurate work, it is better to require the seller to guarantee the strength of the acid purchased. It should have a specific gravity, for testing milk of 1.82 to 1.83.

WEIGHT OF CREAM.

I am purchasing select cream by the gallon, but weigh it in and desire to know how many pounds I should figure per gallon. Will 8½ lbs. be as near as I can practically get at it, or should I use a fraction, and what is the fraction? C. J. W.

Brighton, Colo.

The only proper way to buy cream is by the test, as the difference in the weight of a gallon of rich or poor cream is too small to indicate the richness of the cream. The difference between 20% and 50% cream is less than half a pound in a gallon. You should procure the necessary apparatus for testing cream by the Babcock method and test every sample; otherwise you are doing yourself or the patron a decided injustice. Cream containing 20% fat weighs 8 46 lbs. per gallon, and that containing 30% fat, 8.34 lbs.

BOOK ON CHEESE MAKING

What is the best work published on "cheese making" at the home dairy? I wish to make A No. 1 cheese, suitable to compete with creamery cheese. Extra country cheese as well as extra country butter, sells better here than factory. WM. E. S.

Henry Co., Md.

Cheddar Cheese Making, by John W. Decker. It can be obtained from this office for $1.00 post paid.

WHEY FOR CALVES.

I would like to know your opinion of whey for feeding calves; if it is as substantial as skim milk. Also if it is necessary to re-enforce the whey, what should be used? I have a dairy of 60 cows and 120 acres of alfalfa under irrigation. G. H. W.

Newman, Cal.

Whey is a very poor food in comparison with skim milk because its most valuable constituent, casein, has been removed. The ingredient that remains, milk sugar, is a carbohydrate, and belongs to the class of cheapest food products. Besides the milk sugar, there is present a small amount of albuminoids, about .8 per cent.

In cases where whey is plenty and can be obtained in a perfectly sweet condition, it can be used to feed calves if the necessary albuminoids are added in the shape of oil meal or other feed rich in protein. It is absolutely necessary that the whey fed to calves be sweet and that all vessels holding it be scalded daily so as to be free from any sour taint. It is not a first-class food even when sweet and can easily be rendered worthless and even dangerous by allowing it to sour or feeding it in dirty vessels. For a calf 10 days to 2 weeks old add one-fourth of a pound of oil meal, old process, to a gallon of whey. When 3 to 4 weeks old add a quarter of a pound of bran or ground oats in addition to each gallon of whey.

MILL FEED.

I forward you under another cover a sample of mill feed, which can be bought for $12 per ton. Many farmers in this locality claim that their cows do well on this feed, yet the majority of our farmers have Prof. Shaw's ideal cow, and of course one cannot safely follow their ideas and expect to succeed in the dairy business. We can purchase bran at $17 to $20, and if this mill feed has any merit would like to know.

Kindly forward me a ration of oat and timothy hay mixed, roots, bran, or the mill feed. We feel that it would not pay to experiment, so kindly advise us.

Spinaway, Wash. PHIPPS BROS.

The "sample" seems to contain a little of everything that could be taken out of a lot of wheat, preparatory to making it into flour.

A partial list would be weed seeds, dirt, shrunken wheat, oat hulls and chaff. It has considerable feeding value, but there is no way of determining its comparative value, except by experiment.

We suggest feeding, say 16 pounds of the mixed hay, 20 pounds roots and 10 pounds bran. The amount of mill feed to substitute in whole or in part for bran we cannot estimate.

Which is The Better Cow?

We had not intended to continue the discussion of the above question, but the following opinions are so much out of the ordinary that we feel sure the majority of our readers will enjoy them.

ED. HOARD'S DAIRYMAN:—As regards the cows in the number dated May 5th, I judge them by temperament, so will put the glossary of temperament first, in scoring points of the better cow.

Vital Temperament—Or nourishing apparatus, embracing those internal organs contained within the trunk, which manufacture vitality, create and sustain animal life, and re-supplies those energies expended by every action of brain or nerves.

Mental Temperament— A superabundance of the power which embraces brain and nerves, the exercise of which produces feeling, sensation, etc.

Motive Temperament—Embraces bone, muscle, tendons, etc., which give physical strength of bodily motion, and constitutes the frame work of the body, enabling it to endure continuous physical motion.

For convenience will name the upper cow on the page, Rose; the lower one, Gem.

Rose has a mental-vital temperament, combining all points named under mental and vital; in addition, the following points through combination: Slow thinker, easy, loving disposition, but little curiosity, looks out for her share of forage (a go-easy disposition.)

Gem has a motive-mental temperament, combining all points in motive and mental, and in addition through combination, intellectual vim and force of character; to think is to act, great curiosity, likes a long tramp through the country (an uneasy disposition).

With a careful study of glossary, together with the forms of Gem and Rose, you will be able to find all the producing cows in the United States, (barring accidents and casual deformities, together with mismanagement) you will decide with me that the cow having the strongest internal organs, well bunched, and well supplied with material to work on, together with quiet disposition, submissive under the forced conditions the dairyman places her in, little curiosity to wander and see the country, a voracious appetite, and good sized, well spread udder, will be a good breeder and all around a satisfactory cow in the dairy.

Rose fills nearly all these requirements, so is the better cow of the two, for the following reasons: Short in body, forcing a bunching of organs, thereby overcoming loss of power by friction. It is a law in mechanics "the farther the weight to be moved is from the power, the greater is the loss of power by friction." So blood from digestive organs near the lungs and lung blood a short way to the udder, makes large quantity of milk more easily furnished, so can continue longer without undue wear of organs. Excess of power is utilized in preparing more material for production, with small expense to vital organs, and as her limbs are weak and lacking in bone and tendons, she walks more deliberately and shorter distances, so saves power to apply extra motion of jaws in grinding food. Her generative organs are near the fountain of supply, so are active and productive, seldom produce nymphomania for lack of well grown germs; her curiosity goes no farther than a hay stack or tub of meal; she cares very little about the size of pasture or number of gates; would follow other cattle from love of company, but not to stampede; is tender of flesh and sensitive of nerve; loves her master, would not kick without notice. Is all around an ideal dairy cow.

Faults she has, of course. Too fine to have very large teats, or to endure much exposure of climate; will soon resent rise and fall of temperature. Small bone material would affect wear of teeth, so I would expect that the great quantities of food masticated would wear teeth unduly and cause premature old age. But her master will not ask her to rustle much in cold and wind and pick feed in a stock field mid snow and storm; he will give soft food and protect from pinching temperatures, and if he cannot do so, better take the cow Gem.

Gem can endure extreme changes, and if allowed to walk and run, can keep up bodily heat, could live on a range and outwit the cunningest coyote, would know where all the tall grass grew when a deep snow came, or every tree sheltered spot when the wind blew, would take all the best places, if she was able, for herself, and would really mourn for more, would walk miles for water and miles more to find a lush spot of feed, or battle with strange cattle, could produce quite a quantity of milk, and would not be a No. 2 dairy cow if a person could keep her thoroughly contented, and stop so much waste of vital energy in a direction of little use to a dairyman. A ranchman would buy her on sight, as he wants a cow to be able to rustle for herself and calf, not bred too often, so as to allow the calf to be a year or two old before weaning, to ensure its knowledge of the range, and its vicissitudes before being crowded aside—and because of her bony, long, lank build an old-time farmer would have selected her to milk and raise work oxen from. She is not a failure as a dairy cow, but as a type must score second. (MISS) M. L. E.

San Dimas, Cal.

ED. HOARD'S DAIRYMAN:—Kindly accept a novice's criticism, one who never owned a cow, but nevertheless a great admirer.

Rose of the Quartiers has a head that is unusually commendable from the muzzle to the ear tips, viz: muscles of the jaw, the mouth and formation of nostrils. The camera fails to show any brightness of eye, but a cow that can pose or hold a position as this animal is doing, having such a business look, certainly has the eye for business. A typical throat and neck, shoulders and forelegs very fine. The lungs deserve special mention, but the girth of the stomach, with general proportion of stomach is the real striking feature of this animal.

Rose has an apparently rugged constitution, which backed up by such a stomach indicates wonderful reserve.

The hind quarters are worthy of special mention, being built on a very liberal plan, the framework being built to order apparently.

The front udder and milk veins are especially worthy of mention, the veins having an elastic tortuous course, and very well developed. The front udder it certainly up to the other fine points, extending forward, square, well placed and plenty of it.

The hind udder is quite perfect, coming well back and rounding in at the proper point.

The tail well set, extending from a well placed, strong spinal column, high arch.

Rose of the Quartiers is a typical animal, but space will not admit of comment at length. Villet's Gem does not appear to have the constitutional make up to carry out the intention of her udder formation. A peculiar situation. An apparently fine udder attached to an ordinary high bred animal.

The above criticism is not from practice, but theory entire. Have heard a great deal of talk, but never supposed to know a good one. G. M. L.

Fremont, O.

ED. HOARD'S DAIRYMAN:—I am not a judge of dairy cattle; I wish I was. I am trying to learn; for that reason will be glad to have you pass on my judgment, which awards first place to Rose of the Quartiers. I like her countenance, her whole head and neck, good withers, good breast, good depth from withers to breast, large barrel, spine prominent, prominent milk veins, especially good fore udder, broad across hips; could hang your hat on hip bones, in fact rather coarse in her general make-up; high arching flank, and not least in my estimation is size. I am of the opinion that size is one of the important factors which enter into the general make-up of a *profitable* dairy cow.

Ohio. W. J. LEHR.

ED. HOARD'S DAIRYMAN:—I think Rose of the Quartiers is the better looking cow. She more nearly reaches the ideal dairy cow than does Villet's Gem. She has a wedge shape as seen from side view. Straight, firm back, long face, mouth and nostrils seem large, neck thin and nice length, legs nice length, chest girth seems large, denoting vigorous constitution, stomach deep, udder front carried well forward, back not attached as high as might be, milk veins long, large and tortuous.

Villet's Gem lacks depth of stomach, chest seems drawn up, front udder does not reach forward enough, legs a little long. She does not look to me as rugged nor of as mild a temperament as her mate, Rose of the Quartiers. JOHN VICKERY.

Ohio.

ED. HOARD'S DAIRYMAN:—My choice of the two cows, illustrations of which appear in May 5th number of the DAIRYMAN, is Rose of the Quartiers, for the following reasons:

1st. She shows more refinement, having a better shoulder and neck, which droops nicer, has a larger muzzle indicating greater powers of digestion, and seems more dished in face and broader between her eyes, denoting greater intelligence.

2nd. Her paunch is greater in proportion to the rest of her body and her milk veins being very prominent and tortuous surpass her rivals.

3rd. Her front udder development is better than her rival's, and her teats seem wider apart showing four large quarters.

4th. She has better thighs, more incurving, showing less tendency to beef, and she is very long back of hip bones and appears to be quite wedge shaped.

5th. She has a better back bone, her lines being straighter from shoulder to pelvic arch, and the latter being more prominent, and showing a better spine back of her arch.

6th. She has shorter legs, and being of a more compact build, should wear longer at the dairy work, and should make milk or butter at considerably less cost than her rival.

7th. I judge the respective merits of the two cows largely by the ideal of a model cow formed from a close study of the best authorities on the best type, but this ideal has proven, in my experience as a dairyman, to almost universally produce a profitable cow. In the past four years I have owned fully 150 milk cows and heifers, and my plan of weeding out unprofitable ones gave me a splendid opportunity of testing these theories. I am buying up a young herd of Jerseys now in order to begin with the heifers at the first stages of their development, in order to test the value of good training, as well as good types, and expect in this way to lay the foundation of a herd superior to anything I could buy already developed. Persistency at the pail counts for so much, that I want to fix that habit on all of my cows, and I have learned that the first year of a heifer's milk production, confirms the habits she will have in all future years. One of the best young cows I ever owned was dried off too early by a mistake as to date she was due to freshen again, and although combining almost all of the good points of Rose of the Quartiers, with greater refinement, and smaller but broader head, she persisted in after years in resting fully three and one-half months before calving.

Pennsylvania. OTTO GREIF.

Pencilled Pot Pourri.

Bob Veal in New York.—Adulteration of Cattle Feed.—Process Butter.—Selling the Best Cows.—Geneva Experiment Station Herd.—Making Good Dairy Products.

ED. HOARD'S DAIRYMAN:—One of the laws passed by our last legislature, but which was not signed by the Governor till after the adjournment, is known as the "Bob veal law." Considerable turmoil and rejoicing have been indulged in, in some quarters, because of it, together with the fact that, as one of the results, a half hundred or more dealers in the three-days' old "slippery stuff" are about to be brought to bay. Now, why did not the framers of the law add a codicil which would twist the necks of the scoundrel farmers who furnish the "veals"(?) to the dealers?

Why should they be left to furnish another gang of dealers with more "bobs," and do it *ad libitum*, *ad nauseam*, while only the dealers are prosecuted? They may easily be hunted down, as their names and addresses are known at every express office from which their "wares" have been shipped.

If it were not for these dishonest, greedy scoundrel farmers, no "bobs" would be shipped; no arrest of dealers; and no expense incurred by the Department of Agriculture, to hunt down and prosecute these men. Surely one's first thought is: "Why should these farmers escape the payment of a just penalty." What sort of law would one be that allowed illicit distilleries and open dens for the manufacturing of counterfeit money, but only provided punishment for the dealers in the whiskey, and the "shovers of the queer?" I, for one, can see no difference.

If disease is to be cured, the *cause* must first be removed. If bob veal shipments are to be stopped, the farmers who furnish the carcasses must first be lassoed. Just so with process butter, filled cheese, stuffed fruit packages, and, as a rule, adulterated maple sugar. They are all "onto the game." Greed is the cause, and the disease is spreading; and, if it keeps gaining as it has during the last decade, it will require a Diogenes and lantern at high noon, in every town, to find an "honest man."

We used to say "honest farmer," but that was some time since, during which several of them have died.

Assemblyman D. P. Witter, of Tioga Co., and a subscriber to the DAIRYMAN has made a good record by introducing and forcing through the legislature a bill which the governor has signed, prohibiting the vending of adulterated cattle foods. Mr. Witter is himself a large dairyman; has been on the staff of Director Dawley, as a speaker at farmers' institutes; is familiar with the feeding values and analyses of all our cattle foods, and was, therefore, just the man to step in and drive the entering wedge in this move to stop the

"Necessity Knows No Law."

But a law of Nature bows to the necessity of keeping the blood pure so that the entire system shall be strong, healthy and vigorous.

To take Hood's Sarsaparilla, the great blood purifier, is therefore a law of health and it is a necessity in nearly every household. *It never disappoints.*

Tired Feeling – "I had that tired, dull feeling, dyspepsia, headaches and sinking spells, but Hood's Sarsaparilla made me a new man. I never was better than now." JOHN MACK, Oskaloosa, Iowa.

Rosy Cheeks – "I have good health and rosy cheeks, thanks to Hood's Sarsaparilla. It builds me up and saves doctor's bills." MARY A. BURKE, 604 East Clair Street, Indianapolis, Ind.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Not a Preservative but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION MILK COOLER-AERATOR. It does its work perfectly and its use doesn't violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO., 67 Main Street, Cortland, N. Y.

adulterated cattle food swindle, which is being practiced by almost every miller and feed dealer, to a greater or less extent, in the state.

So extended has this fraud become that it is almost impossible to go to a feed store and buy pure cattle foods; and it is hoped that Mr. Witter's law will reach these dishonest dealers and shut them off.

The interim between the signing of the bill by the governor, and the date of its becoming an operative law, January 1, 1900, will give the holders of adulterated stock, time to clear it up. If any of them are caught selling it after that date, it is more than certain that Mr. Weiting's scouts will have them where their hair is short.

Another law is that relating to process or sterilized butter, and which prohibits its sale. Doubtless, it will prove to be a black-eye for the filthy people on the farms who furnish the original "base" for the stuff, and which the cross roads and village merchants buy, paying one price for all grades, because they "do not want to lose the customer."

When these women who weekly make and swap this villainous compound for "kerosene, kodfish and kalico" at these stores, find their markets closed, they will either learn how to make butter instead of grease, or else send their milk to a cheese factory or creamery.

One thing is sure: The merchants who have been buying this stuff and selling it to professional packers are going to find their markets closed, so that, no doubt, they will either buy the so-called butter and pay for it according to grade, or else refuse to buy it at all. The latter plan would stop its manufacture and save a *quantum* of profanity on the part of some poor deluded mortals who buy it and take it home, to be eaten from the family table.

Will the day ever come when the average dairyman will refuse, for a slight additional price, to sell his best cows? A few days since, a buyer from Connecticut, came into town and selected a number of the very best cows in this locality. I saw them being "rounded in," at the village hotel sheds, and could not refrain from asking some of the sellers why they had kept these cows through the winter, and now, when cheese was selling for 9¼ to 9½ cents, they were selling their very best cows.

Of course, they offered various reasons. One man's cow had not yet freshened, and he thought he had enough without her; another wanted the money; while another sold two to get rid of one. One of the two latter was a very high grade, if not a full blood Jersey, just fresh, which her owner said was making nearly 10 pounds of butter a week, on dry feed. "What did you get for her?" I asked. "Well, I'll tell you, I let her go because I wanted to sell that one. I got $80 for the two; I called her $50, the other one $30. Couldn't sell the other one, without I let the Jersey go. Guess I missed it, as I've got to go out and hunt up another cow. Haven't got one of any kind."

Presently, after the man had been paid, a neighbor of his offered the buyer $60 for the Jersey, but he smiled very sweetly and remarked: "Guess not; but, if you fellers want anything in the bar-room, go in, I'll settle."

I said to the man who sold the two cows: "It would have been money in your pocket, situated as you are, could you have done no better, to have given the $30 dollar cow away, and kept the Jersey, as I think the Jersey is worth more than the price you got for both." He made no reply.

Readers of the DAIRYMAN, or some of them, will recall my article in the paper about a year since, descriptive of the Jersey herd which Mr. Dawley and Mr. George A. Smith selected near Fayetteville, for the State Experiment Station Farm at Geneva. While in Geneva last spring, I visited the station and looked over the herd, Mr. Smith accompanying me. Pointing to one of those cows, he said: "There is one of the herd. She is 'Osborn.' I have forgotten her number, but here are a few figures showing what she is doing.

She dropped her calf, February 6th, having been dry about three weeks.

March 11th she gave 40 pounds, 10 ounces of milk, which Babcocked 5.6% fat, and which shows that we made no mistake when selecting her for the station herd."

"What is her ration?" I asked.

"Well she is now eating 40 pounds of good ensilage, 6 pounds of mixed hay, principally clover, 10 pounds of sugar beets, 3 pounds of wheat bran, 2 of malt sprouts, and 1 of linseed meal. Possibly as she advances in lactation, we may increase, decrease, or change somewhat the formula of her ration. At present however, she is doing extra well producing, as she does, about 2¼ pounds of butter fat per day. If we add 15% for moisture and salt, which is 5% less than the World's Fair scale, we shall have 17 pounds of butter in seven days."

I said "I consider her an extremely good cow, and one whose record clearly showed that, when the cowology of a Dawley and Smith were combined, no doubt ought to be entertained as to the results of any of their selections.

It pays best to make best goods—butter and cheese—and to exhibit and advertise them whenever opportunity occurs. *Some* one is sure to want them, and is willing to pay good prices. The man or woman who makes inferior or second quality of dairy goods, stays away from fairs, institutes and dairy exhibits, then swaps them for groceries at the village store, while they may pride themselves on being classed with the "great unwashed", will never cut much ice, or be missed when they go over the divide; while the one who goes to the front with his products and shows them to the lookers on, is sure of his reward, when it is seen they are of the best.

Mrs. F. E. Dawley, of Fayetteville, New York, is of the latter class. She made, with her own hands, butter and cheese, then had the courage to show her handiwork at the meeting of the State Dairymen's Association, at Gouverneur, last winter, where they were seen and admired by thousands of people. As a result of her ability and pluck, her products scored among the highest, some of them reaching the highest possible figures, 100 points. Seeing this, a dealer just starting a high-class retail dairy product trade in Cortland, wrote her, in part, as follows: "I am only just trying to start, in a small way, a retail butter, cheese and egg business here. If I succeed in getting such a place as I want, I intend to put upon the market just such a class of goods as you make, and also such cheese as Mr. H. E. Cook makes. I want the finest butter and cheese that I can get. I have been a cheese maker during the last eighteen years, and have met a good many of the gentlemen on the state dairy force, including Mr. F. E. Dawley, G. A. Smith and H. E. Cook, and I congratulate you upon your high score of butter and cheese at the State Convention at Gouverneur; and I think the time is right here, when the people are going to demand, for home consumption, such goods as are manufactured by the people on the institute force; made from good, clean, inspected milk, with the quality and purity of the goods guaranteed; and, if I open a retail trade here, this spring, you will hear from me again, as such goods as you manufacture are such as I want to place before the people."

When one comes to know that Mrs. Dawley did all the work of making the goods she exhibited—from the running of the "Humming Bird" separator, to the packing and printing of the pound prints of butter, and from the placing of the milk in the cheese vats, to putting it in its jars or pots ready for exhibition, in view of the honor conferred upon them by the scores at Gouverneur, and the writer of the foregoing letter, surely he must admit that Mrs. Dawley is entitled to take the highest honors, when lodge opened in that degree. C. W. JENNINGS.

Bellieville, N. Y.

Concerning Stave Silos.

ED. HOARD'S DAIRYMAN:—In your paper of May 19th, is a long article copied from the Cornell University Bulletin, which in one sense has your endorsement. You give it a great deal of prominence and virtually endorse the statement made in that article when you say that a silo made out of staves need not be beveled. In fact, the article itself says that it is better if it is unbeveled. It may be said by you that "it is our province as a paper to publish anything that is the greatest good to the greatest number of our readers." We hold of manufacturers like ourselves, or manufacturers of feed cutters, silos or anything else, that their existence as manufacturers depends upon our turning out a first-class article and it would naturally follow that if we are turning out a first-class article it is because we believe it policy and best for the trade that this be done and can only arrive at such a conclusion after quite a little investigation.

We have tried to investigate and find out what was the best for us to make and the further we go into this matter, the more we feel that the better a silo can be made, the better it is for the man who makes it and any article like that published doesn't change our mind any. We confess that it seemed to us as though that article was inspired largely by this feeling which seems to be so prevalent all over the country, that we must get something cheap; we must get something just as near costing nothing as possible. People never got something without they paid for it, and it is just as true in the matter of silos as it is in anything else. There are many localities where silos are not used at all, simply because the first ones were built square, they were not half made at that, they bulged between the corners, the ensilage hung in the corners and spoiled, and while even a square silo, properly built and the ensilage put in in a proper manner will keep it in good shape, yet it never kept ensilage as sweet as a round silo properly built.

We write this because this article from Cornell advocates a make-shift in our judgment, and your publishing the article virtually indorses it. WILLIAMS MFG. CO.

Kalmazoo, Mich.

Butter Milk from Skim Milk.

In a late issue of *Home and Farm* a number of inquiries were printed as to the feasibility of making good butter milk out of separator skim milk. As there seemed to be some doubt about it in the minds of some of our correspondents, to set that doubt at rest, the DeLaval separator people have sent us the following communication in regard to inquiries about making butter milk from separator skim milk:

"The usual way of treating this skim milk for making butter milk is to set the milk after it is separated in a can or vat and mix with it what is called a starter, or, in other words, a small portion of butter milk. This has a tendency to sour skim milk, and this should stay in the can at least twenty-four hours. When the milk has soured, put it in a churn and churn it for one-half an hour to an hour.

"By treating the milk in this way you will have excellent success in making butter milk. Your idea of mixing the butter milk is correct, and the temperature stated, 75 to 80 degrees, is about right. We know of a great many that are treating their milk in this way, and are having entire success with the butter milk."

This carries out substantially the instructions as I have given them, and should save to the Southern butter maker all his skim milk for a market always anxious to get good butter milk.

Keep Your Youth

If you are young you naturally appear so.

If you are old, why appear so?

Keep young inwardly; we will look after the outwardly.

You need not worry longer about those little streaks of gray; advance agents of age.

Ayer's Hair Vigor

will surely restore color to gray hair; and it will also give your hair all the wealth and gloss of early life.

Do not allow the falling of your hair to threaten you longer with baldness. Do not be annoyed with dandruff.

We will send you our book on the Hair and Scalp, free upon request.

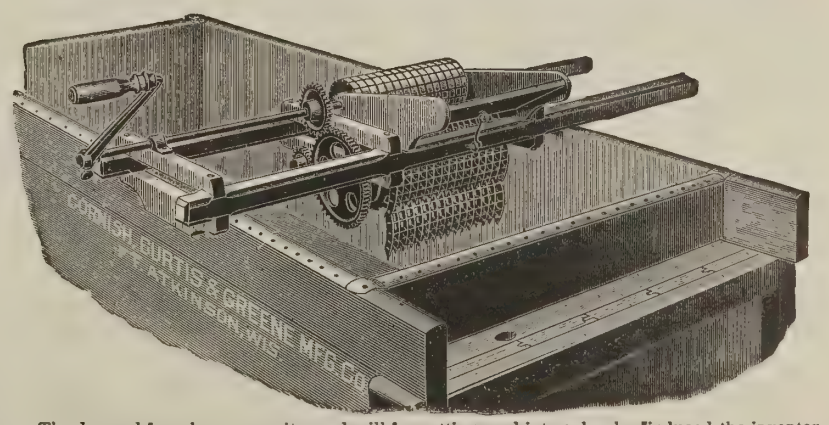
Write to the Doctor.

If you do not obtain all the benefits you expected from the use of the Vigor, write the doctor about it. Probably there is some difficulty with your general system which may be easily removed.

Address, DR. J. C. AYER, Lowell, Mass.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

A Stave Silo Experience.

ED. HOARD'S DAIRYMAN:—I took the model you published for building a silo from the Purdue (Ind.,) Experiment Station last fall and wish to tell you the result

In the first place, I had planted twenty acres of black cow peas and they made a very large crop, a great deal heavier yield than any clover I ever raised, but we had showers so often that I could not cure them for hay.

I believed I could soon build a silo of such 2x4 lumber as I could buy at our lumber yard, so I made a trench 18 inches deep, built a brick foundation, 2 feet high, in a circle 24 feet across, set four 4x6 scantlings to put the end of hoops through, to draw tight with screws. We then took two lengths of 2x4, half 14, the other half 16 feet long, and spliced in middle alternately as directed; that made it 30 feet high.

Set it close to barn and made a small room between the silo and barn to throw the silage into. Covered it all with galvanized iron, filled it with cow peas and field corn about half an inch long run through a cutter and up a 40 foot elevator and tramped it down well in the silo.

I have never fed silage before, so I can not tell if that is better than all corn silage, but know that it kept well, with the exception of a little, where there were small cracks that we could not close up so that daylight could not be seen through. We turned the nuts on the five-eighths iron rods or hoops, until the washer and nuts sunk into the wood, the thickness of the nut, and still daylight could be seen.

I wet the inside well with water when we filled it but it did not swell enough to make it perfectly tight. We had a few feet of cut corn fodder on top and there we found a foot of mold opposite to the crack, but where peas were mixed with corn it was not more than three or four inches thick.

The spoiled was but a very small per cent and we did not give it to the milch cows but to young cattle. It seems that a perfectly tight silo will keep the silage all right and it was a much better feed than corn fodder and hay and I have a strong belief in mixing cow peas with corn for silsge.

I have now taken off the nuts and washers and put on inch thick elm plank pieces and turned the nuts a great deal tighter but still can see some daylight between some of the staves. I remember reading of some one in the DAIRYMAN that plastered his stave silo with cement. I would like to know if he puts slats on or what way he could get cement to fasten on. It would not stick on smooth staves.

I like the silo very much and also the cow peas to mix with the corn as they give a fine yield and I think help to balance the ration so that less bran need be bought. My cows did better last winter than ever before, the main fault being that I did not have enough silage or oats for them (I had 80). I am now planting forty acres cow peas and if they yield as well as last year I will build another silo on the same plan the coming fall.

I went at it unprepared and did not try to build cheap. When completed it cost me $350 but I do not regret the cost, only wishing that I had built one long since. I have cut and shucked corn as best I could for years and run it through a fodder cutter, thinking to get all the benefit of corn, but there is much more loss and stock does not do as well on it. JOHN PATTERSON.

Missouri.

Butter at 10 to 12 Cents.

At the fourteenth anniversary of East Haddam grange, W. C. Beach of Storrs college Conn, told of a series of experiments made at the college for a year past with its herd of cows.

They were charged $10 a ton for hay, $3 a ton for ensilage, $22 a ton for cottonseed meal, $18.50 a ton for gluten meal and $14 a ton for bran. They were credited with the butter made at 18 cents a pound. No account was taken of the skim milk. The herd numbered 25. The average for the year was 310 pounds of butter at a cost of 14.1 cents a pound. The average cost of keeping for the year was $40 91 a cow. The net profit was $14 89 a cow.

A full-blooded Jersey made 506 pounds of butter. The cost of keeping was $48.80; net profit, $42.28; cost of butter per pound, 9.6 cents. Another made 466 pounds of butter; cost to keep, $44.43, giving a profit of $39.50, butter costing 9.5 cents a pound.

The average of the beef type, four cows, was 221 pounds of butter; cost of keep, $38.12, profit, $1 21, cost of the butter per pound 11.8 cents.

The dairy type, 12 cows, averaged 330 pounds of butter, costing 12 2 cents a pound; the cost of keeping was $22.29, leaving a profit of $18.70 per cow.

The remaining seven cows were lacking in digestive powers and gave an average profit of $8.50 a cow.

Butter Tests at Valley Mead.

ED. HOARD'S DAIRYMAN:—We wish to report the butter tests of fourteen cows and heifers, which have, of late, been made at Valley Mead. Over one-half of these tests have been officially supervised by the Wisconsin Experiment Station, and all of them have been entered and accepted in advanced registry, as follows:

NAME OF COW AND NO. IN ADVANCED REGISTRY.	Age.	Total Lbs. Milk in 7 Days.	Total Lbs. Butter Fat.
Brightest Promise 1463	9 years	464.4	14.652
Aspizanie 4th 1464	7 years	446.7	14.572
Careme 4th Pauline 1465	4 years	394.4	14.690
Careme 3rd Pauline 1466	3 years	382.8	13.974
Mechtchilde 6th 1321	1 years	342.6	13.263
Mechtchilde 7th 1468	2 years	322.2	12.540
Aggie Scholton Mercedes 1319	3 years	411.	12.609
Tirannia 3rd Netherland 1320	3 years	352.	12.455
Tirannia 6th 1467	2 years	335.	11.752
Elgin Belle 6th 1344	1 yr. 9 mos	282.9	10.416
Natsey Lady Baker 1435	2 years	300.3	10.213
Nimpje's Albino DeKol 1434	2 years	294.8	10.309
Athalend Calantha	3 years	304.7	9.78
Daisy Ryanda's Parthenea	1 yr. 7 mos.	226.3	7.10

We think, age considered, the above showing a very good one. None of them had been especially prepared for a test, but were taken off common, ordinary feed, and put in the test. We do not wish to take space here to give their breeding, but Holstein men are familiar, that more famous breeding cannot be found in America. KARLEN & CO.

Valley Mead Stock Farm, Monticello, Wis.

Silos and Ensilage.

ED. HOARD'S DAIRYMAN:—I have been reading with much interest, your description of stave silos, by Cornell University, which I think is very good. I have used a stave silo three years. And after using one that long, would not like to go back to the old way of feeding hay.

The first winter I fed ensilage and hay; the second winter I fed less hay than I did at first, and the third winter I fed no hay at all, nothing but ensilage for roughage.

I find it takes less grain, such as oil meal and corn and cob meal, etc., than when I fed hay, and my cows do just as well on ensilage and grain, if not better, in every way; besides giving more milk, than when given hay and grain. I think ensilage a very cheap food.

I put ten acres of corn in the silo last fall. I fed 27 head of cows all they could eat, gave some to young stock, and the ensilage lasted until grass was good this spring.

I also read, with much interest, the article written by Uncle Fred, telling about his silo being built partly in the ground and partly above the ground.

I built my silos that way—had some trouble with them, and also success. My ground where I built my silos is flat ground, and the water and also the weight of the ensilage broke the bottom of the silos, and let in the water; then I built the bottom of the silos stronger, and had no more trouble. I find it is not hard to keep water in a cistern, but it is hard to keep water out of one.

I like the plan very much; my ensilage keeps better below the ground than it does above the ground. I am going to build another silo this fall, and I intend to build part below the ground. Then above the ground I am thinking of using common two-inch lumber, 4 inches wide by 20 feet long. Set that up just outside the foundation wall. Tighten the rods reasonably tight, build the wall up to the top with brick, laying the brick tight against the boards; cement the inside of the brick wall from the bottom to the top.

I will leave three doors to throw ensilage out of. It seems to me as though a stave silo built the way I have just mentioned, would be perfectly air tight. The only objection I can see is the freezing of the ensilage in winter would cause the cement to crack and come off.

I saw a square silo that was lathed and cemented on the inside. The freezing of the ensilage seemed to have no effect on it, but the sides were not strong enough and the pressure of the ensilage caused the sides to spread and crack the cement.

I find when I first fill a stave silo, the staves swell very tight. In time the ensilage cools off some, then the staves shrink just enough to let in some air. The most near the top. The ensilage is spoilt down the sides to the depth of four or five feet.

Farther down the sides the ensilage has a musty, disagreeable smell. The cattle do not seem to relish it as well as they should. When I am feeding the ensilage that is below the ground it has a sweet smell, and the cattle eat as though they liked it. It seems to taste good to them. My object is to have as little spoilt ensilage as possible. What do you think of my plan? I want to learn all I can. GEO. D. HERRING.

Lee Co., Iowa.

Our correspondent has certainly offered a new suggestion in silo building, and one that would seem to do away with the disadvantage of staves shrinking that is found in the stave silo. If the brick are firmly backed up against the staves so that there would be no chance of movement when the silo is filled, we see no reason why this plan should not be a success.



MECHTCHILDE 1718, H. H. B.

Property of KARLEN & Co., Monticello, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, aggregated 13,620 pounds. Bidding opened at 17 cents but advanced early to 18 cents, at which price the entire offering was sold. The market was declared steady at 18 cents. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Red Clover	4,500	18c
Winslow	1,500	18c
Shannon	2 100	18c
Baileyville	1,320	18c
Aurora	900	18c
Cobb	3,300	18c
Total	13,620	

The markets for the corresponding week of the three preceding years were as follows:

June 6, '98, no sales. Market price 15½c.
June 7, '97, 42,840 lbs. of butter sold at 14½@14⅝c.
June 8, '96, 51,540 lbs. of butter sold at 15@15½c.

The New York market was reported firm at 18½ cents. H. C. B.

Elgin, Ill., June 5.

Patents and the Dilution Process of Raising Cream.

ED. HOARD'S DAIRYMAN:—It has come to our knowledge that certain parties are contemplating to collect royalty from farmers, who are using the "dilution process" of cream raising, claiming a patent on the process of dilution. Will you please inform such of your readers as are desirous of using this process, of extremely doubtful utility, that while several forms of cans have been patented, so far as is known, no patent has been issued covering the process of diluting milk with water, as a means of separating the cream. A bulletin will shortly be issued from the Cornell University Agricultural Experiment Station, giving the present status of the whole matter.

H .H. WING, Prof. of Dairy Husbandry.

Making a Pasture.

An Iowa farmer writes:

The best pasture we ever saw in this locality was made by discing oat stuble in the fall, sowing rye and pasturing the rye and second growth oats that fall. In the spring after the ground was dry, mammoth clover seed was sown at the rate of one bushel to eight acres and stock turned in. When the rye headed it was clipped with a mower set as high as possible. This made a mulch for the clover, and also thickened it, and it was a good pasture all the season. The next year it was still better, the cows wading to their bellies in clover. Early in July the clover was clipped with a mower, with the bar set at the highest point, and two tons per acre of fine hay secured, and the stock reveled in the newly growth of clover the rest of the season. We shall plant it to corn this year.

Notes on the Iodide Treatment for Milk Fever.

The new cure for milk fever by the injection into the udder of a solution of iodide of potash is claimed by veterinarians and others to give very excellent results, and already it is becoming recognized in certain quarters as one of the most reliable remedies yet introduced. As already pointed out in these columns, it consists in injecting into the udder (through the teats) one drachm of iodide of potassium mixed with one quart of boiling water, cooled down to 98° F. before being used. Half a pint of this is to be injected into each quarter of the udder. The animal should then be placed in a comfortable position on her chest, and the udder gently rubbed. Her position should be changed every two or three hours, and only one injection is necessary. It should be borne in mind that before the injection is given, the udder and teats should be carefully washed with soap and water, to which a little carbolic acid has been added.—*Farmers' Gazette*, Ireland.

DAIRY MARKETS.

ELGIN, Ill., June 5—Butter—Steady, offerings 227 tubs; all sold at 18c.

CHICAGO, Ill., June 5—Butter—Creamery extra 17½c; firsts, creameries, 16@16½c; seconds, 13½@14c; dairies, selections, 15c; No. 1, 13@14c; No. 2, 12c; extra ladles, 12½c.

Eggs—Fresh, at mark, cases returned, sold at 11@11½c; loss of, cases returned 12@12½c; duck eggs, 12@12½c; goose eggs, 12½c.

Cheese—Full cream, twins, new, good to 11@13c; Limburger, 7@10c; bricks, new, 7½@8¼c.

Bran—In fair request and sold at $10.50@11 per ton.

Cattle—Prices average about 10c lower than the close of last week for all grades of cattle. Best steers showed the least decline, and fed Westerns and cow stuff the most decline. Trade opened slow, but later improved. The extremely hot weather interfered with the prospective beef demand. Exporters bought quite freely at $5.15@5.30, with some at 5.40. The top of the market was 5.50, for 1,321 pounds average. Fed Westerns sold at 4.60@5 35; bulk, 5.@5.25. Missouri fed Texas sold at 4 70@4.95; and straight Texas steers averaging 942@980 pounds at 4@4.55; Texas cows 2.75@3.25; Texas calves 150 pounds, 6, and 886 pound oxen at 2 70. Distillery fed steers sold at 5@5.10, and 1,164@1,334 pound still bulls at 3.20@4.25.

MILWAUKEE, Wis., June 5—Butter—Creamery, fancy prints, per pound, 17c; extras, 17c; firsts, 16@16½c; seconds, 14@15c; imitations, 14@15c. Dairy, selections, per pound, 13@14c; lines, 11@12½c. Roll, fair to choice fresh, 9½@10c. Market unchanged with receipts of 22,430 pounds and a moderate local and shipping business.

Cheese—American full cream, new, choice to fancy, 8@8½c; Brick, new, per pound, choice, 7½@7¾c; Limburger, fall, choice, per pound, 9@9½c; new, choice, 7@7½c; Swiss, drum, choice, 12½@13c; block, choice, 10½@11c. Considerable inferior now offering which has no quotable value. Market easy and quiet; receipts are 4,210 pounds.

Eggs—Fresh, per doz., 11½@12c, cases returned. Receipts 1,159 cases, which together with the increased loss-off caused by the heat, brought about a decline in values.

FOND DU LAC, Wis., June 5—Offerings, 504 Twins and 150 Daisies. Market fairly active at 7½c.

CHILTON Wls.. May 31—The following sales were reported to-day: 200 Twins at 7½c and 400 cases Young Americas at 7½c.

BRILLION, Wis., May 26—Offerings of cheese to-day 823 Daisies, 601 Twins, 448 Young Americas. Market was weak and buyers not anxious to take hold. The quotable market was 8¼c all round, though a few Twins sold at 8½c and a few Young Americas at 8c.

MANITOWOC, Wis., May 31.—Offerings of cheese at the Dairy Board of Trade to day were 300 boxes Daisies, 57 boxes Twins, 600 boxes Young Americas. All offerings sold at 7½c.

SHEBOYGAN FALLS, Wis., May 31.—There were 989 boxes of cheese offered on the call board to-day, and all were sold as follows: 782 cases Young Americas at 8c; 45 Twins at 8c; 77 Twins at 8½c; 85 boxes Daisies at 8¼c; and 10 at 8c.

SHEBOYGAN, Wis., May 31.—The sales reported to day were 420 Twins and 530 cases Young Americas, all at 8c

NEW YORK, June 5—Butter—Creamery, western extras, 18@18¼c; firsts, 17@17½c; state extras, 18c; firsts, 17@17½c.

Cheese—State full cream, large colored or white, choice, 7¾@8c; small white, choice, 8½@8¾c.

Eggs—State, Pennsylvania and western, 14@15c.

FULTON, N. Y., May 29—Sixteen factories were represented with 1,525 boxes of cheese. Large sold at 8c; small at 8⅜c. No butter was offered,

CANTON, N. Y.,—May 29—There were 400 small cheese sold here Saturday at 9¼c. The 1,500 boxes of large cheese were unsold. There were 1,200 tubs of butter sold at 18c.

OGDENSBURG, N. Y., May 29—On the board Saturday, 1 590 boxes of cheese were offered. A bid price of 8½c resulted in no sales, but later on the streets all offerings were disposed of.

WATERTOWN, N. Y., May 29—There were 5,000 boxes of cheese sold, a large majority on the curb. The range was 8¼@8½c for large, the bulk going at 8⅜c.

UTICA, N. Y., May 29—There was another decline in prices to-day, in sympathy with that of the seaboard markets. As compared with last week, the drop from top figures was ⅜c on small white, ¾c on small colored and ⅜c on large colored. There was also an increase in the sales on commission. The ruling price, however was about 2c higher than a year ago. The sales were 95 lots, 5,964 boxes at 7¾ @ 9c.

The transactions on May 31st, 1897, were 7,126 boxes with 7⅝c the ruling price. The transactions on May 30, 1898, were 5,084 boxes, with 6¼c the ruling price.

LITTLE FALLS, N. Y., May 29—Sales were made as below: 47 boxes large colored, 7¾c; 210 boxes large colored at 8c; 100 boxes large colored at 8⅜c; 150 boxes large colored at private terms; 175 boxes white, large, at 8c; 1,290 boxes small white and colored at 8½c; 2,590 boxes white and colored at 8¾c.

PHILADELPHIA, Pa., June 5—Butter—Solid packed separator creamery, extra, 18c; firsts, 17½c; seconds, 16@17c; imitation creamery, extra, 16c; firsts, 15c; seconds, 13c; ladle packed, extra, 15c; firsts, 14c; seconds, 13c. Print butter, creamery, extra, 18c; firsts, 17c; seconds, 15@16c.

Eggs—Pennsylvania and nearby, 14c; western, 14½c; southwestern 14c; southern, 13@13½c loss off.

BALTIMORE, Md., June 5—Butter—Market steady; creamery separator, extra, 18@19c; extra first, 17½c; creamery first, 17c; creamery imitation extra, 15@16c; ladle extra, 13@14c; western store packed, 11@12c.

Eggs—Market steady; strictly fresh stock, 13@13½c.

DETROIT, Mich., June 5—Extras, 19c; slow sale. Fancy dairy, 13c; active.

Eggs—13½c.

WASHINGTON, D. C., June 5—Market steady, extras, 18½c; firsts, 18c.

NEW ORLEANS, La., June 5—Extras firm at 18½@19c; gathered cream creamery, 17½@18c; No. 1 ladles, 14c; No. 2, 13c. Stocks and receipts small.

NEWARK, N. J., June 5—Market steady, 18½c for western extras. Receipts liberal.

ST. LOUIS, Mo., June 5—Butter—Steady; creamery, 15@18½c; dairy, 12@15c.

Eggs—Lower, 10¾c.

KANSAS CITY, Mo., June 5—Butter—Creamery 15½c; dairy 13c.

Eggs—Fresh, 11c.

BOSTON, June 5—Butter—Creamery, extra 18½@19c; western extra, 18½c; dairy extra, 17c; imitation creamery, 14½@15c; western ladle, 13½@14c; print creamery, 19@20c; box creamery, 19@19½c.

Eggs—Fancy, near by 16@17c; choice, fresh, 15c; Michigan extra, 14½c; western 13½@14c; fair to good, 13@13½c.

CINCINNATI, O., June 5—Butter—Quiet, 18½@19c;.

Eggs—Easy lower, 11c.

Cheese—Steady, good to prime Ohio flat, 9½@10c.

NEW YORK MARKET.

NEW YORK, June 3—Butter—Receipts for the week, 55,726 packages. Exports for the week, 1,977 packages.

Buyers have been very particular in making their selections this week and only the very finest quality has passed at 18½c. Good firsts sold freely at 17½@18c, and inferior creameries have had some inquiry at 16½@17c. New York State creameries were more plentiful and freely offered at quotations. Large lines of extra creameries were put into freezers for later markets.

New York State Dairy sold quick at 17@17½c for finest selections and 14@16c for good to fine lots. Imitation creameries and ladle butter were firm at a trifle advance in prices. We quote: Creamery, extra, 18½c; medium, 17@18c; poor, 15@16c; Dairy, extra, 17@17½c; medium, 16@16½c; poor, 14@15c; ladle, extra, 13½@14c; medium, 13@13¾c; poor, 12@12½.

Cheese—Receipts for the week, 25,886 boxes. Exports for the week, 11,285 boxes.

Buyers had every thing their own way and prices declined fully one cent per pound on the week's business. Exporters paid 8¼@8½c early in the week for finest large cheese, but at the close 7⅞@7¾c were the best prices. Small cheese were in liberal supply and freely offered at our quotations. We quote: Full cream (large colored) extra, 7¾@8c; medium, 7@7¼c; poor, 5@6c; Full Cream (large white), extra, 8@8¼c; medium, 7½@7¾c; poor, 6@7c; Full cream (small white), extra, 8½@8¾c; medium, 7¾@8c; poor, 6@7c; Full cream (small colored), extra, 8¼@8½c; medium, 7¾@8c; poor, 6@7c.

Eggs—Receipts for the week, 76,960 cases. Market less active and prices lower. We quote: New York State & Pennsylvania, 15@15½c per dozen; Western & Northern, best marks, 14@14½c per dozen; Other sections, 13½@14c.

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md., June 1,—Butter—The supply of separator creamery from regular sources has been more liberal since our last issue, and indeed has exceeded the consumptive demand in about the same proportion as the three or four preceding weeks were short of it; and though ordinarily these increased and plentiful receipts would give the receivers more than they could satisfactorily dispose of, at this time, and in the hungry condition of the buyers the placing of the extra supply would impose no great task upon them but for the fluctuations in prices causing great uncertainty as to whether all conditions are now most favorable for speculation in the grass-fed lots. Of the next variety, gathered cream creamery, the receipts have been gradually increasing, and in greater ratio than the quality has been improving, nevertheless the bulk of them have been sold to retailers for current use. The receipts of imitation creamery and ladle packed have been fair and of better quality; the demand is about equal to absorbing all that arrives for sale, and the remainder goes into the freezers on shipper's orders. Exporters have not had much encouragement, and their shipments are confined to samples and regular orders for consumptive demand. There has been the customary business in the blocks and prints, the receivers at the close not carrying over any considerable stock. Storepacked Ohio and W. Va. has been in more liberal receipt, and the demand has been brisk

Creamery Separator, extras, 19c; firrts, 18c; seconds, 17c; creamery gathered cream, extras, 17c; firsts, 16c; creamery, Ohio, extras, 18c; firsts, 17c, seconds, 16c; Iowa & N. W. Ladle, extras, 14c; firsts, 13c; seconds, 12c; Ohio & Indiana Ladle, extras, 14c; firsts, 13c; seconds, 12c; Ohio Storepacked, extras, 12c, firsts, 11½c, seconds, 11c; W. Va. storepacked, extras, 12c; firsts, 11½c; seconds, 11c; Creamery blocks, (2 lb) extras, 20c; firsts, 19c; seconds, 18c; creamery prints, (½lb.) extras, 21c; firsts, 20c; seconds, 19c; Md. Va. & Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—While the receipts have been a trifle heavier so far this week, the demand has been fully equal to the supply. All invoices of choice stock are promptly placed as soon as they land. Our market still remains in good shape and steady at 13½c.

Cheese—All arrivals are composed entirely of new cheese. The supply is quite sufficient for all demands; market quiet and irregular.

N. Y. State—Cheddars, fine, 9¼@9¾c; choice, 9@9¼c; fair, 9c; small, fine, 10; choice, 9½c; fair, 9c; Ohio flats, fine, 9@9½c; choice, 8½c; fair, 7½@8c; Ohio picnic, fine, 10c; choice, 9½c; fair, 9c; Swiss cheese, fine, 10@10½c; choice, 9@9½; fair, 8½.

G. M. LAMB & BRO.
301 Exchange Place.

Latest quotations for fancy creamery—Buffalo, 17½c; St. Paul, 16½c; Minneapolis, 16@16 4c.

FOREIGN MARKET.

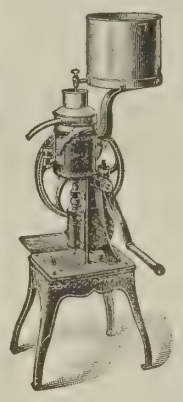
BOSTON, June 3.—Cable advices of this date from the principal markets of Great Britain to Geo. A Cochrane give butter markets as barely steady owing to very heavy arrivals of Continental and Irish. The weather is intensely hot and many of the arrivals are badly out of condition. Danish is selling from 19@20½c, finest Irish 18@19c Canadian butter, which is arriving in good order, is in fairly active request at 18@18½c. The home make of butter is large and prevents any good being done in American ladies, which are meeting a slow sale at 13½@14c. Nothing in the finer descriptions of American arriving, but finest creamery, in boxes, would sell, probably, at 17½@18c.

Cheese markets are all tending downwards, and while old is in small compass it is difficult to make over 11c for finest white of American or Canadian September make, while colored is difficult of sale at ¼@⅜c less money than white. New cheese of both Canadian and American are arriving in increased quantities, but is being fairly well cleaned up from 9½@10½c.

LIVERPOOL, June 5—Butter—Finest United States, nominal; good, 65s.

Cheese—American Finest white, 50s; colored, 47s; ordinary new, 46s 6d.

"ALPHA-DISC" CREAM SEPARATORS



The improved "Alpha" disc or divided milk-strata system is used in the De Laval separators only. Strong patents prevent its use in any other machines. The "disc" system makes the De Laval machines as superior to other separators as such other separators are to setting systems. It reduces necessary speed one-half, reduces size of revolving bowl, saves labor and power, enables simplicity and durability, skimming cold milk, running cream of any desired thickness, and insures absolute thoroughness of separation under practical use conditions, which is not possible with any other separator or creaming system.

Send for new 1899 catalogue.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO.
GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK.
Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Fifteen h. p. boiler and 15 h. p. upright high speed engine nearly new, also 6 h. p. engine. GEO. WOODRUFF, Adm'r, Janesville, Wis. 14-4

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Wanted—At once, a man to work on a dairy farm with milk rout, married man without children perferred. Address, stating wages expected, C. B. DROWATZKY, Tomah Wis.

Wanted—A first-class cheese and butter maker. One accustomed to southern climate preferred. Years engagement; first-class salary. Write for particulars to S. G. FULLERSON, Decatur, Texas.

Exceptionally Low Rates to St. Louis, Mo., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 19 and 20, limited to June 24, inclusive, on account of Annual Reunion B. P. Order of Elks. Apply to agents Chicago & North-Western R'y. 17-2

Exceptionally Low Rates to Buffalo, N. Y., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, on account of Annual Meeting A. A. O. Nobles of Mystic Shrine, to be held June 14 and 15. For dates of sale and limits of tickets apply to agents Chicago & North-Western R'y. 16-2

HOW TO AVOID MILK FEVER.

Valancey E. Fuller, who was Superintendent of the Jersey herd, at the World's Fair Dairy test in Chicago, gives the following as the result of his best experience in preventing milk fever. This dread disease always attacks the heavy milkers. If any of our readers have such a charge on their hands, it might be well to consider what Mr. Fuller says, which is as follows:

"Thirty days before calving, if in summer, keep her on short grass, just enough to keep her working hard to get but a little; give her a quart of bran daily, and about a pint of linseed oil meal (old process), the latter to aid a ready cleaning after calving. If in winter, give her all the hay she will eat, 25 pounds of silage daily, and the same quantity of bran and linseed oil meal as above mentioned.

Three weeks before her due date of calving give her a "drench" of 1 to 1½ lbs. of Epsom salts (according to the size of the cow), one quart of common molasses, two heaping tablespoonfuls of ground ginger, all dissolved in two quarts of hot water; repeat this same drench seven days before she is due to calve, and immediately before or immediately after calving. In addition, give her a handful of Epsom salts, either as a drench or in her feed for the three weeks before calving. I grant you this is heroic treatment but to combat, or, rather to ward off that dread disease, milk fever, heroic measures are necessary.

The object of making the "drench" so large, is this: There is always in the cow's paunch an immense quantity of food; the greater the quantity of water given with any medicine, the quicker and more effectual is the action. "But why give the handful of salts every day?" Have you ever noticed that after drenching, constipation sets in? Constipation tends to fever. That is one of the objects sought, but not the most important.

The direct or contributing cause of milk fever is shrouded in mystery. Authorities differ, but there is a general consensus of opinion that the blood being too thick is the greatest contributing cause. If the blood of a cow that has died of milk fever be placed in water and examined under the microscope, the blood corpuscles will expand to double the size, showing there is too little water and too thick blood. Thin the blood and you go a long way to avert milk fever, and there is no better agent to attain that end than Epsom salts. Do not be deceived because the bowels of your cow are 'loose', that there is no necessity to give a drench. The act of calving will constipate. Thin the blood; thin the blood before calving, and you will best prevent milk fever.

Some object that this is harsh treatment. I give place to no one in my love for a dumb animal. Experience teaches me this is the best practice I know of. I think it necessary, and 'necessity knows no law.' Another objection is raised, and with great force, to the system of cutting down the feed and to the Epsom salts treatment I have advocated, on the ground that it injuriously affects the cow's flow after calving, and doubtless also the richness of her milk. I admit this; it is rough on the cow, but it is necessary, and it is far better to have a live cow, even if you have trouble to bring her to her best work, than a dead carcass. She can be brought to her best work, though it takes a longer time."

How It Affects Iowa.

H. R. Wright, deputy dairy commissioner of Iowa, in speaking of the needed legislation and its effect upon local dairy interests has this to say:

"Practically all of the oleomargarine used in the state of Iowa is fraudulently used. The laws of this state are effectual in keeping out the retailer of oleomargarine, but the practical difficulties in the way of obtaining evidence against the illegal use of a substitute for butter are almost insurmountable. The collectors of internal revenue receive invoices of all shipments of oleo into their respective districts, and insist that the amount shipped into Iowa is very large, but are not allowed by the rules of the department to give information as to the destination of the shipments. Hence the Dairy Commissioner's department must depend npon chance discoveries of hotels and restaurants which are using oleo. The manufacture of any substitute for butter can afford to pay the United States tax of 2 cents per pound and still sell his product at half the price of creamery butter, with profit enough to fight any effort to enforce a state law.

"There is no limit to the amount of oleo that can be manufactured, and since it is almost invariably sold as butter, that means that there is no limit to the amount of 'butter' that may be thrown on the market at any time of the year. It is estimated that the competition of oleo with butter lowers the price of butter from 3 to 5 cents per pound. The amount of butter exported from the state of Iowa added to the amount that is consumed in the state each year makes nearly 200,000,000 pounds, and a matter of 3 cents per pound amounts to something like $6,000,000, which the oleo manufacturers are able to tax the people of our state each year. The production of oleomargarine by the Chicago factories this year is nearly double the amount made last year. Is it not something more than a coincidence that butter is lower than it ever was before in the month of January or February?

The people of Iowa have $25,000,000 invested in cows and creameries, all of which is jeopardized by the unlimited competition of oleo. White oleomargarine is unsalable, though a legitimate article of commerce. Yellow oleomargarine is a fraud and a counterfeit, and is salable only as such. As a fraud and a counterfeit it ought not to be allowed to compete with butter. The easiest way to deal with the subject seems to be to put upon it a prohibitive tax. Hence the movement to tax yellow oleomargarine 10 cents per pound."

Dairy Figures.

At one of the creameries in southern central New York, the other day, one of the patrons had a test made of the individual cows of his dairy, says a writer. He was surprised to find that one of the herd which he had supposed to be an unusually good cow reached a percentage of less than three by the test. She may not have been in good condition at the time the test was made, or other circumstances may have been against her. But if after repeated trials, her percentage should continue low, the owner would be justified in sending her to the butcher.

Let us think for a moment what a low rate cow does for the unfortunate man who owns her. At a test of 3 per cent, it would take 29 pounds of milk to make a pound of butter. It is not likely that she would produce milk enough the season through for a pound of butter per day. We will say she produces three fourths of a pound every day for eight months in the year. This would give us in the neighborhood of 180 pounds of butter for the season. At 18 cents per pound, which is a fair estimate with us, this would amount to $32.40.

To winter this cow will require the equivalent of two tons of hay, worth $10 per ton, or $20 for the season. Her pasturage is worth for the eight months she is out, at a low estimate, $6. She will consume not less than $5 worth of grain and more if she be allowed it. This will bring her keeping up to $31 for the season, leaving $1.40 to pay expense of milking and care. I have said nothing about the skim milk, the manure, or the calf she may produce, because I believe I have placed the expense of keeping much below what the facts will warrant.

While my neighbor was caring for, milking and feeding this cow he might have been bestowing his labor upon one which produce at least 100 pounds more of butter for the season, thus adding $18 to the right side of account, or more than twice as much as he really did realize from the 3% cow.

What are these figures worth to the man who wants to succeed in his chosen calling? It is not difficult to see through this millstone.—*Ex.*

Building Up a Special-Purpose Herd.

ED. HOARD'S DAIRYMAN:—I have been an interested reader of the discussion between the DAIRYMAN and the *Gazette* as to the respective merits of the dual-purpose and the special-purpose dairy cow; and although I was neither born nor reared a dairyman, I am rapidly becoming one, as a matter of education, and feel like putting in a word for the special-purpose, "screw ended" dairy cow.

As I have stated that I was neither born nor reared a dairyman, your readers may be interested to know what the circumstances were in this regard, so I will state that I was born of "down-east Yankee parentage, and reared a truck farmer and horticulturist on a forty acre farm, and my evolution into a dairyman commenced when it was discovered that the natural fertility of the soil was insufficent to raise continuous crops of vegetables and small fruits, and that it must be supplemented by fertilizers of some sort.

What should we do? Stable manure could not be got; commercial fertilizers were costly. Would they pay a profit on their cost? Of what nature should they be? These were perplexing questions for the inexperienced, and mistakes might mean bankruptcy.

With these perplexing questions uppermost in my mind, I resolved to enter the Wisconsin College of Agriculture and find, if possible, their solution.

From a winter's instruction under Dr. Babcock, I learned the essential elements of fertility could often be purchased in the form of feed stuffs, cheaper than in commercial fertilizers; that they might be fed to stock, and the larger part of fertility regained in the manure; that the dairy cow was the machine that would turn the greatest amount of feeds into fertilizers in a given time, and was, therefore, the machine for us to employ in our fertilizer factory.

From a study of feeds under Prof. Henry, I learned that the foods most valuable as fertilizers were just what was needed to make a balanced ration for the cow. As a result of a winter spent in the Agricultural College, a herd was started with the first object, the manufacturing of fertilizer, and the foremost thought, the running of as much feed as possible through every machine in the outfit, and with the product of milk and butter as a secondary consideration. The herd at the start consisted of dual-purpose Shorthorns, hash-bred mongrels and one solitary triple-wedge shape, "screw-ended" grade Jersey. From experience I soon learned that the dual-purpose Short-horns were a failure as fertilizer manufacturers, for under the high pressure feeding they were soon too fat and lazy to be of much account. The proper sphere of the hash bred animals was, undoubtedly, hurdle racing, while the grade Jersey soon showed herself to be the type of machine we wanted, and, as a consequence, that type was adopted as being the one that would stand high pressure feeding, and keep right at it. So much for the screw-ended cow as a fertilizer manufacturer.

The next step of my evolution toward a dairyman, came when the year of low prices for our fruit crop compelled us to carefully consider every expenditure, lest unwise investments lead to bankruptcy; and the question arose, are these fertilizer machines paying their keep at the milk pail? Careful weighing and testing followed, which brought out the fact that while some were paying us a profit, others barely paid their board, and still others were running us in debt. This created a desire for more knowledge in regard to the cow, as a milk and butter producer, and resulted in another winter spent at the agricultural college, in studying the type, form and temperament of the special-purpose dairy cow, and since then the herd has been weeded out and improved, until the average product of the herd is over 300 pounds per cow, and several individuals are making nearly 500 pounds a year.

Careful weighing and testing still continues, and the weeding out process still goes on, for I am aiming at a herd whose average shall be close to 500 pounds a year. It will take some time, and careful selection to reach this, but I am taking advantage of the general stampede from Jerseys to Short-horns and white faced cattle, to make selections of the very best of the screw-ended type, and have purchased four registered Jerseys as foundation of a registered herd.

Some of the neighbors think I must be getting crazy to be buying Jerseys when everybody else is selling them and buying beef cattle, but I am confident that time will show that they are the ones that have lost their heads, for even with present low butter and high beef, I can get as much for a year's product from my best cows, as the beef men can get for a three-old-steer, and while I have my cow left to do the same thing over again the next year, his steer is gone and must be replaced either by purchase or by keeping an unprofitable cow. I had better say two unprofitable cows, for it is only fair to estimate that one-half the calves will be heifers.

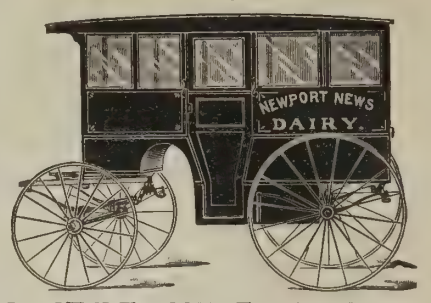
How a farmer on high priced Wisconsin land, can get a profit out of such a deal is past my comprehension. To be sure, he will avoid some work, but my training on a forty acre farm was such that, instead of studying how to avoid work, to study how to employ the greatest amount of labor profitably on a small piece of land.

Have been a reader of the DAIRYMAN for a year and a half and consider it a great help.

W. H. HANCHETT.

Monroe Co., Wis.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

BUY "DIRECT FROM FACTORY" BEST

MIXED PAINTS

At **WHOLESALE PRICES,** delivered **FREE** For Houses, Barns, Roofs, all colors, and save dealers profits. In use 54 yrs. Endorsed by Grange & Farmers' Alliance. Low prices will surprise you. Write for samples. O. W. Ingersoll, 267 Plymouth St., Brooklyn, N.Y.

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.

For 2 cts. I will send one miniature page of each of the three songs. Address the author,

HALBERT L. HOARD, Fort Atkinson, Wis.

Twenty-Five Dollars From Twenty-Five Cents

The Proofs Submitted in Three Sections. Referring to a Ration Formula.—An Advertisement and a Suggestion as to Skim Milk Veals.

ED. HOARD'S DAIRYMAN:—Enclosed find $1 for my renewal to the DAIRYMAN, and I wish to say I never invested a dollar that yielded me more pleasure, or profit, than will this, judging by my past short experience.

Perhaps it might interest you to know what the DAIRYMAN has done for me during the past three months. I never knew there was such a paper published until one day last February, when I saw a leaf from a sample copy at a friend's house. I immediately sent 25c for a trial subscription. That 25c has actually saved me more than $25.

Let me prove this statement. For the past two or three years I have been trying to the very best of my ability to be a good dairyman, and get something out of my cows, and that I have not entirely failed to think the following figures will show. Nevertheless, I have felt there was a fault with my grain ration, as my cows did not respond as I thought they should, although I did the best I knew. Upon reading the first number of the DAIRYMAN, I saw my need of a balanced ration and wrote you asking for one, which you kindly sent, and at once my cows began to tell me pleasant stories about it, in the milk pail and at the churn. This is saving No. 1.

Gluten feed was one of the constituents you sent me, and this I first purchased in Pittsfield, Mass., at $21 per ton. This I though rather expensive, although the results from its use were all I could ask, so I wrote to the Glucose Sugar Refining Co., of Chicago, and they sent it to me for $16.25 per ton, freight prepaid, while from Pittsfield I was obliged to pay my own freight. The feed in both cases was the very same. I saw the advertisement of the Glucose Sugar Refining Co. in the DAIRYMAN after sending my first order to Pittsfield. This I call saving No. 2.

Then I made up my mind from reading

one of the letters from a dairyman that I could do better than sell my calves for $1.00 at a few days old, as had been my practice; and so by following the advice there given, I have fattened and sold $20 00 worth of calves this spring that never had a particle of new milk after it was fit to save, and but 50 cents worth of oil meal, putting a little in each mess. This is saving No. 3.

Perhaps I ought to say, we have a U. S. separator and it has brought me as big returns almost, as has the DAIRYMAN, at least $250 over the open pans formerly used.

Now as to figures: From the 25th of May, '97, to the 20th of May, '99, (date when we bought our separator) we have made 4,863 pounds of butter from an average of nine cows, and also sold $28 worth of cream, and used cream each morning in our coffee. One of the cows has been farrow during both years, and two have been heifers with first calf. We have customers in Pittsfield for all our butter at 25 cents by the year. This would make $1,216 for butter, $28 for cream, $15 for cream used (estimated), $20 for calves fattened, and $180 for skim milk, at $10 per cow per year. Total $1,459, or $81 for each cow per year. My cows are mostly grade Jerseys.

During the next two years I hope very much to do better, and with the help of the DAIRYMAN, I think I shall.

We are now milking ten cows. One is nearly dry, one is farrow, four are heifers, and the rest came fresh last fall and during the winter. From these ten, we are now making about 12 pounds daily, or over 80 pounds a week. I hope to make them do better.

We have no silo, but the DAIRYMAN has "put it in my head", and some time I expect to build one. I have sown in a small piece, 2 acres, of Canadian peas and oats, this spring and my next improvement in dairy methods will be the purchase of a Babcock tester to try the merits of each individual cow, and weed out the boarders, if any. I feel each week, when I read my DAIRYMAN, that I am in the best of company. C. M. S.

West Lebanon, N. Y.

He is Surprised.

ED. HOARD'S DAIRYMAN:—I am a subscriber and interested reader of your paper, and would not be without it for many times the cost. I have read so much about what has been said from time to time in regard to the necessity of *testing* milk in order to detect the poor cow from the good, that I decided to try it in order to satisfy myself, and have been so surprised at the result that I doubt the correctness of the tests made, although made by a Babcock tester. I will give you the result of two of the tests. One from an ordinary cow of no particular breed, whose milk cream would never form more than a thin scum over it, and that of no body, and almost the color of common skimmed milk. This tested 3.7% fat. The other test was from a fine Jersey, a very valuable cow, and upon whose milk would raise a good heavy, thick bodied, golden cream, and whose skimmed milk to all appearance was as good as the new milk of the other cow, and this tested but 3 5% fat. Both cows were cared for alike. The first cow tested would be considered worth here about $35, and the Jersey could not be bought for $75.

If these tests can be relied on, I do not wonder that people are deceived in their cows. C. R.

Watertown, S. D.

Our correspondent has received a very practical illustration of the wide difference that may exist in the milk of different cows, and also to what extent the volume of cream indicates the amount of fat present in the milk. He is only passing through the experience which many dairymen have had before, and has found that cows differ widely as to the quantity and quality of the milk produced; that neither cream nor color are always a true indication of the value of the milk, and finally that pedigree and performance do not always go together. A Babcock test has passed beyond the point where it was a luxury, and has now become a necessity to any dairyman who expects to be more than a keeper of a boarding house for cows.

It is by no means unusual, however, for a single test to prove inconclusive. Keep on with the testing, and make sure that all directions are carefully complied with, and more especially that the samples are truly representative.

The Egg Cure for Calf Scours.

ED. HOARD'S DAIRYMAN:—I may be a little late in telling the readers of HOARD'S DAIRYMAN the best remedy for calf scours, but perhaps will benefit some of them yet.

About two weeks ago, I called at a neighbor's house and my neighbor said: "I am having dreadful luck with my calves this spring. The calf from my best cow is nearly dead with scours." And sure enough he was. The poor fellow could not stand at all, and death was visible in his eyes. I gave the man a dollar for the calf, and carried him home and put five raw eggs down him, shells and all, holding his head up and pushing one egg at a time well back in his mouth and shutting his jaws together, thus breaking the egg, and held up his head until he swallowed them. In twenty-four hours I gave three more, and then two more, and that calf today is as well as any in my pasture. H. S. K.

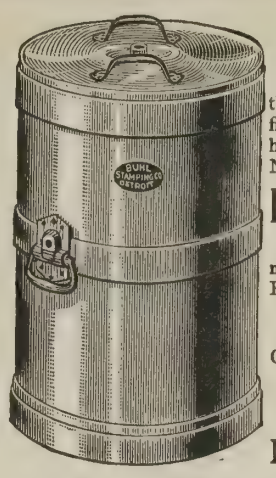
North Ferrisburg, W. V.

Advice Wanted on Late Crop for Siloing.

ED. HOARD'S DAIRYMAN:—Would like some advice from those that have had experience, through your most valuable paper, as to what I could plant at this late day of the season to fill a silo with, this fall. As I only concluded to build a silo in the last few days, would like to have some advice through next issue. I have decided to build a stave silo and have selected the one from the DAIRYMAN of May 19, '99. A. D.

Marion, Ind.

In Wisconsin we are still planting corn and expect to raise a good crop. While we cannot speak by authority, we know no reason why an early variety of corn might not now be planted in Indiana, with reasonable assurance of success.



The Best Factory Cans.



The strong points of the Buhl Factory Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Handles.

Look for the Milk Can Trademark.

This Can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders.

Capacity 15, 20, 30, 40 and 50 gallons.

Refuse imitations. We make all patterns and sizes of Milk Cans, and will gladly mail you our hand-book free.

We Make Prompt Shipment.

THE BUHL STAMPING CO.,

Detroit, - - - Mich.

Mention HOARD'S DAIRYMAN.



Why is a Ten Dollar Bill Always Worth Ten Dollars?—

BECAUSE THE UNITED STATES GOVERNMENT IS BEHIND IT.

Why is a Deering Binder Always Worth What You Pay for It?—

BECAUSE THE DEERING HARVESTER CO. IS BEHIND IT.

The man who owns a Deering machine knows that he has full value for his money—knows it because the Deering guaranty goes with every machine sold by them.

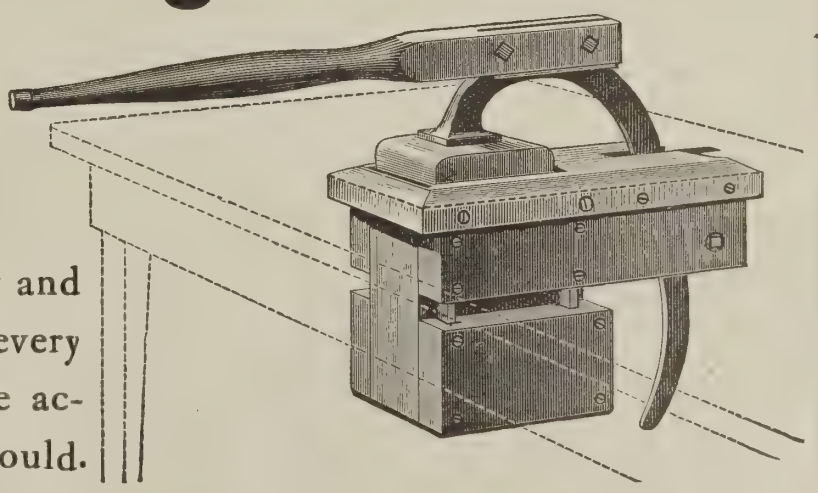
Deering Machines are as strong as the Deering claim, and that claim, in substance, is that Deering Grain and Grass Harvesting Machines will outclass all others in practical field performance at harvest time—that they will "clean up the crop" better than any other—that they are by all odds of lighter draft than any other—and that either in the field or on the road they are more conveniently handled than any other.

These are strong claims, but remember the Deering Harvester Company is behind them.

DEERING HARVESTER CO., - - Chicago.

We Challenge the World

To produce a better butter printer than the **LAFAYETTE.** Unequaled in **simplicity, durability** and **rapidity.** Weighs every pound of butter more accurately than scales would.





Reid's Improved Butter Shipping Box is the Best.

BALTIMORE, Md., December 9, 1898.

MR. A. H. REID,

Dear Sir :—I have used several different kinds of butter printers and have not found any to equal your "Lafayette," both for creamery work and reprinting butter. I have been using one for three years, averaging 600 lbs. of butter weekly, and it is still in fine condition and has not cost me one cent for repairs. I can see no room for improvement.

Yours truly,

G. U. MYERS.

Every Printer is guaranteed to be as represented.

Illustrated Catalogue Free.

A. H. REID, 30th and Market Streets, PHILADELPHIA, PA.

and Cedar Rapids, Iowa.

Best Way of Handling Milk in Hot and Cold Weather from Weigh Can to Separator.

(Papers read at the National Buttermakers' Convention, Sioux Falls, S. D.)

Running from weigh can to receiving vat, the milk should pass through a very close strainer, cheese cloth laid inside the common vat strainer makes a very good and practicable strainer. The milk in the receiving vat should be s'irred occasionally to prevent the cream from rising to the top; from the receiving vat the milk must, if the creamery is not built on the gravity plan, be elevated into the tempering vat; the pump used for that purpose should be enameled inside and be easy to take apart to clean.

Next comes the heating of the milk, which is one of the most important parts of the buttermaker's work and the one probably paid the least attention to. While kept busy weighing milk and keeping up steam, the temperature of the milk before it enters the separator is too often neglected by the buttermaker, and allowed to go below where the separators will do clean skimming, and I believe the variation in yield of butter from one day to the other, may, as a general thing, be traced back to uneven temperature of milk while skimming. In order to obtain the best results, it is necessary for the butter maker to experiment till he ascertains at what temperature his separators will do the closest skimming. No standard can be established, as local conditions and make of separators may change it materially. When the buttermaker has found out at what temperature his machines do the best work, he should keep the milk at that degree as near as possible. He should have a thermometer placed somewhere close to the inlet of milk to the separators, and he should watch it closer than he does his steam gauge. There might be quite a difference in the temperature of two loads of milk, which, of course, would make it necessary to let on more or less steam as the circumstances might be; the falling or raising of steam in the boiler will also raise or lower the temperature of the milk, so it is absolutely necessary to watch the thermometer close in order to obtain the best results.

For heating the milk to the desired temperature, some use hot water between outside and lining of vat, some use live steam between outside and lining of vat, and others use live steam direct in the milk. When live steam is used direct in the milk, the water in the boiler should be entirely free from impurities, no boiler compound of any kind should be used, as there is but very few places where it is not necessary to be recommended, as bad flavor is very easily imparted to the butter.

Live steam between outside and lining of vat may do very well in the summer time, but in the winter when the milk requires more heating, it is simply a loss of steam; it may also cause a scorched flavor to the butter and make the milk bake on the vat inside.

There seems at present only one safe way of heating milk and that is with hot water between outside and lining of vat. When that is used there is no danger of bad flavor being imparted to the milk while heating, it will not bake to the vat, and it ensures a more even temperature, the only drawback seems to be to get a heater made substantial enough.

JOSVA MORCK.

Germania, Iowa.

That necessity is the mother of invention is proven by every advance of science, by every new invention, by every forward step in education and learning.

In no line is this fact better illustrated than in the handling of milk and its products.

Can we for a moment imagine ourselves in an age where the separator is unknown and the 632,000 cows of neighboring Iowa, have their annual product, 2,200,000,000 pounds of milk set in shallow and deep pans and make 90,000,000 pounds of butter instead of 100,000,000 pounds. Now, imagine a change when the separator is invented and the cream from this milk must be ripened in twenty-four hours instead of perhaps a week. Necessarily a new style of management must come in vogue and as a result of this we find two general lines followed, viz: that of separating at moderate temperatures and pasteurizing, each of which has many advantages.

We might consider pasteurizing as artificial and moderate temperatures as the natural method of handling milk. In the former the operator destroys the germs planted in the milk from natural sources and introduces new germs by a starter, which he believes will produce the desired flavor. This method has the advantage of securing perfect separation of the cream from the milk; also, if corresponding care is exercised in the handling of machinery and utensils, of securing the best possible degree of cleanliness, which is the one great essential to success in the creamery business. On the other hand we risk an occasional scorched flavor, possible shortage of steam, and an occasional poor starter, besides the extra labor and care.

With proper education of the patrons (which of course takes time) it would seem that the raw milk from the cow treated as nearly natural as possible, and with the least amount of labor to make a first-class product, would be the logical method, the cheapest method and therefore the best method. As a matter of fact we have two features to battle with here:—First, the great number of creameries where "cleanliness is not next to Godliness", and second, the fact that the great Danish and Scandinavin creamerymen have for a long time practiced the pasteurizing method. Nevertheless it will be sometime before we can consider pasteurizing as the best method of handling milk in the west, all things considered.

The conditions in which milk is brought to the factory in either summer or winter, are so varied, it is hard to give a treatment for all. We might give some axioms.

1. Milk should never be passed through the separator at a lower temperature than 80°.

2. Live steam should not be allowed to enter the milk except when it cannot be avoided.

3. Reject all milk that is sour, or of questionable flavor.

4. Perfect cleanliness must rule.

Follow these four and the foundation for a finished product of fine flavor will be made.

In summer the buttermaker should make his strongest effort to get the milk as early in the morning as possible before being heated too much from the sun. Be ready to weigh when the first hauler comes so as to encourage promptness by example. A receiving vat holding 400 or 500 gallons is a great help to get the milk in out of the sun. A small "Ideal" tin lined heater connected with this, holding eight or ten gallons will make the needed change in the temperature and leave the body of the milk whatever advantage it may have of lower temperature. This point will be more noticeable in case of delay by a broken belt or otherwise.

It often happens in winter that milk comes to the factory partly frozen, in such cases I have a hose to slip over a steam pipe and by the aid of this we deliver steam on the cover and neck of the can, this loosens the ice, causing it to drop off easily when shaken.

Our receiving vat is jacketed and we do part of the tempering here in winter. This lessens the flow of steam necessary in the small heater and hence decreases the coating on the inside of the heater. The "Curtis" milk heater tempers the milk in a thin layer and is claimed by some to be superior to the channel vat heater.

The operator who understands the principles underlying tempering milk will temper, not scorch it, and will raise the temperature where the fat globules are easily separated from the serum before allowing it to enter the separator, at the same time bearing in mind the fact that after treatment of the cream will be largely governed by the separating temperature.

The style of heater or fixtures are not nearly so important as to have the milk enter the separator with an even flow and temperature. Here, as in other places, it is "early start and steady pace that wins the race."

In conclusion we should urge the buttermaker to insist on having his milk delivered pure and sweet, both summer and winter.

Allow the milk to flow by gravity from the weigh can to a 300 to 600 gallon jacketed receiving vat which will protect the body of the milk, as it comes in from the heat of the sun in summer and cold in winter.

In winter temper to 65° in this vat. Let the milk flow by gravity, if possible, to whatever small heater is used. Temper here to 80° in summer and rather higher in winter. Govern the flow to the separators in this vat which transfer should also be by gravity. If direct steam is used at all use it here, but avoid entirely if possible. In all cases strain the whole milk through a good perforated tin strainer covered with cheese cloth before entering the receiving vat. He who practices this method will find it clean, economical and labor saving.

Linn Grove, Ia. GILBERT W. LOUTHAN.

The best way of handling cream from separator to finished product is a way which I have not found yet, likely never will, though I am experimenting along that road with so many others. Sometimes I think I have got ahead of the other fellows, but suddenly I get lost in the bacterial wilderness, and am glad if I find my way out again without serious loss.

Now, as I do not know the best way of handling cream from separator to finished product, I am unable to comply with our worthy secretary's request to point out this way for you, all I can do is to tell you the way which is followed at New Sweden.

When the cream runs over an open cooler to be cooled and aereated before it is emptied into the cream vat, after all or part of the cream is in the vat, a heavy starter is added to give a lighter flavor to the butter. During the day the cream is occasionally stirred and towards evening tested for acidity. I regulate by the temperature so the cream will be of the right acidity the next morning. In the morning the cream is again tested for acidity and the temperature looked after. If the cream is too cold it is warmed up in the vat by heating the water surrounding the vat. I do not use steam because it heats too quickly, thereby melting some of the cream, and this again causes hard specks in the butter. The cream is now emptied into the



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THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

FOR SALE "Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill.

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Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
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GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inqurles promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
J. E. TYRRELL, Marysville, O.

Two Yearling Bulls FOR SALE out of tested dams. Sired by Maquill's Major 40804, son of Maquilla's Violet, 31 lbs. 1 oz. Will be sold cheap if taken at once. Write for prices to **W. R. THOMAS, Bellmore, Ind.**

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Young Stock from 400 Pound Cows for sale. Come and see them. **TUBERCULIN TESTED.**
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by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book.",
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS

The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239–son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys For sale;—Bull dropped Jan. 22, 1899. Solid color, good individual. Sire, Pedro Signal Landseer, sire of 1, son of Young Pedro, sire of Eurotisama, 945 lbs. 1 oz. in 1 year, and 9 others. Dam, Leonette, 15 lbs. 3 oz. This bull combines the blood of Toltec, Tormentor, Fancy's Harry, Pedro, Sweepstakes Duke, Oonan, Eurotas and Landseer's Fancy. Write for price. HOOD FARM, Lowell, Mass.

We Have Sold

SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
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BULL CALF,

Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz., in seven days. He will be sold cheap.
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This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

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Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

The Lone Tree Jerseys.

THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and breeding stock always** in supply. **Especial attention given to furnishing foundation stock for pedigreed herds.** A superb lot of young bulls and heifers **now in** special offer, including some **sure prize winners.**

Introduce Fresh Island Blood
Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **OZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN H. ROBBINS,**
Greensburg, Ind.

churn, and if too warm, fine crushed ice is used to cool with. I want to say right here, that I do not believe in holding the cream at a low temperature before it is churned, as I have found this causes a poor yield, that is, the butter milk will test from two to four tenths of one per cent fat. This I have found to be the case every Monday morning, when the cream has been kept at a low temperature over Sunday, so as not to get over ripe.

In the winter I churn at a temperature of 55°, and in the summer at about 52°. In warm weather the temperature will rise from one to five degrees while churning, and this will again cause the butter to come soft. Then I practice to have a tub of fine crushed ice ready to put into the churn just when the butter begins to break out, this will lower the temperature down to about 50°, and the butter will then come in fine granular form. After the butter milk is drawn off, the butter is washed once, if it is in the right shape, and twice if it is a little soft. The butter is now drained a little and the salt put in by hand, evenly, over the butter, and the churn then revolved a few times before the rollers are put in gear, to get the salt well mixed with the butter. The rollers are now started and the butter worked a little, just enough to get the salt well mixed with the butter. It is now left alone until it gets hard or firm, and then worked a little again, not too much at a time. It generally takes me about two hours finishing the working, as I like to take good care here.

Want to have the salt all dissolved before I pack the butter, and do not like to have mottles or streaks, and by taking a little time and good care, we can easily get it just right. Sometimes I have to pour in the churn a dipper or two of water to get the salt all dissolved.

Now being sure of having everything as it should be, the butter is packed into tubs thoroughly soaked in brine, parchment lined, or sprinkled with salt as the trade requires it. I pack it very carefully, finish off the tub level with the edges of tub, put on a cloth circle and on top of this some wet salt, weigh each tub, and the butter is now ready, a product which will sell at highest market price or over, and probably win a gold medal or at least a prize, if there is a chance some wheres; just because I took good care and did the very best I could.

SAM HAUGDAHL.

New Sweden, Minn.

Dairywork in the Maritime Provinces.

ED. HOARD'S DAIRYMAN:—The spring was somewhat backward and very cool. Though the snow had well disappeared by the end of April, yet little was done at plowing or seeding before the first week of May. Last year the only crop the farmers of the maritime provinces could boast of was the hay crop; and that this one crop was a great one was indeed a providential blessing, and may be said to have saved the farmers. In other words, the hay crop was their salvation. As a result, dairy and other stock have an abundance of food, and even yet, after carrying the animals through a long and cold winter which includes the month of May, feed is still abundant. During the present month frosts prevailed at night up to a few nights ago.

Cows are still stabled at night and eat as much dry feed as they did in April. Owing to the continuation and severity of night frosts through this month, grass has made little growth and even the most fertile pasture fields do not yet afford sufficient nourishment *per se* to support a cow in milk.

Cows are not in the best condition this spring. As a general thing cattle did not winter well. In these parts oat straw forms a large part of the roughage during winter and last season owing to the great damage from rust, the straw was of poor quality. Another reason was the fact of the extreme shortage of the cereal and root crops which made it possible only to feed very small allowances of grain and roots. Again, millfeed, such as bran, shorts, etc., was abnormally high and is so still.

Such feed cannot be purchased by the carload in any point in the maritime provinces for less than $20 to $22 per ton, and as few farmers and dairymen can afford to buy by the carload, they must buy from retail merchants and pay at least $30 per ton. Home raised grain is this spring out of the question to feed. Oats have been selling the past month and now for 45 cents per bushel.

To give you an idea of the cost of grain feed, my team of horses are costing me 45 cents per day in grain feed alone (three pecks) Barley, another good feeding grain, is now selling for 70 cents per bushel. Corn meal sells for, in car lots, $23 per ton. So you see from the schedule of prices it is absolutely impossible for dairymen to feed grain or meal, and the cows as a consequence are thin in flesh and in very poor condition to begin the factory season.

In Prince Edward Island there were nine creameries running all winter, but owing to conditions just named, results were not so encouraging as the previous year. Three creameries are now running for cheese, but three factories that did not make butter all winter have not yet opened, but will begin operations in a few days, now. Some of the more backward ones will not begin cheese making till June 15th to 20th.

The session of Prince Edward Island local government just prorogued was fruitful of much legislation of benefit to farmers, and to dairymen in particular. A generous appropriation was made for the payment of one or more cheese inspectors, and legislation empowering the inspector or inspectors to visit each factory at stated times and see that the cheese maker acts in accordance with the instructions of the inspector. One inspector has already been appointed—a Mr. Fraser—a very competent man, it is said.

Another act passed was the incorporation and consolidation of all the dairying associations of the province with power to form a cheese board at the capital—Charlottetown. The Dominion government contributes a portion towards the payment of these inspectors. Another appropriation was for the establishment of a department of agriculture in the provincial cabinet. The new premier of the province, Hon. Mr. Farquharson, seems to be the friend of the dairymen at least.

There will be no Provincial Exhibition in Prince Edward Island this year. Our farmers and breeders will have to exhibit, as last year, at St. Johns and Halifax, and the exhibitions at the latter places promise to be fine. The New Brunswick government are giving a grant of $3,000 to the St. Johns Exhibition Association and it is expected that the city of St. Johns will give $3,000 more. Should the association obtain this $6,000, the prize list will be a liberal one.

The Nova Scotia Exhibition Association always pays bigger prizes than St. Johns does and this year the money to be distributed at Halifax will be larger than ever. At one time it was thought that Halifax, at least, if not St. Johns, would not permit competition from Prince Edward Island, as that province did not intend to return the compliment by holding an exhibition, so that Nova Scotia and New Brunswick stock might have an opportunity to compete in the Island. Last year Prince Edward Island stock took away most of the prize money from the Nova Scotians and New Brunswickers in this our ground, but Halifax and St. Johns are generous and believe in returning good for evil, and will, this year, as usual, allow competition from the Island.

Most of the Dairy Associations, which are all incorporated joint stock companies, have been purchasing feed, seeds, fertilizers, flour, etc., for their shareholders in car lots, at wholesale prices, thus saving to the consumers 25 per cent to 50 per cent on the usual retail prices.

The merchants and jobbers do not like this but they have to "grin and bear it." The eyes of the farmers are now opened to the exorbitant profits of the feed and seed merchants, and as a result, even they have been forced to lower their prices so that those not shareholders of the dairy companies are benefitted by the lower prices at which their grains can now be bought. The wheat crop being a total failure in the maritime provinces last year, almost all of the farmers were forced to import their flour from Ontario and the States. One factory during the winter, imported three carloads of flour alone for its patrons. The saving on retail prices on flour alone, was about one dollar and twenty-five cents per barrel. Another factory company imported a carload of seed oats at twenty cents per bushel less than the same was retailed by the merchants.

This method of trading for the patrons, which most of the dairy companies have taken up, has been of inestimable benefit to the people and shows up plainly that a dollar saved is a dollar earned. J. A. M.

Hermanville, P. E. I.

The "Wisconsin Idea" Spreading.

Another Guernsey Bull Calf Goes East.

ED. HOARD'S DAIRYMAN:—It would seem like an insignificant thing to record the sale of a little bull calf, but in this instance I think your readers will be interested.

The youngster is a son of Fantine 2nd 3730, and is sired by Shylock of Darlington 4579, a son of the well known cow, Nubia's Vesta 5986, with a record of 25 lbs., 8 ozs. butter in seven days and 556 lbs. butter in six months.

If the editor will bear with me for again mentioning the cow Fantine 2nd, I should like to say that since last reported she has tested 23.46 lbs. butter in seven days. Unfortunately, her best year was in 1897, at the time my barn was destroyed by lightning and it was impossible for me to continue a record of her performance, but with occasional weighings and five Babcock tests at hand, the most conservative estimate would give her credit for over 800 lbs. butter for the year. I have, however, a month's correct record of her of 1,632¼ lbs. milk, showing a 5 2% fat test, from a 7 days' composite sample. This, her last son, "Par Excellence" 5970, is now owned by Mr. H. McK. Twombly, Madison, N. J., proprietor of the well known "Florham Guernseys," of which Mr. J. L. Hope is superintendent. Mr. Twombly has already owned a son out of Fantine 2nd, for several years, in "Gold Bas's 4660," so it was not till judging by his daughters, that he was induced to pay a long price for Par Excellence.

Nashotah, Wis. CHAS SOLVESON.

More about Soja Beans.

ED HOARD'S DAIRYMAN:—In my article on Soja Beans, published in your issue of May 19th, I note an important error in giving the comparative amount of protein or nitrogen in soja beans; it should read 34 per cent instead of 3.4 per cent, as printed. Quite a difference in determining their feeding value. I also admitted in writing, that for soiling or hay, they can be planted at any time up to July 1st, though the earlier the better. Two years ago I sowed some the first week in August on rye stubble on very rich ground, and when cut seven weeks later with only one light shower to sprout them, they were waist high to me, and full of bloom. They made the richest cow hay I ever fed. I intend, this year, to sow all my oat stubble for winter cow feed.

I mention the above, for in several letters received from Tennessee to Kansas, there has been general inquiry how late they can be sown, and if they will do well on grain stubble. W. H. STODDARD.

Macoupin Co., Ill.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

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Cows, Heifers and Bull Calves For Sale.
O. H. Stevens, Jefferson, Wis.

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MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS. Lacona. Oswego Co. N. Y

A GREAT RISK
For dairymen is in using as head of their herds cheap bulls. Do you know that the bull is half the herd? You may have a handsome appearing animal, but lacks in that of the most important, breeding. Only inherited dairy qualities breed on. **Valley Mead Farm** has sent out bulls to head the best herds of Holsteins in the country this spring. Thus a fact which goes to prove that the bulls bred at "Valley Mead" have no superiors in the world. A bull costing $100 is one we recommend. Start in now. Organize a company if you can not afford one alone. Address
Valley Mead Farm, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

GUERNSEYS AND POLAND-CHINAS.
Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America.
☞ Breeding Stock for Sale. Inspection invited.
L. V. AXTELL, Perry, Lake Co., O.

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CHAMPION HERD
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898.
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

MILLWOOD FARM
Guernseys!
Guernseys of All Ages and Sexes For Sale.
Bred from Tested Dams. All animals have been tested with tuberculin and certificate of same is provided with each animal.
N. I. BOWDITCH, Framingham, Mass

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Pure Untainted Milk.

How Germans Secure It.

The milk supply of the large cities in Germany has for many years been the direct concern of the municipal governments of those cities. The importance of the subject seems to have been recognized there sooner than in any other country. During his visit to Germany, Dr. D. McEachran, Chief Veterinary Inspector for the Dominion of Canada, made a careful investigation into the milk supply of the various large German cities. The largest and best equipped service he found in Berlin. Speaking about the history of the movement for a purer milk supply in that city he says:

"In 1881 the first steps were taken to provide Berlin with pure and cheap milk as well as good dairy produce, and a small building was opened for that purpose with three sale wagons. In less than two years this was found quite inadequate, the public sympathy being so fully offered to the enterprise that it became necessary to construct at once a central dairy on much larger dimensions. These buildings were gradually increased in size, and the business done became so extensive that sixteen years later, when I visited the institution, instead of three sale wagons being employed, as at first, there were one hundred and fifty-nine.

POPULARITY OF THE PLAN.

"Regarding the distribution of milk itself at the end of the first year of the enterprise nearly two million and a half litres (a litre is about three pints) were supplied to the city and in 1896, nearly twenty-seven million litres. At present, the daily quantity produced, seventy-five thousand litres, meets the needs of some forty-five thousand householders and is obtained from dairies containing in all fourteen thousand cows.

"In connection with the production of this milk, the following statistics may be of some interest: For the proper working of the apparatus necessary for the cleansing of the vessels containing the milk a daily quantity of from twelve thousand to fourteen thousand kilograms of coal is employed. The place is lighted by sixteen hundred incandescent and fifty-two arc electric lights and the power necessary is supplied by three dynamos of over a thousand amperes. In connection with the institution, there are twelve hundred workmen many of them specially employed and retained in special houses, such for example as locksmiths, tinsmiths, saddlers and other like workmen, and a special printing house has been opened in connection with the institution. About one hundred and eighty wagons and two hundred and forty horses are required to carry on the delivery work as it is at present. Not only do the wagons carry ordinary milk, but likewise whey; the best fresh milk for children, sterilized milk for children, cream, skimmed milk, butter milk, butter and various kinds of cheese, and arrangements are made whereby various kinds of fresh fruit are carried about on the same wagons.

"Having collected the milk from about one hundred and thirty different sources, there are daily brought to the dairy about seventy-five thousand litres. This having been tested as

TO ITS GOOD CONDITION,

it is then for the most part filtered through gravel, and in this way is freed from the presence of a large number of micro-organisms, and is then rapidly cooled and brought to the consumers in this form. The second portion is centrifuged, thoroughly cleansed and divided into cream and skim milk. In this way cream is reduced to two different qualities, or is used for the manufacture of butter, the yearly production of which is 250,000 kilograms. The skim milk produced is very much favored and is a cheap form of nutrition. About ten thousand litres of this are sent out daily. A third portion serves for the manufacture of cheese in which the soft cheese of the French variety occupies the most prominent place, Roquefort, Camembert, etc. Two million litres of milk are employed in this way every year. This cheese is sent throughout Germany to all the larger cities of the Empire where it is in great demand.

"What is called children's milk is obtained from farms whose cattle have the whole year been fed on dry food. The strictness with which Berlin has thus provided for unadulterated milk has had most favorable results in the quality of the milk, and the improvement of the milk in general has been most marked and has resulted in the diminution of the adulteration with water of from 14.1 per thousand in 1879 down to 3 6 per thousand in 1886, as testified to by

THE OFFICIAL INSPECTION.

"There is, undoubtedly, too, another evidence of this benefit in the diminution of mortality in children, whereas during the year of 1871 to 1880 thirty per cent of children died in the first year. In 1881 it was lowered to twenty-seven per cent, and in the present year down to 28 8 per cent. While, of course, undoubtedly, other factors have played an important part in the improvement of mortality, such as improved dwelling places, sewers, etc., nevertheless the improvement of the milk, which is almost the only nourishment for children under one year, must be recognized as having the greatest influence in this respect.

"From the small developments mentioned above up to the great increase in milk supply and analogous products there has been a further development as a result of the same enterprise. The by-products in the manufacture of cheese, butter, and such like products must be mentioned, such articles as lactic acid, lactose and various preparations of casein, all of which find a market in various parts of the country, as well as being exported for use in pharmacy, dye factories, paper, textile industries and like industries. So much has this become

AN ESSENTIAL FEATURE

of the dairy that special technical laboratories have been constructed.

"The bacteriological study of milk and its products has become so important in Berlin that it has been found necessary to establish an experimental station in which all the essential scientific questions concerning milk infection can be worked out thoroughly. Such, for example, is the effort to obtain in pure culture the various bacteria which render milk infectious. In the same place inoculation experiments upon the smaller domestic animals are carried on. Feeding experiments on both the larger and smaller domestic animals are also thoroughly carried out.

"A special laboratory for the chemical analysis of milk has likewise been created. In the year 1896 no less than 26,480 analyses were made. In consideration of these various features, the existing conditions of the milk supply are the most favorable that can possibly be obtained. Formerly the various suppliers of milk carried on a wholesale milk adulteration, and at the present time, as will be seen from the analyses, this adulteration has been

REDUCED TO A MINIMUM.

"To illustrate the importance of this analytical work, it may be interesting to note that in 1881 only 328 analyses were made; in 1891 the number had increased to over 16,000, and in 1896 nearly 27,000 analyses were made. All in all, up to end of the year 1896 there have been 202,533 analyses carried out. Such a quantity of material as this, and such a multitude of analyses is unknown in any other institution in the world. In the various departments of this work, which controls the purity of milk, there are various officers in control. The superintending of the health of all the cows concerned in the milk supply is alloted to two veterinarians, approved of by the state.

"Special savings banks, restaurants and schools are arranged in connection with the institution, as well as smaller and larger societies of one kind or another, and every care is taken for the welfare of employes when taken sick, and for the families of those who die during their term of service in this institution.

"In testimony of the excellence of this management, one sees medals of all kinds, the result of exhibitions both at home and abroad."

New York Farm and Dairy Notes.

About Silos and Ensilage.

ED. HOARD'S DAIRYMAN:—I suppose there are many farmers who read HOARD'S DAIRYMAN who will build silos this summer, and want to know which is the best silo, taking in consideration that it keeps the ensilage well, its durability, economy in building, and its appearance. Since the time my brother and I built the first silo in Delaware Co., nearly twenty years ago, there has been an evolution in silo building. The silo we built was mostly stone, and therefore an expensive one.

The perfect silo has not yet been evolved. The old square silo, double boarded horizontally on studding is too expensive, and the silage does not keep well in the corners. The stave silo has the disadvantage of shrinking too much in the summer. I have seen a good many silos, and heard a good many farmers report their success with different silos at farm institutes and other places.

From what I have learned, I think I would

LIGHTENS LABOR

Cobwebs about a house are usually the sign that the housewife has more than she can do, **the way she goes about it;** that all her time and strength are utilized in doing heavy work; that she uses soap in her cleaning. If she would only use



GOLD DUST Washing Powder



heavy work would be so lightened that the little things needn't be neglected. Gold Dust gives a woman time to rest, time to visit, time to read, and time to sew. It is much better and cheaper than soap for all cleaning. For greatest economy buy our large package.

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THIS PERFECTION MILK COOLER AND AERATOR



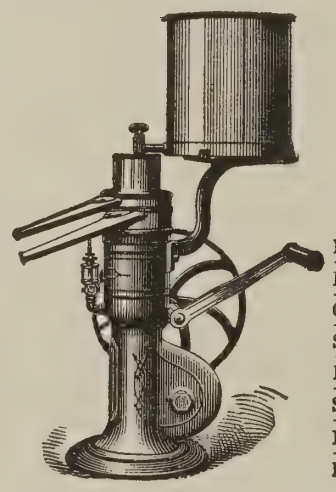
is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all **animal odors, odors** arising from **stables, feed, etc.** This method of treatment makes the milk keep sweet much longer. It is better for making **butter, cheese,** etc., and will stand shipment much better.

Cost But Little and Last Indefinitely.

They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated catalogue and prices of **Farm and Dairy Supplies.**

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Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
Design and Finish . .	The NATIONAL is the Best.
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CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

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agree with T. B. Terry, in advising a farmer to build a silo as follows: "I would advise the building of an 8-square silo, putting horizontal girts around, and spiking the ends where one laps over another. These take the place of hoops on the silo. Board this silo on the outside, up and down, the same as you would a barn. Board the inside with cheap lumber, and furrow out with lath, and plaster with a mortar made of Portland cement and sharp sand. Paint the outside and you will have a fine looking building. You will always find it perfectly tight and moisture from the silage cannot get to the wood work."

This kind of a silo will probably cost one-third more than the cheapest tub silo, but if one can afford the expense, I think they will be better suited with the one described. The tub silo, as it is usually left without painting or outside covering, is not very ornamental to the premises, but the octagon silo, when well built, makes a good appearance, is durable and keeps the ensilage as well as the round silo.

We built a silo on our farm that has so far given good satisfaction. Two by six studding were set in a circle on sills that were laid on a stone foundation. The studding were set one foot apart and the bottom and top securely fastened. Two courses of thin hard wood boards were bent so they could be nailed horizontally around inside the studding, and sheeting paper was put between the boards. The lumber on the farm was used, and most of the work was done by the farm help, so the cash outlay was small.

If one must economize, he can build a silo that will answer all purposes for about $1.50 per ton for the ensilage it will hold, but if one can afford the expense, he will be better satisfied with such a silo as the octagon mentioned.

Some ask me if it is practicable and profitable to feed ensilage the year around for those who have only small farms and wish to keep as many cows as possible. I know of a few farmers who, I think, are making a success of this plan, but in so intensive a system of dairying, there is a good deal of hard labor involved. If many cows were kept the work of handling so much fodder and manure all the year around, would be considerable.

On a few acres, and with a few cows, it may be the best plan, but I would want sufficient land to practice a three or four year rotation of clover, corn, wheat or oats, to seed to clover with, and perhaps oats and peas would come in the rotation. The work is better divided during the season. The growing clover would benefit the soil, and the clover hay would help to balance the ensilage, so that less grain need be purchased.

Clover and corn are the crops with which to build up a farm, so it will carry a large stock, and good clover hay and good ensilage are the most economical rations for feeding the dairy cow. Very much depends on the quality of the ensilage. Corn that grows thick together, and is immature and watery, makes poor ensilage, while corn that is so thinly planted that it ears well, and is cut when the ears are in the glazing stage, cooks in the silo and keeps sweet.

THE CULTIVATION OF THE ENSILAGE CORN.

The objects we should work for in the cultivation of the corn, is to conserve moisture, aerate the soil, make its plant food more available, and prevent weeds from growing. We want to cultivate as cheaply as possible, and so reduce the cost of growing the crop. To do this we must have suitable tools for doing all the work by horse power. We can hardly afford to use the hand hoe in the corn field.

The tools needed are a weeder and horse cultivator. The weeder, if used soon after the corn is planted, and until the corn is two or three inches high, will destroy the weeds just as they are starting to grow, and save much work in the after cultivation. When the corn gets up about four inches, is the time to use the horse cultivator.

If only a few acres of corn are grown, one can do the work very well with the one horse cultivator, but for large fields, the two horse cultivator is needed. At this time the roots of the corn have not made much growth, and I would cultivate deeply to thoroughly stir up, and aerate the soil. I would cultivate deeply for a few days, and use the weeder in connection with the cultivator, to destroy the weeds in the drills where the cultivator teeth do not go.

When the corn has grown six or eight inches high, stop the deep cultivation, and do not cultivate over two inches deep. By this time the corn roots will be growing out between the rows, and we do not wish to cut them off. Of course, one must adapt the cultivation to circumstances. Less cultivation will be done during wet weather, but when the soil dries sufficiently, start the cultivator and break the crust on the surface.

The farmer who uses the one horse cultivator, can regulate the depth by the wheel in front, and a board attached to the rear. Such a board is very useful in dry weather. A board about 15 inches wide is about right, and with some bolts or wires one can fasten it to the rear of the cultivator. W. J.

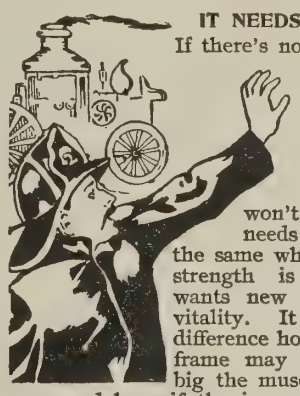
Delaware Co., N. Y.

The Iodide of Potassium Treatment for Milk Fever.

ED. HOARD'S DAIRYMAN:—I have read with much interest an article on page 254, current volume, about milk fever, by S. B. Nelson, of Washington state. I don't understand the use of the apparatus. What is the shear-like thing for? I see reference letters about it, but there it stops. Give me, if you can, size of tubing, size of piece to enter teat, and how to inject it? Or, would a rubber syringe do also if nozzle was small enough? If this treatment is as successful as claimed, would it be worth the while of every dairyman to fix up to have it and the use of it understood? Or, can the apparatus be bought complete? I don't suppose that the fluid is intended to run into the teat by gravity? C. H.

Bardstown Junction, Ky.

The article referred to is simply a small spring clamp for compressing the rubber tube so that the solution will not flow out before it is wanted. Use quarter inch rubber tubing and use a milk tube for the end nozzle. Hang the receiver for holding the solution, 3 to 4 feet above the cow's back to give the necessary force to the solution and it will run into the teat by gravity. There is no apparatus in the market, but any apothecary can fix one for you.



IT NEEDS STEAM.

If there's no steam in a fire-engine it won't do its work. Heavier metal or larger wheels won't help it. It needs *steam*. It's the same when a man's strength is gone, he wants new life—fresh vitality. It makes no difference how large his frame may be or how big the muscles on his arms and legs; if the inner power and force of life is lacking he can't do his work; he is practically a sick man. You can't make him well by feeding him with oily emulsions. There's no use in flabby fat. His proper weight will come after he gets well. The first thing he needs is strength, force, *steam*.

"About a year ago," says Mr. John Brooks, of Boylston, Mass., "I was taken with a bad cold which settled on my lungs. The doctors said I was in consumption and could not get well. I took emulsion of cod liver oil and it did me no good. After taking it four months I heard of Dr. Pierce's Golden Medical Discovery, and wrote to him for advice. I have taken this medicine and it saved my life. I felt so sick when I wrote to him I thought I would not live the winter through.

"In the morning I would raise an awful lot and spit all the time, with pains in my chest all the time. My bowels would not move more than once or twice a week; my strength was nearly all gone; I could not do a whole day's work. Now my bowels are regular every day, and I feel no more pains in my chest. I feel a great deal stronger. I am working hard every day, driving a team in the woods, and I owe my thanks to Dr. Pierce's Golden Medical Discovery. I know it saved my life. I cannot praise it enough. I am proud to tell my friends what cured me."

The way this great remedy acts in bronchial and lung diseases is more fully described in Dr. Pierce's great 1000-page Common Sense Medical Adviser, sent FREE for 21 one-cent stamps to pay the cost of mailing *only*. Address Dr. R. V. Pierce, 663 Main Street, Buffalo, N. Y. He is always ready to give free advice by mail.

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IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co.'s Color has the highest standing in the markets. . . .

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There is just One Perfect Color and it is

"The Kind That Has No Mud."

COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to tell it? Send to us for the material for making the test and we will mail it to you, free of charge.

Thatcher's Orange Butter Color

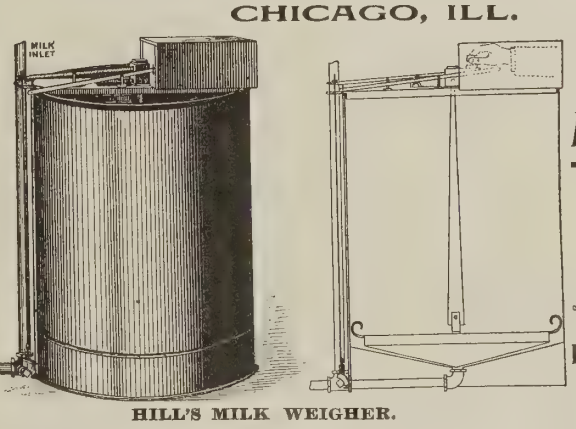
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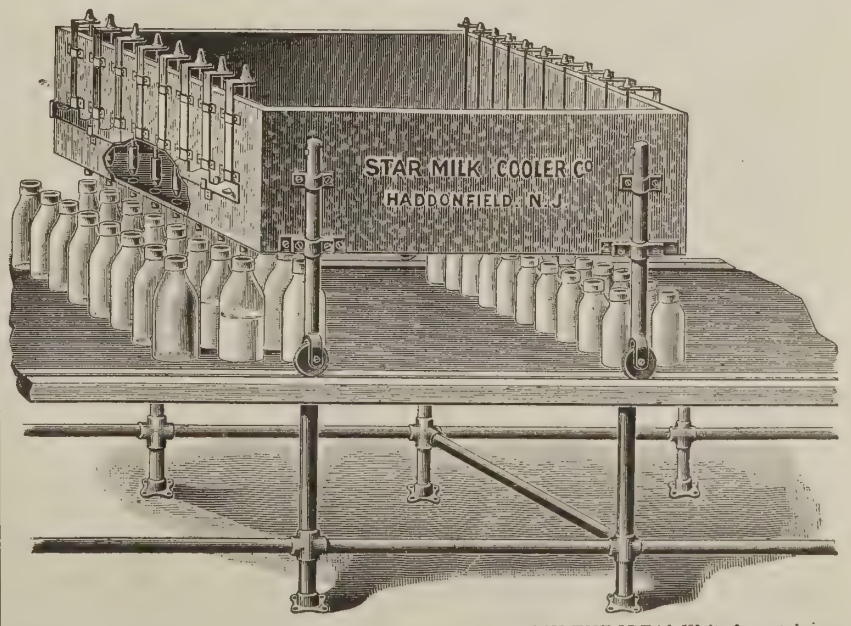


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O. DOUGLASS BUTTER CULTURE.

ST. GEORGE, MINN., Feb. 20, '99. O. Douglass Butter Culture Co., 81 Austin St., Charlestown, Mass Dear Sirs:—In the Genesee Salt contest I scored 97½; at the State Fair, Minnesota, I scored 95½; at Sioux Falls Convention I scored 95; being a money winner at each. I used your culture in all of the above. C. H. CLEVELAND, St. George, Minn.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin St., Charlestown, Mass.

A Lawyer Returns to the Farm.

His Methods and Results.

The following address was delivered before the State Agricultural Association of Iowa at its winter meeting in Des Moines, by Judge Hubbard, of Cedar Rapids in that state, and is replete with sound doctrine. Forty-five years of training in a law office and trial courts seems to have qualified Judge Hubbard to sift and weigh evidence pretty accurately and to reach wise conclusions. Experience is a good thing, but personal experience at best is limited, and he is the wise farmer and dairyman who is willing to be taught by the experience of others. This is what the Judge said:

Having been raised on a farm, it occured to me that, after practicing law for forty-five years, I should be very glad to get back to farming again. So, fifteen years ago, I purchased a farm of 340 acres, mostly within the limits of the city of Cedar Rapids. It was timber land mostiy, and I have cleared it up and grubbed out the stumps. The soil is a rich, strong clay, with a very slight sprinkling of sand, just enough to make it quick, but not enough to cause it to wash. I raised fast horses for a number of years, but the prices became too low, and, two years ago, I started a dairy of seventy five cows, and have the finest cow barns and milk plant in the state. I conceived the idea that corn and corn fodder enough could be raised on forty acres of ground to keep one hundred cows for six months in the year. This year is the first experiment. I had thirty-six acres of corn, which will average about sixty bushels to the acre, and would have averaged one hundred bushels only for the wind blowing it down, and for the hot southwester for ten days in July, just as it was earing. I had six acres that was planted later and on lower ground, which yielded something over one hundred bushels to the acre of elegant corn, and about four and a half tons of dry corn stalks to the acre. I plowed my ground six inches deep, and did not begin plowing until about the first of May. As soon as plowed, I dragged it twice over thoroughly. I planted thirty acres and finished on the 25th of May, and, on the 28th of May planted the last six acres. As soon as the corn was planted I commenced dragging it, turning the teeth back, and dragged t both ways twice before the corn came up. When the corn came up, my corn field looked like a garden ready for sowing the smallest seeds. Not a weed had started. The continual dragging wholly prevented.

As soon as the corn showed in the rows, I dragged it with the rows, keeping the horses off the corn. My corn was planted three feet eight inches apart one way, and averaged about twenty inches the other way, with two or three kernels in the hill. The stand was perfect. By the time the corn was thoroughly dragged the fifth and last time, the cultivators went in with the shovels turned to throw the ground from the corn. Great care was taken not to cover up any corn. Two teams did the work, and time was taken to do it carefully and well. In two or three days the cultivators were started with the shovels turned to throw a little dirt towards the corn. When this was completed it was found that some weeds had started and with sharp hoes they were cut out. About the 25th of June, the cultivators were put in for the third and last time, and the corn well hilled up and laid away about the 28th of June. It then stood nearly breast high. Early in July, and just as the corn had commenced to ear, a heavy wind storm bent it over very considerably, but it straightened up fairly well. Then came a hot, southwest wind with no rains for nearly ten days, and the thirty acre field planted first literally halted and did nothing. Finally a rain came and it commenced to ear, but part of my corn on the highest ground failed to ear satisfactory.

It was cut with a McCormick twine binder and shocked in about sixteen bundles each. It cured nicely, and the fodder is of a very superior quality. When sufficiently dried out, it was hauled off the field and stacked about four shocks in the stack, and is keeping well. Early in December I shelled the corn and shredded the corn stalks with the thresher, and have as fine fodder for cows as can be made. The cows eat, practically, the whole of it. I feed ground corn meal mixed, part of the time with bran, part of the time with flax seed meal, and part of the time with oat meal mill product. We are now milking fifty-five cows, and get an average of eight quarts to the cow a day, which we think good for this time of year.

The corn fodder from these thirty-six acres was more than double the amount which can be raised by planting the corn three feet, eight inches each way. Cutting out the weeds with hoes, where the corn was drilled, required from five to six men two or three days, which did not cost much where the men were required for the dairy. My corn averaged about ten feet high. It was literally a wilderness of corn. This coming year I expect to raise fifty acres and get corn fodder enough to take care of 125 head of stock. I have no doubt that some mammoth clover and millet are desirable for changes of feed.

My cow barn is 170 feet long and forty feet wide; nine feet in the clear, ship-lap on the inside, thoroughly paved with paving brick, with gutters of Portland cement for the droppings, and two 100-barrel cisterns just outside the barn, with Bell traps and sewerage pipes to take off the liquid manure, which is drawn off and sprinkled on the land with a sprinkler. In the center of the barn is a driveway and feedway twelve feet wide through the entire barn, with a cross drive in the center, and four large feed rooms. Corn fodder is stored in the mow above the cows. Next to the barn is the work room, thirty feet square, with a gasoline engine of five-horse power, which grinds the feed and runs the milk plant, including the pasteurizing plant, separators, etc. The milk room is sixteen by forty-six feet with cold storage room, steam plant for sterilizing milk bottles, pails, cans, etc.

It is two miles from the center of town to the center of my farm where my buildings are. We run two milk wagons in the city, disposing of about 440 to 450 quarts of milk and other products from it daily. I have about thirty head of horses and one hundred head of cows and young heifers, from which we haul out about five loads of manure every morning and distribute it on the corn ground. Last year fifty acres of timothy meadow were well sprinkled with the liquid manure from the vats and it produced about 150 tons of the finest timothy hay. It is safe to say that my land is being improved in value at least $3 per acre per year by reason of the increased capacity for production from fertilizing.

The state of Iowa ought to produce five hundred million bushels of corn per year, and will when it is properly farmed. And the corn fodder alone should be sufficient to to keep five million head of cattle during the winter season.

A McCormick twine binder with three horses and one man will cut and bind from six to eight acres of corn per day, and one man more will shock it. If we count three tons of dry corn stalks per acre to the average crop of corn, this will make eighteen to twenty-four tons which is equivalent to the same weight of timothy hay in nutrition. And, for succulent qualities, for milk cows, is much superior to timothy hay.

There has been much said about the cost of preserving corn fodder, but, with the twine binder and the thresher, the cost is very little more than that of cutting and storing an equivalent number of tons of timothy hay.

There is no other 55,000 square miles of contiguous territory on the face of the earth that will produce as much subsistence as the state of Iowa. It ought to, and will some day, furnish subsistence for ten millions of people. There is no business which requires more skill and painstaking than good farming. The great waste of corn fodder which we see every year, must and will be stopped before many years. There is no other one thing where there is so much waste in farming as in the failure to save corn fodder. I do not know much about protein, carbohydrates, and other scientific qualities of feed, but I do know that cattle and horses kept on corn fodder in the winter, come out looking better in the spring than those kept on any other feed. Of course, this on condition that the corn fodder is properly secured, cured and economically fed.

In March I expect to sprinkle thirty or forty acres of my pasture from my liquid manure tanks, and hope for good results in early and strong pasture.

The large increase of the exportation of corn for human food is making the two billion bushels of corn raised in the United States scarce and high. Before the next corn crop matures, corn will probably be 35 to 40 cents per bushel. Everything points to the necessity for the state of Iowa to increase its corn output. Other grains are useful, but corn is surely king in Iowa. Let us raise corn.

Treatment of Hog Cholera.

Care and Medication.

The latest words on this subject are from Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, Washington, D. C., and coming from such a source, are worthy of the most careful consideration. Those in communities now free from the disease, no less than those where the disease prevails, should give heed to the suggestions which follow, and carefully preserve the prescription for use in case of necessity.

In matters of this kind it is the part of prudence to be prepared to meet the enemy at its first approach, and not be obliged to wait weeks or even days for the answer to an inquiry:

Can hog cholera be cured, and, if so, what remedy will restore the diseased animals to health?

With all diseases of this class, prevention is cheaper and in every way more satisfactory than medical treatment. The aim, therefore, should be to prevent the spread of these infectious diseases; but in spite of all preventive measures many herds will be infected, and it is therefore perfectly legitimate to ask and answer all questions as to the proper medical treatment. A remedy which will cure every case is not to be expected, for there has never been discovered a remedy for any of the infectious diseases of man or animal that would cure every individual attacked. Some forms of these diseases are so violent and rapid that there is not time for the most active remedy to produce a beneficial effect.

In many outbreaks the type of the malady is less virulent, and there is time to treat the animals after they are sick, and also the whole herd afrer some of its members are diseased. For a long time the writer was doubtful if any remedy or combination of remedies could be made which would produce any marked effect. The experiments, however, indicate that treatment, if properly applied, may be successful.

The most efficacious formula which has been tried, is the following:

Wood charcoal	1 lb.
Sulphur	1 lb.
Sodium chloride (common salt)	2 lbs
Sodium bicarbonate	2 lbs.
Sodium hyposulphite	2 lbs.
Sodium sulphate	1 lb.
Antimony sulphide (black antimony)	1 lb.

These ingredients should be pulverized and thoroughly mixed. The dose of this mixture is a large tablespoonful for each 200 pounds weight of hogs to be treated, and it should be given only once a day.

When hogs are affected with these diseases they should not be fed on corn alone, but have, at least once a day, soft feed made by mixing bran and middlings, or middlings and corn meal, or ground oats and corn, or crushed wheat, with hot water, and then stirring into this the proper quantity of medicine. Hogs are fond of this mixture; it increases their appetite, and having once tasted it, will eat food containing it when nothing else would tempt them.

Animals that are too sick to eat should be drenched with the medicine shaken up with water. Great care should be exercised in drenching hogs or they will be suffocated. Do not turn the hog on its back to drench it, but pull the cheek away from the teeth so as to form a pouch into which the medicine may be poured. It will flow into the mouth, and when the hog finds out what it is he will stop squealing and swallow. An easy method is to cut off the toe of an old shoe, insert the cut end in the pig's mouth and pour the medicine into the shoe.

In many of our experiments hogs which were so sick they would eat nothing have commenced to eat soon after getting a dose of the remedy, and have steadily improved until they appeared perfectly well. This medicine may also be used as a preventive of these diseases and for this purpose should be put in the feed of the whole herd. Care must be taken to see that each animal receives its proper share.

Success or failure with this remedy depends largely upon the manner in which it is used. If it is improperly administered, or the hogs left out in cold storms, and compelled to remain day and night in mud 6 inches or a foot deep, through which they are obliged to search to find an ear of corn in order to get something to eat, the farmer might as well save his money and let his hogs die, as nothing will have much effect under such conditions. If, on the other hand, the sick animals can be made reasonably comfortable, and given soft, easily digested food to eat, the medicine of which we have just given the formula, may be used with confidence that it will give as good results as any available remedy.

In treating hogs for these diseases, it must not be forgotten that in nearly all cases there is more or less inflammation of the internal organs, and particularly of the stomach and intestines. To treat such diseases successfully the animals should be kept dry and comfortable, and where drafts of air will not blow upon them. The food must be such as can be digested by the irritated and inflamed organs which are charged with this function.

When hogs are first found to be affected with disease, the lots or pens where they have been confined should be disinfected by dusting plentifully with dry, air-slaked lime, or by sprinkling with a twenty-five per cent solution of crude carbolic acid. The animals should then all be moved to new quarters. If possible the sick and apparently well should be separated before they are moved and then put into different lots. This is not essential, but it is an aid to the treatment. The hog should be kept in dry lots or pens where there is no mud and above all no stagnant water. It is well to keep these lots disinfected by the free use of air-slaked lime or carbolic acid.

During this treatment the hogs gain a marked degree of immunity. This is no doubt the result of attacks of the disease from which they recover. This recovery is in spite of the continued infection of the premises, and even though the hogs which have passed through the outbreak are apparently well and thriving, new hogs added to the herd are liable to be attacked. For this reason five or six months should be allowed to pass before any new hogs are purchased and brought to the premises or before any are sold to be put among other lots of hogs. Pigs born under such conditions are sometimes able to resist the infection, while in other cases they may suffer severely or die.

If any hogs die during the outbreak their carcasses should be immediately burned and the places where they have lain on the ground over which they have been dragged should be disinfected with carbolic acid or lime according to the method already mentioned.

The Ethics of the Oleo Color Question.

The oleomargarine men are more skillful at making an argument than they are at making wholesome food. The real point in the vigorous attack against them, has been the effort to prevent their coloring oleo in imitation of butter. They reply that they have just as much right to use the color, as the butter maker has. But this is not true. When the butter maker uses color, his object is to please the eye of the customer, just as he pleases his taste, when a delicate flavor is developed. The butter maker has a right to cater to the sense of taste. On the other hand, the oleo maker, when he uses color, does it with the intention of deceiving the eye and not of pleasing it, and therein he practices deception, and relies on that deception for aid in selling oleo for the price of butter. He knows full well that the consumer would discover the quality of the food, if he were not deceived by its color.

Motive determines the quality of an action. If the motive is bad, the action results in evil. The motive in making oleo is bad, it is intended to deceive. It does deceive. Very few people would buy uncolored lard and tallow as a substitute for butter. Nobody would pay the price of butter for uncolored tallow. The coloring matter in common use in oleo is a rank poison. Oleomargarine is conceived in sin, and brought forth in iniquity. It is a child of the devil and bred in line. It is a fraud and a cheat, and so are those who make it and sell it. The sooner it is taxed out of existence the better for the public good.—*Dairy and Creamery.*

A Canadian dairyman, who has been making a close survey, says:

"Not one farmer in one hundred who keeps cows has accurate knowledge of their value individually. Not one in the same number can certainly say which is his best cow, which his second best, and so on down, even in a herd of half a dozen. Where is he who knows whether or not his herd is profitable, much less the individuals of the herd? These seem strong sayings, but this is no time nor subject for platitudes."

For Sale! CREAMERY located at Macon, Mo. Fully equipped and ready for use. Has four skimming stations in connection, all fully equipped and ready for use. Has been successfully operated for two years. BIG BARGAIN can be had. For particulars address **HUDSON-GARY LAND CO**, Agts. for Trustee, Macon, Mo.



8000 BICYCLES Overstock: Must Be Closed Out. STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10; Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance. **EARN a BICYCLE** by helping us advertise our superb line of '99 models. We give one Rider Agent in each town **FREE USE** of sample wheel to introduce them. Write at once for our special offer. MEADE BICYCLE CO., 290 Ave. S., Chicago. Ill.

Killing Liveforever.

ED. HOARD'S DAIRYMAN:—In reply to W. W. B., on page 288, to exterminate liveforever, turn it under, plowing it deep enough to cover all, leaving none on surface, just before blossom time. Float and harrow to exclude all air. Like purslane, it will rot very quick under ground. Will be in time for some late crop, as turnips, etc.

Pinfield, Mich. E. J. S.

The Weight of Milk.

Milk is a deceptive article so far as weight is concerned. In a herd of 50 cows samples of milk can be taken from individual animals that show interesting conditions when placed upon the scales. The milk from one cow will weigh two pounds to one and one-half quarts, while her nearest neighbor produces milk which weighs two pounds to one and one-half pints. It does not seem to make much difference what the breed is or how much milk they produce. The milk is a little lighter in summer than in winter. It is hardly possible to find a dozen cows whose milk will weigh alike, but when mixed, if there are not too many in the lot that give very heavy milk, it will weigh out two lbs. to a good full quart every time. The family who buys from a man who keeps but one cow is liable to get a little more or quite a little less of weight when buying a quart than as though the quart was taken from the mixed milk of a dozen cows.—*Orange Judd Farmer.*

The above has been widely copied, without any one, apparently, taking the trouble to verify the figures. Yet it is absurd on the face of it.

The average weight of a quart of milk is 2.15 pounds; that of a quart of water, 2.087 pounds.

Milk is always heavier than water—the range in specific gravity being from 1.029 to 1.035. This corresponds to a difference of .013 pounds or a little over .2 of an ounce per quart.

The figures above quoted would call for a variation in weight of a quart of milk of 1.33 pounds. According to the first figures given, a quart of milk would weigh 1.33 lbs per quart, and according to second figures 2.66 pounds per quart—a manifest absurdity.

Possibilities in the Orient.

Dr. S. A. Knapp, who was sent by the U. S. Department of Agriculture to Japan, China and the Philippines as an agricultural explorer, has reported to Secretary Wilson the results of his explorations.

He reports that he arrived in Japan, September 29th, 1898, and at once entered into investigation of the rice industry. The result was that ten tons of the best seed rice was bought and sent to the department for distribution.

Among valuable plants selected was a forage plant of great promise. This is "hagi" (Lespedeza bicolor). Its assumed superiority is that it is more easily set in land than alfalfa, more tenacious, with equal nutritive value.

Incidentally, the Japanese system of agriculture is described. The report says that the limited amount of arable land in Japan, about one-eighth of the total, makes it necessary to conserve and stimulate all the productive energies of the soil available. Hence, the field crops are all managed on garden methods. The seed of all the wheat, rice, rye and barley produced is first sown in highly fertilized beds, and when the plant is of a sufficient size it is transplanted into the fields. He concludes that all fear of competition from Japan along agricultural lines may be dismissed. On the contrary, it must become a large consumer of farm products drawn from the United States.

The diffusion of knowledge and the introduction of new industries in Japan have had the effect of more than doubling the cost of labor in the last ten years and, in proportion, of stimulating consumption by the common people. Future progress must be mainly made in the direction of manufactures. In such event the food for the operatives, the cotton and other fiber material for the fabrics, the lumber and iron for the construction of the factories and much of the machinery will be drawn from the United States. This will tend to stimulate the prices of our farm products. The same general facts hold good for China. The opening of the Orient to commerce will act most beneficently upon our agricultural industries.

The principal agricultural products imported into Japan are wheat, flour, sugar, cotton, butter, cheese and meat. The annual value of these articles is at present between twenty-four and twenty-five million dollars in gold. Under favorable treaty regulations Japan will import from the United States nearly all her flour, butter, cheese and meat, three-fourths of the raw cotton required, and from the Philippines nearly their entire surplus output of sugar.

The butter and cheese market will be of comparatively slow growth in Japan, but will steadily improve if properly fostered. The matters of most vital importance to the butter trade are the following: First, shipment of first quality butter for table use; second, small air-tight packages with official stamp on same, denoting inspection and certifying to trade; third, cold storage on ocean transportation at reasonable rates for small quantities; fourth, the establishment of cold storage in the leading cities of the Empire. Cheese rests upon a different basis and can largely be left to the ordinary course of trade. The conditions of the butter and cheese trade in Shanghai and Hongkong, China, are almost identical with those of Japan, except that at Hongkong, Australian butter is a strong competitor by reason of low freight rates. In the interior of China considerable French butter is sold. Many claim that it resists heat better than the American product. The same suggestions for the improvement of trade in Japan are applicable to China.

The great area, the large per cent of fertile lands, and the enormous population of China, stagger the observer on the threshold of investigation. Here, however, as in Japan, radical changes in agricultural methods or products must be made very slowly, if at all, because the food supply cannot be materially reduced or even changed with safety. Large areas devoted to fiber plants for the promotion of manufactures would be a dangerous invasion of the acres necessary for the food supply and must be speedily followed by importations from the United States. Doctor Knapp reports that he was deeply impressed by the alert, industrious and frugal character of the Chinese.

From China he proceeded to the Philippines, and there took up the same line of investigations pursued in Japan.—*Western Creamery.*

CONCERNING OUR ADVERTISERS.

The Deering Ideal Mower, made in Chicago, affords an interesting study in advanced machines, and is as perfect a machince as brain, brawn and money can build. It is furnished throughout with Deering Roller and Ball Bearings. The "Ideal" has a very wide truck and high wheels, insuring great stability and ample traction. Its gears are light, strong and reliable. In this machine the amount of lost motion is so slight that the instant one of the mower wheels starts it communicates power to the crank shaft and knife, thus making it possible to start in heavy grass without backing. The knife may be removed in fifteen seconds, simply by raising a latch. It is the only mower on the market equipped with ball bearings of the bicycle pattern.

JUSTICE.

A Pair of Scales—Justice is always represented with a pair of scales in her hand This is because the scales not only suggest a fair division, but because they present a means for checking extravagance, watching frauds and stopping leaks. Stop trying to farm by guess. Be accurate and know what you are doing. Look over the catalogue of the Osgood Scale Co., 91 Central Street, Birmingham. N Y., and see what scale you need. These men ship scales on trial.

SPRING GROVE DAIRY, Pa., Aug. 3, 1897.
THE CRESCENT MFG. Co.,
Philadelphia, Pa.

GENTLEMEN:—I tried your "Tough on Flies" last year and found it to pay. You will find enclosed, post office order for $1.50. Please send me 1 gallon "Tough on Flies".

Respectfuly yours, MCCLELLAN SWARTZ.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

SIGNS FOR BEING WITH CALF.

I have a Jersey cow which was three years old last August, at which time she dropped her second calf. On October 3, she was served to bull, and on October 22 she again bawled, but this time was not taken to the bull, and since that date she has neither bawled or shown any signs of heat. Do you think she is with calf, and as a rule do cows ever bawl after having caught? On what date will this cow come in? If she was not in calf, would she bawl and show other indications of heat every three weeks? What would the result be if cow was allowed to dry up and then proved not to be with calf?

Detroit, Mich. I. G. Mc C.

ANSWER.

Cows do all sorts of things. Some bawl, but not often when first in calf. I can't say, but hope and think she is in calf. If she had not stuck, I think she would have bawled and shown other signs of being in heat. She would simply be dry until next calving. This would be all likely to occur.

TUMOR OR WART.

I have a cow with a small lump on point of left shoulder about the size of a hulled hickory nut and five or six others ranging in size from above to size of a pea. She is in excellent condition and is giving a big flow of milk. C. W. S.

Williamsburg, Iowa.

ANSWER.

I believe I would let the tumor or wart alone for a while, and observe, exactly, the condition in a few weeks. If they are dormant then, and cause no inconvenience, still let them alone. Report in a month if there is any change in size or number, and then I will advise you what best to do.

BLOODY MILK.

I have a good grade Jersey that seems to have one tender quarter. Every little exposure to cold, it will give bloody milk and show a good deal of inflammation. Have two of her heifers that seem to be the same way. I think they were both overfed with grain contrary to directions. Do you think that was the cause, or do they inherit it from their mother? A. R. T.

San Bernadino, Cal.

ANSWER.

Yes, overfeeding, in anything, man or beast, is the source whence come many ailments, and if not the direct cause of the trouble named, is surely quite a factor in causing them. There is always, when a number of similar ailments occur in a herd, a general cause. Hereditary predisposition may be largely your cause. Reduce condition. Don't ever over feed; give two teaspoonfuls of nitre each morning, for quite a long time if needed. Physicking will be your chief reliever always.

LUMP ON JAW.

I have a grade Jersey heifer about six months old that has a lump or swelling between her lower jaw bones, just under the mouth. What is the cause of it, and what shall I do for her? She is in fine condition. I had a cow the same way this spring. I have often seen stock in a bad condition affected this way, and, as a rule, die. My heifer has a fine appetite. J. H. P.

St. Francisville, La.

ANSWER.

Impossible to state the cause. It may be of a spontaneous origin, or it may be, and likely is, from some accidental bruise or other hurt. It may be much more serious in its nature, and I seriously recommend a personal examination, so as to determine the nature of the swelling. All such swellings are of a suspicious nature, always.

TUMORS.

What is the cause and cure of what seems a tumor, both on briskets of a mare or cow; large as two fists. Have lanced; a watery and bloody fluid exuded, but swelling on cow increased, while on mare somewhat decreased, but very hard. Have stopped milking cow. Both animals seem healthy.

Mission Hill, S. D. G. L. G.

ANSWER.

Lancing by laymen is very wrong. If a tumor be ripe, lancing is the proper act. If not ripe, it is always wrong, and in every case makes the thing worse. The tumors should have been poulticed or severely blistered and brought to a head and then lanced. Thus the tumors would have been removed permanently, almost certain. After your malpractice they will likely enlarge and remain. You should have availed yourself of your privilege in the DAIRYMAN at the beginning. Impossible for me to name the original cause. There are many, chiefly injuries of some kind.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. These are established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

KIDNEY TROUBLE Is a deceptive disease—thousands have it and don't know it If you want quick results you can make no mistake by using Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists in fifty cent and dollar sizes. Sample bottle by mail free also pamphlet telling you how to find out if you have kidney trouble.

Address, Dr. Kilmer & Co., Binghamton, N. Y.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a POSITIVE CURE for abortion in cows. SWORN testimonials furnished on application. Dr. D. ROBERTS, Veterinary Surgeon, Address, Waukesha, Wis.

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LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis.

CONTOOCOOK, N. H., March 6, '99.

H. W. KELLOGG CO.,

Gentlemen:—About 18 months ago I began using your Abortion Cure. My cows were losing their calves one after another. After the medicine had time to take effect I had no more trouble. The cows ate it readily and I believe it a preventive.

Yours very truly,
G. A. CURTICE.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

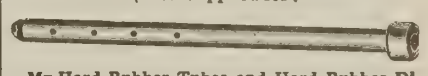
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Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had had a Binder and now had the complete volume with index bound, its value would be increased greatly.

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BINDER BY MAIL POSTPAID, 75 CENTS

Returns From Robert's Dairy Last Year.

This dairy is kept on our farm, but is owned and managed by our son. In 1897 the average yield of milk per cow, as reported in these columns, was 6,440 pounds, taking into account all cows kept through the year. The yield for 1898 was 7,135 pounds per cow. Ten cows were kept through the year and milked through the season, and averaged the above amount of milk. The average time of milking was 314 days. Among the ten was a full-blood Holstein two-year-old, that came fresh last spring and gave 6,881 pounds of milk in 312 days. One cow gave 9,298 pounds and the next best one, 8,569 pounds. The poorest milker produced only 5,464 pounds. It was the intention to sell her for beef in the fall, as her yield of milk is too low, but before it was done the price of beef locally dropped, and she was milked through. Besides the above mentioned ten cows, there was a two-year-old that came in late, and up to February 1 gave 5,242 lbs. of milk. Some cows were turned off in summer or early fall, and others were bought fresh, so their record cannot go in with the above, as they were not milked through the year. The feed was permanent pasture through the summer season, and 2 to 3 pounds of wheat bran per day when the flush feed of June was gone. There was no soiling done. The winter feed was hay and grain, mostly wheat bran, with some corn meal. We do not advocate permanent pastures where land is valuable and suitable for tillage, nor can one depend on it for summer feed, where it takes five or six acres to feed a cow, and where the grass soon dries up Our pasture is moist, moderately rich land, not very suitable for tillage, and cost but $19 an acre. Under these circumstances the permanent pasture is profitable.

The average yield of milk per cow is given in the dairy sections of the East, where the writer is, as 3,000 to 3,500 pounds. Probably a good many readers of th *Practical Farmer* keep more or less cows. Do you get 6,000 to 7,000 pounds of milk per cow? If you do not, I would like to help you to. It is not a very difficult matter and helps the returns wonderfully. We have no silo or anything beyond the reach of any farmer. But do not construe this as against the silo. First, there are the scales to test the cows. Weigh the milk twice a month and you can come very close to what they are doing in a year and know which to sell. Then keep them warm and comfortable in the stable and give them water not colder than 50 deg. F. During the late cold weather our stable did not get below 52 deg. F. You can batten and line with paper or straw any old stable so it will be warm. Then feed the cows a fairly balanced ration, as was recently described in these columns.

Of course you will always be kind and gentle with the cows. Such management will soon enable one to dispose of poor cows, and increase his average per cow to 6,000 or 7,000 or more pounds. Then when you have some good cows selected out, get a full-blooded sire and raise some choice heifers, and go higher. There are large dairies that have got up to 10,000 pounds average, per cow, in this way, in a few years. This is the doctrine the writer has always preached, and the above figures are given to show our practice and encourage others. Robert has a full-blood Holstein sire, and is raising the calves. The question was once asked about the per cent of butter fat in the milk given by these heifers. It is high enough so no complaint has ever come from factory or city, and that is all we care for. Milk is sold in Cleveland, Ohio, now. Some farmers are anxious to have a cow that will bring considerable for beef, when they are through milking her. Robert bought two cows for $23 33 a head two years ago last fall. One was beefy, the other a typical milker. The beefy cow when fresh gave as high as 50 pounds a day at first, but ran down in yield very fast after two months. She was sold last summer for beef, bringing $38. The dairy cow in the two years gave $38 worth more milk than the other. and he has the cow, too. T. B. Terry.—*Practical Farmer.*

C. P. Goodrich at the Indiana Dairy Association.

In his address at the Indiana Dairy Convention, Mr. Goodrich stated that in educating an animal to become a good dairy cow must begin with the young calf. Muscle-forming food should be fed, such as bran, oil meal, skim milk, etc. Educate the calf on muscle-forming food as much as possible. Begin to feed the calf with skim milk and a spoonful or two of oil meal, then give a few whole oats to follow. Nice clover hay should be available. Feed skim milk six months or so. He wants an animal to come in milk at two years. Give the heifer a good box stall and plenty of straw to calve in. After calving, give her warm water—not cold. Take calf away gradually, say in two or three days. After calving, feed for awhile only a little grain, and then depend mostly on bran. After two weeks, you can begin to feed to full capacity. Feed a variety. It is desirable to have a balanced ration as nearly as can be. Quotations were given from the Wisconsin bulletin of 100 feeding rations, showing how some so-called successful feeders combined dairy cattle foods. Mr. Goodrich has found a production of two pounds of coarse food to one of concentrated as most satisfactory. Succulent foods are important. Of Woll's 100 feeders, 65 fed ensilage and two roots. If we cannot have green grass, we should feed either ensilage or roots. It has paid Mr. Goodrich to feed a little bran or corn meal in summer. His cows produce 50 pounds more of butter per animal the summer when fed grain than they did the summer before when no grain was fed. His grain cost five dollars, and thirteen dollars was derived from the butter, showing a good balance in favor of the grain. Do not feed every cow alike. Mr. Goodrich's standard feed is 32 pounds silage, 5 pounds clover hay 5 pounds corn stover, 8 pounds wheat bran and 2 pounds cotton seed meal. Lighten up on the feed of some cows, and increase on others. If she gives more milk by more feeding, increase.

April's Make of Oleo.

Forty Per Cent Greater Than That of April, Last Year.

April's make of oleomargarine in this internal revenue district, does not show as large an increase, as did several months preceding; but still, compared to April of last year, the output last month was 40% greater. Figures in the office of the internal revenue collector, in this city, place the output of the factories at 60 316 tubs of 50 pounds each. The make during April last year, was 42,559 tubs. For the ten months beginning with July 1st, 1898, the make aggregated 671,895 tubs, and for the corresponding ten months of the preceding year, it was 357,137 tubs. An increase of nearly 90% is, therefore, the remarkable record, the output of Chicago oleomargarine factories has made this year.

This record is in excess of any other year in the history of the business, the only year approaching it was in 1894 and 1895. For the ten months ending April 30th, 1895, the output was 589,961 tubs. From that time until the present year, the output decreased.

One less licence to retail oleomargarine was issued last month than in April, 1898, which, considering the larger output is rather remarkable. Seventeen licences were issued last month, and eighteen in April, 1898. For the ten months this year, the total engaged in retaling in this district is 1,702, against, 1,029 to whom licenses had been issued up to May 1st, 1898. In the number of retailers, as well as in the output, this year's record is ahead of any preceding year in the history of the business.—*Chicago Produce.*

Bone Meal for Stock.

The European Experiment stations are testing the value of bone meal with encouraging results. Recent trials of feeding young stock have been reported to the Societe Nationale d'Agriculture of France, appear to leave no doubt as to the value of bone meal. The bone dust employed as an addition to the feeding ration is known commercially as *poudre d'os vert*, that is, the powder is produced from raw bones simply dried in the open air and not treated in any way with chemicals. A calf 164 days old, weighing 478 pounds, received per day 1½ pounds of skim milk, 3½ pounds of oats, 3½ pounds of hay and 3 pounds of beets. On this ration, it increased fifty pounds in twenty-four days. Bone meal 4 ounces daily was then added to the ration and the calf increased 80 pounds in the twenty-four days, giving a gain of 30 pounds in twenty-four days by the addition of 6 pounds of bone meal. The bone meal promotes digestion of the food and increases the formation of bone, meat and muscle.—*Journal.*

Milk Preservatives In Michigan.

The agitation in Detroit over the use in milk of preservatives injurious to the human digestive apparatus, is being watched with satisfaction by the state food and dairy department as an agitation likely to be productive of wholesome results.

In the latest bulletin of the department an especial warning is conveyed to the public against the use of these preservatives Attention is called to a letter purporting to be signed by a mother which, the bulletin says, has been sent broadcast through Michigan. An extract from the letter is the following:

"A mutual friend desires me to write you, as you have a large dairy and creamery. You know better than I, perhaps, the necessity of having pure milk for babies and for household use. Now, as a mother and possible customer of yours, I want to say a word about this. Many times I have been made nearly frantic by having milk spoil just when I needed it the most for baby. My doctor told me of a preparation, made in New York which would keep the milk fresh and sweet till drank. It is harmless and cheap. I tried it and can vouch for it. I brought up my baby on milk in which a preservative was used, and a healthier and plumper baby for its age would be hard to find."

Directions as to how a designated brand of preservative may be secured are given in the letter. For $2, it says, enough to preserve 5,000 quarts of milk, and confer a blessing on mothers can be obtained.

The departmental comment on the letter is about the hottest stuff that has been printed in some moons in a purely official publication. This is what is printed in the bulletin just below the letter:

The foregoing is a deceit and a fraud of the vilest kind. Masquerading under the assumed name of a woman and clothing the counterfeit signature with the sacred mantle of American motherhood, this company seeks to promote the sale of its product in the very channels where its use will most imperil the health and lives of the children of our state. Can it be that the demands of commercial competition and love of gain warrant any human being to such despicable depths of deceit and falsehood?

The use of acid preservatives in milk is dangerous, and we question whether a chemist of repute can be found in the United States who would countenance its use in milk for the feeding of infants.

We warn the milk dealers of the state, many of whom in the past have used these preservatives, of the dangerous character of this practice.

The department, through its dairy inspectors, will make a special effort this summer to detect the use of preservatives in milk sold for consumption, and we are determined that an arrest and prosecution will be made in each and every case found.—*Detroit Evening Journal.*

ILLUSTRATION.

We are showing herewith a machine which reduces the labor of hay-making to the very minimum. They are manufactured by the Keystone Manufacturing Co., of Sterling, Ill., who are well and favorably known to our readers. This Keystone Side Delivery Rake takes up the hay cleanly from the ground, and delivers it into a long, continuous, light windrow ready to be carried up by the loader.

It rakes cleanly, but does not take up dirt, stubble, manure, etc. It is said to be of easy draft, and is well and strongly made of the best material throughout.



The Keystone Hay Loader loads the hay direct from the windrow as it is left by the rake. It dispenses entirely with the services of an extra man, and one man and a team will handle more hay with its aid than three men can handle in the ordinary way. Another leading feature in the use of this machine is the quality of the hay. They work so rapidly that all hay can be taken in when it is at its best. They easily save their price in a season of "catchy" weather, when fast haying is a necessity. Write the Keystone people for circulars, etc., and look into their merits and advantages before the haying season opens.



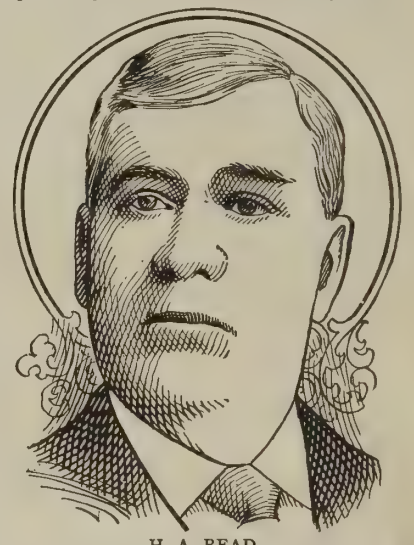
It's easy to haul a big load up a big hill if you grease the wagon wheels with
MICA Axle Grease
Get a box and learn why it's the best grease ever put on an axle. Sold everywhere. Made by
STANDARD OIL CO.

His Rupture Cured

C. & N. W. ENGINEER RESTORED BY THE WONDERFUL RICE METHOD.

Member of Waseca, Division No. 9 Tells How He Was Cured.

One of the old timers on the C. & N. W., having been in their employ over 29 years, relates some very interesting facts about how he cured himself of rupture by the well known Rice method. His name is H. A. Read, a member in good standing of Waseca, Division No. 9, B. L. E., so what he says for the benefit of other railroad men who are ruptured, can be relied upon as truthful and of value. Mr. Read says:—"I had as bad a rupture as you will run across in many months,



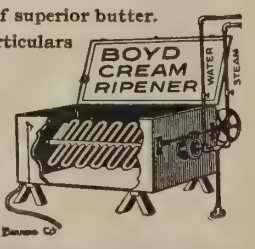
H. A. READ.

but the Dr. Rice Truss and Lymphol cured me. It was a hard rupture to hold, as I had to jump on and off my engine so often, the spring and other kind of trusses I wore would shift and let the rupture out. But the Rice truss fitted me exactly, and after the first night I wore it I knew it would cure me. I went to sleep feeling like a new man as the truss hold my rupture, no matter what I did or the way I moved about. I never lost one hour from work and as I am a railroad engineer it means considerable to be laid up with a rupture. I have saved a hundred dollars already in the time I have made up, and I shall always recommend the Rice cure with a grateful heart." Sincerely, H. A. Read, Waseca, Minn.

The Rice method is a perfect fitting truss, the only one known, and a marvelous healing lotion that securely knits and binds the broken muscles together making the cure complete and permanent. Every ruptured railroader should write to Dr. W S. Rice, 353 K Main St., Adams, N. Y., and he will send a complete and illustrated series of pamphlets showing conclusively that his method cannot fail to cure. It is home treatment at small costs, without pain, danger, operation or an hour's detention from work. Do not fail to write for either yourself or someone you know to be ruptured.

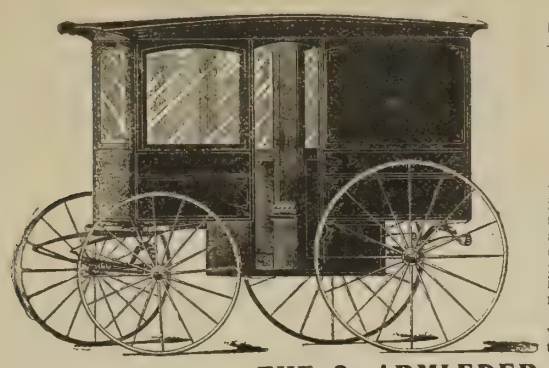


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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. ☞ Send for Catalogue, prices and terms. Wagons for carrying bottled milk a specialty.

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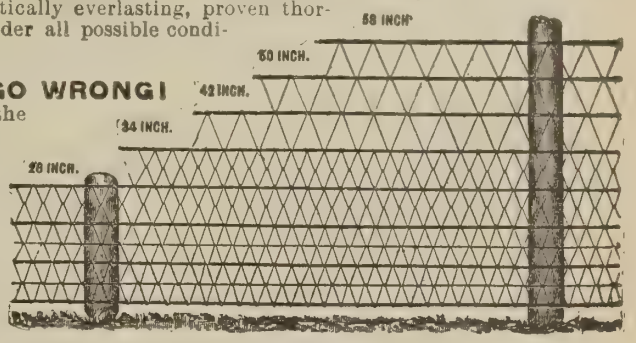
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you have secured absolute efficiency at least expense, in a practical fence that will positively turn cattle, horses, hogs and pigs. A fence that is strong, practically everlasting, proven thoroughly efficient under all possible conditions.

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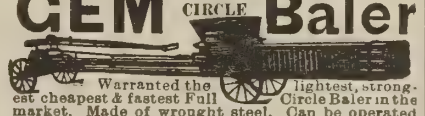
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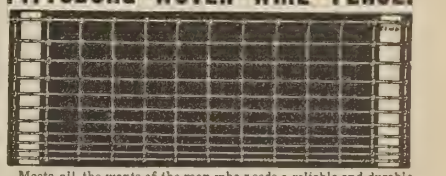
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Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

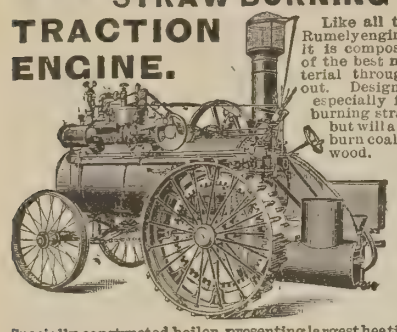
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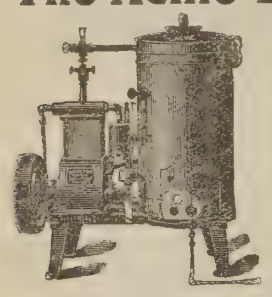
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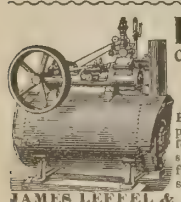


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LIGHT POWER,

Cheap Power and Effective Power can be best secured in one of these

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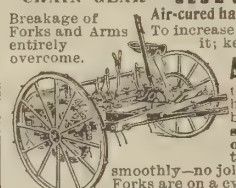
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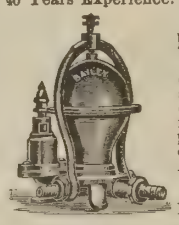


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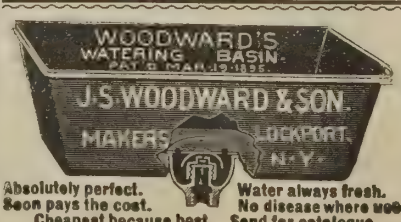
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Farm profits depend on correct weighing. Ask your implement dealer for an Osgood. If he tries to sell you any other make, send for our **Special Offer** for introducing the Osgood. It will pay you.

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A harmless liquid applied to cows with a CHILDS ELECTRIC SPRAYER, that protects them from flies, increasing the amount of milk, making comfort for cows and milkers. Sample lot—One gallon can Kilfly and one Sprayer, securely packed, expressed to any address (except in State of Maine), charges prepaid, upon receipt of **$2.00.** Special prices for quantity. AGENTS WANTED EVERYWHERE.

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SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' *none* equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected.

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BY USING

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High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson Gen'l Agt., 551 Marquette Building, Chicago.**

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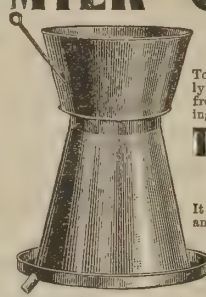
excel all others for close skimming and ease of running.

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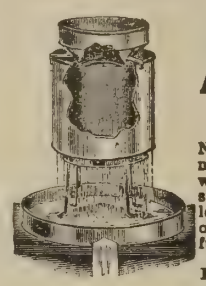
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It quickly reduces the temperature and at the same time takes out all bad odors, of feed, stable, etc. **Leaves the milk sweet and clean** and makes it long keeping. Made in different sizes for any number of cows. Don't start into the summer without one. **Electric Cooler and Aerator** circulars, prices, etc., mailed FREE upon request.

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IT DOES NOT Create an Odor to Destroy One.

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Applied with large quantity of water, which makes it cheap and convenient of use. It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

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Numbers of the SHARPLES TUBULAR SEPARATORS are being used by extensive milk bottlers and milk dealers for clarifying their milk without extracting the cream.

Any cream separator will, to a greater or less extent, clarify the milk passing through it, but in most cases to a very limited extent, or in an ineffectual manner. While clarifying milk, the cream should not be separated and again mixed, or an inferior product will result. The whole separating space of the bowl should be constantly utilized or the machine will be ineffective. The bowl should be simple in construction and the course of the milk direct, to prevent, as far as possible, the frothing of the milk.

The milk should be brought under the greatest centrifugal action, else dirt alone will be extracted, and disease germs and clotted material left in the milk.

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IS ESPECIALLY EFFECTIVE AS A MILK PURIFIER.



It can be changed from a cream separator to a milk clarifier in two minutes.

It separates filth and disease germs without separating the cream and milk.

The whole separating space in the bowl is fully utilized, and the milk is brought under a centrifugal force over three times as great as in any other separator.

The bowl is simple, easily cleaned, and a minimum of froth results. No type of bowl other than the TUBULAR will accomplish corresponding results.

If interested, write us and we will fully explain the reasons for this, so that they may be readily understood. Space here is too limited for the purpose.

And as MILK and CREAM SEPARATORS the TUBULARS STAND PRE-EMINENT.

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Buttermakers using it say it gives perfect satisfaction in every respect and recommend it to all not using it.

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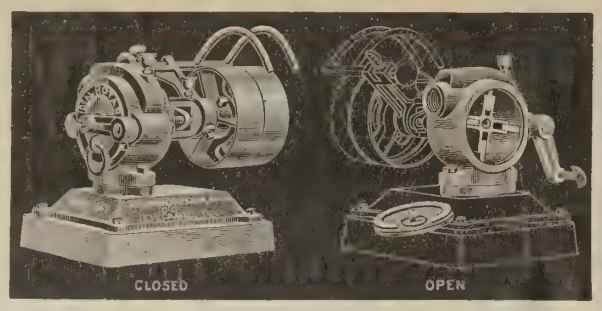
ELGIN MANUFACTURING CO., ELGIN, ILL.

We have made some IMPROVEMENTS in

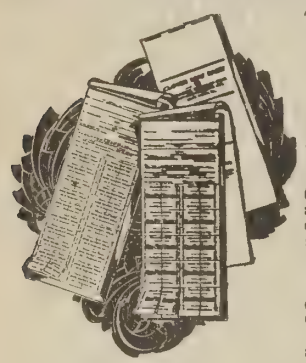
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Rotary Milk Pump



Which was thought to be already perfect by large numbers of our customers. We have simplified the construction without changing the general lines. It now has only one thumb screw to loosen to take off cylinder head. It has LARGE CAPACITY. Is VERY DURABLE. NO TROUBLE TO CLEAN. Made in THREE SIZES.



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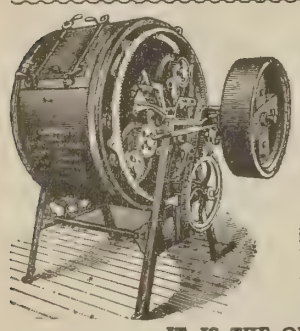
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Alpha De Laval Separators, Ideal Skim Milk Weighers, Elgin Style Ash Tubs, Spruce Australian Butter Boxes, Ideal Turbine Testers, Stearns' Style Spruce Tubs, Ideal Corrosive Sublimate Tablets, Refrigerating Machinery, Ideal Cleansing Powder, Etc., Etc.

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IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

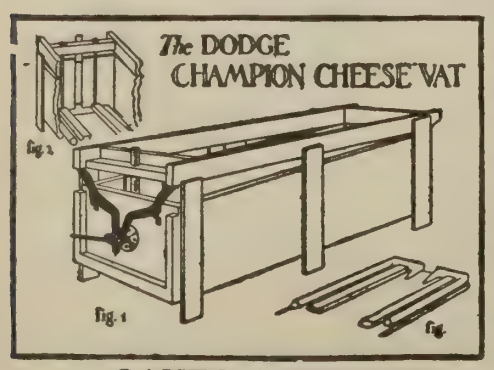
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HIGH GRADE WORK ONLY. Haddonfield, N. J.

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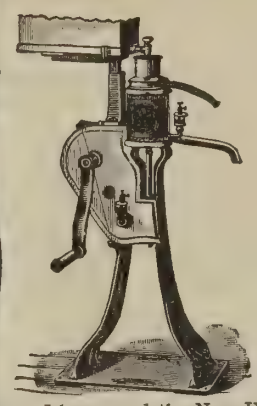
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THE REASON WHY so many buy

The Improved U. S. Separator

is because it IS THE BEST



It Skims the Cleanest,
It Runs the Easiest,
It is the Most Economical,
It is the Most Simple,
It is the Easiest to Clean,
It is the Most Durable.

SO SAY ITS USERS EVERYWHERE.

More Durable than Any Other.

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The Improved U. S. Separator I have runs light, does first-class work, is easy to clean, and I believe it will wear longer than any other separator on the market. GEO. C. WHITE.

Used 5 Years with Little Expense.

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I have used the No. 5 U. S. Separator five years, have not paid out hardly anything for repairs and it skims as clean as ever. L. T. JOHNSON.

Leaves the Least Fat of Any Make.

RANSOM, MICH.

Have tested the skim milk from several different separators, and our Improved U. S. left the least butter fat of any. GEO. BURT & SONS.

10-Year-Old Boy Thinks it is Fun to Run the U. S.

SUTTON, N. H.

My Improved U. S. Separator separates perfectly clean and runs easy—my 10-year-old boy thinks it is fun to run it. GEO. C. TILTON.

Write for our Special Separator Catalogue containing many more like the above.

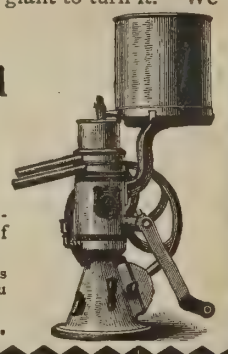
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A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

$22.40 for 15 cts.

The additional cost of using Diamond Crystal Salt in the making of a ton of butter is 15 cts. Wiggin & Upham, the produce commission merchants of Boston, says: "Tests prove that butter made with

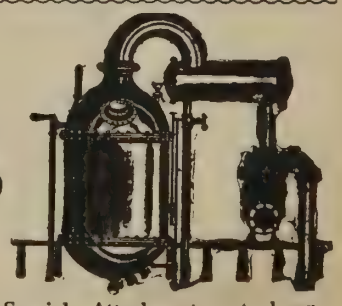
DIAMOND CRYSTAL SALT

is found to be worth a cent a pound more than butter salted with any other salt." It's not can you afford to use Diamond Crystal Salt, but can you afford not to use it? Send for our book "*The Salt that's all Salt.*"

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

Condensed... Milk Factories

Built Complete By



Special Attachments not shown.

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We are the only firm that builds factories complete, put them in operation and guarantee results.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

If dirt gets in the milk, you cannot strain it out, nor wash it out, nor brush it out. It is there to stay, to make mischief in the milk, taints in the butter and only a poor quality of cheese. In every case your products will bring lower returns. Why then when you know what the result will be do you permit dirt anywhere in or about your dairy?

A new fraud has just made its appearance in Denver, Col. Parties in that town advertised a method for making artificial milk and according to accounts were very successful in finding victims. "The fool and his money are soon parted," and there seems to be an unusual number of the above genus in connection with the dairy, or there would not be so many butter nostrums, fake separators, poisonous preservatives, *et id genus omne*, continually on the market. As a general thing, the poorer the bait the more remunerative are the returns to the swindler. The dairyman gets experience for his money, which is a rather poor return.

If all the professors in the country should unite in declaring that food preservatives are harmless, we should still refuse to acknowledge the propriety of using such compounds. First, because we want to know what we are eating, and second, because no chemist can, by means of test tubes and solutions, decide what the human stomach will do when dosed with preservatives for any length of time. The doctors have been studying the human stomach for, lo, these many years, and yet are almost helpless when that same instrument begins to misbehave. The most they can do is to coax it a little until it comes back to its proper course, of its own accord. Yet they do not hesitate to declare the innocence of strong chemicals when taken into the stomach as food preservatives. They do "protest too much" and take too great an interest in the affirmative side of the question to be classed as thoroughly unprejudiced witnesses.

The Radiator is now on exhibition in the city of New York. This is the most modern example of advanced dairy machinery. It combines in one machine a separator, churn, pasteurizer and cooler. The butter produced by it is of course sweet cream, and as such has but a limited market. It is claimed that the butter can be ripened by allowing it to stand in butter milk, from which the butter will take up the flavor of ripened cream butter. It is stated that the machine is somewhat extensively used in Denmark and other dairy countries of Europe.

It is an expensive machine, and in the light of experience with somewhat similar machines in the past, it is evident that the American butter maker will wait for a thorough demonstration of its worth, before investing



JUTLAND CATTLE.

A Bull of the Black and White Race.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. W. L. Russell.]

Second Series, XVIII.

BLACK ROT OF CABBAGE AND ALLIED PLANTS.

It is noteworthy with bacterial diseases of plants, as well as those of animals, that certain specific diseases are found in certain families of plants. Thus the fire blight is peculiarly a disease of pomaceous fruits (pear, apple, etc.). The disease here to be considered is one that affects those plants belonging to the mustard family. On the until a few years ago, but within the past two years, a fairly satisfactory life history of the malady and its cause has been worked out independently by Smith, of Washington, and the writer, working under Wisconsin conditions.

The disease makes its first appearance on the edges of the leaves, these parts assuming a parchment-like texture. The progress of the malady is to be noted mainly along the veins of leaves, these becoming blackened by the growth of the germ. After the trouble works its way back into the main stem of the plant, it cuts off the water supply, causing the tissues to wilt and finally die. Under the influence of the disease, the growth of the plant becomes dwarfed, sometimes the head failing to form. The disease is apt to be worse in the fall, in which case the heads may suffer from rot even after growth is practically complete. This frequently happens where cabbage are stored in cold storage during the winter. The disease can be quickly detected in these by an inspection of the stem. The least trace of blackened fibers in the stem should lead to the rejection of the head, for if the interior is affected ever so little, it is sure to rot in storage.



JUTLAND CATTLE.

A Cow of the Black and White Race

cabbage and its close relative, the cauliflower, the disease is of most importance from an economic point of view, but turnips, kale, kohl rabi, and bagas are also invaded by it. Among the wild plants, the common wild mustard is also affected.

Some years the disease is very wide spread, causing heavy losses among the truck growers throughout the United States; then again, the virulence of the disease subsides and the losses in the same regions may be trivial.

APPEARANCE OF THE DISEASE.

The disease is relatively a new one, not having been noted by growers until the early part of this decade. No attempt to study it from a scientific point of view was made

During the last few years, the disease has been especially severe in Wisconsin in the cabbage growing regions in the neighborhood of Kenosha and Racine. In 1896 in these two counties, experienced growers estimated the loss to be upwards of $50,000 or $60,000. Throughout many of the northern states, the disease has been reported, but it is to be said that it varies much in intensity from year to year.

CAUSE OF THE DISEASE.

Many notions have been advanced to explain the cause of this disease, but none of them until recently took cognizance of the infectious nature of the trouble. Since the isolation of a specific bacterial form from affected tissues, and the subsequent inoculation of the same into healthy plants with successful results, there is no longer any doubt but that the disease is due to the ravages of the bacteria. A study of the organism in relation to its host reveals many striking and interesting features, a knowledge of which is of great service in formulating proper methods of control.

HOW THE ORGANISM FINDS ITS WAY INTO THE HOST.

This germ has a most peculiar way by which it is able to establish itself in the plant. Every one has frequently noticed glistening water drops on the edges of cabbage and cauliflower leaves. Generally these are supposed to be dew, but as a matter of fact they are drops of water that are forced out of the tiny openings called water pores, that are situated on the edge of the leaves. When there is an abundant supply of moisture in the ground, and the air is quite saturated, the vapor of water that is always leaving the plant at these points is excreted in liquid form.

Now, suppose that there are disease germs of this sort in the neighborhood. Perchance they may have come from plants already affected, or from the ground. In any event, they are readily disseminated by the wind, and as they are blown about in the dust, they are caught in these tiny drops of water. In these they multiply, and so find it possible to work their way into the fine veinlets, and be distributed.

Then again insects may function as distributors of disease virus. Gnawing and biting insects, particularly, chew off portions of the leaves, thus exposing the more susceptible tissues to infection.

TREATMENT OF THIS DISEASE.

Treatment of a disease of this sort should be more preventive than remedial. After the disease germ has invaded the main stem of plant, no known agent can effect a cure. It is possible, however, to prevent the organism from gaining a foothold. This may be done by impeding infection by cultural treatment, or by checking its spread after infection has once occurred. The disease can only be produced if the specific germ is present.

In diseased tissue the organism exists in large quantities so that care should be taken to destroy plants already affected. Throwing such refuse on the manure heap, and carting it back to the fields is sure to give conditions favoring infection. Where a field becomes badly infected, rotation of crops should be practiced. Great care should be taken in planting healthy plants. If the soil in seed bed becomes infested, the young plants are pretty sure to develop the disease, and each affected plant becomes in the field, a new centre of infection.

Where the matter is taken in time, the disease can be practically checked by the removal of affected leaves, if this is done before the main stem is invaded. With a crop worth $75 to $150 per acre, it is well worth spending the time to keep the disease in check as can be done in this simple way.

Peanut Butter.

A new factory has just been put into operation in Kokomo, Ind., for the manufacture of butter from peanuts, says *St. Louis Globe Democrat*. For a year a more Lan Brothers, of that city, have been working on a process of making butter from the peanut to compete with the product of the farm cow, and have succeeded in producing the desired article. At the present price of the nuts the butter can be sold at 15 cents per pound. The process of manufacture is no secret. The nuts, after the hulls are removed, are carefully handpicked and faulty kernels removed. They are then roasted in a large rotary oven. Again they are gone over by hand for the removal of scorched grains. The nuts are then put through a mill and ground as fine as the finest flour, the natural oil in the grains giving it the appearance and consistency of putty as it leaves the mill, except that it is more of an orange color. By the addition of filtered water, to reduce it to a more pliable state, the butter is complete, no other ingredient, not even salt, being used. It never grows rancid, and keeps in any climate. It is put up in one, two, five, ten, twenty-five and one hundred pound tin cans and sealed. The new butter is already in great demand at sanitariums and health resorts.

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REPORTS from Kansas state that many of the creameries in that state report greatly decreased milk supplies, some fifty per cent less than last year. The causes which lead to this result are low prices of butter and the high prices which beef cattle are bringing. This but illustrates the great hazard of building creameries in a community where the farmers are not, nor likely to be, dairymen in a sense of the word that will make the business profitable for them or the creamery.

A NOTABLE SALE OF JERSEYS.

The long time famous herd of Jerseys, owned by Mr. T. S. Cooper, of Coopersburg, Pa., was sold May 30th. This sale was in many respects one of the most important which has taken place for several years. Seventy-two animals were sold, bringing within a fraction of $200 a piece. At the head stood the bull, Pedro's Royal Marjoram 28560, which brought $1,100; sold to the estate of A. B. Darling, Ramsey, N. J. The bull, Peter Cooper's Pedro 53524, was sold to Maj. Henry Alvord, Chief of the Dairy Division, at Washington, for $800. General Marigold 45486, a three-year-old bull, sold to Biltmore Farm, Biltmore, N. C., for $800.

All lovers of fine dairy cattle, without reference to breed, will lament the dispersion of this magnificent herd, if it means that Mr. Cooper is to relinquish his interest and public work in the problems of dairy breeding. But few men in the nation have done more to demonstrate what was true and false in the theory and practice of breeding dairy cattle. Immense good, of course, will follow the wide spread dispersion of these cattle, all of whom represent the molding hand and brain of a past master in this great art.

OTHER OLEOMARGARINE FALSEHOODS.

A more causeless or inexcusable falsehood was never coined than that set afloat by the so-called *Country Gentleman*, to the effect that the officers of the National Dairy Union are using or have used "that organization to blow the trumpet of their private enterprises." On the contrary, the officers referred to are not only giving their time and means, but are taxing their "private enterprises" as well, to further the objects of the Union. These objects are to secure what is believed to be, right legislation for the protection of the dairy interests of the country.

What they desire and what they are working for above anything else, is the passage of national and state laws that shall effectually prevent the fraudulent sale of oleomargarine at wholesale or retail, or to the individual consumer in hotels, restaurants, boarding houses, and private families. These officers have given fair and convincing proof of their single minded devotion to these objects.

In the pursuit of these objects they have met plenty of men like the editor of the *Country Gentleman*, who have tried to prostitute this great central idea and purpose to politics or some other equally selfish purpose. The whole question in New York, today, is so prostituted and juggled with, for no other purpose than to make the crusade against oleomargarine serve the political ends of a certain party boss in that state.

His efforts to elect the next speaker of the House of Representatives, which Western dairymen have taken a hand in defeating, was a part of the general New York scheme.

In furtherance of such traitorous ends the *Country Gentleman* has lent itself to the disreputable purpose of spreading falsehood, and lies by inuendo, against the officers of the National Dairy Union, that it may aid its big boss to shield his oleomargarine friends from legislation which they fear.

Of near kin to its other falsehoods, and given repeated currency in the same degenerate sheet, is the triple lie by inuendo that HOARD'S DAIRYMAN was about the last paper in the country to advocate the passage of the filled cheese law,—that it is not opposed to the use of "preservalin" and such like compounds, and that it has not yet said the first word "against that other rank iniquity, renovated butter."

The thousands of readers of HOARD'S DAIRYMAN, in New York, know full well the utter falsity of such charges, and they cannot fail to soon know why the *Country Gentleman* has turned traitor to their highest material interests.

FOOD TO BE USED WITH SKIM MILK FOR DAIRY CALVES.

We notice that many of our exchanges are publishing extracts from Bulletin 35, of the Iowa Station, which gives the record of an experiment made with 12 calves for 74 days. The calves divided into four lots.

The experiment was made to determine what was the best food to mix with separator skim milk to promote the best growth. The conclusion was that the best and cheapest admixture was corn meal. But our exchanges generally leave out one very important fact brought out in the bulletin, by Prof. Curtis, and that was that the experiments were made to secure the best growth possible *for beef* results, not milk.

On that point Prof. Curtis expressly says:

"To develope and grow to maturity dairy-bred calves for the block, or calves of positive beef tendencies for dairy purposes is *worse than folly*.

It will also be unsatisfactory to grow both beef and dairy calves *by the same method*.

The beef bred calf should be fed to constantly maintain from birth to maturity a good, even covering of thick flesh.

To grow a dairy calf in the same manner however, would prove disastrous to dairy production, no matter what excellence may have been inherited."

Our readers will remember that in our reply to Mr. Crehore, on page 268, under the head of "Fattening Heifers," we spoke of the peculiarly deadening effect of corn meal on the mammary organs, and functions when fed in too large quantities. These organs and functions in the heifer calf should always be considered as in embyro. How they will be developed depends very much, as Prof. Curtis intimates, upon the way the heifer is fed. If she is fed largely on carbonaceous food, especially food like corn meal, the result will be to weaken and ensmall those organs.

The honey bees understand the subtle effect, or developing character of food. By a most wonderful skill that exceeds all human comprehension, they make either a neuter or a queen bee by the use of a certain kind of food.

By the same use of food we can either develop or decrease the mammary power and capacity of the heifer which is to be the future cow.

NEW HAMPSHIRE AROUSED.

The New Hampshire State Board of Agriculture has called a meeting of the superintendents of all the creameries in that state, to be held in Concord, June 20, to discuss the oleomargarine situation.

The circular issued says in part:

"Fraudulent sale and use of imitation butter in this country is increasing annually, and has a very serious effect upon the demand and price of genuine dairy products. We venture the assertion that more than $100.000 is annually lost to milk producers of New Hampshire, from the fraudulent sale and use of oleomargarine, butterine and other imitation dairy products, masquerading as butter. Farmers of this state should unite and demand the rigid enforcement of the law of the state regulating this matter, and call upon Congress to enact such legislation as will secure protection to the farmers of the country from the illegal use of imitation dairy products.

This is a right move on the part of the New Hampshire Board. It indicates clearly that the organization is loyal to its name, and is hostile, as it and all state boards should be, to all frauds and counterfeits in food. It is refreshing to know that corrupt party bosses, who receive money from the oleomargarine combine, cannot make the New Hampshire State Board disloyal to the dairy interests of the state and nation.

THE CHEESE OUTLOOK.

The prospects are fair for a strong cheese market all through the season.

The United States export is constantly falling off owing to the increased home consumption. In Canada the early spring make has been considerable lighter than last year. It is estimated the shortage will equal fully 4,000 boxes. The same causes that affect the butter and cheese production in the United States, viz: high prices of beef, are affecting the cheese production in Canada. We believe the present season will prove a fairly good one to all dairymen who stick to their calling.

Cedar Hill Farm Notes.

Making a Silo Tight—The Fly Question—Transmitting Power for a Silo Cutter.

ED. HOARD'S DAIRYMAN:—If Uncle John Patterson (every one in Missouri calls him Uncle) will take some flat, one-half inch battons, two inches wide with tarred paper strips to match, and tack them over those cracks, only nailing to one stave of silo, he will find silage will keep perfectly. These cracks are owing to the lumber being poorly sawed but most of them close up when silo is filled.

This silo question is a great one. I am in receipt of a price list from a manufacturer who offers to furnish material for a round silo 26x20, for $950.00 knocked down.

How many ordinary dairymen who read this journal, can afford a silo at this price? We have our material bought, 2x6's 36 feet long, laid down for $25 per thousand or $100 for the size we wish to build, or in other words, we could build eight silos with the money asked for one, which is something to consider.

If I were in Washington State I would build a silo of red cedar; if in Africa, rosewood or mahogany would do, but in this section, we can go to our lumber yards and, at a nominal cost, get our material of our merchant and he, in turn, will buy our butter or perhaps a family cow, which will even up matters. What I wish to illustrate is the fact that any material at hand will answer; saving freights and other charges not necessary to a good silo.

Some of those Texas flies have found me out and we must give them Texas treatment, or they may get homesick. Horn flies are the ones I mean. With a four inch paint brush and a can of Shoo-Fly my boys quickly go over our herd, giving them relief for two days at least, and at horse barn we have a can especially prepared for horses, which saves buying fly nets This horse protector is also Shoo-Fly. I have now used this preparation four summers, and all things considered, it is cheaper and better than anything we can fix up ourselves.

That rape is a great grower, at least, and to-day I pulled an armful for the chickens, and by the way they went for it, it is at least good for them. Will some one tell us about it as a cow feed?

Can any of the DAIRYMAN readers tell me if sufficient power can be got from an 8 horse engine, 70 feet from a Ross ensilage cutter, 16 inch knives and 30 ft. carrier, the power to be conveyed by a two inch shaft? Information on this subject will greatly oblige,

BUFF JERSEY.

Feeding Value of Ensilage.

ED. HOARD'S DAIRYMAN:—I have noticed lately that some of your correspondents are claiming that ensilage without much corn in it, is nearly as good feed as when all the ears are left in it. I can hardly believe this. Have been feeding ensilage for the last six years. Have always found ensilage rich in corn gives the best results. We had last summer one of the most severe drouths known in this section. The corn we plant for ensilage being a little thicker than field corn, had very few ears, while the field corn, small of stalk was fairly well eared. We filled one of our silos about one-third full with this field corn, with all the ears left on. When we came to it, in the course of our feeding, our cows immediately sprung up in their milk, while it took much less ensilage to satisfy them. Facts tell the story best. We have never had a cow made sick from eating ensilage, and if we had to do away with this valuable feed would quit dairying altogether.

B. F. W.

Frederic Co., Md.

Fourteenth Annual Meeting of the Holstein-Friesian Breeders' Association.

ED. HOARD'S DAIRYMAN:—The 14th annual meeting of the Holstein-Friesian Association of America, held in Buffalo, June 7th, was in every way an entire success. Forty-three members attended in person, and 230 by proxy. President Matteson, in his opening address congratulated his fellow breeders on the advancement of their favorite breed of cattle to first place in the estimation of the public.

The proceedings were entirely harmonious, the numerous amendments to the rules all being in the interest of greater efficiency and care in the maintenance of the herds in their purity. One amendment is of general interest, as it reduces the charge for registering imported animals. It has purposely been kept so high as to be practically prohibitive of importation.

The financial report of Treasurer Smith was as follows: Received from last year's board $14,810.52, from all other sources $23,417.37, disbursed $6,055.55, balance on

hand $17,361.82 or $2,551.30 over last year.

The entire membership of the association is 690 of which 84 have been added during the year, and 55 have come over from the Western Association which joined this association at the last annual meeting. A committee of the Canadian Association having been appointed with view to union also with this body, the meeting authorized the appointment of a committee to confer with them.

The attendance was very gratifying, ten states and Canada being represented. The meeting arranged for issuing challenges to the dairying public, soliciting competitive tests, which will probably be made public at the Pan-American Exposition in Buffalo, in 1901. This extended time is thought to be sufficient to disarm all opposition, and to make a valid excuse impossible.

Prof. H. H. Wing, of Cornell, who has made a large number of butter and butter fat tests of Holstein-Friesian cows, during the year, gave an analysis of them, showing pretty conclusively that it is not best to feed milch cows very high.

All officers were re-elected as follows: President, W. A. Matteson, Utica, N. Y.; First Vice-President, S. Burchard, Hamilton, N. Y.; Second Vice-President, W. B. Barney, Hampton, Iowa; Third Vice-President, W. S. Carpenter, Menominee, Mich.; Fourth Vice-President, W. J. Gillett, Rosendale, Wis.; Secretary, F. L. Houghton, Brattleboro, Vt.; Treasurer, Wing R. Smith, Syracuse, N. Y.

Adjournment to 1st Wednesday in June, 1900.

The Kansas State Dairy Association on Oleo.

ED. HOARD'S DAIRYMAN:—I respectfully submit the following resolution adopted at the regular session of the Executive Committe of the Kansas State Dairy Association, at its meeting held in Manhattan, Kansas, April 20, 1899:

Resolved. That the Executive Committee of the Kansas State Dairy Association, now in session, heartily endorse the movement of the National Dairy Union to secure a federal tax of ten cents per pound on all imitations of butter, colored yellow, and request the Kansas Representives and Senators in Congress to use all possible efforts to secure the passage of this bill. We believe this sentiment is endorsed by every dairyman in the State of Kansas.

H. F. JENSEN,
Sec. Kansas State Dairy Ass'n.

Give the Boy a Show.

The farmer should certainly have better judgment than the inexperienced boy of the budding mustache. Which should then order affairs on the farm? This is not so easily answered as might appear on the surface. Considering simply as a money making enterprise, an experienced brain at the helm is certainly the proper thing. What should we think of a pilot who turns over the helm to an inexperienced boy? Or to a lawyer who gives our case no personal attention and lets his inexperienced boy plan for our defence? We hire an expert to fix up our machinery, and he sends some one who is not posted in the matter. We kick. So when there is a difference of opinion between the farmer and his boy, the farmer naturally insists upon his own plans, for he has tested them, has longer experience and must suffer if things turn out wrong, for there are bills to be met and taking ill-advised risks is wrong and adopting plans which his judgment disapproves looks foolish to him.

For all that we hold that the boy should have his own way part of the time. Raising boys is one part of it. Producing beef and bread and butter is farm work, but the reason of producing beef and bread and butter is to produce brain and brawn from it. The boy is of more consequence than all the other stock. As a colt needs training, so does the boy. Tying a colt behind a wagon is a poor way to train him. Tying a boy behind the wheels in his father's head is a poor way to train the boy. Both boy and colt need to understand that there are proper things to observe and improper things to keep clear of, but neither can be educated without giving him the use of his own head. The boy's judgment needs exercising in order to develop it. Let him do some things as he thinks best, even if you feel positive you know a better way. The boy will learn in this way, and better than you can teach him by holding him in your well worn rut. And then again the boy may beat you and improve upon your own methods. Such things are not infrequent. Divide responsibility and honors with the boy. That is fair and it is the part of wisdom. E. C. BENNETT.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but ithas been demonstrated that it is not absolutely necessary, for this purpose.

CREAM DOES NOT CHURN EXHAUSTIVELY.

I have just begun to use a separator and am having trouble with churning. Do not get more than one half as much butter as it ought to make. Buttermilk looks as rich as when put into the churn. Cows are thoroughbred Guernseys. B. W. H.

Genoa, N. Y.

We think the trouble in this case comes from insufficient ripening of the cream. It should not be forgotten when commencing to use a separator, that the cream is both fresh and sweet, whereas in other methods of creaming it has stood for twelve to thirty-six hours on the milk and although perhaps not perceptibly acid to the taste, is well advanced towards a proper condition for churning.

Moreover, cream rising and resting on the milk for some hours ripens faster than when separated, because of the greater number of bacteria and their more rapid multiplication.

Therefore, all other conditions being equal, the separator cream should be kept somewhat longer than the cream and milk, or, put in another way, the time from milking to churning should be longer than when the cream is obtained by setting the milk. Of course, the ripening process can be expedited by letting the cream be kept a little warmer, or by using a starter.

SUPPLEMENTARY FEED FOR CALVES.

Please give me grain ration for Guernsey calves two months old, to be fed with separator skimmed milk and clover hay.

Cayuga, Co., N. Y. R. W. HURLBUTT.

There is nothing better than ground flax seed for this purpose—not the ordinary oil meal of commerce, but the full flax seed meal. Skim milk is a highly nitrogenous feed, and so is oil meal. One of the foremost Guernsey breeders in Wisconsin, uses Blatchford's calf meal, and, notwithstanding its apparently high price, is confident that it pays him to buy it. Bran, corn meal and oats are also used, and it is somewhat surprising how soon the young things will learn to eat whole dry oats and thrive thereon.

SWEET CLOVER.

Will sweet clover make hay of any value as cattle feed if cut when small? Would it be profitable if cut up and mixed with corn ensilage? I understand that in Germany they use it for hay, with satisfactory results.

Serena, Ill. J. M.

Sweet clover (*melilotus alba*) undoubtedly has very considerable feeding value, but for all that is decidedly inferior to the common and mammoth red and alsike clovers and alfalfa. Where these varieties will grow, it would be poor farming to raise the sweet clover as a regular crop. Its habit is to grow rank, producing large stalks and comparatively little foliage. In several states—Wisconsin among the number—it is classed as a noxious weed, and the farmer who suffers it to ripen seed on his premises, or the highways adjacent thereto, is liable to a penalty.

It is very efficacious as a soil renovator, having the power inherent in other legumes to gather nitrogen from the atmosphere, and to send its large tap roots into the most obdurate soil. Here they decay, as the plant is a biennial, and leave openings which materially assist in aerating the soil and in drainage.

Having enough of this crop growing wild to make it an object, we do not hesitate to advise cutting and curing it for hay. It is claimed that cattle do not relish it at first, but soon become quite fond of it.

CROSSING JERSEYS AND GUERNSEYS.

What would you think of crossing thoroughbred Jerseys and Guernseys? Would the cross be any improvement over either breed? W.

Jefferson, N Y.

Answering the last question first, we have to say that the mere fact of cross-breeding would not tend to any improvement, but we would rather accept such a cross, if necessary, than breed to an objectional sire, if the only object was to raise dairy heifers. Jerseys and Guernseys have so many points of similarity that interbreeding would not be likely to set up strong countercurrents, but the progeny would not be eligible to registry and if an exceptionally good cow should result, one could not dispose of her calves except at grade prices. Therefore, instead of recommending such breeding, we suggest getting a sire of the breed now in possession of the highest quality both individually and by inheritance.

CHEAPER ROUGHAGE WANTED—THE COMPLEMENT TO SILAGE.

We want to get cheaper forage than the home market supplies. Will some of your subscribers, in the alfalfa sections, tell us, through the DAIRYMAN, or direct, what good alfalfa hay can be bought for. Cow pea hay is $10 now, and often goes higher. I notice in Ed. H. Webster's article that $3 is the usual price for alfalfa. According to the analyses, alfalfa ought to be better than pea hay? Is this so? We expect to use it as complement to silage. You once said clover hay was the best feed to go with corn silage. Why better than alfalfa or cow pea hay?

Tennessee. WILLIAMS BROS.

Answering this inquiry in the reverse order of its statement, we may say that in the statement in regard to "best feed to go with corn silage," the word clover was used in a general and representative sense, rather than in a specific and limited way. Hay from common red clover, alfalfa, cow peas or other leguminous plants, is of approximately the same composition, and is all classed as nitrogenous, or rich in protein, alfalfa leading in this respect, but so closely followed by cow peas that different samples might easily reverse this order.

But a more important consideration for our Tennessee friends is that they should not suffer themselves to be dependent upon either home or other markets for forage. They can grow, not only common clover, but alfalfa and cow peas, abundantly and cheaply, and for the latter this is the most opportune time for seeding. If there is no other ground available, sow them among the corn as advised in the article we reprint, in this issue, from the *Southern Cultivator*.

COLOR OF CREAM.—SPEED OF BABCOCK TEST.

I run a hand separator and sell cream. After cream is run through it is immediately cooled to about 45° and kept so for twelve hours, and I am told that separator cream handled thus is not as yellow and not as acceptible to the trade as cream produced by a Cooley creamery from the same herd of cows and the percentage of fat being the same in both cases. Is this a fact, and is it so accepted by dairymen generally?

How does the average dairyman know whether the acid procured at a drug store is of the proper strength or density for use in the Babcock tester? How many revolutions is necessary per minute for an accurate test.

Deans Corners, N. Y. W. N. I.

The color of cream is not affected by the manner of separating. It will be just as yellow from a separator as from a Cooley can, provided the same kind of milk is used in both cases. The only difference between the two creams is that separator cream does not run as thick as Cooley cream of the same richness of fat.

The best way is to have the seller guarantee the strength of the acid.

It depends on the size of your machine. If the wheel is eighteen inches in diameter it will require a speed of 800 revolutions a minute. Twelve inches 980; 24 inches 700. Other sizes proportional.

OAT HAY.

Would you please tell me whether it is advisable to feed oat hay to dairy cattle, and give me your opinion about feeding middlings, shorts and bran. H. E. N.

Siskiyou Co., Cal.

Oat hay ranks about midway between the best timothy and the best clover, and, therefore makes a very satisfactory feed for milch cows. Of course it needs to be cut quite early, before the stalks become too woody. The same remark might be also applied to timothy and clover.

We do not quite understand what is meant by the last half of the question. There is a very deep rooted sentiment among many farmers that middlings make a better feed than bran. We are persuaded that there is no sound basis for this opinion when the two are considered by *weight* and not by measure. Bran is very light and bulky and unless one is constantly on guard over himself when feeding bran, the allowance is very apt to be scant. We all realize the difference between corn and oats when feeding and would not think of using the same bulk when feeding corn as when feeding oats. In fact, feeding by measure without occasional reference to the scales, is anything but exact, not to say scientific. At the same price we should prefer bran to middlings, and as a rule would discard shorts altogether, as they are apt to contain pretty much all the dirt that accumulates in the mill.

MILKING WITH DIRTY HANDS—SOAP FOR CLEANING DAIRY UTENSILS—DIVIDING PROFITS.

Do you consider it a decent practice for the milker to milk his cows mornings without washing his hands?

Is soap a proper article for cleansing cans in which cream is shipped?

When owner furnishes land, horse, dairy room and utensils and business is conducted on shares what part of expense, profits and stock goes to working man?

Tenn. E. M. K.

It requires no consideration to condemn such a practice at once. The success of dairying depends on cleanliness as much as on selection and feeding, consequently cleanliness of clothes and person is as much a necessity as cleanliness in the dairy surroundings.

Soap is not as good as soda for cleaning dairy utensils. Some soap is made of very poor and impure material, fat which has come rancid and decomposed. Such soap, if hard water is used, is liable to leave more impurities than it removes as it forms an insoluble compound which sticks to the sides of the cans.

There is no rule for adjusting the profits. It all depends on the agreement between the two men. It may be considerable above or below one half, according to conditions.

"How We Breed, Feed and Handle Our Cows—Results".

ED. HOARD'S DAIRYMAN:—In March of 1892, my father sold his first milk to a creamery. His herd was composed of such cows as he could buy through the country, and I think were below the average milkers of that day. The best cow of the lot was an old red cow—old, but bearing the marks of a most excellent producer—and a three-fourths Holstein cow, also an excellent milker. Afterwards two Holstein heifers, one a three-fourths, and the other a five-eighths, came into the herd and were fresh a year later. A few months at patronizing the creamery—milk then sold at one dollar to one dollar and fifteen cents per hundred pounds in winter—favorably impressed him with the idea of selling milk. So he sought to improve his herd by the purchase of a pure bred Holstein bull. The animal was not high priced, and his pedigree was not one that would place him in the list of rarely bred milk or butter bulls. From him all the heifer calves were kept.

At about this time creameries begun buying milk by the test, and, while father's test was an average one, public opinion had it that Holstein milk was extremely thin, and that the steer calves would not sell, so his attempt at breeding Holsteins was ridiculed to such an extent that this bull was replaced by a Short-horn of so-called "milking strain". Those were days when every breeder had "milking" Short-horns. After a season this animal became crippled and was killed; and was succeeded by a Polled Durham, whose sire and dam came from the celebrated Elgin district of Illinois, he also of "milking strain." At the end of a year his calves gave so little promise that he too was disposed of.

At this point, the firm became G. W. Horman & Son, and being convinced that we could produce butter fat at a greater profit than beef, we gave it first place on the farm. We set about to rear a dairy herd, and bought Violante's Gold-dust, a pure bred Holstein bull, and with him a pure bred cow and heifer.

The heifers from the first Holstein cross are the cows, aside from four pure bred ones purchased, which constitute the present herd. The herd is composed of two seven-eighths cows, one five-eighths, one three-quarters and the remaining half breeds. With one exception, the five-eighths cow, all are good types of the dairy animal. The average weight of these cows is probably 1,200 pounds, and of the entire lot only one is inclined to put on fat, and that not during the milking season. But she carries too much flesh to be an economical producer. They are good feeders, always hungry and the enormous consumption of each is recognized by the capacious stomach distended almost to deformity when filled. All are extremely quiet, and in several cases bordering on stupidity, yet sensible to all changes in surroundings or unusual occurrences about the barn or lot. In other words, they act and look like cows built for business, whose only occupation is the production of butter fat every minute of the twenty-four hours of almost every day in the year, and anything which tends to detract attention from the work, is sure to decrease the yield.

As producers these cows are not wonders, yet each is profitable, and, I believe, above the average cows. They are persistent milkers, and in several instances refused to be dried. Last year the herd—not a selected lot, mind you, but all the heifers from this first Holstein cross—produced an average of 309 pounds of fat, or 360 pounds of butter, and this year the yield will be increased. The average test of the individual cow is 3.9; the highest 4 9, the lowest 3.4. The average test of milk produced is 3.75 per cent fat. The largest producer of this breeding is a seven-eighths cow from the original three-quarter cow; last year giving 12,000 pounds of 3.4 milk or 408 pounds of fat equivalent to 476 pounds of butter. The next highest yield is from a three-quarter cow which with 4.5 milk produces as much fat as the other, for the first six months of the milking period, but is not such a persistent milker. These are records made on the usual feeds and care given the entire herd. In the hands of a competent feeder, and by forcing, they doubtless could be made to exceed these figures.

As stated, the first Holstein bull was succeeded by a Short-horn and from the latter's calves, three of the most promising heifers were selected for future usefullness in the dairy. The heifers came fresh and the result was gratifying from a beef man's standpoint. Indeed, they were beefy and on our feed took on fat like hogs, and gave very little milk. In no case was the milk season longer than five months, and after the first month in milk failed to pay for the grain consumed. But, we had hopes and gave them a second trial. Soon after the second calving they went to the butcher. God might have made a cow which could convert the same food into both milk and beef, but he never did.

In the case of one of these heifers I can make a comparison indicating the value of breeding for what you want. The original old red cow dropped two heifer calves in succession; one a half breed Holstein, the other from the Short-horn bull. The Holstein heifer with third calf produced an average 53 pounds of 3.8 milk per day for seven days, and for the same time the red heifer with second calf gave 27 pounds of 4. milk per day for the same time. The cows were half sisters, one producing 2.3 pounds of butter per day, the other 1.2; the first milking eleven months of the year, the second dry at five months. This instance only serves to demonstrate the value of a sire bred for milk and butter when the farmer is rearing a dairy herd.

In the fall of 1895 we bought Violante's Gold-Dust, a pure bred Holstein bull, from a cow said to have produced 22 pounds of butter in seven days, and we have chosen eight heifer calves from two lots of his calves and we know they will be as good milkers as their mothers, and we are reasonably sure they will be better. Four of these are yearlings and are showing up remarkably well. These were reared on skim milk with bran feed, from early fall to late spring, and were given roughness in abundance to develop stomach capacity. They were not allowed to fatten. It is with great anxiety we await their coming fresh a year from this time.

This herd of eight heifers, all better than three-quarters, and two are pure bred, will be headed by a wonderful calf we bought last spring. Our little kuowledge of improved blood created a desire for still more, so we purchased at three weeks old, May Overton's Metchtilde Sir Henry, the best bull calf we could buy, and with few equals in milk and butter breeding in America.

I would impress upon dairy farmers the absolute necessity of the selection of well bred males. The stronger the milk and butter breeding the greater certainty there is of securing profitable additions to the dairy herd. Eliminate all possibility of a poor heifer calf; it can be done. Again, do not buy an inferior bull. An animal costing $100.00 and if properly bred along milk and butter lines, is cheaper than one as a gift if of no especial breeding. A milk and butter bull capable of producing heifers worth $10.00 a head more as cows, will in one season, on a herd of fifteen cows, pay for himself and put hundreds of dollars in your pocket, if you continue in the dairy business. Heifers producing five or six, or even four pounds of average milk per day, more than their dams, should be regarded as a flattering improvement on a herd of common cows, for the first milk cross. I am not an advocate of the theory of persistent breeding up from common cows and common bulls; life is too short to undertake it. Any farmer can better afford to buy a good bull of some favorite milk breed, and get into the dairy business properly in from two to four years.

The rough feed consumed by our cows is such as can be grown on any upland farm in central Kansas, and the list includes all the principal drouth resisting plants. It is necessary that the dairy farmer grow such crops as are reasonably sure to produce a fair yield and so diversify his list that a complete failure is almost an impossibility. That this can be done has been demonstrated on our farm during a period covering the last six years which includes several drouths threatening destruction to every growing thing. A failure to grow an abundance of rough feed has not occurred on our farm. Aside from growing a variety of crops to assure a bountiful food supply, we grow a variety for variety's sake, and this too is necessary for the best results.

Sorghum and kafir sown thickly and cut before the seed matures make valuable, and to the Kansas farmer, almost indispensible fodder. Prairie hay early cut, oats in the sheaf, millet and alfalfa hay conclude the list which, for the western Kansas dairyman will afford a liberal milk flow if fed in the proper combinations with grains or concentrates rich in protein. This winter we are using our first alfalfa hay fed to milk cows, and while we are not securing the best results on account of our failure to cure it properly, each day of its use emphasizes its value. As a pasture, alfalfa affords an extremely early spring feed, and in the fall a more abundant pasture than rye. Again, fed either green or as hay, it is unequaled as a supplement to a short and dry prairie pasture, wonderfully sustaining and even increasing the milk flow during the critical times of drouth, which occur with considerable regularity in Kansas. Indeed, it is the dairy farmer's friend. It is an almost perfect milk food, combining as does no other plant we grow, the food nutrients in the proper proportion for succesful milk production. On our farm, it will soon become the principal hay for cows.

The feeds above enumerated are fed alternately and in such quantities as the cows will clean up nicely; in fine weather in an open lot, and on stormy days, and always at night, in the barn. In feeding we always consider the palatability of the food. Be it hay, fodder or grain, we try to feed it bright and clean, and served in mangers cleanly swept. We endeavor to make the feed extremely tempting, insisting always upon the greatest possible consumption by the cow. She must eat heartily and abundantly, and if the proper digestion and assimilation follows, the milk yield will be satisfactory. Milk and butter come from the food consumed, and if that be not large, the profits must be correspondingly small.

In the preparation of a grain ration we have experimented considerably during the past three years, and have concluded (1) that the grain ration depends entirely upon the roughness, and (2) that a ration which is successful one year is not necessarily so the next, for the reason that cows seldom go into the winter's feed in the same condition two consecutive years; and last, that a ration which will cause one cow to do her best at the pail will not produce such flattering results in the case of a second or third cow. The one great lesson learned is that the dairyman must deal with the individual stomach, the individual appetite, and not the herd.

When alfalfa hay is the basis of our feed, we use corn chop diluted with bran, or when sorghum or millet or kaffir corn constitutes the roughness, we partially balance the ration by the use of about all the best wheat bran the cow will consume, and, if she will eat it, a pound or more of linseed meal. We have had difficulty in getting cows to eat the meal, and have had, one time, to abandon its use, but this latter combination of feeds has produced our heaviest yields, and sustained the milk flow during the whole fall and winter season remarkably well. The foregoing combination of rough feed with four pounds of corn and cob meal finely ground, and six pounds of bran per feed is this year giving us more satisfactory results than bran alone has done.

During 1897 we used bran exclusively. The average quantity consumed per cow was 1.08 tons at a cost of $8.15. The cost of this bran could have been decreased nearly $2.00 had the winter's supply been bought in the fall instead of being bought as consumed. To us this cost appears extremely small, and we regard the cow that will not return a good profit on that amount of feed during the winter, as unfitted for dairy use. It seems strange, indeed, that so many farmers are content with a small milk yield when it could be doubled or increased by the use of cheap bran. Winter milk averages in price probably eighty cents per hundred pounds, while bran costs forty-five cents, at present, and one hundred of bran fed with good roughness, in a warm straw stable, will produce one hundred pounds more milk than no bran with poor shelter and poor roughness.

The idea of a balanced ration is hooted by many thoughtless farmers, but it is our observation that the nearer we approach a scientifically balanced ration, the more milk we get. The average dairy farmer cannot, or will not, go to the expense or painstaking of science, although I feel reasonably sure he would be repaid by so doing, if his cows were fair producers. Yet every farmer, with only a little care, can closely approach scientific feeding, so closely that a very little loss will accrue from the violation of the feeding standards.

No farmer who makes pretentions at dairying could have violated in a greater degree the teachings of our most successful feeders than ourselves, in that our rations include no succulence in the way of ensilage. We do not question the value of either; in fact, we are so much in favor of ensilage that the silo on our farm is not a great way in the future. Yet, we are well pleased at our results without it, and our work seems to establish the fact that the much written about beets and ensilage are not absolutely necessary to the production of milk and butter in good quantities and that at a profit. What we have done in the way of feeding, the poorest farmer in Kansas can do. Our system of feeding requires no bank account to support it. The cows do that.

To the Kansas dairyman the most critical period of the milk season is that of summer and fall, when from drouth or hot winds the pastures are short, or if not short, the grass is too dry to sustain the milk flow. Unless some good feed is given at that time, what

"The Mill Cannot Grind with Water That's Past."

This is what a fagged out, tearful little woman said in telling her cares and weaknesses. Her friend encouraged by telling of a relative who had just such troubles and was cured by Hood's Sarsaparilla.

The little woman now has tears of joy, for she took Hood's, which put her blood in prime order, and she lives on the strength of the present instead of worrying about that of the past.

Neuralgia—"I had dreadful neuralgia, miserable for months. Neighbors told me to use Hood's Sarsaparilla; it cured me perfectly." MRS. FRED TURNER, Barre, Vt.

Erysipelas—"My little girl is now fat and healthy on account of Hood's Sarsaparilla curing her of erysipelas and eczema." MRS. H. O. WHEATLEY, Port Chester, N. Y.

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Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



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but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

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might have been a successful milk season will become a disastrous failure. Fresh cows will so shrink that no quantity of winter feed will restore the flow. Cows fresh in the spring will often dry completely, or, at best, so shrink as to give an unprofitable quantity on the winter rations, and even the dry cow, the cow to calve in the early fall, will suffer from the scarcity of nutritious and milk stimulating food. Cows neglected at this time of the year, are loth to forget and will surely take vengeance on the careless owner by retaliating at the milk pail. At this time we give kafir corn or sorghum, green, night and morning; or Indian corn feed, with a good nubbin on each stalk, fed at this time, will never yield a greater profit. Alfalfa, fresh cut, or as hay, is an ideal feed.

After feeding green sorghum, we have not only sustained the milk flow, but have made such gains that its use was continued even after rains had put the pasture in reasonably good condition. In fact, the feeding of these green foods has been so highly successful in milk yield and so economical in production, that I believe the practice of the soiling system in the early fall will permit our small farmers to double their dairy herds and produce milk at a greater profit than under present practices. Dairying after the soiling system is not an impossibility in Kansas, and when she has become truly a dairy state, I predict that it will be practiced largely.

Next season all of our cows will calve in the early fall; in fact, none are fresh later than January of this season. The advantages of a fall cow are well known. She milks longer and gives a larger yield for a longer time, hence more pounds for the year. She is, or should be dry during the months of flies and greatest heat; the bulk of her milk commands the best prices of the year, and the low priced milk is produced at a time when feed is cheapest and labor and care is least, and last, the fall calves will make the best growth. So we dairy with fall fresh cows.

The success of the cow's milking season depends largely upon her treatment before being fresh. It pays to feed a few pounds of corn meal before calving, beginning six weeks before, and getting her into good flesh and strong. If the grass is not good, or sufficient to move the milk producing glands to activity, we begin feeding bran a few weeks later than the meal. We aim to have a cow so fed that she will be in condition to do her very best at production immediately after recovery from calving. A poorly fed cow will come fresh in a run down condition, having made no preparations for milking, and the farmer will spend a month or six weeks of valuable time after the cow comes fresh, feeding the cow to her capacity, and in nine of every ten cases he will fail to get so good a yield as if the feed had begun six weeks sooner. By careful, judicious feeding there is no danger in this process of treatment, and it will pay enormously. Professor Cottrell, of Manhattan, says, a cow allowed to give a low yield for two months after calving, cannot by any system of feeding known to him be brought to a high standard the remaining part of the year. If you are seeking the greatest returns from your cow, begin feeding before calving.

Our milking is done in the barn every night and morning of the year, and at as nearly regular hours as farmers' circumstances will permit. We weigh and test each cow's milk with such frequency that we are able to know just what she is doing. Years ago we began weighing milk through idle curiosity, but this demanded regular weighings, and the spring balance demanded the Babcock test—the one without the other is a delusion and a snare—and the two brought about tabulated records. Dairying without these simple means of ascertaining the real value of the cow is not conducive to the best results.

I know that a pair of spring balances hung in a convenient place in the barn will actually make a cow give more milk. They induce clean milking, and, if a good yield is shown one day, and a low one the next, he is a shiftless milker, indeed, who will not give the same feed or place the cow in the same condition as nearly as possible as that of the day of the high yield. The scales in the barn are a good thing for us, and will do much good for any one else. No farm work is so instructive or yields so great a return for a bit of intelligence as does dairying.

On cold mornings, our cows get a good feed of hay or fodder in the barn, and remain there until the sun shines bright and warm, or until watering time, when they are turned out and go to a spring three hundred yards distant to drink. On days of extreme cold, they are restabled immediately upon their return from water, and while ordinarily dairy cows are decreasing in their product, we have under these conditions kept up the flow and several times made gains. Our barn is a frame structure but warm, and the temperature seldom reaches the freezing point. It is fitted with swinging stanchions, which keep the cows reasonably clean, and make them comfortable.

The calves are kept under the same roof, in pens convenient for feeding and given skim milk warm from the separator after each milking. We think this method of handling the skim milk the ideal one. Its value at this time is fully 3 times greater than when it returns from the factory, and, to the man who seeks the most profit from dairying, the proper disposal of this product means many dollars to the income of each cow. Hogs and calves sufficient to consume every drop should always be kept. Hogs are the complement of the dairy, as well as of the feed lot. In 1897 the minimum quantity of whole milk we fed per calf was 450 pounds, an average of 12.5 pounds for 36 days, or to our lot of 12 calves 5,850 pounds of whole milk, equivalent to 218.79 pounds of fat, which, at prices paid by our creamery was worth $35.91 or $2 22 worth of fat consumed by each calf. These figures make calf raising for the first 36 days expensive; but by the use of warm separator milk and careful feeding of corn meal or oats with it, we get a calf started well in this world with whole milk not longer than ten days. As dairy farmers we are forced to look to every saving, and in this connection the farm separator is our greatest friend. It saves hauling, saves time, saves butter fat fed to the calves, makes more and better feed, and to summarize, pays a tremendous interest on the investment. Our separator is operated by a calf on a tread-power.

So, in a general way, I have outlined our manner of breeding, feeding and handling our cows, and have hinted at the results. In a measure, only, are we pleased with our work. We can do better, and will do it this year. The report which I am about to read is for the year 1897. It was made under circumstances somewhat adverse, and does not show the herd at its greatest capacity. Several immature cows were milking, while others calved in the spring, and the milk flow of these was checked by hot weather and flies, at a time in their period of lactation, when the yield should have been heavy. Also, the report does not take into account the milk used in the house. The report of product is:

Average pounds of milk produced per cow	8,263 1
Butter fat per cow	309.23
Butter (fat plus one-sixth) per cow	360.75
Value of fat at 16.375 cents per pound	$49.70

While the foregoing shows the actual product, the following reports the actual sales, calculated from the monthly creamery statements. The sales are:

Average pounds milk sold per cow	7,813
Butter fat sold per cow	292.4
Butter (fat plus one-sixth) per cow	335.9
Valve at 16.375 cents per pound	$47.48

The financial report may be interesting al so. The steer calves and undesirable heifers were sold at one year old and brought an average price of $25 per head. The choice heifers were not marketed, and we value them to-day as yearlings, at the price of a good milk cow. But, since we cannot estimate their real value, we place them at $25, stock prices also. Skim milk was returned from the creamery to the amount of 300 barrels during the year, at an average price of 12.5 cents per barrel of 48 gallons. And we place the feeding value at 25 cents per barrel above the cost. Then from 12.2 cows we received:

From the sale of butter fat	$590.39
Value of calves at $25 each	325.00
Value of skim milk	75.00
Total increase	990.00
Income per cow	81.17

New Jersey State Dairy Commissioner Geo. W. Maguire, in his recent annual report says that the work of his department for the year showed that a good deal of milk, especially during the summer months, had been preserved with acid, a large part thereof being a "remarkably strong antiseptic derived from wood alcohol." His investigations as to the extent of the use of that chemical, disclosed the fact that it was becoming almost universal. No professional certification of the unwholesomeness of such a compound is needed, but State Chemist Wallace and Professor Descher, who made the analyses, denounce the use of any preservative whatever, and agree that in the case of children, particularly, much illness is caused by the use of milk so treated. New Jersey is in this particular no worse off than New York and other milk producing states. There is sufficient testimony that like practices are common in them all, and that a remedy must be found and is very generally being sought in legislation absolutely interdicting any such process, and providing penalties of sufficient severity for its violation.

Food Preservatives from a Medical Standpoint.

The *Medical Record*, of late date, in discussing the question of "embalmed beef" as an army ration, has this to say about boracic and salicylic acids and adulteration of foods:

"As there is no proof to show that boracic and salicylic acids are absolute preservatives, it is fair to presume that the 'embalmed beef' was not only more or less decomposed, but was artificially 'doctored' beside. Thus the two conditions were combined to make the men sick. Aside from the reprehensible practice of adding chemicals to any kind of food, there is a positive danger in so doing, of slowly poisoning the unsuspecting victim. Theoretically, we may assume that either of the acids mentioned may not be used in sufficient quantities in any case to produce immediate deleterious effects, but practically we must conclude that their continued use must be necessarily fraught with harm in interfering with digestion, in arresting proper nutriment, in complicating secretions, and eventually in irritating the entire intestinal tract. Boracic and salicylic acids are no component parts of the system, and are neither needed nor tolerated as distinct food requisites.

"Besides, we know that under certain circumstances they are distinctly poisonous in their actions. Deaths have occurred from overdoses of both of these drugs, and why should not smaller quantities long continued have a like effect? The contractors are willing, however, to inflict these risks on the mere reports of some analytical chemists, who are seemingly paid in advance for favorable opinions regarding the actual healthfulness of these abominable adulterations. The chemist, expert as he may be in the processes of analyses, is not a proper judge of the physiological action of drugs. The clinician is the only one who can determine such points. It is the difference between theory and practice in the forming of proper conclusions. Doubtless when the reports are made by the surgeons who have had charge of the victimized men, it can be more properly determined what real harm this "embalmed beef" has occasioned.

Morally and scientifically any form of food adulteration is always wrong, and the sooner the guilty jobbers can learn this the better."

Does Your Head Ache?

Are your nerves weak? Can't you sleep well? Pain in your back? Lack energy? Appetite poor? Digestion bad? Boils or pimples? These are sure signs of poisoning.

From what poisons?

From poisons that are always found in constipated bowels.

If the contents of the bowels are not removed from the body each day, as nature intended, these poisonous substances are sure to be absorbed into the blood, always causing suffering and frequently causing severe disease.

There is a common sense cure.

AYER'S PILLS

They daily insure an easy and natural movement of the bowels.

You will find that the use of

Ayer's Sarsaparilla

with the pills will hasten recovery. It cleanses the blood from all impurities and is a great tonic to the nerves.

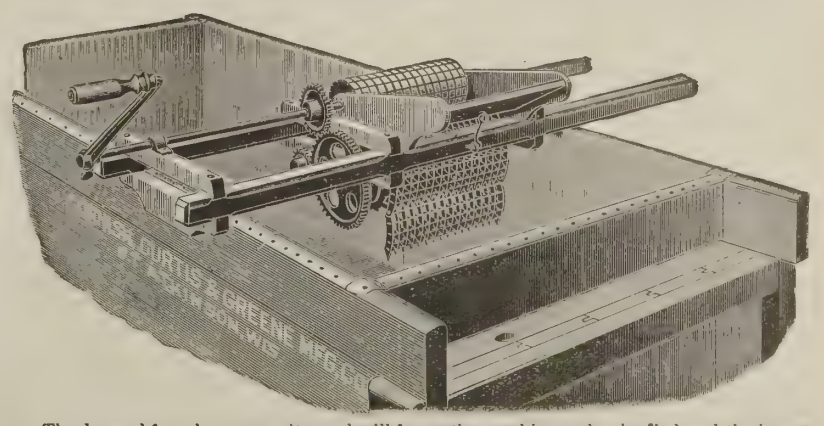
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Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00.**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

An Itemized Herd Report for Three Years.

A Model for Others to Adopt.

ED. HOARD'S DAIRYMAN:—In your valuable journal, I find useful suggestions and much valuable information.

Every dairyman should endeavor to secure the best possible results from his herd. To know whether he is doing this, he must not only keep an accurate account of his own herd, but be able to compare this with other herds.

As the success of the dairyman depends upon the results obtained from his entire herd, it should be his ambition to raise the standard of the whole. A record of a few of the best cows would be of little value for comparison, because it is only the products of the entire dairy that show whether the business is being run successfully or not.

Believing that an accurate record will be valuable for comparison with others, I send the record of my entire Cold Spring herd for the past three years. The record has been kept from the 4th of April of each year, and includes every cow that has been in the herd during the whole year. Animals sold or purchased during the year, have not been included, as the record of a cow for a few months only, but seldom shows what the product would be for the entire year.

The reports are in full detail. The milk has been accurately weighed and the amount of butter computed, by adding one-sixth to the amount of butter fat, as shown by the Babcock test, carefully taken the first of every month.

Following is the report of the three years: the next year, and, possibly, regain first place again the succeeding year.

As Mr. Olin well says, in a personal note accompanying the above, "correct reports of full herds are invaluable for purposes of comparison," and we join with him in the expression of a desire to see such reports from others. And this reminds us of the pertinent remark by Mr. Peer, who has recently visited the Island of Jersey, with commissions to purchase stock for several breeders in this country. Writing to the *Jersey Bulletin* he gives the phenominal records occasionally reported, the following notice:

I was present last week, at six Island parish shows; there were from 100 to 150 head of Jerseys at each exhibition, and not an inferior animal in all the number. I did not see a single animal but that was a credit to any breeder in any country. There are no thirty or forty pound cows on the Island, that anyone knows of, but I doubt if there is a state in the Union that can produce as many cows, that will average sixteen pounds, as can be found on the little Island of Jersey, seven miles wide and fourteen miles long.

Let no one misunderstand the DAIRYMAN'S position in this matter, which is, that no one knows what are the possibilities of a good cow, but anxious to know and declare "the truth, the whole truth, and nothing but the truth," we much regret that these reported yields of twenty-five or more pounds of butter in seven days are not confirmed by accurate tests of the milk, showing it to contain sufficient fat to produce the amount of butter claimed to have been obtained.

REPORT OF THE COLD SPRINGS HERD OF JERSEY COWS.

	FROM APRIL 4, 1896 TO APRIL 3, 1897.				FROM APRIL 4, 1897 TO APRIL 3, 1898.			FROM APRIL 4, 1898, TO APRIL 3, 1899.			
Herd No.	Pounds of Milk.	Average Babcock Test.	Pounds of Butter.	Days in Milk.	Pounds of Milk.	Average Babcock Test.	Pounds of Butter.	Pounds of Milk	Average Babcock Test.	Pounds of Butter.	Days in Milk.
1	9 152	5.20	555	283	10,046	4.98	584	.....	.....	.....	.....
2	6 814	4.62	309	309	6,748	5.23	412	5,825	4.3	292	352
5	4,139	5.54	268	327	.....	.....	.....	.....	.....	.....	.....
6	4 980	5.57	324	290	.....	.....	.....	.....	.....	.....	.....
12	4,902	4.72	270	335	6,683	4.66	363	4,943	4.8	277	360
13	6,849	5.65	451	365	.....	.....	.....	.....	.....	.....	.....
14	6,428	4.82	362	316	7,469	4.88	425	5,770	4.5	303	338
15	5,307	4.66	289	324	7,246	4.59	378	5,741	4.3	288	366
16	5,604	5.30	346	365	5,080	5.37	318	6,083	5.4	354	288
17	6 324	5.50	406	365	5,162	5.55	334	7,520	5.1	448	330
18	4,968	5.48	318	240	6,132	5.36	383	3,990	5.0	233	237
29	5,691	4.40	308	291	.....	.....	.....	.....	.....	.....	.....
30	5,747	5.02	337	235	.....	.....	.....	.....	.....	.....	.....
31	7,243	4.53	383	344	7,801	3.96	360	.....	.....	.....	.....
31	7,231	4.30	363	320	6,6 5	4.98	384	.....	.....	.....	.....
33	6,579	5.41	416	315	.....	.....	.....	.....	.....	.....	.....
34	6 810	4.30	341	345	.....	.....	.....	.....	.....	.....	.....
35	7,111	5.30	440	350	5,047	5.51	324	7,061	4.9	404	288
36	6,934	4.88	394	275	7,353	5.08	435	.....	.....	.....	.....
37	5,959	5.68	395	313	6,623	5.56	430	4,660	5.8	315	291
38	7,156	5.03	422	326	6,923	5.22	421	5,918	5.1	352	282
39	6,978	4.61	375	276	6,415	4.60	344	.....	.....	.....	.....
40	6,267	4 34	317	342	.....	.....	.....	.....	.....	.....	.....
41	6,647	4.65	360	308	8,000	4.70	439	.....	.....	.....	.....
42	6,691	5.46	426	297	7,264	5.76	476	8,1c4	5.3	500	292
43	7,001	4.72	386	348	.....	.....	.....	.....	.....	.....	.....
44	5,153	6.00	361	308	6,811	5.68	451	7 25'	5.2	440	343
45	6 401	5.49	410	315	6 464	5 89	435	5,702	5.4	359	366
47	6,831	5.15	410	337	5,404	4.97	3 3	7.421	5.1	441	356
48	6 971	4.86	395	325	.....	.....	.....	.....	.....	.....	.....
49	5,336	4.90	3.6	302	.....	.....	.....	.....	.....	.....	.....
50	6,260	4.27	312	278	6,946	4.80	389	.....	.....	.....	.....
51	.....	.....	.....	.....	5,667	5.33	352	.....	.....	.....	.....
52	6,803	4.07	323	279	6,707	3.87	303	.....	.....	.....	.....
53	6,868	4.69	376	276	6,279	5.81	426	6 574	5.3	404	283
54	.....	.....	.....	.....	6,399	5.17	386	4,180	4.8	234	332
56	.....	.....	.....	.....	7,635	3.92	349	.....	.....	.....	.....
57	.....	.....	.....	.....	.....	.....	.....	8,354	6.0	585	301
58	.....	.....	.....	.....	.....	.....	.....	2,909	5.5	187	346
59	.....	.....	.....	.....	.....	.....	.....	7.194	5.1	428	293
60	.....	.....	.....	.....	.....	.....	.....	4 367	4.6	235	282
61	.....	.....	.....	.....	.....	.....	.....	7 769	5.2	471	352
62	.....	.....	.....	.....	.....	.....	.....	6,511	4.8	365	397
63	.....	.....	.....	.....	.....	.....	.....	6 054	5.5	389	308
Total	216,468	169.12	12 513	10,624	174,919	131.41	10,224	139,906	117.0	8,334	7,293
Average	6,367	4.97	368	312	6,728	5.05	393	6,083	5.09	362	317

It will be seen that the average of milk and butter, during the past year, has, apparently, fallen off. But this is explained by the fact that fifteen of my extra good cows were sold in May of last year. I am satisfied that at no time has my herd been in as good condition as to-day.

To allow no deterioration, but constantly to increase the yield of his herd, should be the aim of every dairyman. M. H. OLIN.

Perry, N. Y.

There is litt'e that can be added to the foregoing, except to thank Mr. Olin for furnishing us this valuable matter for publication. The fluctations in the yield of the cows, which have been in the herd continuously, show that for reasons which cannot be fully explained, cows are, like men, not always at their best, and the one at the head in any given year, may fall back several numbers

How to Destroy Charlock—Interesting Experiments.

A large gathering of farmers and others—interested in the destruction of charlock so well known throughout Ireland as Preshaugh—attended to witness an interesting demonstration at the College of Agriculture, Uckfield, Sussex, on Wednesday last week. The demonstration was organized by Professor Malden, in conjunction with Mr. Strawson, who was present with a complete set of his horse and manual spraying machines.

There was a very representative attendance of local agriculturists, and among the strangers present we noticed Mr. E. M. Archdale, M. P, for the county Fermanagh. In order to afford the visitors an opportunity of seeing the effects of the different solutions, Professor Malden had a number of plots sprayed with dressings of various strengths a week before the date of the demonstration. The dressings applied varied from 1 to 4 per cent. of sulphate of copper, and from 3 to 7½ per cent of sulphate of iron.

The Principal of the College, Mr. W. J. Malden, conducted the visitors round the plots and pointed out the effect of the dressings on the crops and on the weed. Most striking results were obtained. It should be stated that the solutions had been applied by the Twin spray, which had made excellent work for a hand sprayer; though when comparing the spray made by these and the horse sprayers the superiority and the regularity of the horse machines was very noticeable.

There was marked unanimity among those present as to the thoroughness of the effect of the dressings; and the sincerity of their expressions was emphasized by the large number of machines ordered. Perhaps the greatest compliment paid to the efficacy of the process was made by one or two who suggested that the weed had been pulled up, so totally had it disappeared. It may be explained that throughout the plots, whether on oats, tares or beans, the plots were divided by slips of unsprayed to show the effects of the dressing by comparison.

Eight plots were sprayed in the case of the tares. Where 50 gallons of 2 per cent solution were applied to early spring tares, the rows of which were almost lost in the charlock, the charlock was cleared out, except where one plant had covered up a smaller one; and the tares showed up clearly in the rows, making altogether a thoroughly good piece. Very noticeable was a plot of tares, a very little above ground in which the charlock was quite young, being little beyond the butterfly leaf. A 2 per cent solution had cleared the charlock and left the tares intact

Twelve plots of oats were sprayed. The first lesson learned in regard to these was that where there is a crop—in this instance about four or five inches high—a twenty-five gallon dressing, although useful, is not sufficient to destroy the charlock; also that a fifty gallon dressing, although weak, cleared the land of the pest; and furthermore, that a 2 per cent solution of sulphate of copper was practically as effective on the charlock as a 7½ per cent solution of sulphate of iron; while it in no way distressed the crop. There was a slight tingeing of the oat blade where the iron sulphate was used.

The most striking feature of this section of the demonstration was the excellent effect of a 1 per cent solution of sulphate of copper applied at the rate of 50 gallons per acre. It fell very little short in its effect on the charlock and was absolutely unnoticeable on the oats. A general concensus of opinion was that in crops at this stage a 2 per cent solution at 50 gallons, followed by 50 gallons at 1 per cent in about a week, would absolutely destroy the weed no matter how thick it stood, or a harrowing might be substituted for the second spraying.

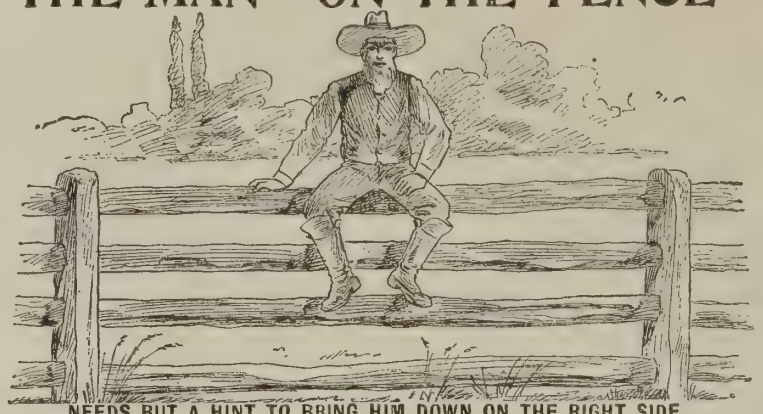
In either case, the following up of the work when the weed was in an enfeebled condition would destroy all, without injury to the crop. It is obvious that where the weed is so thick that the small plants are covered by the big occasional plants, they will not get enough to kill them. Even with this the plants left behind were so few that they could be pulled by hand at small cost.

The beans experimented upon were on a neighboring farm and were practically enveloped in charlock. Very heavy dressings were applied, as much as 75 gallons of 3 per cent solution of sulphate of copper, and 75 gallons of 1 per cent sulphate of iron, with the result that the flat leaved beans were strongly tinged. The charlock was very much affected. In the case of the beans, as well as in the case of the oats and tares, the plots will be left to see ultimate effects.

Altogether, previous favorable reports of the operation were quite confirmed, and a most instructive set of experiments instituted. The many visitors were much interested in the grass and other experiments in progress on the college farm, and the experimental fruit garden was also much admired.

When a solution is stated to be 2 per cent, it implies that 2 lbs. of the sulphate are dissolved in 10 gallons of water. A gallon of water weighs 10 pounds; therefore 10 gallons weigh 100 pounds. Where 4 pounds are applied to 10 gallons (or 100 pounds of water) it is called a 4 per cent solution, and so on. —*Farmer's Gazette, Ireland.*

THE MAN "ON THE FENCE"



NEEDS BUT A HINT TO BRING HIM DOWN ON THE RIGHT SIDE.

He wants to buy a binder. Has been fooled once or twice and now really wants to know what machine can be relied upon—what machine will actually "live up" to the claims made for it by its makers. Here are some hints:

50,000 more Deering machines were sold last season than in any previous year.

6700 employes are working day and night in the Deering factories.

85 acres of ground are covered by the Deering factories—twice as large as any other in existence.

Deering machines have the only perfect ball and roller bearings.

Deering machines are the lightest draft grain and grass cutters ever built.

These are straws. They tell which way the wind blows. They should be helpful hints to the man on the fence.

DEERING HARVESTER CO., - - CHICAGO.

To Exhibit at Paris.

Improvements in H. B. Gurler's Dairy to be Shown.

H. B. Gurler, of DeKalb, Ill., has been complimented by a request to exhibit at the Paris Exposition, pictures showing new features in the construction of his famous dairy barn and other dairy buildings, and also to exhibit some of the appliances which he originated.

Mr. Gurler has the model dairy farm of this country and for advanced ideas and completeness of arrangement he is probably not excelled by any dairy in the world. His effort is to produce milk "as nearly ideal as possible," and he is doing that very thing. In the construction of his new dairy barn, completed some months ago, are worked out new and original ideas and in the request to Mr. Gurler it is proposed that the construction of the barn be shown in detail by means of photographs.

The contrivance by which the layer of absorbent cotton is held into the strainer, through which the milk passes from the cow into the milk pails, is a feature original with Mr. Gurler, and there are other new ideas in connection with bottling the milk which it is proposed to exhibit.—*Chicago Produce.*

Preserves

—fruits, jellies, pickles or catsup are more easily, more quickly, more healthfully sealed with Refined Paraffine Wax than by any other method. Dozens of other uses will be found for

Refined Paraffine Wax

in every household. It is clean, tasteless and odorless—air, water and acid proof. Get a pound cake of it with a list of its many uses from your druggist or grocer. Sold everywhere. Made by STANDARD OIL CO.

Self Sucking Cows.

W. K. Palmer of Kansas, writes the *Breeder's Gazette* giving his experience on this matter as follows:

I have a fine dairy cow, and, through neglect on my part, she began sucking herself. I tried everything to stop her, but did not succeed. As a last resort I took a horse collar and put it on her neck and she never sucked herself since. It does not bother her in fighting flies."

The Soy Bean.

The soy bean is an erect growing plant 1½ to 3½ feet in height, with stiff stem, having branches thickly covered with pods. Cold weather hinders its growth, and for this reason it is not best to plant until the middle of May, and if the rainfall is sufficient a planting may be made as late as July 1st. The ground should be in good tilth, and the weeds thoroughly killed, just before planting. Plant in drills, the rows 32 to 42 inches apart, dropping seeds two inches apart in the row. One-half bushel of seed per acre is required Cultivate as for corn, using small shovels on the cultivator, and being careful not to ridge the ground. When the pods turn brown, cut either with self rake reaper or with a common cultivator rigged up with two horizontal knives bolted to the inner shanks. Put the stalks in the cocks, where they should be kept until cured. Thrash with a common thrashing machine. Run slowly and use all blank concaves. The beans may be fed whole or ground.—*Kansas Station.*

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 16,140 pounds; 10,560 pounds were sold at 18 cents and 5,580 remained unsold with 18 cents bid. The market was reported firm at 18 cents.

The following sales were reported:

Factory.	*Pounds.*	*Price.*
Red Clover	4,500	18c.
Triumph	960	18c.
Big Foot	1,800	18c.
Spring Prairie	1,800	18c.
Dundee	1,500	18c.
Total	10,560	

The markets for the corresponding week of the three preceding years were as follows:

June 13, '98..34,800 lbs. of butter sold at 16c.
June 14, '97..24,780 " " " 14c.
June 15, '96..74,540 " " " 14½@15c.

The New York market Monday was reported firm at 18¾c. H. C. C.

Elgin, Ill., June 12, 1899.

THE name of the author of "How We Breed, Fe d and Handle our Cows," in this issue of the DAIRYMAN, was by mistake omitted from the article. It is T. A. Borman. Navarre, Kan.

DAIRY MARKETS.

ELGIN, Ill., June 12—Butter market firm at 18c, 11,000 lbs. sold.

CHICAGO, Ill., June 12—Butter—Creamery, extra, 18c; firsts, creameries, 16½@17c; seconds, 13½@14c; Dairies, selected, 15c; No. 1, 13@14c; No. 2, 12c; extra ladles, 12½c.

Eggs—Fresh at mark, cases returned, sold at 11c; loss off, cases returned, 12½c; duck eggs, 11c; goose eggs, 12½c.

Cheese—Full cream, Twins, new, good to choice, 7¾@8c; Young Americas, 7¾@8½c: Swiss 11@13½c; Limburger, 7@10c; Bricks, 7½@8¼c.

Cattle—The market opened strong to a shade higher, but later the advance was lost, and the market finished weak with some sales a shade lower than the close of last week. Exporters were among the principal buyers, largely at 5.15@5,30 for 1,240 to 1,450-lb. steers. Twenty-one head of 1,486 lb steers sold at 5.55, the top of the market. Strictly prime, 1,400 to 1,500-lb. steers would sell at about 5.60. The top a week ago was 5 50, and a year ago 5.20. Most of the 1,050 to 1,400 lb native steers sold at 4 85@5.25; corn-fed westerns, 4.60@5.30; distillery-fed steers, 1,064 to 1,324 lbs, 4 95@5,10; straight Texas steers, 905 to 1,076 lbs, 3.90@4 45; Texas cows and heifers, 3 40@3.65; native cows, 2,25@4 45; heifers, 3@5; distillery bulls, 1,230 to 1,385 lbs, 4 25@4.30; stags, 3 75@4 65; veal calves, 6@7 and feeding cattle, 3.75@4.65. Native butcher and canning stock ruled steady.

Bran—Quiet but steady, and sold at $10.87½ per ton.

MILWAUKEE, Wis, June 12—Butter—Creamery—Fancy prints per lb., 18c; extras, 18c; firsts, 16@17c; seconds, 14@15c; imitations, 14@15c. Dairy—Selections, per lb., 13@14c. Market unchanged and fairly active with receipts of 16,125 lbs. Arrivals affected by the heat have to be sold accordingly.

Cheese—American full cream—New, choice to fancy 8@8¼c. Brick—New, choice 7½@8c. Limburger, choice, 9@9½c; new, choice, 7@7½c. Swiss—Drum—choice, 12½@13c; block, choice, 10½@11c.

Eggs—Fresh, per doz., 11½@12c; loss off, cases returned Market unchanged and trade fair; receipts 592 cases.

FOND DU LAC, Wis., June 12—Offerings: 650 Twins and 500 Daisies; market firm, with sales of Twins at 7⅛@7⅝c.

PLYMOUTH, Wis., June 6—The sales reported to-day were 600 Twins at 7⅛c and 720 cases Young Americas, at 8c.

APPLETON, Wis., June 1—The offerings on the Appleton "call" board were 305 boxes Twins of which 110 sold on call at 7⅞c and 40 at 7¾c.

BERLIN, Wis, June 3—There were 491 boxes of Twins offered this afternoon. Selling prices, 7⅜@7¾c.

BRILLION, Wis, June 2—The sales reported on the Brillion board to-day were 341 cases Young Americas, 722 Twins and 925 Daisies at 7⅛c, 400 boxes Twins and Young Americas at 7⅝c.

HORTONVILLE, Wis., June 1—Offerings to-day were 142 Cheddars and 959 Twins. Sales 142 Cheddars at 7¾c; 216 Twins at 7⅝c. Ru'ing price, Cheddars, 7¾c, Twins 7⅝c. Market moderate.

SHEBOYGAN FALLS, Wis., June 7.—Fifteen factories were represented on the call board today and the offerings of 1,108 boxes were all sold to the highest bidder as follows: 175 cases of Young Americas at 8c; 656 at 8⅛c; 172 Twins at 7⅝c; 105 Daisies at 8c.

MANITOWOC, Wis., June 7.—Offerings of cheese at Dairy Board to day were: 100 boxes Twins, 400 boxes Daisies, 900 boxes Young Americas. Twins sold at 7⅛c; Young Americas at 7¾c; 225 boxes Daisies at 7⅛c; 175 at 7⅝c.

SHEBOYGAN, Wis, June 7.—Sales of the Sheboygan County Dairy Board; 535 Young Americas at 8c; 322 Twins at 7⅛c.

AVOCA, Wis, June 7.—On Board to day offerings were 1,254 boxes. Market firm at 7⅛@7⅜c. All sold.

KANSAS CITY, Mo., June 12—Butter—Creamery, 14½@16½c; dairy, 13c.
Eggs—11c.

BOSTON, Mass., June 12—Butter—Creamery, extra, 19c; western extra, 18½@19c; dairy extra, 17@17½c; imitation creamery, 15@15½c; western ladle 14c; print creamery, 19@20c; box creamery, 19@19½c.
Eggs—Fancy near by 17@18c; choice fresh, 15@16c; Michigan extra, 14½@15c; western, 14c; fair to good, 13@14c.

NEW YORK, June 12—Butter—Creamery Western extras, 18⅛@18¾c; do firsts, 17½@18¼c; state extras, 18¼@18½c; firsts, 17½@18.
Cheese—State full cream, large white, choice, 7¾c; colored, 7½c; small white, 7½c.
Eggs—State, Pennsylvania, and Western, 14½@15½c.

OGDENSBURG, N. Y., June 6—There were 20 lots, 1,610 boxes of cheese offered here Saturday. There were sales of 1,211 boxes at 8¼c, 314 at 8⅛c and 85 at 8 5-16c.

FULTON, N. Y., June 5—On the board to-day eighteen factories were represented with 1,750 boxes of cheese. Large sold at 7⅞c; small at 7⅜c. There was no b tt-r on the market.

UTICA, N. Y., June 5—There was the largest attendance on the Board of the season thus far. There was a decline in the sales, and a decline in the top price of large colored of ¾c. Large white cheese is pretty well cleaned up in this market The top price of 8¾c for small white was obtained for 317 boxes of "picnic" cheese. A lot of 76 boxes which brought 8c was of the same kind. The sales aggregated 82 lots, 5,323 boxes at 7⅞@8¾

The transactions on June 7, 1897, were 7,132 boxes with 7⅞c the ruling price. On June 6, 1898, were 8,336 boxes with the ruling price at 6½c. The butter market continued to show firmness, although prices were shaded slightly. The sales were ten 1-poond crates at 19c, 50 5 pound crates at 19c, 50 packages at 18c, 20 packages at 17c and 23 packages at 16½c.

CANTON, N. Y., June 5—On the board Saturday 2,054 boxes of cheese were offered. There were no sales of large reported, but small sold at 8½c. There were 1,387 packages of butter offered, with sales at 17¾c.

WATERTOWN, N. Y., June, 5—At the meeting of the Produce Exchange, Saturday, resolutions on the death of Robert McAdam were unanimously adopted. At the 5:30 call board 12 lots of cheese aggregating 725 large white were reported sold at 7⅛@7⅝c. The curb sales 69 lots, 4,850 boxes of large white at 7⅛c; 10 lots, 490 boxes of Twins at 7¾@7⅞c. There were only ten lots sold at 7¾c, the bulk of the large white cheese going at 7⅝c.

LITTLE FALLS, N. Y., June 5—With discouraging reports received here to-day from New York everybody was prepared to see lower prices. The sales are: 95 lots, 4,495 boxes, at 7¼@7¾c.
Butter—Very few sales of butter were made, all of it being dairy made, which went at 16@17c.

NEW YORK MARKET.

NEW YORK, June 10—Butter—Receipts for the week, 60,349 packages. Exports for the week, 1,367 packages.

Market this week ruled dull although prices were steady and slightly advanced at the close. Local trade only bought as they wanted and were critical in making their selections and paid 18¾@19c for extra creamery. There was a largs proportion of this week's arrivals made up of both crermery and ladle butter put into freezers on speculation this had a tendency to make finest grades rather scarce at the close and prices firm. New York State Dairy of fine quality is in very light receipt and wanted at 17@18c. Exports for the week averaging light and are mostly of cheap grades, mostly ladles at a cost of 13@14c, no encouragement being offered for the shipment of higher cost goods from American ports. We quote: Creamery, extra, 18¾c; medium, 17½@18c; poor, 15@16c. Dairy, extra, 17½@18c; medium, 16@16½c; poor, 13@15c.

Cheese—Receipts for the week, 40,632 boxes. Exports for the week, 13,929 boxes.

There was a good, cheerful, healthy market and stocks well sold up at the close, and prices firm, with a tendency to steady rates for next week. Sales in the interior yesterday were about as high as our market, lines of large sizes selling at 7¼@7⅜c and small at 7⅜c. Exporters bought liberally of finest full cream cheese at 7½@7¾c, and under grades at 6½@7¼c Small cheese found willing buyers at 7@7¾c. We quote:

Full cream, large, extra, 7⅝@7¾; medium, 7@7½c; poor, 6@6½c. Full cream, small, extra, 7⅝@7¾c; medium, 7¼@7½c; poor, 6@7c.

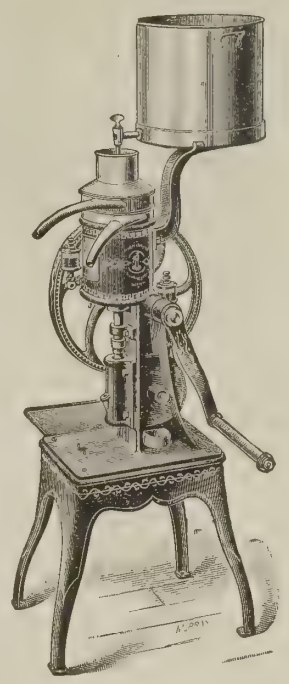
Eggs—Receipts for the week, 56,941 cases.

Most of the eggs arriving are showing the effects of the hot weather and all sales are made loss off. On strictly fancy stock prices are firm and demand good. We quote:

New York and Pennsylvania, per dozen, 15@15½c; western and northern, best marks, 13@14c; western and northern ordinary, 13@14c.

177 Chambers St, DAVID W. LEWIS & CO.

"Alpha-De Laval"



CREAM Separators

Save $10.00 Per Cow Per Year.

SEND FOR NEW 1899 CATALOGUE

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

BALTIMORE, Md, June 12—Butter—Market firm; creamery, separator, extra, 19c; extra, first, 17½c; creamery, first, 17c; creamery, imitation, extra, 15@16c; ladle, extra, 13@14c; Western store packed, 11@12c;
Eggs—Market easy; strictly fresh stock, 12@12½c.

PHILADELPHIA, Pa., June 12—Butter—Solid-packed, separator, creamery, extra, 18½@19c; creamery, firsts, 17½@18c; seconds, 16@17c; imitation creamery, extra, 16c; firsts, 15c; seconds, 13c; ladle packed, extra, 14c; firsts, 13½c; seconds, 13c. Print butter—Creamery, extra, 19c; firsts, 18c; seconds, 16@17c.
Eggs—Pennsylvania and nearby, 14½c; Western 14½@15c; Southwestern, 14½c; Southern, 13½c, loss off.

BALTIMORE MARKET.

BALTIMORE, June 8—Butter—The receipts of separator creamery this week have shown some increase in quantity and improvement in quality; to such an extent in point of fact are these two features noticeable, that the common expressions heard on the street and in the commission houses are that: "we are right in the height of the season", and "we will get no better quality than this", and "if you want to store any June's you had better begin now". The buyers, however, though they are not blind to the evidences of the "hereness" of the season, are apparently deaf to the invitations to stock up at current prices. The idea that of the general enhancement of values butter must partake has its advocates and adherents, but the grim fight that oleomargarine has waged against butter in the past remains in the memory of all and partially removes butter from the effect of the general improvement in values of commodities; and that this fight will be prolonged until Congress passes a law limiting the effect of the commerce clause of the Constitution with respect to oleomargarine is as sure as that night follows day. Therefore speculators here are paying more attention to other varieties, and we find the receipts of gathered cream creamery, imitation creamery and ladle packed taken on arrival if the color and flavor commend them. Receipts of store-packed are fair and demand active for all grades. Creamery separator, extras, 19@20c; firsts, 18c; seconds, 17c. Creamery gathered cream, extras, 18c; firsts, 17c; seconds, 16c. Creamery Ohio, extras, 18c; firsts, 17c: seconds 16c. Ohio storepacked, extras, 12c; firsts, 11½c; seconds, 11c. W. Va. storepacked, extras, 12c; firsts, 11½c; seconds, 11c. Creamery Blocks (2 lb.), extras, 21c; firsts, 20c; seconds, 19c. Creamery prints, (½ lb.), extras, 21c; firsts, 20c; seconds, 19c. Md., Va. & Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—Receipts up to the present time have been about equal to the demand The trade is getting very choice in their selections; nothing but choice stock is wanted. So far there has been no accumulation of stock; market barely steady at 13c.

Cheese—Arrivals are composed entirely of new cheese. The supply is quite sufficient for all demands; market quiet and irregular. N. Y. state Cheddars, fine, 9¾@9¾c; choice, 9@9¼c; fair, 8¼@8¾c. Flats, fine, 9¾@9¾c; choice, 9c; fair, 8½c. Small, fine, 9¾@10c; choice, 9@9½c; fair, 8½c. Ohio—Flats, fine, 9@9½c; choice, 8c; fair, 7@8c. Ohio Picnic, fine, 9¼@9½c; choice, 9c; fair, 7¼@8c. Swiss cheese, fine, 13@13½c; choice, 10@11c; fair, 9@9½c.
501 Exchange Place. G. M. LAMB & BRO.

FOREIGN MARKETS.

BOSTON, June 10—Butter—Cable advices of this date from the principal markets of Great Britain to George A. Cochrane, give butter markets as very unsettled and almost near demoralization. The make is immense all over Europe. All continental markets are lower and the consequence is that English markets are simply flooded. There is no speculative feeling and a good portion of the receipts are going into cold storage simply because they are unsaleable at the moment. Quotations are hard to give and to a large extent are purely nominal. Finest Danish is to be had at 19@19¼c; finest Irish creamery 17@17½c, with fine factory 15½@16c. Canadian is arriving in increased quantities, and its landing condition being superior to Continental or Irish is taken at 17½@18c in boxes, but the trade is not at all active. American ladles not wanted at over 13@13½c, home makes are taken in preference by confectioners at the moment as they are to be had at 12@14c. Everything points to a dull trade for a month at least and there is little or no prospects of an improvement in prices.

Cheese—Cheese markets all tending downwards. All cheese cease to be a factor and what little is left is purely nominal. Trade generally is running on new cheese, which is arriving in increased quantities both from America and Canada. Sales this week have been made as low as 9@9½c with the trend of the market still downward. Chief quotations from America and Canada are lower, which makes buyers very cautious, who confine their purchases to immediate wants only.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—An all around good farm hand to work by the month FRANK CRUMLETT, Box 276, Sleepy Eye, Minn.

Ensilage Cutter and 18 or 20 foot Elevator wanted. T. O. SANDY, Burkeville, Va.

Wanted—An honest and reliable man capable of managing a large dairy. Must be experienced in all dairy work and with all dairy machinery. Liberal wages to good man. G. C. STREET, Houston, Tex 18-4

Wanted—An all round man can find steady employment on a farm with a small herd of Jerseys. He must understand buttermaking, the use of a separator, and general farm work. Married man preferred. Address "X," care Hoard's Dairyman.

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Exceptionally Low Rates to St. Louis, Mo., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 19 and 20, limited to June 24, inclusive, on account of Annual Reunion B. P. Order of Elks. Apply to agents Chicago & North-Western R'y. 17-2

SOFT BACON.

The Canadians have been having trouble the past season with their bacon coming out of the salt in a soft condition. The market wants a firm, flaky bacon; "softness" causes great loss in value.

All sorts of reasons were given as the cause, and each one found believers.

Finally the Ontario Agricultural College took the matter up for close, painstaking experiment.

In these experiments the hogs are shipped directly to the factory, slaughtered, and the different groups packed separately in salt. When the bacon comes out of the salt it is carefully examined by experts, so that there can be no mistake as to its firmness or softness. The investigations are by no means complete, but some interesting results have been obtained. Full details of the experiments will be found in the College Report of 1898; but the following are some of the principal points brought out by the work up to date:

1. Though corn has been commonly blamed for producing soft bacon, it apparently has no evil effects when used for finishing hogs that have had plenty of exercise until they reach 100 pounds' live weight.

2. Neither does corn appear to cause softness when used for finishing hogs that have had no exercise, but have been fed skim milk with a mixed grain ration until they reach 100 pounds' live weight.

3. What has been said of corn may also apply to rape, when a two-thirds meal ration is fed with it.

4. Hogs confined in pens and fed wheat middlings during their early growth, and peas, barley and shorts during the finishing period (without either skim milk or whey), have a marked tendency to softness of fat.

5. Hogs given plenty of exercise, and fed as just described, produce firmer bacon than those confined in pens and fed the same ration.

6. The evil effects arising from lack of exercise can be overcome by the judicious feeding of whey or skim milk with the meal ration. From two to three pounds of whey or skim milk to a pound of meal will be satisfactory.

7. Whey and skim milk appear to have a greater influence than exercise in producing firm bacon.

8. Unthrifty hogs are more likely to produce soft bacon than growing, well-fed hogs.

The influence of whey and skim milk in these experiments was especially marked, not only in making rapid and economical gains, but also in producing a fine quality of bacon, in spite of lack of exercise. While corn produced firm bacon when used for finishing well-grown hogs, it must not be assumed that it will not cause softness when used under other conditions. Its influence on younger animals has yet to be tested. In Danish experiments corn was found to be decidedly injurious to firmness when fed to very young animals.

It is to be hoped that feeders of hogs will carefully study this question of producing firm bacon, for it is a matter of vital importance if we are to retain our profitable English trade.

Official Tests of Holstein-Friesian Cows from October 1, 1898, to January 1, 1899.

ED. HOARD'S DAIRYMAN:—These tests are for seven consecutive days and are supervised by officers of agricultural colleges and state experiment stations or by persons vouched for by such officers. The amounts of butter fat are determined by the Babcock test and the amounts of butter are calculated on the basis of 80 per cent fat to a pound of butter, the rule established at the World's Columbian Exposition.

Aaltje Posch 23176; age 8 years, 11 months, 5 days; amount of milk, 490.7 pounds; amount of butter, 23 pounds 8.3 ounces.

Calamity Jane 26292; age 7 years, 10 months, 11 days; amount of milk, 485.8 pounds; amount of butter, 22 pounds 5.2 ounces; in a food test, cost of butter per pound, 7.04 cents.

Calamity Jane 26292; age 7 years, 10 months, 11 days; amount of milk, 572.5 pounds; amount of butter, 25 pounds .9 ounces.

Columbus Girl's Beauty 15817; age 10 years, 6 months, 15 days; amount of milk, 404.2 pounds; amount of butter, 18 pounds

Daisy A. Mercedes 34298; age 5 years, 11 months, 11 days; amount of milk, 493.7 pounds; amount of butter, 19 pounds 7 ounces.

Fanny Rolph 47542; age 7 years, 6 months, 15 days; amount of milk, 481.1 pounds; amount of butter, 17 pounds, .5 ounces.

Ilzaida Zilla 35114; age 5 years, 8 months, 10 days; amount of milk, 453.3 pounds; amount of butter 18 pounds, 15.7 ounces.

Inka Hartog's Pietertje Kate 23484; age 8 years, 1 month; amount of milk, 456.8 pounds; amount of butter, 20 pounds 3.2 ounces.

Lady Pietertje Koningen 44026; age 6 years, 8 months, 10 days; amount of milk, 397.3 pounds; amount of butter 16 pounds 12 ounces.

Pleasant Valley Maid's Pietertje 18314; age 9 years, 3 months, 7 days; amount of milk, 542.3 pounds; amount of butter, 19 pounds 6.8 ounces.

Urica's Maid 27675; age 7 years, 10 months, 3 days; amount of milk, 354.5 pounds; amount of butter, 17 pounds .9 ounces.

Jetske Rue's Aggie 36514; age 4 years, 9 months, 17 days; amount of milk, 350.4 pounds; amount of butter, 17 pounds 1 ounce.

Alexina's Jewel Mechthilde 36046; age 4 years, 5 months, 25 days; amount of milk, 447.4 pounds; amount of butter, 20 pounds 15.7 ounces.

Zanca Wayne 36513; age 4 years, 1 month, 19 days; amount of milk, 317.3 pounds; amount of butter, 14 pounds 15 ounces.

Amarilla's Maid 38380; age 3 years, 8 months, 20 days; amount of milk, 361.6 pounds; amount of butter, 13 pounds 3 8 ounces.

Hartog DeKol 39496; age 3 years, 7 months, 28 days; amount of milk, 448.2 pounds; amount of butter, 18 pounds 5 2 ounces.

Tulu 3d's Lass 39307; age 3 years, 7 months; amount of milk, 428.3 pounds; amount of butter, 20 pounds 7.2 ounces.

Daisy Texal 2d 44831; age 3 years, 1 month, 21 days; amount of milk, 444.8 pounds; amount of butter, 18 pounds 2.1 ounces, in a food test; cost per pound, 9 32 cents.

Daisy Texal 2d 44831; age 3 years, 1 month, 21 days; amount of milk, 437 pounds; amount of butter, 17 pounds, 6.8 ounces.

Jarie Pauline DeKol 38928; age 3 years, 3 months 17 days; amount of milk, 313.1 pounds; amount of butter, 14 pounds, 15.7 ounces.

Zanca DeKol 38930; age 3 years, 4 months, 9 days; amount of milk, 337 6 pounds; amount of butter, 17 pounds 13.8 ounces.

Daisy B. Mercedes 2d 42087; age 2 years, 6 months, 24 days; amount of milk, 287.7 pounds; amount of butter, 14 pounds 6.1 ounces.

America Concordia Netherland 43129; age 1 year, 10 months, 22 days; amonnt of milk, 296 3 pounds; amount of butter, 10 pounds 4.8 ounces.

Aruna Netherland 42846; age 2 years, 5 months, 3 days; amount of milk, 248 pounds; amount of butter, 11 pounds, 3.5 ounces.

Daisy Texal 3d 44832; age 1 year, 11 months, 28 days; amount of milk, 250.8 pounds; amount of butter, 10 pounds 1 ounce.

Dorinda Wayne 3d's Pauline DeKol 43429; age 1 year, 10 months, 8 days; amount of milk, 218 pounds; amount of butter, 9 pounds, 14.1 ounces.

Esther Cristine 42467; age 2 years, 4 months, 29 days; amount of milk, 242 7 pounds; amount of butter, 10 pounds, 6.3 ounces.

Lilith Pauline DeKol 43434; age 2 years, 1 month, 18 days; amount of milk, 333.9 pounds; amount of butter, 15 pounds 2.2 ounces.

Mutual Friend 3d's Pauline 40213; age 1 year, 11 months, 23 days; amount of milk, 210.6 pounds; amount of butter, 9 pounds 10 ounces.

Netherland Maud Mooie 42312; age 2 years, 5 months, 3 days; amount of milk, 256 pounds; amount of butter, 11 pounds 13.2 ounces.

Pauline Paul Sadie 42907; age 2 years, 5 days; amount of milk, 263.1 pounds; amount of butter, 9 pounds, 14.4 ounces.

Pauline Fairmont 44834; age 2 years, 1 month; amount of milk, 241.5 pounds; amount of butter, 10 pounds, 9.3 ounces.

Tirza Pietertje DeKol 42226; age 2 years, 2 months, 23 days; amount of milk, 281.1 pounds; amount of butter, 10 pounds, 9 3 ounces.

Urica Netherland 42472; age 2 years, 5 months, 6 days; amount of milk, 243 pounds; amount of butter, 10 pounds, 10.5 ounces.

S. HOXIE.

Superintendent Advanced Registry, Holstein-Friesian Association of America, Yorkville, N. Y.

THE NEW PENNSYLVANIA OLEOMARGARINE LAW.

The legislature of Pennsylvania enacted a new law last winter regulating the sale of oleomargarine, a distinctive feature of which, was that the product must not appear in the yellow color of butter, and that all dealers in the same must pay a special license fee. The law also regulates the sale of renovated or "process" butter. Dairy Commissioner Levi Wells has issued the following circular to all dealers in oleomargarine:

To Butter Dealers, Hotel, Restaurant and Boarding House Keepers, and others concerned.

Gentlemen:—Your attention is respectfully invited to the accompanying laws recently enacted governing the sale of oleomargarine, or butterine, and also relating to what has been commonly known as "boiled" or "process" butter. Licenses for the sale of uncolored oleomargarine or butterine will be ready to issue from this office on the first of June next, upon receipt of the prescribed fee.

All licenses expire on the 31st of December of each year, but can begin upon the first of any month by paying the proportionate amount for the time covered. For instance, from June 1, for a retail license, $58.33, this being seven-twelfths of the prescribed yearly fee. Signs to be hung in places of business, as authorized by the act, will be in readiness for distribution from this office by June 1, next

LEVI WELLS,
Dairy and Food Commissioner.

Trouble With The Night's Milk.

ED. HOARD'S DAIRYMAN:—We are shipping our milk to a nearby city. The morning's milk is cooled and kept in ice water and shipped at night.

The night's milk is run over a first-class cooler and aerator and cooled down to the proper temperature and shipped with the morning's milk.

The cows are stabled nights and fed a small grain ration twice a day. They run in good pasture by day, part of which is hillside, with a strip of lowland, but not swampy, in the same field; no standing water except in wet time. Cows watered from wells; know the water in wells to be all right. Have tried changing cows to entirely upland pasture; results the same. The milk is removed from the stable as soon as drawn. As far as I can see, the milk and cows are cared for in a first-class manner, from cow to consumer.

The sequel of the whole matter is that the morning's milk is all right and the night's milk all wrong, on account of a smell or scent (or in plain English, a stink) that is ruinous.

We have looked over the feeds very carefully and studied the problem to the best of our ability, but can reach no tangible conclusion.

SUBSCRIBER.

Palmyra, N. Y.

It is impossible to say what the cause is without more details of the conditions under which the milk is kept. Consequently the best we can do is to point out certain conditions which may cause your trouble.

In the first place, such troubles are almost invariably nearer home than the pasture. Feed will sometimes cause milk to have an odor or taste, but in such cases it is the result of a strong smelling plant, such as leeks, wild onions, etc., or is a bitter taste from eating weeds.

In no case will the taint be different from the flavor of the plant itself and is therefore readily recognized. It can be easily prevented by stopping the source of supply.

Tainted milk not due to food, comes from bacteria, or from the absorption of odors caused by bacteria.

The remedy in either case is to destroy the bacteria, by hunting out and removing the source.

In the first place, look to the source of your water supply. Your well may be all right, both to taste and smell, and yet contain enough infection from surface drainage to seriously taint the milk when the water is used to wash the milk vessels. Are you sure that there is no place where the cows can get mud on the udders? Are your milk cans allowed to stand when returned before being washed? Do you set the milk cans in a tank of water over night, and if so, is the water in the tank changed frequently?

Many other questions could be asked and the answers would indicate where the probable cause of the trouble might be found. Milk is extremely susceptible to taints of all kinds; it is a perfect food for almost all kinds of bacteria, bad as well as good. Nor are the malign bacteria any respectors of the desires of the dairyman to allow the proper class of bacteria to act in the milk. Constant watchfulness is the price of fine flavored milk as well as butter.

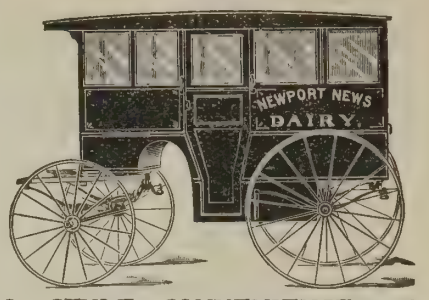
Oleomargarine in New York State.

ED. HOARD'S DAIRYMAN:—It has been a long time since I have written an article for an agricultural paper but happening to just look at the last number of HOARD'S DAIRYMAN I noticed that the oleo and food adulteration question was on deck again and haste to add this clipping from the *Albany Evening Journal* of April 12, 1899, as to the "beautifulness of oleo."

A certain commission dealer, whose name I might mention, but will not, is enjoying a great deal of quiet badinage and airy persiflage at the expense of his life-partner, these days. It all happened in this wise: The lady of the house is fond—O, so fond—of nice fresh-made dairy butter, "right off the farm," and she knows it when she sees and smells it, too, for wasn't she in the days long gone by, a farmer's daughter herself and didn't she "milk the cow with the crumpled horn," and agitate the old churn till the butter came to the top, and the ruddy glow of health to her cheeks? Well, I reckon.

So, when one morning, along about eleven o'clock, a nice, honest, horny-handed agriculturalist, with an occasional hayseed clinging to his whiskers, and portions of his broad acres still adhering to his farm made cow hides, drove up to the door and exhibited, with justifiable pride, a lovely, enticing layout of genuine cow product, "right off the farm;" mylady looked, smelled, tasted, then purchased a nice big crockfull, at a fancy

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



Pure Water

is as necessary as good feed. Don't make your stock drink out of old, dirty, rotten troughs. We manufacture **Galvanized Steel Tanks, Harness and Vehicles.** We have no agents. Our large FREE Catalogue tells how we sell direct from our Factory at lowest wholesale prices.

C. E. BANTA MFG. CO., Dept. 32 A, Chicago, Ill.

price—but surely it was worth it and more, it was so delicious.

"My dear, I have a nice little surprise for you"—this from mylady when pater familias came home to dinner that same evening.

"Indeed?"

"Yes, a large crock of lovely new dairy butter, right off the farm."

The dear, good woman thought papa would be pleased, and so he was until mama described the "farmer's" appearance somewhat minutely, whereupon he was cruel enough to remark:

"Why, my dear, that fellow is a well-known huckster from the South End, and you have bought a crock of oleomargarine, part of a lot I sold him myself, this morning!"

Hence the above-referred-to airy persiflage, which appears to greatly amuse papa, but almost makes mama wish she were dead.

Albany is the capitol of New York state and the residence of the commissioner of agriculture—the same man who recommended that the suit of the state of New York against Armour & Co. for a million or more for open violation of state laws, be discontinued for lack of evidence to convict, and upon Armours paying the state some $20,000 for expenses. And yet the political press of the state hold the commissioner up as a model official.

Moral—If dairymen and farmers want laws made or laws enforced they must not elect politicians to office. There is plenty of good material in the country.

Worchester, N. Y. OTSEGO.

A Successful Breeder, on Pig Raising.

In looking for a sire to improve my hogs, I selected the large Berkshire as having the good qualities I desired in a hog, namely: large litters of pigs and early maturity, and making fine hams, bacon and pork. In breeding, my aim is to have two litters a year, one in the first of March, and one the first of September. The spring pigs are fed and sold the last of September or first of October, and the fall pigs go into the April market. My aim in feeding is to make a pound of pork a day on each pig. Doing this and weighing the feed occasionally, I am able to determine when I am feeding at a loss. In describing my method of feeding, I expect to be criticised, and this is just what I want to show up my weak points, but as I have always had the best results by feeding this way, I still follow it.

The first thing we have to consider is the feeding and care of the brood sow. My sows run in the hog house which is double boards and paper between. In one end of the house is a door, and that is always open so the sows can run out in the yard. In opposite end, protected by partition, the sows have their bed, which is cleaned out once a week, and a large double box of straw provided. We put in enough so the sows can crawl in out of sight. Their feed is bran and shorts, equal parts, fed once a day, and corn once a day. I always have a few squash and beets and some small potatoes, which I feed also. The sows are provided with salt, ashes and charcoal.

Feb. 15th, or about three weeks before we expect the sows to farrow, we move them into the bank barn, where we have pens for them 5½x8 feet with fenders all around the pens, 8 inches from floor and 6 inches wide. The doors in these pens swing out and close the alley, so that the sow can run right into her pen. The sows are fed night and morning in the pens, and are turned out in the yard in the daytime.

Two days before I expect the sow to farrow, I shut her in her pen and give her about two bushels of short straw or chaff, and this is renewed every day till she farrows. After she farrows, I give warm water, and after 12 hours, I add a handful of feed and increase the feed gradually as the pigs need it. The third day I let the sow run out in the yard a few minutes and keep increasing time every day till the pigs are a week old, and then let them out, too. This is to give the pigs exercise, so they will not get too fat. As soon as the pigs begin to eat, I put a trough in an empty pen with a hole for the little pigs to get in. I commence by feeding a little warm skim milk, and after they have learned to take this, I add some shorts. In this it is necessary to be very careful and not feed too much and give the pigs the scours.

At the age of four weeks we castrate all the male pigs intended for pork. The pigs' bedding must be changed every day, and they must be kept dry. Increase the feed as they grow older, and at from nine to twelve week wean them. After this I feed some skim milk with shorts, corn and barley meal. The milk is fed first and then the meal is fed dry. I feed just enough so the pigs will clean the trough out, and would still eat a little more. This I do so the pigs will take plenty of exercise and not get off their feed.

The hogs run in the yard two or three hours in fine days in winter, and in summer have a clover pasture.

After the pigs are six months old and weigh about 200 pounds, I keep them in a large pen and do not let them out. I feed them all they will eat, corn meal with what skim milk I have. I give all the water they want once a day. At this time they will eat one-tenth as much charcoal as they will corn, and I am certain it adds nearly that much to the value of the corn.

As I don't want to make my hogs a ball of lard, I only feed heavy from 30 to 40 days, just enough to make the meat solid and firm. I sell my hogs to the local butchers and dress them myself. In keeping the hogs out of the mud and on a dry floor with plenty of dry straw I find they dress easier and look nicer when taken to market. —*W. J. Tingley, Minnesota, in the Dairy Reporter.*

Cleaning Test Bottles.

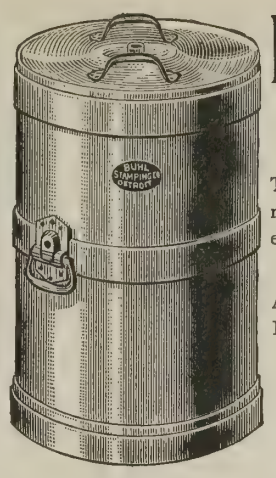
Mr. J. A. Conover, of the Manhattan (Kan.) Experiment Station sends the following hints on the proper cleaning of creamery glassware. He says:

"It very often happens that test bottles, pipettes and other articles of glassware in use about the dairy become coated on the inside with a white, and sometimes a brown, sediment, which is impossible to wash out with even the hottest water. This sediment not only gives the glassware a dirty appearance, but interferes with accurate measurements of milk or butter fat.

"In such cases a small amount of sulphuric acid will prove very helpful in cutting loose the white or brown sediment. Pour seventeen or eighteen cubic centimeters of acid in the test bottle, shake it up well and pour the acid into another bottle that needs cleaning. Rinse out the first bottle in hot water, and in nearly all cases it will be found to be nice and clear; if not, repeat the operation.

"Pipettes may be cleaned in a similar manner, care should be taken to get the acid all off of the upper end of the pipette, otherwise there will be danger of burning the mouth when the pipette is used.

"The burette used in Mann's acid test, often becomes so coated with white sediment, caused by the action of the alkali on the glass, that it is impossible to see the graduations. A little sulphuric acid poured into it, shaken up and then rinsed out with hot water, will leave it nice and clean."



BUHL CHEESE FACTORY CANS

Excel in Strength, Finish and Durability.

They will not leak or rust, are easy to clean, and keep the milk fresh and pure. The body sheets are the finest imported Cookley K Tinned Steel.

CAPACITY: 15, 20, 30, 40 and 50 Gallons.

AVOID IMITATIONS—All Genuine Buhl Railroad and Factory Cans are stamped with the Milk Can Trademark.

Write for our Handbook, "A Study in Milk Cans;"

We Make Prompt Shipment.

THE BUHL STAMPING CO.,
DETROIT, MICH.

Mention HOARD'S DAIRYMAN.

Gluten Feed.

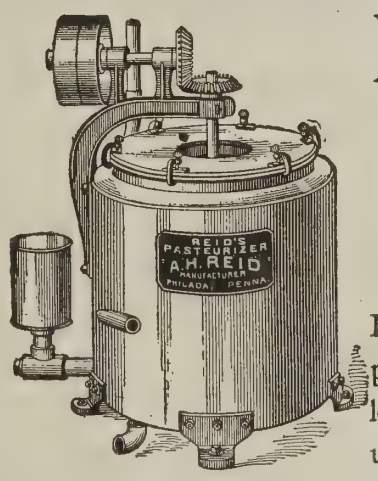
Any dairyman farmer who wants to produce milk at the least cost possible, cannot well afford to do without Gluten Feed. It increases the quantity; improves the quality, and lessens the cost of production.

It also keeps your cows in a strong and healthy condition.

Address Dairy Department,

The Glucose Sugar Refining Co.,

The Rookery, Chicago, Ills.

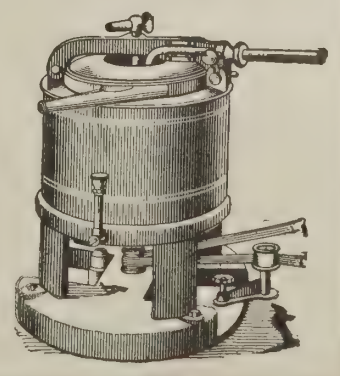


Do You Get Perfect Milk?

Do all your patrons bring absolutely perfect milk? If not, you can't get perfect results unless you have a pasteurizer. Pasteurization overcomes the effects of careless handling of milk and careless cleaning of cans and utensils. It removes all danger of bacteria, improves the quality of the cream and of the butter made from it and makes both keep longer.

THE REID Pasteurizer

affords the most scientific, most practical and economical means of pasteurizing whole milk, skim milk, or cream. Full information and the Reid Long Spindle Separator Book mailed free.



A. H. REID, 30th & Market Sts., PHILADELPHIA, PA. And CEDAR RAPIDS, IOWA.

Mr. Wheaton's Canadian Dairy Notes.

The Make of Spring Cheese. — Foreign Shipments.—Patrons and Quality of Milk. —Shipment of Process Butter.—Flavor of Dairy Products as Influenced by Water Supply.

ED. HOARD'S DIARYMAN:—About the most interesting feature in the dairy situation here just now is the very large make that is going on in the factories. From present indications it would appear that the month of June is likely to prove a record breaker, so far as the production of cheese and creamery butter is concerned.

The pastures are now in a luxuriant condition and able to furnish an abundance of good, succulent food for the production of milk. This is resulting in a large flow of milk and a largely increased supply at the factories.

This increased production is shown in the largely increased exports, since the opening of the season, as compared with last year. During May the total exports of cheese from Montreal were 85,183 boxes, as compared with 57,395 boxes for the same period in 1898, an increase of nearly 28,000 boxes.

There has also been a marked increase in the exports of creamery butter. For May the total shipments of creamery butter from Montreal were 15,102 packages, as compared with 7,141 packages for the same month last year, an increase of nearly 8,000 packages.

But the shipments of butter from New York for the same month were not as large as a year ago. The total was 4,234 packages, as compared with 6,028 packages for May 1898, a decrease of about 1,800 packages, making the net increase in shipments of butter from Montreal and New York, as compared with last year, 6,167 packages.

At this rate Canada is likely to go very far in advance of your country in her exports of creamery butter this season. She made considerable advancement last year, but her efforts this year promise to excel all others. Reports from New York show that prices there are too high to admit of an export trade being done at a profit.

The butter market assumed a stronger tone last week, on this side. As high as 16¾c is reported as having been paid at the factories for choice creamery butter for export. There is a larger demand reported for butter for the mining camps of the west for which fair prices are being paid.

The cheese market has a much easier tone than when we last wrote. The large increase in the make seems to be responsible for this. It is making buyers careful about what prices they pay for cheese for future delivery. Prices at the factories have dropped down to about 8 cents, though several lots were disposed of at considerably below this figure the latter end of the week, June 3rd. Though this is somewhat lower than was expected earlier in the season, yet it is about 1 cent higher per pound than was paid for the same class of goods last year at this time.

It may be that the market will strengthen as soon as June goods are offered. The cheese made during this month are usually of good quality, and are in demand for cold storage purposes. As many factories have very much improved their curing facilities, we may look for an improvement in quality of this month's make over that of last year.

When one considers everything, the good pasturage, the comparatively cool weather, the supply of good water, etc., there seems to be no good reason why June cheese should not be as fine in quality as the cheese of any other month in the year. The great drawback, to getting this fine quality, is the inadequate curing facilities which many factories have. Until these are improved, we are not sure of the quality of the product.

The patrons of a factory may supply the best of milk, and the maker may have that skill, intelligence and those good habits necessary for good work, and be able to make a first class quality of cheese, but if the goods, when taken out of the press, are placed in a curing room where the temperature will run up to 80 or 90 degrees, the best of results cannot be expected. For this reason it is necessary to keep "drumming" away till we get every factory in the land properly equipped with curing rooms in which the temperature can be controlled at all seasons of the year.

At the beginning of the season, when the outlook for cheese was so bright, it was expected that many more creameries than usual would give up butter making for cheese making, but the large make of butter that is now going on would seem to show differently. That our dairymen are wise in not giving up butter making for the other branch cannot be questioned. When, as we have so frequently pointed out, we have reached the limit of exports in regard to cheese, and when there is an almost unlimited field in which to develop our export butter trade, it would be a foolish piece of business to relinquish any of our efforts in regard to butter for any temporary gain there might be in cheese.

The stronger position of butter just now, as compared with that of cheese, will tend to convince those who have stuck to the former, that they have not lost anything in so doing. In the spring of the year, at least, the dairyman always stands to gain by making butter instead of cheese, as he can have the skim milk for feeding his calves. And if the ready cash is greater from cheese, he more than makes it up in the better quality of his calves.

One of our trade journals is responsible for the statement that a highly reputable United States firm has recently got itself into trouble through the shipment of a lot of 150 packages of finest ladle-packed butter, which the exporters say was carefully selected, and the order filled at 14 cents on this side of the water. They were greatly surprised to learn from the English firm, to whom the butter was shipped, that one of its customers, to whom a portion of it was sold, had been prosecuted and fined for selling it as a "pure butter", the analyst alleging that it contained 15 per cent of foreign substances. The English importers made a demand on the shippers for the amount of the fine and costs, with a request that future shipments be accompanied with a signed, written guarantee of purity.

While the American firm in question, may be in no way to blame for this fraudulent shipment, yet someone is guilty. It is hard to conceive that an ordinary creamery, even on your side of the line, would be guilty of palming off such "spurious" goods upon a reliable shipper, as a pure quality of butter; and yet it has been done, and it is the doing of this kind of thing that is ruining the export butter trade of the United States.

While it is exceedingly gratifying to know that we, in Canada, are not troubled with frauds of this character, yet we cannot help but sympathize with the legitimate butter maker across the line, who has to combat such frauds. We are glad to note, however, that your dairymen are bringing their influence to bear upon the state legislatures, and are securing laws for the proper regulation and sale of margarine, filled cheese, etc., and while it would be better to prevent the manufacture of these spurious goods in any form, yet a great work will have been accomplished if such laws are enacted, as will cause these articles to be sold for what they really are.

The Ontario Agricultural College has sent out a special bulletin to dairymen, announcing that the bacteriological department is ready to invesitgate any difficulties in the way of impure water, bad flavors, etc., at the factories, or bacterial infection of any kind. There can be no more important work than this done for our cheese factories and creameries. Makers frequently have difficulties in the way of bad flavors in the milk, cheese or butter, which, if placed in the hands of a skilled bacteriologist or chemist, valuable truths might be found out in addition to supplying means to remedy the difficulty. It is to be hoped that our dairymen will take advantage of Prof. Harrison's offer, as work of this nature will be of great value to the industry.

Prof. Robertson leaves for Great Britian about the middle of this month, in the interest of Canadian farm products, where it is expected that the good work accomplished last season by him, will be repeated. A few more years of such work will make Canadian food products known in every city, and shire town in the United Kingdom.

Prof. Roberson is at present visiting the government dairy stations in the northwest territories, where Mr. J. W. Mitchell has recently been appointed superintendent in place of J. A. Kinsella, who went to New Zealand as assistant to Mr. Ruddick, dairy commissioner for that colony. Mr. Mitchell has efficiently filled the position of instructor in the milk testing at the Provincial Dairy Schools, Guelph, during the past three winters, and will, no doubt, give a good account of himself in our great western country, where he has spent several summers as manager of one of the government dairy stations.

Toronto, Canada. J. W. WHEATON.

Barn Ventilation.

ED. HOARD'S DAIRYMAN:—I read in your paper of May 26th Prof. King's talk on ventilating barns and was very much interested. I have a basement barn 36x60 feet with cement floor, well lighted and warm but it is not properly ventilated. In very cold weather the siding is frosty.

The cows stand facing the outside of the barn, and no ventilation except the feeding holes. When it is very cold we have to keep them shut. The barn is framed with heavy timbers, only a low wall. There is a large ventilator on top of roof. I would like to know some cheap way of ventilating. I could put them in before filling the second floor with hay. How many shafts does it want and where located? P. A. S.

Madison Co., N. Y.

It will not be possible to give a very explicit answer to your correspondent "P. A. S." regarding the best method of providing ventilation for his stable, but some general directions may be given which will perhaps enable him to adapt them to his special needs.

I infer from his letter that the basement is largely of wood resting upon a stone wall, perhaps not more than 18 inches above the stable floor. If this is true, or if the wood work comes closer to the stable floor than this, it will probably be practicable for him to build a ventilating flue directly against

St. Lamberts AT PUBLIC SALE! COLUMBUS, O., JUNE 8, '99. Send for Catalogue. J. P. BRADBURY, . Pomeroy, Ohio.

Introduce Milking Jersey Stock INTO YOUR HERD. by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book", FILSTON FARM, Glencoe, Md.

High-Class JERSEYS The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239-son of Brown Bessie. Printed pedigrees. State what is wanted. **H. C. TAYLOR, Orfordville, Wis.**

Hood Farm Jerseys **For Sale**—Bull with show ring and dairy qualities combined. Dropped Dec. 13, 1898, solid color, a show calf. Sire, Pedro Signal Landseer, son of young Pedro, sire of Eurotisama, 27 lbs 11½ oz. in 7 days 954 lbs 9 oz in one year and 11 others, son of Pedro. Dam, Lois Emerson, test, 18 lbs. from 298 lbs. 13 oz. milk; has averaged over 40 lbs. milk per day since calf was dropped; is a show cow. Write for price to HOOD FARM, Lowell, Mass.

We Have Sold SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2. **WINTERGREEN HILL FARM CO., Scottsville, N. Y.**

For Sale . . . BULL CALF, Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8¼ oz., in seven days. He will be sold cheap. **P. J. COGSWELL, Rochester, N. Y.**



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STEACY. Box 720 Brockville. Ont., Canada.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY, Mt. Pleasant, Ohio.**

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

FOR SALE "Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill.

ST. OMER HERD Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested. **JOS. T. HOOPES, Bynum, Md.**

GREEN PLAIN HERD **POLLED JERSEY CATTLE** Recorded stock FOR SALE. Inquries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962. For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to **J. E. TYRRELL, Marysville, O.**

ONE YEARLING BULL Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. **W. R. THOMAS, Bellmore, Ind.**

PROSPECT HILL JERSEY HERD. WISCONSIN PRIZE HERD. Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED. F. H. SCRIBNER, Rosendale, Wis.**

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00,*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

BILTMORE FARMS' JERSEYS. This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES out of great cows and by the best sires for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to **GEO. F. WESTON, Supt., Biltmore, N. C.**

MILLER & SIBLEY'S JERSEYS. Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. **Franklin, Venango Co., Pa.** **224**

The Lone Tree Jerseys. THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **breeding stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

the wall of the barn at some convenient place on each side near the middle of the row of cattle. If it is desired not to carry the ventilating flue far out into the feed alley, and if it is not possible to set it back into the wall itself, it could be made in its lower portion narrow and long, say 6 or 8 inches in the clear inside, and 3 or 4 feet long so as to give a cross section of about 2 square feet. If it can be given a depth of 12 inches then a length of 2 feet would answer his needs, provided there were two of these flues, one on each side of the barn. This same proportion could be carried clear up to the plate of the upper story, or it could be made deeper and not so long after the upper story has been reached. The walls of these flues should be made as nearly air tight as possible, and if the siding of the barn above is open in its character, it would be well to face that side with a layer of 2 or 3 ply acid and water proof paper, tacking it directly to the side of the barn and then building the other three sides of the flue out of matched flooring, well seasoned. If your correspondent has a large cupola on top of the barn I think it would be unnecessary for him to carry the ventilators out through the roof, but let it go up to the plate, so as to make the flue as long as practicable.

In case your correspondent has long hay chutes reaching up through the bay next to the walls, it may be practicable for him to utilize one of these on each side as ventilating flue. The hay chute should, of course, be made with its walls air tight above the first, or stable floor, then in order to take air out from near the floor instead of at the ceiling, as is his practice, one method would be to make a flexible chute out of very heavy closely woven sail cloth or ducking, having the same shape as his hay chute and tacking it to the ceiling around the outer edges of the hay chute, making it in the form of a large sack open at top and bottom, and long enough to reach down within twelve or eighteen inches of the floor. It would probably be better to have the diameter of this six inches greater than the diameter of the hay chute, so that the hay would drop easily down through it, and so that it could be drawn off from the hay when it was desired to feed the cattle. This extension of the hay chute downward in the flexible form would allow him to move past it readily to draw it off from the hay and to swing it back against the wall and support it there out of the way of the cattle.

Unless the canvass is very tight it would be desirable to fill the pores in some way, possibly with a thin glue, containing a little flour or starch put on with a brush so as to make it more nearly air tight. Or it might be dipped in a thin grafting wax mixture. so as to fill the pores.

Your correspondent should make provisions for air to enter his stable at various places, and if he has double boarding this can probably be readily done, as suggested in my article in one of your recent issues, by making openings in the outer wall as low down as practicable and openings on the inside as close to the ceiling as possible. These openings need not be close to the floor level on the outside nor close to the ceiling on the inside, but the openings on the two sides should be not less than two and one-half to three feet apart, the inner opening being higher. If he provides four of these openings on each of the two sides, or three on each of the two sides and one on each of the two ends, giving them a cross section of about three inches by twelve inches, they will probably, with leakage of his walls about windows and doors, supply him with the requisite amount of fresh air. It is quite important to get the openings on the inside as close to the ceiling as possible in order that the cold air may be mingled with the warmest air of the stable before it reaches the cows. If he finds that too much air comes in through these openings, it will be a simple matter for him to provide a swinging or sliding lid to cover the openings, wholly or in part, and thus regulate the amount of air entering the stable. If he chooses, of course, he can go to the hardware store and get register faces with valves, which open and close for this purpose, but the other arrangement suggested would answer the needs at a less cost.

F. H. KING.

Wisconsin Exp. Sta.

Dairy Work in the Maritime Provinces.

A Late Spring.—Roots for Dairy Feeding.—A Board of Trade for Prince Edward Island.—Cheese in Maritime Provinces.

ED. HOARD'S DAIRYMAN:—The rain has come at last, and watered the parched earth, yet a repetition of the last rain, of eighteen hours duration, would again be acceptable, for the ground is dry again, and pastures which have taken a start are now on a standstill.

The absence of rain this spring has greatly retarded dairy work in the Maritime Provinces. Milk is very scarce, and these factories which had begun cheese making are receiving very little milk. Not more than half the cheese factories of these provinces have yet begun operations. The majority of them will not start in before June the 20th this year.

Like the pastures, the outlook for the hay crop is discouraging. Farmers are, however, making the best of the abnormal conditions which now obtain, and have saved large quantities of peas, oats and vetches for summer feed. This season looks as if it would be a favorable year for the corn crop, for the corn could just as well be sown this year by the 20th of May—fully a week or ten days earlier than usual. The ground was then dry and quite warm, and in the very best condition for preparation. If our farmers and dairymen have not lived up to the privilege of sowing a large amount of corn this spring, they can only blame themselves if their cows dry up later on, for want of succulent feed.

A feature of the year is the large amount of mangels that are being sown. A few years ago, before the general dairy work prevailed, mangels were a *rara avis*. Turnips were the root crop and offered the succulence for the winter feeding of all our domestic animals. Now, that turnips have not been found suitable for feeding cows in milk, mangels and ensilage are fast displacing the turnip, and as only a very small percentage of the factory patrons yet have silos, the vast majority are growing mangels. Mangles, too, are found to be a splendid feed for swine in winter. Brood sows do finely on a ration of a half bushel mangels and a pound or two of oats, while if pulped and mixed with ground feed, they make a first-rate feed for fattening pigs.

An important meeting of dairymen takes place at Charlottetown on the 13th. The object of this meeting is to organize a Dairymen's Board of Trade for Prince Edward Island and making by-laws for same. One representative from each cheese and butter factory will have the right to vote at the meeting. Also any person who will pay one dollar into the funds of the Association. As special train arrangements have been made, a large representation and a successful outcome may safely be predicted.

Mr. Thomas J. Dillon, late dairy superintendent of Prince Edward Island, but now one of Canada's largest cheese buyers, has permanently located in Truro, Nova Scotia, where he will carry on business as a cheese buyer on an extensive scale. The isolated condition of the Island in winter, which afforded poor commercial advantages, was Mr. Dillon's reason for moving to Nova Scotia. Prince Edward Island is under deep obligation to Mr. Dillon, and the people are grateful, for they call him the "father of Prince Edward Island dairying." The great stride made by this small province in dairy work, and the excellence of the product, are due in the main to the energy and intelligence of Mr. Dillon.

Mr. Dillon, speaking a short time ago in New Brunswick, said, in substance:

"In Prince Edward Island the farmers have, almost all, a money interest in their factories and largely on this account they are interested in sending good milk in order to increase their profits. The Island cheese has lately been commanding a higher price than the New Brunswick make. In the first place the factories over there are better built, most of them having sub-earth ducts, permitting a more complete control of temperature in the curing rooms."

In the early history of the Island cheese business, Professor Robertson brought down from Ontario a number of first-class experienced makers whose services had been very valuable. Mr. Dillon complains that there is not sufficient uniformity either in quality or size of the New Brunswick cheese. Island cheese are made either in thirty or seventy pounds in weight in fourteen and a half inch hoops.

Last year the milk netted the patrons 60 to 66 cents per hundred, and the majority of the factories pay by the Babcock test. A few add 2% to the fat readings.

Hermanville, P. E. I. J. A. M.

Look Out for Him.

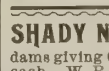
Stockmen, farmers, liverymen, hotel proprietors and others are warned against a man sixty to sixty-five years of age, bald headed, blind in the left eye, about five feet ten inches in height, the upper rim of both ears off. He has gone by the name of Hart, Hinkle and Harman. His scheme to defraud is to pretend to be purchasing horses or cattle, usually dairy cows, claiming to have a dairy farm in the east, near New York city. He goes to a town and puts up at the hotel; then secures the privilege of some liveryman or stockman to receive his cattle. Then he hires a livery team, spends several days in riding over the country pretending he is buying cows or horses. He pretends that he is to have money sent him in a day or two, and that he is short, and borrows from $50 to $100, or whatever he can get to run him, pledging the cows he has pretended to buy. When he gets the money, he disappears to some other field of operations.

He talks with a slightly German accent, wears thick glasses, professes to have traveled extensively, and is an entertaining talker. He sometimes claims to have served in the navy and sometimes in the army. I caused his arrest in Jefferson, Iowa, took him to Kirksville, Mo., where he lay six months in jail. He was indicted and brought to trial during the May term of the Adair County Circuit Court. The jury was ready to sentence him, when the judge before whom the case was tried ordered them to return a verdict of not guilty, because of a mistake in the given name of the prosecutor. He escaped before he could be re-arrested, and when last heard from was going in the direction of Illinois, boasting that he intended to resume his business. This man has operated in the states of New York, Missouri, Ohio and Iowa, and probably other states.—*S. J. Miller in Breeders' Gazette.*

To Make Small Cheeses.

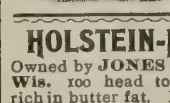
A ten-pound cheese may be made of fifty quarts of milk. Twenty-five may be the evening's milk, skimmed in the morning, to which is added the whole morning's milk. The milk is set in a heater on the stove, being stirred now and then, to heat slowly to 80 degrees, when the rennet is thoroughly mixed by stirring. Half a teaspoonful of the liquid extract for this quantity of milk, or a cake of the solid rennet, as sold in the stores, is enough. The milk is covered and set in a warm place until the curd breaks before the finger is passed through it. The whey is then dipped off and put in the boiler and heated to 150 degrees.

While this is doing the curd is broken by the hand, the hot whey is then poured on, and when the curd squeaks, when bitten, it is ready to be put into moulds and pressed down solidly and the whey is drained off. As soon as the cheese is solid enough it is taken from the mould and kept in a clean place and turned daily for a month. It should then be kept a month longer in an airy place, and the mould which gathers on it, scraped off once a week. A very good cheese may be made without this heating in hot whey.—*Indiana Farmer.*



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD. Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. O. H. Stevens, Jefferson, Wis.

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

McGEOCH FARM Holstein-Friesians. Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha, 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

MECHTCHILDE AND TIRANNIA

The two greatest cows in the world are owned at Valley Mead Farm. Their average milk record, each, is 101½ lbs. in one day; average butter record, each, for 7 days, 38 lbs. 8½ oz., an average which stands unequaled by any two cows in the world for either milk or butter. The fame which these cows have won in the snow yard and public milk and butter tests, stands unapproached, like their records. They sold for $2,000 each. Their blood, which was almost unobtainable, can now be had in young males, close, through their sons and daughters Address Valley Mead Farm, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys. **CHAMPION HERD** AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys. First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

GUERNSEYS! 84 Cows averaged 399 lbs. of Butter each in 1898. Some Choice Young Stock For Sale. ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis.

Preserving Eggs.

ED. HOARD'S DAIRYMAN:—Having received numerous inquiries from farmers during the past two months respecting the merits of "water glass" as a medium in which to keep eggs, we are led to think that certain conclusions drawn from an experiment, lately brought to a close, with this and other preservatives will be of interest to your readers.

The investigation was commenced last September, perfectly fresh eggs from the farm poultry house being used for the test, which consisted in immersing the eggs for varying lengths of time, from a few hours to six months, in (a) limewater, and (b) ten per cent solution of "water glass." Those eggs which were treated for a few hours, days or weeks, as the case might be, were subsequently placed, together with the untreated eggs to be used as a check, in a rack within a drawer in the laboratory, till the close of the experiment, March 30th, 1899. All the eggs were at a temperature from 65° to 72° F. throughout the trial.

The testing consisted in breaking the eggs into a glass and noting the appearance of the white and yolk, whether the yolk was stuck to the shell, size of air space, odor, etc. The eggs were then poached and again the odor, appearance, etc. noted. Without giving in detail the results of the various trials, it may suffice for present purposes to summarize the conclusions reached, as follows:

CONCLUSIONS.

1. In no instance, either of treated or untreated eggs, were any "bad"eggs found.

2. In all cases where the eggs were not kept covered throughout the period of the test with the preservative solution, shrinkage of the contents had taken place, as shown by the larger air space, the less globular form of the yolk, and in many instances by the adherence of the yolk to the shell. The eggs treated for seven days and less with lime water showed somewhat less shrinkage than those treated a similar length of time with silicate of soda.

3. It would appear that lime water and "water glass" used continuously are equally efficacious in preventing shrinkage. They may also be said to give practically the same results as regards both external and internal appearances, flavor, etc., of the eggs preserved. Since "water glass" (silicate of soda) is more costly and more disagreeable to use than lime water, we could not from the present results recommend the former as the better preservative.

4. The albumen or "white" in all the preserved eggs was very faintly yellow (though not to the same degree in all the eggs), the tint becoming deeper on boiling.

5. No offensive odor was to be perceived from any of the eggs when broken, but in all instances a faint but peculiar musty or stale odor and flavor developed on poaching

6. It is probable that no preservation will prevent the loss of flavor possessed by the fresh egg, but those which wholly exclude the air (and thus, at the same time, prevent shrinkage from evaporation) will be the most successful. Continuous submergence is evidently better than treatment for a few days.

"Water glass" known chemically as silicate of soda, is a fluid quoted at 60 cents per gallon. It is highly caustic, due to excess of soda, and consequently is more disagreeable to use than lime water.

The lime water may be made by putting 2 or 3 pounds of good, fresh lime in 5 gallons of water, stirring well at intervals, for a few hours, and then allowed to settle. The clear supernatant fluid can then be poured over the eggs, which have been previously placed in a crock or water-tight barrel. Some authorities recommend the addition of a pound or so of salt to the lime water, but the writers are of the opinion that this is unnecessary, and probably leads to the imparting of a limey flavor to the eggs by inducing an interchange of the fluids within and without the egg.

The all essential points to be remembered are: (1) That the eggs to be preserved shall be perfectly fresh, and (2) That they shall be covered with the preservative fluid.

FRANK T. SHUTT.
Chemist Dom. Expl. Farms.
A. G. GILBERT.
Poultry Manager, Expl. Farm.

Conclusion of the Matter.

How the Season of Ensilage Feeding Terminated.—Clover as Ensilage.—An Inquiry.

ED. HOARD'S DAIRYMAN:—When I wrote my article on experience with ensilage in the dairy, some time in April, the feeding season was not yet completed, and I wish to add a little here to what I then said.

As I then stated, the cows were doing exceedingly well and I was much pleased with the results obtained from the feeding of ensilage, as compared with a long experience with cured fodder corn.

Soon after this came the change from barn to pasture, when the cows need special attention to prevent any shrinkage in milk, as is sometimes the case before there is sufficient grass for a full ration and there is a a dimishing appetite for hay.

This year the weather being dry and ground hard, the cows were turned to pasture the first of May, quite early for this latitude, with the expectation of continuing the feeding at the barn as long as needed. But the cows soon showed they had no use for the hay, although of excellent quality. They, however, had a good appetite for the ensilage and daily feed of grain, and with these instead of there being any lessening in the yield of milk, there was soon an increase and the product of butter went decidedly ahead of anything experienced before, and this notwithstanding the weather was cool and dry, with short grass in the pasture. The cows reached the highest point of production by the middle of May, when eighteen—eight of which were heifers—averaged 10⅓ lbs. of butter in a week.

Of course, many dairymen will not consider this a very large yield, but it was at least 20 per cent more than made at any time previously, and doing pretty well for this part of the country.

The cows are full blood and grade Jerseys and a portion had been milked for several months. About 17 pounds of milk were required for one of butter. The cows had ensilage up to June in decreasing amounts, when most of them cared for it no longer. A small feed of grain is still given and may be continued through the summer.

From this experience in the change from barn to pasture, I consider ensilage of much value, and should be glad if we had a supply for use when the pastures begin to fail late in summer.

My son, who is the farmer, is confident that all things considered, we have got nearly or twice as much out of the corn crop put in the silo, as we formerly obtained from it as cured and fed dry.

Do you think, Mr. Editor, that it would be safe and advisable to put a quantity of clover into the silo at haying time, enough to last the cows until the corn is suitable to feed green, or better still, ready to put in the silo?

If this were the case, the silo would in this way answer a double purpose, with the advantage of having this feed at a time when most needed.

Would it require special pains to pack the clover, so as to keep?

Last year we fed cured clover for a time with very good results, but quite likely as ensilage it would do better.

Franklin, Vt. E R. TOWLE.

Clover can be siloed, but if only a limited amount is put in silo, it should be well weighted and covered. Good, well cured clover hay cannot be much improved upon.

Hog Feeding.

Winter feeding of hogs is considerable of a problem, but Mr. Whaley has solved it to his own satisfaction. Having the dry and warm pen, the next consideration is to secure proper food in the cheapest way. The chief grain food is shorts, but sometimes a proportion of corn, peas and bran are also given. These are supplemented with pulped mangels and slops, such as whey, milk, and water when the other liquids are short. The pulped roots, shorts or chop and slop are mixed (about one bushel of shorts to two and a half of mangels) twenty-four hours before feeding, and given cold twice a day, except in very cold weather, when the mangels are boiled in a boiler standing in the feed room. The feed is not given very sloppy, except skim milk can be used, as too much water is injurious to the pigs. Mr. Whaley considers the only advantage of boiling is in having

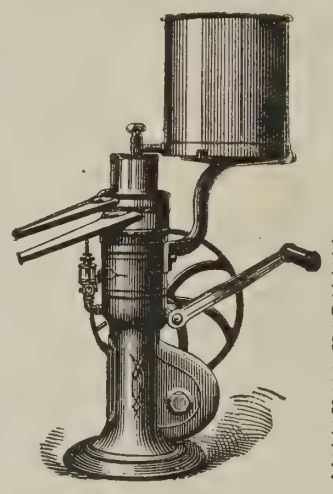
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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
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the feed warm in severe weather. At noon, pulped mangels are fed alone—just what is eaten readily. A change of feed is considered by Mr. Whaley very beneficial. A few ears of corn occasionally, and once or twice a week dry shorts are given with pulped mangels. A quantity of ashes, charcoal and sulphur are mixed in the regular feed about once a week. The litters are weaned when about seven weeks old, and are given shorts, mixed fairly thick with milk, twice a day for about a month. Mangels or sugar beets are then gradually added, and a few mangels are always given at noon.

Summer feeding is usually done in pasture lots, and Mr. Whaley is aiming to use clover for this purpose, especially for the growing pigs. Bran and shorts, mixed twenty-four hours ahead with whey, etc., is given in the form of a slop. The pigs are given full feeds of this twice a day, and the way they thrive is remarkable, not in putting on fat, but in growing the desirable strip of fat and strip of lean, bacon. When the market is down and expected to rise, the pigs are held back by less strong food, while their growth goes on apace. Mr. Whaley watches the feed market, and purchases his shorts and bran by the carload when the price is down

The following is a statement of Mr. Whaley's pig-feeding transactions in 1898:

ON HAND JAN. IST, 1898.

7 sows at $15	$105
1 boar at $15	15
8 shoats	65
10 shoats	58
11 shoats	45
13 shoats	30
10 shoats	15
Total	$333

Feed consumed in 1898:

21 tons 399 lbs. shorts	$278.85
500 lbs pea chop	5.50
1 861 lbs corn chop	16 75
5 tons 1,372 lbs. bran	65 41
800 bu. mangels	40.00
350 bu. corn in ear	55.00
Total value of feed	$461.51
Breeding stock purchased during year	23 50
Stock Jan. 1, 1898, as above	333.00
Total outlay	$818 01

Stock on hand, Jan. 1, 1899:

7 sows	$105 30	
1 boar	14.00	
4 boars	40 00	
10 shoats	68.00	
23 shoats	92.00	
11 shoats	33.00	
11 shoats	27.50	
10 shoats	15.00	
Total value of stock Jan. 1, '99.	$394 50	
		$ 394.50
Live pork sold in 1898, 17,366 lbs		805.38
Total assets		$1,199 88
Total outlay		818.01
Profit		$381 87

In concluding our interview, Mr. Whaley said: "There are four chief requirements in raising hogs for profit:

"1st. A good, high, convenient, well-ventilated, comfortable pen.

"2nd. Good stock of one or other of the popular breeds. The dams must be roomy and good mothers.

"3rd. Perhaps the most important is to keep the pigs clean, dry, and warm. We always clean all our pens every day throughout the winter, and let the pigs out into adjoining yards.

"4th. Give good attention, regular feeding with good food, and there will be found good profit in raising hogs."—*Farmers Advocate.*

Making Country Butter.

As to making butter in the country without ice, I say it can be done. Not tallow butter or axle grease, but butter of the gilt-edge variety, writes Mrs. Juliette Lamkin, of Texas. I know whereof I speak, and will give my own experience.

I live in the country where ice is an impossibility. Last summer I had no place to keep my milk and butter except on the north side of the room where the cook stove is kept. Every evening I skimmed the milk, twelve hours old, at the same time straining into the same jar some fresh strippings. The next morning I skimmed the milk of the previous evening and strained the fresh strippings into the jar already on hand; kept it cool as possible, and extremely hot days placed the jar into a tub of cold water from the well. Before dinner it was ready to churn.

By such management churning was an every day occurrence; and I will say, too, that when the cream was "ready to churn" the churning was done immediately, and the cream not allowed to turn to whey, or mold form on the top. Immediately on taking the butter from the churn, it was thoroughly washed with pure, cold water, salted, and the milk worked out as much as possible.

The butter through the summer was never white, tallowy, strong or musty. I sent it once a week ten miles to Dallas where I received the same paid for the best creamery butter. I sold it to private families, who said they preferred it to the creamery article, as it remained firm and did not get old soon and lasted longer. Two grocerymen in Dallas bought it several times for consumption in their own families.

When sending butter to market, I always cover it with wet cloths and pack it carefully in jars. Since the summer is gone and grass is dried up, and the cows are being fed bran, corn and products of the cotton seed, the butter is not so yellow and grainy, yet pure and wholesome and palatable. Sorghum fodder has a tendency toward making the butter yellow. I rather prefer summer made butter, and stoutly maintain that good butter can be made in the country throughout the summer without the use of ice, if the above plan is followed.

Three Essentials In Dairying.

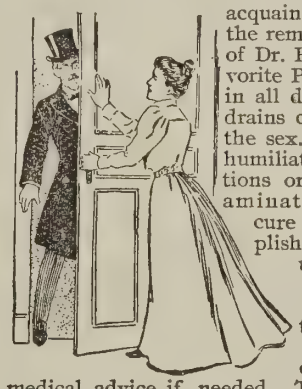
We are frequently asked what are the more important points in dairying. While there are too many to be enumerated here, there are three things of which I want to speak briefly which are to me of great importance and on which our success as dairymen largely depend. These are breeding, feeding and care of the dairy stock.

Upon breeding depends altogether the quality of milk a cow will give, for be it remembered a cow has born in her the power to give rich or poor milk, and if poor, nothing that man can do will improve her in that line. But the quantity of milk a cow will give is determined by the one who has the care of her from the time she is born until she comes into dairy work, and depends almost exclusively on the feed and care given her. This word "care" means a great deal in the education of a dairy cow; it does not mean food and shelter alone; it means education, that we develop in the cow a love for us, or as it is usually expressed, affection. The more affectionate the cow the more valuable she is in the dairy. In our work we must remember that we have to do with the great law of maternity which induces a cow to give milk for her offspring.

She gives it in part, because of the affection she as a mother has for her young. The more of this mother love we have in the cow the better, but to develop and draw out this love, she must have kind treatment from her owner, from the time she is born until she goes out of the dairy. She must have a mother's treatment and a mother's care — M. E KING, in *Coleman's Rural World*

THE DOCTOR'S MISTAKE.

The doctor made a mistake in the number and called at the wrong house. No woman calls a doctor after she is once



acquainted with the remedial value of Dr. Pierce's Favorite Prescription in all diseases and drains common to the sex. Without humiliating questions or local examinations the cure is accomplished by the use of the "Favorite Prescription" supplemented by free medical advice if needed. This medicine is harmless in any condition of the system and can be taken without the slightest fear of bad consequences. It contains no whisky or alcohol. There is not an iota of anything narcotic in it. The relief it gives is permanent. In this it differs from many preparations which give temporary relief only by deadening the sense of feeling with narcotics, and the dangerous stimulants they contain create an appetite for strong drink. When a dealer offers a substitute for Dr. Pierce's Favorite Prescription, remember these facts.

When their diseases are deep-seated and of long standing, women will find it to their interest to write to Dr. R. V. Pierce, Buffalo, N. Y., who has had wonderful success in curing diseases of women. *He gives advice free*, and invites all to write him. Prompt, careful and personal attention is paid to each letter, and the fullest advice is always given.

"After five months of great suffering I write this for the benefit of other sufferers from the same affliction," says Mrs. H. A. Alsbrook, of Austin, Lonoke Co., Ark. "I doctored with our family physician without any good results, so my husband urged me to try Dr. Pierce's medicines—which I did, with wonderful results. I am completely cured. I took four bottles of Dr. Pierce's Favorite Prescription, four of his 'Golden Medical Discovery' and two vials of his 'Pleasant Pellets.'"

Does It Pay To Keep Cows Quiet?

A Bit of Practical Experience.

Should cows be kept quiet? Yes.
Why? Because it pays
How do you know it pays?

In answer to this question, let me relate the experience of one of our best dairymen. He says:

"I had heard a good deal about the bad effect of excitement upon the cow, and I made up my mind that I would know whether there was anything in it or whether it was like a good many other fine spun theories So one night I deliberately planned an attack upon my cows. I told the hired man to get him a cudgel, and I got one myself. We took the dog and went out into the cow yard just before milking. We halloed and yelled and flourished our sticks, but didn't strike a blow. The dog barked loudly, and for a time pandemonium prevailed. Then we let the cows into the barn and milked them.

"I was dumfounded at the result. The falling off in the amount of milk given was not so very much, though there was a marked difference; the most striking loss was in the quality of the milk. I have a reliable test myself, and know I cannot be mistaken when I say that at least two-fifths of the butter fat had disappeared—been burned up by the excitement of a few minutes' abuse just before milking.

"I told the hired man then that hereafter, if he felt as if he must strike somebody, to strike me, and that if he spoke at all in the stable I wanted it to be in a tone of voice such as he would use in speaking to me."

Now, this is not theory; it is not fancy; it is plain, matter-of-fact business. Every time a man kicks, pounds, shouts or otherwise has a "tantrum" with his cows he takes money out of his own pocket. He had better stand it if the cow thumps him now and then with her tail, or stands around a step or two while being milked, than to make a bigger fool of himself than the cow by getting into a rage and turning the stable into a bedlam.—*Practical Dairying.*

Sir J. B. Lawes, of England, has measured the amount of nitrogen that is washed out of soils by the fall rains. In one rainy season, there were 130 pounds lost from one acre in this way, during the month of September alone. During the hot weather of July and August, nitrification goes on rapidly in the soil. This means that nitrogen is changed from organic forms so that it is soluble in water. Most summer crops stop growing before frost.

There being no living plants to utilize this soluble nitrogen, the rains easily wash most of it out of the soil. September and October are two of the worst months for leaving the ground bare. When covered with Crimson clover or winter grain, the loss is much less, for these growing plants will utilize most of the nitrogen. Never let the ground remain bare during the fall and early winter.

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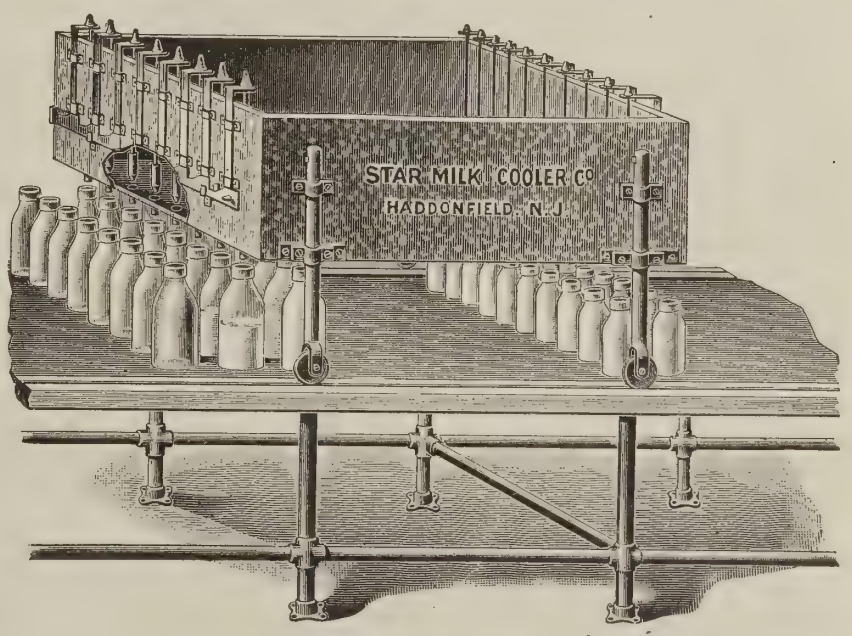
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Volume XXIX of Hoard's Dairyman

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The Holstein-Friesian Cow as an Economical Producer of Butter.

ED. HOARD'S DAIRYMAN:—In 1897, the Holstein-Friesian Association of America adopted a plan known as "Food Tests," and offered prizes for cows tested under the supervision of representatives of the different experiment stations, to determine the food cost of butter production. A schedule of prices of the different food stuffs was fixed, based upon recommendations of some of the leading experiment stations, and the yields of butter fat and food consumed by competing animals during the seven days tested were conducted and vouched for by experiment stations.

This step on the part of the Holstein-Friesian Association is certainly one in the right direction, as the value of any dairy cow is measured by the amount of milk and butter produced in return for amount of food consumed. The all important problem that confronts the dairyman today is the one of economical production and net profit over and above cost of production.

Believing that some data touching upon this point would be of interest to practical dairymen, I have formulated a table showing results of tests of Holstein-Friesian cows and heifers, competing for prizes in "Food Tests" last year. In this table I have credited these animals 25 cents for each pound of butter fat produced, and 20 cents for each 100 pounds of skim milk, taking 80% of the whole milk to determine the amount of skim product. This price of 20 cents per 100 pounds is based upon its feeding value as compared with other foods for growing young pigs and calves upon the farm, and has been found to be worth that, in feeding trials at some of the leading experiment stations.

NAME OF COW.	Class.	Days since last calf.	Dry matter consumed during test—pounds.	Average daily consumption of dry matter—pounds.	Total amount of butter fat produced—pounds	Average daily yield of butter fat—pounds.	Dry matter consumed for one lb butter fat—pounds	Yield of butter fat for 100 lbs. dry matter.
Helena Burke.....	Mature	81	153.93	21.99	13.47	1.92	11.42	8.75
Aaggie Grace 2d's Pietertje.....	"	87	154.48	22.09	13.21	1.88	11.68	8.56
Dutchess of Ormsby 3d.....	2 yr. old	77	122.93	17.56	11.01	1.57	11.17	8.95
Artis Tritomia Netherland.....	"	19	104.27	14.89	8.50	1.21	12 25	8.16

In the test for aged cows, Helena Burke was awarded first prize and Aggie Grace 2d's Pietertje second prize. It is but justice to the cows and the breed to say that prior to entering this test these two cows had been shown at five different state fairs, and had covered a distance by rail of over 2 500 miles. Notwithstanding this and the very trying conditions surrounding a fair ground test, this expenditure of dry matter on the part of these two cows to produce a pound of butter fat is not only remarkable but *phenomenal*, and surpasses any record I have ever seen reported upon this basis.

NAME OF ANIMAL AND HERD BOOK NUMBER	Age—Years.	Seven Days' Milk Produced—Pounds.	Butter Fat Produced—Pounds.	Cost of Food Consumed, as per schedule Prices.	Food Cost of one Pound of Butter Fat.	Value of Butter Fat at 25c per Pound.	Value of Skimmed Milk at 20c per 100 Pounds.	Value of Butter Fat and Skimmed Milk.	Net Profit Above Food Cost of Production.
Aaggie 3d's Wayne 10516.....	9	410 0	14.77	$1.148	$.077	$3.69	$.66	$4.35	$3 20
Vevie Night 2nd 16002	8	420.2	13.79	1.087	.078	3.45	.67	4.12	3 04
Mutual Friend 3d 28389.....	5½	363 9	12.18	0.975	.080	3.05	.58	3.63	2 66
Springvale Duchess 33986.	5	354.5	13.00	1.057	.081	3.25	.57	3.82	2.76
Johanna Rue 2d 33788.....	5¼	475.5	17.03	1.369	.092	4.26	.76	5.02	3 45
Johanna 5th's Clothilde 30836.....	6	432.5	16.01	1 630	.102	4.00	.69	4.69	3.06
Calamity Jane 26292	7	560.9	19.31	2.240	.115	4.83	.90	5.73	3.47
Colantha 4th 35028.....	4⅓	463.8	16.91	1.645	.097	4.23	.74	4.97	3 33
Edgely Frena 4th 398.....	4¾	341.3	12.38	2.095	.169	3.08	.55	3.63	1.54
Johanna Aaggie 36477.....	3⅓	357.2	14.21	1 125	.079	3.55	.57	4.12	3 00
Johanna DeKol 36478.....	3¾	332.1	13.61	1.085	.080	3.40	.53	3.93	2 85
Empress Josephine 3d's Gerben A 39499	3⅓	348.8	12.67	1.076	.085	3.17	.56	3.73	2 65
Bomaz 2nd's Bettina 39500.....	2	275.0	12.34	0.768	.062	3.09	.44	3.53	2 76
Rixa Silva's Last 39389.....	2	293.9	9.29	0.877	.094	2.32	.47	2.79	1.91
America 2nd's Pauline DeKol 37096.....	2	305.2	10.01	0.950	.094	2.50	.49	2.99	2.04
Rixa Silva 3rd's Bet ina 39390.....	2	230.6	9.59	0.945	.098	2.40	.46	2.86	1 92
Totals.....	....	6,025.4	217.10	$20.27	.....	$54.27	$9.64	$63.91	$43.64

A summary of this table follows:

Seven mature cows average 15.15 pounds fat per week at a cost of $ 091 per pound.

Two four-year-old heifers average 14 64 pounds fat at a cost of $.127 per pound.

Three three-year-old heifers average 13.47 pounds fat at a cost of $.081 per pound.

Four two-year-old heifers average 10.31 pounds fat at a cost of $.086 per pound.

The entire list of sixteen cows and heifers, which includes every animal tested during the fiscal year ending in March, 1898, averaged 13 5 pounds fat at a food cost of $.093 per pound, and they return a net income, above food cost of production, of $43.64, or an average of $2.67 per cow.

Further study of this table shows the injustice of judging the dairy cow on a basis of food cost of butter fat alone. This will be seen by a comparison of the first cow on the list, whose butter fat was made for $.077 per pound, and Calamity Jane, who required $.115 for a pound of fat. The natural inference would be, that the first was the most profitable cow; such, however, is not the case, when we note the difference of net profit in the last column.

It will be farther noted, as a rule, that the cows giving the most milk, make the most fat and return a greater net profit. Not only is it true in these tests, but in the dairy tests at the World's Fair, the breeds taking the highest standing were those giving the most milk, and this seems also to apply to the different individuals of the different breeds.

These tests present a very creditable showing for the Holstein-Friesians, and the performance is one not easy of approach by rival breeds. It demonstrates very conclusively, the value of the Holstein-Fr'esian as a business cow from a practical standpoint; but to show still more evidence of the high standing of the breed, as economical producers, I present another table showing the results of tests of two cows and two two-year-old heifers, that were entered in the dairy test at the Trans-Mississippi Exposition held at Omaha. Unlike other fair ground tests, the prizes here were awarded on a basis of dry matter consumed to produce a pound of butter fat. It being a food test, impartial to any dairy breed, it was hoped it would prove a drawing card and that representatives of all the dairy breeds would be entered for competition. The Holsteins, however, were the only ones entered, and the other breeds "were conspicuous by their absence," a fact very much to be regretted.

In the test for aged cows, Helena Burke was awarded first prize and Aggie Grace 2d's Pietertje second prize. It is but justice to the cows and the breed to say that prior to entering this test these two cows had been shown at five different state fairs, and had covered a distance by rail of over 2 500 miles. Notwithstanding this and the very trying conditions surrounding a fair ground test, this expenditure of dry matter on the part of these two cows to produce a pound of butter fat is not only remarkable but *phenomenal*, and surpasses any record I have ever seen reported upon this basis.

In the class for two-year-old heifers, Duchess of Ormsby 3d was awarded first prize, the second going to Artis Tritomia Netherland. We find the amount of dry matter consumed to produce a pound of butter fat to range from 11.42 lbs. to 12.25 lbs., with these four animals. The economy of their work can, perhaps, be better appreciated when we consider (and I believe such is the finding of experiment stations in tests of this kind) that the expenditure of 18 or 20 lbs. dry matter to produce a pound of butter fat would be correctly interpreted as being very economical with the dairy cow, under the most favorable conditions and natural surroundings.

It must be remembered the results here mentioned are not based upon the statements of interested owners, but upon unquestionable authority, thus establishing the absolute accuracy of the records, and any dairyman studying the results of these tests from a practical, unprejudiced standpoint can but concede the outstanding merit of the Holstein-Friesian cow.

Her past is at least secure; her present can but command the attention of any dairyman desiring a machine for the purpose of economically converting food materials into milk and butter, and her future gives promise of a progressive march to a still higher pinnacle, as the work of improvement advances in the hands and under the management of the intelligent American breeder.

Rosendale, Wis. W. J. GILLETT.

Cow Peas.

June is the month for planting the pea crop. White peas of all kinds would do better planted earlier. But the colored stock peas are now in order. If you wish to plant after cutting the small grain, and have plenty of seed to sow broadcast, then a bushel or over may be used per acre. But as peas are scarce and high, it is better to drill them. Open rows two and a half feet apart, and drop half a dozen peas every twelve or fifteen inches, and you can plant an acre with a peck of seed.

If promptly plowed they will make a good yield of peas or vines. The crop can be greatly increased by using acid phosphate and kainit, mixed in the proportion of 200 pounds acid to 100 pounds kainit, and using 150 pounds per acre in the drill.

Plant as soon as the grain is cut, and plow out middles as soon as practicable. About two weeks later, plow them again. This will hasten the growth, and insure a good crop. They improve the soil almost as much this way as when sown broadcast. If the plowing has been done so as to leave the surface level, the mower may be used to cut for hay.

This is suggested as the result of several years' trial, and gives a chance to lessen the expense when the seed are high.

For planting with corn, we prefer to sow peas when we plow corn last time. Our reasons are, in part, that the peas do not then grow enough to interfere with the corn before the corn has about matured. Then they cover the land and soon make good vines and often a full crop of peas.

Planted early between, or by the side of the corn, they interfere somewhat with the clean cultivation of the corn, and in dry spells divide the water supply, and often run over the corn so as to break it down, and cause rotting, if the fall be a wet one.

But whether you plant in the corn row, or sow at laying-by time, or plant after stubble, be sure to plant a liberal area to peas.

Later we will discuss saving the hay. Now we wish to insist that in the rush and pressure of June work you do not fail to plant peas. And when they ripen, do not fail to gather plenty of seed for home use, at least.

Peas are rarely written about as a human food. They rank among the best upon the table through the summer season, and in winter the dried peas are nutritious and palatable. They are almost meat and bread both. To the laborer and the soldier they give strength and endurance.—*Southern Cultivator.*

Silage Without a Silo.

Information Wanted.

ED. HOARD'S DAIRYMAN:—I am much obliged to you for forwarding me F. W. Woll's book on silage, which I find exceedingly interesting, especially as I purpose putting up a silo myself. There is, at present, only one silo in Jamaica and that was made of solid concrete, quite regardless of all expense. I do not care to lay out so much money for a concrete silo, and wood is very expensive on account of heavy freight and duty. I should like to try one of Blunt's Silo Stacks, either round form or square form, as mentioned in F. W. Woll's book on silage, pages 80-83. I should be much obliged if you would kindly let me know where I can get such a silage press and what the cost of it would be. At the same time I should be glad if you would let me know what experience you have had with these silage presses. You must bear in mind that, as I said before, lumber is very expensive out here, from $25 to $30 per thousand, and besides, our carpenters, never having heard of a silo, would be likely to make a mess of building a wooden silo, and a stone or concrete silo would be also expensive.

For these reasons I should like to try a Blunt's silo press, but don't know where to get it from and shall be much obliged to you for the information.

Apologizing for the trouble I am putting you to and thanking you in anticipation, I am,

H. FARQUHARSON.

Montego Bay, Jamaica.

We much regret our inability to give the information requested. The fact that lumber is not so expensive in the United States and Canada has made it unnecessary to investigate the problem of making silage without a silo. If any of our readers can supply the information desired, we trust they will do so at once.

Meantime we do not have much hesitancy in expressing the opinion that it would take but a year or two at most to save enough, with a good silo, to more than meet the extra expense of building a good stave silo. And it would not require any experience or very much skill to construct one in accordance with the illustrations and directions published on page 267. The main point would be to see that the edges of the staves were made perfectly straight.

It would require somewhat less than 3,000 feet of lumber to build a silo 16 feet in diameter and 24 feet deep, and such a structure would hold approximately 90 (short) tons of silage, sufficient to allow 30 pounds daily to 30 cows for 200 days.

A Tennessee Ration.

ED. HOARD'S DAIRYMAN:—Enclosed you will find $1.00 for subscription to the DAIRYMAN. When my subscription expired last March, I was receiving three agricultural weeklies, two of which were sent me for an occasional item of news, but none of them supplies the place of the DAIRYMAN, and I find I must have it again.

Will you formulate me a ration for a herd of cows that will average about 900 pounds? We have, on the farm, plenty of fine blue grass and Japanese clover, corn, corn stover and pea hay. We crush our corn, cob and husk. We can buy wheat bran at $10 and cotton seed meal at $19, delivered.

Verona, Tenn. W. M. R.

Our friend's experience is very much like that of many others, who try, from time to time, to dispense with the weekly visits of the DAIRYMAN. It is not too much to say that more frequently than the constant reader realizes, this paper proves itself to be a friend in need. Apart from everything written for its columns by the editors, the contributed articles, and the carefully selected matter drawn from home and foreign papers, experiment station bulletins and other publications, furnish a good ration for the intellectual development of the man who wants to be a progressive and prosperous dairyman. We do not pretend to furnish an aggregation of fixed rules, or set forth opinions with the assurance of the weather prophet, who predicts storms and calms for specific days twelve months in advance, but do claim that nowhere else are the principles and ex-

AT AUCTION!

THE FINEST

Stock and Dairy Farm

IN THE WORLD.

THE CHANCE OF A LIFETIME!

To close the estate of the late Hon Theo. G. Bennett, his magnificent farm with its celebrated **Stone Buildings** will be sold to the highest bidder **FRIDAY, JUNE 30th, 1899.** It may go very cheap. If interested, send for descriptive circular. **F. D. BENNETT,** Administrator, Jackson, Mich.

Impossible for any **Liquid** that is **Sprayed** on **Cow,** to protect her from **Flies,** in sun of 100 degrees ¼ as long as **"SHOO-FLY"** applied with a brush. See "Shoo-Fly" adv. page 361, this paper.

THE DROWN

Patent Cow Stall

Guarantees PERFECT COMFORT to the Cow and Cleanliness of Milk.

This gives GREATEST ECONOMY OF FOOD.

NO TIES.

It costs more to not have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

perience of dairying so fully, or so intelligently discussed, as in these columns.

In the matter of formula for ration we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
7 lbs. blue grass hay	5.44	.34	3.28	.07
7 lbs. clover	5.93	.48	2.51	.12
7 lbs. corn stover	4.16	.12	2.27	.05
3 lbs. bran	2 64	.38	1.16	.09
3 lbs. corn	2.07	.18	1.80	.10
2 lbs cotton seed meal	1.84	.74	.33	.24
Totals	22.08	2 24	11.35	.67

Pea hay may be substituted for the clover; and in regard to the latter we have to say that having no analysis of the specific variety named, we have assumed, on the authorty of the Mississippi station, that it is equal to common red clover.

Caring for Whey.

The proper method of caring for the whey:

First: Place the whey tank under cover.

Secondly: Have it so arranged that it can be cleaned daily.

Thirdly: The whey should be heated to 160° F.

In placing the whey tank under cover, it is protected from dirt and rain. I found it a good plan to keep the whey tank in the engine room.

The tank, which contains the whey, should be so arranged that it can be easily cleaned each day just as the vats in the make room are cleaned. It is only a few minutes work to wash this tank each day and there is no reason why this tank should not be kept as clean as the milk vats.

When whey is cooked to 160° F. it remains quite sweet for 24 hours; of course there is some acid in it, but not enough to injure it for feeding purposes. The whey can be cooked with live steam, beginning as soon as possible after the whey is in the tank, for the longer the whey stands before it is heated to 160° F. the more acid will be developed. When whey is handled in this way it makes good feed for any kind of animals. In feeding it to calves there should be a small amount of linseed meal mixed with it. The linseed meal to a certain extent takes the place of the casein which has been removed from the milk, for the linseed meal is very rich in protein matter.

The expense of caring for the whey in this way is very small and the results are very gratifying, both to the farmer and the cheese maker.

In the first place the farmers will have good wholesome whey to feed to their stock, and secondly, the cheese maker will have no gas forming bacteria coming from his whey tank. Consequently if the whey is properly cared for, the farmer will have better stock and the cheese maker better cheese.—*Dairy Reporter.*

CONCERNING OUR ADVERTISERS.

IT WORKS LIKE A GRAIN BINDER.

The only way to bind corn is the reasonable, sensible, *horizontal* way; that is, as nearly after the principle of a grain binder as is possible. Those who have used the Deering Horizontal Corn Binder know that binding corn by machinery is no longer an experiment. This machine has roller and ball bearings, it is light for two horses and free from side draft, and it does not scatter loose ears all over the field.

Someone will probably get a great bargain at the auction sale of the Bennett farm, and a hundred others will regret the lost opportunity. See notice in another colnmn.

Those who are desirous of obtaining a good pumping plant for farm and dairy purposes, should address the American Well Works, of Aurora, Ill., who are building a horizontal self contained gasoline engine for well pumping purposes complete, ready to screw to the well pipe.

Jos. Condell & Sons, breeders of Herefords, Chicago Heights, Ill., write Dr. A. S. Alexander, V. S., Evanston, Ill., as follows:

"We have used your scour cure, and it does all you claim it to do. We used three doses on a calf that had bloody flux, and two doses for a calf with scours It cured in both cases, leaving no bad results." See advertisement page 361.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

CALVES WITH COUGH.

I have nine calves that have a bad cough; have had it for about three weeks and are growing worse. This evening, one is quite weak. Most of them have the scours some, but all eat well and drink well. They are about six weeks old. Might it be the cold, damp weather that would cause the cough?

Pierson, Iowa. D. T. D.

ANSWER.

Most certainly the cold, damp weather has all to do with cough, etc. Feed of the best and most nutritious food in plenty. Each morning give each calf, gelsium ten drops; lobelia, one teaspoonful; old whiskey, one tablespoonful; soft water, 1½ tablespoonfuls. Give this very gradually; allow it to trickle over the larynx, etc. Give for three mornings, then wait a day; then repeat just twice; then wait two days; then give one dose every third day for four doses.

POOR FLOW OF MILK.

I have a grade Short-horn that freshened Jan. 24th, and now gives about thirty pounds of milk—on pasture and a feed of rye at night, with a little ground feed (oats and corn) mornings—where she ought to give about forty pounds of milk. She eats fairly well, and looks all right. Her bowels are very loose. I gave her a dose of physic this evening. What else can I do? Was that right? R. H. D.

Corydon, Pa.

ANSWER.

There is nothing to do. There is nothing to need doing anything for. All cows are liable, at any time, to drop off in milk. Sometimes a cow freakishly increases her milk. Let her alone. There never is any danger in a dose of physic, excepting to a weak subject, or in a case of acute inflammation.

INJURY TO LEG.

One of my horses jumped over the wire fence, three years ago, and hurt it in the hind leg. She got five little points in it. The wire fence was rusted. She don't go lame but the leg swells up while standing in the stable, but when working it grows thiner again. D. E. H.

Chicago, Ill.

ANSWER.

Nothing, that I know of. Three years settles that, so far as any doctoring is concerned.

BLACK LEG.

I had an outbreak of black leg and lost several head. I would like to know what treatment you consider the most successful in that disease. Is vaccination a preventive?

Towanda, Kansas. I. G.

ANSWER.

I never recommend any form of treatment to a layman for anthrax. It would be wrong to do so. Anthrax is the master of all science, so far as my experience goes—in fifty years. None but the skilled professional man has anything to do with so-called black leg. The environments and every thing else are to be closely examined, as well as the stock. The cause must be removed, before all else.

BONE SPAVIN.

I have a horse that has a bone spavin. It makes her lame when driven on road. How long will I have to let her stand?

Rearville, N. J. L. S. Z.

ANSWER.

Let the horse rest. No living man can take off a spavin, excepting he takes the leg off also, the otherwise boasts of innumerable quacks to the contrary. The best thing to do is to rest the animal, and when *all* the inflammation is gone have some practical, experienced man fire the spavin.

FOOT ROT.

I have a 10-year-old mare, that for two successive springs has been troubled with, what seems to be. thrush, or foot rot of some kind, in her hind feet. Being allowed the freedom of a box stall, which for two weeks was not cleaned properly, she contracted the disease, one year ago, and it proved to be very obstinate. Her feet were washed thoroughly, daily, with warm water, containing carbolic acid, for several weeks, and twice a week a knife was used, and each time some new spot was found to be affected, in the frog or under the shell of the hoof itself, or under the shoe, and was scraped and cleansed with a mild solution of white vitriol. A little carelessness has brought it on again. Similar treatment is being given the feet now as last year, but again it is very obstinate. The diseased portions of the hoof and frog have a very offensive odor, and the hoof crumbles when affected, while in the frog and heel the spots contain a dark, watery substance, very offensive. The same trouble like rheumatism, seems to affect her legs and back. G. H. W.

Earlville, N. Y.

ANSWER.

Stop the carelessness, and keep it stopped. Inject compound tincture of myrrh and aloes daily, until not needed. Why ask what ails the mare when you have told me? Ask yourself, would you like to work when lame and in pain? Let her rest until at least, better. After getting well, clean out the feet with salt and water quite often. Keep cleaned out every morning.

CURE FOR MILK FEVER.

Please give me a preventive and a cure of milk fever. We have a small herd of 20 cows and 4 died last year. S. H. W.

Pylesville, Md.

ANSWER.

I don't know of a cure for milk fever. No one else does, though, maybe 6 per cent may get over it by close application of knowledge acquired. The cure is in the prevention, keep bowels loose by physic constantly for 6 weeks before calving. Keep in poorish condition, always. If a heavy milker, milk 3 to 5 times a day, but, never milk clean, but just a little at a time to keep down distention.

LAME JOINT.

I had a cow that slipped and has caused a lump on her joint about like a hen's egg. She is lame on it; I lanced it and nothing but blood came. I have used hot water and hand rubbing, but of no use. J. T.

Iroquois, Ont.

ANSWER.

Opening by lancing ruins hundreds of cows and horses. You don't say exactly how or where situated. Keep wet with strong oak bark solution; to each quart add half a pint of acetic acid—not more. If upon the joint, you will be likely to always have a chronically lame cow.

INJURY TO COLT.

I have a colt that has a running sore on his pastern joint, that is, just above the joint, it is all swollen. I can get it to heal, but it soon breaks again, and it runs a kind of yellow pus. I notice now that it seems to be affecting its body; it has small risings coming on the body about in places, but the worst trouble is just above the hoof. J. K.

Enterprise, Miss.

ANSWER.

You have a clear case of quittor. These are always bad to manage; your best course is to have a true veterinary surgeon examine the foot and then cut off all superfluous hoof to the bottom, and then cleanse and then try to heal. I can do you no further good, as the treatment of quittor is complex and quite difficult to doctor, always. If snake bite, the treatment will be the same, as the hoof is so much diseased.

CALF SCOURS.

Lately several calves, as soon as born, are taken with a diarrhœa, a white, watery and frothy discharge, lose appetite, eyes sink into the head, they become weak and finally the excrement has a fetid odor, etc., and death results.

To the last one I gave "bicarb soda, barberry and cayenne pepper" and in about three days thought the calf was O. K., but it suddenly sickened, bloated up considerable and died. E. G. S.

Athens, Ohio.

ANSWER.

Diarrhœa is oftener the result of disease than in itself a disease. The reason so many forms of doctoring fail, is, just because all cases are treated as for one cause. Usually a clean change of diet is the first thing to do. Give 4 ounces of castor oil, 2 drams of laudanum, 1 scruple of nux vomica, once a day for a while. Follow this up with slipery elm and carraway seed tea, strong, 1 pint twice a day. Remove all the discharges at once, separate the animals.

LEUCORRHŒA.

One of my cows has been attacked with leucorrhœa, and injected to it, by the vulva, the following, taken from the DAIRYMAN: Half a dram of chloride of zinc in one pint of water, with four to six ounces glycerine. I have done this for from 25 to 30 days, and follow on. Gave internally, as stated: ½ drachm nux vomica, ½ ounce gentian, ½ ounce ginger, 2 ounces old whiskey 4 ounces tepid water, every other day, for 4 doses. She was served on the 6th ot November, '98, and has not taken nor wanted bull since. Do you think she will get all right of the disease, and is she in calf? She has been improving in flesh, and is taking her feed better than before the treatment. J. M.

Guatemala.

ANSWER.

Time only can tell if in calf or not. I do think she will get all right. In fact, she is now all right, I think. If she repeats the whites, let me know, and I will advise you further.

SWELLING ON SIDE OF HEAD.

I have a cow whose head commenced to swell on one side just over the eye and the eye is swollen and bulges out now. It runs somewhat and seems to pain her a good deal. The other eye also seems affected; she eats but little and is growing poor.

Dartford, N Y. C. H. W.

ANSWER.

I never recommend any treatment for so important an organ as the eye when in the condition you describe, but leave the case to a truly professional man. One thing I can recommend, full dose of physic. This will relieve the painful pressure you name. The physic is to be repeated as may seem to be needed. Cold applications constantly applied will do much good. Keep in a darkened room until not needed.

CANCER cured at home. Send four cents, stamps, 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

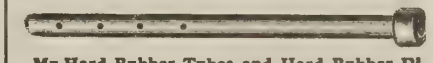
Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

ANTIABORSIO.

WILL PREVENT ABORTION in cows and cure scours in calves. One gallon will treat twenty cows three months.

Our Specific No. 1: Absolutely prevents Hog Cholera and Swine Plague, and will cure 90 per cent. of sick hogs

Our Specific No. 2: Prevents and cures Roup and Gapes, and kills Vermin on Poultry, also kills Ticks on Sheep. Theseare established facts, not experiments.

Our remedies are liquid germicides applied by sprinkling in closed stables and pens. Cures by inhaling fumes which destroy the germs of disease.

Send for free booklet and testimonials.

Animal Germicide Co., 319 Washington St., N. Y.

SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used severa. so-called 'Cattle Comforts,' *none* equal to '*SHOO-FLY*.' It is effective and cheap. Used 100 gallons." H.W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected. SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., PA.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keepsthem clean E. G. NEWTON CO. Batavia, Ill. Catalogue Free

Pasteurizing at High Temperature.

In my leaflet on "The Pasteurization of Milk and Cream," published by the Department of Agriculture last winter, the following occurs: "No experiments, so far as I am aware, have yet been instituted to decide the exact limit of heat that may be employed in pasteurizing milk or cream for buttermaking (without imparting a cooked taste to the butter), but, whereas a few years ago 158° to 165° F. were the temperatures generally employed in the Danish factories, I notice of late a tendency to employ considerably higher degrees of heat, reaching even to 185° F.

The uncertainty of our knowledge on this point at the time of writing, and the fear of that cooked taste, led me to err on the side of caution by recommending a lower temperature for the pasteurization of cream or whole milk than is required for the destruction of tubercle bacilli. Consequently where tuberculosis is feared, and it is important that the factory by-products be rendered completely safe—as in most places, unfortuately, is not the case—this cautiousness on my part had the effect of somewhat magnifying the practical difficulties of inaugurating an efficient system of pasteurization, such as would give the buttermaker perfect cream and the supplier safe skim milk. By way of a postscript to my pamphlet, I would, therefore, like to acquaint New Zealand dairymen, through your valued columns, of the result of a series of experients recently carried out here in Denmark on this very point.

As I remarked in the pamphlet already mentioned, the germs of tuberculosis can only be destroyed with absolute certainty by exposure to a temperature of 185° F., although a slightly lower heat, if sustained for a considerable time, will effect the same result. To maintain milk or cream in large quantities at a high temperature for even 20 minutes or half an hour, is in dairy practice by no means easy, and we are compelled to use the higher temperature, applied only for a few seconds as the milk passes through a continuously fed machine. Now, unless we may submit the whole milk to 185° F. without imparting a cooked flavor to the resulting butter, it becomes necessary (1) either to pasteurize the skim milk by itself at that temperature and the cream by itself at a somewhat lower temperature—in which case the closer skimming to be gained by pasteurizing the whole milk must be sacrificed—or (2) to pasteurize the whole milk by itself at such lower temperature as will not impart a cooked taste to the butter, subsequently treating the skim milk to a second and more drastic pasteurization in order to insure death to the tuberculosis germs.'

The difficulties suggested by this question evidently occurred to the Danes also, for during the past year a large number of experiments have been carried out to determine, once and for all, whether milk or cream could be carried to 185° without injury to the flavor of the butter. For those who wish to secure the closest possible skimming by pasteurizing the whole cream and who at the same time expect a butter free from the slightest cooked flavor and skim-milk innocent of a single live tuberculosis germ, the results will be welcome as greatly simplifying the modus operandi. For the answer to the question is a most decided yes—provided, however, that the cream be immediately and quickly cooled to at least 55°.

In the prompt and thorough cooling of the cream lies the crux of the whole question. Even 195° was repeatedly employed without any permanent cooked flavor being at all noticeable, so long as the cooling was efficient. Please note the word "permanent" for although the butter may have had a slight peculiar flavor when first made, this invariably disappeared in the course of one or two days. Comparisons between butter made from milk or cream pasteurized at 185° to 190° and from portions of the same cream heated only to 170° showed that not only was the former as good, but, in most cases, was better than the later. But remember the cooling is as important a part in scientific pasteurization as the heating itself.

The details of the experiments, interesting though they are to students of dairying as affording a beautiful example of how dairy research ought to be conducted, are too voluminous to record here. Fifty-two complete experiments were made, covering all seasons of the year and carried out in four different localities, while every possible precaution was observed to eliminate outside influences which might affect the results. Trustworthy and unbiassed judging was secured by having three separate judges, and examining every sample a second time at an interval of fourteen days. In short, the verdict may be accepted as dairy gospel, tried by every test that man's ingenuity could devise. Chemical analyses were also made of the buttermilk and of the moisture in the butter. The percentages of fat left in the buttermilk and of water in the butter were not in any way affected by the higher temperature.

While on the subject, it may intrest you to know that out of the 713 factories competing last year in the Danish "State Butter Shows," all except five pasteurized the whole of their output—four of these five had the unenviable distinction of occupying the four bottom places in the official list, while the fifth was not much better—and all but eleven used "commercial starters." For the last two years, no case of "fishiness"—New Zealand's bug-bear—has been scheduled by the judges, and this fault may therefore be considered a thing of the past in Danish dairying—rooted out by cleanliness, pasteurization and the use of a good, clean starter. With regard to moisture, 2,110 packages analyzed showed an average of 13.9%, considerably more, I fancy, than an equally comprehensive examination of New Zealand butters would reveal. The lowest percentage of moisture recorded was 10½%, but only 60 of the 2,110 packages held less than 12%. C. W. SORENSEN in *New Zealand Dairyman.*

How He Succeeds In Dairying.

A McHenry Co. Ill., farmer writes the following letter to the Practical Farmer giving his ideas and practices in the management of cows:

"We dairymen here in Northern Illinois know that the only sure road to success in the dairy is by way of kindness.

Having lived on a dairy farm all my life, my mind goes back to the time when as a school boy, I used to have the calves to feed, and drive the cows to and from the pasture; I therefore speak from experience. It was then I learned through kindness we can make nearly all domestic animals love us.

The cow may be termed a laboratory, where milk is produced from the food she eats and the water she drinks, and she can not be expected to turn out a good article unless supplied with wholesome food and good water. I insist on our cows having kind and gentle treatment. I never allow them to be dogged or run while going to and from the pasture. We never misuse our boots or milking stool in attempting to reform an unruly or refractory cow.

Nine times out of ten the remedy will make matters worse. If she cannot be overcome by kindness she is worth more to the butcher than for a dairy cow. I give my cows daily out-of-door exercise in winter when weather will permit, but never expose them to severe storms. I salt my cows often; that is the way they like it. If their teats are sore or cut I apply a good healing salve and keep my finger nails trimmed closely. For all these little acts of kindness she repays me grandly.

I take special care in preparing milk for the factory. I get a can of hot water at the factory, and with a liberal quantity of Gold Dust washing powder give the cans, pails and strainer a thorough cleansing each morning, so they will be well aired before using. Milk must be well cooled and scrupulously clean for best results. Do not depend too much on the strainer. If dirt is allowed to get into the milk it cannot be all taken out.

I have drained my slough pasture by ditching. I do not allow them to go to pasture in the spring until the grass is well started, usually about the middle of May. Therefore, there is no mud for them to wallow in. If the udder gets fouled from any cause it must be washed before milking.

I keep the stables well cleaned and liberally supplied with bedding. I use the refuse of shredded or cut corn-fodder for this purpose, as it will rapidly absorb the liquid manure so the barn will be comparatively dry and free from foul odor, which is sure to taint the milk. We air our stables thoroughly each day and keep the mangers clean for the cows eat with their noses in the dish and their breath fouls the food if too much food is given them at once. By observing these precautions our cows keep clean, and with proper care in milking we have clean milk. As a successful physician requires his patients to take their medicine promptly on time, so we, to be successful dairymen, must be good farmers, prompt, systematic business men, and above many things, on time.

We milk, feed and water our cows regularly. I set the alarm clock to ring us up at the same time each morning. The milkers have the same cows to milk all through the season. I never allow changing unless in case of emergency. The milking is done as rapidly as possible after commencing. I water twice per day in yard, from 8:30 to 9:30 a. m., and from 4:30 to 5:30 p. m. I clean the stables twice per day while the cows are in the yard, exercising or drinking. I feed liberally of shredded corn-fodder twice per day, and hay once; also corn meal, ground oats and bran, mixed, from two to six quarts, according to condition of cow, twice per day. I also feed some oil meal or stock food in winter.

Reducing the cost of production is a subject that is puzzling the majority of dairymen. In these times of low prices and close competition nearly all profits depend upon reduction of cost. Our cows are the machines for converting the grains, corn fodder and hay into a marketable commodity, namely: milk. The first requisite for this purpose is a good machine. A poor cow is an unprofitable investment. I plant from eight to ten acres of thick-drilled corn, part being Evergreen sweet corn, which generally proves a good investment.

An immense amount can be raised to the acre, and it is better than hay for winter feeding, after running through the fodder cutter. Also in case the pasture should fail from protracted drouth, it can be fed green. In this way I keep up the milk flow cheaply, which would be quite expensive otherwise I also plant about thirty acres of field corn in check rows. We cut and shock it all, putting 100 hills in a shock. We husk it with a corn husker and shredder, the fore part of November, running the shredded fodder into the loft of cow barn right over the cows, where it will be handy to feed, and in ricks at side of barn. I consider this green, bright, shredded fodder worth as much as the same amount of hay, or more, for milk production. I feed quite a large amount of bran, and as I cannot grow a substitute for it on my farm, I must buy it. I therefore gave my orders for a car load of it. It cost $9 per ton delivered last summer. Now, if I had bought this bran along as I wanted to use it, of our local feed dealers, it would have cost from $12 to $15 per ton, and perhaps I would have had to haul it over bad roads. Now, friends, these are the lines on which I have been trying to reduce the cost of production in keeping my dairy. But in figuring up our profit or loss, I always take into account the increased productive value of our farm from manure. Now there is an endless variety of details which can not be written, connected with our dairy farm; and on their proper execution success or failure very much depends. These must call into action the best judgment of our up-to-date dairymen. I read the best dairy publications. Here is where I come in contact with the wisest and most profitable experiences.

Washing Milk Utensils.

ED. HOARD'S DAIRYMAN:—The time of year is fast approaching, when if proper care is not exercised in keeping all milk utensils perfectly sweet and clean much milk will be lost by souring and much time wasted in washing cans, pails, etc., in which the milk has soured or dried on the sides. It is frequently the practice at creameries to leave the weigh can, milk and cream vats, and tanks unwashed for several hours after using, not realizing that the delay causes extra labor.

At the Kansas Agricultural College dairy a few days ago a number of sample bottles were necessarily left unwashed until the next day. It took just three times as long to wash them as it did on other days when they were washed as soon as the milk was thrown out.

In washing milk utensils, they should first be rinsed out with cold or tepid water, then wash in water as hot as the hand can stand, and finally scalded thoroughly, and then if possible set out in the sun. If more care is used in cleaning the pails, cans, etc., there will not be so much sour milk sent back from the creamery; the patron will feel happier and so will the creameryman.

Kansas Exp. Sta. J. A. CONOVER.

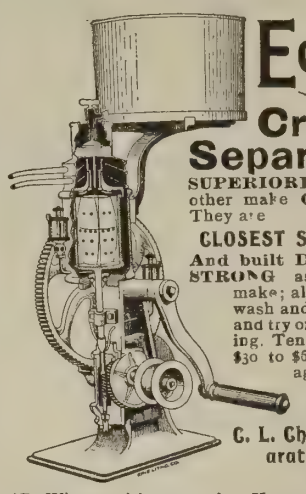
Farm Wagon for only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19 95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.

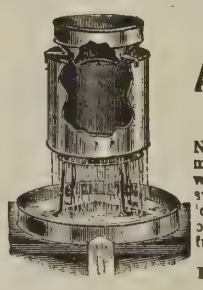


This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

SWAMP-ROOT Is not recommended for everything; but if you have kidney, liver or bladder trouble it will be found just the remedy you need. At druggists in fifty cent and dollar sizes. You may have a sample bottle of this wonderful new discovery by mail free, also pamphlet telling all about it and its great cures.
Address, Dr. Kilmer & Co., Binghamton, N. Y.



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SUPERIORITY over any other make Guaranteed. They are
CLOSEST SKIMMERS
And built DOUBLE as STRONG as any other make; also easiest to wash and operate See and try one before buying. Ten sizes Prices $30 to $500 Reliable agents wanted.
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☞ When writing mention HOARD'S DAIRYMAN.

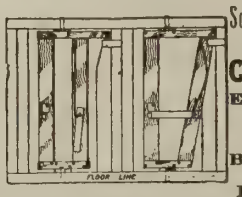


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And Self Closing
Cow Stanchion
Each cow shuts herself in place.
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A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.
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System for Carrying

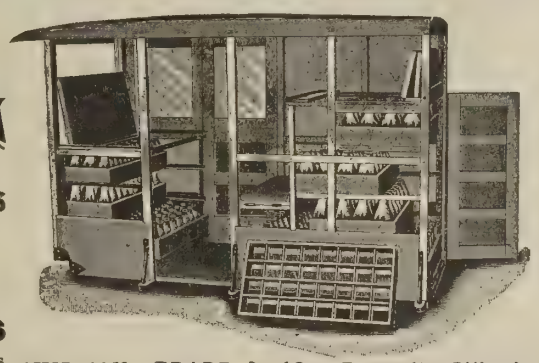
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Low-Down,
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Straight Bottom,
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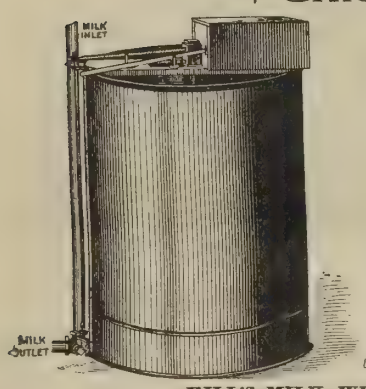
Dairy Wagons



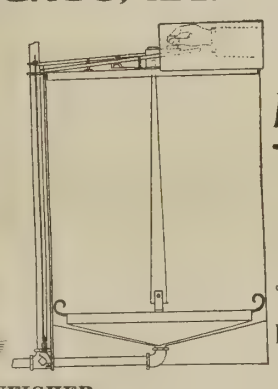
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Oldest and Largest Paint and Oil Manufacturers in the Northwest.



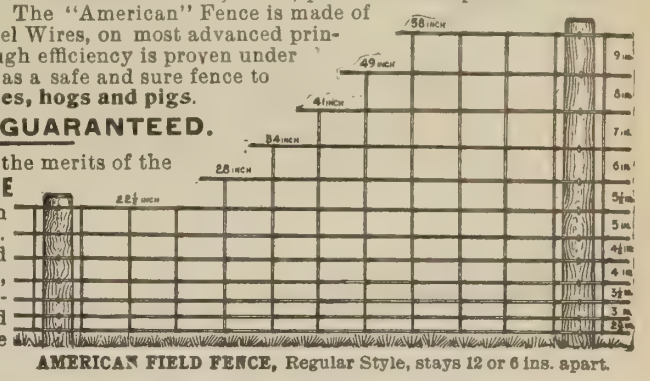
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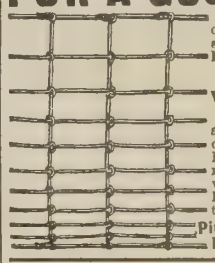
They are made with direct or staggered oval spokes, broad tires, any height, and to fit any wagon. They can't rot, go to spokes and need no tire setting—last indefinitely. There is only one thing better, and that is an

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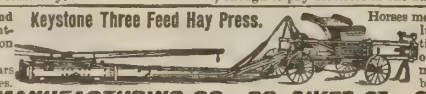
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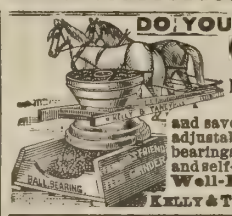
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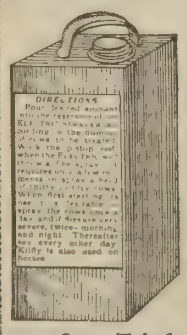
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More Milk, More Money, More Comfort for Cows and Milkmen.

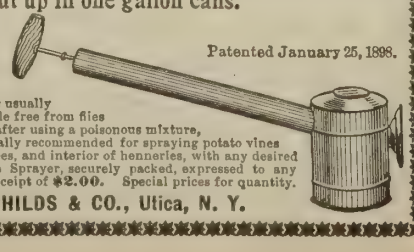
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Applied with Childs' Electric Sprayer.

Protects cows from the torture of flies, thereby increasing the amount of milk. Absolutely harmless to man or beast. Put up in one gallon cans.

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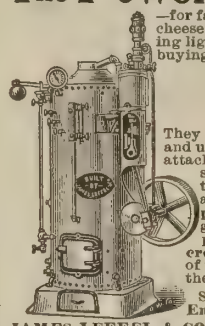


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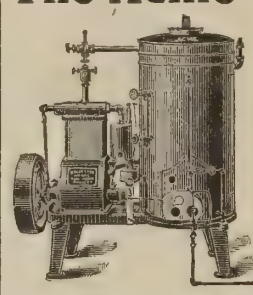
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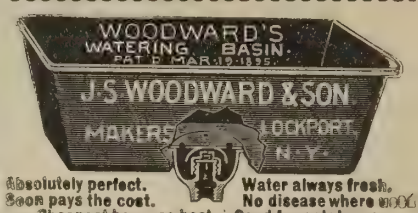
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VOLUME XXX. FORT ATKINSON, WIS., JUNE 23, 1899. NUMBER 19

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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables
IT DOES NOT Create an Odor to Destroy One.
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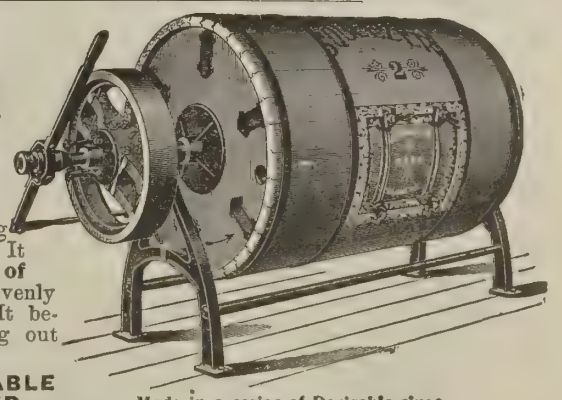
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IT IS SIMPLE, DURABLE AND EASILY WASHED.



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FOR PEOPLE WHO ARE BEHIND THE TIMES. ✓ ✓ ✓

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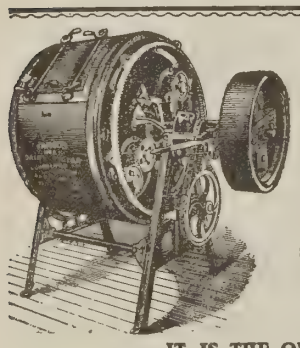
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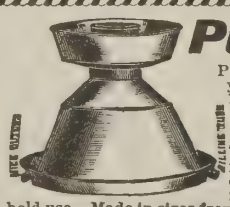
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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worke

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis



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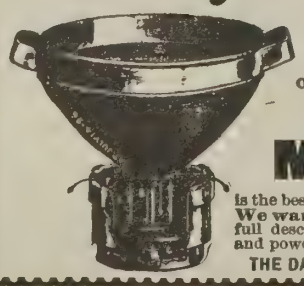
Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

PERFECTION MILK COOLER AND AERATOR

it would **smell sweet, be sweet and remain sweet.** It takes out all animal heat and with it all bad odors of **animal, stable or food.** Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated catalogue and prices on **Farm and Dairy Supplies.**

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is removed from milk by Meloney's Patent Milk Strainer. A new principle in milk straining—practically filters the milk. Yet it's simple—no complicated parts, nothing to get out of order; as easy to operate and to clean as the commonest strainer.

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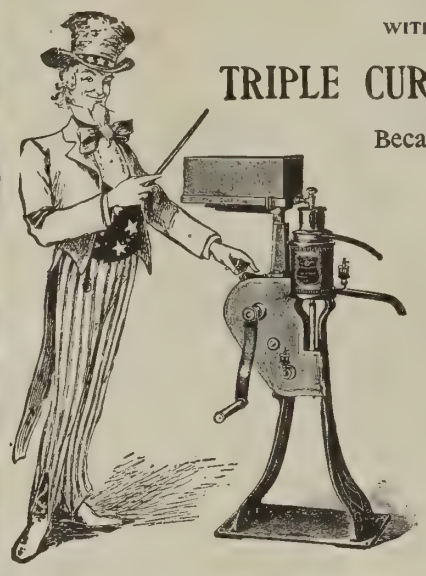
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is the best, most economical device for purifying milk ever invented. **We want a reliable agent** in every dairy community. Write for full description and free catalog of everything for the dairy—hand and power separators, coolers, milk scales and buttermakers' supplies.

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The Improved U. S. Separator



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Because it

Skims the Cleanest,
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And in other important points Excels all other Separators.

It does equally good work in the Dairy or Creamery as testified to by users the country over.

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Remember we furnish everything necessary for a first-class Dairy or Creamery.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

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Gets all the HONORS at the State Convention of Dairymen just held at Salt Lake City, Utah. ✓ ✓



BUTTER

The HIGHEST Score..... 97
SECOND HIGHEST Score..... 96½
Both were salted with **Worcester Salt.**

CHEESE

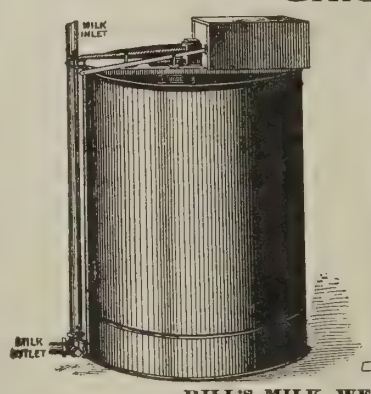
All at the Utah Convention was salted with **Worcester Salt.**

IT TAKES THE BEST TO MAKE THE BEST.

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A. H. BARBER MFG. CO.,

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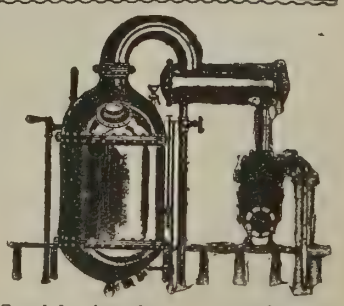
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Refrigerating Machinery For Creameries.

Condensed... Milk Factories



Built Complete By

Special Attachments not shown.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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Cooling Cream With Ice.—Elevating Skim Milk.

ED. HOARD'S DAIRYMAN:—Would like to inquire if there is anything to justify the practice of placing broken ice in cream at any time, or in any of its stages from time of separation to being churned, to cool it to desired temperature. What are the deleterious effects, if any? Has icing cream just before churning bad effects?

When skim milk is taken from separator by curved tube, through the small hole in which it passes and is elevated ten or twelve feet, is not the elevation accomplished to detriment or at expense of power to speed the bowl?

F. E. M.

Schuyler, Neb.

The use of broken ice for cooling cream, is a very common method. It is a very quick and easy way of doing the work and in places where the supply of cold water is not good, the use of ice in hot weather is perhaps the only way in which the proper temperature for churning and the production of butter with a good grain, can be obtained. If all ice were clean, there would be no objection to its use in the cream, but we have seen lumps of ice put into the cream, that when melted, showed a ring of black on the surface of the cream.

Common sense teaches that such dirt is not good for either cream or butter, but so long as water and cream are warm and ice cold and handy, it is probable that ice will be used for cooling cream, regardless of the amount of dirt introduced.

No, but you should get your cream to the churning temperature sooner than "just before churning," if you want exhaustive work.

It takes power to elevate skim milk, whether it is done by the separator bowl or a pump.

Of course there must be enough extra power supplied to the bowl to do the work of elevation, and the greater the elevation of the skim milk, the more power will be necessary.

New York Farm and Dairy Notes.

The Work in the Hay Field.

ED. HOARD'S DAIRYMAN—In this locality we like to begin haying the last week in June. I think all farmers do not appreciate the difference between the early cut and the late cut hay. I think that one third and perhaps one half its value is lost, when the grass is left standing until the seed has formed. If I could begin haying when the first blossoms appear, and cut it all in one week, I think I would get the very best hay.

With a large haying, taking into consideration the uncertainties of the weather, one can hardly expect to finish haying in one, or in two weeks, so I prefer to commence a little before the blossoming time when possible, for I would rather cut the grass when it is too green or immature, than when it is too ripe. It is the very best economy to feed early cut hay—hay that contains in the stalk, all the nutritive elements, a part of which, at a later stage of growth, may pass into the seed. With the early cut hay the stock will require less grain to make the same growth, or produce the same quantity of milk.

It is only the older men that realize how the work of haying has been facilitated by labor saving implements. Forty years ago about the only haying tools were the scythe, hand rake and pitch fork. Now the latest improved wide cut mowers cut the grass at the rate of eight or ten acres per day, the hay tedder soon fits the hay for raking, and the new side delivery horse rake places it in heaps ready for loading on the wagon, or on level, smooth ground, one may use the hay loader which takes the hay from the ground as left by the mower, if the hay is heavy, or from the windrow, and loads it on the wagon. The hay can be unloaded with the horse-pitchfork, thus avoiding all the hard work of the old way of haying.

In these times all farmers use more or less of the improved haying implements, according to the condition of their ground and their available capital. With the implements we have for storing the hay crop so rapidly, it hardly pays to mow grass, unless we have reason to expect a few days of good hay weather. The weather reports which are now sent to most of the post offices will be of use to many farmers in planning their work, and farmers living near the post offices should watch these reports closely in haying time. The clover needs special treatment in curing, to make good hay. When rightly managed, it is the best hay we have, and its special value is for feeding with ensilage, for it is rich in protein that helps to balance the excess of carbohydrates in the ensilage.

The growth of clover on our farm has been very large, and our plan has been to start the mower when we thought we could expect two or three days of sunshine, after the dew was off in the morning, and mow until noon. In the afternoon, the clover cut in the morning was dried all we could by tedding it, and just before night, was raked and put in small heaps. If the weather continued good, the hay was left in the heaps for two or three days before drawing to the barn. A few hours before drawing them the heaps were turned over and opened to give the hay better aeration and exposure to the sun before storing it. This method makes better hay than the one of leaving it as it is left by the mower to cure.



MADAME BISHOP, A. G. C. C. 2724.

Yield of milk in one year, 7,699.2 pounds. Butter, 427.4 pounds.
Property of GEO. C. HILL, Rosendale, Wis.



SUKE OF ROSENDALE, A. G. C. C. 6520.

Yield of milk in one year, 6,328.9 pounds. Butter, 427.1 pounds.
Property of GEO. C. HILL, Rosendale, Wis.

WHAT TO DO WITH THE SKIM MILK.

On many farms where butter is made or the milk is taken to the butter factory, and the skim milk returned to the farm, it is a question with many as to the most profitable use to make of it. Shall we feed it to hogs, calves or poultry? The skim milk is certainly the most valuable by-product of the dairy, and we wish to utilize it in a way to realize the most from it. The best disposal of the skim milk will depend on one's circumstances. Whether he shall feed hogs, calves or poultry, depends so much on the home market for them, that it is largely a local question.

As I am situated, I can get the most from the skim milk, to feed it to poultry, but of course I advise raising the calves that are needed to replace the cows in the dairy, that fail to be profitable. Farmers having plenty of skim milk for chicks, and a large run for them where they can pick up worms, insects, seeds, etc., can grow chickens at a small expense. For my chickens I can get ten cents per pound, and for pork or veal I could seldom get over five cents, and I think it costs no more to produce the pound of chicken.

It is more especially the farmer who keeps a small dairy who can make the poultry business in connection with it, profitable. The hens usually pay well that are fed skim milk, and it is very valuable for chickens because it is rich in bone and muscle making material. The cream that is removed is mostly fat, which can be supplied to make a balanced ration by feeding more corn in connection with the skim milk. When feeding skim milk to chickens, I feed only the curd, for there is little value in the whey. If I were a young man with only capital to buy a small farm, I would think that in the right location the best opening for me would be to buy a small dairy farm, on which I could keep as many cows as I could care for alone, and keep sufficient poultry to consume most of the skim milk. This is a question that should be well considered; how the most can be realized from this very valuable by-product of the dairy.

W. J.

Delaware Co., N. Y.

A CLEAR DEFINITION.

Judge Stockbridge, of Baltimore, seems to have a very clear understanding of this oleomargarine question and the law which is aimed at its sale as counterfeit butter. In a charge to the jury in a recent case in the city, he said:

"The offense consists not in the manufacture and sale of the article, but in the manufacture, sale, or offering for sale of it 'in imitation or semblance' of natural butter; that is, the section is aimed at the prevention of the perpetration of a possible fraud upon the public."

The above opinion is the gist of the sentiment of the dairymen of the United States, and is the animus and inspiration of all their effort to secure laws, both state and national, that shall diminish the sale of a fraud and deception.

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THE average cow with a beef tendency is going to put her surplus food on her ribs and back, rather than in the milk pail, and no method of feed or handling is going to prevent it. The small amount of fat which overflows into the milk pail, is accidental rather than intentional; it being easier to make tallow than butter, she follows the easiest path.

The dairyman has the pleasure of feeding such an animal for from four to ten years and gets as his return a small amount of five cent beef and three cent fat—losing at both ends.

THE cow that was sheltered from the north winds of last January by a rail fence and fed a ration of frozen corn stover and straw, is now fighting flies and walking many miles a day, picking up her living from an old, worn out, dried up pasture. Her owner knows that "dairying don't pay," in which conclusion he is perfectly correct. It never will pay under the conditions of feed and care under which he compels his cows to live.

The best cow in the world cannot make profitable returns without the best of care and feed. What a poor cow will do on poor feed and worse care, needs no prophet to foretell.

IN Mr. Wheaton's Canadian Dairy Notes, on page 356, of last week's issue of the DAIRYMAN, he speaks of a United States firm that has got itself justly into trouble by shipping 150 packages of "ladle-packed" butter to England, that contained 15 per cent of foreign substances. On this point Mr. Wheaton observes:

"It is hard to conceive that an ordinary creamery, even on your side of the line, would be guilty of palming off such "spurious" goods upon a reliable shipper, as a pure quality of butter, and yet it has been done, and it is the doing of this kind of thing that is ruining the export butter trade of the United States."

As a rule "ladle" butter is not handled at a creamery. This business is usually carried on in the cities, and the country creamery has nothing to do with it. But Mr. Wheaton's remarks about this constant swindling of consumers by fraudulent mixing and adulteration of food, are everlastingly true.

What with "embalmed beef," "process butter" mixed with poisonous preservatives, oleomargarine colored and sold as butter, "glucose sugar," and hundreds of other adulterations and food swindles, it is a wonder we have any export trade whatever.

Something must be done at once by the general government, to save the commerce of the United States as well as the health of its people, from destruction by this great army of swindlers, who prey like wolves upon every honest industry about them.

FEEDS AND FEEDING.

In the business of dairying, from fifty to seventy-five per cent of the total expense of maintaining the dairy herd is required directly or indirectly for food. If greater profits are to be secured, they must be largely reached by cheapening the cost of food.

In regard to this matter of feeding dairy animals, Prof. I. P. Roberts said, at a dairy meeting in New York, that to maintain a cow of 1,000 pounds live weight, on clover hay alone, would require thirty-five pounds a day. This would furnish of digestible material 2.38 pounds of protein and 13.86 pounds of carbohydrates (including fat multiplied by 2.25), very nearly a standard ration. Fed through the stabling period of two hundred days, the cow would consume three and one-half tons of hay, the cost of which would be $24.50, an amount nearly equaling the value of the products of many single cows. Then, too, the cow would eat thirty-five pounds of hay a day with difficulty. In addition, the cow would require pasture for one hundred sixty-five days, which would add about $6 more to her food cost. At a yearly cost of $30.50, the ordinary cow would give little profit.

Under the foregoing conditions, it would require about five acres to keep one cow a year. With mixed hay or timothy, the results would be even less satisfactory.

One subscriber of the DAIRYMAN writes us: "I wish you would stop figuring up so much on us fellows, who don't feed with sense or who don't have cows that are worth their feed. Your confounded figures make us uncomfortable, and we are bound to be comfortable, if we don't make a cent."

DILUTION SEPARATORS.

Inquiries are constantly being received regarding the dilution or hydraulic separators. It is evident that large numbers of them are being sold and that claims are being made as to their efficacy in separation, which are unsupported by facts.

The dilution separator is a tin can with a faucet at the bottom, and more or less complicated in construction by tubes for the addition of water or as a means of introducing air, or other so-called improvements. The tubes add nothing to the efficiency of the machine, and only are a pretext for charging $10.00 to $15.00 for a tin can, which without them would be worth one to two dollars.

Everything claimed for the hydraulic separator, can be equally well done in a shot gun can, and if water below 40° F. can be obtained, or ice to bring the temperature down to 40° F., the thoroughness of separation will be far superior to any hydraulic separator.

The only case where there is any advantage in using the method, is in milk from cows far advanced in lactation, and then the efficiency of the process is about equal to deep setting in ice. They are no more efficient than the old-fashioned shallow pan setting, with the disadvantage of greatly increasing the volume of skim milk to be handled, and in case hot water is used, as is sometimes advised, there is the added inconvenience of the rapid souring of the skim milk.

If any dairyman wishes to try the method there is no patent to prevent his using the process to his heart's content. Numerous patents have been granted on the various forms of cans used, but these are of no particular value, except to their owners, and certainly are not worth to any dairyman the $10 00 or $15.00, which are asked for the so-called "hydraulic separators."

WHY HE BREEDS JERSEYS.

One man likes Holsteins, another Guernseys, another Jerseys, and the fourth Ayrshires. Quite generally, it is a matter of taste, or may be prejudice. Yet it is wise for a man to follow his taste in selecting a breed, for there is a subtle law involved here, whereby an animal always does better with an owner that likes her.

But it is always interesting to read or hear a reasoning man's reasons for any course of conduct. Mr. C. I. Kingsbury, of Oswego, N. Y., writes the *Jersey Bulletin*, giving the following statement, why he prefers Jerseys to any other breed:

When I began, about ten years ago, to manage the dairy, which during my boyhood I had helped to raise, and which in turn had helped raise me, I thought we had some pretty good cattle, and supposed from my reading in farm papers, and what I could learn at farm institutes, that all I needed to do was to have a winter dairy to make money. Accordingly, I had five cows fresh in the fall, and with five farrow I commenced winter operations. The cows gave 100 quarts per day, the butter was sold in prints for 25 cents per pound, and everything was all right, except the amount of butter; from those ten cows and 100 quarts of milk I got less than six pounds of butter per day, usually a fraction over five. This $1 25 to $1 40 per day would leave but a few cents a day after paying for the bran and meal bought, to say nothing of hay and care of cattle, labor of butter making, etc.

About this time, a milkman wanted some milk at three cents per quart, and that three dollars per day looked very large. I learned, at this time, that a cow may be valuable for one purpose, and worthless for another, and that a liberal milker may be a poor butter maker. This does not sound as new as it did twelve years ago, but there are people who have not learned it yet.

At a venture, I bought two Jersey heifers; it took the price of eight heifers, of about the same age, sold for beef, to buy them. I could only sell milk for a few weeks—I must make butter most of the time; those eight heifers would, probably, not make any more butter than their dams. The more I owned of them, the poorer I would become; invested in two Jerseys, I should have six less mouths to feed at least. The others are all right to sell for beef, but I wanted something that would not bankrupt me during its life.

The first heifer, Edith of Suwasset 60486, freshened at eighteen months; gave eighteen pounds of milk a day, which made eighteen ounces of butter; the next year twenty-eight pounds milk per day, and twenty-eight ounces of butter; the next year, from thirty to thirty-five pounds milk per day, of the same richness.

The other heifer, May Regina 65897, her half sister, was fully as desirable a cow. I sold her as a 3-year-old, and her owner reported, the next year, a test of sixteen pounds in seven days.

There is much difference between feeding one cow for two pounds of butter per day, and feeding three cows for the same amount—that difference is the reason I have continued to breed Jerseys.

Farm Experiments.

ED. HOARD'S DAIRYMAN:—It is no disparagement to the work of our different experiment stations, to say that there is a kind of investigation which they can never perform. The principles on which successful farm practice must depend, may be properly and effectively studied by these institutions, but in the practical application of the results thus secured, there remains much which can only be successfully accomplished on the very farm to which the principles are to be applied. The infinite variety of soil and climatic conditions, to which all crops are necessarily subjected; the wide differences which even individual farms offer, preclude the possibility of securing in any one locality, the detail of data which shall control successful practice in all other localities and farms, of the same political division. Upland and lowland, sand and clay, hard wood lands and pine lands, dry lands and wet lands, all offer local peculiarities demanding variations of practical treatment, which cannot be studied under opposite conditions, and which render the results obtained under one condition, wholly inapplicable to another.

It seems, therefore, obvious that our official stations should devote a larger part of their efforts to the elucidation of principles, and to the developement of schemes and systems for private investigation, and less time to the routine of plot trials, and variety tests, which can have only local application, and many of which are better and more effectively conducted by parties whose commercial interests are involved. To illustrate:

The opinion or judgment of a reliable nurseryman or seedsman, always obtained as a result of personal experience and trial, is usually a safer guide to the selection of trees, plants, seeds and fruits adapted to the locality in which he is located, does business, and has financial interest, than any advice furnished on the same points by the experiment station located, possibly, many miles away, and with soils and climatic conditions quite different from those involved.

It is not possible to suggest a plan of individual experimentation which shall be universally applicable, but a few suggestions as to the conditions to be met, and the methods best calculated to secure trustworthy and useful results, seem feasible.

The location should be, as nearly as possible, the average soil of the farm, as convenient of access as possible, and with an even aspect and drainage. The area devoted to the purpose must be controlled by the extent of the work contemplated. The site should be carefully divided and measured into plots, between which vacant spaces of not less than three feet in width must be left to prevent, as much as possible, the effects of the treatment of one plot from effecting the results of its adjoining neighbors. The size of these plots will chiefly control not only the area required, but also the reliability of results.

The common mistake in opinion and practice, is that of too large plots. Really, the smaller the plots up to the minimum of practical working with farm methods and implements, the better; one-tenth acre may be given as a maximum area, and one-hundredth acre is probably a better, and possibly the minimum feasible size of plot. The reason for this fact is not far to seek. Results must all be based on averages, and it must be obvious that 100 trials on 100 plots occupying an acre of ground must give greater probability of average correctness of conclusion than though the results were secured from a single trial occupying the entire acre.

The nature of the experiments to be undertaken will commonly fall within three different groups. Variety trials, for testing promising novelties. Method tests, for the study of methods of cultivation and treatment; and last, feeding experiments, for testing the value of different forms, sources or mixtures of plant foods.

The first is doubtless the least important, and the last class of experiments is that offering greatest prospect of definite and practical results to the experimenter. On this latter point a few suggestions may be useful. Under average conditions it is folly to devote time and funds to the effort of learning which of the three essentials, phosphoric acid, nitrogen or potash, when used alone, is most productive on any given soil. Economy dictates the use of all three; all average soils require all of them, and the

problem is in what proportions are the best crops produced?

Probably the most complete line of fertilizer experiments undertaken in this country, is that started in 1895, at the Experimental Farm of the North Carolina Horticultural Society, located at Southern Pines in that state. The work is under the immediate supervision of the State Agricultural Experiment Station and the object is to determine the best method of manuring and cultivating fruits and vegetables. The experiment farms are practically in the center of a tract of many thousands of acres substantially the same, so far as soil and climate are concerned. The system of fertilization adopted includes different combinations of phosphoric acid, potash and nitrogen as well as a study of the action of these food ingredients in different forms. The results from this farm will, no doubt, be of great value to the agriculturists of this country. H. E. STOCKBRIDGE.

Cost of Starting a Dairy of Fifty Cows.

I have received, from a correspondent, several inquiries in connection with a proposed dairy of fifty cows, that he thinks of establishing. I will be very glad to assist him, if I can do so, to get his dairy started. I believe dairying the most promising line of farming for this section.

I do not oppose the editor's well-known enthusiasm for hay farming, nor do I advise everybody to go into dairying. Cotton can be grown at a profit, even at present prices, under certain favorable conditions. I do not propose, in this article, to discuss the relative merits of hay, cotton and dairying. I only mention the three systems to encourage Mr. N., and perhaps others who are thinking of going into this comparatively untried branch of Southern farming. I do not believe it possible to make a failure if dairying is gone about in the proper way.

I will not repeat Mr. N's. inquiries, but my replies will indicate the points he asks information on.

To properly house fifty milch cows will require a room 36×75 feet, but as Mr. N. will, no doubt, want to keep his heifer calves, he will need a much larger stable room. His calves will average, one year with another, about half bulls and half heifers, but allowing for inferior calves and for deaths from various causes, he will not raise more than about fifteen a year, so that he will need room for, say, fifteen calves and fifteen year-old heifers. At two years old they should come in, and either go on the market as milch cows, or what is better, take their place in the dairy and some of the less valuable of the old cows be sold.

To properly house these thirty young things, will require an additional forty feet in length to the barn. He will need about ten box stalls for cows near calving, and for bull and work horses, so that his barn should be 36×150 feet for the accommodation of his animals. If silo is built inside the barn, enough additional space must be provided for it. However, I do not advise loca ing the silo inside; just outside, but immediately in connection with barn, is the best place for this very necessary structure.

This barn may be built in one continuous length or otherwise, as the location or fancy of the owner may suggest. Provide easy approaches to second story for convenience in hauling in hay, grain, etc. It is more economical to haul feed and bedding right into the barn than to undertake to get it there by hand work. When it has been stored it is very little work to get it down to the cows through openings at convenient points.

This building can be erected for $1,000, for a plain box job, on up to a higher figure if desired. This estimate is for a plain serviceable house and is suited to the very best and most economical handling of the cows mentioned.

If I were building a barn of this size and had money to spare, I would spend considerably more. I would frame and weatherboard throughout, and would ceil the lower or stable room with first-class matched ceiling. Would make all gutters and hall floors of cement, and in every way make a first-class job.

I know that most southern writers claim that we do not need winter protection for our cattle, and that they are better for a little rough weather experience, but my observation has been very different. Georgia or Alabama cows need quite as good housing as those several hundred miles further north. While I advise good buildings, when they can be afforded, I would not discourage any one who cannot afford to build them. Dairying can successfully be carried on under comfortable sheds for the cows and cheap storage room for feed but would be more expensive for labor and attention.

I would build for this herd one 300-ton circular silo. If very sure of good pasturage through the summer months, a smaller silo will do. But pastures generally are so unreliable that it will pay to put up ensilage for the entire year and not depend on pasture at all One acre will produce more cow feed if well cultivated than five acres of the same land in pasture. The dairy building should consist of two 16x16 feet rooms above ground, one for storage of shipping boxes, salt, butter. paper, etc , and the other for separator and for washing tinware, etc. There should be a cellar or basement 16x16, eight to ten feet below the surface of the ground, for churning and taking care of cream and butter. This cellar should be lined and floored with gravel and cement; should be drained and provided with pump, etc. This building will cost about $200.

As to comparative cost of feeding ensilage and dry fodder, I will only say that if you do not expect to feed ensilage do not go into dairying. Ensilage is succulent, appetizing and healthful. It is less expensive to handle, requires less storage room, and is practically all saved. Without having made any careful trials, I have no hesitation in saying that one acre of ensilage is worth fully as much as two of the same corn cut and dried. By careful selection you ought to be able in two or three years to have a herd that will give you 300 pounds butter each per annum. Buy a first-class bull and raise all of your best heifers. Keep daily account with your cows and sell every one that falls below 250 lbs. per year. Kill bull calves on sight. I have never kept account of what it cost to raise calves. Only about one in five bought cows are worth keeping, while home-raised heifers from a good dairy bull will nearly all be valuable enough to keep. At least four out of five will be better than their dams, and not having a market for skim milk you can do no better than to raise these heifers. Every mature cow will make from ten to fifteen two-horse loads of manure per year, depending on how long they are kept up and amount of bedding used. This manure is probably worth about $1.00 per load. The chemist no doubt would rate it higher. But I do not think it necessary to count manure values. Be sure to save all, both liquid and solid, and apply to crops and count what you sell only.

The same rule will apply to skim milk and buttermilk. They are rated by various authorities at from 15 to 35 cents per 100 pounds for feeding. But I do not see why we should hunt up a fictitious price for these products, when there is no expectation of selling them. Feed skim milk to calves and heifers and buttermilk to pigs. I much prefer feeding calves than pigs. It will take no more feed to raise a two-year-old heifer than a one-year-old pig. The heifer will be worth from $25 to $50. The pig from $10 to $15. The heifer will be an interesting, lovable animal. The pig a filthy, grunting nuisance.

The amount of land needed to carry this herd will depend on how fertile it is; twenty-five to thirty acres of good land will be enough to grow the ensilage needed; twenty-five tons each of pea hay and oat straw or crab grass hay, will be needed to feed the milch cows. The heifers and calves will need about one-third more. Milch cows will need about four pounds cotton seed meal and four pounds bran each, while giving milk. Calves and heifers will need very much less, probably an average of half-pound of each per head, per day.

The most satisfactory plan that I have yet tried, is to have all barn work done by contract. A family of one man and three children from ten to eighteen years old, is enough for a herd of this size. Make it their duty to do everything in connection with the cow, from feeding on through every conceivable service that comes, up to milking and delivering milk at dairy. I pay my barn man 15 cents per 100 pounds for all the milk he gets. This pays him for all his services, and as his pay depends on the amount of milk he gets, he is interested in having the cows do their best. All the work is done by himself and minor children, and pays them about $35 per month, besides two gallons of skim or buttermilk per day, that is furnished him without charge. Counting everything, he makes about $500 per year. Dairymen will cost from $200 to $300 per year, according to experience and skill.

He will need a No. 3 Baby separator, a small engine and boiler, churn, butter-printer, tinware, etc., for the dairy; ensilage cutter, trucks and milk-cart for barn. These will cost five to six hundred dollars.

It will pay Mr. N. or anyone else that is thinking of going into this business, to visit some established dairy before doing anything. He can pick up more information in a couple of days by being on the ground than I could write in a month. A few dollars spent investigating will be better than a hundred experimenting.—W. L. WILLIAMSON, in *Southern Cultivator*.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary, for this purpose.

EFFECT OF ACID ON CHEESE.

What is the effect of acid in milk, on cheese?

Albany, Oregon. W. R. S.

It is presumed that the acid meant in this case is the lactic acid, produced by the action of the lactic acid bacteria on milk sugar.

Aside from the action of fermentation on the casin, dilute acids or alkalies have a solvent action on the curd, and cause the particles to adhere when piled. In Cheddar cheese making, the lactic acid converts the curd into a more or less plastic condition, in which the particles adhere readily to each other. The acid is probably one of several agents which unite in preparing the curd for the press. It also shows the presence of the lactic acid ferment, and thus indicates the absence of the objectional putrifactive and gas producing germs

BUTTER FAT AND BUTTER—MELTING POINT OF BUTTER.

Will you please give the average amount of butter fat your butter maker takes to make a pound of butter of 82%, and what is the average melting point of the butter?

Opunake, New Zealand. W. P.

It depends on the source of the butter fat. If in the milk, one pound of fat will make, on an average, 1.17 pounds of butter. In actual practice this may vary several per cent above or below this figure, depending on the amount of water left in the butter after working, and the losses which occur in separating and churning. If the fat is in the cream, the yield will be between 3 and 4 per cent higher than the above.

The melting point changes slightly, according to the food and period of lactation, but the average is 96° F.

RYE HAY.

I have a field of rye and want to know how is the best way to care for it to feed to cows, when to cut and how to keep? What kind of feed will corn make cut green into the hay mow instead of silo? Do not the Biltmore people save corn crop this way?

Palmyra, Mo. G. V. S.

To obtain the best feeding value of rye when made into hay, it should be cut just as it begins to bloom. At this time it contains its maximum of nutrition and is in its most palatable condition. As a feed it ranks a little above oat hay, in analysis. Rye has been used in the silo, but without any great success. The stalk grows woody rapidly after blossoming and that, in connection with the hollow stem, renders it liable to mold and spoil to a large extent in the silo.

We do not know what the custom is at Biltmore, in handling corn. But it is certain that green corn cut into the hay mow would be better fitted for the manure pile rather than a cow feed, when it came out keeping green corn successfully depends on its being kept in an air tight space, whereas a mow would be just the opposite.

SALTING AND WASHING BUTTER.

Please tell me what is the most modern plan of making butter. How much salt per pound; also let me know if it is best to wash it? If you cannot answer, kindly tell me of some book devoted to butter making.

Cocoa, Fla. A. L.

Our correspondent asks a question that would require more space than is permissible, to answer, fully. The most satisfactory way for him to do, is to obtain "American Dairying," by Gurler, and "Milk and Its Products," by Wing. They can be obtained at this office for one dollar each, post paid.

The amount of salt used is between ¾ to 1 ounce per pound of butter. The salting is much lighter than formerly, and the trend is towards a lightly salted butter.

One washing is sufficient, although some good butter makers do not wash at all. The advisability of washing, depends on the market. Well washed butter has less flavor, but will keep longer than the unwashed.

PARA GRASS AND TEOSINTE.

You would oblige me by giving, through the columns of the DAIRYMAN, the analysis of the Teosinte which obtained high honors in the Chicago World's Fair, and of the Para grass, which grows abundantly in Jamaica, and most parts of the tropics.

Guatemala. J. MONT..

The analysis of the two plants is as follows:

	Fat.	*Protein.*	*Carbohydrates.*
Teosinte	3.1	7.3	81.4
Para grass	1.27	8.06	71.86

The above is the analysis of the air-dried material, and of course does not show the digestibility of the several nutrients.

SWEET CURDLING OF CREAM.

I would feel much obliged to you if you would give me cause and remedy for cream loppering in a few hours after being separated, while it remains sweet. After a day or so gets lumpy, and has an unpleasant taste. The cream separated in the evening is worse than in the morning. Cows are on pasture, where there was clover and timothy last season. F. D.

Baltimore Co., Md.

Sweet curdling of milk or cream, is due to a class of bacteria which sometimes get the upper hand of the normal lactic acid germs, and cause a fermentation without the formation of acid.

The curds produced by such bacteria are quite different in appearance and taste from the normal sour milk curds. There is no sour taste and the curdling is more rapid than in the case of the regular lactic acid fermentation.

On being allowed to stand the sweet curds undergo a digestion or solution of the casein, forming jelly like lumps and turbid whey.

The class of germs which cause the above condition are very resistant and hard to get rid of, and in some cases have been known to resist a continuous application of steam for six hours. The germs are found in dust and dirt and more especially in mud holes, from whence they are easily transferred to the cow's udders, and thence to the milk pail.

To get rid of them, see that everything connected with the cows and dairy is thoroughly cleaned; keep the cows out of any mud holes, where they may become muddied and thus act as carriers of the objectionable germs.

Finally, as these germs are sensitive to the presence of acids, set up a germ war, by the use of a good, strong, clean, lactic acid starter; until you get the upper hand, and your cream becomes normal again.

Thorough cleanliness and the use of a good starter will get rid of the trouble.

More About Which Is the Better Cow.

Inquiries. Answers. Criticism.

We have the pleasure of submitting below three communications, looking to a solution or explanation of the reasons why so large a proportion of the answers in regard to the two Guernsey cows were erroneous.

The first is a series of

PERTINENT INQUIRIES.

ED. HOARD'S DAIRYMAN:—I am like the man who, when told that facts did not support his theory, replied: "So much the worse for the facts.

Now since we have entered upon a discussion of those two cows, let us learn all that we can about the whole subject.

How do the two cows compare in size?

How long was the previous period of lactation of each and how long did each go dry before the record?

At what time during the record was each one bred again?

What is the form and character of the escutcheon of each? I will guess that Rose's is something like No. 1, and that Gem's is more like No. 2:



I confidently expect that the answers to these questions will justify the decisions of us eight to one.

Michigan. W. C. HUNTINGTON.

Pending the arrival of the full and courteous reply from Ellerslie Farm, we received the subjoined communication from Mr. Donaldson of Nova Scotia, wherein he very justly sets forth some of the invariable difficulties connected with

JUDGING COWS FROM PICTURES.

ED. HOARD'S DAIRYMAN:—Your interesting discussion lately as to which was the better cow, Villet's Gem or Rose of the Quartiers, reveals some important facts to me as doubtless it will to a good many of your other readers.

I must first congratulate you on the new departure which this discussion has brought about. I really think it most important for readers of our agricultural papers to take part in discussing different topics and especially so when the editors bring about such important discussions as the above.

Of course we must all make some allowances for pictures, for no picture can fully show a cow as she really exists; still we can get a fairly good representation by them. This judging of dairy cows has been particularly interesting to me as the result of this competition seems to confirm my views on this subject, viz: that it is extremely difficult to judge dairy cows merely by their external appearance.

In common with the majority of your readers, I too think I should have given the preference to Rose of the Quartiers, as being the better cow in her general make up and dairy conformation. Yet in view of their actual records during the past year (supposing they had had similar feed and calved about the same season of the year) I would undoubtedly pay the higher price for Villet's Gem as a dairy cow, and I am doubtful, Mr. Editor, about your suggestion that they may reverse these records another year.

I have kept a milk record of my cows for some years past and I think I could successfully defy any dairy judge to come into my stable and place my cows as to their actual milk yields. Now, why should this be so, if our system of dairy judging be altogether correct and the so-called dairy conformation be all that is necessary?

Why should not a good dairy judge be able to pick out the best cow in every stable? Simply because I believe there is a certain individuality in cows—call it will force or nerve power or whatever you like,—some inherent living power that marks the individuality of cows.

No two cows are just alike, no matter how similar they are made. How ridiculous to compare a living dairy cow to an inanimate lifeless machine, and yet that is what we are constantly hearing and being taught in dairy literature and in exhibition show rings!

See how most of your readers were deceived in "Villet's Gem" and "Rose of the Quartiers", and yet the former gave 925 pounds more milk. And is not the same judging carried on at all of our show rings, dairy conformation being the sole standard of judging?

Exactly the same as buying a cook stove; you pick out one that looks as though it would serve your purposes the best—that will bake well, that is the most convenient shape, that will probably be the most economical in fuel, etc. There is no living force to be taken into account, no capricious appetite to be looked after, no health to be preserved, no likes or dislikes to be taken into account as there is in a living dairy cow.

What would you think of hiring farm laborers just from their external appearance?

Do you think the best built man physically, even generally performs the most labor? I think not. Now I should say there was more similarity between a cow and a man than between a cow and a stove.

Don't misunderstand me. I believe in dairy conformation, but I do not belive it should be the sole standard of judging. Neither do I think we should judge cows exclusively by their actual milk products. But I do believe in breeding only from what is considered the best dairy shaped cow, provided her actual milk yield is also satisfactory, or up to a certain standard.

In no case would I breed from a cow, no matter how perfect her dairy shape, provided her actual milk yield was small. Should not this be more the standard of judging in our exhibition show rings?

JOHN DONALDSON.

Port Williams, N. S.

We quite agree with the general propositions submitted above, and indeed, on more than one occasion, have expressed similar views. There *is* "some inherent living power that marks the individuality of cows," and differentiates them from insensate machines. With the living animal before us, to be viewed from all sides, and her every motion and pose considered, we can gather some hints as to this temperament, that do not show in a picture and more particularly in a photograph.

Pedigree (which is but another name for breeding), and training have much (possibly everything) to do with the origin and development of temperament, but nature is constantly striving to adapt form to function, and hence form becomes the most reliable index to function. We may never be able to judge from form, which is the better of two cows, when one yields 608 lbs. of butter in a year and the other 548 lbs., or detect other *ten per cent* differences, but it by no means follows that form is unimportant, or that we should omit to study its meanings.

And, as we have stated before, it is by no means certain that future records may not justify the majority opinion that Rose of the Quartiers is the better cow. In 1898, she increased her previous butter record by 232 lbs., whereas Villet's Gem gained only 156 lbs. And yet it is to be confessed that her suspicious disposition and the lack of room for a wide, square udder" detract somewhat from the probability of such a result.

The foregoing was referred to Ellerslie Farm with request for as full reply as could be given, not only to the specific questions, but to the general condition, form and temperament of the two cows. Following is the

ANSWER:

ED. HOARD'S DAIRYMAN:—Yours of June 6th, referred to me for data concerning Imp. Villet's Gem 8664 and Imp. Rose of the Quartiers 8654.

Imp. Villet's Gem, dropped her first calf about the time of arriving in quarantine or April 19, 1895 and arrived at Ellerslie about July 5th or 6th, so will not give you record until after she did a year's work.

Her record for the three subsequent years is as follows:

Year	*Lbs. Milk*	*Average Test*	*Lbs. Butter*
1896	5,566	5.62%	394
1897	7,406	5.19	452
1898	9,265	5.58	608

The amount of butter is estimated on the basis of 85 lbs. of fat in the milk making 100 lbs. of butter.

Villet's Gem dropped a calf each year and was a very continuous milker, having been dry this year less than one month.

Imp. Rose of the Quartiers calved March 12, 1895, and arrived in quarantine in April She had her next calf April 15, 1897, and another March 2, 1898. She is now dry, expecting her to drop a calf about July 27, 1899. Her record for the three years is as follows:

Year	*Lbs. Milk*	*Average Test*	*Lbs. Butter*
1896	4,746	5.22%	891
1897	5 676	4.73	316
1898	8,334	5.59	548

Her yield of milk for one month was 1,079 lbs., against 1,540 for Villet's Gem

In disposition, both cows have a nervous temperament, and yet are different: Villet's Gem has confidence in her master and is appreciative; rather looks to you for protection; while Rose of the Quartiers is more excitable, always looking for something to happen. Yet both these cows have had kind treatment for the past four years.

As to milk veins, Villet's Gem's are far superior, she has a better navel development also. Rose of the Quarters has the best fore udder, but she lacks width across the huckle, so there is not room for a wide square udder, such as we would like to see. This, the picture does not show.

As to size, Villet's Gem weighs about 900 pounds; Rose of the Quartiers 1,050 pounds.

They were each bred to drop a calf about once a year, but Rose of the Quartiers was the more difficult to get in calf; as you see it was a trifle over two years between 1895 and 1897. She had her last calf March 2, 1898, while Villet's Gem calved March 21, 1899.

Mr. Huntington has drawn the general shape of the escutcheons quite as they appear. F. E. TRAVER.

Ellerslie Farm.

WHAT THE FARMERS'S BOY SHOULD KNOW TO ENTER AN AGRICULTURAL COLLEGE.

A young man made the following inquiries concerning the amount of education necessary to take up a course in some agricultural college. Prof. I. P. Roberts answeres him as follows:

I am a young man 23 years of age and am working on a stock farm. My desire is to climb to the top of the ladder in the agricultural world. I am preparing myself for a course in the agricultural college and would like to know what books would be best for me to get to read up on, prior to my entering college next year. I have Henry's "Feeds and Feeding," and several other books from different states: also receive farmers bulletins from almost every state in the union.—H. H., Otsego County, N. Y.

Answer by Prof. I. P. ROBERTS.

If H. H. proposes to come to Cornell University to study agriculture, he should try to perfect himself in the ordinary branches and as many advanced subjects as possible. Specific instruction in agriculture should be taken here; and while Prof. Henry's book is most admirable, it can not be thoroughly understood and appreciated without the aid of a living teacher.

We find our students are mainly deficient in two things—English and arithmetic. If a student proposes to enter the regular or four-year course, he must have had somewhat extended and careful training before he enters the university or he will not be able to carry his advanced studies while here. There is not nearly enough stress laid upon the preparatory work. Nearly all the young men who desire to take either the four or the two year course, want to take agriculture first in their course instead of preparing thoroughly for the work and then taking it up later when they have some idea of chemistry and botany, and of what accurate and careful work means.

A progressive young man who cannot find time to fit himself for university work or time to spend a few years in study at a college or university should depend very largely for his instruction on the best agricultural journals. He should have a few books of reference and the bulletins, but these can never be made to take the place of the live, current literature contained in a good journal devoted to rural affairs. Nearly all of these journals now have on their staff a considerable number of trained specialists to whom queries are referred, the answers to which are usually by men thoroughly honest and fully competent. True, it is not possible always to "hit the nail on the head," because the query, of necessity, does not state all the conditions; but I want to emphasize here and now that while some half a dozen books of reference and bulletins are invaluable to the home student, yet they cannot and should not take the place of the weekly agricultural journal.

If H. H. comes to Cornell University and enters any of the agricultural courses he will be met immediately with percentages, fractions, etc., and will be called upon to exhibit his skill in the use of the English language; and since there is little time here to perfect the carelessly trained student along these lines, he should devote his entire time to what is termed the "primary subjects," brighten up, that is, renew his knowledge of arithmetic and grammar. He can get his chemistry, botany, etc., after he arrives at the college, and it is presumed he will have better teachers and equipment at a college than he can find at a high school.

The above answer by Prof. Roberts shows how fearfully deficient our country schools are in teaching the rudiments of an education. Take that one sentence—

"We find our students are mainly deficient in two things, English and arithmetic."

Hundreds of bright farm boys can be found who are good butter makers in a creamery, but comparatively few of them can figure in percentage sufficiently well to properly and accurately make out the dividend for the patrons.

The Short Course boys who present them-

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selves at Madison or Cornell, find to their mortification very often that their arithmetic is so poor that they are barred further progress. The country school is a farmer's school. It is the farmers who are responsible for it, and the kind of teaching that is done in it. What the farmers about it are that will the school be.

It is time that American farmers woke up to a right sense of the cheap, miserable character, in most cases, of the average country school.

Cream Ripening.

[Paper read at the National Buttermaker's Association, Sioux Falls, South Dakota.]

The subject upon which I am to talk a few minutes is a very small one, small because it is something of which the least is known of any part of the science of butter making.

The idea largely prevails that flavor in butter is caused by the way the cream is ripened, providing, of course, that the milk and cream has been handled properly previous to this. If I were able to lay down some definite rule in regard to ripening cream, which, if followed, would bring about the same result every time, then I believe the mysteries of this hidden secret would be revealed, but there is no such rule, no dairy professor or dairy student has been able to tell us how to ripen cream so that we might be sure of the same results two days in succession.

We may be lucky, if you will allow the term, and win the sweepstakes at a convention, but the next time we make a convention tub, by using the same temperatures, the same acidity, and all other parts of the work exactly the same, we find a vast difference in the quality of the butter. Why is this? This is the great question which I am unable to answer. If we only knew, the process of ripening cream would be very simple.

To make myself more clear on this point, I will illustrate: My patrons, for instance, bring in twenty thousand pounds of milk one day, which, after a careful examination, I pronounce of superior quality. I manufacture this milk into butter according to the best improved methods and with good results; an expert scores it 98½. The next day the patrons bring in twenty thousand pounds more, and, after the same careful examination, I find this is equally as good as the day previous. This is also handled just the same as the milk received the day before, but with far different results. The expert scores this 92.

Where does all this difference come in? Is it my fault? Or is there some unseen force working in this milk, of which I, or no one else, has any knowledge? For the sake of argument, I believe the latter theory is correct. The unseen force is the bacteria, which the scientists tell us is in all milk, and, until they can give us some method whereby we can tell just what action they will have on the cream, the ripening of cream will remain one of the dark mysteries which abound throughout this life.

Of course there has been very much light thrown on this subject; we know a great deal more than we did years ago. We have found out that to develop a certain amount of acid will give good results. We have also found that, with some cream, a different temperature will give better results than others.

We have also learned that starters, (providing that they contain the proper germs) will improve the flavor of the butter. But this is about all the new things which we have learned in regard to cream ripening. Therefore, as I am unable to tell you of some new method which I have discovered that will throw the dairy world into a fever of excitement, I will give you my simple method of ripening cream, which has been very satisfactory to me and has brought good returns to my employer. Remember, this is not the only way to ripen cream, for if the question, "How do you ripen your cream?" was asked every buttermaker present, they would probably answer it in many different ways, and each one has had splendid results from his own particular method, so, as I said above, it would be useless for me, even if it were possible, to lay before this audience any set rules for ripening cream that would produce the best flavored butter.

My first thought towards cream ripening, is that of a well prepared starter which is made from skim milk, selected from patrons having fresh cows. Patrons that can be depended upon to take the best care of their milk.

After it is delivered to the creamery, I run it through the separator, as I believe that a starter made with the butter fat taken out is better than that in which the fat is left in. I set this milk away in a fermenting can, and leave it at a temperature at which it will develop a sharp acid, and a pleasant flavor, by the next morning, when it is added to the cream.

I wish to impress upon the buttermakers present that this is a very particular part of their work, not all milk that is received at the creamery is fit to make a starter; and if a starter is made out of poor milk the chances are that the whole day's cream will be injured. So I would advise you that unless you get perfect milk to prepare your starter from, it would be better not to use any at all.

I am a firm believer in starters in ripening cream, and I do not hesitate in saying that thousands and thousands of dollars have been lost which could have been saved, if the butter makers had had a thorough knowledge of preparing starters and using them.

The cream should be skimmed very heavy, and I believe that about thirty per cent fat is about right, for this will give the starter all possible chance of filling its mission. Now there are many buttermakers who use starters, but they get no good results for the reason that they do not use enough.

It is useless to use less than fifteen per cent, winter or summer, and I should prefer twenty, especially in the winter time. I have obtained the best results when the cream was kept at a temperature of sixty to sixty-two degrees until it commenced to thicken, and then cooled down to the churning temperature, say fifty-two.

I have also found that there is a certain time which the cream is churned at the best flavored butter can be made. There is no time before or after this when the results will be as good as at this certain churning time, so I would advise you in conclusion not to depend upon your own judgment to determine when this certain time is, but to use some sort of an acid test which will show you exactly how much acid your cream contains, and then when you ascertain what degree of acidity gives the best results, do not change your methods, but keep it the same at all times.

M. W. ASHBY.

Hazelton, Iowa.

Comments and Queries from Robinswood Farm.

The Ventilation of Cow Stables.—Antiseptic Injections.—Cold Applications for Udder Inflammation.

ED. HOARD'S DAIRYMAN:—The need of thorough ventilation in cow stables is, of course, of the first importance. Purity of the air breathed is necessary to insure the best of health in cows as well as in man. The vital energy thus secured is one of the most potent preventives of tuberculosis and in inducing an active profitable function in all of the organs working for man's profit in the cow.

A neighbor of mine, whom I consider the most intelligent dairyman of our region, purposely left half inch cracks in his barn boarding on the south face, and did not board in his tie-up, simply to secure this healthful condition for his herd of pure bred Jerseys. He preferred to feed more food than to shut out fresh air and run the risk of tuberculosis. This disease, however, is uncommon on our Gilmanton hills, which are as noted for healthfulness as they are for their rocky soil.

Nevertheless, one should not neglect the matter of ventilation, because one's cow barn is in an exceptionally healthful locality. There are a number of methods of securing this aim and yet keep the cows comfortably warm.

The system lately shown by Prof. King in the DAIRYMAN, from a theoretical point of view, seems to be open to criticism in that its working is somewhat in opposition to natural forces. It may be allowable to criticise any plan which is based on the assumption that the carbon dioxide exhaled from the cow's lungs settles to the lower level of the stable, and that hence, flues which take their inlet from near the floor line should be provided. Such provision is not needed. As a matter of fact, the expansive, diffusive force of all gases in connection with its heated condition as it comes from the cows' lungs prevents any such settling and accumulation of carbon dioxide, and these forces can be depended on to carry off this gas from openings at the top of the stable.

Again, the presence of this gas in reasonable amount is not particularly injurious, as it is always a considerable constituent in all animal bodies. Furthermore, there are certain organic effluvia and emanations from the lungs and body which are relatively more injurious and devitalizing to health and which are found mostly in the higher strata of the apartment occupied, and which it is desirable to get rid of without re-breathing.

Then it does not seem a good plan to introduce the fresh air from behind the cows, on account of the draft produced over their bodies. This cools off the bodies of the cows unnecessarily, and this is particularly objectionable where the surface of the udder is concerned, in the tissues of which a high temperature is needed to secure the greatest activity of function.

If it were practical to heat the incoming air by a line of hot water pipes located against the barn wall at the rear of the cows, there would be no such objection; but it is at least questionable if such an arrangement would ordinarily pay, and is out of reach of the average farmer. When the warmth of the cow stable is dependent on the heat produced by the cow, it would seem best to introduce fresh air as near the nostrils of the cow as may be possible, and then carry off the effete respired air in flues or otherwise, as directly as possible at a point above and not too far from the cows' heads; leaving the bulk of the air in the tie up and surrounding the cows bodies as little disturbed by air currents as possible.

In this way it would seem that the greatest amount of fresh, pure air could be enjoyed by the cows with the least expenditure of heat created by the cows.

The particular means for securing ventilation must, of course, vary according to the structure of the cow stable.

In the usual New England barn, which has a large middle driveway with abundant openings to the roof, with a hay bay on the coldest side and the low-ceiled tie-up on the warmer side, the problem is quite easy. The interior of the barn is freely ventilated through the innumerable crevices in the high roof and from the crack of the large doors.

If, now, the low Stoddard tie-up is enclosed along its front with a stationary middle section and two sections hinged from the upper and lower edges of this middle section, and not too closely jointed, we get ample arrangement that will keep a warm stable and yet secure any desirable degree of ventilation. The fresh cold air from the driveway enters the crack of the lower hinged section at the floor line, is breathed by the cow and finds its way out at the crack of the upper hinged section, at the level of the top of the tie-up.

There are newer styles of cow stables than the old-fashioned New England barn, but I have never seen one that to my mind offers so many practical advantages. Even the manure cellar under the tie-up does not seem to be objectionable in cold climates, while it offers unexcelled advantages for convenient disposal and economical storage of the droppings.

Has any experimentation been made in regard to heating cow stables with hot water or steam? If so, I, and probably others, would be glad to know of them. In regions of cheap feed and high cost of heat producing feeds, it is a possibility that to maintain a proper temperature in a cow stable, it may, under some circumstances, cost less with such heat than with cow feed. In any case the pure air for breathing is an imperative necessity.

In this day of antiseptic precautions, it seems that harm may come to the dairyman from meddlesome interference with the natural means of protection previous to and during the parturition of the calf, as it frequently is during the birth of human children. It is only lately that it has been announced that the natural secretions of the parturient canals in woman are in themselves antiseptic, and hence injections of antiseptics are usually likely to do more harm than good. It does not seem good practice to syringe out the vagina of the incoming cow unless there is evident necessity for doing so. One may infect rather than disinfect. It should be borne in mind that any agent that will kill disease germs will also have more or less damaging effect on the protoplasm in the cells of the higher animals. Such agents are not to be used except as a necessary evil, and only in the light of an evident need.

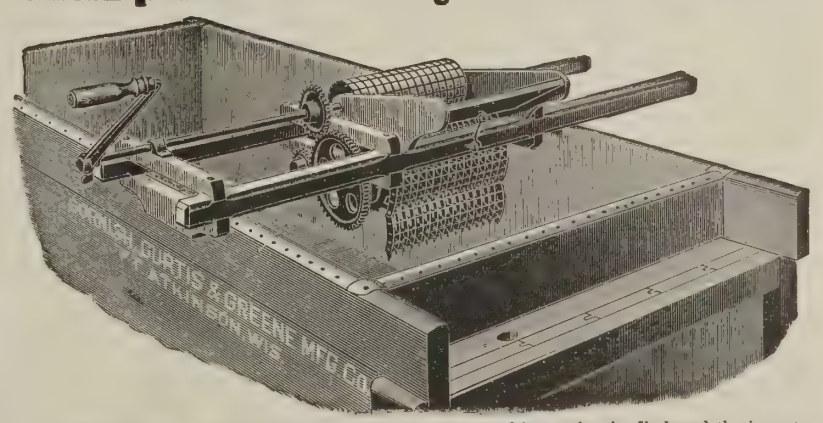
Is there any reason why applications of cold water should not be made to the udder of the cow in case of inflammatory affections of that organ? One continually sees in print, recommendations of rubbing of the bag in such cases with or without oily substances. The latter is evidently used to prevent heat, the rubbing producing undue friction and heat at the surface. Of course, massage of the organ tends to dissipate congested areas where the blood is engorged, but certainly the practice is accomplished with more or less bruising and irritation of the inflamed parts.

Reasoning from generalities, it would seem that the free applications of cold water would tend to reduce inflammation by shrinking the blood vessels and reduce the irritability in the parts. Is there any counter reason for not doing this? Rest and cold water are powerful remedial agents in the treatment of human beings. Why not in the cow?

J. M. W. KITCHEN, M. D.

New Hampshire.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00.

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Farm Dairying.

As far back as history extends, the cow and her products have been one of man's best friends. And from the time when the cream was tied up in a skin and laid across the camel's back to be churned into butter, to the present, with all its modern appliances, butter has been one of her staple products. And when we look at some of the dairy butter on our markets to day, we wonder if the butter of twenty centuries ago could have been much worse.

We are standing to-day, when to do anything at a loss, means not only empty pocketbooks, but brings lines of care, and thought how to fill the vacuum with the dollars so much needed to carry on the world's mighty advances, and keep ourselves in touch with its every day life. And often times, to use the old house wife's adage, we are throwing out with a teaspoon faster than we can bring in with a shovel.

Each and every one of us know to a certainty that we make the very best butter it is possible to make, and we all are apt to cry out at the great injustice done us because A or B get more for their product than we do. Go into a country store to-day after the usual closing of the cheese factory in the early winter months, see the conglomeration put on the market as dairy butter, not two samples alike, not two of the same flavor or color, one as white as lard, another as yellow as a sunflower, another all colors mixed, and all classed under the same head, dairy butter, for which the merchant is supposed to pay the same price. Some will go as extra, some will go as fair, some will go for shortning, more will go as grease.

One has spent the same toil and labor as the other and thinks his should have the same pay. The merchant is not the only loser. They have wasted their time and funds in an almost unmarketable article and the good and bad go under the same head, dairy butter. And when we know that the whole might, with the same labor and work, have been a good article, and when we know that the farmer's wife must, in the general run of things, be the sufferer, we feel we must lighten her burden in some way.

We cannot all of us be as quick as the Kurrian woman, in a Dakota town. The merchant did not want to hurt her feelings by telling her it was impossible for him to use the product she had brought him in her wash tub in great rolls and called it butter, so he told her it was impossible for him to take it as the market called for little rolls, he could not sell the big ones, down went the wash tub on the floor, and up went her sleeves, and with her hands she made the butter into little rolls, spread them on his counter and when done said, there it was as he liked it, she had done her part, necessity compelled him to do his.

Could I change the work of the ordinary home dairy as easy, I would feel it were time well spent. Do not, by this paper, understand me to say that farm dairying is the best way to solve the question. But as long as we do or must have them, let us make its product the best there is to be made and get all there is in it. I do contend this, however, that a well conducted farm dairy, with only one herd to get its milk from, should and could make better butter than the best regulated creamery.

It is no harder work to make it good than it is to make it into soap grease, and the difference in price is much in favor of the good. The farmer who makes poor butter, will, as a rule, have poor cows; not, as a rule, properly fed or cared for; you cannot get much butter fat out of barley straw, as one man found to his sorrow the past winter. Fed as many of our cows are, which furnish the greater portion of store dairy butter, they yield a small amount of butter fat, and with the poor appliances used in getting the fat, they get a very much smaller return for their work than they would otherwise. Consequently the poor cow is blamed for the failures.

There are some few things indispensible to perfect farm dairying: Cleanliness, plenty of good water, a good churn, good cans, those that can be submerged (if one cannot afford a good separator, which has been proven without a doubt the best way now of handling milk) and a good air tight cream vat, not too small, so as to give room for regulating the temperature of your cream, a thermometer—nothing necessarily expensive. Besides the separator in these days of advanced farming, there is an article that is almost indispensible to any farmer, who handles milk, either for creamery or cheese factory or private use, and it will eventually save many a dollar to the farmer, as well as to the cheese factory and creamery, and that is a good, first-class aerator. Many a milking is lost to the farmer without it, which would far more than pay the first cost, and did I have to set milk without ice-water, I should certainly use one.

When we say "cleanliness" we do not mean simply after the milk is brought in from the barn. It is as necessary that it should be clean before it is strained, as after. Could you see the inside of a separator bowl, as I do every day, you would realize what this means, and that, too, after the milk has been strained through five thicknesses of cloth. It is often enough to turn one against the thought of milk even to see the inside of one of these bowls. So use plenty of hot water and a little borax or lye about all dairy implements, as it takes a very little thing to make a bad flavor in butter.

In submerging milk, keep the water perfectly clean and as cold as you possibly can. Don't think that once a week is going to do. Nothing, it seems to me, gets foul so quickly as water that has had cans of milk or cream standing in it. You should pump it in fresh every day, especially if you do not have ice, if you do not want from one to two per cent of butter fat left in your skim milk.

Now many people think that anything that will bring butter out of cream, is a churn; consequently there are more inventions in the patent office, at Washington, to make butter on the farm, than any other device patented. There are only about three kinds of churns that a farmer can afford to use, if he wants to make the very best butter, and you are all well aware that we do. There is the barrel, the box, and the rectangular box, hung by the corners. Butter, to churn properly, must come in the granular form, and must be thoroughly worked and salted in this form. It is impossible to do this in any small churn with inside apparatus.

To make good butter, keep your cream sweet until you get enough for churning, then from eighteen to twenty-four hours before churning thoroughly mix, and let it stand until sour, not simply until it tastes sour, but until it gets a little thick. Don't put in any cream later than eighteen hours, or you will have a part in your buttermilk.

Churn in summer at a temperature of about 58° to 60°, not higher, if you churn by hand, if with a power churn, as low as 56°. Churn until it will separate from the buttermilk in small granules, from a portion of your buttermilk; then pour in from two to four pints of good, cold water, according to the size of your churning; put your cover on, turn rapidly a few moments, run this water off and repeat the operation.

Have your water as cold and fresh as possible in summer, and if you have ice and want your butter solid, use ice-water. Run the last water off as dry as possible; then to every ten pounds of butter use a heaping pint bowl of salt, the best fine dairy salt; now rock your churn from side to side, gently, to thoroughly mix your salt; then put on your cover, turn gently until your butter is in good, solid lumps.

In summer when it gathers into large lumps, take your spade and open up the lumps and repeat the operation two or three times, and you will have your butter in fine condition without any butter milk or any streaks, ready to pack in your tubs or jars for market. Streaked or mottled butter is caused by churning a little too long, so be very careful not to churn only to the granular form; little too large grains or a little gathered water prevents the salt from acting quick enough to go through the lumps, causing the mottled appearance, which requires tough working to get out and spoils the grain of your butter. Do not fail to use a good color in your butter, a small teaspoonful to ten or twelve pounds of butter is about enough. The market demands it, and the color alone will often decide a party on the taking or letting alone of a jar of butter.

We must fill the market demands if we wish to get the top market for our products. Have a spade and a small packer like a good sized potato marker to pack with; see that it is packed solid all through the jar. We can only make a success of it by making the very best. The time is surely coming when the merchant cannot afford to barter for good and poor butter alike, and he cannot afford to have the small balance on his side of the ledger.

The farmer must stand the consequences of his own faulty make, and cows that will not yield you 40 cents a hundred for the milk the year through are unprofitable servants, to you farmers who are forced to buy your butter, and whose milk is bringing a good round sum at the cheese factory.

Don't complain because you are paying the market price for a good article. Remember if your milk goes down you are the first one to grumble, and your butter farmer is but as much entitled to his pay, for an honest article, as you are, and when your milk is bringing a good price you can afford to let the others have it too. Let us all live and let live; we cannot afford to grumble. Our farmers can only be made to produce what we make them do. The man who makes two blades of grass grow where one grew before, is a benefactor, and what we do, let that be the best. *

The above article was received without name or address, but it contains too many well put truths to permit it to remain unpublished in consequence.—ED. DAIRYMAN.

Butter Making in Holland.

There are two methods of making butter—the old and the new. The first consists in setting the milk in earthen pans about four inches deep and sixteen inches in diameter. But owing to the bad system in handling the milk, it being left so long in the cow house, the excessive temperature and also defective arrangements, it quickly undergoes, especially in summer, a fermentation which causes precipitation of casein and naturally prevents formation of cream. Thus the farmer makes butter and cheese at the same time. The butter thus made has a bitter and unpleasant flavor, caused by the decomposed casein. However, when the cream has risen, it is removed and churned just as it is; another inconvenience appears while churning. The cream and buttermilk are sour, which, from a technical point of view, is something to be avoided. Besides, as during churning the requisite temperature does not always exist, formation of butter is generally very slow and sometimes there is none whatever. In a word, butter made by this system is generally of inferior quality and has an unpleasant flavor and odor; it is also wanting in consistency and does not keep.

The second method, as we shall see, is the only one which gives satisfactory results. Steam butter dairies, where milk is creamed by the aid of centrifugal creamers, have made a great improvement in the manufacture of butter. The following is the system of work: First of all the milk is heated, and as soon as the cream has been removed by the centrifugal creamer it is allowed to cool and is then poured into metal cylindrical vessels, where it is left for twenty-four hours to turn sour. These vessels are kept in coolers. Churned milk of the previous day is employed as a ferment, but this last causes the same inconvenience as the first method. Consequently buttermakers obtain milk churned in another dairy. At the end of 25 hours the cream is churned, the butter is washed and salted, and, 24 hours later, kneaded. Kneading is the last manipulation. The butter is retailed in lumps of 2¼ pounds, either wrapped in special paper or in stone jars. It is sold wholesale in wooden tubs weighing 44 to 88 pounds, in half or quarter "vaalje," according to the native term.

There are three kinds of butter—fresh, salt and melted. The first on leaving the churn is well washed in water, either by machine or hand, to remove all the buttermilk. For salting there is a special machine, in which the butter is kneaded with sea salt in the proportion of 1 per cent. In Limburg, butter made by farm buttermakers generally goes to market unsalted; butter from the co-operative dairies is salted. No melted butter is made in the Netherlands. The production of butter in the provinces in 1895 was 24,560,520 pounds. To this must be added 66,201,249 pounds of farm butter and 72,188 pounds of dairy butter.—*Ex.*

Food or Breed.

The quality of the milk depends upon the fat in it, and the fat either depends upon the quality of the cow, or the food given to it. There are plenty who believe that the quality of the milk can be changed by changing the food. That is, certain kinds of food make milk rich in fat, and other foods make milk poor in fat. The question of which is correct is interesting to dairymen, and if it is the food that determines the question, they want a ration that will give the best results

Most farmers have been led to believe that the percentage of fat in the milk is determined largely by the quality of the food given to the cows. On the other hand, the results of nearly all the scientific experiments and tests go to show that the kind of food fed to the cow has little influence upon the fat in the milk, but that everything depends upon the cow. There are some cows that seem to be born with the ability to produce milk rich in fat, and food of any kind will keep up this supply. Of course starving and gradual degeneration of the animal will decrease the supply of milk, and consequently the quality of fat. But with fair care and food the percentage of fat will remain good and quite constant.

This brings us to the important matter that all dairymen must consider. The cow is a law unto herself. She is created a milking machine that is valuable to her owner, or she is a poor milker whose existence on the farm is unprofitable to the farmer. Experiments conducted in the most careful manner have failed to increase the fat of a cow's milk to any material extent. Under forced feeding the fat percentage might be increased, but it would only be temporarily. Some seasons of the year the percentage of fat is much higher in one cow's milk than at another time, and the change should not be attributed to the food. It is due to natural causes that cannot easily be explained. So we come to the conclusion that while breed and the individual cow may not be everything, it certainly is more than half the question. Food plays an important part in keeping the cows up to a standard of health and functional activity, but its influence is comparatively small in determining the quantity and quality of the fat in the milk. The moral is very obvious. If we expect to have good milkers, we must select cows that have a special gift for this. E. P. SMITH.

Ohio.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 22,260 pounds. All bids were at 18 cents, and all sales at this figure. The market was reported firm at 18 cents. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*	*Amount.*
Triumph	1,200	18c	$216 00
Red Clover	1,800	18c	324 00
East Burlington	600	18c	108.00
Evansville	6,000	18c	1,080.00
Big Foot	2,100	18c	378 00
Spring Prairie	2,100	18c	378 00
Dundee	2,100	18c	378 00
Cobb	2 700	18c	486 00
Highland	1,980	18c	354 40
Elkhorn	1,620	18c	302 40
Total	22,260		$4,004.80

The sales for the corresponding week of the three preceding years were as follows:

June 20, '98. No sales. Market price 16 cts.
June 21, '97, 43 980 lbs. of butter sold at 14½ cts.
June 22, '96, 117,900 lbs. of butter sold at 14@15 cts

The New York market, Monday, was reported steady at 18¾ cents. H. C. B.

Elgin, Ill., June 19, 1899.

Salicylic Acid in Milk.

Dr. Henry Leffman, of Philadelphia, a prominent chemist of that city, recently stated that many diseases of infants, which occur during the summer months, may be induced by the use of milk, and artificial foods which contain salicylic acid. He stated that the drug had an enormous and increasing sale, and that several forms are being put upon the market. Speaking of the artificial form used by brewers, in the preparation of bottled beer, he thought it poisonous, and that its sale should be prohibited by law. In Trenton, N. J., recently, salicylic acid in milk caused the death of several children —*Medical Times.*

This is the way a Boulder county farmer's wife treated a patent churn agent:

An agent for a new fangled churn stopped at a farm house and insisted that his churn would get two pounds more butter out of a certain amount of cream, than any other. The lady of the house, to get rid of him, told him that he could come around the next morning and try it, and if what he said was true, she would buy. In the meantime she churned the cream and when he came she poured the butter milk into his churn.

He churned for an hour and then told her that there was no butter fat in the cream. "I know it," she said, "for I churned last night and left the butter milk for you to get your extra two pounds from." And the agent was mad.—*Dairy and Creamery.*

Some months ago there was much of fault finding with certain dairymen of Minneapolis because they had fed pulp from the sugar factory, to their cows. The claim was made that while the beet pulp increased the milk supply it impoverished it in a number of respects. The department of agriculture has looked into the matter to a considerable extent and is of the opinion that beet pulp, when properly fed, is one of the best foods for dairy cattle, and beef cattle as well. The investigation made indicates the importance of the wide extension of the beet sugar industry. In its value to the farmer, it places the sugar factory alongside the creameries.—*Litchfield Review.*

DAIRY MARKETS.

ELGIN, Ill., June 19—Three hundred and seventy one tubs of butter were offered and quickly sold at 18c, the market being declared firm. Last week's price was the same; one year ago 16c; price fixed by the committee, with no sales on the board.

CHICAGO, Ill., June 19—Butter—Creamery extra, 18c; firsts, creameries, 16½@17c; seconds, 13½@14c; Dairies, selections, 15@15½c; No. 1, 13@14c; No. 2, 12c; extra ladles, 12½c.

Eggs—Fresh at mark, cases returned, sold at 11c; loss off, cases returned, 12½c; duck eggs, 11c; goose eggs, 12½c.

Cheese—Full cream, Twins, new, good to choice, 8@8¼c; Young Americas, 8@8¼c: Swiss 11@13½c; Limburger, 7@10c; Brick, 7½@8¼c.

Cattle—With 23,000 cattle, the largest receipts of the year, salesmen naturally expected to take off considerable, but the demand was exceptionally good from all sources, and in many instances light and handy steers sold at last week's closing prices, but the general market for beef cattle was about 10c, lower with heavy weights the weakest. Texas cattle and native butcher and canning stock ruled about steady. Native steers, 827@1,620 lbs, sold at 4 50@5 50, bulk 4.85@5.30; some averaging 1,276 lbs sold at 5.50; corn-fed western steers, 1,380 lbs, 5.50; fancy 1,085-lb Nebraska steers and heifers mixed at 5.40, and most of the western steers at 4.95@5.15. Distillery-fed steers sold at 5@5.10; still bulls, 3.85@4.25. About 1,100 straight Texas sold at 4.20@4.80 for steers, 4.05 for oxen, 3.65 cows, 3.25 bulls and 5.05 for 205 calves. Five loads of 1,209-lb western heifers sold at 5.05. Most of the veal calves sold at 6.85@7.05.

Bran—In fair demand and sold at 10.50 per ton in bulk, and 11.75 in sacks.

MILWAUKEE, Wis, June 19—Butter—Creamery fancy prints per pound 18c; extras, 18c; firsts, 16@17c; seconds, 14@15c; imitations, per pound, 14@15c. Dairy—Selections per pound, 13@14c; lines, 11@12½c. Market steady and trade fair for all varieties; receipts 17,115.

Cheese—American Full Cream—New, choice to fancy, 8@9c. Brick—New, choice, 7¼@8c. Limburger—Fall choice, 9@9½c; new choice, 7@7½c. Swiss—Drum, choice, 12½@13c; block, choice, 10½@11c.

Eggs—Fresh per doz 12c, loss off, cases returned. Market unchanged and active; receipts 635 cases.

AVOCA, Wis., June 19—Offerings on Lone Rock and Muscoda board to-day were 1,635 boxes, all sold at 8@8½c; market very firm.

FOND DU LAC, Wis., June 19—Offerings 575 Twins and 500 Daisies; market active at 8@8½c.

CHILTON, Wis, June 14.—The sales reported were 320 cases Young Americas at 7¾c; 170 at 8c; 160 Twins at 7½c; 80 at 7¾c; and 300 Daisies at 7¾c.

BRILLION, Wis., June 7.—Sales to-day were 1,329 Daisies and 784 Twins at 7¾@7⅞c and 324 cases Young Americas at 7¾@8⅛c. Thirty five factories were represented on the board and nine buyers were present.

PLYMOUTH, Wis., June 13—The following sales were made: 550 Twins at 7½c; 665 Twins 7⅝c; 60 Twins at 7¾c; and 820 Americas at 8⅝c.

SEYMOUR, Wis., June 13—Off rings of cheese to day were 577 Twins and 100 Daisies. Twins sold at 7⅜@7½c and 7⅝c. Daisies sold at 7¾c. Market active.

SHEBOYGAN FALLS, Wis., June 14—The offerings on the call board to-day were 705 boxes of cheese, all of which were sold as follow: Four hundred and sixty five cases of Young Americas at 8⅜c; 180 Twins, 7½c; 60 Daisies, 8¼c. The light offering to day is due to the fact that several factory men fearing a drop in the market, sold 500 or 600 boxes of cheese during the past week.

MANITOWOC, Wis., June 14—Offerings of cheese at Dairy Board of Trade to-day were, 600 boxes Daisies, 220 boxes Twins, 850 boxes Young Americas. Sales were, 250 boxes Daisies, at 7¼c; 150 boxes at 7½c and 250 boxes at 7¾c; 140 boxes Twins, at 7¼c, 150 boxes 7½c, 57 boxes 7¾c; 850 boxes Young Americas, 7¾c.

SHEBOYGAN, Wis., June 14—Sales; 538 Young Americas at 8½c; 374 Twins at 7⅝c.

NEW YORK June 19—Butter—Creamery, Western extras, 18¾@19c; firsts, 18@18¼c; state extras, 18@18¾c; firsts, 17@18.

Cheese—State full cream, large or small colored or white fancy 8¼c.

Eggs—State, Pennsylvania, and Western, 14@15c.

NEW YORK MARKET.

NEW YORK, June 17—Butter—Receipts for the week, 64,103 packages. Exports for the week, 438 packages.

Receipts from all quarters continued heavy and exports very light. During the present week there were some special creameries sold up to 18¼c and positive pronounced fine flavored, fresh, butter is still quotable at this price. Such style is easier sold at 18⅝c than the average make of creamery at 17½@18c, but it comprises only the very finest creamery make fresh from the churn, and while the price of such is quoted 18½c, the bulk of business was done at lower rates than last week. New York State Dairy of finest quality was scarce and sold readily on arrival. Sales of New York State Creameries at Jamestown and Canton this week were at 18@18½c; buyers of these goods were unable to sell at point and the bulk of it went into freezers for late markets. Fine ladle butter continues in fair demand at slightly advanced prices and is firm at the close. We quote: Creameries, extra, 18½c; medium, 17@18c; poor, 16½c. Dairies, 17½@18c medium, 15@16c; poor, 13@14c. Ladles, extra, 14@14½c; medium, 13@ 13½c; poor, 12@12½c.

Cheese—Receipts for the week, 33,426 boxes. Exports for the week 10 203 boxes

The market has been steady with fair trading for both export and home trade accounts, and prices are closing firm at about last week's quotations. Cheese arrived in good condition and receipts of large sizes sold freely to exporters at 7¾@7⅞c. Small cheese were in larger supply but there was good trading and prices well maintained. Sales in Western New York Thursday were at 7¾@8⅛c. We quote: Full Cream, extra, 7¾@8c; medium 7@7½c; poor, 6@6½c.

Eggs - Receipts for the week, 70,741 cases. There is good quick demand for all strictly fresh laid eggs and market closes firm. We quote: N. Y. State & Pennsylvania 15@15½c per doz; Northern & Western, best marks, 14½@15c per doz: Other Sections 12½@14c.

177 Chambers St. DAVID W. LEWIS & CO.

CANTON, N. Y., June 12.—On the Board Saturday 2,145 boxes cheese were offered. They were sold at 7¾c. The offerings of butter were 1,400 packages. There were sales at 18c.

FULTON, N. Y., June 12.—To-day 22 factories were represented. There were 1,835 boxes of cheese. Large sold at 7⅛c; small sold at 7⅜c. There were 10 tubs of butter sold at 18c.

OGDENSBURG, N. Y., June 12.—On the Board Saturday, 1,445 boxes of cheese were offered. There were 102 boxes sold on the Board at 8 1 16c, and later the balance were sold on the street at 8c.

WATERTOWN, N. Y., June 12.—At the 5:30 close there were 14 lots aggregating 881 boxes of large white cheese purchased at 7⅛@7⅝c, an equal number going at either price. There were 23 lots of fancy large white cheese that were sold at 7¾c.

LITTLE FALLS, N. Y., June 12.—There were expectations of lower prices for cheese to day, so nobody is disappointed, unless it be that the decline is not greater. The transactions were 96 lots, 6,669 boxes at 7@7⅛c.

Butter—Sales of 28 packages dairy butter made at 15@17c; the ruling price being 16c.

UTICA, N. Y., June 12.—At the opening of the market to-day, there was indication of lower figures than those afterward realized. Features of the market were the disappearance of large white cheese, and a drop in the price of small cheese to about that for large colored. The sales aggregated 94 lots, 6,360 boxes at 7@7⅛c. The transactions on June 14, 1897 were 11,525 boxes, with 8c the ruling price. On June 13, 1898, were 7,530 boxes with 6⅞c as the ruling price.

The butter market continues firm. The sales on the Utica Board to-day were 22 packages at 17c; 90 at 18c and 30 at 18⅛c.

WASHINGTON, D. C., June 19.—Market steady; extras 19c; choice firsts 18c.

NEW ORLEANS, La., June 19.—Market quiet; creamery 19c; dairy 16c; ladles 13@14c.

NEWARK, N. J., June 19.—Market quiet 18½@18¾c for fancy creamery. Receipts liberal.

KANSAS CITY, Mo., June 19—Butter—Creamery, 16c; dairy, 13c.

Eggs—Fresh, 10½c.

CINCINNATI, O., June 19—Butter—Steady, 20c.

Eggs—Easy, 10c.

Cheese Steady; good to prime Ohio flat, 8@8½c.

PHILADELPHIA, Pa., June 19—Butter—Solid packed, separator creamery, extra, 18⅛@19c; creamery firsts, 18c; seconds, 16@17c Imitation creamery, extras, 16c; seconds, 13c. Ladle packed, extras 14c; firsts, 13½c; seconds, 13c Print butter, creamery extra, 19c; firsts, 18c; seconds, 16@17c.

Eggs—Pennsylvania and nearby 14½c; western 14¼@15c; southwestern, 14c; southern, 13½c.

ST. LOUIS, Mo., June 19—Butter—Weak; creamery, 15@19c; dairy, 12@15c.

Eggs—Firm, 10c.

Latest quotations for fancy creamery:—Buffalo 19c; St. Paul 17c: Minneapolis 16@17½c; Detroit 19c.

BALTIMORE, Md., June 19—Butter—Market firm; creamery separator extra, 20c; extra firsts, 18@19c; creamery firsts, 17@18c; creamery imitation extra, 15@16c; ladle extra, 14@15c; western store packed 11½@12½c.

Eggs—Market firmer; strictly fresh stock, 13½@14c.

BALTIMORE MARKET.

BALTIMORE, June 15—Butter—Considerable interest was displayed by both sides of the market at the opening, in the receipts of separator creamery, conditions being favorable to make of the situation either way; for the buyer, or for the seller; but the uncertainty was of short duration, for soon it became all to obvious that the buyers had enough at current prices, even before full distribution for consumption had taken place, and then, as in every other activity and enterprise there was "plenty of room at the top" for operators to indulge their appetites, if they had any. At the time of going to press, the edge seems to be off of the home demand, and unless something transpires by which the foreigners can be made an outlet for our surplus, it does not require a prophet to foretell the course of the stream of excessive supply that we natural'y expect to flow in at this season. The quality is not up to the expectations of most of the trade, and if a 95 point standard were strictly applied, very few lots would bring the price quoted for extras. Gathered cream goods are arriving in slightly increased quantity, and, being fairly attractive, find buyers numerous enough to absorb all offerings. The attention of the majority of the buyers being diverted from the top variety temporarily, is devoted to imitation creamery and ladle packed, and an increase business is reported in them. Receipts of store-packed continue rather light, with demand brisk; would advise liberal shipments.

Creamery Separator, extras, 19c; firsts, 18c; seconds, 17c. Gathered Cream, extras, 18c; firsts, 17c; seconds, 16c. Ohio, extras, 18c; firsts, 17c; seconds, 16c. Imitation, extras, 16c; firsts, 15c; seconds, 14c. Iowa & N. W. Ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio & Indiana Ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio storepacked, extras, 12c; firsts, 11½c. W. Va., extras, 12c; firsts, 11½c; seconds, 11c. Creamery block, (2 lbs.) extras, 21c; firsts, 20c; seconds, 19c. Creamery prints, (½ lb.) extras, 21c; firsts, 20c; seconds, 19c. Md. Va. & Penn. prints, extras, 19c; firsts, 18c; seconds, 17c.

Eggs—Receipts of choice, fresh stock is very light; there is quite a brisk demand for this kind. Heated or other faulty stock has to be sold on the open market for what they will bring. Market firm on all choice stock at 13c.

☞NOTICE—Ship your eggs in cases, and not in barrels or boxes; by so doing you will avoid their becoming heated in course of transit. Please bear this in mind.

Cheese—Arrivals are composed entirely of new cheese. The supply is quite sufficient for all demands; market quiet and irregular.

N Y. State Cheddars, fine, 8¾c; choice, 8½c; fair, 8@8¼c. Flats, fine, 8½@9c; choice, 8½c; fair, 8¼c. Small, fine, 8¾@9c; choice, 8½c; fair, 8¼c. Ohio Flats, fine, 8@8¼c; choice, 8c; fair 7¾c. Ohio Picnic, fine, 9c; choice, 8½c; fair, 8c. Swiss Cheese, fine, 13@13½c; choice, 11@12c; fair, 9½@10c. G. M. LAMB & BRO.

301 Exchange Place.

MANCHESTER BUTTER MARKET.

MANCHESTER, Eng., June 9.—Copenhagen reports the weather now perfect summer. Butter comes forward strongly grass flavored, although not always pure grass make. Everything pure and keeping is picked up at extra prices. There is no doubt that gradually as the quality of butter improves the market will firm up. Reports from your side are not altogether satisfactory, because butter, not pure grass complains of feeding taste. Quality and trade will all be better next week. Official Danish rate two kroner lower being within one shilling of the figures ruling for the ensuing six weeks of last year. So far the season has run very favorably, and the make hitherto backward now shows signs of increase. New York reports say, that in the states, "we are going through the same experience as usual at this season. Some receivers so fearful that they won't get enough of the fine make of grass butter that they are bidding and overbidding on about all the fancy marks of June and July make west, in entire ignorance whether the make is to be larger or smaller than the previous seasons. Naturally the make ought to be more, as the country is growing all the while. The same may be said of the consumptive wants; that is also increasing if we leave out of consideration the largely increased use of oleomargarine and process butter. Besides this we are having no export demand, nor are we likely to have for our fine butter at present prices."

Manchester had a fairly good market on Tuesday, though buyers were pressing for lower rates. Most fine quality well cleared—20,420 Danish and Swedish casks at sea for next markets or 267 more than last week with 2,197 Fins or 289 casks less—margarine steady. Arrivals of margarine via Hull 9,659 packages, via Grimsby 4,071.

DOWDALL BROS.

LIVERPOOL, June 19.—Butter—Good United States 62s.

Cheese—American finest white 42s 6d; colored 41s 6d.

COLD SKIMMING.

"Alpha" disc separators are the only separators capable of clean skimming at low temperature. This is physically impossible with any other machine, as every separator user knows who has ever tried it and properly uses an accurate skim-milk tester.

No separator user needs to have the manifold importance of cold skimming under various conditions explained to him. Many an "Alpha" machine has saved its cost in three months in this way alone.

"Alpha" separators are just as superior to other separators in a dozen other ways as in this one. The "discs" tell the story.

Send for descriptive and illustrative catalogues.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—An honest and reliable man capable of managing a large dairy. Must be experienced in all dairy work and with all dairy machinery. Liberal wages to good man. G. C. STREET, Houston, Tex. 18-4

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

To avoid inbreeding I will sell my excellent herd bull, Linnie Graph, No. 4991 A. G. C. C. Dropped March 15, 1897. M. D. CUNNINGHAM, Kansasville, Wis. 19-2

Wanted—A good, experienced butter maker. Must thoroughly understand the making of butter and care of cream. G. E. BROWNBACK. Sinfield, Pa.

Outgrown our capacity—Will sell our Little Giant separator with 3 h.-p. boiler and engine, churn, butterwork etc., cheap, to make room for creamery machinery. G. S FOREST, Teeds, Iowa.

Wanted at once—A working foreman on dairy farm who is a good milker. Experienced and reliable. Single man perferred. Good dairy band is also wanted. Address A. D. BLAIR, Star Junction, Pa.

Wanted—Two first-class farm hands who can milk. A permanent job for one and perhaps both. Must be men of good habits. Address B. PARSONS, Havana, N. D. 19-2

Wanted—Position as buttermaker or dairyman. Good references. Two dairy schools. Can talk German. J. W. SCHIELD, Kinbrae, Minn.

Exceptionally Low Rates to Los Angeles, Cal., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 25 to July 8, inclusive, limited to September 4, 1899, inclusive, on account of Annual Meeting National Educational Association. Variable routes, delightful scenery. Side trips at low rates to points of interest Apply to agents Chicago & North-Western R'y 19-2

Very Low Rates to Milwaukee, via the North-Western Line. Excursion tickets will be sold from stations in Wisconsin, Illinois and Michigan at very low rates for the round trip, account of Milwaukee Carnival, to be held June 27-30. For dates of sale, limits of tickets, etc, apply to agents Chicago & North-Western Railway.

Exceptionally Low Rates to Denver, Col. via the North-Western Line Excursion tickets will be sold at greatly reduced rates from all stations, June 25 to July 11, inclusive, limited to October 31, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y. 19 3

Exceptionally Low Rates to Cincinnati, Ohio, via the North Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 26, 27 and 28 (but not for trains arriving Chicago before June 27), limited to July 5, 1899, inclusive, on account of National Sangerfest. Apply to agents Chicago & North-Western Railway. 19-2

Fourth of July Rates.—On July 1, 2, 3, and 4 the North-Western Line will sell excursion tickets at low rates to points on the North-Western System within 200 miles of selling station, good returning until July 5, inclusive. Apply to agents Chicago & North-Western Railway. 19-2

Exceptionally Low Rates to Detroit, Mich.,—Via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations. July 3 to 5, inclusive, limited to August 15, 1899, inclusive, on account of Annual Christian Endeavor Convention. Apply to agents Chicago & North-Western R'y. 19-2

An Interesting Address on Cattle.

Prof. Eugene Davenport, Dean of the University of Illinois, gave a very instructive address before the Illinois Live Stock Breeders' Association, at Springfield, Ill., recently, his topic being, "An Undeveloped Market for Pure Bred Males."

We can only summarize the principal points made in the address, which were in brief, as follows:

"For more than a hundred years, and especially in the last half century, favorite blood lines have been preserved and protected from contamination. More than fifty breeds of live stock are owned and bred in the United States, each protected by an association that believes in its merits, and by a system of records that insures purity of blood.

Less than one per cent of all the cattle of the United States are registered animals of any breed, and only sixteen per cent are grades of one-half blood or better. Most of the other 84 per cent have doubtless enjoyed some advantage from the general diffusion of blood.

The great mass of farmers breed cattle in a blind effort to secure something to eat up their grain and roughage. The 84 per cent cannot bring their owners anywhere near the profit that the 16 per cent does, but the average farmer does not know it. The breeder knows these things; the farmer is a grain raiser and knows but little about it. He may never become a breeder, but for his own sake and profit, he ought to become a good stock raiser, with an accurate eye for selecting the right kind of cattle for his purpose. The half million registered cattle are abundantly able to produce pure bred sires and give every calf one good parent.

In the north central States 1.21 per cent are registered cattle, and 22.21 per cent are grades; while in the south central States their numbers are .46 of one per cent and 6.77 per cent, respectively. Iowa leads the states with 60,000 registered cattle, and though the per cent is lower than in Illinois, (1.2 against 1.4), she has made better use of them and has 30 per cent of grades against our 21 per cent. The dairy reports show that the largest returns per cow are invariably in those states that have the highest per cent of registered animals and their grades. From any point of view the cattle industry is prosperous in just about the proportion that the blood of the improved breeds have been diffused among the masses. But the diffusion is surprisingly small and eminently unsatisfactory, both from the interests of live stock in general, and from that of the professional breeder.

DAIRYMEN INCONSISTENT.

The dairymen are the worst sinners in this matter of neglect, and they ought to be converted with a strong hand and a stretched out arm. As a class of stockmen, they expect to buy a cow fresh, keep her till dry, then sell her for beef and buy another. Their argument is that in this way they never get any old stock on hand. This is like selling an engine for scrap iron after the first year's run to prevent its getting old. These dairymen are too anxious for milk to spare a little to raise a calf, besides they do not like the trouble.

Here is a barn full of cows (presumably good ones) kept constantly for their milk. What a place to do breeding with almost no expense! If a cow is worthy to occupy a stall and consume good feed, if she can provide a profitable market for the products of the soil, then she should produce regularly, by a sire of the best breeding, in order that she may leave worthy successors behind her. Any dairyman can raise a better cow than he can buy, and for less money. His business naturally affords him all the materials, save only one animal to head the herd, and you who breed good cattle must convert this erring brother to rational methods."

In the great dairy districts, like that of Elgin, there are but few, comparatively speaking, well balanced dairy farmers, who comprehend the finer economics of breeding and handling, even grade dairy cattle. The farmers there raise but few calves; indeed, less calves are raised in proportion to cows kept, than in the districts where few cows are kept. These farmers pay excessive prices for big, beefy cows, generally of low dairy capacity, and performance, and so throw away good money in that way that had better be spent in raising good cows.—ED. DAIRYMAN.]

"Grading is the easiest possible breeding, and therefore fitted for the man who is not, either by nature or by business relations, a breeder. You who breed registered stock are attempting to improve their character with successive generations by the principle of selecting, operating in favor of desired variations. I hear breeders talk a great deal about heredity, but variation is the principle out of which improvement comes. It is your business to catch these valuable variations and fix them in individual animals that they may be sent out as sires, to secure to the live stock of the country by heredity what you have fixed in your herds, by variation and selection. It is your function to originate and fix quality and sell it to the general stock raiser. It is his function to use it. Grading provides the legitimate market for the qualities you have produced and it is the only way in which they can reach the stock raiser. To advocate grading is not at all to advocate mixed breeding. Grading is not a temporary, but a permanent policy for the general stock raiser.

SIRES CHEAPER THAN DAMS.

On the average $2 is sufficient to provide a calf with a registered sire from some of the great recognized breeds. Whatever the figure may be it is comparatively slight. But the expense to provide a calf with a pure bred dam will not be less than $20 and probably more. Any man who soberly considers this for a moment will see that it is entirely feasible to produce commercial stock with the best sires, but not with the best dams; their numbers are too few and their produce is too limited. As it is, less than one out of six calves enjoy the advantage of good parentage on either side.

Breeders have been at fault in advocating too high methods, standards and painstaking care for grades. Better let the cattle educate the farmer, but get him started as soon as possible to grade up.

MUST STIMULATE DEMAND.

The demand for pure bred sires will never come of itself. It must be stimulated by men who are themselves personally and directly interested in its development. Education is always from above downwards. Breeders cannot go on practically confining their sales to their own numbers. They must place their animals in the fields of the farmers of this country and think more about developing the market for a bull at $100 than in trying to sell a cow for $1,000 to some novice who has more money than brains. Let us get together, we who breed and we who grade, and buy and sell and get gain."

The South Dakota State Fair.

ED. HOARD'S DAIRYMAN:—The undersigned has been chosen Superintendent of the Dairy Department of the South Dakota State Fair, to be held at Yankton, September 25 to 29, 1899. It is the desire of the Board that this department be one of the leading features of the fair, and no time or labor will be spared to make it such.

Last year the dairy building was enlarged and a commodious ice box put in, so that there is ample space to exhibit machinery and room for all the butter that will be sent. The Board will do all in its power to make this department a success, but it needs the aid of friends of the dairy industry outside the state to make it what it should be.

Will you not aid us? We want exhibits of machinery and supplies, we want offers of special premiums, and we want a large attendance of outside friends.

All special premiums will be advertised in the premium list if we are notified at once.

E. M. BENNETT, Supt.

Clark, S. D.

Seasonable Notes From Michigan.

Ripening Cream.—Packing Butter.—Private Customers for Butter.

ED. HOARD'S DAIRYMAN:—Noticing in an issue of your paper that a subscriber is having trouble with his butter, I offer a few suggestions. The complaint is that the butter is strong, and a remedy as well as a reason for this is requested.

On the average farm the amount of butter made during winter is not great, and there is apt to be too long a period between churnings. This more than any other thing causes the off flavor which much of the winter butter possesses. The cream is held too many days awaiting a time when a sufficient amount shall have accumulated to make a churning. Cream becomes bitter when allowed to stand too long, and this often occurs in cold weather, before souring takes place. The churning should be done at least twice a week, the same as in summer. Where milk is set in pans in the pantry, it is sometimes left standing several days before skimming, and it frequently occurs that it becomes bitter before the cream is removed.

I have actually known milk to stand in this way until specks of mold appeared upon the surface of the cream. Then when skimmed the cream was kept several days, or, perhaps, a whole week longer before churning. It is needless to say butter made under such circumstances will be strong from the very first.

With such conveniences as the average housewife has at hand for ripening cream, it is quite difficult to get it done properly either winter or summer. In winter it must be warmed, and in summer cooled artificially, to produce the desired result.

My experience has been that winter cream held at 40° cannot be properly ripened in 24 hours merely by bringing it into a room where the temperature is 60°. It must be warmed to somewhat above that point and then not allowed to drop below it. It facilitates the ripening process if a starter in the shape of a pint of buttermilk saved from the last churning is added to it at the time of warming.

Cream should be stirred at intervals during the 24 hours preceding churning, as evenness of temperature is difficult to maintain, but by stirring, thus bringing fresh cream to the sides of the can or jar, a more equal degree of warmth is secured.

One creamery in this county, is now pasteurizing in a crude way all the cream, before making into butter. It is placed in the vat and heated to 155° then allowed to cool down to churning temperature. This is done as soon as possible after separating. The butter is said to be of superior quality when made in this manner. All trace of bad flavor disappears from cream so heated.

We are pleased to see an increasing interest among farmers and small dairymen in regard to finding special customers for their butter. It pays to do so. While the regular dairyman may be able to find a commission merchant who will deal honestly and satisfactorily, this is not always the case with the one who has but small shipments to make.

After deducting freight, cartage, and commission, there is often not much left, and the butter might better have gone to the local grocer so far as profit is concerned. This is an experience which most dairymen have had at some period of their business operations. Butter needs to sell at considerably more than local prices in order to pay for shipping.

It is frequently the case that returns are accompanied by a statement that the market was a little off when the butter arrived, which is supposed to account for shortage in remittance.

Then, too, the small number of cows kept often renders it impracticable to ship butter to a commission merchant. It needs to go in considerable quantities, thereby proportionately reducing freight rates and cartage. Where but half a dozen cows are kept, and these not all in full flow of milk at one time, it will not be wise to pack in large firkins, the most common method of shipping.

Butter will not sell at top prices if there is a difference of quality or color between the bottom layer and the top one. One needs at least sufficient cows to fill a tub each week, and few farmers can do this for more than a short period each year. Taking these things into consideration, I advise against the sending of butter to a commission man, and advocate private customers. These may be obtained in one's home town or in a distant city, whichever is preferred. There is no difficulty in securing customers if the butter is satisfactory, nor is there any danger of losing them when secured, if it remains so. There is no profit to go to the middle man, but all goes into the pocket of the producer. A hint right here to those who pack butter in crocks or tubs for family use. Pack the butter in layers three or four inches deep, and cover each layer with a circle of butter cloth. This facilitates the cutting out process when it arrives at its destination, as the butter can be removed in neat slices for the table, an entire layer being taken out before the next lower one is disturbed. It also saves crumbling, and the messy appearance which a crock of butter sometimes presents when in process of use, if packed in the usual manner, and a piece *gouged* out shallow in one place and deeper in another. W. C. ROCKWOOD.

Mich.

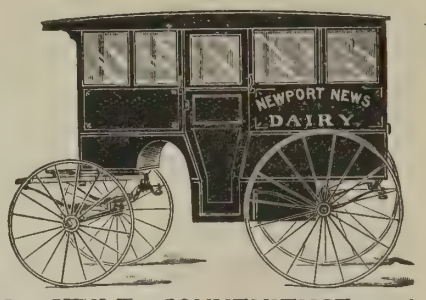
Fancy Cheese.

In Europe the dairymen make a large number of small fancy cheese, which have a wide market, and many of which are imported into this country in comparatively large amounts. Following is a description of a few of the most noted:

Camembert.—A French cheese made from whole or partially skimmed milk. It is very fine and delicate in flavor when well made, and greatly in demand at all seasons. The flavor depends on the successful growth on the outside of the cheese of a fine mold—which is first white and then blue—the mycelium of which penetrates into the interior of the cheese, and causes a change in its body equivalent to ripening. It is ripe in about four weeks.

Coulommiers.—A whole milk cheese sold fresh, or at least within ten days of manufacture. It sells readily during the summer months, and will return about one shilling per gallon for the milk used. Coagulation is protracted, and ripening really takes

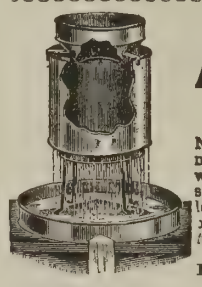
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Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free,

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The DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. No TIES. It costs more to not have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

place before the curd is ladled out into the forms.

Port du Salut.—A semi-hard cheese, subjected to slight pressure. It is very easily made, and ripens in about six weeks. It resembles a Gruyere in taste, but is milder.

Pont l'Eveque.—Is somewhat similar to the last, but is smaller, and square in shape. The body of this cheese, when ripe, is soft and yielding, and the ripening is brought about by aerobic ferments.

Gorgonzola.—Is made of two curds from rather poor milk. No pressure is applied, and it ripens in about eight weeks. The interior of this cheese grows a green mold—*benicillium glaucum*—and it is skewered to forward its growth. It is cured in a draughty cellar. The best cheese grow a peculiar red fungus on the outside, and to imitate this many Gorgonzolas are colored with brick dust and flour.

CREAM AND MILK CHEESE.

Gervais.—This is made from a mixture of two-thirds milk and one-third cream. Three quarts of the mixture make one dozen cheese. This is set at a low temperature, and the coagulation takes forty-eight hours. It requires about three days to make, and is sold when quite fresh. They are generally sold retail at 3d each.

CREAM CHEESE.

A good cream cheese is made from the best quality of cream—8 lbs. of cream will make 6 lbs. of cheese. Each cheese weighs about 4 ozs. and is generally sold at 6d.

Name of Cheese.	*No. of lbs. of Milk for each Cheese.*	*Weight of Cheese.*	*Price.*	
			Wholesale.	Retail.
Camembert	4 1-6 lb.	11 oz.	6d.	7d.
Coulommiers	5 "	1 lb.	6d	8d.
Port du Salut	5 galls.	5¾ lb.	10d. lb.	1s lb.
Pont l'Eveque	8 lb.	1 lb.	8d.	9d.
Gorgonzola	10 galls	abt. 12 lb.	8d. lb.	10d lb

Beans As Stock Food.

Prof W. A. Henry recently received the following letter from a Waupaca county farmer:

"I have read your annual reports and bulletins of the experiment station, also farmers' institute bulletins but do not find anything in regard to beans as food for stock. I have raised a great many and feed them and am satisfied they have used me well. I had about 20 acres last season. I should like to have your opinion of beans as a feed for stock, and what you consider them worth per bushel, when timothy hay is worth $9 per ton, corn in ear, 50 cents per 100, oats 27 cents per bushel. I have been grinding and feeding to work horses, also to my breeding mares, to the sheep and milch cows with, what I consider, good results. I have also fed whole to sheep. I wish you would give what information you can in regard to beans as a feed for different farm stock, including milch cows; also do you consider it safe to feed to breeding ewes and breeding mares at this season of year? In feeding to sheep would you feed whole or ground?

"Please state the percentage of the different food elements, protein, carbohydrates, etc., also please state how much you would consider should be fed per day, in pounds, to different kinds of stock under different conditions.

"Perhaps you have a bulletin that covers this ground; if so please send it or tell me where I can get one. I have about 250 bushels of beans at present—some old."

Prof. Henry's reply to the above inquiries will prove of interest to many. It was as follows:

"Our correspondent brings up a subject of much interest, though unfortunately one about which we cannot give as much information is is desirable. Beans are not used to any extent for stock food in this country because of their worth and high market value for human food. In the bean districts, however, the buyers in handling the crop sort the beans carefully throwing out any which are dulled in color or injured in quality through rains, mildewing, etc,. at harvest time. Farmers can often buy these cull beans at a low price, and those who have done so find them valuable for feeding stock. Of course good bright beans would be somewhat more valuable than those more or less injured.

"The writer is unable to find the results of any digestion trials with beans as a feed for stock. We may however, compare the table bean of this country with peas and also the horse bean of Great Britain. In England the farmers grow a large coarse bean known as the "horse bean", which is valued highly as a strong feed for work horses. In the table given below I have added oats and bran to the list for comparative purposes.

Tabel showing digestible nutrients in 100 pounds of various farm feeds:

	Protein Lbs.	*Carbohydrates Lbs.*	*Ether Extract Lbs.*
Peas	16.8	51.8	.7
Horse bean	22.4	49.3	1.2
Wheat bran	12.2	39.2	2.7
Oats	9.2	47.3	4.2

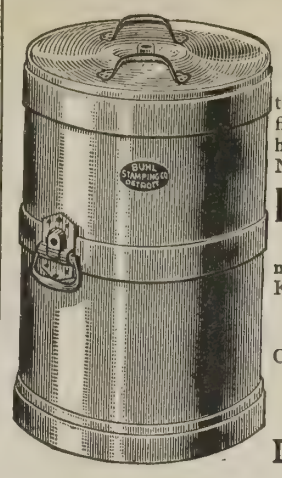
"The common bean which probably comes between peas and the horse bean in nutrients is evidently richer in protein than either bran or oats. Protein is the constituent of feeding stuffs which goes to build up the muscles of animals and may be used for heat, energy or fat production. In carbohydrates beans are fully as rich as oats. The carbohydrates furnish heat and energy and are the main source of fat with farm animals. Beans are not rich in fat or ether extract. Corn, our most common feeding stuff, is poor in protein. Beans are therefore a complimentary feeding stuff and should be fed with corn when possible. Young animals, cows giving milk and hard worked horses require more protein food than do fattening animals, which make their most economical gains where a large supply of carbohydrates is provided. For certain uses in feeding, as indicated above, I should value good beans as worth 25 per cent more than the same weight of oats or wheat bran.—W. A. HENRY, *in Wisconsin Farmer.*

He Is Surprised.

Says a writer in *Stock Breeder*:

"I believe that it can be easily proven that there is more room for improvement in our dairy herds and their management than there is in any other line in the whole field of agriculture. When we stop to think that the average make of butter per cow in the United States, as reported by the last census, was 130 pounds per year, we are surprised. When we put this fact by the side of the thoroughly practical one, that it is possible to have our dairies produce an average of 300 pounds, we are still more surprised. There are many dairies in the Uuited States that produce more than 300 pounds of butter annually per cow. There is not the least doubt of the practicability of securing dairies that will do this grade of work. There are plenty of cows scattered all over the United States that will do this quality of work when intelligently handled.

The DAIRYMAN is surprised at one thing more: That there is such a host of men keeping cows that take no pains whatever to know the truth concerning their herds. Did they do so, *they* might be surprised.



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The strong points of the Buhl Factory Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Handles.

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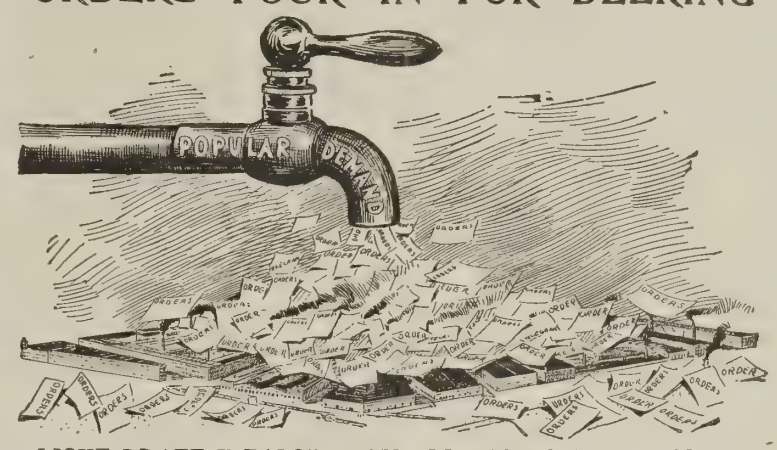
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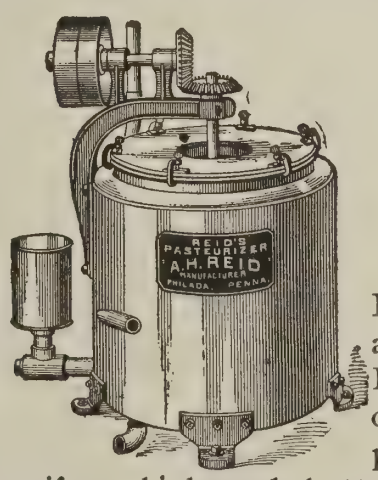
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They are the kind that don't get out of order. They are easy on horseflesh.

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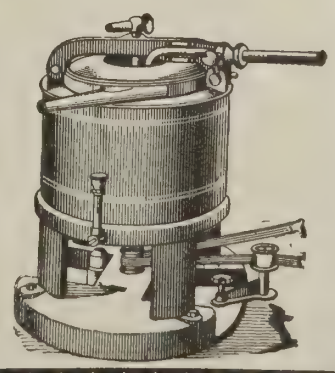


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is more convincing than any amount of talk. Write at once for complete description and price and don't forget to ask for the **Reid Long Spindle Separator** book. All free by mail.



A. H. REID, 30th and Market Streets, PHILADELPHIA, PA.

And CEDAR RAPIDS, IOWA.

The Conformation of the Dairy Cow.

[Address delivered before the Rural Science Club, of the University of Tennessee, May 29, '99, by Professor ANDREW M. SOULE.]

I have been in somewhat of a quandary as to the subject to choose for discussion, this afternoon. I thought, perhaps, the subject of the conformation of the dairy cow would interest you, because it is, undoubtedly, an important subject, and one that you can well afford to study intimately. Probably one reason for my choosing this subject is because this is a phase of instruction which we propose, especially, to emphasize here in our agricultural course. In this respect, we are to be congratulated, as our position is such as to place the use of many magnificent herds, besides our own, at our disposal for this work. It does not take a great deal of equipment to develop the subject of stock judging, and yet special training along this line, is highly important to every agricultural student. It is a subject that will be of interest to you in any calling in life. For example, if you go over the city of Knoxville, you will find a great many men who keep cows, and the question that will be asked by nearly everyone is: "How shall I know a good cow when I see her?"

Now, in college work, where you take a regular agricultural course, we commence with the score card. On each card we note, systematically, the characteristics of several individuals, until we become thoroughly familiar with the location, shape and form sought in the respective points of the dairy animal's anatomy.

After you have passed the "embryonic" stage of the score card, you come to the stage of "expert judging," where you will have, probably, half a dozen cows, from which to pick out the best. You should now be able to state your reasons for selecting a particular cow, and what are the superior points of one and the defects of another. In other words, train your eye, so that, if necessary, you can make a judgment in two or three minutes. I do not mean to say that you can, in every instance, pick out the best cow from a herd. That requires a great deal of study and practice. But you can become so expert that you can, very often, find the best cow. You can generally pick out a good cow, and tell those that are indifferent.

First of all, we must consider the cow as a machine for the economic production of milk and butter. And she varies for those two purposes. If you find a cow that gives 5,000 pounds of milk and yields 300 pounds of butter, you have a cow well adapted for that specialty. On the other hand, if she gives 8,000 pounds of milk, making 200 pounds of butter, she will prove more remunerative for the first consideration.

Commencing with the head, we have the poll, the eye, and the dish, three points that should receive special attention in a dairy cow. Our arguments, with regard to these points, are based on observation,—not on my own personal observation alone, but on the observation of those who have had wide experience; and we find, for example, that a cow that has the poll, or the point between the horns, wide, is generally a good milker. Now, we assign as a reason for this the fact that it is an indication of nervous energy. When you see a man of high, broad forehead you expect him to be a brainy man. We desire and seek the same thing in a cow, for the reason that milk is the direct product of nervous energy. We want every point that indicates high nervous energy strongly developed. And a very large brain indicates a well-nourished nervous system.

Next look at the eye. Probably the eye is one of the best indicators of nervous energy, or character that you can find anywhere. When you meet a man whom you do not like, you condemn him probably as much for his eye, as any other feature of his face. The eye seems to show the soul. The same thing is displayed in the cow. We look for those things that indicate good temper, or, we might say, for pleasing features. We look for those features that are attractive. You will find the eye of the Jersey cow probably the most highly cultured eye in the dairy world. A large, limpid, clear, placid eye, it gives you the idea at once of a gentle, kindly disposition, and at the same time of a strong, vigorous nervous temperament.

Following the eye comes the dish of the face. The dish is not due so much to the curvature of the nasal bone as to the prominence of the eye and brain. We count the dish a good point for that reason.

The next point to consider is the neck. Now, the neck of a good dairy cow will be longer than that of a beef animal. In the dairy cow you want a rather loose-jointed animal, with a long neck and a loosely wedge-shaped body. In the steer you look for a short body, and a compact, thick neck. For two reasons we do not want that type in the dairy cow. Where you find a heavy, short, thick neck, you have, as a rule, a tendency to meat production. Whereas the opposite tendency would naturally be sought. Second. Animals require a certain quantity of food for maintenance; all over that, produces milk, fat, or energy, as the case may be. In a dairy animal that has both tendencies, instead of all the surplus food material going to the production of milk, it is divided between two antagonizing purposes, and you get a meagre flow of milk of variable quality. Therefore we look for the neck to be rather long, and thin from side to side, or ewe-necked, as it is sometimes called. It should also have depth, and be free from loose flesh, or dewlap.

If you have the dairy cow as she ought to be, you will find her narrow at the withers. The beef animal should be broad there. In the chest region, however, there must be lots of room for the lungs, liver, and other excretory organs of the body. This is the center of oxidation. The lungs perform this most important function. Upon their ability to purify large quantities of blood will depend in large measure the milk flow, and of course, also, the health of the animal. We cannot get the lungs too large and strong, or the animal too broad through the thoracic cavity. If you find an animal that is narrow and cramped in the chest, do not buy that cow; she may be troubled with tuberculosis. In the chest, endeavor to secure great depth. That is an indication of the vitality of the animal.

We have in the cow the quadruple wedge-shaped formations. Strictly speaking, there are more than four wedges, but this is the number commonly considered as important. One is from the withers downward, increasing in width, known as the anterior wedge. Then we have the posterior wedge, of great width at the pelvis and decreasing toward the ground. Next follow the superior and inferior body wedges, increasing in width toward the posterior portion of the body. The definition of these wedges should be carefully scrutinized and emphasized.

The body, or barrel, of the cow should be very large, for the reason that her digestive and assimilative power is the direct measure of her productive capacity. Hence, that portion of the body containing the digestive and secretory organs should be tremendously large, wide and deep to give play to their respective functions. In general, then, the outline of the dairy cow, as viewed from the side, would be as follows: First, the neck is narrow and long, the shoulder point is rather prominent, the belly deep, broad and expansive, the flanks somewhat contracted, the hooks wide apart, and the rumps broad. In a beef animal you will find that from the shoulder to the rumps is almost a straight line when viewed from the side.

A very important point is the milk veins found along the belly of the cow. They should be very tortuous. They wind about on the belly and pass into the body, through orifices in the rear of the fore flank. Their duty is to convey the veinous blood to the lungs for purification. Hence, the larger the vein and the greater its ramifications the better indication it is that the circulation of the blood through the udder is very large; and naturally the larger the circulation of blood the greater will be the milk production; because milk, after all, is really a product of the blood.

To sum up, then, the strongest indication of a good dairy cow, as shown by the form, would be about as follows: First of all look for the wedges. By a good dairy cow I do not mean that she must be skin and bones merely. I do not believe that a cow can reach perfection for dairy purposes and be an emaciated skeleton, and yet she should not be rolling in fat, as some of the beef types are. I believe that a cow has a maximum capacity for milk and butter production. You can feed a cow so much and she will use that for her own maintenance. Feed her more and you will force her up to her individual capacity, but she will be just as good a dairy cow. A cow need not be skin and bone. If you keep her in that condition you will generally give her tuberculosis. I would look for a wedge shape neck, a clear eye, and a high forehead. Examine the breadth of the hooks and rumps, examine the form and texture of the udder, and notice minutely the development of the milk veins. That portion of the udder where the little white hairs cover it is spoken of as the milk mirrow; and when it is large and well developed that is an excellent indication of good dairy production. I would never buy a cow without testing her by the scales and the Babcock method for butter fat. I would also want to know her pedigree, who and what her father and mother were, and two or three dams back. Some udders are a delusion and a snare. When the udder stands out after milking, or is "beefy", you will find as a rule a cow of limited productive capacity; whereas, if the udder collapses and folds on itself at the posterior suture, it is an excellent sign.

These are just a very few points which may serve to give you some idea of the significance of the conformation of the dairy cow.

CHARTER OAK HERD, JERSEYS. Stock Young and Old, Either Sex of excellent breeding for sale. J. P BRADBURY, Pomeroy, O.

Hood Farm Jerseys Combination, Eurotas and St. Lambert Blood combined in One Bull. Seldom at this day can you get this great blood so close up Bull dropped Oct. 20, 1898, Solid Color. Sire, Brown Bessie's son, 50 per cent. Combination. Dam, Bombazette, by Prince Pegis, that sold for $ 2,500 at auction, a son of Mary Ann of St. Lambert, 36 lbs. 12¼ oz Write for price. HOOD FARM, Lowell, Mass.

Introduce Milking Jersey Stock INTO YOUR HERD. by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book", FILSTON FARM, Glencoe, Md.

High-Class JERSEYS The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239–son of Brown Bessie. Printed pedigrees. State what is wanted. H. C. TAYLOR, Orfordville, Wis.

We Have Sold SEVERAL OF The A. J. C. C. COWS advertised March 17th (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think genuine bargains. We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

For Sale . . . BULL CALF, Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz., in seven days. He will be sold cheap. P. J. COGSWELL, Rochester, N. Y.

BILTMORE FARMS' JERSEYS. This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere. Some Choicely Bred BULL CALVES out of great cows and by the best sires for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEY'S JERSEYS. Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455⅓ lbs. milk, 30 lbs. 2⅓ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons. 224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale Children's Ponies and Imported Shropshire Sheep. Franklin, Venango Co., Pa.

The Lone Tree Jerseys. THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and breeding stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners. Introduce Fresh Island Blood Into Your Herd. SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey. Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.


Pure Bred Tamworth Pigs, Bacon curers choice. Pure Bred Ayrshire Cattle, largest imported herd in America. Stock all ages for sale. R. G. STRAOY, Box 720 Brockville, Ont., Canada.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

FOR SALE "Reta's Parole," 20 months' old, solid color, and standard bred. Fine individual and well behaved. Direct blood of best St. Lamberts and Combination. F. L. GASTON, Normal, Ill.

ST. OMER HERD Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested. JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD POLLED JERSEY CATTLE Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962. For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to J. E. TYRRELL, Marysville, O.

ONE YEARLING BULL Out of a tested dam and TWO BULL CALVES out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD. WISCONSIN PRIZE HERD. Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED. F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACK, Manager

J. D. THOMPSON, Superintendent. FRED P. STORY, Herdsman. HICKORY HERD, JOLIET, ILL., H. N. HIGINBOTHAM, Prop. . . BREEDERS OF . . Fancy Jersey Cattle. Service Bull, Pedro's Handsome Prince, No. 42794. The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome Prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

The Stack Silo.

ED. HOARD'S DAIRYMAN:—Replying to your Jamaica correspondent in this weeks' DAIRYMAN, relative to stack silos, permit me to say Blunt's Patent Screw and Lever Ensilage Press is made by the Ensilage Press Co., Ltd., Leicester England. T. W. Lawford, Cedar Croft, Lawford Co., Va., some years ago advertised that he had the sole agency for the United States and Canada. So far as known, however, no stack silos have been built in this country.

I am not sufficiently acquainted with the conditions in Jamaica to say whether a stack silo system would be apt to give satisfactory results there, but I doubt it very much. In England and other European countries where stack silage has been made in the past, they are now abandoning the system, going over to our American system of round silos, if the information which I have received is correct. This is not to be wondered at, as nobody would be apt to enjoy, for any length of time, the work of hauling to the manure pile, half or more of the fodder they put into the stack.

My advice to the Jamaica gentleman would be that he build a small tank silo. If he does build such a silo, he should build it well and should use bevelled staves, so that there would be no chance for air to get in and cause the silage next to the wall to spoil. F. W. WOLL.

Wisconsin Experiment Station.

Ensilage for Fall Feeding.

We have concluded that the simplest and most economical way to provide both summer and winter feed for our dairy cows is to store enough silage to supply them for ten months, and to this end we will plant about 50 per cent more fodder corn than has been our custom heretofore. The pasture at the state farm was never better than it is this year. We turned out the cows on the first day of May, and notwithstanding the fact that the grass is luxuriant, when the cows come to the barn in the evening they take a good mess of ensilage with a relish. Before the cows are brought up some ensilage and a little meal is put in the mangers, and we notice that if the meal is not thrown on the ensilage they will eat the ensilage first. An acre will produce from 12 to 15 tons of ensilage, and a cow will take from 20 to 40 pounds per day, according to the condition of the pasture; so it will not be difficult to estimate the amount of corn that should be planted broadcast or in drills.

This year we will turn under 10 acres of either pasture or meadow and sow to fodder corn. In the fall it will be put into a silo, which will not be opened until about the first of July. Fodder corn will be fed from the first of November until about the first of February, when a silo will be opened which holds enough ensilage to last until the middle of May. As a rule, farmers are too busy to putter with little plots of this and that to help out in spring and summer pasture, and so we propose to set an example in supplying feed for our dairy cows by practical business methods.

We have tried to provide green feed by sowing various kinds of grain, such as rye, barley, corn and sorghum, but find them all impracticable, as cows destroy more than they will eat, causing a waste beyond all reason, and the item of cost of fencing and seeding, makes it very dear feed. Winter rye is objectionable food for a dairy cow because it taints the milk, and by the time the ground is sufficiently settled in the spring to receive the cows the pasture will be ready to receive them.

Futhermore, cows are not fond of rye, and the little they will eat of it will not pay for the destruction of a crop of rye. Cows are very found of young corn and will do well for a few days when turned into a lot of sowed corn; but since they tramp down two-thirds of it, the waste is so great that this method will never find favor among dairymen. Sorghum is not so well liked by cows, and it contains such a high percentage of carbohydrates that it requires too much mill feed to balance the ration for dairy cows. Carbohydrates are fattening and may answer for steers or sheep but not for milk cows. Sugar and starch makes animal fat but not butter fat. Oats and barley will answer a few days for soiling purposes and can be fed to good advantage from the time they head out until in the milk, when these crops should be cut for hay or allowed to ripen for a grain crop.

Our future standard cow feed is cured corn fodder and ensilage for winter and ensilage for summer, and the sooner cow-keepers adjust their farming operations to the present condition of affairs the better. We have used a fodder cutter and a silo for 15 years, and after all this experience feel warranted in stating that no farmer is properly equipped for the dairy business without both of them. We would as soon undertake to dairy without cows as to attempt it without a fodder cutter and a silo. Ensilage must be cut and fodder corn should be.—T. L. HAECKER, in *Farm Stock and Home*.

Injury to Dairymen.

Loss by Fraudulent Sale of Oleomargarine.

E. M. Slayton, of Manchester, N H., well known in the west, has issued an appeal to those interested in dairying in his state to attend the convention to be held next Tuesday (June 20) at Concord; and in this address Mr. Slayton brings out facts which apply to every state where oleomargarine is fraudently sold as butter. The Concord convention, as *Chicago Dairy Produce* has previously announced, is called to arrange plans for the enforcement of the oleomargarine law of New Hampshire, and to organize a state movement in favor of the proposed taxing by congress of 10 cents per pound on all oleomargarine colored in imitation of butter.

Mr. Slayton's letter is directed to the managers of creameries, and in it he says:

"We have a law in this state relating to the sale of oleo, also a law directing the secretary of the Board of Agriculture to enforce the same, but here in Manchester, in the month of May, 1899, the grand jury of Hillsborough County refused to grant indictments against dealers who made sales of oleo, classing the prosecutions with those against liquor dealers, thereby indicating that in their judgment the illegal sale of oleo and of liquor were on the same basis, and that the people of the state of New Hampshire did not care to have the law regarding the same enforced."

It is our humble opinion that this is not a fact. If the consumers of oleo were benefited even a small percentage, by the amount of money that is lost to the farmers throughout the state, or if the profits on the sale were divided with the people who were residents of the state and pay taxes here, perhaps it might be considered a benefit, but the fact is that of the more than $1,000 per carload profit, which is made on the sale of oleomargarine, practically none of the money stays within the state. There are only fourteen oleo factories licensed by the United States authorities, and they work together as to prices, making them just enough lower than the price of butter to secure a sale Even the distribution throughout the state has been in an underhanded way, and at a minimum of cost to the manufacturer.

A careful computation of the quantity of butter usually consumed per person in the boarding house and restaurant, shows that the consumption is practically one ounce per person per day, and the less price the boarding house keepers have bought their oleo than what sound, sweet butter would have cost them, reduces the cost one half a cent a day per boarder, or three and a half cents per week per boarder, certainly an insignificant sum to save, one which cannot for a moment stand against the reduction of $3.50 per cow to all the farmers in the state of New Hampshire, whether their milk is sold as milk or taken to the creamery and the product sold as butter.

The sale of butterine or oleo in the state of New Hampshire has increased more than 500% in the last three years, and it is our judgment that the almost unrestricted sale of the same has reduced the price of butter two to three cents per pound. Two cents per pound on butter is equal to $3 50 per cow, reckoning the output per cow to equal 175 pounds of butter per year, and as there are about 110,000 milch cows in the state, and reckoning that the product of 100,000 cows is sold off the farm, it makes $350,000 less per year to the milk producers of the state.

As you all know, the price paid by the contractors per can for milk, is governed, to a large extent, by the value of said milk to be made into butter, so we can safely say that the value of the product of every cow throughout the state is seriously affected by the sale of oleo, and unless there is something done by the farmers to lead to a change in the minds of the people, I am afraid the consumption of oleo will be larger the coming fall and winter than ever before. It certainly will be, if the grand juries refuse to carry out the laws of the state.

The statement has been made to me by people high in authority that they understood that oleo was fully as healthy as butter, but the fact is that tallow and paraffine, which are both used in the making of some, are very hard to digest and are injurious to any stomach but the very strongest.

We trust that you will make an effort to attend the meeting to be held June 20, 1899, at Concord.—*Chicago Dairy Produce*.

Importance of Corn Fodder and Ensilage.

These feeds are the most important factors on the dairy farm. Every dairyman must secure a ration that will produce milk cheaply, and experience has taught him that corn about fills the bill. The great question is how to preserve it in the best way. After 12 years of experience with a silo I have no hesitation in saying that by no other method can corn be preserved so as to give as good results. The kind for the individual farmer to grow, is the variety that will mature a fairly good-sized ear and an abundance of leafage.

In preparing the ground for ensilage crops, plow deeply in autumn. Spread manure on this plowed ground in winter at the rate of 20 loads per acre. Go over the land in spring with a disk or spring-tooth harrow, and as soon as the danger from frost is over, cultivate thoroughly with an ordinary cultivator, then roll. Plant in rows 3½ ft. apart, growing three stalks in each hill, if possible. Harrow the field twice before the corn comes through and twice after it is up. I would not advise harrowing after the corn is 8 inches high. After that use an ordinary cultivator. While the corn is growing I build the silo. The kind of a silo will depend a great deal on circumstances. If I had the material at hand to build it of concrete I would do so. If you prefer a wooden silo, a round one is best. In any case, it should be 30 ft. high. The size will depend upon the number of cattle to be kept. Silage from fairly well matured corn makes a good milk-producing ration and about 40 lbs. per animal is the average daily feed. Young cattle require less, and beef animals usually require more.

In my own case I like to feed a ration of one-third marsh hay, one-third sheaf oats, which have been cut a little green, and one-third clover hay which has been run through the cutting machine. For green feed I like peas, oats and barley, using for seed a mixture in the proportion of 4 bushels of oats, 2 bushels of barley and 1 of peas. Cows newly in milk or heavy milkers are given what they require of this feed for best results. I feed ensilage to horses, cows and calves. Last summer I built a stone silo 20x24 feet and 30 feet high, plastering it on the inside with Portland cement. Studs were arranged on the outside and the silo covered with shiplap. The air space between the shiplap and the stone is a great aid in keeping out frost. This silo holds 150 tons and has been very satisfactory.—*Joseph Yuill, Ontario*.

A RESOLUTE SET OF CREAMERY PATRONS.

The patrons of Rock Creek, Iowa creamery held a meeting recently and discussed the poor milk question, with their sleeves rolled up, as the following resolution will testify:

WHEREAS, The eastern buyers are getting more and more particular as to the quality of butter and

WHEREAS, Most of the causes of poor butter are claimed to be from tainted or bitter milk. Therefore

Resolved, That all patrons of our creamery shall be compelled to keep their milk cans clean and in good order and to strain their milk and properly cool and care for the same, and any milk that comes in dirty cans or shows poor keeping shall be classed as "B" milk (good milk being classed as "A" milk) and the "B" milk shall be sold for four cents per cwt. less than "A" milk.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Two yearling bulls from dams giving 60 lbs. and 71 lbs. each. Test 4.5 and 3.6 each. W. R. GATES, Ripley, Jefferson Co., Wis.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD. Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians. Herd headed by Sir Brookside De Kol. Choice young stock for sale Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. O. H. Stevens, Jefferson, Wis.

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

McGEOCH FARM Holstein-Friesians. Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

MECHTCHILDE AND TIRANNIA

The two greatest cows in the world are owned at Valley Mead Farm. Their average milk record, each, is 101½ lbs. in one day; average butter record, each, for 7 days, 38 lbs. 8½ oz, an average which stands unequaled by any two cows in the world for either milk or butter. The fame which these cows have won in the show yard and public milk and butter tests, stands unapproached, like their records. They sold for $2,000 each. Their blood, which was almost unobtainable, can now be had in young males, close, through their sons and daughters Address Valley Mead Farm, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys. CHAMPION HERD AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS. Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys. First Prize Herd wherever shown, viz: New York State Fair. 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

GUERNSEYS! 84 Cows averaged 399 lbs. of Butter each in 1898. Some Choice Young Stock For Sale. ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis.

Rape as a Forage Crop.

"Throughout a large portion of the United States, farmers and stock-raisers could advantageously grow more of the succulent forage crops for feeding stock during th. summer and autumn months when the supply of grasses and clovers is often limited. Such crops may usually be grown on land that has already produced an early maturing crop of some sort, such as oats, rye, or wheat. One of the best of these succulent crops is rape (Brassica Napus, Linn.), a plant closely related to cabbage, turnips and several other garden and field crops.

DESCRIPTION.

"Rape is much like the Swedish turnip, or rutabaga in appearance, but the root is more like that of cabbage. The leaves are large, glaucous, smooth, spreading, and variously notched and divided; the flowers are bright yellow, nearly one-half inch in diameter; the seeds are produced in pods usually two inches or more long.

"Under ordinary field conditions, the plant reaches a height of from 1½ to 4 feet, and the strong-growing roots penetrate the soil to a considerable depth.

"Rape is either annual or biennial. The annual varieties (summer rape) are grown chiefly for the seed, and have not been much cultivated in this country. The biennial varieties (winter rape) are used largely for forage.

NATIVITY, USES, AND EXTENT OF CULTIVATION.

"Rape, like the turnip, is a native of Northern Europe, ranging eastward into Siberia. Although it has long been cultivated in the Old World, it has received but little attention in America until within comparatively recent years, and is now much more widely grown in Canada than in the United States. Practically, all the rape grown in this country is the winter or biennial sort, but in Europe, especially in England, summer rape is widely cultivated. The seed yields about 33 per cent of expressed oil, which is of value for lubricating, and is also used for lighting. The compressed rape-seed cake is used as a food for stock and as a fertilizer. It is regarded as particularly valuable as a fertilizer for flax and turnips. The seed is much used as a bird food. In this country, rape is grown almost exclusively for forage, being used chiefly for soiling, and summer and autumn pasturage.

"Rape is best adapted to rather cool, moist climates, such as prevail in portions of Canada and the northern United States. It can, however, be successfully grown as a forage crop in many of the warmer and dryer sections. Thus, in favorable seasons, or with a small amount of irrigation, excellent crops of rape are grown in Wyoming, Montana, the Dakotas, and other states in the so-called semi-arid region, and many instances are on record where good crops have been produced without irrigation, under conditions of drouth so severe as to cause the failue of corn and other farm crops. In parts of the South, rape may be grown for late fall or winter forage.

SOIL REQUIREMENTS.

"For its best development, rape requires a rich, moist, loamy soil and will usually do well on any but light sandy soils and stiff clays, such soils being usually deficient in vegetable matter. In general a soil that will produce good crops of turnips, cabbage, wheat and corn will be suitable for rape.

"Rape is a gross feeder and draws quite heavily on the nitrogen, as well as the mineral constituents of the soil, and hence should be used in rotation with crops that feed largely on other elements of plant food. For example, rape and fodder corn take about the same proportion of nitrogen, potash, and phosphoric acid from the soil, and experience has shown that corn does not do well after rape, unless the land is naturally rich in these substances. Results obtained at the North Dakota Experiment Station, indicate that the growing of a crop of rape on land that has been sown to wheat for a number of years produces a decided increase in the yield of wheat from the succeeding crop. This is a point of much value in regions where wheat is extensively grown.

VARIETIES.

"All the varieties of rape that have come into prominence in American agriculture are winter or biennial sorts. Dwarf Essex or English rape has been most widely cultivated. Recently a variety has been placed on the market under the name of Dwarf Victoria rape, or simply Vicioria rape, which has given excellent results in New England and also in the Northwest, yielding, as a rule, rather better than the Dwarf Essex. At the New Hampshire Experiment Station this variety is reported as yielding nearly 50 tons of green fodder per acre, and yields of 25 to 30 tons per acre are reported from South Dakota and elsewhere in the Northwest. Under average conditions, a yield of from 10 to 20 tons or more may be expected from either of these varieties.

CULTURE.

"Owing to the great variety of ways for utilizing rape and the many places it may occupy in the rotation of crops on the farm, there are numerous methods of culture that may be followed in growing it. When it is grown as the primary crop of the season, the land should be prepared by deep and thorough plowing, preferably early in the preceding autumn. In some soils a second plowing should be given in the spring before the seed is sown, but in soils that are naturally loose and mellow, such as are found in portions of the Northwest, a simple stirring of the surface with a cultivator or disk harrow will often be sufficient. The land should be well pulverized by harrowing before the seed is sown. When the land needs fertilizing barn-yard manure may be applied before plowing, in the autumn, or if the land is plowed twice, the manure may be spread on during the winter or early spring before the last plowing. Commercial fertilizers may be applied by harrowing in at the time the land is being pulverized previous to seeding. Whatever treatment the land is given in preparation for this crop it should be such as to afford a deep, mellow seedbed, as free as possible from noxious weeds.

SEEDING.

"Throughout the northern states generally, seeding may take place from the first of June or possibly earlier, to the middle or last of July, according to the season and locality. In the south the seed may be sown in September or early in October. Under favorable conditions two to three pounds of seed per acre will be sufficient and it will never be necessary to use more than five pounds per acre. The seed should be planted in drills far enough apart to allow cultivation. In practice the distance varies, but it is seldom less than twenty inches nor more than thirty-four; twenty-two to twenty-eight being perhaps the most satisfactory, all things considered. For planting small fields any of the common garden drills will be found quite satisfactory, but for large fields a grain drill with some of the feed hoppers closed, may be used. When the ground is clean and in proper condition otherwise, good results may be obtained by using the grain drill with all feed hoppers open, and giving no after cultivation. As a rule, however, it will be best to plant in wide drills and give sufficient shallow cultivation to keep the soil in good physical condition and destroy weeds. With favorable soil and climatic conditions, good crops of rape may be obtained from broadcast seeding, but whenever there is any danger of the surface soil becoming very dry during the time the seed is germinating, or when land is at all foul, drilling will give much better results.

AS A CATCH CROP.

"When rape is grown as a secondary or catch crop, it will not often be possible to pay so much attention to the preparation of the soil and the time and method of seeding, and quantity of seed used may be varied to suit the circumstances. Often, fine rape may be grown on land that has already produced a crop of some of the early maturing cereals, such as rye, oats, or barley. As soon as the crop of grain is removed, the land is plowed or "disked" and at once seeded to rape. Field peas and other early maturing forage crops, or rye or winter oats that have been pastured off in spring may also be followed by rape with profitable results.

"Another practice which is coming into favor in some sections of the country is to sow rape in the spring with some grain crop, such as wheat, allowing the former to take possession of the field when the latter has been removed. This method is especially satisfactory when succulent forage is desired for fall feeding. Rape may also be sown in

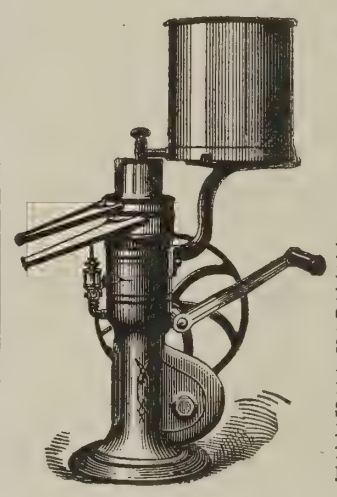
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Quality of Cream . . .	The NATIONAL is the Best.
Strength and Durability .	The NATIONAL is the Best.
Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
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551 Marquette Building, Chicago.

the corn field just before the last plowing, as is often done with rye and winter wheat.

AS A WEED DESTROYER.

"Aside from its value as a forage, rape is an excellent crop to grow on fields that are foul with weeds. The late date at which the seed may be sown allows the weeds to get well started before the final preparation of the soil begins, they are further kept in check by the cultivation required for the crop during its early growth and later the rape plants shade the ground so completely as to keep the weeds down. An excellent treatment for a foul field, is to plow thoroughly in late summer or early autumn and seed to rye or some other forage crop to be pastured off during the fall, winter, or early spring. When the crop has been pastured sufficiently, and before the weeds have produced seed, plow again, plant rape in drills and give thorough cultivation. There are few weeds that will survive such treatment, and the land will have given profitable returns in forage in the meantime.

HARVESTING AND UTILIZING THE CROP.

The rape is usually ready for use in about 8 or 10 weeks from the date of seeding. The general practice is to use it as a soiling crop or as pasturage. Sheep and swine may be turned into the field and allowed to remain until the rape is pastured off. Cattle may also be allowed to run in the field, but as they waste much of the forage by pulling up the plants and trampling them down, it is a better plan to cut the rape with a scythe or mower and feed it to the animals.

With sheep and cattle, care should be taken at first not to allow the animals to eat too much, as there is danger of injury from bloating. Hungry animals should not be allowed to eat their fill, and it is not best to turn them into the rape when the leaves are wet. There is no danger of bloating with swine. It is an excellent plan to have the fields so arranged that the sheep and cattle have access to an open pasture as well as to the rape. Animals should have free access to salt at all times when being pastured on this crop.

FEEDING VALUE.

Rape has a high feeding value. It makes an excellent feed for fattening sheep and swine and for producing an abundant flow of milk, in milch cows. On account of danger of tainting the milk, many people do not feed it to the cows until after milking. Rape can be used to good advantage as a part of the ration for animals that are being fed in pens for market or for the show ring. It is also a valuable food for young lambs at weaning time. By beginning as early as practicable in the spring and seeding at intervals of two or three weeks, a continuous succession of rape can be produced throughout the period when the permanent pastures are most likely to be short. Rape will endure quite severe cold weather and thus will last a long time after the ordinary pasture grasses succumb to the frost. By the use of this crop, stock can be gotten into good condition for the holiday markets or for winter, and there need be no check in growth, fat and milk production, through insufficient succulent food during the late summer and autumn months, as is too frequently the case.

Under favorable conditions, two or three cuttings may be made in a single season from a field of rape grown as a primary crop. Mr. W. H. Heidman, of Kalispell, Mont., reports three cuttings the first season with a heavy yield of forage. He allowed the plants to stand the second season and obtained a fine yield of first-class seed. Not much attention has been paid to growing rape for seed in this country, possibly because of the fact that in most localities where this crop has been extensively grown, the winters are so severe as to destroy the plants. It seems, however, that there are localities where rape can be profitably grown for seed and farmers might well devote more attention to this feature of rape growing, since most of that now used is imported.—Bulletin U. S Dept. of Agriculture.

The Kansas Dairy School.

ED. HOARD'S DAIRYMAN:—The regents of the Kansas State Agricultural College have just elected F. H. Leighton, New Hampton, Iowa, Instructor in Creamery Butter making, and H. Van Leeuween, Effingham, Kansas, Instructor in Factory Cheese Making.

The Dairy School will open Jan. 3, 1900.

Plans are well under way for the new $25,000 dairy building and for the new 100 cow dairy barn. H. M COTTRELL.

Manhattan, Kansas.

Treasurer's Report of the National Butter Makers' Association.

ED. HOARD'S DAIRYMAN:—The following is the financial condition of the National Creamery Butter Makers' A sociation, June 1, 1899, as per books audited by examining comm ttee:

Received from ex-Sec'y, Nissley	$ 107.92
Membership dues	1,141.50
Contributions	3,720.00
Advertisements	280 co
Miscellaneous	10.44
Surplus from sale of butter at Sioux Falls, after deducting $606 for memberships, $172 58 for express charges and $51.49 returned to exhibi'ors	557.22
	$5,817.08

DISBURSEMENTS.

Cash Premiums	$2,651.31	
Medals, banners cups, diplomas	330.85	
Printing	256.99	
Stenographer during year	88.75	
Official report of Sioux Falls meeting	132.75	
Postage during year	147.45	
Expenses of Judges at Sioux Falls	286.90	
Expenses of butter room, including cases for foreign exhibit	109.25	
Badges	201.50	
Advertising, half tones, express and telegraph charges, expenses of officers attending meeting and miscellaneous expendi'ures	555.76	4,761.51
		$1,055.57
Cost of printing and mailing 7th Annual Report		283.12
Balance in treasury		$ 772.45

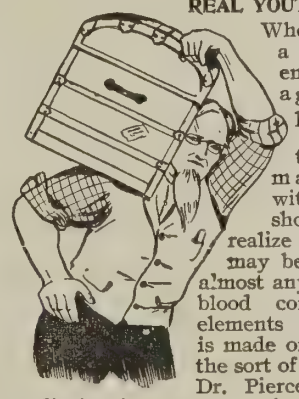
E. SUDENDORF, Sec'y and Treas.

To Destroy Live forever.

ED. HOARD'S DAIRYMAN:—Tell W. W. B., whose letter is on page 288, that there is a "diseased liveforever" that will kill other liveforever if planted by the side of it. Mr. Frank Hill, of this place, had a field of about two acres, literally covered a few years ago but it is nearly all gone now. The plants commence withering up the last of this month and die. E. O. D.

Swale, N Y.

REAL YOUTH.



When you see a man old enough to be a grandfather pick up a heavy trunk and march off with it on his shoulder you realize that a man may be young at almost any age if his blood contains the elements that youth is made of. That is the sort of youth that Dr. Pierce's Golden Medical Discovery puts into a man's veins. It gives him digestive power; it turns his food into good nourishing blood; it enables the liver to keep that blood pure and free from bilious poisons. It fills him with muscular strength and vitality. It makes him in the truest sense young again, and keeps him so.

"I am pretty well now, for a man of sixty-three years," says Mr. John Larson of Ashby, Grant Co., Minn. "I had been very badly troubled for many years with dyspepsia, also nasal catarrh, and got so bad and weak that I could not work.

"I could hardly eat anything without vomiting; had a pain in the stomach and a burning sensation coming into the throat. I took Dr. Pierce's Golden Medial Discovery and 'Pleasant Pellets,' and can truly say these medicines have helped me wonderfully. I commenced taking them in the fall and used them all winter. I took fifteen bottles of the 'Discovery' and six of the 'Pellets' according to directions, and must say that both are good honest medicines.

"I improved right along from the very beginning. I just stopped taking medicine in the latter part of May and then felt as well as ever in my life. I can eat all kinds of food and it dosen't cause me any pain in my stomach now as it always did before I took Dr. Pierce's medicines. I can cheerfully say to the public that they need not hesitate in taking Dr. Pierce's Golden Medical Discovery for dyspepsia; it will eradicate and cure the disease if anything will."

If you are in poor health write to Dr. R. V. Pierce, of Buffalo, N. Y. It will cost you nothing whatever for his advice although he is at the very head of his profession in the treatment of obstinate chronic diseases.

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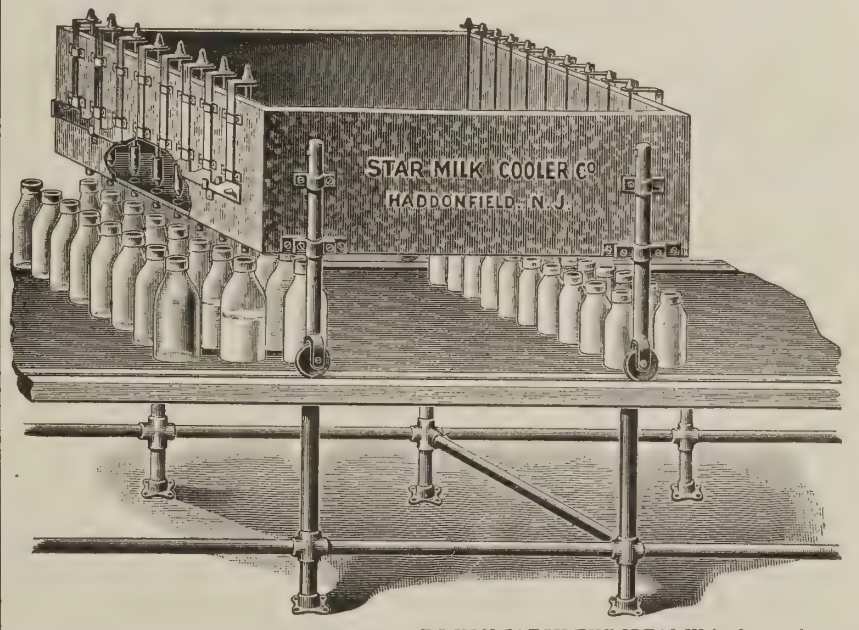
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Volume XXIX of Hoard's Dairyman

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The Relation of Disinfection to the Health of Live Stock.

Its Mode of Application and Advantages.

The word disinfection to some means little, while to others it is of vast importance. By the term is meant the application of agents which prevent or destroy these living micro-organisms from which contagious and infectious diseases arise.

Disinfectants are placed under various classes, as those which kill the germ when brought in contact, those which change the material upon which its existence depends, those which absorb or encase the disease germs, rendering their existence harmless, etc.; but by the every day busy man these distinctions may be left to the investigator to dictate to the world which is most suited to each and every particular necessity. There are, however, in common, certain conditions necessary to each and every individual who has the responsibility of avoiding or combating diseases to which animals subjected to his care, are or may be exposed; and perhaps, the greatest of all responsibility rests with this class, for no place can be free from germs where there is absence of good sanitary arrangement, cleanliness, pure air, sunlight, perfect drainage, etc., in the presence of which artificial agents need be called very little into use. There are, however, conditions surrounding the live stock breeder to day for which he is not entirely responsible, as, for instance, the outbreaks of hog cholera at different points, and the generally distributed outbreaks of contagious abortion among our Canadian herds of cattle, which in certain sections are becoming alarmingly prevalent and doing inestimable damage. Either of these may be brought entirely within control by the exercise of proper disinfecting treatment. No definite rule can be laid down to meet the requirements of each case; yet in the main, cleanliness and the absence of decomposition must be first considered under all circumstances, as the heaping of disinfectants on dirt cannot bring sweetness and purity. It must therefore be remembered that disinfectants should never be allowed to be made an excuse for habits of carelessness or uncleanliness, but all refuse and dirt should be removed regularly, and no accumulation of such permitted. Sweetness is health; stench is disease. This being accomplished, we have many highly useful agents within our reach, and our object now must be to select those agents possessing the greatest antiseptic with the least objectionable properties. All disinfectants are more or less poisonous, and the more powerful in antiseptic properties the more destructive to all life. Therefore for our purpose much caution must be exercised in their selection and mode of application.

Corrosive sublimate is perhaps the most powerful of all antiseptics, yet from its extremely poisonous action its application is attended with too great risk to the subjects we wish to protect. Carbolic acid ranks high, if not among the highest in this class but its corrosive and death-dealing effects are so positive that its application demands the greatest of caution, and is therefore not safe in the hands of careless operators, and therefore should not be employed in concentrated form. It is, however, highly useful when protected in dry substances, which render their liability to be taken in overdoses impossible. Chloride of lime, although yielding germ-destroying gases, while reasonably safe, is highly undesirable on account of its unpleasant odor. The coal-tar series yield, perhaps, as safe, and desirable agents, as have yet been produced, being positive in their action, attended with very little danger to human or animal life when reasonable care is exercised in their application, and give off little or no objectionable odors. These are highly destructive to the lower forms of germ life when brought into contact with it. Of this class, creolin is perhaps the basis of many of the best and most desirable products now on the market under different names and offered for disinfecting purposes. Many of the advertised sheep dips and cattle washes owe their virtues largely to this class of products, and are perhaps the most valuable yet known, as they contain many desirable and few objectionable and dangerous properties.

Having selected our germicide, the next step is to consider the mode of application and conditions necessary to obtain the best results when applied. First remove all dust and filth, sweep down all cobwebs—and right here let us add that it is deplorable to walk into an expensively constructed stable and find the ceilings hanging thick with cobwebs, when so little exertion is required to remove and destroy them. What owners neglect, herdsmen should see the necessity of doing, and the attendant who has to have his attention drawn to such details is lacking in the qualities which should bring him to the front. After all dirt is removed and due regard is placed upon cleanliness, light, drainage, ventilation, etc., the thorough application of the agent to floors, walls, ceilings and drains should follow. It should be evenly distributed if in powder, or if in liquid form the modern spray pump is a splendid and economical medium, some of which have special provision for this work. Among the more prevalent diseases to be combated by the use of disinfectants, we look upon contagious abortion as worthy of our first consideration, and to our mind this is one condition the eradication of which wholly depends upon proper, thorough and persistent effort; in fact, the disease could not gain access in the presence of proper disinfecting agents.

Hog cholera, so prevalent and destructive in certain sections, can at least be held in check, if not altogether prevented or eradicated, by its thorough application. The germs of lump jaw, so prevalent in cattle in certain sections, are given off in abundance in the saliva in feeding trough, there to remain to attack the first victim accepting it, and may be destroyed by proper application of disinfecting substances. Ringworm may easily be eradicated from the premises, as its presence depends upon a vegetable parasite. Lice and other vermin on horses, cattle, sheep, pigs and poultry require direct applications to the skin of the animal, yet much valuable assistance would be added by thoroughly disinfecting their places of abode. Even worms in sheep, pigs and calves would find far greater difficulty of existence during their transitory stage in disinfected quarters. Much may also be done to reduce the risk and danger of exposure to many of the deadly diseases which have worked destruction in many parts of the earth during the past, which might at least have been held in check, had they not been regarded as mysterious. The advance made can scarcely be referred to better than in the following extract from the pen of an English pharmacist in a London journal:

"The useful science of bacteriology is indeed full of surprises, and every year bears witness to the astounding strides with which it grows, whilst day by day it is being more widely recognized of what stupendous importance to man is the message which it has to deliver. During the earlier childhood and adolescence of this new science, it was generally believed that this message was of a gloomy character, and one which it would be better to leave untold, for to the public it seemed as though it had nothing but death and destruction to reveal as lurking where danger was hitherto unsuspected. For many years bacteriologists had apparently nothing to announce but the discovery of new and subtle enemies to mankind, and to produce poisons possessing such a degree of malignity that beside them the venom of snakes and the most potent drugs of the apothecary appeared as comparatively harmless and even friendly. In reality, however, these deadly foes and poisons have always existed before, and have wrought their lethal work in the dark until exposed and branded by men of science, who after years of patient labor are now teaching the world how these foes may be vanquished, and how these old, but until recently undiscovered poisons may be counteracted and rendered innocuous by the administration of new antidotes."—*Farmers' Advocate.*

When the Cow is With Calf.

ED. HOARD'S DAIRYMAN:—I note in your issue of June 9th, an inquiry relative to the sign of a cow being in calf. I would say in reply to I. G. McC. that in Beech Hurst Herd we depend always on the following method:

The cow to be tested is of course milked separately and as soon as possible after milk is drawn, we dip a straw or timothy stem in the bucket of milk. Have a glass of pure water at hand and allow one drop of the milk to fall in the water—only one; if the milk quickly dissipates and renders the water murky, she is not in calf, but if the milk drop sinks to the bottom of the glass before mixing with the water, she is pregnant.

If you are not sufficiently expert, take the milk of another cow that has newly calved, and pursue the same treatment with both, at the same time, and you will not fail to note the difference in the way the drop of milk will mix with the water. I have practiced this method of determining pregnancy in my herd for years and I never knew it to fail.

Of course, I only speak from my own experience, but the theory is that the milk of a pregnant cow is viscous, or has a sticky adhesive quality that causes the particles to cohere more closely; consequently the tendency to drop in a mass instead of mingling immediately with the water.

I usually take the morning's milk for the test and use cistern or rain water, if you have it, or better still, filtered or boiled water. On "Beech Hurst" we have three kinds of water, pure spring, cistern, and slightly mineral from a tubular well, but always prefer cistern.

MRS. KATE M. BUSICK.

Beech Hurst Farm, Wabash, Ind.

Transfers of Guernsey Cattle From May 15 to 31, 1899.

BULLS.

Avenal Faucetta 5063. H. McK. Twombly to Geraldyn Redmond, Tivoli, N. Y.
Imp. Beauclerc 5848, H McK. Twombly to Geo. M. Reighard Bedford, Pa
Beau K. 6009, Franklin S. Kendall to Wm. D. Halsey, Bridgehampton, N Y.
Bamboo 5869, James Logan Fischer to C. L. Richmond, Daretown, N. J.
Coralson 5863, Geo. C. Hill to Mark Hughes, West Grove, Pa.
Duke of Maple Avenue 6007, Clayton C. Taylor to G. B. Scott, Potsdam, N. Y.
Dorothy's Director 4251, N. E. Smith to J. M Duncan, Silver Springs, N Y.
Frank P. of Argyle 5997, Mrs. E. B. Patterson to Thos. J. Lea, Ashton, Md.
Fidelity's Prince 5983, Eugene W Murphy to H. L. Bromfield, Mendenhall, Pa.
Guernsey Lad of Riverside 5993, James Forsyth to F. C. Ward, Brick Church, N. J.
Glencoe Squire 4205. James B. Case to S. C. Heald, Greenville, N. H.
Gypsy John 5615, John W. Scribner to Geo. C. Hill & Son, Rosendale, Wis.
General Blucker 5893, N. K. Fairbank to H. Riedeburg, Stone Bank, Wis.
Homestead Success 5914 L. V. Axtell to S. Cameron Young, Middletown, Pa.
King Gilderoy of Fernwood 5992, S. J Du Bois to Joseph F. English, Salem, N. J.
King Gypsy 5547, Chas. L. Hill to C. J. Angevine, Coldwater, Mich.
Keith of Homestead 6012, Dellhurst Farm to L. V. Axtell, Perry, O.
Keith of Homestead 6012, L. V. Axtell to J. G. Ragland, Perintown, O
Luther of Peacedale 4723, Belle W. McFadden to Hodgson Bros., New London, Pa.
Macomb 5998, Alexandar Grant to C. E. Crissman, Mount Vernon, Mich.
Macomb 5998, C. E. Crissman to H. F. Bittner, Troy, Mich.
Macomb 5998, H. F. Bittner to Frederick F ank, Troy, Mich.
Milton George 2d 5424, Mrs Mary Herron to A. J. Philips, West Salem, Wis.
Ovid of Homestead 6013, J. A Beidler to L. V. Axtell, Perry, O.
Old Homestead 5525, L. V. Axtell to D. E. Howatt, Mgr., Clayton, N. Y.
Prospect Boy 5442, C. O. Potter to E. H. Elmore, Hurleyville, N. Y.
Pride of Birmingham 5999, J. H. Brown to C. J. Hupp, Detroit, Mich.
Pride of Birmingham 5999, C. J. Hupp to John C. Chalmers, Ann Arbor, Mich.
Pride of Simsbury 11661, C. H. Eno to Park Commissioners, Springfield, Mass.
Prince True Type 5841, Elliott Warren to P. E. Chapman, Fairforest, S C.
Quartz Star 5859, Robt. W. Lord to J. Arthur Parsons, York, Me.
Robert Burdette 5994, G. B. Tallman to S. B. Allen, Burdett, N. Y.
Silvertone 6003, John G. Peene to Howard Willets, White Plains, N. Y,
Sterling Worth 6015, Jas. H. Bierne to Chas. Solveson, Nashotah, Wis.
Tharp's Select 6001, J. P Bartles to Wm. L. Tharp, Pittstown, N J.
Tharp's Select 6001, Wm. L. Tharp to Geo. La Monte, Bound Brook, N. J.

COWS.

Ada of Gardeau 11691, Dolly's Kate 9291, Ruth's Queen of Gardeau 11692, Geo. L. Cone & Son to L. V. Axtell, Perry, O.
Garnerette 11654, Germanette 11653, Greta's Daughter 11652, James B. Case to S. C. Heald, Greenville, N. H.
Gertrude of Meadow Lawn 9969, W. D Richardson to G. C. Hilmer, Big Stone City, South Dakota.
Golden Maid of B. 11176, Golden Pride of B. 11194, A. J. Snyder to E. R. Morrison, Stock, Pa.
Jessamine of Simsbury 11662, B. F. Nutting to C. H. Eno, Simsbury, Conn.
Lucy Lee 11657, John G. Mobley to Wm. F. Claussen, Claussen, S. C.
Loro 7691, Eugene W. Murphy to David Baker, Melvale, Md.
Miss Kerty of Neenah, 11698, F. W. Tratt to Warren Humphrey Scott, Neenah, Wis
Porter Duchess of Andover 9355, A. H. Lyman to Albert A. Allyn, West Springfield, Mass.
Rose Spring 9118, Mrs. Mary Herron to A J. Philips, West Salem, Wis.
Rosalie of Gardeau 10449. Geo L. Cone & Son to Paris Andrews, Perry, N. Y.
Rosa May S. 8248, Traveller's Minnie 6187, N. E. Smith to J. M. Duncan, Silver Springs, N. Y.
Suzanna Fernwood 11677, G. B. Tallman to S. B. Allen, Burdette, N. Y.
Tulalip 11477, Winnogene 11476, Winnogene 2d 11478, J. A. Baker to James B. Drago, Nebraska, City, Neb
Zente of Hilbar 8699, O. F. Woodward to G B. Tallman, Perry, N. Y.
Zente of Hilbar 8699, G. B. Tallman to Chas. O. Bennet, Hilton, N. Y.

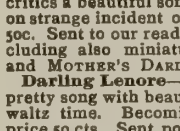
Peterboro, N. H. WM. H. CALDWELL, Sec.

MEN AND WOMEN Kidney trouble preys upon the mind, discourages and lessens ambition; beauty, vigor and cheerfulness soon disappear when the kidneys are out of order or diseased. For pleasing results use Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists. Sample bottle by mail free, also pamphlet. Address, Dr. Kilmer & Co., Binghamton, N. Y

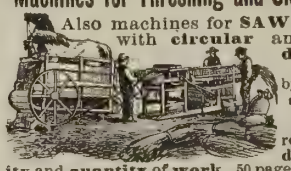
THE CREAM RIDGE
Dairy Association
Offers FOR RENT
Their ENTIRE PLANT and FIXTURES for One or More Years on Easy Terms. The creamery is located in one of the best farming and dairy districts in New Jersey, one-half mile from railroad station. Good sale for summer product at Asbury Park and other places along the shore, also convenient to New York and Philadelphia markets. Apply to W H. DAVIS, Sec'y, Cream Ridge, New Jersey

Impossible for any Liquid that is Sprayed on Cow, to protect her from Flies, in sun of 100 degrees ¼ as long as "SHOO-FLY" applied with brush. See "Shoo-Fly" adv. page 384, this paper.

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.
Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.
Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.
For 3 cts. I will send one miniature page of each of the three songs. Address the author, HALBERT L. HOARD. Fort Atkinson, Wis.

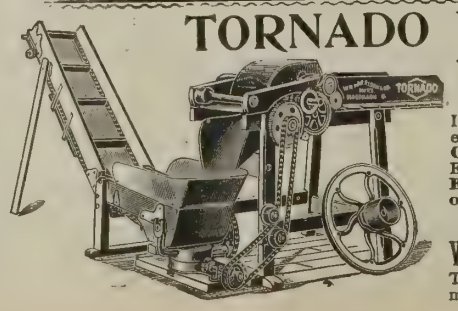

Pounder's GREAT Bog Shoe proves a Success on marsh or soft land. Write for my free catalogue. G. H. POUNDER, No. 3 Ft. Atkinson, Wis.

Stack Covers
made of waterproof and plain canvas. Also, covers for Farm Implements, Wagons, HAY CAPS, Tents, etc. Send for Hay Pamphlet and Price-list. HENRY DERBY, 124 CHAMBERS STREET, NEW YORK.

LATEST IMPROVED
HORSE POWER
Machines for Threshing and Cleaning Grain.

Also machines for SAWING WOOD, with circular and cross-cut drag saws. Acknowledged by all to be The Best regarding easy draft, durability and quantity of work. 50 page pamphlet free.
A. W. GRAY'S SONS, Patentees and Sole Mfrs., P. O. Box 6, Middletown Springs, Vt.

SILOS Are Filled Quickly and Economically with "New Hero" ENSILAGE CUTTERS

BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. STRONGEST GUARANTEED.
SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER, runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed FREE. Tells all about Hero Ensilage and Fodder Cutters. Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Shellers, Peck's Corn Thresher, etc.
APPLETON MFG. CO. 65 FARGO ST., Batavia, Ills.

TORNADO Ensilage Cutter

IMPROVED FOR 1899.
Do you expect to put up Ensilage this Fall? If so, the TORNADO will do it better and faster than any other. With our Improved 1899 Carriers or Conveyers they make the best Ensilage outfits known. Send for catalogue and Free Sample of the TORNADO'S work on Cornfodder and Hay. Also
Land Rollers and Sweep Horse Powers.
W. R. HARRISON & CO., Manufacturers, Massillon, Ohio.
Treatise on Cheap and Practical Silo Building mailed FREE. Mention HOARD'S DAIRYMAN.

Impure Water.

The dirty brook should be a theme for thought by more than one dairyman. The man that has no running brook on his farm is more likely to have good water for his cows than the man that thinks he is blessed by a stream of running water. Where the stream is rapid moving and fairly deep, it may serve for a drinking place the year round, but in most of our western states the conformation of the land is not such that a stream is either swift or deep or clear. In states that are filled with mountains and hills and forests, the streams, to a large extent, remain pure the year round. The soil on their banks is held in place by a multitude of vegetable growths. Frequently they run over a bed of stones, and are little exposed to impurities from the immediate banks. Such brooks may, in mountainous localities, serve as a suitable drinking place for the cattle most of the year, or until the summer drouth renders them stagnant. But in this great level country of the west, conditions are different. The ordinary brook should never be depended on as the water supply for the cattle. There are few times in the year when it is safe for them to drink from it, if the dairyman wants to keep both animals and animal products pure. In the midsummer especially it is a positive detriment to the dairy business. The man with the slimy, muddy brooks too often neglects to have a pure water supply, which his brother farmer, who has no brook, is compelled to supply. We have seen such streams in summer become muddy wallows where the cows both stood and drank. There is no doubt that animals, like humans, contract many diseases, solely through bad drinking water. On many farms the conformation of the land is such that shallow streams may be made sanitary by deepening the central channal and sinking a few shallow wells in their beds at various places, if the pasture is so large that the cattle would have to travel a great distance on a hot day to get water.—*Farmers' Review.*

Prepotency in the Bull.

The New Jersey Experiment Station has a herd of forty cows. The milk is sold at retail and guaranteed to contain four per cent of fat. It is useless to make any such guarantee unless the cows are good ones. The bull at the head of the herd is a Guernsey, and there are Guernsey, Jersey, Holstein, Ayrshire and native cows. They are all good ones. An old dairy farmer came into the barn and looked them over. His comment was:

"Have you any heifers for sale? I will take one from any cow in the barn, for there isn't a poor one here!"

Prof. Voorhees likes the Ayrshire cows. They are strong and hearty, good eaters, giving a good mess of fair milk. He would not keep all Ayrshires and guarantee four-per-cent milk. The Holsteins in the herd give lots of milk, but it must be enriched and colored with Guernsey or Jersey milk to fill the bill. The Guernsey is the great color bearer. One Guernsey to half a dozen Holsteins will help out the mixed milk wonderfully.

The old Guernsey bull at the Station was a good one, and he put his color and shape on most of the calves. The Holsteins, however, are too strongly prepotent for him. They dropped calves like the bull in shape, but with the black and white color. The Holstein is one of the oldest of breeds. Its color and shape have been bred for centuries, and are fixed traits. The golden color of the Guernsey was not so strongly bred into the bull, and the black and white color prevailed. The younger bull, however, is more prepotent. His calves, out of the same Holstein cows, have the Guernsey color as well as the characteristic shape. It is a strong illustration of the difference in breeding. The bull takes what his ancestors gave him, and gives it to his calves The young bull had stronger blood in his pedigree than the old one had.—*Rural New-Yorker.*

CONCERNING OUR ADVERTISERS.

We are publishing, on another page of this issue, an advertisement of the American Hay Tedder, which is manufactured by the Ames Plow Co., of Boston, Mass. Unlike most machines of this class, the American is not operated by the angle or crooked shaft, but the forks are placed upon a revolving cylinder. It thus avoids the shock, jar and consequent wear and breakage incident to the "kicking" motion. It turns and stirs the hay thoroughly. Write these people for a catalogue before you buy a tedder.

A FEW TIMELY POINTERS.

The up to-date farmer has learned the wisdom of doing his own thinking, and in selecting a binder or mower to weigh carefully the actual points of superiority, and to avoid mere "talking" or "selling" points. The "life" of a machine depends largely on its main frame, which should be solid enough to outwear the working parts, and yet not heavy enough to tear itself to pieces through its own inertia. The Deering Ideal Binder has a high carbon steel frame, hot-riveted at the joints. This machine has stood the most severe tests ever put on a binder. It has a cutting apparatus that will cut any crop that grows; elevators that will elevate anything it cuts; a simple reel with greater range of adjustment than any other, operated with a single lever; the famous Deering Knotter and Binder which never misses; the only bundle carrier worthy of the name, and finally Deering Roller and Ball Bearings, making it the lightest draft binder that ever cut a swath.

VETERINARY.

Queries in this department answered by Wm Horne, M. D. V. S., Janesville, Wis.

Cow Physic—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

BLINDNESS IN COW.

I have a cow that commenced to get blind about three weeks ago, and soon ran at the nose; about a week ago she came it; she does not give hardly any milk and her teats are very sore. The discharges from her nostrils were yellowish at first and smelled very badly, but after I syringed with carbolic acid it got whiter and less offensive. We keep her in the barn. She is nearly blind.

Pine River, Wis. H.

ANSWER

I believe your cow to be in a dangerous condition and my honest and best advice to you is, to get some competent person to make a critical and close examination. This too without delay. The milk is quite unfit for use. I may be somewhat too much alarmed in the case. I hope so. Still you will do well to take my advice at once.

LOCK JAW.

My farm hand was breaking some ground June 6, and he said one of the horses got the thumps, as he called it, but got all right again. The horse eat heartily the next morning and plowed until about 10 o'clock, when he got to thumping again and staggering. He was then as wet with sweat as though he had been in river, back arched as a cow in a blizzard, great restlessness, could not keep him still a moment, left hind leg partially paralyzed so that he had to swing it outward to step, in place of bending at hock; difficult to keep him on his feet, staggers as he walks; seems to be suffering great pain or crazy or both. He got down in about half an hour, and then I more particularly noticed his respiration. His inspiration was sudden, accompanied by a loud thump, as of a sledge hammer inside of him, and a heaving of the flank and a jarring of the belly, and a spasmodic contraction, jerking and quivering of the muscles. His hind legs both became stiff and rigid toward the last, and his breathing snoring, and though we bled him and chloroformed him and used ice on his head, none of it broke the spasm and he died with his jaws tightly set.

Mount Clare, W. Va. O. T. Hansford.

ANSWER.

Your horse died with lock jaw. This was no doubt induced by the excessive heart action. The cause of this I am quite unable to state. Usually such condition is the result of hereditary origin. This I have found to be the case in many instances in the horse. My son had one die not long ago from the same cause, excessive palpitation of the heart. Against my repeated advice he drove him to a buggy, and he dropped dead in the road. In all such subjects, it takes but little excitement of any kind to cause death.

HEIFER WITH COUGH.

I have a heifer that has a very severe cough. She has never been well since she had a calf about a month ago; the calf came dead. She seems to be very sore and coughing seems to cause her great pain. She eats very sparingly, and is losing flesh all the time. H. A. W.

Sutherland, California.

ANSWER.

Lobelia, *fluid* extract two drams, gelsemium *fluid* extract half a dram, clarified honey one tablespoonful, mix and place upon the roots of the tongue, for one dose. Then, after this, add warm water, four tablespoonfuls, and allow this to trickle down the throat as slowly as you can, one dose each day for two days, then once every third day for two doses.

I would advise you to have some qualified veterinary surgeon examine the animal. She is suspicious of tuberculosis.

GARGET.

We have a valuable Jersey cow that is just fresh now that has always been troubled with garget off and on. G. A. W.

Dayton, O.

ANSWER.

It is imperative that the heifer be thoroughly milked, always. Lack of clean and perfect milking causes many udder, and other complaints of the milk process. Immediate full dose of physic and repeat once or twice if needed. Rub the udder with strong tincture of camphor six parts, and common turpentine two, only, parts. Use much gentle massage. As an adjunct, give two drams of fluid extract of poke root every third day up to 4 doses. Give good exercise daily. Rub udder twice first day, then only once for four times.

STRINGY MILK.

We have a young cow that was fresh last year, in August. Her udder will swell and she gives stringy milk for one or two milkings; then all is right again for two or three weeks. This has been so all winter. S. N.

Marble, Pa.

ANSWER.

Nothing will act so well as a permanent cure as intelligent depletion by one to three full doses of physic, about four days apart. Each morning give two dram doses of nitre, from ten to thirty days if needed. Keep away from all offensive matter, as many similar cases are the result of eating objection able stuff. Many similar cases are the result of hard jerky milking. Always avoid this bad habit.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by Gardiner Bros., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis

Susanville, Cal., March 3, '99.
H. W. Kellogg Co.

Sirs:—Enclosed you will find a Wells Fargo check for the amount of $28 for 100 pounds more of your Abortion Cure. We find the cure all that it is said to be. We have not lost any calves that we know of since using the medicine. Yours, etc.,
Masten & Ramsey.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz, $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

Dr. WM. HORNE, Janesville, Wis.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

Trade Mark

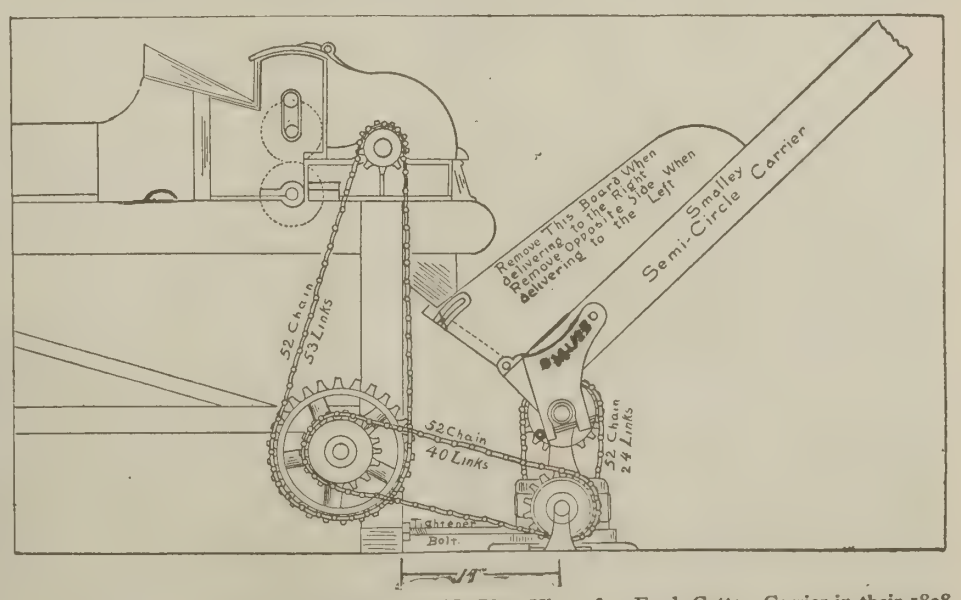


LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. **No cure, no pay. FREE.** A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

ILLUSTRATION.

We take pleasure in illustrating this week the new Semi Circle or Swinging Carrier, manufactured by the Smalley Manufacturing Company of Manitowoc, Wis., which they present to their customers as the most strictly up-to-date Silo Carrier or Elevator ever made in this country. It is made to deliver at any point within a radius of a complete semi-circle. It is simple in construction, and yet every part of it so strong as to reduce wear and breakage to the minimum.



One of the special features is its construction to prevent any of the cut fodder or ensilage from littering the floor while at work. In fact, with this carrier, the machine can be run during a wind storm without any danger of any inconvenience or delay. As stated in their catalogue, the practical experience of this company is second to no other concern in the United States in the manufacture of silo machinery, and they assert, without any fear of successful contradiction, that they have secured the *Ne Plus Ultra* of a Feed Cutter Carrier in their 1898 Semi-Circle Carrier.

This carrier has been in practical use for two seasons and has demonstrated everywhere that it possesses marked advantages over any similar device yet placed on the market. The unusual favor that has attended its introduction has decided the company, notwithstanding the increased cost of its manufacture, to furnish it on all their Smalley Cutters at the same price as their Common Style Carriers.

Catalogue giving full description and detailed information will be mailed readers of the Dairyman upon application.

The Holstein-Friesian Meeting at Buffalo.

ED. HOARD'S DAIRYMAN:—Great interest was shown by all present in the work of the dairies owned by the members. Mr. S. N. Bright, of Elgin, Ill., who has had a tilt with the condensing factories in his district, secured a vote directing a copy of the reports of tests to be sent to all such establishments in the country. He said some people had a way of scouting all statements made by him as to the tests.

Mr. Wright was in the movement to test Holstein Friesian cows at the Chicago Fair, and led the proposal in this meeting to prepare for competitive tests. He counseled giving long time, so that nobody could make an excuse to drop out on account of lack of time.

The report of Supt. Hoxie on official tests of milk and butter fat was very voluminous, giving tests made by various experiment stations of 200 cows classed in 7 groups according to age. The Sweepstakes prize of $50 was awarded to Gillett & Son, of Rosendale, Wis., for the five cows that would have taken the most money, but for limitations. This firm also received the highest prize of $40 in class 2, cows from 4 to 4½ years old (cow Johanna Aaggie, 36477); also in class 7, cows under 2½ years (cow Johanna Rue 3d, 42167).

The tests show the highest per cent of fat to have been given by Duchess of Ormsby, 16004, owned by W. H. Jones, of Hustisford, Wis, 6.3 per cent. As is often the case the amount was not large, so the highest award in this class, 5 years and over, went to Henry Stevens & Son, Lacona, N. Y., (cow Belle Klondyke, 13913,) which gave 509 8-10 pounds of milk in a week, the highest average fat being 5 per cent.

Supt. Hoxie states that the association is convinced that the economic test is the proper basis for calculating the basis of value and more attention will be paid to it hereafter; making it foremost as soon as possible. There was some discussion of the rules to be laid down in making economic tests and it was suggested that butter fat be rated at 25 cents a pound. When the value of the milk without the fat came up, Prof. Wing said it was not easily determined as our present testing apparatus would not show it very accurately.

There was an air of confidence manifest in all comment on the standing of Holstein-Friesian cows, the tests having made such a fine showing and especially as all were conducted by disinterested experts. There was no dissent to the proposition to lay claim to the best dairy cow and stand or fall by the result. If other breeders stay out first place will be claimed.

In the report of economic tests, of which 20 were made during the year, Aaggie Paul, 40930, age under 3, stood 1st,—having produced 16 pounds 4.6 ounces of butter at a cost of 4.4 cents per pound. She is owned by W. S. Carpenter, Menominee, Mich. The largest amount was produced by Calamity Jane, 22 pounds 5.2 ounces, but at a cost of 7.04 cents per pound. Cow owned by A. & G. Rice, Curries Crossing, Ont.

Buffalo, N. Y. JOHN CHAMBERLAIN.

Training Heifers For The Dairy.

At a recent meeting of a farmers' club, a noted farmer asserted, and no one disputed, that the first calf of a heifer should never be allowed to suck as she should, in her training to be a cow, not be allowed to know that hand-milking is not the only way to relieve the udder. Then holding up her milk and the usual trouble in changing from calf-sucking to hand-milking would largely disappear, for by the milking plan she associates the milker with the maternal instinct, and her affections go to the milker, instead of to the calf; she will then be a better cow, having a better liking for her owner, as she never has had her first affection placed on the calf and then had that affection suddenly ruptured.

There is probably more in this matter than one would admit at first thought. It is a fact, quotes a writer in London Farm and Home, that the maternal affection of a cow is largely increased by the act of the sucking of a calf. A calf, when born can be placed at its mother's head, and will be duly caressed and licked; but if never allowed to suck, the cow soon tires of the caressing and in two or three days she shows no concern if it is removed, whereas, if the calf is allowed to suck for three days or a week there will be more or less of a scene when it is removed. The idea is that the calf is quite as well fed if the milk is drawn from its mother and given to it; also that if treated thus the heifer will only associate milk-giving with hand-milking, and the quiet, careful, and painstaking milker will in every way be regarded by the heifer as a perfect substitute for her calf. In this matter of establishing friendly relations with the heifer, Professor Robertson would have the heifer put with the regular dairy and be made a cow of for at least three months before she drops her calf, put daily in her own stall and be given a little extra food. He would make the stall home to her, groom her, handle her udder carefully, and treat her kindly. Such a heifer will give twenty per cent more milk the first year than another with which these relations have not been established. He would commence to train a heifer six years before she comes in milk. This means being good and kind to her mother and well feeding her, as he is sure that heredity goes along other lines than milk production.

Students of the laws of heredity, long since discovered that where animals of mixed breeds are crossed promiscuously together, there is a constant struggle of Nature to revert back to a fixed type, and generally that type which is common to the ancestry of most animals in the pedigree of the youngster produced; but as blood influences do not always accord with the arithmetical ratio of the blood itself, that is not always the case. This tendency to revert to a previous type has been seized upon by breeders as a means of establishing breeds, by thorough inbreeding of the blood of some one or more animals, possessing the type it is desired to fix upon the breed. Colling commenced with the bull Hubbuck, and he and his successors established and perfected the Short-horn breed of cattle, which continues to breed true to the established type, when kept pure, and, when crossed, struggles to assert its type. The true theory of inbreeding is little understood by the superficial breeder. An animal may possess the blood of a given ancestor without possessing the least appreciable evidence of it in its tendencies and traits—in fact, may be the counterpart of some other ancestor or bear the stamp of a group of ancestors. Inbreeding by means of such animals will not tend to fix the type of the desired ancestor or his descendants. It is not this alone that separates lines from a common source. That being the case, each will help and support the other in nature's struggle to cast back to the type. When there is strength enough in this united effort it prevails, not only in reproducing the type sought, but it eradicates contending influences and makes a prepotential individual, or one that is practically thoroughbred in type. In reproducing animal nature, blood influences have their affinities and repellants, just as we find the same in chemistry of material nature. Every student of pedigree has noticed that a typical strain from a superior source has usually a tendency to nick well when coupled with a kindred line from the same fountain.

The control which cows can and often do exercise over the flow of their milk is well known to all who have had to do with their care and management. This power, it would appear, is possessed also by the rest of our domestic animals. It is amusing to see a sow about to give her numerous family their breakfast. Having conveniently laid herself down, each of the little ones, with some bustling, lays hold of a teat and tugs and squeals with no satisfactory effect. This goes on for some little time, while the old sow gives certain admonitory grunts, and having waited till each little pig is settled and ready, she allows her milk to flow; the squealing instantly ceases, and you know they are getting their ration. Not only can a cow exercise like control over the flow of her milk, but—which is of almost equal importance—her good temper and state of satisfaction or otherwise, affect very considerably the quantity of butter fat her milk will contain. Being in a strange place, frightened, worried, made angry or subjected to ill-usage, all tend to reduce, not only the quantity, but the richness and value of her milk, for it must be remembered that a large proportion of the milk a cow gives is secreted during the time of milking. A badly or roughly milked cow will not only give less milk and poorer on any one particular milking, but such milking or milker will tend to reduce the value of the cow, if constantly subjected to it. She will give less aud poorer milk and dry up a month or two sooner and be a poorer milker next season. In many large cheese-making dairies, the owner, as a rule, always attends the milking, and no shop walker in a large drapery business looks more vigilently after the serving of customers than he watches the treatment of his cows. Unusual noises, laughing, loud talking and bustle are to be avoided at milking time. It must be remembered that the large quantity of milk given by our cows is the effect of domestication and breeding. In their natural state, cows produce about enough milk for one calf. Our best cows will well support two or more. Therefore, like all other valuable qualities produced by breeding under domestication, this increased milking habit will deteriorate under bad management.—*Ex.*

How the Horn Fly Affects Milk Yield.

John Judson of San Pasqual, San Diego county, writes to the Escondido *Times* about horn flies in a way to interest many of our readers in other parts of the state who are troubled with this grievious pest. It is a well known fact, and has been proved time and again both by our experiment stations and by many of our progressive dairymen, that anything that tends to irritate a milch cow will not only cause a marked decrease in the quantity of milk she will give, but will have a much greater effect in lowering the per cent of butter fat in the milk.

Let anyone try the experiment of milking and testing the milk of a cow under normal conditions for one day; then let the same cow be fed and watered on the next day the same as the day before, but otherwise treated harshly by whipping or dogging or any other treatment that will cause much irritation or excitement. Then test the milk, and in nine cases out of ten the milk will test from ½% to 1% less in butter fat than the day before. All dairymen know that a good and kind milker will earn his wages over and above a milker who will kick and pummel his string of cows, in the increased amount of butter fat they will give in their milk.

The Horn Fly—During the last three or four years a pest has appeared in the dairy herds that is causing greater annoyance and irritability than all the dogging and abuse the cows ever got before or since, and that is what is called by some the "horn fly." They look very much like the common house fly, but when caught are found to be very hard and firm and hard to kill. They attack a cow in such places that she cannot drive them off with her head or tail, generally on the udder, under the flank, on the shoulders and neck, just behind the fore legs and on the belly. A cow will lick the places where they bite, to relieve the irritation, till it bleeds. It will become very sore and very often ulceration will set in. The season of their worst attack is in April and May. During the last month the per cent of butter fat in the milk of my patrons has decreased to the amount of from 3-10 to 6-10 of 1%.

There has been some vigorous kicking on the part of some of my patrons on account of the low test of butter fat in their milk. I found by inquiring of my dairymen that the proportion of butter manufactured, according to the test, was the same as usual. I know the feed in April was better than in March, and that some of the herds had no fresh cows; that there was no increase of milk and still there was quite a decrease of butter fat. I could not account for it until I examined my herd of cows and found many of them suffering from the attacks of the horn fly.—*Pacific Rural Press.*

Don't Let Cows Get Tired.

Remember that if a cow is compelled to travel back and forth over a thirty-acre field from morning till night in order to hunt a ration for herself she will not give you big pay in the pail. If she has to use the energy to secure a living that she should have expended in elaborating milk, she cannot be profitable. To do her best, the cow should be enabled to fill up well in a few hours and rest the balance of the time, as it is during the rest spells that she is grinding out your profit. There is some profit in summer dairying, but we must give very careful attention to all the details, if we would realize it.—L. W. LIGHTLY, in *National Stockman.*

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helps the team. Saves wear and expense. Sold everywhere.

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HAPPY RESTORATION FROM A DANGEROUS MALADY.

The Rice Method is a Wonderful and Certain Cure.

Although 62 years of age and ruptured many years, Mrs. E. Drew, of Ipswich, So. Dak., would not give up the struggle to be cured of her affliction. After repeated failure she tried the well



MRS. E. DREW, Ipswich, So. Dak.

known treatment invented by Dr. W. S. Rice of 353 D. Main St., Adams, N. Y., and was perfectly restored to permanent physical strength and the rupture completely healed. When we consider the number of people who have been ruptured nearly all their lives, who have struggled through weary years of uncertainty, failure of trusses, constant fear of sudden death and all the pain, misery discomfort and loss of time and pleasure in life it is a wonderfully bracing thing to know that there really is a cure for the malady.

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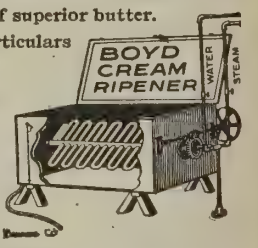
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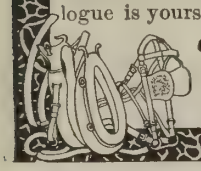
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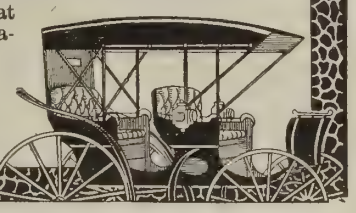


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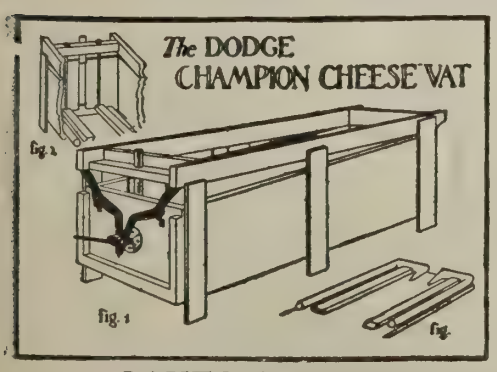
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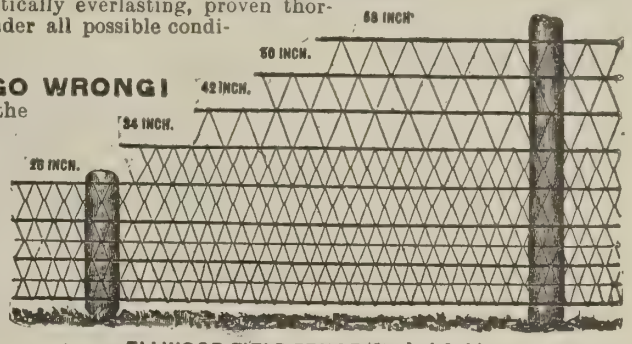
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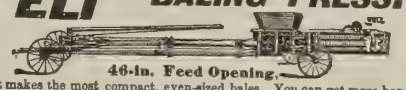
"stealing the pole," but the horse that takes the lead may not keep it. It's "staying qualities" that settle it. Notice where **The Page** trots.

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has now to be marketed. The easiest way to get it there is in the form of bales. **THE BEST MACHINE to bale with is an**

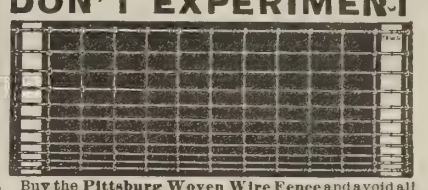
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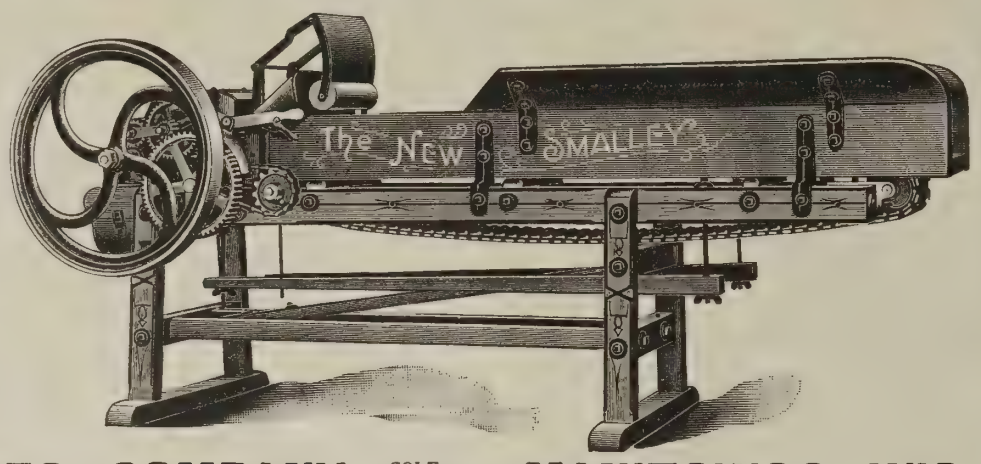
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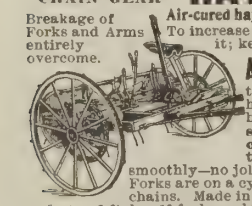
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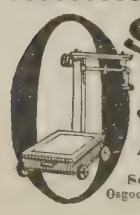
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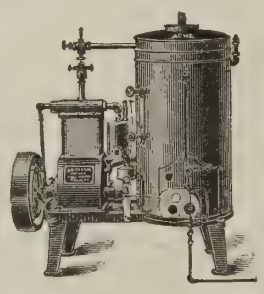
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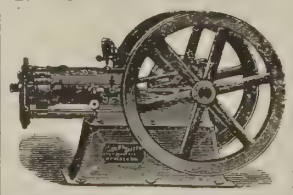
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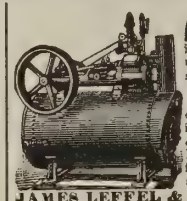
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Water in the Stable a Necessity.

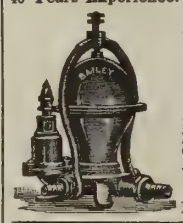
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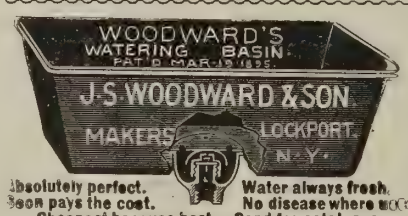
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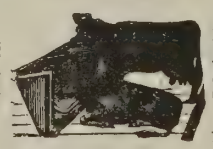


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Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' *none* equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected.

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JUNE 30, 1899. NUMBER 20

University of Ill

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Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market,

Write for a one gallon can. You won't regret it. Manufacturers of **LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc.** Manufactured by

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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Odor to Destroy One.

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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

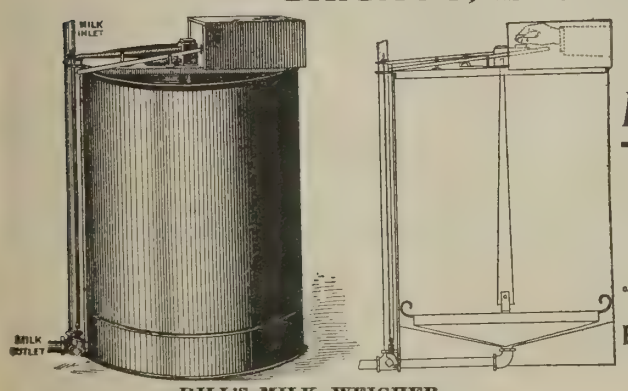
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SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY AT ONCE.

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A. H. BARBER MFG. CO.,
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HILL'S MILK WEIGHER.

CREAMERY APPARATUS AND DAIRY SUPPLIES Of All Kinds.

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YOUR NAME or CREAMERY should be Printed on Every Sheet.

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Most men do not live up to their full privilege in the conduct of business. This is no less true of the creameryman than of other business men. It is your privilege to employ only the best machinery and the best methods in your business. It is your privilege to make only the "top-'o-can" "gilt edge," "extra select creamery" butter. The kind that makes the dollars bringing reputation, for yourself and creamery. Much,—very much, will depend upon the kind of separator you use in your creamery.

Sharples Tubular Separators

have almost invariably increased the yield of butter in a creamery over and above the best that was being done by separators of other manufacture. Such increase has been sufficient to pay a liberal percentage of the whole cost of the machine.



In addition to this increase in product, are the further advantages of safety; economy in oil; economy in repairs; large actual aud reserve capacity; quality and churnability of the cream; smoothness and absolute freedom from ropiness and bitter froth in the cream and the resulting improved quality of the butter.

Our knowledge of the Sharples Tubular Separator in superiority of construction and working ability is such that when requested to do so, we gladly place them with the most exacting buyers, or with the users of any other make of separator in existence, and guarantee superior results in clean skimming and in the quality of the product.

Of course we should not make such a liberal and sweeping offer if it were not fully justified by past and present results. Take these things into consideration while you are reading this advertisement. Meditate them, and then write us.

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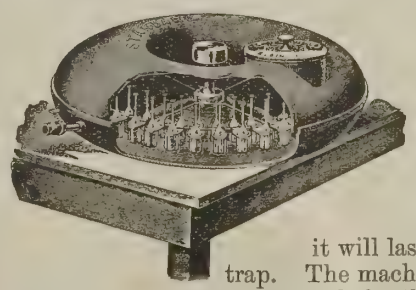
ALDERNEY BUTTER COLOR

Buttermakers using it say it gives perfect satisfaction in every respect and recommend it to all not using it.

Manufactured by **THE HELLER & MERZ CO.,** Office, 55 Maiden Lane, N. Y.

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Vibration Means Waste.



If your rattle-trap Babcock tester is not doing accurate work, then try the

STANDARD Babcock Tester

it will last for years and it is not a rattle-trap. The machine is fitted with solid cast iron frame, uses ordinary Babcock bottles and is **supplied with the famous Glass Eye Speed Indicator.** Farrington and Woll's new book on Milk Testing with each machine.

We are prepared to repair all separators, and have the most experienced men for this work.

Send for Catalog No. 61 **Elgin Manufacturing Co. Elgin, Ill.**

The IDEAL
TURBINE TESTER



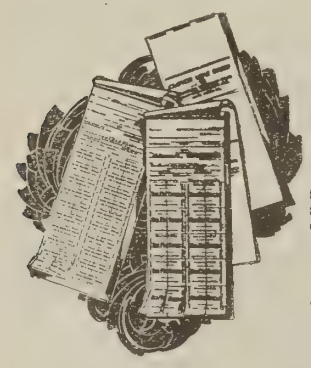
Is not the *only* Turbine Tester on the market. We believe, however, that it

HAS POINTS OF SUPERIORITY OVER ANY OTHER.

In developing this Tester we have had in mind all of the conditions that surround their use. Each improvement that has been made is the result of new ideas developed in actual use. We have felt that

The Tester combining Simplicity, Durability and Convenience

would be the Tester that would commend itself to every intelligent buyer. We believe the IDEAL answers these requirements.



...A... SANITARY **Milk and Cream Ticket.**

A coupon milk and cream ticket is the only milk or cream ticket that complies with all sanitary requirements, and is also the only milk ticket by which a complete check can be kept on both customer and driver. We would like to send you a sample.

We have a large up-to-date and complete line of Milk Dealers' Supplies Everything you need. Our Ideal Milk Jars and Caps are the best on the market. Write for sample.

Our latest Milk Dealers' Price Current contains new ideas and new apparatus. May we send you one?

Creamery Package Mfg. Co.,

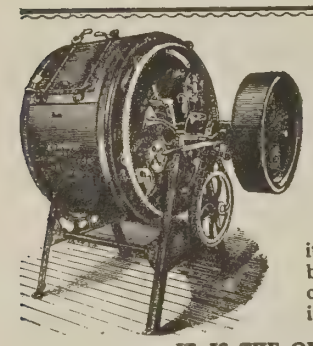
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THE DAIRY "VICTOR" Churn.



This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charm every farmer and dairyman who sees it work. Manufactured by . . .

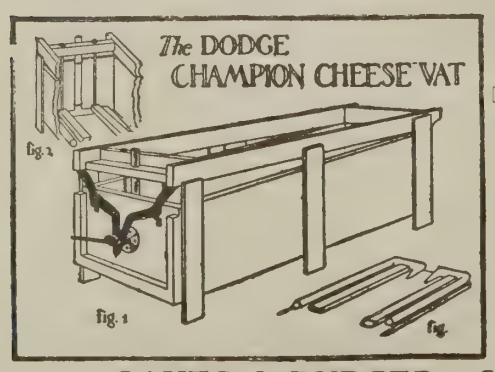
F. B. FARGO & CO., Lake Mills, Wis

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. **Haddonfield, N. J.**

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THE DODGE TILTER
....FOR CHEESE VATS....



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat....

WRITE FOR PRICES.

OAKES & BURGER, CATTARAUGUS, N. Y.

Uncle Sam Points with Pleasure to

The Improved U. S. Separator

WITH ITS

TRIPLE CURRENT BOWL



Because it

Skims the Cleanest,
Operates the Easiest,
Is the Easiest Cleaned,
Is the Most Durable,
And in other important points Excels all other Separators.

It does equally good work in the Dairy or Creamery as testified to by users the country over.

If interested, send for our large illustrated catalogues giving full particulars and containing hundreds of testimonials from users.

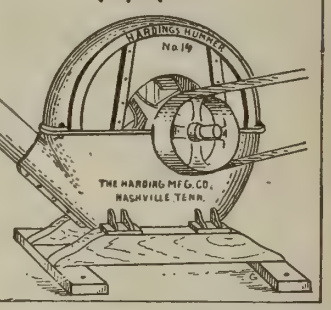
Remember we furnish everything necessary for a first-class Dairy or Creamery.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

HARDING'S 'HUMMER not only hums but CUTS and ELEVATES ensilage, or any other product usually treated with a feed cutter, without sprocket-chain belts and consequently without the annoyance and vexatious delays usually attending their use.

"There are others" of course that cut, BUT TO ELEVATE-THERE'S THE RUB. The great virtue of the "Harding Hummer" lies in its profitable inexpensiveness in operation, and its wonderful capacity to keep every hand on the place busy. Write for Catalogue.

Mention this paper.



The Harding Mfg. Co.,
Nashville, Tenn.

Salt Surety

Is a good thing to have and costs little to get. It costs fifteen cents extra on every ton of butter to have a salt you can absolutely rely on. That is the first cost of using

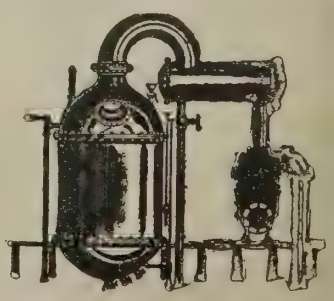
DIAMOND CRYSTAL SALT

but, the fifteen cents comes back in fifteen different ways before you are through with it. It comes back in a saving of time, in added flavor to the butter, and weight. More—but why enumerate when the book, "The Salt that's all Salt," tells the story complete. It is yours for the asking.

DIAMOND CRYSTAL SALT CO., St. Clair, Michigan.

Condensed... Milk Factories

Built Complete By



Special Attachments not shown.

C. T. ROGERS & SONS, Detroit, Mich., U. S. A.

We are the only firm that builds factories complete, put them in operation and guarantee results.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

main in milk longer than seven months.

No 2 Spot's daughter, Martha, Sire Florentino 30039 (grandson of Wanderer 3014, and great grandson of Signal 1170) is giving 40 pounds of milk per day which tested, one month after calving, 3% by Babcock test. She is a persistent milker, it being almost impossible to dry her off before next calf. Her butter is straw colored, and better grain than her dam's.

drying her off. When in milk she has a large, beautifully shaped udder.

No. 4. Pansy's daughter, Patty, sire, Bisma's Frank of Brushy 38544, is a very pretty fawn and white young heifer, that could not be told from a thoroughbred Jersey. She is not yet in milk.

MRS. W. G. HUGHES.

Kendall Co., Texas.



NATIVE TEXAN COW, SPOT.

Property of Mrs. W. G. HUGHES, Hastings, Texas.

from each county in the state; also to one person from each of the first, second, third, fourth, fifth, sixth and seventh Congressional Districts, being the Chicago Districts. It is also provided that these scholarships be awarded by the Executive Committee of the Illinois Farmers' Institute.

To receive one of these scholarships will be an honor worth striving for aside from its money value, and its award will encourage many a farmer's boy and girl to work for a higher education, which they might not otherwise hope to attain.

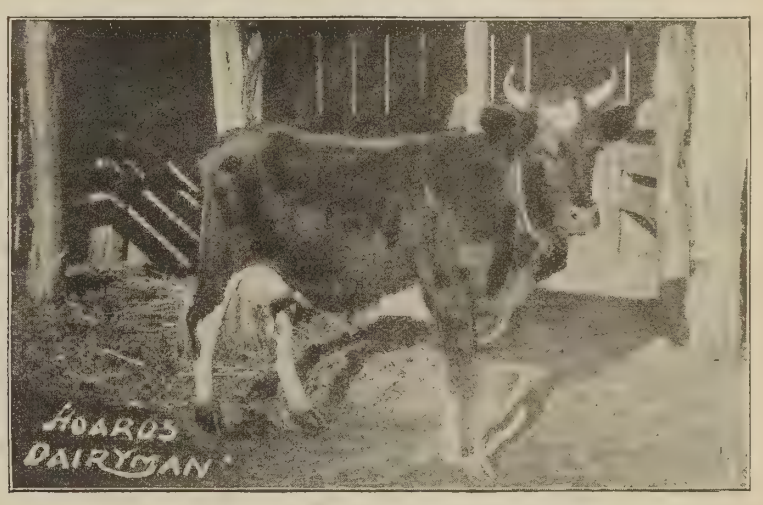
Those wishing to apply for this scholarship or desiring further information in regard thereto, should write to A. B. Hostetter, Secretary of the Illinois Farmers' Institute, Springfield, Illinois.

THE comfort of the cow is just as necessary a factor of profitable fat production as the food is. If you don't believe it, ill treat your animals, leave them out in the cold rains in spring, and the hot sunshine of a shadeless pasture. Drive them up to the barn with noise and shoutings, and see what the effect is on the fat yield. "Treat a cow as you would a lady", said Hiram Smith. He did not say this because it was a self evident truth that was patent to everyone, but because, as the result of long experience, he had found that care and comfort of and kindness to a cow are returned many fold. If there is no other



GRADE JERSEY COW, MARTHA.

Property of Mrs. W. G. HUGHES. Hastings, Texas.



GRADE JERSEY COW, PANSY.

Property of Mrs. W. G. HUGHES, Hastings, Texas.

GRADING UP THE DAIRY COW.

The advisability of grading up stock and getting a better return for the food has often been advocated by the DAIRYMAN. Facts and figures have been quoted to show the advisability of such a line of breeding.

In many cases we know that good and profitable returns have been obtained by following such advice, but it is evident that what has been done thus far is but a small percent among the multitudes of unprofitable cows. We wish, therefore, to call special attention to the pictures and communication presented on this page of the DAIRYMAN, as an excellent example of the profitable results to be obtained in a few years, by grading up from a common native cow.

The Influence of a Thoroughbred Sire.

ED. HOARD'S DAIRYMAN:—Some time ago I noticed in your paper a request to hear from your subscribers who had graded dairy cows. I herewith enclose you photographs of four generations, showing what can be done with common stock by using thoroughbred sires.

The photographs are as follows: No. 1, Spot, a common Texas cow, used constantly as a milk cow from the time she had her first calf. She gives three gallons of milk per day when fresh, but her butter is white as lard, and though she has had the same food, shelter and attention given the Jerseys, I have never succeeded in getting her to re-



GRADE JERSEY HEIFER, PATTY.

Property of Mrs. W. G. HUGHES, Hastings, Texas.

No. 3 Martha's daughter, Pansy, sire Florentino 30039 as above, gives 25 to 29 pounds of milk per day with second calf She is as persistent a milker as her dam, but her milk is much richer, tests 6% by Babcock, and her butter is deep yellow in color, quite as yellow as that from registered Jerseys. Her picture was taken just before

SCHOLARSHIPS IN THE COLLEGE OF AGRICULTURE.

At the request of the Illinois Farmers' Institute, the trustees of the University of Illinois have granted a free scholarship, good for two years in the College of Agriculture of the University of Illinois, to one person

reason for treating an animal kindly, and looking after her comfort, do it for the sake of your pocket-book, and the cow will see that it is well filled.

A Second Crop, and Milk Fever Inquiry.

Ed. HOARD'S DARYMAN:—Have a crop of oat and pea hay that will soon be ready to cut. Is there anything that could be sowed on the ground after taking off the hay that would make another crop of fodder to harvest?

As a precaution against milk fever, do you recommend that all cows be given salts as recently described in the DAIRYMAN, or only those cows that are going to have milk fever! G. L.

Adams, Wis.

A crop of millet might be sown on the pea and oat ground, and if the weather is moist, so seed is sprouted quickly and frosts do not occur in September, a fair crop of millet hay can be cut. As a rule, however, all spring grains do not grow quickly when sown in summer. Answering your last inquiry will say that the physic spoken of in the article of Valancey Fuller, is administered to all cows that are heavy milkers when they come fresh. If the cow gives indication of giving a large flow, give her the physic. We can hardly tell which cows are going to have milk fever, but it rarely if ever attacks a cow which is a light milker when fresh.

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THERE are 11,000,000 butter cows in the country producing 1,375,000,000 pounds of butter per year. This is at the rate of 125 pounds per year for every cow in the country. A cow to pay for her food, should produce at least 200 pounds of butter per year. According to the above figures there must be millions of cows in the country that do not pay for their board, that go through the motions of making milk and butter only to bring their owner in a loss at the end of the year. How many of the DAIRYMAN readers are assisting to pay that board bill? And how long are they going to keep it up?

A PROFESSOR writes to the *American Druggist*, stating that he was afflicted with acid indigestion, which was cured by the use of formalin. Also, that he has taken the same chemical during different times without any injurious results, and that, therefore, formalin is a harmless food preservative. This is an excellent sample of the partisan method of reasoning, used by some scientific men.

Apply the same principles to other drugs, and lead, sulphuric acid, arsenic, opium, strychnine and many other drugs and poisons would be pronounced harmless, although experience has proven that these articles are poisons.

It will take more than a professor with a sour stomach to convince us that a chemical with the properties of formalin is a useful, necessary, or harmless adjunct to our daily food.

THE TEN CENT BUTTER.

Colonel L. S. Hardin writes very clearly and pertinently in another place on "Butter Making for the Small Dairy." What the Colonel says is all true, too true. But here is the rub. Not one in a hundred of these women who make this cheap, poor ten cent butter, or her husband, will ever subscribe for a paper like the DAIRYMAN and earnestly set to work to learn how to do better, and thereby make a better profit on the butter she makes. There is a great mass of such farmers and their wives who think every dollar they spend for such information is thrown away. Yet they go on year after year making this grease butter and losing a hundred times what the paper costs, and do not know it. It seems sometimes that though, "An Angel came down from Heaven" they would not listen.

WHICH POISON WILL YOU TAKE?

Borax.
Boracic Acid.
Sodium Bicarbonate.
Potassium Nitrate.
Hydrofluoric Acid.
Sodium Fluoride.
Sodium Fluor-silicate.
Salicylic Acid.
Benzoic Acid.
Formalin.
Preservaline.
Sodium Sulphite.
Freezene.

There may be a few other chemicals that might be added to the list but surely the above is enough. Most of us have preferences as to the manner in which we start for the other world and personally we object to the slow poison method, even if it promotes the wealth of the dealers in food products. Others may be equally sensitive and to all such we would say, as they do in the western mining camps when invited to drink, "Gentlemen, nominate your poison".

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series No. XIX.

TOMATO AND POTATO WILT.

The relationships of plants are strikingly shown in the case of some bacterial diseases. The disease known as the potato and tomato wilt, illustrates this fact. Both of these plants are among the most common of our cultivated plants, and yet how few have ever noticed any resemblances between them, that could be taken for close relationship. Although the character of the product derived from them differs greatly, one being a tuber and the other a fruit, still if the blossoms of the two plants are closely compared, a striking resemblance is at once evident. The bacteria recognize this relationship, for they find in these two plants conditions that are favorable for the development of a common parasitic form. Other species of the same family are also susceptible. Among the cultivated forms, the egg plant acquires the disease, and among the wild species that are sometimes affected, is the "Jimson weed" and the "black night shade," both of which have an unsavory reputation, although they are members of the same family.

DISTRIBUTION OF THE DISEASE.

This disease has only recently been studied, and consequently its distribution is not thoroughly known, but already it is found abundantly in the southern states, where it has received the name of Southern Tomato Blight. The disease not infrequently is the cause of very severe losses. It is characterized, as its name implies, by a blighting or wilting of the foliage. Generally it begins on some of the younger branches, but quickly extends backward, often invading the whole plant.

An examination of the woody tissue of the stem shows that this tissue is particularly prone to the disease, the vessels often becoming completely plugged with a stinking, slimy growth. Where the potatoes are affected, the disease often runs down the stem, thus causing a rot of the tuber. The trouble in such cases can be readily recognized, as a cut section of the tuber will show a blackened ring of woody tissue near the edge of the potato.

MODE OF INFECTION.

There can be no doubt but that the cause of this disease is a parasitic micro-organism. It has been frequently found in affected tissues, and isolated from the same. When artifically introduced into a healthy plant, the disease makes rapid progress. A question of great practical importance is how the organism finds its way into the plant under natural conditions. The first point on which infection is usually noted is the tender, succulent stems. On potatoes, the germ is able to find its way into the plant, by means of the injuries caused by the common potato beetle. This insect distributes the organism by passing from infected to healthy plants, and vice versa. In all probability other insects also aid in the dissemination of the causal organism.

TREATMENT.

As the diseased plants contain enormous numbers of the specific bacteria, associated with the disease, it inevitably follows, that unless they are removed, the danger of spreading the trouble is greatly increased. Naturally, crop rotation is of considerable service in checking real troubles, as the germ only finds, in the potato family, suitable conditions for its rapid spread.

OTHER BACTERIAL DISEASES.

Several bacterial diseases have already been considered. These will suffice to indicate the general nature of this type of plant disease. Of course, in comparison with other plant diseases, caused by insects and fungus enemies, the bacterial maladies are of minor consequence, but with the close search which has been given to this subject, within the past few years, a not inconsiderable number of diseases have been, more or less, thoroughly worked out.

The wilt of cucumbers and melons belongs to this type of plant foes. Among the tree forms, there is the so-called olive knot, sometimes referred to as tuberculosis, on account of the knot-like excrescences, which are formed on the branches. Among the flowering plants, may be mentioned the disease of hyacinth bulbs and that of geranium or pelargonium cuttings.

The wide spread diversity of this group of plant enemies, emphasize the important fact that bacteria are, by no means, entire strangers to plant tissues. While they find, in animal cells, better conditions for development, still they are frequent enough in vegetable tissue to warrant a consideration of their activity.

Spraying has been of greatest service in combating many of the fungus maladies, but, naturally enough, such methods are of little avail in fighting an enemy that works its way into the inner plant tissues, beyond the reach of any spraying liquid. In the case of many of the fungus troubles, the cause of the disease is outside of the plant cells, frequently on the surface of the leaf. It is, therefore, possible to destroy the infective agent by the application of some disinfectant, which will kill the invading organism, but such a treatment, to be effective, should not injure, materially, the cells of the host plant.

Much can be done in repressing the ravages caused by these organisms, if their life history is thoroughly understood. If one knows how the germ is disseminated, how it finds its way into the host, much can be done to prevent such an occurrence. Restrictive measures should command much greater attention in these cases than they usually do, for with these maladies as with human, an ounce of prevention is worth a pound of cure.

Success In Dairy Work.

ED. HOARD'S DAIRYMAN:—Two years ago I commenced reading HOARD'S DAIRYMAN, at the same time I commenced dairying with three native cows. I read more, and purchased more cows.

I purchased a farm for $8,500 on time Jan. 1st, 1898. I built in February a 30x34 cow barn, 29 stalls floored and guttered in good shape, with feed alleys and walk ways, (2 stories) matched upper floor. I read and studied more from your journal each week, and then I purchased a 4-bottle Babcock tester, and gave $65. for a three month old registered and pedigreed bull calf. Went to Nashville and got 10 grades and thoroughbred Jerseys.

Later I put in dairy room 12x24 ft., 70 ft. deep well (tubular) tin pipes, galvanized force pump. I have read and studied all I could this year, and have added cream separator (Sharples machine) and have ordered 2-horse power (tread) and will churn, pump and separate by power.

Have the lumber on the ground for silo 24x18 ft. and will purchase shredder and fill same, this summer.

We sell whole milk at 4 cents per quart, cream at $1. per gallon, butter at 25 cents per pound, buttermilk and skim milk at 10 cents per gallon.

Out of 50 pounds of cream ripened, we only got 22 to 23 pounds of butter. Is this about right. At present we are milking 20 cows; make 300 to 500 pounds of butter per month and never have a pound 48 hours old. We print in 1 pound prints; wrap in parchment paper, then in veneer wrappers and pack in 56-pound shipping box with ice chamber and deliver every day. Churn three times per week.

Now that the DAIRYMAN has done this for me, it will do as much for others if they will subscribe and read it. I paid $5200.00 on the $8500.00 in 1898.

Now kindly point out my errors in the past. If the ideas were good, say so. If not, say so, and tell me if the turnout is about right. 50 pounds of cream to 22 to 23 pounds of butter. W. H. JOHNSON.

Mississippi Co., Ark.

No judgment can be formed as to the proper yield of butter from a given weight of cream, without a determination of the per cent of fat. Cream is so irregular in its composition, that from a given weight ten or twenty pounds of butter may be churned. Testing the buttermilk is the only way to determine if the yield of butter is what it should be.

It would be a work of supererogation to pretend to criticise our correspondent's work. The returns speak for themselves, and we would only call attention of the readers of the DAIRYMAN to the results that can be obtained in the dairy by the application of sound business principles and good judgment.

Dairy Work in the Maritime Provinces.

Luxuriant Pastures.—Fair Prices for Dairy Products.—The Chances for a Great Dairy Year.—Canadian Bacon on Top.—Increased Consumption of Choice Bacon.

ED. HOARD'S DAIRYMAN:—Quite a lot of rain fell in eastern Canada, in the past week. It looks as if the dearth of rain in the month of May is to be paid now with good interest. Rain fell on the 14th, again on the 15th, continuing all night. On the 16th, an intermittent rain fell all day. The following days were fine and warm as was also the 20th. On the 21st rain fell most of the forenoon, and to-day, the 22nd, it is misting rain.

As a result the pastures are generally thick and luxuriant, and the hay crop is looking up fairly good.

Milk is now abundant; probably as abundant in these provinces as it was this time, last year, and last year was a banner year for milk. The factories are all running. I do not know of a single factory that is not running this season, and this speaks well for the dairy industry.

As green food, such as peas and oats, corn, etc., was a superfluous quantity, last year, owing to the continued luxuriance of the pastures, I fear the usual heath of supplementary feed has not been sown this year. However, if so much rain continues to fall such feed, as last year, will not be needed.

The price of cheese is fairly good. Though few sales have yet been made, 8½c is about the present price. The Liverpool market is not as strong as this time last year, owing to

the large increase of exports over last year, at this date. The increase from Canada alone at this date is fully 100,000 boxes over the same period last year.

The increase of exports at Montreal alone is about 85,000 boxes, while the make in eastern United States has greatly exceeded that of last year. It looks therefore that many of the eastern creameries have been turned into cheese factories. Butter is steady at 17c. The increase of butter shipments have also largely increased over last year, though the market in Britain is reported lower. It looks, therefore, as if this year of 1899 is to be a phenomenal year in the history of Canadian dairying—and American also.

Bacon hogs are now selling in the principal Canadian market centers at $5 per cwt. for choice, and the outlook is for decidedly higher prices. This is quite in contrast to the American market when the top price, last week, was $3.95, which was at Chicago, —a margin in favor of the Canadian hog of $1 05. This is most remarkable. It is quite inexplicable to find hogs selling on either side of an imaginable line, a few hundred miles apart, as at Buffalo and Toronto, at a difference of $1.05. One should think that the time has come for the American hog to kick, or rather, squeal, to find himself at such a discount below his Canadian brother of the pig pen.

The high price of Canadian hogs is the more unusual when we come to consider the phenomenal increase of Canadian hog products to the English markets during the year just past. A few of our friends across the line have been saying "What's the use for us to begin catering to the English market. There is a market there for only a few thousand aristocratic consumers and will soon be glutted."

Well, evidently there are more than "a few thousand aristocratic consumers" of fine Wiltshire bacon in Great Britian, for somebody in that great discriminating market consumed over $5,000,000 worth of Canadian bacon in the last twelve months. The exports of bacon from Canada has fully doubled and yet the price of the product is advancing, and the outlook just now is that the market for Canadian bacon will still further advance.

The market is strong with an upward tendency and the chances are that before long the price for choice bacon hogs will run to $6 per cwt.

The history of choice bacon is very much like that of creamery butter and full cream cheese. In the early history of the creameries, the dictum went round that there were but a few thousand of the upper ten in Britian and this country who would consume choice creamery butter, the great majority would continue to use the cheaper dairy butter, but the outcome was, and is, that all classes, including the dollar a day laborer, buy creamery butter instead of the home dairy make. I believe a very small percentage of the people purchase "oleo" knowingly. Now this is, and will still further be, the case with choice bacon. A largely increased class of consumers, both in Britian and this country buy choice bacon rather than the pickeled hunk of fat, or the very fat, ill-flavored, corn fed bacon. Bacon and butter is certainly the new alliterative for our farmers to bank on. J. A. M.

Hermanville, P. E. I.

The Use of Cyclone Churns.

[Press Bulletin.]

From time to time there has been introduced into the dairy community unique forms of churns. Hundreds of varieties have been patented, and the farming public, as a result, has suffered from the introduction of many of these ex-perimental, undesirable churns.

Under ordinary conditions of churning, modern dairy authorities generally agree that churns should be free of all forms of inside paddles or dashers. This is because where different lots of cream are churned together at one time, they are often unevenly ripened, and butter comes from some of the cream sooner than from the other. The butter which comes first is more or less injured when struck and rubbed by the paddle or dasher, so that butter of inferior grain or quality is produced.

During the past few years, several forms of churns have been introduced in the United States that are advertised to bring the butter "in a minute and a half," and remarkable results are promised the farmer who uses one of them. These churns are of the shape of an ice cream freezer pail, and contain a set of arms or dashers near the bottom, that are revolved at great speed by a geared arrangement at the top of churn, operated by a crank handle.

In April and May tests were made of one of these churns at the Indiana Experiment Station. The churn was small of capacity, so but eight pounds or one gallon of cream was used in each trial. The trials were made under as favorable conditions as possible, to produce good butter. The cream was placed in the churn at a low temperature, ranging in the different trials from 53° to 56°. At the former temperature the butter came in seven minutes; at the latter, in 15 minutes. At 53° a yield of three pounds and one ounce of salted worked butter was secured; at 56° two pounds and twelve ounces was obtained. The amount of butter fat left in the buttermilk showed that the butter had been quite satisfactorily separated from the cream.

The removal of the butter from this churn, however, was the objectionable feature. If the butter was warmed up to 62°, a very common churning temperature on our farms, it could not be nicely removed from the churn. The paddles beat it considerably, and after giving such careful washings of the butter as seemed desirable, the contents of the churn in each case smeared in an objectionable manner. In winter, in a cold room, the work of the paddles would still be undesirable.

This type of churn, for the reason given, is not to be recommended over the standard barrel of box churns, free of all inside devices. The revolution of a simple barrel or box churn, containing no paddles, in a cool room with cream at 54° to 56° temperature, should give the most satisfactory results to the dairy farmer. C. S. PLUMB, Director.

Iodide Cure for Milk Fever.—When is a Heifer at Her Best?—Effect of Lactation on Fat Content.

ED. HOARD'S DAIRYMAN:—Your readers will be interested in a trial of the iodide of potassium treatment of a case of milk fever. She was a fine Jersey with calf two days old. She was down and unable to hold up her head, and would not notice anything. Having recently noticed the potassium iodide treatment recommended in the DAIRYMAN of May 12th, we concluded to try it. We boiled one quart of water and when cooled to "milk warm," dissolved two and a half drachms of iodide of potassium in it, and introduced 8 ounces of this solution in each teat by means of a milk tube attached to a fountain syringe. This was done about 9 a. m., and at 2 p. m. she was holding her head up and shaking flies off of her ears. We then gave her two pounds of Epsom salts and two ounces of aromatic spirits of ammonia, and removed the placenta, which had not passed. At 6 p. m. she was up eating grass; got well right away. We think this a wonderful treatment for milk fever.

1. We notice that Prof. W. A. Henry, in U. S. Reports, recommends 22 lbs. of dry matter containing 4 lbs. protein, 13 lbs. carbohydrates, and 2 lbs. fat as a ration for calf two or three months old. Is that not more than they can consume?

2. What is the feeding analysis of Bermuda grass?

3. Is there a difference in the percentage of butter fat in a cow's milk with her first calf and her third or fourth calf?

4. What effect does period of lactation from birth of calf have on percentage of fat?

Newton Co., Ga. C. C. BROOKS.

Decidedly a misprint, Prof. Henry never advocated such a ration.

We do not know of any digestion experiments having been made with Bermuda grass and consequently cannot give its digestible nutrients. The analysis shows as follows: Protein 9.16, fat 1.38, carbohydrates 46.06. The analyses show wide variations in the composition, according to the time of cutting, ranging from three to eleven per cent in protein, according to age, etc.

Sometimes a heifer will not do her best till her third or fourth calf, and again she does her best at the first coming in. There seems to be no certain rule.

With but few exceptions, there is a regular and constant decrease in the amount of milk produced and in the size of the fat globules. At the same time there is an increase in the per cent of fat present, but a decrease in the total amount of fat produced.

Jersey Breeders' Meeting.

ED. HOARD'S DAIRYMAN:—There will be a summer meeting of the Western New York Jersey Cattle Breeders' Association held at the "Cold Spring Farm" of the Vice President, Hon. M. H. Olin, Perry, N. Y., on Thursday, June 29, 1899.

All persons interested in Jersey cattle, whether members of the Association or not, are cordially invited.

Please notify Mr. Olin, or the Secretary at as early a date as possible of your intention of being present.

GEO. E PEER, President. L. D. ELY, Secretary.

Got Rich at Dairying.

In the Eighteenth District Institute, and Fayette County Farmers' Institute at Vandalia, Illinois, L A. Spies, of St. Jacobs, said that he had made enough in dairying to retire from business, and live comfortably the rest of his days, and that any intelligent farmer could do the same thing. He attributed his success to careful selection and breeding of his cows, generous feeding, and marketing of his milk in the best possible condition. He utilizes all his corn crop, either as green feed direct from the field or through the silo. He recommended those who are about to begin dairying, to visit some successful dairyman before investing, either in cows or appliances.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

GLOSSARY.

The terms used in this department of HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DIGESTIBLE NUTRIENTS.—That portion of the organic matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the power for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen free-extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. Whether fat is actually digested and thus passed on into the circulatory system in a changed form or whether it is simply separated from the other elements and always maintains its identity is an unsettled problem. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary, for this purpose.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12. to 15.0	0.5 to 0.8

MILK NOT CHURNING.

Will you please tell me the remedy that will prevent milk from wheying? We have tried salt in the food of the cows, but it does not seem to avail. When the milk is churned it seems nearly all to go to whey, leaving a small quantity of grainy, white substance, like curd. J. S. R.

Wesson, Miss.

Under no conditions can the best results be obtained when whole milk is churned. No matter what precautions are taken, the fat can not be churned from whole milk without leaving a large per cent of the butter fat behind. Separation and churning the cream is the only remedy. In the above case, fermentation has been allowed to go too far, and the milk has "wheyed off."

Cream or milk that has "wheyed off" through fermentation, will not churn well; in some cases, not at all. Food or salt will have no effect where the cause is purely bacterial.

APPLYING FLY MIXTURES.

In your issue of June 2nd, you mention two fly preventives. You state that 1½ pint will go over 12 cows and last 5 to 6 days. Will you kindly tell me how to apply mixture, as I find the greatest expense comes from the wasting of a good deal of the mixture. R. H. W.

Quincy, Ill.

It depends on the consistency of the preparation used. If it is quite fluid, a cloth can be wet in the solution and rubbed lightly over the animal. If kerosene or kerosene emulsion is used, a spray pump does excellent work. If of thick or sticky consistency, it may be necessary to use a short stiff brush.

CORN FOR THE SILO.

Do you recommend mammoth Virginia variety of corn for the silo, and is the corn with a heavy foliage and less ears as good for silo as regular field corn?

Am getting lots of good dairy information from your paper; would not do without it. Have been feeding your balanced ration for the last year. O. K. W.

Three Oaks, Mich.

You are probably too far north for the mammoth southern corns to mature sufficiently for the silo. The large southern corn grown in the north, though seemingly giving a large yield of nutrients, may contain less than ten per cent of dry matter. A long growing, late maturing kind is best adapted; one that will contain a maximum of dry matter when put in the silo. Consult the growers in your locality, and use the corn that gives the largest yield of corn with glazed ears.

CREAM, BUTTER FAT AND BUTTER.

The farmers in this neighborhood are giving their cream to the creamery where it is manufactured into butter, at a cost of three cents per pound, and they, the creamery-men, do the hauling. Now then, what I want to get at is this. How many pounds of butter should there be in 881 pounds of cream testing 32%, and adding 16% for overrun?

California. J. B. C.

The amount of butter fat contained in the cream, at the figures given, would be 282.9 pounds. The overrun will depend on the conditions under which the ripening and churning of the cream are carried out. It may be from 16 to 20 per cent. Taking it at 16%, as above requested, it would amount to 328 28 pounds of butter. The figuring is as follows:

Multiply the weight of cream (881 pounds) by the per cent of fat (32%) and the result will be the weight of fat present. Multiply this by the per cent of overrun (16%) and add the result to the amount of fat found. The product will be the weight of butter that can be made.

FISH OIL.—CRIMSON CLOVER.

In a recent issue you give a receipt for keeping flies from cattle. Will you please state what you mean by fish oil, as our druggists claim there are several kinds. Also, how much crimson clover to cultivate in with corn? E. H. M.

Owego, N. Y.

When fish oil is spoken of without specification it means Menhaden oil, as that is the cheapest that can be obtained. Other oils can be used, but they cost more.

At the last cultivation of the corn, sow on the fresh earth, eight to ten quarts of crimson clover seed per acre. If to be used as a fertilizer, let it remain after the corn is removed, as long as possible, and then turn under just before the ground freezes.

In Long Island, New York, the authorities are proceeding in rather an unusual way to enforce the oleomargarine law They are suing out injunctions against grocerymen to enjoin them from disposing of the oleomargarine as butter.

How many miles of sunburnt pasture do your cows travel over, this summer, to get a full meal? Consult the milk yield and you will find that long tramps after food and a small milk yield go together. A summer silo would prevent this loss and increase the returns to a wonderful degree.

What shall it profit a man if he saves one dollar by using a scrub bull and loses ten dollars in the value of the calf? The dollar saved is held so close to the eye that it hides the future value of the calf as well as the yearly profit from a good cow. The dollar saved by using a scrub bull is a lost dollar in the end, and many more must follow it because of poor and unprofitable animals, produced by a degenerate sire.

Dirty, rusty cans will reduce the price of butter quicker than a poor butter maker. A poor butter maker can make good butter if the milk is good, but no one can make extras with milk from cans that are rusty, unwashed, and unkempt. That thin film of rancid grease and casein which adheres so firmly to the inside of a dirty can, will spoil the best milk from the best cow in the world, and as the milk is, so will the butter be, and the price will follow it in its degradation.

How much of the sickness of the dairy cow is caused by dark, unhealthy stables, is an interesting question, but it is certain that a dark, gloomy, damp stable is an excellent place for the propagation of all kinds of bacteria. It requires no argument to prove that the resisting power of an animal against contagious diseases, is much reduced by damp, dark stables and as it is a well known fact that sunlight is a deadly foe to bacteria, it naturally follows that an animal has a double chance of resisting sickness if its surroundings are light and dry. How much poor and unhealthy surroundings are responsible for milk fever, garget, abortion and like ills, cannot be exactly determined, but there is no doubt that darkness and dampness are strong allies in their continuance.

Let light and air into the stables both for the good of the cow and your pocket-book.

DEATH OF J. G. CHERRY.

It is with feelings of deep regret that we announce the death of that veteran manufacturer of dairy implements, Mr. J. G. Cherry, of Cedar Rapids, Iowa, which occurred on the 18th inst.

The dairymen of the United States owe a debt of gratitude to Mr. Cherry for his early and persistent effort to give them the best possible implements that the wisest thought could devise. He was an enthusiast on all subjects connected with dairy progress, and a firm and devoted friend to this interest.

DIFFERENCE OF BRAINS IN DAIRY WORK.

Prof. E. H. Farrington, of the Wisconsin Dairy School, makes a good point in illustration of the claim so long maintained by Hoard's Dairyman, that this business of dairying calls for intelligent brain work. He sends to the *Farmers Review* a statement of two students who have attended the Wisconsin Dairy School. One was a brainy fellow who realized what study meant, and was determined to make the largest use possible, of all the knowledge within his reach, while at the school. He writes Prof. Farrington that since his return to his creamery, he is clearing $20 a day by an idea he picked up at the Dairy School.

The other student writes for information in cream testing, and confesses in his letter that although he took the laboratory work, he did not give much attention to it, for, as he says: "I never expected to have any use for such a thing."

To all this Prof. Farrington makes comment as follows:

Among the 120 dairy students which we have each winter there are always some who need to be convinced that whatever they can learn about milk will sometime be useful to them in any branch of dairying. Butter makers will be helped by learning something about cheese making and vice versa. No man can learn too much, but some fail to realize this until too late.

The particular point about cream testing that bothered this young man may cause trouble for others. He had tested milk for years, but when his patrons began to get hand separators and send cream to the factory, he found that it did not always test so easily as milk. Sometimes the fat was not clear in the test bottle neck and a muddy looking deposit was often mixed with it. This difficulty can generally be overcome by allowing the mixture of cream and acid to stand in the test bottles for ten minutes before they are whirled in the centrifuge. Cream contains so much more fat than milk that it takes a longer time for the acid to complete the solvent action that clears the fat, than is the case with milk. Another sure way of clearing the fat in a cream test is to allow the cream test bottles to stand for an hour or so after the test has been completed, and until the fat cools and solidifies. If the test bottles are then placed in hot water and the fat melted again it will be clearer than it was before the crystallizing and remelting.

It is the work of good brains to appreciate the value of good knowledge. The first student had that appreciation. He made $20 a day by it. The second did not have it, and he let his mind starve with a full table of knowledge before him.

What is true here is just as true on the dairy farm. We see it proven every day and everywhere. One farmer sees the value of good, well bred dairy cattle. He keeps a registered bull and saves and picks up every nice grade heifer calf he can find. Then he advertises his stock.

This is what F. W. Tratt, of Whitewater, Wis., does. Last week he sold to Mr. Thomas, of Eau Claire, Wis., for the Moore Farm at Stanley, Wis., twenty-eight of these young grade heifers for nearly $700. These cattle were all grade Guernseys. Mr. Thomas also bought several more full blood and grade Guernseys from other farmers in this vicinity.

What brought him here for this purchase was the fact that a few farmers had exercised intelligence enough to breed good dairy cattle of one breed. They had selected one breed and stuck to them. That was the work of good brains. The more of such farmers in any community that will do this good brain work, the more will that community become a center for that particular kind of cattle. Then, if they have the good business sense to make these facts known, and advertise their cattle, buyers who want that particular breed will flock there to get them.

Out of a radius of fifteen miles, including Ft. Atkinson, Whitewater and Lake Mills, there have gone out this spring, several car loads of these dairy bred cattle, to distant points. One community will breed Holsteins, another Jerseys, and another Guernseys. Every grade heifer of either is carefully nurtured and fed, for she is sure to be wanted at a handsome price.

In the same territory are other farmers who don't believe in using that sort of brains. They use all sorts of bulls, with no regard to improvement in a straight breed line. Buyers who want well bred heifers, do not visit their farms.

It is the old, old story of using brains on the farm. There is money in it. There must also be a good deal more satisfaction in being that kind of a farmer.

It is somewhat difficult to get farmers to see that there is a great deal more profit to them in going together, say a dozen or more farmers, in the breeding of one kind of cattle. It becomes an object, then, to buyers from a distance, wanting that particular breed, to visit that community.

There is a big difference in profits between up-to-date, brainy farming, and scrub farming with scrub cattle.

A WELL MANAGED CO-OPERATIVE CREAMERY.

At a recent meeting of the Riverside co-operative creamery near Rockford, Ill., a showing was made of the comparative amount received for butter fat for the year ending April 30, as compared with the twelve months previous. The increased amount was nearly three and one half cents per pound. Concerning the way the creamery is managed the *Gazette* of Rockford says:

It is quite frequently the case that co-operative creamery companies have much jangling and lack of harmony; sometimes the dissatisfaction going to such an extent as to result in dissolution. But the Riverside is a notable exception. There may be differences of opinion on various matters, but all seem perfectly willing to submit to the majority.

Here we have one secret of the increased profits of the past year—the patrons pulled together. Still greater profits will come if they will make a special study of dairying, which means the raising of dairy crops, breeding and feeding dairy cattle with dairy intelligence, the construction of dairy stables, the manufacture of dairy products and their final sale. All of the foregoing, except the last two, are live, patent questions to every patron of a creamery or cheese factory. The reason why there is such a wide difference in the profits of patrons in the same creamery, is because one man studies the business and the other does not.

A Good Butter Record.

Ed. Hoard's Dairyman:—We are milking five grade Jersey cows, two are heifers with first calf, and one of them has not been fresh since last September, one has had her second calf, and the other two are older. The five give 98 pounds of milk daily, and from that we make 45 pounds of butter per week.

We use a hand separator, and have churned 14½ pounds of butter from three gallons of cream. We pack the butter in tubs and ship to the city market at creamery prices.

As we have just started on this plan but a short time ago, I would like to know how this compares with others, so that I may know how my cows rank with other common cows, as butter cows.

Could you suggest a better plan in regard to marketing the butter, that we may realize more from it?

I am one of your five months subscribers, and like your paper very much, as I get many good ideas from it. J. F. B.

Hamersville, Ohio.

Forty-five pounds of butter weekly from five cows is a most excellent performance, and our correspondent is to be congratulated on the quality of his herd. At the same time it would be interesting to know what individual animals are doing, and the use of a Babcock test would give some valuable data, when used on even the best herd.

As regards marketing the butter, with such a herd there should be an excellent chance to find private customers for all the butter the herd can produce.

It would require more labor and care, but the returns would be more remunerative than sending to a commission man.

"To Err is Human."

But to err all the time is criminal or idiotic. Don't continue the mistake of neglecting your blood. When impurities manifest themselves in eruptions or when disordered conditions of stomach, kidneys, liver or bowels appear, take Hood's Sarsaparilla. It will make pure, live blood, and put you in good health.

Hood's Sarsaparilla
Never Disappoints

Flax Seed Meal for Calves.

Ed. Hoard's Dairyman:—Kindly inform me where I can get the ground flax meal for calves. I do not want oil meal, but prefer the whole flax seed meal.

Burdette, S. D. C. W. Simons.

Ground flax seed can be procured at almost any drug store, although a somewhat high price is usually charged for it at such stores. We have always thought it paid a handsome profit to buy and use it. In addition, the calves should have access every day to unground oats, after four weeks of age. Commence with the flax seed meal with the first feeding of skim milk, turning on boiling water before adding it to the milk. Do not use more than a tablespoonful a day at first, or until the calves begin to chew the cud, which is usually in four to six weeks after birth. Watch well the the voidings and if too great looseness occurs, let up on the flax meal. Some persons use the whole flax seed well boiled.

Texas Fever and Ticks.

Ed. Hoard's Dairyman:—I notice in the Dairyman of May 5, Prof. Russell attributes Texas fever to ticks. Now I do not believe that a bushel of ticks put upon one animal would cause it to have the Texas fever, and I am quite sure that if you brought cows from the north and stabled them with your native cattle that were kept in stable and were perfectly free from ticks, the cattle brought in would soon take the fever and die.

Sixteen years ago last January I bought four two-year-olds and two calves, Holsteins. I put them in a field where a heavy coat of grass had just been burnt off, which of course destroyed the ticks, and in about two weeks the four two-year-olds took the fever, and three of them died. I do not think they had a tick on them.

Last June to further test the matter, and at the suggestion of one who believed in the tick theory, I bred and sent to my farm in Illinois about 5,000 young ticks and had them put upon a two-year-old steer, and there was not the least possible symptoms of the fever; but I propose to send more this season as a further test.

I should like to have some one ship a few head south and stable with natives, when they were free from ticks, and see the result. Who dare try it? N. H. M.

Manville, Fla.

More Inquiries About the Vetches.

Ed. Hoard's Dairyman:—I wish to thank the friends from Oregon and New York, who so kindly answered my query in regard to vetches. Since asking the question, I find a patch grown along a fence row, from



Not a Preservative

but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

the seed sown a year ago last spring. As I am using the soiling system exclusively, I am very anxious to use every plant available in that line, and would be very thankful if these friends (especially in the climatic conditions of New York) would state about how much vetch seed, and how much rye per acre is used when sown together, for best results. Whether sown and covered at same or different times; and if winter vetch is not best on rich black soil. J. P. D.

Fowler, Ind.

A Florida Experience.

ED HOARD'S DAIRYMAN:—I have a small herd of high grade Jerseys, but I am not satisfied. I have, this past winter, brought in a very fine young bull and heifer calves from Ohio. I want the best herd of Jerseys in the state, and I can see no reason why I should not have them.

Before coming to Florida, I had a fine herd of Holsteins. I do not think they are as well adapted to this state as the Jerseys.

We make butter, and have no trouble about its keeping, though we do not keep it over two weeks. Our butter stands up much better in warm weather than the northern butter. If you use northern butter in warm weather and no ice, you must handle it with a spoon. Not so with our make.

No use of my saying complimentary things about the DAIRYMAN, I could not do the subject justice. N. H. M.

Mannville, Fla.

Hood Farm Butter Test.

ED HOARD'S DAIRYMAN:—We report, this week, butter test of a daughter of Tormentor 3533, Imp., and Addie P., 41428, a full sister of Lily Martin, of World's Fair fame. Tormentor's Lass 59832, dropped Dec. 28, 1888, dropped her last calf by Tormentor, Jan. 1, 1899. This gives the calf 50 per cent of the blood of imported Tormentor. For the week ending Feb. 5, she gave 281 lbs. 15 oz. of milk that churned 17 lbs. 14½ oz. butter. For the two weeks ending Feb. 9th, she gave 565 lbs. 1 oz milk that churned 35 lbs. 8¾ oz. butter. Her daily ration was 4½ lbs. bran, 4½ lbs. corn meal, 2½ lbs. ground oats, 1 lb. oil meal, 1 lb. cotton seed meal, silage and hay *ad libitum*.

Tormentor Lass is a cow of great capacity and very fine finish. She has given in the five months since dropping her last calf, 5,622 lbs. 10 oz. milk and is milking at the present time 33 to 35 lbs. per day, thus showing the most valuable characteristic of a dairy cow—persistency as a milker. She has been bred to Torono, a son of Sophie's Tormentor, in use at Hood Farm. HOOD FARM.

Lowell, Mass.

From a Pennsylvania Dairy.

ED. HOARD'S DAIRYMAN:—We take great pleasure in reading the report of our brother dairymen, and herewith add our mite. During the month of May our herd consisted of three two-year-old heifers, four cows due to calve in September, and nine cows that dropped their calves before the middle of April. From 11,727¾ pounds of the milk that they gave during the month, we made 743¼ pounds of butter. Nine of the herd are daughters of Maud's Eurota Pogis No. 34864, whose dam Maud of Maple View No. 39511 made a record of 23 pounds, 10½ ounces of butter for Mrs. Kate M. Busick, of Wabash, Indiana. During the week ending May 25th one of the herd, Theresa Leonard No 104625, gave 301¾ pounds of milk from which we made 17 pounds, 7½ ounces of butter, salted one ounce to the pound.

AUSTIN LEONARD & SON.

Bradford Co., Pa.

Kerosene for Flies.

ED. HOARD'S DAIRYMAN:—I find a spray pump for spraying the cows with pure kerosene, to kill the horn fly, is an excellent remedy. The fly turns on his back at once. A pint of oil sprays thirty cows several days. I have begun early with the horn fly, so as to kill off the first generation.

My three-old bull got noisy and cross, and I hung a pound or two of an old pully on his nose for a jewel. It works admirably.

I am a gallon of cream short to-night, because of the severe rain of last night. There is more than one way to skim milk.

Viroqua, Wis. C. V. PORTER.

Power for Silo Cutter.

ED. HOARD'S DAIRYMAN:—Tell Buff Jersey his eight horse-power is plenty heavy for a 16-inch Ross cutter. I filled my first silo with a 14-inch Ross cutter, 20 feet carrier and a two-horse tread power, with only 1,100-pound horses, but could cut only 10 tons per day.

I now run a 16-inch cutter with traction engine. I have 50-foot carrier and think the engine could pull two more just like it. The engine is probably 14-horse power.

Our engine is 75 feet from cutter; use same belt as in threshing, but use a jack near the cutter to carry the weight of heavy belt. Then use a short one from jack to cutter. P. CLAWSON.

DAIRY PAPERS.

J. H. Monrad, the veteran dairy writer, has the following to say in the *Farmers' Review*, concerning his opinion of the value of dairy reading to the man who is trying to make money out of cows:

"Years ago, when the dairymen were allowed only one page, I felt kindly toward the *Farmers' Review*, simply because I saw good reports of the various dairy meetings, and found that the editor attended these and took stenographic notes. How much more should the dairyman appreciate the two pages, which gives them their true importance among the farmer students. Yet it seems to me that the subscribers do not fully appreciate the value of the concession, as they do not write and tell their fellow workers what they are doing, their success, their failure (both equally valuable) or criticise what they read. I sincerely hope that any and all readers who milk even two or three cows will make themselves at home in this department and co-operate to make it still more useful. No question is too trifling, and large amounts may be saved by digesting the information given.

"As an example, let me mention the editorial note where the manufacturers of cans for raising cream by dilution are scored for using the word 'separator'. It is simply an attempt to get a high price for a cheap can with a faucet by conveying to the minds of the unwary the idea that it is a machine like the centrifugal separator, the cheapest of which is $65, and that they can sell one for $10."

A BUSINESS OF FRAUD AND BRIBERY.

Mr. James Terry, the local representative of the Pensylvania Dairy and Food Commission at Pittsburg, in a communication to the Commercial Gazette of that city, says:

"There has been more corruption, deception and bribery in connection with the sale of oleomargarine, and the efforts to restrict its sale in conformity with law, than with any other article manufactured for food consumption. * * * *

If a man pays the top price for creamery butter and receives oleo., and this has been the rule, not the exception—the transaction is a swindle. The dealer who practices the deception should be exposed and punished.

The new Pennsylvania law provides that persons selling oleomargarine colored to resemble butter shall on conviction be subject to a fine of not less than $100 nor more than $500, or imprisonment in the county jail for not less than ten days nor more than sixty.

Mr. James observes:

It is well known that manufacturers here, in order to induce dealers to sell oleomargarine in defiance of the state law, offered to defend any case brought against them and to pay any fines that might be imposed. It appears that the similar promises are being made to the dealers in Pennsylvania. "They may pay their fines," said Mr. Terry, "but they will not go to jail for their customers, and could not if they would."

"Dual-Purpose" Fruit.

The writer of this attended a farmers' institute at St Francis, Minn., a few days ago, and he was greatly surprised to learn that of the half dozen creameries built in that section a few years ago, only one was running, and upon inquiry as to the cause, it was found to be chiefly due to the influence of the dual purpose cow advocates. Farmers were easily led astray upon this subject, and many of the dairy bred cows were replaced by heavier ones. The result was such a shrinkage in milk that the creameries had not enough to make it profitable and so they closed down. Farmers who take the advice of men who know nothing about dairying, and care little for the development of the industry, but who are chiefly interested in seeing a goodly number of beef steers raised for the steer feeders and traffickers, will in time learn to their sorrow that the advice of such men cannot be profitably followed. If creamery patrons have any regard for their future welfare they will turn a deaf ear to the fine-spun theories of those who have never had any experience in the business, and that are in direct conflict with the results obtained by long and careful investigation at experiment stations, and in multitudes of first-class dairies. —*Farm Stock and Home.*

D. F. Sexton, of Snohomish, Wash., has a dairy of 21 Jersey grade cows, 11 of which are heifers. The production of those cows and heifers, last year, was an average of 305 lbs. of butter—another proof that it is not the location, but the men, that makes the real difference in the production and profit of this business. The first thing for every dairyman to strive for, is to be the right kind of a man with the right kind of ideas, and all things else shall be added.—*Hoard's Dairyman.*

Yes, but your bright readers can see for themselves that neither the men nor the location had as much to do with it as the influence expressed in that little word following 21. They doubtless have the "right kind of ideas," but if the word "Jerseys" had been substituted for "ideas," your last sentence would have been nearer the "thing" and nearer your inmost convictions —*Jersey Bulletin.*

Is that so? Well, we know of a number of men who have made a most lamentable failure with Jersey cows. "In the bright lexicon of your youth" is there any place for brains and good management or will the cow, if she is a Jersey, do it all?

Persistent Milking Wins.

Last season when the price for calves went skyward, many farmers who had patronized the creamery and raised the calves on skim milk, thought they could see more money and less bother in letting the calves suck the cows. The indications are that this year calves will not be worth as much money, and as the cattle stock of the country increases to the normal, calves will further decrease in value. These farmers who stopped milking and turned in the calves will then see the mistake they made. They will find that their cows are not nearly as good milkers as they were before, and it will take them several years to build up an efficient dairy herd again.

If there is any one thing about dairying that has been thoroughly and completely demonstrated, it is that milking makes milkers. The best cow in the world can be ruined as a milker in a comparatively short time by simply letting the calf suck her, or by carelessness in milking. The poorest cow can be improved by continued and persistent milking. The man who has ten or twelve, or more cows, and milks them year in and year out, keeps right at it and practices improved methods of feeding, will get ahead right along. It don't pay to milk the cows one year and let the calves suck the next—*Creamery Gazette.*

FIFTY YEARS OLD

Why let your neighbors know it?

And why give them a chance to guess you are even five or ten years more?

Better give them good reasons for guessing the other way. It is very easy; for nothing tells of age so quickly as gray hair.

Ayer's Hair Vigor

is a youth-renewer.

It hides the age under a luxuriant growth of hair the color of youth.

It never fails to restore color to gray hair. It will stop the hair from coming out also.

It feeds the hair bulbs. Thin hair becomes thick hair, and short hair becomes long hair.

It cleanses the scalp; removes all dandruff, and prevents its formation.

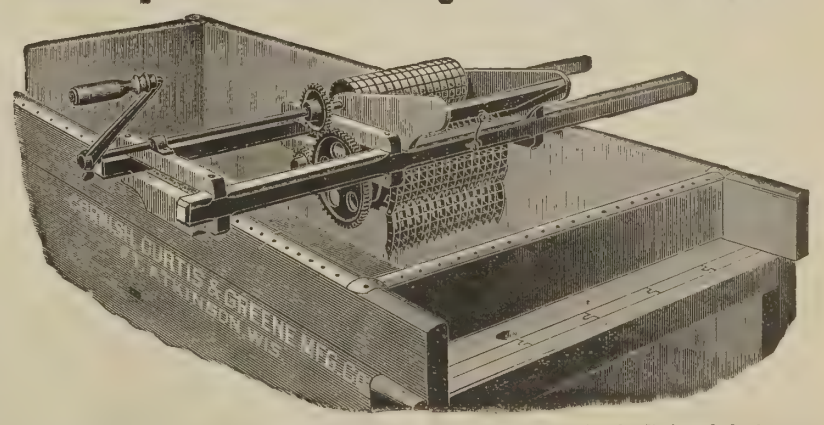
We have a book on the Hair which we will gladly send you.

If you do not obtain all the benefits you expected from the use of the Vigor, write the doctor about it. Probably there is some difficulty with your general system which may be easily removed. Address,

Dr. J. C. Ayer, Lowell, Mass.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thuroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa**

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentations to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00.**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

Seasonable Notes from Michigan.

Clean Water for the Cows.—Feed on Dry Pasture.—Cleaning Milk Utensils.—Soap.

ED. HOARD'S DAIRYMAN:—There are a number of things which ought to be impressed upon the minds of those having the care of cows and milk during the hot months of summer. No one can hope to succeed in securing a first-class article of milk, or to make fine butter, and allow such deplorable conditions to exist, as are sometimes found.

When cold weather comes, attention needs to be directed along the line of proper stabling, ventilation, the food and water supply, as regards the out of door work, while inside we have the difficulties attending creaming the milk in zero weaher, ripening the cream, churning, etc., where everytning must be closely and carefully watched, to see that a proper temperature is maintained.

In summer it does not seem that one's vigilance can be one particle abated. There are special difficulties peculiar to each season. Just now, on a good many farms, the cows are not supplied with plenty of good, pure water. The animals are allowed to drink from way side pools, veritable mud holes in some instances, and how can pure milk be expected under such conditions.

Only yesterday, while driving along the road just at chore time, I met a man driving his cows home from pasture. As I approached, he stopped to allow them to drink from a pool of stagnant, muddy water at the road side, actually thick and yellow with dirt.

Good well or spring water is best for stock of this kind. On a good many farms, wind mills are erected, which keep a supply of fresh water always at hand, and it is preferable that these are so located that the animals may drink at any time, not merely at morning and night.

An outlet to a tile drain, may often be utilized so as to furnish an excellent watering place. Make a trough and set at the outlet, usually, on a side hill where the stock can get at it. Arrange the overflow properly, and have the trough so placed that cattle cannot get in with the feet.

Running water is sometimes fouled by cattle standing in it to get away from the flies. In this case it soon clears itself again, and is not to be compared with the roadside pool, while, at the same time, leaving considerable to be desired by way of cleanliness.

The fly nuisance causes a loss of no mean dimensions, yet it is one hard to successfully combat. We know of nothing better than "Shoo-fly," or similar preparations, which require to be applied repeatedly. The labor involved in this is not, however, to be compared to the loss entailed, when nothing is done to prevent their ravages.

At least one feed a day of corn fodder, peas and oats, or some other supplemental food should be given milch cows when pastures become dry, during July and August. Anyone who appreciates the fact, that something cannot be made from nothing, will understand how necessary it is to supply a cow with all she wants to eat. When pastures are bare and flies troublesome, she is much better off in a darkened stable all day, where she has plenty to eat, than wearily plodding over the ground in the vain search for it, while flies make her life miserable.

Indoors, great care is necessary to keep everything sweet and clean.

All milk utensils should be washed as soon as empty and not allowed to stand. The milk adhering quickly dries upon the surface rendering its removal more difficult. Pouring hot water over milk things, is a bad way of cleaning them. They should always be first washed in cold water, then in that hot as the hand will bear. A final scalding will render them sweet and clean. Sunshine is desirable when exposure to dust is not an accompaniment.

It is not necessary to use soap about milk vessels. Indeed, it is best to avoid it entirely. Plenty of clear hot water will be all that is required. If they cannot be washed as soon as emptied fill with cold water while standing.

Perhaps the churn is as much neglected as any thing about the indoor dairy work. With wooden ware of any kind great vigilance is required if it is to be kept in the condition which a churn should be. The same churn may be used for years and still smell as sweet as new, if properly cared for. There is not the slighest excuse for anything else.

What has been said in regard to washing milk pails, as soon as used, applies rather more forcibly to the churn. As soon as the butter is removed rinse out with cold water if at all milky inside.

If the butter has been well washed in the churn, and the latter revolved, it may not be necessary to do this, but it will do no harm in any case. Pour in plenty of hot water, the hotter the better, and wash with a stiff brush, which is much preferable to a cloth. Give a final rinsing and turn bottom up if a barrel churn.

Do not leave it tightly closed between churning days. It is best not to do this, or the churn will be liable to get musty.

If you would preserve the neat appearance of the churn, externally, never apply hot water, which ruins the varnish. Wiping with a damp cloth will be all that is required as a general thing.

Constant watchfulness is necessary in regard to all cloths used about the dairy room. Nothing so quickly sours as milky cloths, or those not properly cleansed. These should be renewed every few days at longest.

Remember never to pour hot water over them until they have first been washed in cold. The least neglect will have its effect. If bleached butter or cheese cloth is used, as strainer, renew at the first indication of odor. It costs but five cents the square yard, so there is no excuse for using any but clean, sweet ones.

Never put away the wire gauze strainer, with the least obstruction visible in its meshes. Use a stiff brush here; it is the best possible instrument to reach every spot. If one or more of the cows have an attack of garget, the effects will be seen in she strainer quicker than anywhere else.

Of course no one would knowingly use such milk, but sometimes it is first noticed when it comes to be strained.

Mich. W. C ROCKWOOD.

Butter Making for the Small Dairy.

ED. HOARD'S DAIRYMAN:—While we are all making so much fuss about process butter and the injury it is doing the regular creamery market, suppose we stop and think about the people who originally make the butter out of which the "process" comes.

Is it not a fact that the great mass of material published in the dairy papers, is written over the heads of the plain farmer's wives? If you doubt this, take up a DAIRYMAN and run over the headings of the leading articles, and the shorter ones too, as a rule, and what farmer's wife who makes ten cent butter could tell what it is all about.

Of course every paper is written for the class of people who subscribe for it, and the ten cent woman, as a rule, is not much of a reader; but should there not something be done for her, even if we have to interest the farmer himself to read to her as she does the evening work, and tell her the little inexpensive improvements that she can introduce in her little dairy that will raise the quality and the price of the butter she makes?

Take, for instance, the item of churning. When she has to churn in warm weather, as a rule, she lets the milk stand from 24 to 48 hours, and then skims it very closely, taking off very little skim milk or clabber with the cream.

This represents such small bulk that she must delay the churning three or four days in order to get together enough cream to make a churning. In this way she has fallen into the habit of churning twice a week. She has no ice house, cave or cool cellar to keep the cream in, and perhaps never thinks of lowering it into the well or cistern, but lets it stand around, heated from 75 to 90 degrees, until it has formed into clabber with a sour whey at the bottom.

Now any intelligent dairyman could tell that farmer's wife that the life was already gone out of that cream, and by delay she had lost about ten cents a pound on the quality of the butter.

That, she might say, was an old story, but how was she to remedy matters? Let us see. Time is an important matter in butter making, especially in relation of cream to the quality of the butter. Where milk is set in shallow pans, we may say that, as a rule, if the cream is churned when it is 24 hours old, it will make, say, 20 cent butter—if we wait 24 hours longer before churning, the butter will be worth 15 cents, and 24 hours later, 10 cents, and 24 later, nothing.

Here then we are losing five cents a pound every day we delay churning the cream after it is properly ripened. This the good wife will say is greatly increasing the labor of churning. Let us see about that. Suppose we make the strippings amount to one-third of all the milk the cow gives, and instead of setting that for the cream to rise, we pour it into the cream pail; here we save some labor. I pledge my word, I would rather do seven, or perhaps six, to save working on Sunday, light churnings with the conditions all right, than two large churnings with a heart breaking result of poor, half sour butter.

Suppose during the hot weather this summer, every night before going to bed, you rinse the churn out, pour in the day's supply of cream, set the churn where the cool night air and breezes will get at it, put the top on tight, then take a clean blanket or burlap sacks, dip them in water and put them dripping wet over the churn.

Between the cool air and the evaporation of the water from those sacks, the cream by five o'clock in the morning will, even the warmest nights, be reduced to about 62° or very near the correct temperature for churning, so that fifteen or twenty minutes churning will bring the butter. Six churnings, with such care, would probably not, in the aggregate, require one minute more time, than would the two big churnings done in the middle of the day, and sometimes requiring hours of hard work before the butter comes.

But suppose it does take a little more time, and especially more churn cleaning to do it every day, think of the money and the general satisfaction you get out of an improved quality of butter. Then again, if you will empty the churn just as soon as the butter is taken out of it and rinse it out well with first cold and then hot water, and wipe it dry with a clean cloth, there will be little or no work to keep it clean. If the buttermilk is allowed to dry on the inside of the churn, you can never keep that churn sweet.

Now about taking care of the milk and butter. I am getting 35 cents a pound for my butter, and it costs me no more trouble, as money, to make it, nor as much as it does you to make ten cent butter. When I used crocks, I quit them, and got shallow pans, because crocks will absorb grease. I also found that wooden covers for the crocks soon smelt bad from the old grease in them. I also found that a damp spring house was a sloppy place to walk, and that milk set in shallow pans and kept in a dry airy room at the house, raised as much and better cream, than when set in water. I could tell a long story of a jury trial we once had in New York, to prove this fact. Pure air is more useful than cold air, for good cream raising.

The point is, to skim the milk just as it begins to form clabber at the bottom of the milk. You can tell when this is taking place in several ways, with experience. Tip the can slightly and shake the milk or watch the thermometer during the day. You will soon learn, if you have a thermometer hung just outside the kitchen door, to note the change of temperature, and that will tell you just what the milk is doing, and you must skim it just when it is ripe, that night or day, if you want the best results.

To keep the butter fresh and hard until shipment, get a tin pail or several of them with close fitting tops to put the butter in. Lower these pails into the well, or cistern, or other cool place. It pays well, and sells well, to make the butter into pound lumps, the shape of a brick, and cover each pound with parchment paper, that is very cheap, and adds several cents per pound to its value. A little style pays better than hard work in the dairy. All customers taste more with their eyes than they do with their tongues.

The best cheap milk house is to dig a hole, say twelve feet square and six feet deep around the well, leaving the well in one corner or half out so an out door pump can be put in it. Board or brick up, and put a double roof over this milk house, with windows for light and ventilation. Plant trees on east and south side, two feet apart, and cut out when they get too thick.

Louisville, Ky. L. S. HARDIN.

The Time to Cut Hay.

ED. HOARD'S DAIRYMAN:—I must ask the privilege of raising my voice against what I consider rank heresy in the article on cutting hay by W. J. on page 367 of the DAIRYMAN. It may be an easy question to settle, but my observation is that to cut hay before it is, at least, on the edge of maturity is to cut the crop in two. All forage crops that I know anything about, grow much faster, bulk for bulk, just as they are coming into blossom than at any other time. Cut hay before this time and it will dry away to a very small bulk, not to mention the time it takes to dry it.

Cut hay in full blossom and it is usually very dusty on account of the saving of the stamens of the flowers. Such hay is not fit for horses. A horse with even a slight attack of heaves will cough constantly over such hay. The plan should be, then, to cut hay, especially timothy, just as soon as the blossoms fall and to make enough haste to get through before the seed becomes hard. This will secure the leaves before they begin to wither and it will take the crop at its great est bulk.

I am not trying to say that wood is hay or that the lower end of the stem is best, weight for weight for I know that such is not the case, but my observation is that mere leaf hay, such as aftermath, is not as nutritive as it would seem to be. Cattle eat it with great relish, but they seem to be about as hungry as they were before. One summer we went through a drouth which so cut down the growth of meadows that most of the grass did not head out at all. I went into winter with a very small supply of hay, but with the notion that what there was would go much farther than ordinarily. I was badly mistaken. The hay went off like chaff before the wind and nothing saved the remnant of the stock, but the selling of most of it.

It seems to be a recent discovery, that it is the pith, and not the woody outside of the lower part of the corn stalk that cattle reject. At any rate, it will not do to sacrifice a crop at the very time it is growing fastest. It would be better to cut it higher from the ground, and thus reject the woodiest portion. Cannot some of our experts make us a test on something like these lines? Selecting about three plots of grass of equal promise, let them be cut, one before blossoming, one as late as possible before there is any visible ripening, and the third at some time as nearly half way between the extremes as possible. There will be an extra proportion of wood in the last cutting, of course, but will that not be more than made good by the amount of nutritive matter in the last cutting, and will not the second cutting, also, be worth more than the first?

It may be that such tests have been made, but if I have seen a record of them I do not recall them. What I am insisting on, is quantity in the main, I confess, but at the same time I believe that the quality is not much better in early cut hay, than that which is cut just before it begins to lessen in value. There is more sugar in it, but sugar is by no means the solid food that starch is, though it may be more palatable, and, therefore, deceive the unobserving.

For the sake of illustration, it is proper to take an exaggerated case. Let us cut a part of a field of fodder corn when it is half grown, and the rest when it will not get any larger. Does anybody suppose that the early cutting is as valuable as the other?

Erie Co., N. Y. JOHN CHAMBERLIN.

Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use

Eureka Harness Oil

on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

Made by STANDARD OIL CO.

THE returns of the Board of Trade of England, show that on an average 46,000 tons of oleomargarine are exported into that country.

How many tons of butter does the above amount of oleo displace, and what effect does it have on the market price of butter?

DAIRY MARKETS.

ELGIN, Ill., June 26—Butter—Firm; offerings 307 tubs; sales 207 tubs at 18c.

CHICAGO, Ill., June 26—Butter—Creamery extra, 18c; firsts, creameries, 16½@17c; seconds, 13½@14c; Dairies, selections, 15@15½c; No. 1, 14c; No. 2, 12@13c; extra ladles, 12½@13c.

Eggs—Fresh at mark, cases returned, sold at 11@11½c; loss off, cases returned, 12c; duck eggs 9@10c; goose eggs, 12c.

Cheese—Full cream, Twins, new, good to choice, 8¼@8½c; Young Americas, 8¾c; Swiss 11@13¼c; Limburger, 7@8c; Brick, 7½@8¼c.

Cattle—Trade was active, and prices ruled strong at last week's closing quotations, or 10c higher than last Thursday. All classes of buyers purchased freely, especially New York exporters. One load of 1,479 lbs steers sold at 5.65, and a load averaging 1,444 lbs at 5.60. The next highest was 5 50 with the bulk of native beef cattle at 5@5.35, and comparatively few below 4.85. Exporters bought principally at 5.25@5.40; corn-fed western steers 4 60@5.40, distillery steers, 5@5.30; straight Texas steers, 3.65@5.10; Texas cows 3 55; native cows, principally 3 10@4; heifers, 3.90@4 60; distillery bull, 4.15@4 25; veal calves, 5 50@7 and feeding cattle at 3.75@4.95

Bran—In fair request at $11 per ton in bulk, and $12 in sacks f. o. b. and 10.62½ in bulk billed through.

Middlings—Quiet and sold at $12 billed through.

MILWAUKEE, Wis., June 26—Butter—Creamery, fancy prints, per pound, 18c; extras 18c; firsts 16@17c; seconds 14@15c; imitations 14@15c. Dairy, selections, per pound 14@15c; lines 12@13c. Market firm and active for all kinds; receipts 19,090 pounds.

Cheese—American Full Cream, new, choice to fancy, 8@9c. Brick, new, choice, 8@8¼c Limburger, fall, choice, 9@9½c; new choice 7½@8c. Swiss, Drum, choice 12½@13c; Block, choice 10½@11c.

Eggs—Fresh, per doz 12c, loss off, cases returned. Market firm and steady; receipts 348 cases and not equal to demand.

AVOCA, Wis., June 26—Cheese—On the Lone Rock and Muscoda Dairy Board, today, offerings were all taken at 7⅞@8 cents, mostly 8 cents.

FOND DU LAC, Wis., June 26—Cheese—Offerings, 600 Twins, 580 Daisies; market strong; Twins 8¼c; Daisies 8⅝c.

CHILTON, Wis., June 21—The sales of to-day were 30 Twins at 8¼c; 240 at 8c; 80 at 7¾c; 260 Daisies at 8c; 220 cases Young Americas at 8¼c, and 260 at 8c.

PLYMOUTH, Wis., June 20—Sales to day were 1,230 Twins at 8½c and 950 Americas at 8¾c; market active.

MANITOWOC, Wis., June 21.—Offerings of cheese at the Dairy Board of Trade to-day were 750 boxes Daises, 100 boxes of Twins, 800 boxes Young Americas. Sales were 400 Daisies at 7¾c; 350 at 8c; 40 boxes Twins at 7¾c; 60 at 8c; 450 Young Americas at 8¼c.

SHEBOYGAN, FALLS, Wis., June 21.—Sixteen factories were represented on the Call board today and the offerings of 1,324 boxes of cheese were all sold, as follows: Seven hundred and fifty-two cases Young Americas at 8¼c; 90 at 86 10c; 312 twins at 8½c; 170 daisies at 8½c.

APPLETON, Wis., June 15—The offerings on the call board to-day were 632 Twins, and all sold at 8c. Market brisk.

BRILLION, Wis., June 16—Sales of cheese today were 1,526 Daisies, at 7¾c, 817 Twins at 7¾c, and 250 cases Young Americas at 8c and 150 at 8⅛c.

HORTONVILLE, Wis, June 15—Offerings today were 419 Cheddars, and 1,261 Twins. Sales: 123 Cheddars at 7¾c and 1,046 Twins at 8c. Market active.

NEW YORK, June 26—Cheese—State full cream large or small colored, or white, choice, 8¼c.

Eggs—State, Pennsylvania and western, 15@16½c.

FULTON, N. Y., June 19—Cheese—Today 20 factories were represented with 1,735 boxes of cheese. Large sold at 8c, small sold at 8¼c.

BOONEVILLE, N. Y., June 17—Cheese—On the Board today, 1,040 boxes of cheese were offered. Nearly all were sold at the curb. Prices ranged from 7½@7⅞c.

OGDENSBURG, N. Y., June 19—Cheese—On the Board there were 1,733 boxes of cheese offered. There were 196 boxes sold at from 8@8½c. The balance was sold on the street at 8¼c.

CANTON, N. Y., June 19—Cheese—There were 2,236 boxes of cheese offered. Large sold for 8⅛ cents and the small for 8c. There were 1,328 tubs of creamery butter offered. Sales were made at 17¾c.

LITTLE FALLS, N. Y., June 19—Cheese—This market had quite a boom today. Prices are advanced fully one-half cent. The sales are not as large in amount as might naturally be expected with the large production. The sales are as follows: 88 lots, 6,523 boxes at 7⅞@8c.

Butter—Quite an increased amount of butter was brought in today, considerable of it in small packages, all dairy make. It sold at 15@17c, the bulk at 16c.

UTICA, N. Y., June 19—Cheese—The market today showed an advance of ⅞c over last week's price. The sales were nearly 2,300 boxes greater. On the whole, business was quite as satisfactory to the factorymen as it has been this season, and the indications that good prices will be the rule for some time to come. The sales aggregated 114 lots, 8.652 boxes at 8@8½c. The transactions on June 21, 1897, were 11,874 boxes, with 8c the ruling price. The transactions on June 20, 1893, were 8,197 boxes with 6¾c as the ruling price.

The sales of butter to-day were: 21 packages at 17c, 15 packages at 18½c, 30 crates of 1-pound packages at 20c, and 20 crates of 5-pound packages at 20c.

WATERTOWN, N. Y., June 19, —The market on Saturday showed great activity and there was a decided advance in prices. On the board 600 boxes of large were sold at a range of from 8@8¼c, on the curb 5,410 boxes of large white were sold at from 8@8½c and 342 boxes of twins at from 8@8½c.

ST. LOUIS, Mo., June 26—Butter—Quiet; creamery, 15@18¾c; dairy, 12@15c.

Eggs—Firm; 10c.

KANSAS CITY, Mo., June 26—Butter—Creamery 16¼c; dairy 13c.

Eggs—Fresh; 10c.

CINCINNATI, Ohio, June 26—Eggs—Quiet 10c.

Cheese—Firm; good to prime Ohio Fat, 8@8¼c.

Butter—Steady, 19@20c.

NEWARK, N. J., June 26—Market quiet, 18½@18¾c for fancy creameries. Receipts liberal.

WASHINGTON, D. C., June 26—Market steady extras 19c; firsts 18c.

BOSTON, Mass., June 26—Butter—Market very firm, 19c.

Cheese—Steady 8½@9c.

Eggs—Quiet, 14@15c.

NEW ORLEANS, La., June 26—Butter market quiet, 19c.

BALTIMORE, Md., June 26—Butter—Market firm; creamery, separator extra, 20c; extra first, 18@19c; creamery firsts, 17@18c; creamery imitation extra, 15@16c; ladle extra, 14@15c: western store packed, 11½@12½c.

Eggs—Market firm; strictly fresh stock, 14@14½c.

PHILADELPHIA, Pa., June 26—Butter—Separator creamery extras, 19c; creamery firsts, 18c; seconds, 16@17c; imitation creamery, extras, 16c; firsts, 15c; seconds, 13c. Ladle packed extras, 14c; firsts, 13½c; seconds, 13c. Print butter, creamery extras, 20c; firsts, 19c; seconds, 16@18c.

Eggs—Pennsylvania and near by, 14½c; western, 14½c; southwestern, 14c; southern, 13½c.

ST. LOUIS, Mo., June 26—Butter—Quiet; creamery, 15@18½c; dairy, 12@15c.

Eggs—Firm; 10c.

NEW YORK MARKET.

NEW YORK, June 24—Butter—Receipts for the week, 66,004 packages; exports for the week, 1,986 packages.

Receipts continue heavy, about the same as last year, while prices all through the month have ruled fully 1½@2c per pound higher than last June.

Home trade has been without speculation and confined to current daily wants. There is an absence of export buying and almost a cessation of foreign shipments of fine creamery butter. The entire exports this week were made up of good to fine ladle goods bought at 13½@14½c. Large lines of creamery butter went into freezers because receivers were unable to turn them at any profit. We quote:

Creamery, extra 18½c; medium 17@18c; poor 15@16c. Dairy, extra 17@17½c; medium 15@16c; poor 18@14c.

Cheese—Receipts for the week, 34 019 boxes; exports for the week, 6,337 boxes.

Export and speculative buying absorbed the week's receipts and the market closes firm at outside quotations. Large cheese sold at 8¼@8¾c, the latter for finest white. Small sizes were taken by local buyers at 8¾@8½c for the best marks, and 8@8½c for less desirable lots. Light skims were inquired for and sold at 6@7c. We quote:

Full cream, large, extra 8¼@8½c; medium 7¾@8c: poor 6½@7c. Full cream, small, extra 8¼@8½c; medium 8@8½c; poor 6½@7c.

Eggs—Receipts for the week, 65,231 cases. Free receipts caused a trifle easier feeling, and for all kinds except the very finest marks, lower prices. We quote:

New York & Penn., finest marks, per doz. 15½@16c; Northern & Western, finest marks, per doz. 15c; Other sec., fair to good marks, 13@14½c.

DAVID W. LEWIS & Co.
177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, June 22—Butter—The receipts of separator creamery butter the past week have principally come from what is known to the trade as the Elgin district, and consist largely of the highest grades; but the proportion of true extras is smaller than expected at this season, and the trade are at a loss for a satisfactory reason. The bulk of this variety of creamery butter, on the high standard adopted in some of our neighboring cities, would about measure up to 92 points, consequently it is right hard to sell when expectations run high in harmony with the advanced prices. The demand now is almost exclusively for consumption; whatever sales are made to go into the freezers are to retail dealers for distribution to consumers later on; not one per cent. is speculation pure and simple. Now with gathered cream and imitation creameries and ladle packed, conditions are different, and the grading no better nor worse than normal, and though the prices are perhaps relatively as much higher as the prices of separator creameries over last year, still prime cost and expense of carrying added put them at a price where they can be jobbed out at a profit and still give the retailer a chance, and all within the limit of a modest purse later on. Out-of town trade is but scantily represented here, and the exporters have withdawn from the market on all but regular orders and lowest grades. The supply of storepacked butter is insufficient for trade wants; there is a quick demand for all grades of it.

Creamery separator, extras, 16c; firsts, 18c; seconds, 17c. Creamery gathered cream, extras, 18c, firsts, 17; seconds, 16. Creamery Ohio, extras 18c; firsts, 17c; seconds, 16c. Creamery Imitation, extras 16c; firsts, 15c; seconds 14c. Iowa & N. W. Ladle, extras 14c; firsts, 13c; seconds, 12c. Ohio & Indiana Ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio storepacked, extras, 12c; firsts, 11½; W. Va. storepacked, extras, 12c; firsts, 11½c. Creamery blocks (2lb.) extras, 21c; firsts, 20c; seconds, 19c. Creamery prints (½lb.) extras, 21c; firsts, 20c; seconds 19c. Md., Va. & Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—There is quite a scarcity of choice fresh eggs; for this kind there is a quick demand at advanced prices; our market rules firm on all choice stock at 14 cents. Heated or other faulty stock are not included in our quotations.

Notice—Mr. Shipper, Dear Sir:—We feel satisfied were you to see the miserable condition in which some eggs arrive packed in barrels and boxes that you would become convinced that cases are far better, and the loss is not near as heavy as it is in barrels and boxes.

Western Md. and Penna, per doz., 14c. Eastern Shore (Md. and Va., per doz, 14c. Virginia, 14c. Western & W. V. 14c. Southern, 14c. Guinea, 7c.

Cheese—While the receipts are ample at present for all requirements, the market is firm as quoted; demand good. N. Y. State—Cheddars, fine 8¾c; choice, 8½c fair, 8@8¼c; N. Y. State—flats, fine, 8¾@9c, choice, 8½c, fair, 8¼c; N. Y. State small, fine 9@9¼c, choice 8½c, fair, 8¼c. Ohio—flats, fine, 8@8¼c; choice, 8c; fair, 7½c; picnic, Ohio fine, 9c; choice, 8½c; fair, 8c. Skims, fine, 6½@7; choice, 6@6¼; fair, 5. Swiss cheese, fine, 13¾@14; choice, 12@13; fair, 10@11.

301 Exchange Place. G. M. LAMB & BROS.

Latest quotations for fancy creamery: Buffalo 19c; St. Paul 17½c; Minneapolis 17c; Detroit 19c.

FOREIGN MARKET.

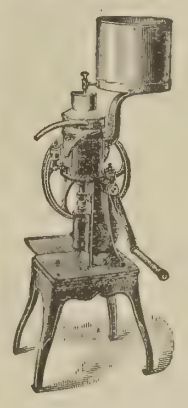
BOSTON, June 24—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as decidedly steadier with a slight advance in the better descriptions of all kinds of butter. Danish is selling at 20@21c, finest Irish 18½@19c. Arrivals of Canadian are increasing but with improved quality receivers are asking more money. Sales have been made this week at 18½@19c in boxes, with some refusing to sell at these rates. There is a little better feeling in low grades and finest ladles would probably sell at 14@14½c.

Cheese markets are all the turn steadier. Current arrivals of American and Canadian are selling at 9@9½c. The higher CIF quotations from United States and Canada has caused a firmer feeling.

LIVERPOOL, June 26—Butter—United States finest, nominal; good 62s.

Cheese—American finest white, 42s 6d; colored 42s; ordinary new, 43s 6d.

"Electricity" vs. "Gas" in CREAM SEPARATORS



Protective patents prevent the use of the improved "Alpha" disc or divided milk-strata system in any other than the De Laval separators. Other fairly well made centrifugal separators are as gas to candle and save $3.– to $5.– per cow per year compared with setting methods. The De Laval machines are as electricity to gas compared with other separators and save $3.– to $5.– per cow per year *over such other machines*, and $5.– to $10.– over gravity processes.

A new 1899 De Laval catalogue, to be had for the asking, tells the whole story.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO. | GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK. | Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Creamery for Sale—The Fairfield Creamery Co. offer for sale their Creamery, located in the village of Fairfield, Walworth Co., Wis. It is surrounded by a good dairy and farming country. Building and machinery in good running order. For price and particulars address SECRETARY FAIRFIELD CREAMERY CO., Fairfield, Wis.

Wanted—An honest and reliable man capable of managing a large dairy. Must be experienced in all dairy work and with all dairy machinery. Liberal wages to good man. G. C. STREET, Houston, Tex. 18-4

Scour Cure—Stops scours in calves. Large bottle $1.00. A. S. ALEXANDER, V. S., Evanston, Ill. 15-tf

Wanted—Experienced creameryman. One who has had Dairy school education and understands thoroughly the handling of milk and cream for churning purposes. State how long at school and what experience and salary expected. Address S. W., care Hoard's Dairyman.

New Era 14-H. P. gasoline engine. Good working order. Price right. Address J. K. LYNDE, Fort Atkinson, Wis.

Wanted—A good single farm hand and milker to take full charge at good wages if satisfactory. Address, "N," care of HOARD'S DAIRYMAN.

$330.00 buys a 1-6 interest in a good combined butter and cheese factory, running the year round, with position as maker at a fair salary. WOODVILLE CRY. CO., Woodville, Wis.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

To avoid inbreeding I will sell my excellent herd bull, Linnie Graph, No. 4991 A. G. C. C. Dropped March 15, 1897. M. D. CUNNINGHAM, Kansasville, Wis. 19-2

Wanted—Two first-class farm hands who can milk. A permanent job for one and perhaps both. Must be men of good habits. Address B. PARSONS, Havana, N. D. 19-2

Exceptionally Low Rates to Los Angeles, Cal., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 25 to July 8, inclusive, limited to September 4, 1899, inclusive, on account of Annual Meeting National Educational Association, Variable routes, delightful scenery. Side trips at low rates to points of interest. Apply to agents Chicago & North-Western R'y 19-2

Exceptionally Low Rates to Denver, Col. via the North-Western Line Excursion tickets' will be sold at greatly reduced rates from all stations, June 25 to July 11, inclusive, limited to October 31, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y. 19 3

Exceptionally Low Rates to Cincinnati, Ohio, via the North Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 26, 27 and 28 (but not for trains arriving Chicago before June 27), limited to July 5, 1899, inclusive, on account of National Sangerfest. Apply to agents Chicago & North-Western Railway. 19-2

Fourth of July Rates.—On July 1, 2, 3, and 4 the North-Western Line will sell excursion tickets at low rates to points on the North-Western System within 200 miles of selling station, good returning until July 5, inclusive. Apply to agents Chicago & North-Western Railway. 19-2

Exceptionally Low Rates to Detroit, Mich., —Via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, July 3 to 5, inclusive, limited to August 15, 1899, inclusive, on account of Annual Christian Endeavor Convention, Apply to agents Chicago & North-Western R'y. 19-2

Exceptionally Low Rates to Denver and Salt Lake City, via the North-Western Line Excursion tickets will be sold at greatly reduced rates from all stations, until July 11, inclusive, limited to October 31, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western Railway. 20-2

Exceptionally Low Rates to Richmond, Va., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, July 10, 11 and 12 (but not for trains arriving Chicago before July 11 or later than July 13), limited to August 15, 1899, inclusive, on account of National Convention B. Y. P. U. Apply to agents Chicago & North-Western R.y. 20-2

Special Excursion Rates to Portland, Ore., and other North Pacific and Coast Points. —Via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, until July 8, inclusive, limited to September 4, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western Railway. 20-2

The Pure Milk Supply Problem.

ED. HOARD'S DAIRYMAN:—Week after week notices are found in the German papers stating the establishment of new concerns for the supply of pure milk. Thus in Berlin, where thus far the peddling from wagons has mainly been done by the large firm Bolle, a new company is being established by two former employers of said firm and a "moneyman", who will operate a large dairy in the west end of Berlin, after the Bolle pattern.

The proprietors of the many milk stores in Berlin are much excited over this new competitor, which still makes them fear a further decline in milk prices. It also seems queer to us over here, who have the idea of a perfect indifference on the part of the Germans as to the keeping of the Sabbath, and who are always in fear of the Continental Sunday, that it even can be suggested in Berlin to forbid the loading of empty milk cans on the wagons for returning to the rail road stations, as being a cause of "disturbing the Sunday quiet." This complaint, though, was considered unreasonable by the court, as prohibitions in that line would cause great inconvenience as to the necessary supply of milk.

SCHWEIZERHOF

is the name of still another establishment just started by H. Schlegel, who, years ago, received the patent rights of Neubans, Grouwald & Co., for sterilization. The supply of Berlin with special health milk, according to the "Gartner" method, will be the main object.

PREPARATION OF "CHILDREN'S MILK" AT CO-OPERATIVE CREAMERIES.

The Stedinge Creamery Co., at Berne, Oldenburg, has, during this year, prepared "children's milk" according to the method of "Backhaus", and the demand has so far exceeded all expectations, that a separate building for that purpose in connection with the creamery has become a necessity. During the first month, February, the sale was 575 quarts; in August, 4,300, and was expected to exceed 6,000 quarts in September.

It is a proof of the highly enjoyable part that the public already knows how to appreciate the advantage of the Backhaus children's milk as an infant food. The Stedinger creamery received a special big send-off, as the last born Oldenburg Prince was fed on the same, from the very first day of his life!

The new building has been decided upon, and the manager in charge will be sent to take a special course in "health and children's milk preparations" at the University of Konigsberg, the instructor being Prof. Backhaus himself.

"What do we care what those Germans do?" some will say. I think it would be very well for some of us, if we would care. Thus far the supply of an absolutely healthy and properly prepared milk for feeding young children has been all together inadequate, or, rather, not to be had at all, even for money. A few so-called laboratories have been established, some, like Mr. Strauss, furnishing pasteurized and modified milk so cheap that the poorest could get it; some, again, furnishing such at so high figures, as only making it possible for the well to do to buy it; both movements are well enough as far as they go. But not until such milk is produced and put up on so large a scale, as to make it possible to make it a paying business, and at the same time to furnish such milk at prices within the reach of all. Not until then will all these efforts accomplish what they ought and must some time.

The Germans cannot produce cheaper or better milk than we, and the people there, on the average, possess less means than our people. Why is it then, that the slow going Germans so quickly take hold of a good thing? Is it because the public there generally are better instructed along these lines? If so, it is time for us to do likewise.

SUPPLY AND CONTROL OF MILK IN COPENHAGEN.

The following is mainly an extract from a report by the Health Commission specially prepared for the Agricultural Congress at Stockholm. While we, in various papers, have had full descriptions of the well known "Milk Supply" of Mr. Busck, still we have so far heard very little about other prominent milk companies there, as well as other supply sources.

Copenhagen gets its milk partly by rail, partly by steamboats, partly by wagons and finally also from dairies which keep cows in the city. The farthest distance milk comes by rail to Copenhagen is from the Island Fyen, or about 100 miles, and then it has to cross the Belt by boat. The large milk supply firms furnish their own specially arranged cars with refrigerator; the rest ship their milk by the ordinary railroad cars in tin cans.

By wagons the milk comes only from a two or four mile distance, and is peddled from house to house by the farmers.

The milk produced in Copenhagen is getting less every year. Thus in 1866 the number of cows kept in the city was 3,156; in 1889 only 1,450, and in 1895 only 964, an insignificant number for a city of 400,000 people.

Milk is shipped by steamboat across the sound from Sweden; but this is mainly skimmed milk intended for bakeries.

Besides the "Copenhagen Milk Supply" we find another large stock company, "Milk Supply Pasteur" which deals exclusively in pasteurized milk in pint and quart bottles. The milk is not pasteurized in the bottles, but in an apparatus, then cooled and bottled afterwards.

THE DANISH MILK COMPANY (CASSE SYSTEM)

is a wholesale business with a temporary transaction of about 25,000 quarts daily, being a comparatively new business. The milk comes from the island, of Fyen, where it is collected at two large creameries and pasteurized and cooled. The system for pasteurization used by Mr. Casse differs from all others. The milk is all run through a system of pipes surrounded by hot water, and heated to the high temperature of 185° F. (85° Cent.) and yet does not taste perceptibly cooked. But what is meant by perceptibly? From the heating pipes the milk is conducted into pipes with cold water surrounding, and finally ice-water tanks; the milk being absolutely excluded from any contact with the air during the whole process. While Mr. Casses' business is new in Copenhagen he has for years shipped pasteurized, partly frozen milk to England, very successfully. But while I admit that milk intended for long keeping, say for weeks, should not be exposed to the air at all, still this will be of slight significance in regard to milk intended for daily sale, provided the air is fresh and pure where the bottling or canning of the milk takes place. Of late, Mr. Casse has also begun to supply pasteurized milk in bottles.

Lastly must be mentioned the stock company "Copenhagen Dairy", established 1874, which sells milk exclusively from milk stores, and which of late also has introduced veterinary examination of the cows and pasteurization of the milk. Condensed milk from

THE DANISH MILK CONDENSING COMPANY

of Hillerod, 16 miles from Copenhagen, is also for sale in the city, but is only little used by the city people. The whole milk fresh from the cows is sterilized and in a vacuum pan condensed to ⅓ of its original volume and put up in tin cans. As to the

CONTROL OF THE MILK:

it was formerly done by the lactometer, but this being a very uncertain method has been abandoned. The present mode is to buy samples several times a week and these are at once examined and analyzed at the laboratory of the health board. Does the milk contain less than 2.5 per cent fat (a very low per cent indeed), the health board will take samples at the stable of the dealer, and compare the fat per cent, which then serves as a guide for further investigations? The tables compiled by the health board show an increase of the average fat per cent contained from the year 1888 of only 2.12 to 3.86 in 1895.

Adulteration with water was very rare, and the manipulation generally consisted in partly skimming or adding of skim milk to whole milk or both. Remarkable is the fact that in no case has it been proven that any kind of chemicals have been used for the perservation of milk or cream, which certainly speaks well for the conscientiousness of the Danish milk producers and dealers. It is, sad to relate, something that cannot be said of dealers and producers in this country. A lesson which the health boards of our cities might do well to learn, is that frequent examinations also are made as to contents of dirt and the number of germs contained in non pasteurized as well as in pasteurized milk.

Inoculation of milk offered for sale in Copenhagen, has also been performed on rabbits in order to prove the presence of tubercle bacilli.

Very strict regulations are also given by the Health Board as to the keeping of cows in the city; but outside the city it has no control whatever, for which reason it is highly desirable that the initiative in this direction may be taken more and more by private concerns and especially by the large dealers. In cases where the claim for such control is made for advertising purposes the jurisdiction has the right to examine whether the claim is in agreement with actual conditions, and to prosecute where such is not the case; which already has frequently happened in Copenhagen.

As the rules given by the health board for keeping cows in Copenhagen seem to me to be of considerable interest for us in a general way, they are given here in full:

REGULATIONS FOR KEEPING AND CARE OF COWS WHOSE MILK IS INTENDED FOR CITY SUPPLY.

1. The walls and ceilings of the stables must be kept free from dirt and spiderwebs and must be whitewashed every spring and fall.

2. Just before milking the stable must be cleaned and aired and the walk behind the cows washed out. At least once daily, dry and clean bedding must be provided

3. Before beginning to milk, the bag, the teats and the nearest parts of the body must be well rubbed off. In case of washing, it must be done so early, that the skin and hair covering may dry perfectly, so that the wiping, anyhow, may be done just before milking.

4. During milking, which must be done with clean hands, the tails of the cows must be tied up or to one side, so that no dirt from the same can be thrown into the milk pail; unless the hair is cut short at the lower end of the tail, and the same is carefully cleaned.

5. Pails, cans and other implements with which the milk comes in contact, must always be kept carefully cleaned. The milk must be run through a sufficiently fine strainer into the can, which during milking must be placed outside the stable.

6. Cows afflicted with sores, inflammation or tuberculous swellings on the teats, or which have to be treated on these places with remedies which cause swelling or are poisonous, must be milked separately; if the disease is of a tuberculous character, then the cows must be separated entirely from the rest. The milk from such must neither be sold separately nor mixed with other milk, nor be used as human food, neither must such be milked on the floor in the stable. Only when boiled may such milk be fed to other animals.

7. Cows with any kind of emanations of a stinking, sickly character (foulness of the sheath, retaining of the afterbirth) or afflicted by tuberculosis, should as much as possible be separated from the other cows; the place where they have stood must be thoroughly cleaned and disinfected by boiling water and cardolic water of 5 per cent. Their milk may only be used as stated in No. 6.

8. Persons having eczema or moist sores on their hands, are not allowed to milk. The same holds good as to persons who short time before have been in contact with people who had dysentery, typhus, rose fever, diphtheria, scarlet fever, or other infectious diseases, or with animals afflicted with serious infectious diseases, and never before thorough disinfection.

Persons suffering from any of above named diseases, or consumptives, must neither be employed as milkers nor to take care of the cows.

It would indeed be a great gain, if such rules, might be more generally observed, not merely in regard to city milk supply.

J. MOLDENHAWER.

Washington, D. C.



Mr. Wheaton's Canadian Dairy Notes.

Quality of Agricultural Products.—Butter and Cheese Makers.—Quality of Milk Supplied.—Cheese and Butter Situation

ED. HOARD'S DAIRYMAN:—The month of June, so far, has, on the whole, been a very favorable one for cheese and butter making. The nights have been cool, and cows have had plenty of good, succulent food with no drawback in the way of a scarcity of water. With these favorable conditions every factory should be able to turn out a fine quality of either cheese or butter.

The whole success of the business centers around this word *quality*. When one thinks of it, it is surprising how closely agriculture in general, is associated with this one word. No farmer can hope to succeed in any branch of his calling, unless he gives special attention to having the quality of the product he turns out, whether it is in grain, feed, live stock, butter, cheese, etc., of the very best.

In this respect, the farmer is differently situated to that of the business man or manufacturer. For instance, a manufacturer may decide to turn out an inferior quality of goods, which he can afford to sell for a lower price; and he can make a profit out of the transaction, because these inferior goods do not cost so much to produce, as a superior quality. A maker of bicycles will turn out small grades of wheels, which he sells at different prices, and makes the same profit out of each one, just because the lower grade wheel does not cost so much to produce as the higher grade.

But the farmer, or to particularize, the dairyman cannot conduct his business in that way, and make a profit out of it. He can not lay out his work beforehand, and plan to produce different grades of butter, unless he resorts to fraud butter, which he can sell at different prices, and have the same profit on each lot. Why? Because it will cost the same to produce each grade of butter. While there may be a variation of from five to ten cents per pound, in the prices for which the different grades sell for, there will not be the same variation in the cost of production of the different grades of butter. Everything considered, it will cost as much to produce a pound of poor butter as of good butter, and while the latter may be sold so as to return a good profit, the former may have to be sold at a loss.

The same law will apply to good and bad cheese, good and bad cows, good and bad live stock, and, in fact, through the whole category of products produced on the farm. Is it any wonder then, when we see so many inferior farm products put upon the market, that many who follow the occupation of the farmer fail to make their business a success.

In this regard the position of the agriculturist is, indeed, unique, unless he grasps the real signifiance of this fact, and puts it into actual practice, he cannot hope to succeed in these days of pure competition in the world's food markets. As a rule the consumer, in nearly every country, is always ready and willing to pay a little more for superior quality in the food which he eats—a point which every producer of food products should bear in mind.

But to return to where we started, and apply this principle to the cheese and butter produced in our factories at the present time. How many factories are there concerned in getting the best quality of product. We have the maker, the owner of the factory, or the company, and the patron. All these are vitally interested or should be, in turning out nothing but the very best quality of cheese or butter.

While some makers may be incompetent,

and neglectful in regard to their duties, we do not think their number, comparatively speaking, is as large as the number of patrons who are neglectful and careless about the milk they send to the factory. And this is the strangest part of the whole business. For if an inferior quality of product is turned out, and it has to be sold at a cent or half a cent a pound less than the best quality, it is the patron who is the loser, unless it be that the maker has to make the loss good, whether he is to blame or not.

And it is also surprising how many patrons slip in behind this loop hole of escape, and saddle the whole loss upon the maker, and if need be take his last cent in order to recoup themselves for any loss sustained from inferior cheese being made. If the maker is wholly to blame, all well and good. But we question, if all the facts were known in connection with the loses, which many cheese makers have made good during the past year or two, whether they were the guilty parties, and if the full blame should not have rested upon delinquent patrons, who neglected to take care of the milk they supplied their maker with.

There are factories in this country where the finest quality of cheese and butter is turned out every day in the year. And one of the reasons for this, is that the patrons of these factories know how to take care of their milk properly and endeavor to co-operate with the maker in supplying him with the best quality of raw material for making the highest quality of product. In this we have the essential feature of our co-operative dairy system brought out, in that everyone interested is doing his utmost to make the quality of the product the very best.

In appealing thus strongly to the man who supplies the raw material, we do not wish to considered as in any way condoning any faults or failings of the maker. He may have many; but as far as our knowledge of makers goes, they are more ready and willing to take advice and act upon it than the average patron. Of course the latter is harder to reach, and when you do get at him he is not always in a receptive mood to receive the advice and information tendered him in regard to conducting his own part of the co-operative system in the best way. And then there are 100 patrons to one maker, which makes them 100 times harder to reach, and necessitates that they be talked and written to a good deal more than the man in the factory—a thing that must be done if the highest quality in the product is to be obtained.

The market during the past week or two has been somewhat irregular. Lower cables have been reported and yet the market on this side has ruled strong during the week (June 17th) with a stiffening in prices. The lower prices in England have increased consumption and produced a steadier feeling. But it is claimed that the higher prices, which are now being paid at the local cheese market, here, are caused by short sales and that the cheese situation is not so healthy as it would otherwise be.

Some in the trade, who are in favor of this short selling, are endeavoring to make it appear that this practice is a good thing for the farmer, in that it enables him to get a higher price for his cheese. While this for the time being may be true, yet it must be remembered that a time will come when the dealer has filled his short sales, and when it will be to his interest to hold off awhile and endeavor to make up for any loss sustained by getting prices down as low as possible.

The make continues to grow. From May 1st to June 14th our exports were 100,000 boxes more than for the same period last year. About all May goods are out of the factorymen's hands. At the local markets last week a great variation of prices prevailed, ranging from 7½c to 8 9-16c per lb. Early in the week the market ruled very little over 8 cents but towards the end prices advanced from ⅛ to ¼c per lb. All of which is encouraging the salesmen to hold June goods awhile.

There has been considerable activity in the butter market lately and 18c to 18½c have been paid in some districts for choice, fresh, creamery butter. The butter, in whole sections, has been taken at 18c, which considering everything is a good figure. The bulk of this butter is reported to be going into cold storage on English speculative account. There must be something like this going on, as the above prices are too high to admit of an export business being done at present cable prices.

The butter situation on the whole is good. Our exports of creamery butter have increased over 11,000 packages during the six weeks ending June 14th as compared with the same period last year, and if this ratio continues till the end of the season, 1899 will be a record breaker in regard to our export butter trade.

J. W. WHEATON,
Toronto, Canada.

The Chicken-Mite.

[Press Bulletin.]

This exceedingly troublesome and often fatal pest is the cause of many complaints from those raising chickens. The attacks of the pest are not confined to poultry, as it is often found in pigeon houses and in the nests of other birds about farm buildings. Where they are numerous they often find their way to animals confined in the infested buildings. The mites are nocturnal in their habits. During the day time, they are generally in hiding about the building, but at night they abandon their hiding places and seek for food. Chickens are often prevented from sleeping at night, and not rarely forced to abandon their eggs when setting. Instances have been recorded where birds have been killed by this mite.

There is no way to receive permanent relief from the pest. The remedies must be applied often and thoroughly, since the insect is able to live a long time without eating. Cleanliness must be observed. The hen manure should be frequenty removed, as it often swarms with the pest. If the hen house is light, fumigation by sulphur is very effective. To prevent any accident by fire, float the metal vessel containing the burning sulphur in a tub of water. After several hours of fumigation, air the building well before occupancy. Pure kerosene is also to be recommended. The interior of the building, including perches, should be well sprayed with it. After using kerosene, remember to air the building before introducing a light.

P. J. PARROTT.
Kansas State Agricultural College.



The JERSEY MILK CAN

A Strong, Well Shaped and Well Finished Milk Can at a low price.

This can has our "Victor" Can Breast, is perfectly shaped, will not leak, and has no crevices inside where milk can lodge and sour and smell. Capacity five, eight or ten gallons.

THE MILK CAN TRADE MARK IS ON EVERY CAN.

If your dealer has not got them, we will ship on receipt of your order. Write for our Handbook No. 32, "A Study in Milk Cans."

BUHL STAMPING CO., Detroit, Mich.
Mention HOARD'S DAIRYMAN.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

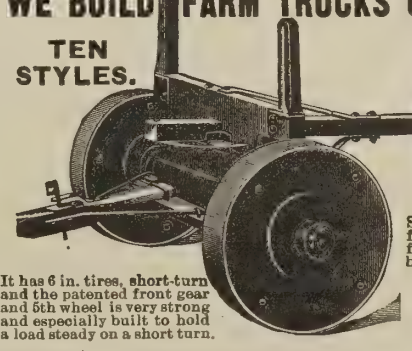
Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it.

Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating "Value of Butter Fat in Milk," all FREE if you address

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WE BUILD FARM TRUCKS ONLY. This is our No. 9.

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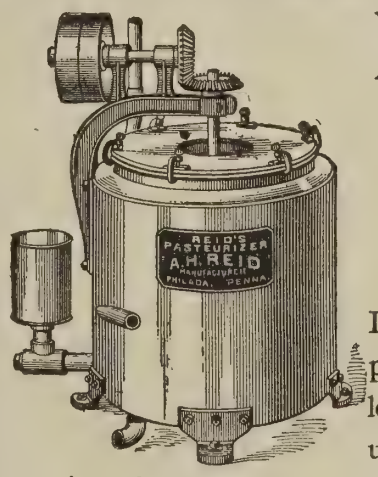


It has 6 in. tires, short-turn and the patented front gear and 5th wheel is very strong and especially built to hold a load steady on a short turn.

Stakes pull out and 7 x 16 ft. flat platform, only 32 in. from the ground, rests on the bolsters. Our patented wedge made wheels, or steel wheels if desired. The best Farm Truck made. Send for free descriptive circulars.

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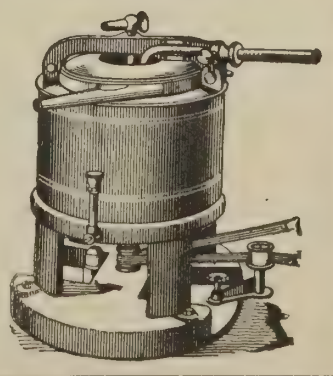
Do You Get Perfect Milk?



Do all your patrons bring absolutely perfect milk? If not, you can't get perfect results unless you have a pasteurizer. Pasteurization overcomes the effects of careless handling of milk and careless cleaning of cans and utensils. It removes all danger of bacteria, improves the quality of the cream and of the butter made from it and makes both keep longer.

THE REID Pasteurizer

affords the most scientific, most practical and economical means of pasteurizing whole milk, skim milk, or cream. Full information and the Reid Long Spindle Separator Book mailed free.



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Concerning That Old "Cow Census."

ED. HOARD'S DAIYMAN:—Under the heading of "Agricultural" in a copy of the *Tribune* October 26, last, which a neighbor recently handed me was the text: "Cost of a Quart of Milk or Pound of Butter," under which was the name of the writer—J. W. Ingham. That old Ellisburgh "Cow Census" of mine, taken just ten years previous, and which you have mentioned from time to time since, was the basis for the efforts; but one would never know from reading the articles, whether that census was taken that month, or year, or in 1776, as no mention of dates is given.

The writer had, evidently, obtained a copy of some paper which contained my last census letter—the summing up of the work—to the DAIRYMAN, from which he caught his inspiration. Had he read each of the seventeen letters I wrote to the DAIRYMAN, nearly all of which contained statements for comparison; or, had he consulted the whole list of 367—I think that was the number of dairymen in the town—possibly he would never have worded the article as he did, it being almost wholly devoted to showings, or trying to show that the cost of keeping those Ellisburgh cows was far too much, while the receipts were much too small.

He did not, however, say much about the butter and cheese receipts, but figured the manure as the most valuable item. In short, he valued the manure at $58.40 per cow, or $26.66 more than was received for butter, cheese, calves and pork from these cows.

The estimate—$58.40 per cow—was based on Prof. Robert s report of feeding three cows at Cornell, the manure from which was all saved, weighed and analyzed, its commercial value obtained, but which, as evidence to show that my figures were wrong, is wholly valueless, as it will not apply to the Ellisburgh farms at all. But I am going to quote some of the statements in the article, and comment on them in their order. He "opens up" by saying:

"One of the first questions asked of a dairyman, after he has delivered his address, at a farmers' institute is: 'How much does it cost to make a quart of milk or a pound of butter?' And, if the dairyman has not counted the cost beforehand, the question will be a stumper."

If he had written: "asked by some dairymen," instead of "of a dairyman," he would have been quite correct. Doubtless, I have heard that question asked or read in fifty of the four hundred institutes I have attended in this state, since I took that census. But one might as well ask the question: "How long is a piece of string," or "how large is a piece of chalk?' Circumstances, localities, cows, conditions and the cost of cattle foods must all be considered in determining the cost of a dairy product; but it may be arrived at, as thousands of farmers, as well as many experiment station directors can truthfully testify. There is no trouble about it, and every farmer, if he will, may know just how much each pound of butter or cheese, quart of milk, calf, or pound of pork costs him.

The next statement he makes, it will be seen, is quite inconsistent:

"The exact cost of a quart of milk or a pound of butter on the farm is a sum which can never be accurately determined. It differs in different states, in different localities in the same state, on different farms in the same locality, and on the same farm with different cows and at different seasons of the year. There are so many different factors that enter into the account, and must be taken into consideration that it makes the problem a difficult one to solve. The cost will depend on the value of the land on which the cows are kept, the value of the cow, *i. e.*, what they cost or would sell for; the value of the calf, the value of the feed consumed (whether raised or purchased), the cost of labor and the value of the manure."

Just what localities have to do with determining the cost of a dairy product, except to cheapen or enhance it, is not explained. A bushel of oats or corn, a ton of hay or silage, or one of bran or other cattle foods, may cost more or less in one town or state than in another, as is usually the case, but that fact does not interfere in working out the problem. All the dairyman has to do is to weigh the foods he gives his cows and charge them with the cost. If he raises all the grain he feeds, he should charge the market price for them. If oats are selling for 30 cents and corn for 50 cents per bushel, he should charge those prices for these foods. If he buys them, he should charge up the price he pays.

In the Ellisburgh cow census prices varied somewhat, according to the value of the farms. On some farms, two acres of pasture were required for a cow; on some, as many as three acres. As a rule, the charge for pasture was from $7 to $10 per cow, for 26 weeks, while hay was figured at $10 per ton, although it was really worth more. There were but two silos in town, then.

In determining the cost of the grain ration, great pains was taken. Indeed, that item was the only difficult one to arrive at, and it was often necessary to refer to the threshing bills, to find out how much grain was grown, then deduct the seed, the amount sold and that fed to horses and other animals, in order to ascertain the cost of the grain ration for the cows. As a rule, however, the figures obtained were quite accurate, as the figures obtained by Mr. George T. Powell and myself in the Bovina cow census, subsquently, as well as those from 130 dairies in the best portion of Ellisburgh, three years since, clearly show. It is my belief, however, that the cost of keep was fully $1 per cow too low in some dairies, as it was the practice of nearly every low grade dairyman to figure his grain ration very low, as soon as he saw that his receipts were low. And I am as fully convinced that the receipts were too high as given in many of these poor dairies, the claim always being made that a large amount of butter, cream and milk was consumed in their families.

"The cost of the calf" had nothing to do with the cost of a pound of cheese or milk, but its value was always added to the other revenues. Except in thoroughbred herds, no cost for service was deducted, while the value of the calves raised was always—except in the case of thoroughbreds—given as the same as of those sold for veals, the cow having credit until the calf went to grass. Sometimes, where inferior pure bloods were sold as veals, however, this rule changed, because such calves always brought less than those raised were figured at.

In arriving at the receipts, it was necessary to go through the books of thirteen cheese factories and a creamery in the town, and those of six factories in adjoining towns. Also, the books of three calf buyers, as there were a number of patrons of each factory who could not tell how much their dividends were; how many calves they sold, or the price received.

The value of the skim milk was included—as was that of the whey—in the calf and pig items; but no credit was given for manure, nor was there any charge made for drawing milk and whey to and from the factories, which would have added $1 per cow to the expense account. The manure went to offset the cost of caring for the cows, and other expense items, but was not enough—since the value of the average farm manure, as every one at all familiar with the situation knows, is not more than one-fourth as much as it ought to be. As a rule, the liquids in the average stable are all lost, and, as they contain 60% of the value of the voidings, but 40% is left. But on most farms, the solids are thrown out and left to waste under the eaves of the stable; so that, when drawn out in March or April, fully 20% of those are lost.

At Cornell all the voidings were saved, while the cows were fed on nitrogenous foods—those which make highly concentrated manure. The writer next gives the senior editor of the DAIRYMAN a whack:

"Ex-Governor Hoard and other dairy authorities have repeatedly declared that more than half-the cows kept in the United States are kept at a loss—boarders with unbounded stomachs, who devour food like Pharaoh's lean kine, and do not pay their board bills. This is putting the matter rather too strongly. Some people talk to create a sensation. They think it necessary to use strong language in order to arrest farmers' attention and set them to thinking."

The Governor knows whether he made the statement or not, but I have heard Prof. Roberts say that the greatest blessing that could come to the dairymen of this state would be about 500,000 cow funerals, which would mean those of one-third of the cows in the state, at the time he made the statement. "More money," he said, "would be found in the farmer's pockets, at the end of the year, if one-third of their herds were selected, taken out and shot, and, if no other use could be found for them, dumped into the fertilizer or compost pile."

They are the third that not only refuse to pay for what they eat, but persist in eating up the revenues, or a part of them, from the other two-thirds. The *Tribune* writer may not know this fact, but he ought to, and may, if he will make proper inquiries.

He says that Professor Roberts gave the cost of the keep of the three cows spoken of, at twenty-three cents per day. This would amount to $83 95 per year. But he estimated the manure at $58.40, which would leave a net cost of $25.55 as against an average of $36.30 for the 5,507 cows in Ellisburgh But, as it is a conservative assertion, to say that the average dairyman in this town does not receive $10 per cow for her manure, it will be seen that the *Tribune's* comparison is not at all a fair one.

Instead, however, of its costing the Ellisburgh dairyman twenty-three cents a day for

Fancy's Harry-Tormentor Bull Calf 10 mos. old.

Dam, 42 lbs. milk per day; 21 lbs. 5 oz. butter in 7 days. Price $75. Buy a Good One. J. P. BRADBURY, Pomeroy, O.

Hood Farm Jerseys For Sale. Solid colored bull, dropped Feb. 15, 1899 Sire, Mint, 50% Combination. Dam, Elphie May. 17 lbs 11½ oz., 40 lbs. milk in one day, full sister of one in the list, by Sophie,s Tormentor, the sire of 16 tested cows. 2nd dam, Elsie Lane 2nd, 50% Catono, who has 13 tested daughters and a son of Ona, 22 lbs. 10¾ oz. Write for price to HOOD FARM, Lowell. Mass.

Introduce Milking Jersey Stock INTO YOUR HERD.

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book ',
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The blood of Combination. (Sire of 25 in list) through Brown Bessie' (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden Young Bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

We Have Sold

SEVERAL OF advertised March 17th **The A. J. C. C. COWS** (see page 92), in fact, we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO.,
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For Sale . . . BULL CALF,

Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8⅛ oz., in seven days. He will be sold cheap.
P. J. COGSWELL,
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BILTMORE FARMS' JERSEYS.

This is a working Herd of 250 of the best Native and Imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

Some Choicely Bred

BULL CALVES

out of great cows and by the best sires for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEY'S JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz: over 20 lbs of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455⅓ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

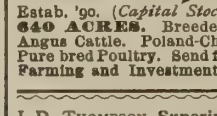
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Franklin, Venango Co., Pa.

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Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
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Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale. R. G. STRACY. Box 720 Brockville. Ont., Canada.

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St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest We should be pleased to have anyone in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis

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Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
JOS. T. HOOPES, Bynum, Md.

GREEN PLAIN HERD
POLLED JERSEY CATTLE

Recorded stock FOR SALE. Inquries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.

For sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows some of them tested. Write to
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ONE YEARLING BULL

Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager

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HICKORY HERD,
JOLIET, ILL.,
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. . BREEDERS OF . .
Fancy Jersey Cattle.

Service Bull,
Pedro's Handsome Prince, No. 42794.
The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome Prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

keeping their cows, it cost them but a fraction over ten cents.

Mr. Ingham closes his article by giving the cost of keep of several dairies in different localities as follows:

"J B. Phelps, of Conneautville, Pennsylvania, one of the vice-presidents of the Pennsylvania State Dairyman's Association says: 'I keep my cows on three cents' worth of ensilage and one cent's worth of wheat bran, making but four cents per day for the maintenance of each cow, or $14.60 per year.' In an essay read at Viroqua, Wisconsin, by Dr C. V. Porter, it is stated that the yearly cost of keeping each cow of his herd of twenty-eight animals was about $25, or less than seven cents per day. This is $11.30 less per year, than the cows reported from Ellisburgh."

No statement is made as to the condition of Mr. Phelps' cows when spring came to their relief, or whether they were giving milk, or were dry, but it is safe to say that they must have had wonderfully strong constitutions, and the winter a short one, to have survived on three cent's worth of ensilage and one cent's worth of bran per day. For cheapness of keeping a herd of dairy cows, Mr. Phelps takes the cake.

We have some pretty close fisted dairymen in this town, and who are so stingy that they have to pull their cows up by their tails in the spring, and who allow them to become so poor that lice can't find grazing ground on their skeletons. But they can't figure on six months' winter keep for $7.52. It will break their hearts, however, when they see Phelps' statement, if they ever do.

But here is one from Wisconsin, and the University, at that:

"An experiment made by Prof. L.H. Adams, of the Wisconsin University, gave the following results: Four thousand nine hundred and sixty pounds of ensilage made 1,688 pounds of milk, that churned 62 pounds and 3 ounces of butter. The ensilage was valued at $2.50 per ton. Counting nothing for labor and allowing nothing for skim milk and manure, his butter cost him a fraction less than 10 cents per pound."

Has all the work of HOARD'S DAIRYMAN, Prof. Henry, Prof. Woll and others, in Wisconsin, been in vain? Is it a truth that a professor in your university feeds nothing but ensilage to cows in milk?

Ensilage is quoted at $2 50 per ton, but as no other foods were fed, it must have been as Sam Weller said of his peas pudding: "Werry fillin' for the price." At 50 pounds per day, one ton would keep a cow 40 days.

Divide $2.50 by 40 and you have 6¼ cents per day. But that is a picnic ration, when compared with Phelps', and ought to make the latter's bones sigh for pastures they know not of.

One more authority for cheap rations closes the article. He quotes a Pennsylvania dairyman, a Mr. H. C Crawford, of Venango county, as follows:

"Our cows (not in full milk) are receiving about thirty pounds of ensilage and straw daily, and they are in better condition than any I see through the country, or my own when I fed twenty-five pounds of hay daily, costing twice as much. I can place a ton of silage in the silo ready for feeding (not including rent or fertilizing of land) for $1.30 per ton when I can grow ten tons per acre".

Commenting on the above statement, Mr. Ingham says:

'His ensilage cost him not quite two cents per day for each cow, and,—if we allow the same for straw consumed, the total cost would be less than four cents per day, not counting anything for interest on capital invested in land and cows, or labor of feeding and milking, and allowing nothing for value of manure. If Mr. Phelps and Mr. Crawford kept their cows as cheaply on pasture in the summer, as they did on ensilage in the winter, and their cows averaged no more than 150 pounds of butter each per annum, then their butter cost them less than ten cents per pound, charging the cows nothing for interest and labor, and crediting nothing for skim milk, buttermilk or manure.

If cows can be kept for less than four cents a day in winter, and pastured for the same in summer, while being made to produce 150 pounds of butter each, in Venango county, Pennsylvania, that is the place for every scrub dairyman to flee to with his cows, as there is no place in this state where it can be done; not with a herd of Mary Anns of St. Lambert, even.

But why write and print such rot. It is only a premium for scrub cows, scrub rations, scrub care, scrub dividends and scrub dairymen. C. W. JENNINGS.

Belleville, N. Y.

From Valley Mead Farm.

ED. HOARD'S DAIRYMAN:—Unquestionably the two greatest heifer calves of recent years were dropped at Valley Mead Farm, lately. One being out of Mechtchilde, 39 lbs. 10½ oz. of butter, seven days, the world's record of the breed. The other being out of Elgin Belle, 31 lbs. 9½ oz. of butter, seven days; 100 lbs. 6 oz. in 30 days. The sire of this champion bred and most beautiful pair is DeKol 2d's Alban, without any question the greatest living son of De Kol 2d, holder of world's four-year-old butter record, 33 lbs. 6 oz., seven days. Mechtchilde and Elgin Belle are still hearty cows, having that strong constitution, great capacity, and phenomenal milk machinery which the present day cows are lacking, to make 30 pounds butter a week. The heifer from Elgin Belle has already been engaged by O. M. Kellogg, of Cortland, N. York, at a tempting price.

Monticello, Wis. KARLEN CO.

Butter Making in Sweden.

One of Canada's strong competitors in the English butter market is Sweden. Special attention is given to improving the quality of the product, and every effort is being made to develop the export trade. The following, translated from one of Sweden's leading dairy papers, and describing some of the faults found in the butter made in that country, will prove of value as well as of interest to butter makers here:

RAW BUTTER.

Raw butter, we herein mean that butter which is made from raw or non-pasteurized cream. The demand for raw butter has considerably decreased within these latter years. In 1895 only 30 per cent of the Swedish butter factories made butter from pasteurized cream, while in 1896, 60 per cent pasteurized their cream, 25 per cent occasionally pasteurized, thus leaving only 15 per cent wholly engaged in the manufacture of raw butter. When the pasteurized and raw butter are compared the difference is most marked, the pasteurized being much finer and milder, hence the term "raw" for the coarser butter made from non-pasteurized cream.

COOKED FLAVOR BUTTER.

As the raw and coarse flavor in butter is objectionable, so on the other hand is a cooked or burnt flavor. All properly pasteurized butter must of necessity have a slightly boiled or scalded flavor, which is quite pleasant to the taste, this flavor being the test of its pasteurization, showing that it has been heated to the proper temperature. Butter made from properly pasteurized cream is a guarantee that you secure a well-keeping, fine-flavored article, absolutely free from bacteria. There is a difference of opinion as to what degree of heat the cream can stand, before reaching that objectionable flavor point. As during an exposure of the cream to, say, a temperature of 165° F. in an improper heater the butter can receive an objectionable or burnt flavor, which in a proper heater the cream can be heated to a temperature of 185° to 188° F., and result in a rich, finely-flavored butter. The benefit of a proper pasteurization of cream is thus seen, as all harmful bacteria, which induce disease are killed at a temperature of 185° F.

DOUGHY BUTTER.

This butter is not clear and does not melt readily and lusciously on the tongue, but lays heavily in the mouth like a piece of dough. Good, high-quality butter is more or less clear and readily salivated. The causes of the doughy nature of the butter are improper fodder to the cows, or too much buttermilk remaining in the butter. To prevent the doughy nature of the butter from the latter cause, never leave the butter longer than possible in the buttermilk. If the buttermilk is not immediately drawn, and the butter properly washed, the evil results inevitably follow.

TALLOWY BUTTER.

This butter has a greasy and shiny appearance, and if touched by the thumb or finger will receive the imprint of the lines on it. The taste of over-worked butter is tallowy, and the pores in the butter are filled with air instead of a clean, clear moisture. You can always find the faults of this in (1) over-churning or over-working, (2) churning at too high a temperature, or making butter from milk of stripped or nearly dry cows, (3) improperly ripened cream.

SOUR AND OVER RIPE BUTTER.

The causes of sour or over ripe butter are to be found in an improper "starter," too high a ripening temperature, or neglect to churn at the proper acidity stage. This butter usually contains too much water and casein, consequently the butter has not the keeping qualities of properly made butter.

MILDEW IN BUTTER.

Mildewed butter is partly caused by manufacturing or storing in badly ventilated or damp rooms. Mildew also arises through badly seasoned and improperly prepared boxes and parchment paper. The paper ought to be immersed in a strong solution of salt water for a period not less than ten hours before using.

GENERAL FAULTS.

These are innumerable, and start at the very commencement, from the milking of cows to the packing of the butter, but which should be avoided, in the interests of the industry and the community.

The Butter We Eat.

A Rockdale, Texas, correspondent of the Houston *Post*, who is in the dairy business, writes on the subject of the adulteration of butter which has been exposed by the analytical chemist of Michigan, recently referred to in an article in the states. The writer claims that as good butter can be made in Texas, without the employment of cold springs or ice, as in the East or West, and protests against the injustice of dairymen in that state being forced to compete with the villainous compound of which thousands of tons are annually imported. The following is an extract from the correspondence:

"There is no doubt as to the effect that would be produced by a perfect knowledge of what our legislators eat in their hotels and boarding houses under the name of butter. If oleomargarine or butterine, it is composed of tallow and everything greasy (whether filthy or not) about a slaughter or packing house. If "ladle stuff", which is butter, genuine butter, but listen: This butter is gathered from everywhere and anywhere. Buyers travel around in search of it, and find it in country stores, commission houses, and even in the cities. It has become rancid, filthy and entirely unfit for anything better than a low grade of soap grease, perfectly loaded with dangerous germs, flies, roaches, all manners of insects, and actually working with maggots; it's a horrible thing to think of, but it's true, nevertheless. This conglomeration is shipped to the refinery, laboratory or creamery (?) melted, skimmed and strained, colored, chemically treated, churned in fresh sweet milk, salted to the taste, packed in a nice fresh bucket and stenciled with some attractive brand.

"These goods come into our state every week in carload lots unchallenged. Families buy and use them, little suspecting their history; they call for, and pay for, butter, and very often, if not always, this is what they get. This may be denied by your grocer; would you expect him to acknowledge the fact, even if he knew?

The Farmer's National Congress.

The Farmer's National Congress will meet at Boston, Mass., Oct. 3, 4, 5 and 6. This is an important organization and every farmer should keep posted on the movements of this body, for it is advocating policies that should interest every tiller of the soil. Ex-Gov. W. D. Hoard, of Wisconsin, is President, and John M. Stahl, of Chicago, Ill., is Secretary.—*Coleman's Rural World.*


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD. Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. O. H. Stevens, Jefferson, Wis.

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

McGEOCH FARM Holstein-Friesians. Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans Mississippi Exposition, at Omaha, 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want, HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

MECHTCHILDE

The greatest butter cow in Holstein history is owned, with her son and two daughters, at **Valley Mead Farm.** Mechtchilde's butter record is the largest in the world, 30 lbs. 10½ oz. from 717 lbs. milk in seven days. Breeders Gazette says: "**Mechtchilde** was one of the 'wonders' of the breed." Men who are interested in phenomenal cows are invited to come and see the greatest butter, milk and prize winning cow that ever existed in America, and that sold for the largest price ever paid, $2 500. **Valley Mead Farm, Monticello, Green Co., Wis.**

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

GUERNSEYS AND POLAND-CHINAS. Bred from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys. CHAMPION HERD AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandottes, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys. First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

GUERNSEYS! 84 Cows averaged 399 lbs. of Butter each in 1898. Some Choice Young Stock For Sale. ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

Dry Feed and Children's Milk.

ED. HOARD'S DAIRYMAN:—HOARD'S DAIRYMAN, Vol. XXX, No. 17, page 338, first column, last paragraph: "What is called children's milk is obtained from farms whose cattle have the whole year been fed on dry food."

Will you kindly inform me why this particular feeding is better for producing "children's milk?" A. M. H.

Shalam, N. M.

This is a survival of the day when doctors considered it absolutely necessary that only dry food should be used in the production of milk for the use of children.

Before the advent of the silo, and especially in cities and small towns, brewers' grains, distillery slop and other easily fermentable foods were used, and the poor results obtained from the want of cleanliness, and the use of the above foods, when they were not fit to be used, resulted in a poor quality of milk, frequently unfit for children's food.

Many of our doctors at the present time will not prescribe silage milk for children's use, insisting that the animals be given only dry feed. In spite of the prejudice of the doctors, the fact is that the finest and purest milk produced at the present time for children's and invalid's use, is produced by a liberal feeding of silage and concentrates.

The old prejudice will probably die hard, but the indications are, that with a better understanding of the relation of feed to milk production, the medical men will acknowledge the use of a succulent feed and give up their old dry feed for the production of children's milk theory.

Clean food and clean surroundings will produce clean milk fit for children or invalids. Dry food is not necessarily cleaner, and may be much poorer as a milk producer than silage.

Butter Test of Lassie of Dundee.

ED. HOARD'S DAIRYMAN:—I herewith send you a seven day test of the cow, Lassie of Dundee 94068, made in accordance with the rules of the American Jersey Cattle Club:

From April 14, 1899, to April 20, 1899, inclusive, she milked 282 pounds, 4 ounces of milk, which produced 18 pounds, 1 ounce of butter ready for the market.

During this test she was fed 28 pounds of bran, 28 pounds of oats and peas, 42 pounds of gluten meal, 14 pounds of oil meal, 18 pounds of hay and 40 pounds of roots.

Lassie of Dundee is an exceptionally fine cow, being of a dark brown color, and deep, well developed body, carrying a square, well placed udder, and is a cow for beauty as well as for business.

She was dropped Dec. 23, 1893; sire, Jersey Monarch 14084; dam, Girl of Linden 57487. M. H. OLIN.

Perry, N. Y. "Cold Spring Farm."

For the City Milk Trade.—Bottled Milk.

The first essential to success for the retail milk dairyman is to make better milk and give it better care, and get it to his customers in better condition than can be done by the citizen with one cow. This is true, especially in the smaller towns and cities, where a number of cows are kept by persons who expect to supply their neighbors.

First is quality and cleanliness. These two features will govern the output of a milk dairy more than anything else. The dairyman may think that his customers will not know the quality or character of his milk, but here he is mistaken. A few will not know. These few may be known by the faults they find, but the ones that really do know will say but very little about it but will buy their milk elsewhere as soon as possible. Quality can be made only by careful selection of cows that are healthy and rich milkers and by the best of care in feeding and caring for them. Feed only good, clean, sweet feed. Feed regularly. Handle them kindly. Milk regularly.

Next comes cleanliness. The cows must be clean, the stables must be clean, the milkers must be clean, all utensils must be clean.

Next is the method of getting this milk to the consumer in the best possible condition. We have sold milk out of a faucet can, an open can, with a long handled dipper, and pouring pail, and in bottles. We have no hesitancy in saying that if we were compelled to go back to the old faucet can we would go out of the retail milk business at once. Now, how to handle this milk in the best manner is the question. We will begin with the milking. The cow should be well fed, then her udder and teats cleaned; milk her as gently and quickly as possible. As soon as the milk is drawn, it should be taken to the dairy room, cooled and aerated at once and then put in bottles and sealed up air tight. If it is not sold at once these bottles full of milk should be immersed in water and ice until sold.

In our dairy we use a Champion cooler and aerator and an Ideal bottle filler. Here we can cool, air and fill twenty-four quarts in four minutes. We use the Commonsense bottles with waterproof pulp caps. Our cows are milked at 5 o'clock in the morning and 4 o'clock in the afternoon. We have help enough so that we can milk, cool, bottle and load the milk into the wagons in one hour. During the six warm months we deliver this milk twice per day and during the six cold months once per day. Considerable more is sold in the morning than in the evening.

Two wagons and two active young men deliver the milk to the customers in a little over two hours in the morning, and a little less than two hours in the evening. Our customers put their empty bottles where the driver can see them, and put a check in for the amount of milk wanted, and the driver changes a full bottle for the empty one. In this way we do not need to wait for a customer to come to the wagon, but can move along at a good pace.

What are the advantages of bottled milk? It is cleaner; can be done much quicker; gives every customer their proportion of cream; gives correct measure to everyone; saves much milk to the dairyman; does not break or whip the milk or churn it; it enables your customers to see at a glance, the character and quality of milk they are getting. It enables the dairyman to keep a system of checking that cannot be done when milk is sold out of can; milk will keep much better than when handled in cans; it preserves the delicious flavor of the milk.

Some of the disadvantages are, the first cost of bottles, etc., etc., the extra weight to be handled and hauled, the breakage of bottles, the cost of caps, the extra washing necessary to keep all bottles, etc. clean; the loss of bottles.

Some customers will use these bottles on their tables, instead of cream pitchers, others will use them for kerosene, coffee, molasses, pickle bottles, jam, jelly, catsup, etc., etc. In this way many bottles are lost and the utmost viligance is necessary to keep your bottles from disappearing in these ways.

We will mention a few outside points: Keep horses, harness, wagons and drivers clean and tidy. Be prompt, punctual and courteous. Be honest, truthful and firm. Do right, and insist on your rights. Be sure that you make as good milk as can be made, and if a customer is not satisfied with it, drop them out of your route without controversy. Invite your patrons to inspect your premises.

Keep your cows warm in winter, and cool in summer. Provide clean, fresh water for them all the time. Keep them from being tormented and worried by flies, by using Shoo-Fly once per day. Kill all strange dogs that come into your pastures or yards. Do not permit strangers in your stables at milking time. Use no soap about your dairy room; use salsoda instead.—CARL HUSSELMAN, *in Farmers' Guide.*

Feeding Dairy Cows and Milk Production.

Mr. Harold Faber, agricultural commissioner to the Danish Government, London, recently addressed the members of the Newcastle Farmers' Club, England, on "The Relation of Feeding of Dairy Cows to Milk Production."

Mr. Faber, in the course of his paper, said that if they wanted to find what was the influence on the milk production, of a certain change in the feeding, it was necessary that all the other influences should be eliminated. Many circumstances affected the milk production. If they wanted to find the relation of feeding to milk production, they must guarantee that the changes they observe in the milk production were really the result of changes in the feeding. There were many circumstances which made observation of changes in milk production, which were supposed to be due to change of feeding, of doubtful value in many cases. In order to eliminate all of the many disturbing factors that influence milk production, it was necessary to work on a broad basis. It was the system of Professor Fjord (on whose experiments the lecture was based) to take observations with many cows for a long time, on different farms, through different

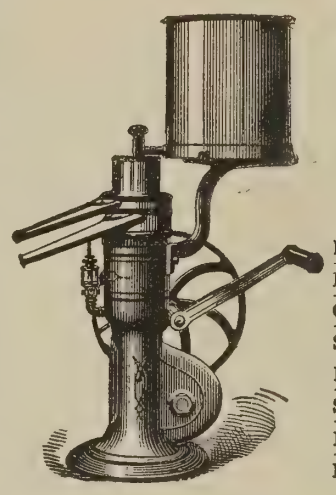
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Ease of Cleaning . . .	The NATIONAL is the Best.
Simplicity	The NATIONAL is the Best.
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Price	The NATIONAL is the Lowest.

CAPACITIES 330, 600, 1,300 AND 2,500 LBS. PER HOUR.

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seasons, and to work always with different sets of cows which were alike in every respect, so that the total weight, age, milk yield, number of days since calving, etc., were the same for each set of cows. As long as the feeding was the same for each set of cows, the milk production was also the same in every case. When a slight change was made in the feeding of one set, and a difference in the milk production of the different sets was observed, it was concluded that this difference was caused alone by the difference of feeding, and thereby some information was gained of the relation between the feeding and the milk production.

Having dealt in same detail with these experiments, Mr. Faber said the final result of these experiments, or rather of the exact observations taken on a large number of cows fed on practical farms in a practical manner, under ordinary working conditions, and for several months during two or three years, and comparing always two or more sets which were as nearly as possible identical, went to prove that, within the limits of feeding mentioned, the composition of the milk remained the same, whether an addition to the food was given in roots, or in corn and cake, or whether some of the corn and cake was replaced by roots. The same result, that the food, within practical limits, has next to no influence on the composition of the milk, has been found by later experiments. And this referred not only to the amount of fat in the milk, but equally to the amount other constituents. On the other hand it had been found that an addition to the food resulted in a larger yield of milk and a larger increase in the weight of the animals. The greater increase in weight was afterwards lost when the addition to the food ceased, and it seemed that the loss of flesh might partly reappear either as an increased flow of milk, or as a slightly raised percentage of fat in the milk, and the way in which it did appear seemed in some measure dependent on the kind and composition of the food given previously.—*Australian Pastoralist.*

English Milk and Butter Consumption.

In an able address recently delivered before the Bolton Dairy Farmers' Association of England, Mr J. B. Dowdall, one of the leading Manchester butter merchants, who, by-the-by, has had a wide experience in Ireland and upon the continent of Europe, stated some facts which should induce men to think who never thought before, upon the subject of which the lecturer treated.

Mr. Dowdall said that we were increasing our importation of milk at the rate of 4,000 tons per annum. If we assume that an average cow produces two tons of milk, although this is a little more than the average of the country, it means that the milk of 2,000 cows is annually required in excess of the requirements of the previous year, so that at this rate we shall soon employ the whole live stock of another nation to provide for our constantly increasing demands. Mr. Dowdall further calculated that we require annually, 10,000 tons of extra butter to feed our increasing population. We may take it that our annual consumption per capita is 15 pounds, or nearly four times as much as we consumed a quarter of a century ago. This means, if we assume that every pound of butter is produced from two and a half gallons of milk, that 25,000 tons of extra milk are annually required in this department alone, and upon the basis of our previous suggestion would necessitate the employment of a further 12,500 cows. As a matter of fact, it means that every year, from those two sources, as many cows are requisitioned to supply our extra requirements as exist in many of our English counties, such as Cambridge, Hertford, Huntingdon and Middlesex. These facts are, from one point of view, most lamentable. It is no doubt a matter of price which prevents English farmers keeping more dairy cattle and producing more butter and cheese, but there is something behind this explanation, which will continue to militate against our success in the dairy department, if we are not mistaken. The people of the countries from which we so largely import, are content—perhaps it is a case of *necessitas non habet leges*—with fewer domestic requirements and comforts. The Swiss dairy farmer, who supplies us with condensed milk and Gruyere cheese, has only to be interviewed, and his home life examined, to see how true it is that this is the case. In the Colonies the same facts hold good; men are compelled to live severer lives, and are content with modest clothing and the plainest of fare. In the Scandinavian countries the same argument applies. According to the Government consular report, the value of milk in Sweden is 4½d a gallon as against 5d. in England. We cannot absolutely accept either figure, although we have the advantage in price, perhaps a greater advantage than they suggest.

Clean Cans for City Milk Trade.

Boston, Mass., has put in force the following ordinance:

"No person in the city of Boston engaged in the business of producing milk for sale, and no person engaged in the business of storing or delivering milk in said city, shall store, cool or mix said milk in any room which is occupied by horses, cows or other animals. All rooms in which milk is stored, cooled or mixed shall be provided with tight walls and floors and kept constantly clean. The walls and floors of said rooms to be of such construction as to allow easy and thorough cleansing. The room or rooms aforesaid shall contain proper appliances for washing or sterilizing all utensils actually employed in the storage, sale or distribution of milk, and all such apparatus and utensils shall be washed with boiling water or sterilized by steam regularly after being so used."

The New England *Homestead* comments on the ordinance as follows:

"The greatest source of contagion and disease as afforded by the milk business as at present conducted, is the manner in which the cans are now handled. The peddler buys the milk from the contractor and may leave the cans at various private houses, stores, etc. On his next trip he collects the empty and dirty can, and sooner or later returns it to the contractor. Meanwhile the dirty can is exposed to all sorts of contamination, according to the place where it has been kept. This foul can is sent out by the contractor to the farmer, and the farmer receives it from 10 to 36 hours later, and has a terrible job to get it perfectly sweet and clean.

The language and intent of the new ordinance of the city of Boston is that this source of danger to the public health in that city shall be reduced by having the cans or other dairy apparatus and utensils washed by boiling water or sterilized by steam, regularly after being so used. This rule is not complied with by sending dirty cans back to the farmers, but the law can only be observed by compelling contractors to furnish clean cans, not only that, but this is the only way to protect public health, both in city and country from this possibility of contagion It is a question whether typhoid fever germs have not been carried from the city back to the farm in dirty cans.

"The farmers are willing to make good milk under sanitary conditions and to cooperate with the Board of Health of the city of Boston to this end, without, however, admitting that the Board has any constitutional power to enforce its rule outside of the city of Boston. But if the farmers thus co-operate, the least the city Board of Health can do is to properly enforce the law within the city limits and first of all oblige contractors to supply clean cans."

A Time For Noble Anger.

"This is a fact we have to know about our national life—that is ended as soon as it has lost the power of noble anger. When it paints over and apologizes for its pitiful criminalities, and endures its false weights and its adulterated food, dares not decide practically between good and evil, and can neither honor the one nor smite the other, but sneers at the good as though it were hidden evil, and consoles the evil with pious sympathy, and conserves it in the sugar of its leaden heart—the end is come."

Thus wrote John Ruskin thirty years ago The words seem prophetic as we consider the manner in which Gen. Miles' criticisms of unfit meat were received by a people so steeped in commercialism that they could not endure a whisper of criticism which might result in the loss of a dollar of trade, no matter how vile the stuff palmed off on our soldier boys gone out to meet death in support of the flag! And as we read the testimony before the Mason senatorial pure-food committee and the defense there made of the use of alum in baking powders and other harmful adulterations of foods, all of which are sold on the market as pure and at prices which should command the best, Ruskin's words rise up to warn us. And when we reflect upon the recent action of Illinois state legislature is giving time to the rascally frauds to dispose of their death-breeding adulterations, before putting into effect a pure-food law, we are compelled to ask if the end of this nation really has come—are we indeed so enslaved to the almighty dollar that the power of noble anger had departed?

Let us look fearlessly into the mirror thus held up, and dare to ask ourselves and answer with truth and soberness what these strange things portend in our national life. And let us as a people rise to smite the evil and honor the good and true, casting out the cheap john scallawags who hesitate at nothing if only they may add to their riches. We are painting over and apologizing for, not only small but large and menacing criminalities and are honoring the criminals, while we sneer at virtue and pass by honest poverty; we do endure, not only, but encourage, false weights and adulterations by taking for our social leaders the men who practice the frauds. The past year has brought to light a shameless condition of morals in high places in this country. A people who will be party to it need not complain when the inevitable results shall appear.—*Farmer's Voice.*

Hydraulic Separators.

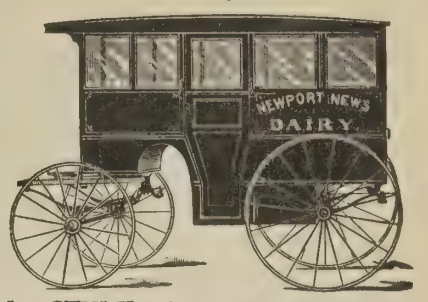
The Iowa Dairy Commissioner sends the following to *Wallace's Farmer*:

The Dairy Commissioner directs me to give you some facts in regard to a test of the skim milk and cream from a so-called separator of the tin can variety, which test was made by myself and the milk inspector for the city of Des Moines. Possibly they will be of interest to your readers, especially as the water "power" used, is said, by the makers of the machine, to take out all the butter fat.

I was present when the agent put four gallons of milk and four gallons of water into his machine, and in exactly forty minutes he drew off seven gallons of skim milk and water, and then a gallon of cream. The cream and skim milk were tested, and found to contain 14 7% and 1.2% butter fat respectively. It will be noticed that the "skim milk" really contained four gallons of water and three gallons of skim milk, but the above per cent of 1.2 butter fat is the correct value of the fat in the skim milk, with the mixture of skim milk and water.

The agent, not being satisfied with the showing, set his milk over night and another can for an hour, and the test showed that the milk set over night still contained butter fat to the amount of seven-tenths per cent, and the milk set sixty minutes contained more than nine-tenths per cent butter fat. These amounts of butter fat, being respectively about one-fifth and one-fourth of the fat in the original milk, show a loss of 20 and 25% of the butter fat. Yet the dilution method is said to be gaining favor among the farmers of this state, and the sale of the machine is reported to be very large. You are at liberty to use these facts as you may desire. H R. WRIGHT, Clerk.

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In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairymen at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Volume XXIX of Hoard's Dairyman

Just closed. If every reader had **had a Binder** and now had the complete volume with index bound, its value would be increased **greatly.**

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COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to sell it? Send to us for the material for making the test and we will mail it to you free of charge.

Thatcher's Orange Butter Color

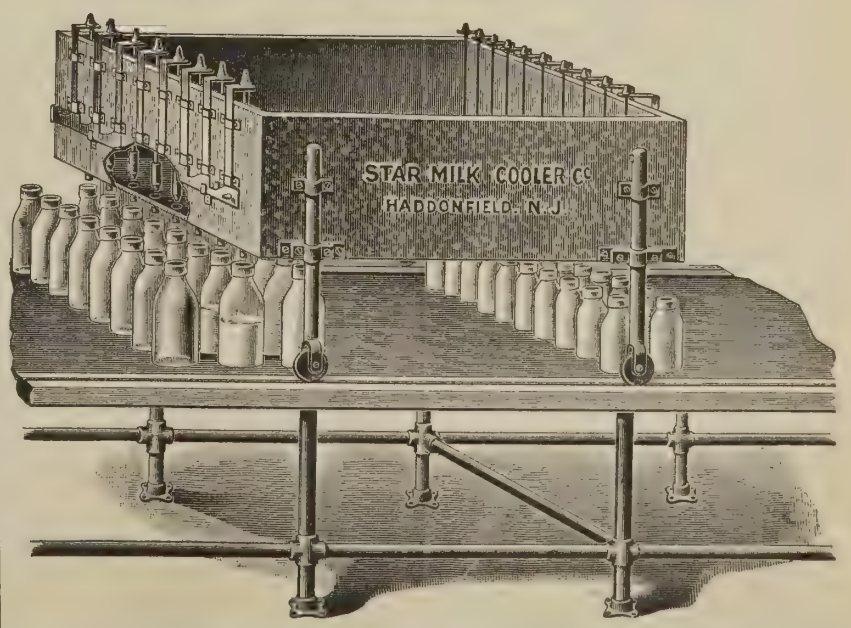
Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.

STAR BOTTLE FILLER.



Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.

STAR MILK COOLER CO., Haddonfield, N. J.

Aerating and Cooling of Milk.

Its Importance in Co-operative Work—Methods of Thorough Dairymen Disclosed.

Whenever advanced dairymen meet to discuss ways and means of improving their industry, at no point in their discussion is more enthusiasm displayed than when the airing and cooling of milk is receiving attention. The apparent reason for this anxiety is that much tainted and badly kept milk is received at the factories, and is the greatest of all sources of trouble to the cheese and butter maker. If nothing could be done to prevent such troubles as we speak of, it would indeed be a serious matter, as we find that even healthy cows in good pasture occasionally get food and drink that gives trouble in the milk when no means are taken to correct the faulty condition. It is to be deplored, however, that the milk received at the factories from farm dairies is not all from vigorous, well kept cows, that feed only from the finest pastures and drink only from the purest springs. Whether it be the provender the cow eats, the water with which she quenches her thirst, or the incorporation of odors in the milk after it is drawn, it is a fact that gaseous odors do get into the can, and when not eliminated give serious trouble to the makers of cheese and butter. The treatment for milk, that may have become contaminated from whatever source is, undoubtedly, aerating and cooling, which will not only enable the farmer to keep it sweet and fresh during the hottest summer nights, but it will largely do away with the troublesome condition of gassy curds. It has been estimated by no less an authority than J. H. Monrad, of Illinois, that if all milk brought to factories were aerated and cooled it would improve the quality of the butter one-fourth cent a pound and the cheese one-half cent a pound.

That milk should be aerated before cooling, we have no hesitation in claiming; for the reason that any taints, whether dormant or evident to the nasal organ, that exist in milk, when cooled are by the cooling process prevented from giving trouble after the heat is applied or the ripening stage is advanced. We therefore feel strongly convinced of the necessity of advocating aeration first and foremost, and would advise that it be adopted whetherthe milk is cooled or not.

There are several methods of aerating milk, which consists in subjecting it as much as possible to the purifying action of fresh air. This may be done by allowing the milk to escape through an aerator in small streams in the presence of pure air, or by forcing fresh air into and through the milk. The first method is performed by means of an ordinary tin pail thickly perforated, into which the newly drawn milk is poured and allowed to escape. The second by means of an inverted milk pan, thickly perforated, and with a handle attached. This is forced down through the milk in the can several times, the forced air escaping through the milk as it descends, carrying away any gases that may be contained in it, and oxidizing the milk at the same time. Another popular method of aerating milk is to pour it from pail to pail several times, at intervals of brief periods, or to bail it with a large dipper, so as to allow the access of air as far as possible. The following letters are from thorough dairymen, who are anxious to see our exportable dairy products command and maintain the highest place in the markets of Great Britian.

To have milk pure and sweet, all the feed and water that the cow gets should be pure and sweet. Her thighs, udder and teats should be clean on commencing to milk. The teats should be dampened—not wet—with clean water before beginning to milk. The first few streams of milk should be rejected. Every vessel that the milk is to come in contact with should be as nearly germ-free as elbow grease, scalding water and bright sunshine can make it. The milk should be strained as each cow is milked. Immediate and thorough aeration is necssary to cause the pure air of heaven to exchange places with the anything but heavenly-smelling gases generated within the cows body. Cooling after aeration depends upon the season and the use that is to be made of the milk. J. W. HART, Supt.

Kingston Dairy School.

In order to keep milk pure and sweet during the summer season we take care to cool and aerate the milk as soon as possible after it comes from the cow. The sooner the animal heat is removed the better. We set the milk can in a tub of cold water and strain the milk through a large strainer raised above the can, which allows the milk to pass through in small jets. In a short time we change the water in the tub, and take a pail with holes in the bottom and a stiff bail and push this down in the milk and then lift up quick and hold it above the can until the milk runs through; repeating the operation a few times until the milk is cooled and thoroughly aired. It is a good plan to have long coolers to fill with cold water to insert in the can. Keep the can out of the sun and away from bad odors. The cream should be kept from rising.

Oxford Co., Ont. D. LAWRENCE.

To make fine cheese or butter it is absolutely necessary to have clean, sweet milk. See that the cows, milk pails and cans are perfectly clean, also that the milker is clean. Immediately after milking, the milk should be removed to some clean place away from the barn or milking yard or anything that is likely to give off a bad odor. Strain the milk carefully, and as soon as possible after milking. Air well by dipping or pouring, or by the use of an areator; this should be attended to at all times, but especially during hot weather. Running the milk through an areator once is not sufficient, but should be repeated two or three times.

Never cool milk until it has been thoroughly aerated, because aerating tends to liberate taints, which, if not removed, become incorporated in the cooling and give trouble in the cheese or butter. For cheesemaking especially, it is very essential that all milk should be aerated. It improves the flavor and quality of the cheese, and requires less milk to make a pound of cheese. Milk keeps better in small quantities, and where the herd is not too large I would recommend the following: Have a pole supported at each end about four feet from the ground, and hang the milk pails along this on hooks, always having one empty pail; then commence pouring from one pail to another; continue this for some time, and you will have little or no difficulty in keeping the milk in fine condition. Good results are also obtained by using an aerator, through which the milk runs in very fine streams or thin sheets, allowing gases and animal odors to escape, and if milk is free from these, with ordinary care it will keep sweet and be in fine condition when delivered at the factory. In very hot weather it may be necessary to cool the milk by the use of water, but never do so until it has been thoroughly aired. When cooling with water, always leave the cover off the can and keep the milk stirred continuously. It has also been found that milk will keep sweet longer when cows have free access to salt. T. B. MILLAR,

Manager Thames Dairy Co., Middlesex, Co., Ont.

The care of milk should commence before the milk is taken from the cows, by seeing that they are in a healthy condition, that they have access only to pure, wholesome food, clean, pure water, and salt at all times. See that pails and cans are properly tinned and free from rust, and have been scalded and aired before using. Udders and flanks of cows should be wiped clean with a damp cloth before milking. Milking should be done in a clean place, by a clean person, with clean, dry hands. As soon as milk is drawn it should be removed to a clean place, free from barnyard, hog pen and other bad odors, and immediately strained and thoroughly aired by dipping or pouring. I would recommend the following method of airing milk: Provide pails enough to hold one milking; erect a pole about four feet from ground, covered with an A-shaped roof, made of inch boards, to protect from rain; fasten hooks in pole to hang pails on. As soon as milk is strained in pails, hang on the pole. Have one extra pail. Commence at one end of pole and pour milk from pail No. 1 into empty pail; No. 2 into No. 1, and so on across the row several times, back and forth, and leave in pails until morning The morning's milk should be treated in same way. JOHN BRODIE.

Elgin Co., Ont.

—Farmer's Advocate.

Dairymen Warned Against Preservaline.

The April bulletin of the Michigan Dairy and Food Commission contains the following warning:

We desire in this issue of the bulletin to caution dairymen and dealers in milk against the use in their products of the so-called preservatives now upon the market. In this connection we call attention to the following copy of a letter being mailed broadcast through Michigan, addressed to milk dealers in the various towns:

"My dear Sir—A mutual friend desires me to write you, as you have a large dairy and creamery. You know better than I, perhaps, the necessity of having pure milk for babies and for household use. Now, as a mother and possible customer of yours, I want to say a word about this. Many times I have been made nearly frantic by having milk spoil just when I needed it the most for baby. My doctor told me of a preparation made in New York which would keep the milk fresh and sweet till drank. It is called Preservaline and is harmless and cheap. I tried it and can vouch for it. I brought up my baby on milk in which Preservaline was used, and a healthier and plumper baby, for its age, would be hard to find.

"So, in the interest of myself and other mothers and housekeepers, I want to tell you about this. You can get this wonderful preservaline from the Preservaline Manufacturing Co., ————, or the branch houses in ————and——. If you mail them a postal order for two dollars, they will send you enough preservaline for five thousand quarts of milk or cream. Think how cheap this is and what a blessing it confers on you, also on mothers and housekeepers, for you can supply them with pure sweet milk or cream when needed at all times and in any kind of weather. I hope you will get a package and try it, for I know you will be as much benefited as I have been.

Faithfully yours,

MRS. KATE EGALETE.

"April, Eighteen hundred and ninety-nine."

The foregoing is a deceit and a fraud of the vilest kind. Masquerading under the assumed name of a woman, and clothing the counterfeited signature with the sacred mantle of American motherhood, this company seeks to promote the sale of its product in the very channel where its use will most imperil the health and lives of the children of our state. Can it be that the demands of commercial competition and love of gain warrant any human being to such despicable depth of deceit and falsehood? The use of acid preservatives in milk is dangerous, and we question whether a chemist of repute can be found in the United States who would countenance its use in milk for the feeding of infants.

We warn the milk dealers of the state,

WHO IS TO BLAME. Women as well as men are made miserable by kidney and bladder trouble. Dr. Kilmer's Swamp Root, the great kidney remedy, promptly cures. At druggists in fifty cent and dollar sizes. You may have a sample bottle by mail free, also pamphlet telling all about it and its wonderful cures.
Address, Dr. Kilmer & Co, Binghampton, N. Y.



8000 BICYCLES
Overstock: Must Be Closed Out.
STANDARD '98 MODELS, guaranteed, $9.75 to $16. Shopworn & second hand wheels, good as new, $3 to $10. Great factory clearing sale. We ship to anyone on approval & trial without a cent in advance. **EARN a BICYCLE** by helping us advertise our superb line of 99 models. We give one Rider Agent in each town **FREE USE** of sample wheel to introduce them. Write at once for our special offer.
MEADE BICYCLE CO., 290 Ave. S., Chicago. Ill.

He's Built To Win. He's Bred To Win.
Dropped Jan. 7, 1899. - FOR SALE!
SIRE—Ida's Rioter of St. Lambert 5th, 34947. 5 blue ribbons out of 5 entries. Weight 1650, breeding trim.
DAM—Lora Martin 88381, 19 lbs. 6 oz. butter 7 days; 40 lbs. milk per day at flush. First Prize and member of First Prize Herd Ohio. State Fair, 1894. Babcock from 6 to 9%.
D. W. HOWIE, Jr.,
Ames, Iowa.

THE AMERICAN
PACKAGE FASTENER.
Perhaps you never saw it. A Fastener entirely new; suitable for all creamery packages, egg cases, and all light boxes Patented May 2, 1899. Send for circulars and samples.
H. B. J. ANDRUS, Sole Manufacturer,
Winooski, Wis., U. S. A.

ORDERS POUR IN FOR DEERING



"LIGHT DRAFT IDEALS" FROM ALL POINTS OF THE GLOBE.
The largest single factory of any kind in America is running day and night to supply the demand.
There is no important grain-growing country in the world where **Deering Harvesting Machines** are not in use.
The machines that have a reputation for steady, reliable work, light draft and great durability are everywhere sought after.
Deering pioneered and popularized roller and ball bearings in binders and mowers.
Deering machines are built to meet the practical needs of the harvest.
They are the kind that don't get out of order. They are easy on horseflesh.
That's why the nations of the earth unite in endorsing **Deering machines.**
DEERING HARVESTER CO., - Chicago, U. S. A.

MAKE ONLY SWEET ENSILAGE



Ever since the ensilage system has been introduced in this country it has been the ambition and effort of siloists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste.
The best way to Shred Ensilage is with the
St. Albans Ensilage and Fodder Shredder.
It is the Original Shredding Machine and all other so-called shredders are merely imitations of this one. ***It will certainly pay you*** to look into the merits of this proposition and machine before buying. We mail free a pamphlet on the subject.
ST. ALBANS FOUNDRY CO., ST. ALBANS, VT.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

many of whom in the past have used these preservatives, of the dangerous character of this practice. The department, through its dairy inspectors, will make a special effort this summer to detect the use of preservatives in milk sold for consumption, and we are determined that an arrest and prosecution will be made in each and every case found.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 18,420 pounds. Bidding opened at 18 cents and all sales made were at that figure. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Red Clover	4,500	18c.
Triumph	1,320	18c.
East Bu lington	600	18c.
Big Foot	3,000	18c.
Dundee	3,000	18c.
Total	12,420	

The sales for the corresponding week of the three preceding years were as follows:

June 27, '98, 24,360 lbs. of butter sold at 16 cts.
June 28,'97, 38,140 lbs. of butter sold at 14½cts.
June 29, '96, 48,480 lbs. of butter sold at 14½@15cts.

Elgin, Ill., June 26, '99. H. C. B.

Warning to Farmers.

(Press Bulletin.)

From numerous letters received at this station, it is evident that many farmers have been victimized by seed dealers, who have, unwittingly, furnished Bird Seed rape instead of Dwarf Essex rape seed for forage purposes.

Farmers raising rape for forage, sow the Dwarf Essex variety. This plant bears a thin, short stalk with large succulent leaves, which resemble, in appearance and taste, the leaves ot the rutabaga turnip. The plant grows about three feet high on good soil, with leaves spreading about the same distance.

Bird Seed rape is a smaller plant with a slim, tough stalk, bearing a few small leaves which are hairy on top, and yellow blossoms appear a few weeks after seeding. The Bird Seed variety resembles the wild mustard plant when in blossom. The true forage rape does not blossom or bear seed the same year it is sown.

If the farmer finds his rape field bearing plants resembling wild mustard, with yellow blossoms, he may be sure he has planted the wrong kind of seed, and should plow the field at once, sowing the Dwarf Essex variety at any time before the middle of July.

Fortunately the Bird Seed rape, which resembles wild mustard, will not spread or prove troublesome, as is the case with yellow mustard, so that there will be no harm except a loss of the crop. W. L. CARLYLE.
Prof. of Animal Husbandry.
Agricultural Exp. Sta., Madison, Wis.

WHAT NEXT?

Instead of taking a long time and letting the oily parts separate from their coverings in the natural way, the separator uses a strong friction to break the film, when the cream or fatty part is immediately separated, and being lighter, rises to the surface. Cream thus secured requires very little churning; the film being broken, there is practically nothing to do but to gather the butter and separate it from its butter milk, which consists mainly of a residuum of caseine and fibrine that cannot, at first, be wholly separated from the fat.—*Ex.*

It is strange what wonderful things are written for the education of the dairyman, and circulated as dairy (?) literature. The number of things about milk that are not so, and yet have been evolved from the inner consciousness of the writer under the pressure of necessity, would fill quite a book.

The above is a good illustration. It would be hard to get more incorrect statements into the same number of lines, yet we must congratulate the writer on his imagination. The spectacle of those fat globules rubbing against each other until the cover breaks, is very good. So also, is that "residuum of casine and fibrine, etc."

The 2-10000 per cent of fibrine that Dr. Babcock discovered in milk has had many strange properties attributed to it, and has been the cause of many cases of sick milk. We shall watch with interest the next role that fibrine is made to play in the handling of milk.

CONCERNING OUR ADVERTISERS.

Mr. C. A. SWEET, of Buffalo, N. Y., owner of one of the very best Jersey herds in America advertises for sale in the DAIRYMAN this week a St. Helier bull calf ready for service. There can be but one purchaser and he who delays will be the loser.

THE FLAG FOLLOWS TRADE.

Uncle Sam may now boast that "the sun never sets onthe American flag,"but the Stars and Stripes have but followed the achievments of the American inventor and mechanic. Years ago American harv sting machinery led the way and created a demand for itself in lands where "Old Glory" was never seen outside of books. Deering Harvesting Machines, made in Chicago, are sold today by the ship-load from New Zealand to Norway and from South Africa to Siberia, and in every land where grass and grain are harvested. The name of "Deering" is a household word the world over.

ED. HOARD'S DAIRYMAN:—The attention of dairymen and feeders, who own silos, or who expect to build them this season, is especially directed to the advertisement of the Harding Hummer Ensilage and Feed Cutter, shown in another column. This machine, while comparatively new to most of your readers, has been built for four years past, and is now in a state of perfection. It has the enthusiastic endorsement of all who have used it, among whom are a number of prominent dairymen, cattle breeders and feeders. It is considered a long step in advance of the old style cutters that use chain or belt carriers and renders silo filling the easiest part of the year's work by reason of its great capacity for cutting and storing in the most inexpensive manner. It simply cuts the feed into the best possible shape and then blows it at the rate of almost two miles a minute, through tubing of any reasonable length, up to 40 or 50 feet, into whatever place it is desired to store it.

The machine, while built especially for handling corn, green or dry, is well adapted for cutting other products, such as hay and straw, and if any dust is in the feed it will be separated in its passage through the machine and thus leave the feed clean and wholesome. The machine undoubtedly has great merit, and we advise our readers to investigate it. Address THE HARDING MANUFACTURING CO., Nashville, Tenn., for catalogue.

A very neat and servicable package fastener has been placed upon the market by H. B. J. Andrus, of Winooski, Wis. It is designed to meet the requirments of the butter and egg trade, and has no dangerous points, to harm and provoke those handling the package. There is small ad in this issue inviting those interested to send for circulars. Don't neglect to do so.

A unique subscription offer is being made by the Farmers Voice of Chicago. Marion Harland, whose Cook Book and other books are in hundreds of thousands of homes, has written a series of four new books on home topics,including"Health" ,,Home", "Household Management" and "Cooking". Each book contains nine chapters on as many different departmen ts. The books are not on sale at the bookstores, but the Farmers Voice has arranged to furnish them as a premium—the four books and The Voice to January 1900 for 50 cents. The books alone will retail at $1.00 for the set. The Farmers Voice is as progressive in its advertising as it is in agricultural journalism. Address FARMERS VOICE, 334 Dearborn St., Chicago, Ill.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

MILK FAILING.—AN OBSCURE CASE.

We have now thirty-three head, thirteen just added to herd. We feed them on green pasture all winter, until April, when every thing begun to dry up. Then we had a ten-acre field of barley, which would not pay to cut, so we turned them on that. The second day five cows failed to give any milk, hardly. All had one or more quarters of their udder swelled and stringy material was milked out. One was giving eighteen to twenty-four pounds to a milking, but has never given more than three or four pounds since. She never had any stringy milk, but got very poor; is now due to calve in three and one half months. We are going to dry her up. The whole herd has been falling off ever since, and now three other cows are troubled the same way, one due to calve in a few days, which we have been unable to dry up entirely. We have been feeding fresh cut alfalfa hay, mostly cured as weather would permit, Kansas red bran, 8 pounds per day, one-third barley hay, and for two weeks a large handful of oil cake meal, and still they fall off, and the milk does not cream as it uusally does. The new cows added to the herd are falling off the same way. They are all in first-class condition, except the two that got poor, although they are picking up now. We gave the physic, as given in your paper, and are giving one teaspoonful of saltpetre once a day to the affected cows, but they remain about the same. One has been fresh only six weeks; gives a little milk out from two teats, and thick mattery material out of the other two. Her udder was swollen a good deal, and after two or three days her hind legs swelled up at the joints. She was taken about three weeks ago. The udder is the same, but the swelling has gone down. She never lost her appetite, but needed the physic. Shall we dry her up, or will she come all right again? Others have been milking some time, but are not due to calve until December or January. All the cows, new and old, are giving just one half their usual quantity. O. W. L.
Los Angeles, Cal.

ANSWER.

Yours is a singular and puzzling condition. In all my long, active, professional experience, I have never had anything like your case. Individuals do have all sorts of freaks and conditions, but a whole herd so affected is beyond my professional ken. That the cause is general, there can be not the slightest doubt. A close, continued observation, by one qualified, is the only hope of finding and removing the cause. Until this is found and removed you will be more than likely to be annoyed by a continuance. The difficulty seems to be failure to secrete milk. I would try a complete change of food, and also water, if you have any doubt of its purity. The nitre is good and can't do any harm. Intelligent, systematic physicking is always a good alterative, in man or beast. Accute inflammations and poverty being always a bar to its exhibition.

COWS WITH SORE FEET.

I have been troubled a good deal, this spring, with my cows' feet becoming sore between the two hoofs, and usually at the fore part of the foot. They have become very lame, sometimes being unable to use that foot at all. The trouble seems to start in the little pore which is between the hoofs on the front side. Have been using lard and red precipitate, but do not seem to be getting very good results from the same.
Three Oaks, Mich. E. K. W.

ANSWER.

Remove the cause at once; ninety-nine and a half cases of foul feet are the result of filth, the other half being over abundant extra growth of hoof; as above, remove the cause or you can't cure. Wash thoroughly with hottish water and tar soap. Then disinfect with Tilden's Bromo Chloralum, one to eight of cold water. Disinfect twice a day for a few days. Pyroligneous acid, 10 ounces, fish oil 30 ounces. Thoroughly mix and use once a day. Soak a piece of tow and crowd to the bottom, daily.

SCROFULA IN COW.

I have a cow which has five swellings extending from the point of the jaw to the mouth, and varying from the size of a hen's egg to about the size of a bean. All of these swellings are raw at the end, and discharge a sort of a thin watery substance.
Trenton, N. Y. R. L. M.

ANSWER.

You have a clear and positive case of malignant scrotula. I know of no form of doctoring to recommend, as the cow is disqualified as a breeder and milker; the milk is not wholesome and is not fit for use in any form. Any expense you may be subject to will be quite useless as the cow is not worth doctoring. This, of course, is my professional opinion conscientiously given, and the conclusion is with yourself.

THICK NECK IN CALVES.

What is the cause and cure of thick neck in calves at birth? As many as six in one herd, both sexes, grade Ayrshires. It is a loose growth along the wind pipe.
Dunbar, Ont.

ANSWER.

I know of no such a disease as thick neck. You have one general cause for this abnormal growth; may be the bull; may be farther away, but still it is in the blood, bred there by hereditary taint and will continue for all time to come, more than likely. If the swelling was at the throat you would have a clear case of goitre, or Debyshire neck. Look into the family record; find out the cause and remove it. If you can by outbreeding as far as possible.

INJURY TO TESTICLE.

I have a Jersey bull whose left testicle has been badly swollen for over a month. It is quite large and hard, but not very sore to the touch. Have rubbed with a preparation put up by a veterinary, also with hot vinegar and poulticed with flax meal. But it seems not to improve. Will it injure him to serve cows and will his service prove effective? He seems in good health otherwise. J. K. D.
No. St. Paul, Minn.

ANSWER.

You yourself tell what the matter is—enlarged testicle. The cause may be any sort of injury, or it may be of a spontaneous origin, likely is. If disposed, let him serve a cow or two a day, not more; over service does sometimes cause swelling of the testicle, but not as you describe your case. A few doses of salt will be quite likely to help his case. If he does not improve let me know, and I will prescribe for his case. Give him 7 grains of iodide of potassa for ten to thirty days, if needed.

BREACH OF CALF.

I have a very fine Jersey calf, five months old; have just discovered a breach near the naval; do not know the cause. Is there a cure? If not, would you advise keeping her for a cow? E. D. W.
Whitelaw, N. Y.

ANSWER.

Umbilical hernia is quite often permanently cured. But the true professional man is the only one to attempt the reduction. The operation is by no means a dangerous or difficult one in the hands of an expert. Umbilical hernia is usually the result of some defect or injury at birth.

FAILURE TO GET WITH CALF.

I have a cow that I cannot get with calf—calved one year ago. On examination I find the womb entirely grown closed.
Palmyra, Mo. G. V. S.

ANSWER.

You had no business to examine the os uteri. It is and should be closed always except at certain period. This foolhardy opening, as practiced by a very few now, has spoiled many of the finest cows ever seen upon this vast continent. I, with a few others, have been trying to vote it down for years, and have succeeded—only once in a great while practice this so-called opening. You do not say if the cow does or does not come in heat, so I can't advise you.

Horse Owners! Use



GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

CANCER cured at home. Send four cents, stamps. 80 page book, illustrated Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis

Dr. Horne's Anti-Abortient

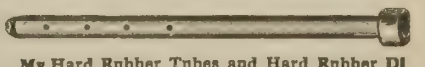
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS
(Patent applied for.)



My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
Dr. WM. HORNE, Janesville, Wis.

Production of Pure Cultures.

The cultures can be produced under several different methods, either by selecting milk from specially clean and healthy stock, or, better, by adopting the system of propagating from dry lactic ferment. This system being the cheapest, and also most reliable, is everywhere considered to be the best. The rules laid down by Blauenfeldt can, at any time, be followed with success, as the bacteria in this laboratory is selected under the supervision of an experienced bacteriologist. The dry cultures are, in this laboratory, sealed in bottles, and in this way carried all over the world.

Blauenfeldt's system is to procure 20 lbs. of pure skim milk—the milk must be pure and savory, and, by preference, skimmed by hand This is heated to a temperature of 178° F., and either kept at this for two hours or cooled at once and heated to same temperature again. After the heating, the milk is immediately cooled to 86° or 88° F., and the whole contents of a 1 lb. bottle are emptied into the milk under constant stirring. The mixture is then left to ripen, until it becomes equally thick and suitably soured. At this stage the milk has become fluid ferment, and when it has reached a state of a coherent mass, able to be detached from the sides of the vessel, it should at once be stirred and placed in ice or a cool room, where it may remain till wanted for use. During the period of ripening the temperature should, as far as possible, be kept even, which is obtained by placing the vessel containing the ferment in a vessel of water, maintaining all the time a temperature of 88° F. Another system for keeping the even temperature is to place the vessel containing the milk in a case, and place clean cotton waste or hay in the space between the sides of the case and the can. Where special appliances are not fitted this latter is the most suitable method to adopt. If the temperature is duly upheld, the ripening will be completed in about eighteen hours; although this may be at any time dependent on the regularity of the temperature.

The dry ferment or starters have now become, as beforesaid, the fluid ferment, and from this the culture is, the following day, obtained. A quantity of skim milk is taken, sufficient to form from one-tenth to one-twentieth part of the quantity of cream which has to be ripened by the cultures The percentage of ferment to be added depends on the time it is allowed to ripen, and, under ordinary circumstances, from 5% to 10%.

If fifty cans of cream, equal to 500 gallons, have to be ripened, one-tenth part of this is required for skim milk to be prepared for culture, which will be 50 gallons of milk. This milk is heated to a temperature similar to the first lot treated, and after cooled to 84° F., one gallon of ferment should be added to every ten gallons of skim milk. This should then be placed in a place where the temperature does not go below 84° F., and left undisturbed till ripened as previously described, which, in order to obtain a good and vigorous ferment, should be completed within six or seven hours. When ripened, the top layer, to the extent of about two inches, should be skimmed off each can, so as to prevent other bacteria, introduced from the air, from interfering with the pure culture. It also requires to be thoroughly stirred so as to make it quite uniform, similar to buttermilk, and free from cheesy lumps.

This ferment is now used for the cream, and should be added, as previously stated, in quantities of from 5 per cent to 10 per cent, according to temperature and time. Sufficient culture should be left in a cool place to propagate next morning's milk for culture. The propagation is carried out from day to day as long as the fluid ferment remains good. The frequency of the renewal of culture from the bottles greatly depends on the cleanliness and care shown in the factories, and also in the care taken in propagating and cooling fluid ferment. In most instances it requires to be renewed every second week. The most suitable temperature of the cream while ripening is from 67° to 72° F., but equally good results have been obtained by having it a little cooler, and adding more ferment and allowing more time.

The culture required is therefore set in the morning while separating is being carried out, and when these instructions are carefully followed in preparing same, should be ready to add to the cream about 3 or 4 o'clock in the afternoon. The cream should then be ready for churning next morning from 6 to 10 o'clock, according to temperature, percentage of ferment, and the general condition of cream

* *

The system of using buttermilk for cultures is also adopted by several factories in Denmark; but in such cases the renewal of ferment has to take place very often, and so makes it more expensive. It is also objectionable on account of the difficulties experienced in controlling the ripening of the cream and keeping the butter free from strange bacteria. According to Mr. H. L Russel's experience only a slight advantage is obtained in regard to keeping quality; and that as an effect, the grain of the butter is injured by pasturizing. This, however, is a mistake, as the butter gains considerably in grain and appearance if the pasteurizing is done properly; and as to keeping quality, we have only to refer to the cask of Danish butter exhibited to the Victorian factory managers at their last conference. Besides, there is a wide difference in the keeping quality required of American and that of Australian butter.—*Farm and Dairy* Australia.

Must Have One Policy.

Practical Men Concede the Worth of 10c Tax Plan.

In various dairy publications, I am sorry to say, I have read various bitter attacks on the policy pursued by the National Dairy Union. I have formed the impression, from reading these articles, that these sharp criticisms are not dictated by noble motives. They are not the result of conviction or an opinion formed. I fail to see any arguments advanced that will sustain the facts assumed by our opponents. The close reader cannot fail to observe the petty annoyance and the jealousy, putting it in plain words, that are the motives of these criticisms.

The policy pursued by the National Dairy Union is not the policy alone of its noble president, ex Governor Hoard, or the hard-working secretary, Chas. Y. Knight. It is a policy accepted among practical men. It is an accepted principle all over this country, where the individual rights of men are so large, that only through taxation laws, enforced by the federal government, can national evils be controlled.

Some of our eastern friends have certainly lost sight of the fact that every state dairy association that has met in convention since this movement commenced, including the National Creamery Buttermakers Association, has indorsed the efforts of the National Dairy Union to secure a 10c tax on colored oleomargarine.

In every radical movement we find friends, supporters and also opponents. The worst enemy of any movement is the fellow who stands off on the side, who criticises, ridicules and tears down, who seeks to destroy the effort of men who give their time and money to secure results beneficial to all; critics who give us nothing in return. We have no use for critics of this kind and I say to them, "If you are sincere, if you do not like our course, give us something else; give us some advice; start a movement of your own. Let us get the question thoroughly discussed. Let us all adopt the same policy. Let us stand united. If we do, we cannot be defeated. If next winter, when our cause comes up in congress, we stand divided, I predict that that alone will defeat this measure."

Now boys, let us take off our hats to the New York *Produce Review* and all other papers which, regardless of personal motives, come out in support of the National Dairy Union. We appreciate the efforts of Chas. Y. Knight, and his excellent paper. The New York *Produce Review*, and other papers, that have rallied to the support, stand fully as high in our appreciation and close to our hearts We appreciate, and shall always remember their conscientious motives—W. F. JENSEN, President Jensen Creamery Co., in *Chicago Produce*.

Mating.

The Male Is Not by Any Means the Whole Herd.

Many are satisfied with having a pure bred male of reputable pedigree at the head of the herd, regardless of whether his type and points of excellence are in harmony with the requirements of the herd or not, forgetting that defects that are common to both parents intensify themselves in the offspring, says *The Homestead*. Just what it is that at all points goes to make up the obscure thing known as "a good nick" would be difficult to define, but one of its elements undoubtedly is that weakness at certain points on one side of the house should be compensated for by strength in those particulars on the other. The facts involves a careful selection of the females in the breeding herd with a view of securing uniformity in them. For if they be widely at variance with respect to their physical conformation no sire can be chosen that will nick with them at all. If, however, the females of the herd be uniform, showing in a general way a similarity in their strong points and their weak ones, the sire to be used on the herd can then be selected with a view of correcting deficiencies, and to the extent that the uniformity prevails on the one side and the selection has been good on the other uniform results may be expected in all the offspring. In too many cases the purchaser of a sire relies upon somebody else's judgment to pick him a good one, the person intrusted with this duty, perhaps never having seen the herd on which such selection is to be used. If, however, the sire is chosen with special reference to the use that is to be made of him, outstanding defects can, to a large extent, be corrected, and by pursuing this policy for a series of generations great improvements can be effected. If the female herd is of one line of breeding through a series of years, the defects will be likely to be of one general type. Suppose, for example, they have too much length of leg, then a sire that is particularly low down will contribute to breed out the defect. Suppose there is a deficiency in the heart girth and consequently in vigor and constitution, then a sire having a large heart girth will measurably cure the difficulty in the offspring. If there is weakness in the flank, a male should be strong there. If the females are coarse and inclined to be rough, fining down can be accomplished by the use of a closely built, compact sire, and on the other hand, if the females are smooth, small boned, pretty and inclined to undersize, the selection should be made with a view of correcting these faults

Ropy Milk.

Cornell University has issued a bulletin on "Ropiness in Milk." The bulletin sums up the question as follows:

Ropiness is a fault of milk which does not necessarily depend for its cause upon the health of the cows. It is said to be caused by any one of several different species of bacteria. I have found Bacillus lactis viscosus to be the cause of viscid milk in two different creameries. In the two outbreaks investigated the trouble was found to be caused by the use of milk utensils which had not been sufficiently scalded. The bacteria remaining in cans which had previously contained viscid milk, were able to survive the washing and remain alive to infect new quantities of milk. Greater care in scalding utensils brought the trouble to an end. All small utensils were immersed in boiling water for three minutes, and the larger cans were filled to the brim with scalding water, which was allowed to remain for the same length of time. A thorough investigation of the sources from which the bacteria might have entered the milk at the stables, and of sources elsewhere, failed to reveal the presence of Bacillus lactis viscosus. Nevertheless there is reason to suspect that during warm weather these particular bacteria get into the milk from water.

The importance of thorough scalding of vessels which have once contained ropy milk is urged upon the consumer as well as the dealer. Bacteria may readily be transferred from running water to milk by the agency of mud, which, drying upon the udder, may be dislodged during milking. Milk utensils which have been used for containing water, should be scalded before using again for milk. The apparent purity of water used about a creamery gives no assurance that it is free from bacteria.



"Go: You Are Free!"

If you were in prison and a good spirit suddenly opened the door and said "Go: You are free!" you wouldn't stop to ask whether the key that opened the door was the regulation pattern or not. If it opened the door, that is enough. Thousands of women who are sick and suffering might speedily be made strong and well again if it was not for an unreasonable prejudice against any but so-called "regulation" methods.

"Three years ago I was almost gone with womb trouble," says Mrs. Jennie J. Jackson, of Fergusson's Wharf, Isle of Wight Co., Va., in a letter to Dr. R. V. Pierce, of Buffalo, N. Y. "I tried many different medicines and got no better until I tried Dr. Pierce's medicines. The first bottle gave me ease. I have taken six bottles and I feel as well as ever in my life.

"My doctor did not have any faith in 'patent medicines' but he says '*something* has done you good.' I know if I had not taken Dr. Pierce's medicine I could not have lived long as I was nothing but a skeleton. I was so thin in flesh that it hurt me to lie down. Now I am well, and can work hard all day and do as much walking as I ever did, and sleep well all night. I can never be thankful enough for the good Dr. Pierce's medicines did me."

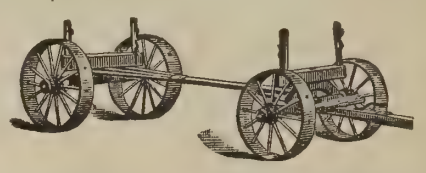
Dr. Pierce is a regular graduated and educated physician. He has had a more practical life-long experience with all forms of women's diseases than any other doctor in this country. His "Favorite Prescription" for female complaints is the most marvelously effective remedy for this purpose in the world.

Suffering women need not hesitate to write to him. All letters are held sacredly confidential and free advice will be sent by mail in plain sealed envelope.

Constipation is a little illness that if neglected builds a big one. Dr. Pierce's Pleasant Pellets cure constipation.

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire.

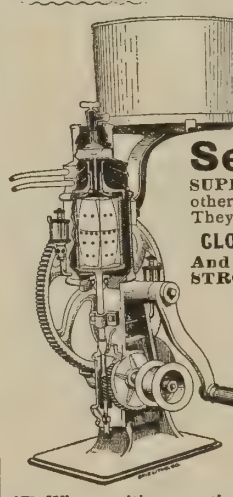


This Wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.



ROUND SILOS
LABOR 1-2 SAVED.

Also best Horse-power, Thresher, Cloverhuller, Dog-power, Rye Thresher and Binder, Fanning-mill, Feed-mill, Saw machine (circular and drag), Land-roller Steam engine, Ensilage and fodder-cutter, Shredder, Root-cutter and Corn-sheller.
GEO. D. HARDER, Manufacturer, Cobleskill, N. Y.
☞ Please tell what you wish to purchase.



Eclipse Cream Separators
SUPERIORITY over any other make **Guaranteed.** They are
CLOSEST SKIMMERS
And built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable agents wanted.
Catalogue FREE.
C. L. Chapman Separator Wk's, ERIE, PA.
☞ When writing mention HOARD'S DAIRYMAN.



The YOUNG AERATOR And Cooler
Needs no water or ice, removes all odors and gases, warranted to keep milk sweet from 6 to 12 hours longer than any machine in the market or money refunded. Circulars free,
W. H. YOUNG, Box 135, Aurora, Ill.



Newton's Improved COW TIE
Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

Impossible for any **Liquid** that is **Sprayed** on **Cow,** to protect her from **Flies,** in sun of 100 degrees ¼ as long as **"SHOO-FLY"** applied with a brush. See "Shoo-Fly" adv. page 404, this paper.

Parted In A Dream—(New) Pronounced by critics a beautiful song. Very popular. Founded on strange incident of Cuban war. Regular price, 50c. Sent to our readers for 25 cts., post-paid, including also miniature page of DARLING LENORE and MOTHER'S DARLING YET.

Darling Lenore—(New) Is called a very catchy, pretty song with beautiful flowing melody, all in waltz time. Becoming very popular. Regular price 50 cts. Sent post-paid to our readers for 25 cts. with a miniature page of PARTED IN A DREAM and MOTHER'S DARLING YET.

Mother's Darling Yet—(New) Pronounced very pretty. Is extremely popular with singers of lullaby songs. Regular price 50 cts. Sent post-paid for 25 cts., and with it a miniature page of PARTED IN A DREAM and DARLING LENORE.

For 2 cts. I will send one miniature page of each of the three songs. Address the author,
HALBERT L. HOARD, Fort Atkinson, Wis.

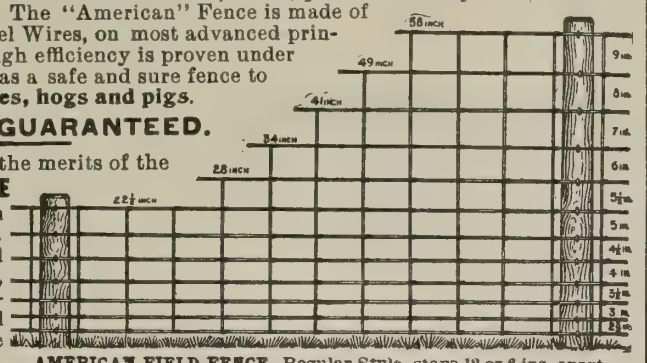
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"AMERICAN" ALL STEEL WOVEN WIRE FIELD FENCE.

Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

EVERY ROD GUARANTEED.

INVESTIGATE the merits of the **AMERICAN FENCE** at our agency in your nearest town. If you can't find such an agency, write us for complete catalogue and we will see you are supplied.



AMERICAN FIELD FENCE, Regular Style, stays 12 or 6 ins. apart.

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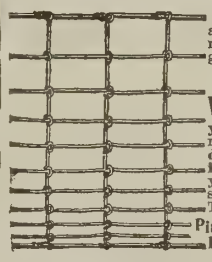
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THE MOST Successful and Satisfactory power for running Cream Separators, Churns, Pumps, because it has a Governor which regulates the speed to a nicety. A successful power for running small Grinding Mill, Feed Cutter, or any machine, because the largest horse can work in it with ease. **SIMPLE, EFFECTUAL AND LASTING.** We make 2 and 3 horse Tread Powers, also Ensilage Cutters, **HERO AND AMERICAN FEED MILLS**, Shellers, Wood Saws, Sweep Powers, **THE CELEBRATED GOODHUE WIND MILLS**, etc. Our 150 page illustrated Catalogue **SENT FREE.**

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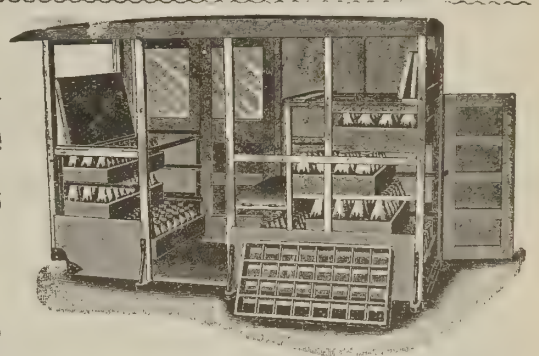
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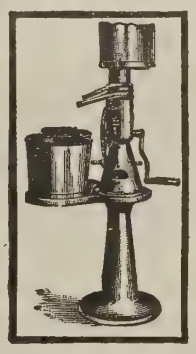
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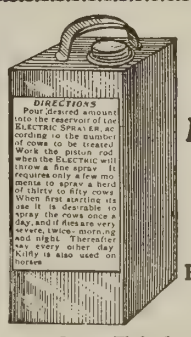
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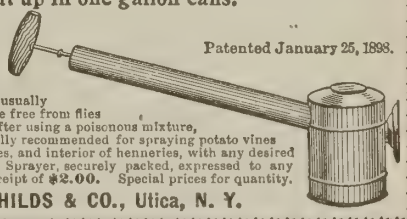
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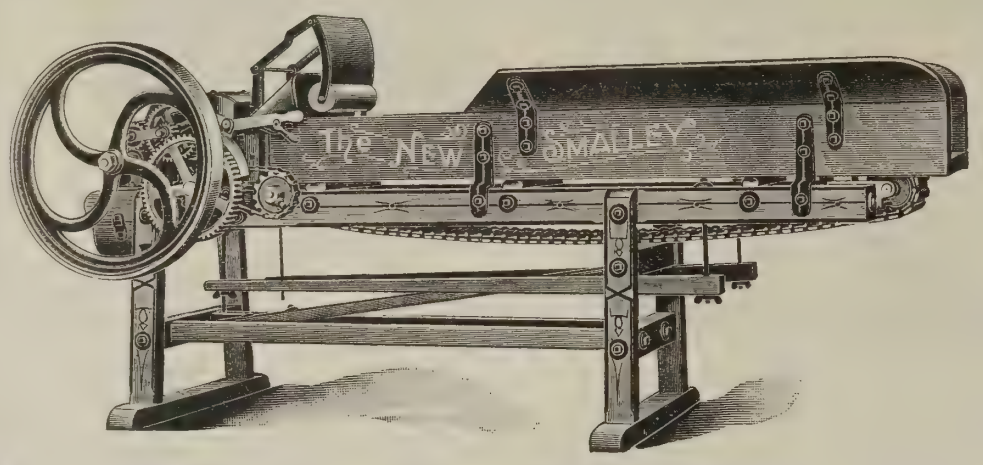
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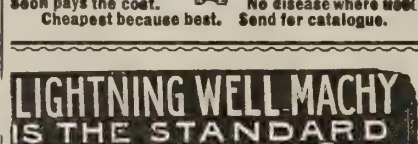
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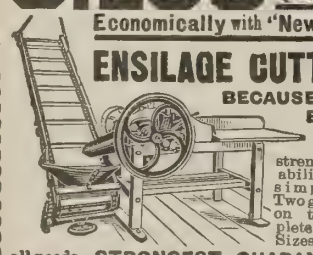
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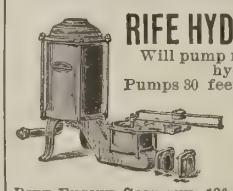
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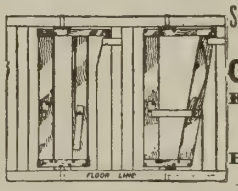
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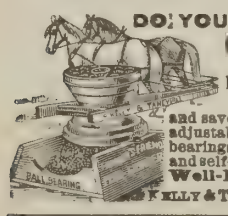
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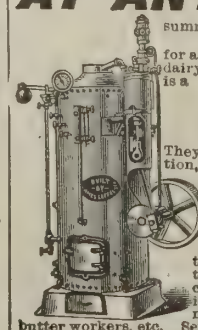
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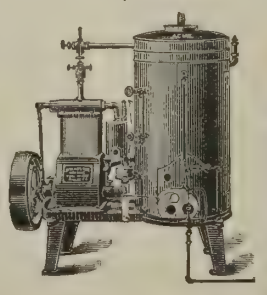
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100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
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YOUR NAME or CREAMERY should be PRINTED on Every Sheet.
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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Oder to Destroy One.

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E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
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They are the strongest, the neatest and the most serviceable made in the United States. They are cheaper in the long run than the kind usually offered the people who only look at the price. When buying of your dealer see that they are of our manufacture.

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To say that our patrons are pleased with the tubular, but lightly expresses it.

GEORGE E. PEOPLES,
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SUPERB, SMOOTH CREAM.
GREATEST YIELD OF BUTTER.

No rubber rings—no metal bearings—no spindles—no complication—no danger—a hollow bowl—a simple bowl—a durable machine—all these and many other advantages.

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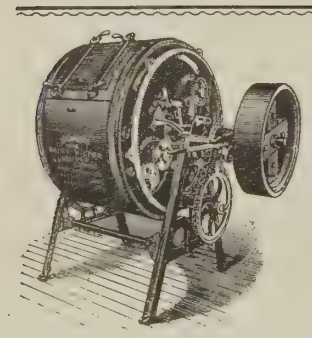
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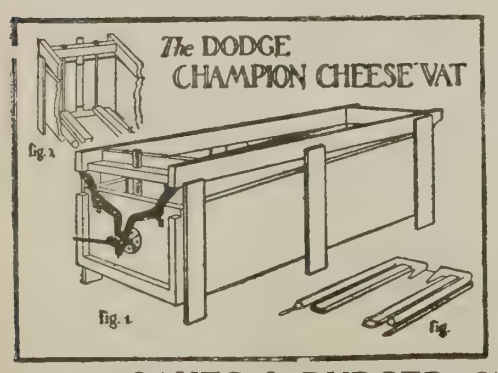
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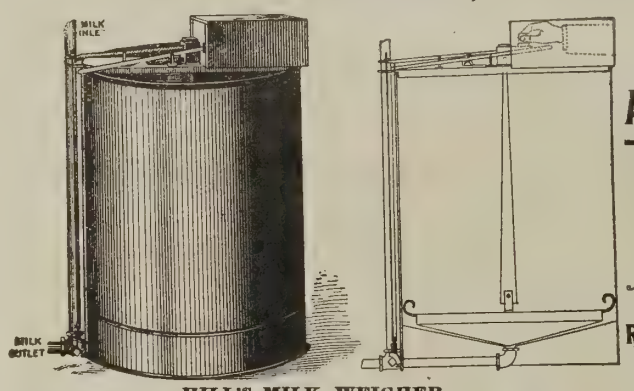
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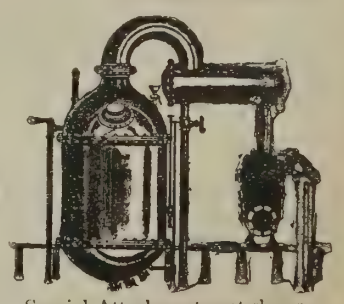
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairyman's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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New Zealand Ayrshires.

Some months since we noticed in a New Zealand dairy paper (*The New Zealand Dairyman*) an excellent picture of a typical Ayrshire cow. We wrote to the owner, Mr. James Gemmell, of Ormaru, N. Z., asking for some details regarding the animal, and he has kindly sent us a set of photographs from which the following cuts have been made.

Unfortunately he did not send any record of their butter production, so cannot give their record. The letter following shows how they are regarded by New Zealand judges, and we should be glad if breeders of Ayrshires in this country would give the DAIRYMAN their opinion of these animals as representatives of the Ayrshire breed. Following is the letter:

ED. HOARD'S DAIRYMAN:—I duly received your note *re* Ayrshire cow Saccharine, and now beg to apologize for being so long in replying to your request. At the time I received your letter we were very busy at harvest. And as you appear to take an interest in the Ayrshire breed of cattle, I thought it best to delay replying until I had time to develop a few photos which I thought might interest you and which you might turn to account. I exhibited the two last year at the Dunedin show, (Molly and Lady 2nd), Molly was first for cow in milk and champion of the yard, Lady 2nd took first for dry cow.

At the time Saccharine was taken she was newly calved and had been on short allowance for a week to guard against milk fever and had also been physicked, therefore, she was looking very empty and not at her best. However, I am sorry to say that she died within two days after with fever.

I exhibited also at Dunedin show in 1896, and with one exception took all the first prizes in the Ayrshire class. The exception being of the same blood as mine (bred from animals I sold). Lord Glasgow took the prize for bull and progeny, he entering the ring with all the first prize youngsters with one exception, following him. The exception being a 1-year-old bull out of a daughter of his, also bred by me. I mention this to show you the position the breed holds here in the show ring. Dunedin show is considered the best for Ayrshires in the Australian colonies.



AYRSHIRE COW, LADY II.

Property of JAMES GEMMELL, Ormaru, New Zealand.



AYRSHIRE COW, MOLLY.

Property of JAMES GEMMELL, Ormaru, New Zealand.



AYRSHIRE COW, SACCHARINE.

Property of JAMES GEMMELL, Ormaru, New Zealand.



GROUP OF AYRSHIRE CATTLE.

Property of JAMES GEMMELL, Ormaru, New Zealand.

You ask me for the pedigree of Saccharine?

She was sired by Prince of Wales, by White Prince, imported dam Princess Helena, by Premier, out of Old Violet g. d. Victoria, by Champion, imported g. g. d. Queen Mary, by Old Champion, bred by Gemmell g. g. g. d. Mary, by Young Jock, by Joy by Ayrshire Jockima g. g. g. g. d. Milkmaid, by Ayrshire Jock, imported g. g. g. g. g. d. by Burns Jock, imported, g. g. g. g. g. g. d. imported.

The whole of the sires and dams named were noted prize takers from Milkmaid upwards. Milkmaid was 14 years old before she was beaten in a show ring. She was bought by me over 30 years ago and all my herd have sprung from her. She, on one occasion, after calving, gave over 8 gallons of milk per day, in two milkings. Champion, imported, was never beaten in the old country but had to carry the second ticket when he met Champion (bred by me) out of Milkmaid in New Zealand. I bought Champion at auction for 170 guineas in Dunedin. Saccharine was considered the best Ayrshire cow in New Zealand, all the race have well shaped bags and good sized teats. I weighed Saccharine's milk on different occasions, after calving in 1896, and it went over 30 pounds at a milking, or say, from 60 to 65 pounds in a day, fed on grass alone. (Milk never tested for butter fat.) Molley is by Lord Glasgow; dam, Molly Darling, by Prince o Wales; g. d. Grace Darling, by Champion, imported g. g. d. Mary, by Jock, by Joy by Ayrshire Jock, imported g. g. g. d. Milkmaid, by Ayrshire Jock, imported Lady 2nd. Sire, Baron of Oxhill, imported; dam, Lady, by Premier, out of Old Violet g. d. Miss Gemmell, by Perfection, g. g. d. Dandy, by Champion, imported g. g g. d. Maggie, by Bobbie Burns g. g. g. g. d., by Bismark, out of Milkmaid. All prize takers. Baron of Oxhill was exhibited at the principal shows in New Zealand and never was beaten.

Ormaru, N. Z. JAMES GEMMELL.

WHEN our grandmothers put their milk pans outside the dairy room door, and let them stand in the full sunlight for hours, they were destroying bacteria just as effectively as if they knew what the little pest was, and the best way to get rid of him.

Now we know what the beast is, and all about him, but it is much to be feared that we are not taking advantage, as much as formerly, of the cleansing properties of sunshine. Throw open the blinds and let the bright sunlight into the dairy room. It will save lots of trouble with sick milk, and disgusted dairymen.

PERHAPS the best possible way for the farmer to rid himself of whey, so that it will not trouble him, is the underground whey tank. The tank, its surroundings and its product form a perfect remedy for an over supply of whey and incidentally a very practical combination by which to kill off any young or old pigs of which the farmer may have a surplus. Of course, the above may not come under the head of successful dairy methods but as an instrument for getting rid of both whey and young stock, the underground whey tank is an unqualified success and can be recommended as such to any dairyman who has a surplus of either article.

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Herbert B. Baldwin, chemist to the Newark, N. J., Board of Health, has found cases where the dairymen who sold milk put formaldehyde in it, then the wholesale dealer dosed it and the retail grocer doctored it again.

The Dairyman received a pleasant call recently from Mr. D. Raab, a noted dairyman, from South Pasadena, California. Although a man well on the shady side of life, Mr. Raab is as enthusiastic as any young man in the study of dairy problems. It is both refreshing and instructive to meet such men, and the editorial rooms of Hoard's Dairyman are always welcome to their calls.

The article "Embalming Milk," which appeared as an original editoral in Hoard's Dairyman of April 14th, page 167, has been quite extensively copied, and appears as original matter in the *Milk Reporter*, and other papers. The Elgin *Dairy Report* of May 8th, copies the same and credits it to the *Milk Reporter*.

When a paper steals matter in this way, it is pretty sure proof that the brains of the concern is named "scissors."

The *Country Gentleman* complains that the Dairyman clipped an article from their issue of June 1st and published it without giving credit to the *Country Gentleman*. The Dairyman takes every possible precaution to credit a clipping with the paper from which it was taken, believing that scissors and paste pot are but a poor substitute for brains.

We hereby tender the *Country Gentleman* an apology for the mistake.

That is a pregnant sentence E. C. Bennett uses on page 415, under the head of "Close Hits." Speaking of a "contented farmer" he says: He is satisfied because he has not learned how he is missing his opportunities."

Thousands of dairy farmers have written us saying, in effect, that the little investment they laid out in subscribing for the Dairyman, or in buying some book that looked farther into their own business than they had, was the means of adding to their wealth and pleasue in dairy farming, very greatly. It does not pay any man to be satisfied with poor results, when he can easily learn how to obtain better.

ANIMAL AND VEGETABLE PROTEIN.

Prof. Henry in his reply to H. B. C., of Menomonie, Wis., page 414, says:

"In some experiments at the New York Station, it has been shown that protein from animals is superior to protein from vegetable sources."

To our mind this is shown to be true by the way nearly all birds and animals, man included, feed their young for some time after birth. All food given to infant life is from an animal source. Birds, which subsist mainly on seeds, feed their young on worms and insects. The only exception to the rule we recall is the pigeon family, which use food for their young pre-digested in their own stomachs.

To a certain extent, these facts may be cited as an argument against a strictly vegetable diet for man. He does not commence life in that way.

FEEDING FAT INTO MILK.

There are still many farmers who believe that they can vary the per cent of fat in the milk of their cows by the kind of food they give them, while every thorough experiment that has been tried shows to the contrary.

These experiments show that we cannot take a cow, which naturally gives poor milk, and by feeding any special food, cause her to give rich milk. They also show that each cow is a law unto herself in this respect; that if we want rich milk we must seek for it in breeding. It is the cow, and not the feed, that determines the richness of the milk.

The *Milch Zeitung*, published in Germany, gives an account of an experiment, in which palm cake meal and rich cocoanut cake were fed, the object being to increase, if possible, the per cent of fat in the milk.

When a rich cocoanut cake was fed, there was a slight increase in the yield of fat, but it was accompanied by a decrease in the yield of milk, which more than counterbalanced the increase in the yield of fat. The conclusion arrived at, was that there was no advantage in feeding a ration richer in fat.

The same paper gives an account of an interesting experiment along the same lines at the Agricultural Academy at Pappilsdorf.

To a basal ration of hay, straw, malt sprouts, beets and grain, was added first linseed oil, then flax seed to increase the per cent of butter fat. The linseed oil caused a falling off in the appetites of all the cows, and they refused to eat the basal ration up clean. While on the linseed oil, the cows shrank in milk yield, but the milk yield increased when the flax seed was fed. The results of this experiment were considered entirely negative. The oil did not cause any noticeable increase in the fat in the milk, and it acted unfavorably upon the digestion, milk yield and general condition of the cows. The experiments along the same lines in Denmark have led the Danes to the following conclusions:

In the comparative feeding experiments with milch cows, now continued nine consecutive years, in which 2,500 cows divided into 218 lots, on twelve estates in different parts of the country, have been included, it has constantly been found that the changes, made in feeding the different lots, have been practically without effect upon the fat contents of the milk.

FIRST PRINCIPLES OF AGRICULTURE.

The Dairyman has received from the publishers a copy of a book on Agriculture with the above title, by Prof. E. B. Voorhees, director of the N. J. Experiment Station. The book describes, in clear and concise language, the various principles which underlie the science of agriculture. It discusses the soil, manure, crops, animal husbandry, breeding and feeding animals together with the products of the dairy. It is evident, as stated in the preface, that "no attempt has been made to cover the whole field of the various sciences in their relation to agriculture," but a very successful endeavor has been made to state the basic principles of agriculture in such a manner as to enable practical men to apply them in every day work.

We are more than pleased to see that the need for elementary books on agriculture is being met by men so well qualified for the purpose as Prof. Voorhees.

The need for such books is imperative, and the one before us is a most excellent beginning. It is published by Silver, Burdett & Co., Chicago.

EMBALMING MILK.

Salicylic Acid.

Salicylic acid has been, and is now, extensively used to preserve canned and bottled foods. It costs in large amount about 35 cents per pound and a pound will preserve a large amount of food products. It is used in milk, bottled beer, sauces, canned fruits and vegetables and according to the testimony before the pure food commission in Chicago, in almost all articles of food that are preserved in liquids.

It is made from that never ending storehouse of chemicals, coal tar. The direct source of its manufacture being carbolic acid. In the process of manufacture, certain by-products are formed, from which it cannot be completely purified, and these have a decided poisonous action on the human system.

The danger of this artificial salicylic acid is so great that doctors have, in many cases, forbidden the use of it as a medicine. Before the pure food commission, Dr. Pruyn Stringfield, of the Northwestern University Medical School, said:

"Its effect is to stimulate the action of the heart, and within a few minutes a depression of both the heart action and of respiration follows. I have had cases in this city where I believe death was directly traceable to the effect of salicylic acid drunk in beer. It is likely to paralyze the heart."

If an article is too poisonous to be used as a medicine, is it advisable to use it in our daily food?

Some doctors and professors, prejudiced in their judgment by a prospective witness fee, do not hesitate to proclaim it harmless in food, yet will not use it in sickness. Great is the power of the dollar! It will make a scientific man reverse his judgment quicker than an electric current can change its direction. In the meantime those of us who are compelled to take an unknown amount of such drugs daily, and are not being paid for the experiment, are much inclined to put up a decided protest. Also, we are going to continue the protest in the interest of our own drugged and dosed bodies, regardless of the condition, full or empty, of the pocket-books of the food mixer and adulterator.

MORE ABOUT FREEZINE.

A small circular of the Freezine Company has come to hand, and we have been much interested in reading of the wonderful properties of the article, as shown in the circular. It starts out as follows:

WHAT SOURS MILK.

"The souring of milk and cream is due to the action of minute organisms, known as bacteria. We have been experimenting with these bacteria in our laboratory for years, and have been rewarded by discovering a gas, which, when dissolved in a liquid, has the same effect on bacteria as *freezing them does*, and makes them *harmless*. This gas has no bad effects on milk or cream; in fact a chemist *could not find any trace of it if the milk were analyzed*, because the gas evaporates after it has done its work."

It is strange that they should experiment for years to discover what was already known, and concerning which there has been a large amount written in the last eight years.

The gas does make the bacteria harmless, but the process is one of poisoning, not freezing.

The claim that the chemist cannot find it in the milk, is liable to cause heavy fines to the milk man who puts any faith in the above statement and uses Freezine in consequence. Freezine is easily discovered by the chemist as certain Milwaukee milk men know to their cost.

"Freezine is perfectly harmless and is not injurious to the human system, as it freezes the bacteria and evaporates quickly, leaving the milk in a perfectly wholesome condition."

The above is absolutely false, as it does not freeze bacteria nor evaporate from the milk, and is, moreover, a decided poison.

Freezine is sold in quart bottles at $1.00 per bottle. It can be bought, wholesale, for 36 cents per quart. The absolute certainty of the manufacturer that Freezine is a good thing, is easily accounted for by the above prices.

HOW THE NEW HAMPSHIRE DAIRYMEN LOOK AT IT.

The dairymen of New Hamshire are, evidently, thoroughly aroused concerning the inundation of oleomargarine into that state, in an illegal form and color, and the almost criminal laxity which prevails in enforcing the law against illegal sale. They held a meeting at Concord, the state capital, on June the 20th, and it does one good to read the vigorous, independent way the farmers of the old Granite state took up the matter. We take from the New Hamshire *Monitor*, the following extracts from its report of the meeting. The meeting was called to order by N. J. Bachelder, Secretary of the State Board of Agriculture:

Mr. Bachelder called the meeting to order, and explained its purpose to ascertain the sentiment of consumers of dairy products, and of the general public in regard to the enforcement of the state law regarding the sale and use of imitation dairy products. He told of the failure of the Board of Agriculture to secure the conviction of the violators of the law, after their indictment by the grand jury, on account of the objection to "spotters."

Mr. Bachelder concluded by saying, if the dairymen of the state want the law enforced, the State Board of Agriculture will enforce it. He called for suggestions from those present, and invited Prof. Waterhouse, of Durham, president of the Granite State Dairymen's Association, to be the first speaker.

Prof. Waterhouse said it would be a good scheme to remove the beams from our own eyes, before going after the motes in our brothers. He alluded to the adulteration of dairy products, and gave details of recent ice-cream investigations, conducted by him. He insisted that a standard of dairy products should be established, and rigidly maintained. More care must be taken in butter production, or oleomargarine will "take the cake." Better dairy products must be made. The speaker said he could not agree with the principle of laws designed to benefit one class. If a man wanted to eat oleomargarine, he has a right to.

The speaker closed with the prophecy, that this season would witness a milk famine, and high prices of butter.

Charles Y. Knight, of Chicago, secretary of the National Dairy Union, was called upon and heartily greeted. He replied to Mr. Waterhouse, claiming that it was a question of fraud that must be fought, not one of quality. The courts will not prohibit the sale of oleomargarine, but they do prohibit the coloring of oleo to imitate butter. We only seek to legislate against fraud, and the color is the fraud.

W. K. Boardman, former Dairy and Food Commissioner of Iowa, spoke along similar lines. Consumers must be protected against oleomargarine. Take the color out of oleomargarine and it will sell for its true value, about ten cents a pound. Now the poor man is paying two prices for it on account of its color. The speaker told of the successful enforcement of the law in Iowa, where oleomargarine cannot be colored yellow or any shade of yellow. It has to be bleached and "white goods" will not sell.

E. M. Slayton, of Manchester, said: We are here to devise some way to say to the people of the state that we will not allow our law against the sale of oleo to be treated with the same disrespect as the law against the

sale of liquor. You people, most of you grangers, have influence with the politicians. You will be listened to. You represent one of the great producing interests of this state. Whatever you do here to-day will have weight with the grand jurors all over the state. We have got law enough here in New Hampshire. All we want is to enforce it.

Mr. Slayton's remarks aroused great enthusiasm and evidently struck home to the point.

Mr. Converse, of Lyme, was called upon and, in behalf of the 150 patrons of his creamery, said that their unanimous opinion is that the law must be enforced.

W. H. Sisson, of Cornish Flat, said: "Amen" to stopping the sale of oleo as creamery butter at two pounds for a quarter of a dollar. He knew oleo was sold in that way. We will put our butter at any standard required, but we do not want to compete with oleo.

Mr. Waterhouse, some of whose points had been warmly combatted by the previous speakers, explained his position further.

Mr. Cogswell, of Henniker, said his creamery had been doing business 10 or 12 years and its patrons are anxious to have this law enforced. If we can suppress the illegal sale of oleo gilt edged butter will profit thereby.

Mr. Stearns, of Winchester, Mr. Cowern, of Contoocook, and Mr. Gile, of Lebanon, had similiar opinions. Mr. Cowern had not found one farmer who did not favor the law.

Mr. Ash. of Lyman, had a paper signed by the farmers of his town asking for the enforcement of the law. He drew a rather sad picture of the condition of the farmers of the state, and Mr. Ellis confirmed his statements.

County Solicitor George F. Morris Esq., representing the Lisbon Creamery Company, brought up a new phase of the question, that of the prosecuting officer. He told of the difficulties experienced by such officers in the grand jury room and their inability to obtain indictments on "spotter" evidence.

You want to begin with the farmers, the men who are the most interested in this matter, and who form a large proportion of the grand jurors. Let every grange devote one meeting to this subject and educate their members as to the importance of enforcing this law. In the cities the wholesale grocers should take up the matter and prosecutions should be conducted through the regular police force.

Ex-Governor David H. Goodell, of Antrim, said: "This law, like every other law, should be enforced. Any law which pertains to the health and morals of the people, is difficult to enforce. The last legislature, however, took action to secure better juries. We should not be discouraged, but keep on doing our very best to secure the enforcement of the law. Let us be a law abiding people.

Upon reassembling, after dinner, vigorous speeches in favor of the enforcement of the law were made by Messrs. Moffett, of Lisbon, Ellsworth, of Meredith, Martin, of Lebanon, Wells, of Sugar Hill, West, of Chester, Wells and Simpson, of Deerfield, Morse, Fellows and Marshall, of Manchester.

The chair appointed as a committee to draft resolutions George F. Morris, Esq., of Lisbon, and Messrs. Sisson, of Cornish and Stearns, of Winchester.

Charles P. Hoyt, of Sandwich, said that the creamery in his town had to be given up on account of the low prices of butter, largely caused by the sale of oleomargarine.

The committee reported the following resolution, which was unanimously adopted:

At a meeting of delegates from creameries and milk producers throughout the state of New Hampshire, held at Concord, on the 20th day of June, 1899, it was

Resolved—That the secretary of the state board of agriculture, whose duty it is to enforce the oleomargarine law, request the govenor and council to call upon the attorney-general, county solicitors and chiefs of police of each of our cities and towns to enforce the state laws relating to the illegal sale of imitation butter and cheese.

Resolved—That the master of the State Grange be instructed to make the matter of the enforcement of the law a subject of discussion in all of the grange organizations of the state, and

Resolved—That it is the sense of this meeting that the proposed increase in the revenue tax on oleomargarine should be increased from two cents to ten cents per pound and we ask our representatives and senators in Congress to use all honorable efforts for the prompt passage of this law.

Mr. Knight, of Chicago, who spoke at the morning session, was called upon for a longer speech and told at some length of the work of the National Dairymen's Association and its fight against oleomargarine in its own home, Chicago. In spite of the numerous state laws against oleo, its production last year almost doubled, through the aggressive policy of its manufacturers.

There are but fourteen manufacturers of oleo in this country, but they are strong men, Armour, Swift, Hammond. The speaker gave startling statistics as to the output of oleo. In ten months Chicago sent out enough oleo to fill a train of cars fourteen miles long.

In looking about for a remedy we have hit upon the plan of increasing the internal revenue tax upon oleo. The farmers control their congressmen and they elect enough of them to put through any desired legislation.

Constant Access to Water.

A continental experiment in watering cows, shows that dairy cattle always in their stable, gave much better results when allowed constant access to water than when allowed a drink only twice a day. It was found that the milk yield increased, and no decrease of fat content occurred. The daily increase of milk was small, but, as estimated, it would improve the yield 40 gallons per cow per year. A noticeable feature of the experiment is that the cows drank a little less when permitted to drink at will than when furnished water twice a day. By drinking often there was less chilling of the stomach than where water had to be taken twice a day, and each time in large quantities. The digestion was improved, as with each small draught of water some gastric juice was secreted, which was not the case to the same extent where large draughts of cold water had to be taken.—*Farm & Home*, England.

Creamery Cesspools.

ED. HOARD'S DAIRYMAN:—Can you give me any information as to the use of cesspools for disposing of the creamery sewerage? Do they usually give satisfaction, and how should they be constructed? J. H.

Pilot Grove, Minn.

Unless great care is taken in the building, a cesspool will be the source of much trouble to the dairyman. As usually constructed, they are a hole in the ground near the factory, filled with stone and covered with boards. Into this hole, by an open drain, is lead all the drainings of the factory.

As the cesspool is dug without regard to the nature of the soil, it is usually filled with a putrefying mass, the source of many troubles to the dairyman, in the shape of gassy cheese and off-flavored butter. Unfortunately, drainage is the last thing considered in the erection of a factory, and a cheap makeshift is made to do the work.

If possible, the drainage should be discharged into running water, but, if this is not possible, see that the cesspool is put in a place some distance from the factory, the farther the better, and the drain connecting it with the factory is made of glazed tile with tight joints, so that it can be flushed and cleaned when necessary. The hole should be dug in gravel or coarse sand and filled with rough stone, so as to expose as much surface as possible to the action of the air.

If the cesspool is made in clay soil, there is no drainage and the hole soon overflows and forms a nuisance. Even in the best of soils, the sides of the cesspool will, after a time, become coated with a slime that will prevent the sewage from filtering into the soil, and it must be then either cleaned out or a new one dug.

The success of such drainage methods depends on the nature of the soil in which they are dug and the care which is taken of them.

This means care and some expense, but it is cheaper to supply the drainage than to lose several cents per pound on a batch of butter several times in the course of a year.

Judging the Cows.

ED. HOARD'S DAIRYMAN:—On page 370 you refer to us eight to one, as being mistaken. I do not understand the case. The question was, which is the better cow, and not which has given more milk and butter. The latter question enters into the calculation only so far as it indicates what they will probably do in the future. It being the duty of the cow to yield offspring as well as milk, and butter, their character also enters into the calculation.

Now as each has precisely the escutcheon that her form entitles her to, their forms are characteristic, and not artificially modified, and will be largely transmitted to their offspring. As eight out of nine prefer cows built on the plan of Rose, this fact adds materially to her value.

Regarding the past record of these young growing cows, it is probable that the smaller has matured earlier, and already reached her limit, while the larger is the coming cow.

As Gem has bred regularly, there is nothing remarkable about her records, except that they are remarkably good, and as I said in my first reply, the most creditable portion of her performance is in the first part of her period of lactation, for while she gave one-half more in one month than Rose, she gave only one-tenth more in the year.

If I understand correctly, Rose was farrow in 1896, that year being the latter half of a two-year period, and in 1897 there were only ly ten and one-half months between calves, thus shortening the period by six weeks and keeping her almost constantly pregnant. This would not only reduce her yield for that year, but would handicap her for the fore part of the next year. The latter part of the next year, she was favored somewhat by delayed pregnancy, but a bad send off cannot be fully recovered from.

Gem is a brilliant starter. She has made a great start in the beginning of her dairy work, and at the beginning of each lactation period, but Rose is a laster. She has the form of a laster, the escutcheon of a laster, and the records of a laster.

Milk vein development is a result rather than a cause of heavy milking, and is affected by each freshening. Gem has had two more calves than Rose; and a cow that milks very heavily for a comparatively short time will show greater development than one milking more evenly. For examples of this, compare the mammary veins of the two great Holstein cows, America, 97 pounds one day, 17,685 pounds one year, and Belle Sarcastic, 81.9 pounds one day, 21,075 pounds one year. W. C. HUNTINGTON.

Livingston Co., Mich.

BORAX IN MILK.

In case of adulteration tried recently, it was stated by an analyst that he had found no less than 30 grains of boracic acid in a pint of milk, and Dr. Stevenson, who was a witness, said that more than 10 grains of borax a day would be dangerous to a child, by retarding digestion, affecting the heart, and causing skin eruptions. It is presumed that the adulterated milk contained acid equal to 45 grains of borax, so that if a child had a pint of such milk per day, it would consume four-and-a-half times the quantity which, in Dr. Stevenson's opinion, can be taken without absolute danger. It is intolerable that men entirely ignorant of the strength of drugs and their effects should be allowed the uncontrolled use of them in food, sold to the public.—*Dairy World*, England.

Where is the limit to the use of such things? The dairyman doses the milk to keep it sweet on the way to the city; the city wholesaler puts in another lot so it won't spoil on his hands, and the retail dealer makes it still more certain with his remedy. What the result will be, depends on the preservative each one uses. In any case, the danger of the consumer getting an over dose, is very real. But so long as they have saved a little milk from spoiling, the effect on the consumer, infant or invalid, is, of course, a secondary consideration.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

FLY REPELLENTS

I have been hoping to see in your paper some formula for spraying on cattle to kill flies or keep them off and would be glad to hear from you or some of your subscribers, along this line through the "DAIRYMAN".

Quincy, Ill. H. W. S.

You will find two formulas for fly repellents on page 309 of the current volume, and in the last issue a correspondent writes that kerosene put on with a spray pump is very effective. The well known kerosene emulsion is also used to kill flies.

Much of the success with fly repellents, consists in destroying their breeding places. This is especially true with the horn fly that breeds in the droppings of the cattle. If these are covered up or destroyed, many flies are destroyed in embryo and the cattle saved from the plague of future swarms.

LINING FOR BUTTER TUBS.

What is the best for lining wooden kegs to ship butter to the West Indies? What do you think of parchment paper or paraffin wax? What are the objections to paraffin wax, and do you think it would melt?

Monction, N. B. G. R.

There is nothing better than a good quality of thick parchment paper, as a lining for a butter keg or firkin.

Paraffin wax is all right to coat the inside of the keg with and prevent the butter from taking up any flavor from the wood, but parchment paper must be put between the butter and the paraffin, otherwise the butter and paraffin unite and the butter sticks to the side of the keg. The same is true of wax.

CHEESE QUESTIONS—BLOODY MILK.

What causes the "floating curd," and a remedy?

What makes a cow give bloody milk? (The cow gives milk as if a tablespoonful of blood was stirred in a quart of milk). What treatment would you recommend?

What causes leaky cheese? What temperature to put cheese to press? H. M. P.

Kenoma, Mo.

When gassy curds occur it is an evidence that the lactic acid ferment has not developed in the proper manner, and that its place has been taken by gas forming bacteria. The easiest way out, if such milk can be taken in time, is to use sufficient of a good, clean starter which will give the proper ferment a sufficient start to overcome the gas producing bacteria. At the same time, if gassy milk is of common occurrence, we should very decidedly advise the use of the Wisconsin Curd Test, and thus locate the source of the poor milk. However, if the first indication of trouble you have is a floating curd, considerable can be done to improve the cheese, although not a first-class article can be made. When a floating curd is first noticed, cook a little higher and quicker, (sometimes as high as 110° F. may be necessary.)

Draw off the whey and pile the curd in one end of the vat; break up and stir with the hands, and then pile till the pin holes are flattened out. Repeat if necessary.

Bloody milk comes from some injury or inflammation of the udder. Good care and a thorough dose of physic will usually effect a cure.

If the cheese is not cooked enough, the whey that remains in the cheese will sour and cause "leaking".

Too much acid, or curd from which the fat runs, or a draft of dry air across the cheese will cause it to crack.

Put curd to press at between 80 and 85 degrees. If warmer, the fat is liable to run, and if colder, the cheese will not close up.

VALUE OF A MILK BUSINESS.

I would like to know, through your valuable journal, if the milk trade of any of the large cities in the United States are under the control of a syndicate.

What they paid for the right, or any information on the subject.

I send you clippings in reference to a syndicate proposing to buy out the milk route of Toronto. G. K. W.

Toronto, Can.

The proposed syndicates keep all such information very carefully to themselves.

The information contained in the clippings you send, is mostly newspaper wind. Syndicates have been proposed to take over and manage the milk business of nearly every large city of this country; but we cannot find any account of their doing any business as yet. Numerous large milk companies exist in the large cities, but their interests are not in common.

The value of a milk business depends so much on local conditions that it is impossible to give any estimate of its value.

Value of Breeds.

[A lecture by Prof. G. M. Gowell before the Camden Farmers' Insitute, Maine.]

We all start out as crop growers. That is the legitimate work of the farm, the growing of crops from the land and the selling of those crops wherever the most money can be procured for them. It has been the history of all countries, and particularly of New England, that when the land is cleared and made available for the production of crops, for a long period of years the crops are taken off, whether hay, or grain, or potatoes, and sold in these markets which will give to the producers the best returns, without reference to any future condition of the land.

Sooner or later every people have learned that the crops must be consumed on the lands where they are grown in order to maintain the fertility of those lands. There is no other known method by which we can maintain even our present condition, or improve upon it. However much we may object to any system of cattle feeding, we are forced to adopt some line of it. We cannot sell our crops and maintain our present condition, even.

There is a difference in the individual capacity of animals to digest and assimilate food, even though they are bred along the same line, to do the same kind of work. I shall not discuss the question whether we shall feed the hay or grain to dairy cattle for the production of butter or cream, or both, or whether we shall feed it to steers or to sheep. Dairying has become the leading agricultural industry in New England. We have grown into it because it was the better paying industry. But to some people the idea of dairying is not agreeable and they should seek for some other line of work, to which they think themselves better adapted.

We can adopt whatever line of work we feel inclined to, but having adopted it we must aim to have a class of animals that shall have the highest ability to return to us the greatest measure of the nutrients that are in the food. The majority of animals take out about one-fifth of the nutrients in the food and appropriate this to the building up of the carcass, the making of milk or the supplying of muscular energy. The other four-fifths is waste matter, which is voided as the solid or liquid excrements or through the pores of the skin or the exhalations from the lungs. This four-fifths we speak of as wasted, but it is not wasted; it goes back to the land.

Some animals have the ability to take out a much larger measure than others. Perhaps the average animal is capable of taking out seven dollars from each ton of hay. Some very excellent cows are able to take out, perhaps, ten dollars and leave it with the farmer, and we have other cows that will not take out more than four or five dollars, and some that do not leave much of anything for the farmer.

If our animals have good digestive and assimilative organs, that are able to prepare the food and store it up as beef, or milk, mutton, wool, or as muscular energy, they will return to us the highest price. Other animals, with more perfect organs, are able to do less perfect work, and other animals that are weak, lacking in constitution, hard fleshed, hard skinned, leave practically nothing for us; and so we go on year after year and waste much of our labor. I do not know of any line in which the farmer is so negligent as in this.

Now it is of no use for me to tell you how to improve your cattle unless I tell you the reasons for it. Our people are so constituted that they will not do anything unless they understand why they should do it and the way in which this work has been done. Our ancestors, back there in their savagery, in some way secured the first cow, that wild creature that was roaming in the woods, and somehow they milked her, probably they tied her to a stake. This was the first rude lesson the cow received in the process of civilization. Probably she was kept tied to the stake all night, and milked the next day. And so this work went on, the cow coming in touch with man, and man coming in touch with the cow, and the calf she produced coming in contact with the next generation, until the cow became domesticated, and became a co-worker with the farmer. By the aid of careful feeding, by the touch of the men who have had her in subjection, and by selection, this creature has been developed.

After 250 years of work by the English and American breeder, the ideal beef animal has been evolved and she has the ability to extract from the hay, the grains and the roots the largest amount of flesh and store it on her back. She is a flesh making machine; she can do nothing else well. That function has been so completely developed that the other tendencies have become almost completely obscured. She has the ability to place upon her back the food nutrients in the form of beef, but she has not her original abilty to give milk.

It is true that our Herefords, and many of our Short-horns, animals that represent most fully and successfully the type of the beef animal, have the faculty of beef production so fully developed that the function of milk production is almost entirely eliminated. The Englishman in doing his work, selected for his foundation stock the animals that had the thick form and rejected the animals that had the milking form. He selected animals that were thickest over the loins, widest over the rumps, that had the fullest chest, the greatest depth through the heart and shoulders, with short necks, and with round bones well covered.

The maker of the beef breeds early learned that animals that had the ability to make flesh had round bones. In placing your fingers on the body of this creature, it is with difficulty that you find the bones. You find her backbone in a little trench of flesh which comes up even with it; you cannot even discover the joints in it. Place your finger between her ribs, and you will find them near together. Wherever you feel you will find fine bones, covered with flesh. She has a fine chiseled head, and the edges of the ribs are well rounded. The legs are not flat as in the dairy type. The Englishman early learned that he wanted this type of a creature and he made her.

The external form of the creature reflects the ability of the animal to do its work. No cattle feeder will select a hard fleshed steer to feed for three, six or nine months, because he knows that a hard fleshed, hard, thick skinned creature is not thrifty. He seeks for creatures with soft flesh, that when pressed with the fingers will spring back, because in among these lean meat fibers is the water which he wants to replace with fat. He wants a sprightly flesh; and a skin that is thick and yet is soft.

While the Englishman was making the Short-horn cow, and the Dutchman was making the Holstein cow, right over on the island of Jersey they were making something that comes nearer to us, because the Jersey cow is the one we are at work with. You know all about the island of Jersey. It is five by eight miles in size, and the people have been at work there for all of these years, raising vegetables for the English market, particularly potatoes for the London market. You know how they have been doing that work on their naturally strong soil, where they can reach out and get the marine manures, raising potatoes by the trench system, and selling them in the English markets. You know about their small farms, only two or three acres in extent, very few containing seven acres, and each one of these farms supporting a family. They have done this for generations, and are doing it to-day.

Every one of these families had a cow, sometimes two or three of them, and these cows consumed the waste vegetables, the leaves and roots, and the little forage which they raised. There were no fences, they could not afford land for fences, and the cows were tied out to graze, and the women and the children cared for them, leading them out from the hovel each morning, carrying them a pail of water as they needed it, and bringing them back at night. A peg was driven into the ground, and the cow was tied to this and allowed to graze in the standing grass or forage, and after she had fed down all she could reach, the peg was moved a few inches farther, and so on across the field; then she was brought back to the place of beginning, to feed on the young grass that had grown since she first cropped it. The men did not care for the cows. It was the gentle touch of the women, it was the close contact with refinement that made the Jersey cow the sensitive creature she is. I doubt whether the touch of man would ever have done this.

You know very well that forty years ago the people in the state of Maine were engaged in growing steers for beef. We were growing oxen for the Brighton market, to furnish beef for New England. I know how it was in our home neighborhood. Every farm was selling from two to ten oxen each winter, fattened for beef. They had used the Short-horn and the Hereford, and have developed that type of an ox that we find no where else in the country, a cross-bred Hereford and Durham ox, and in this creature they were sending the produce of their farms to market. I do not know that we can do this to-day, but we have had to accept lower prices than they accepted when the Jerseys were first brought to this country. We had here, in Maine, one of the first importations of Jerseys. We were a ship building state. Our ship masters, touching for supplies on the Island of Jersey, early discovered that the Jersey people had a cow that was different from that found any where else. The cream and butter were yellower, the butter was firmer and better. And after a time a few of the creatures found their way here to Maine.

I remember, very well, when Major Howard, of Bath, brought home from Jersey, in one of his vessels, two heifers and a bull, and I remember how our neighbors discussed these creatures, these little Jerseys. They said, "We do not want those Jerseys; what are those little creatures going to do for us? We are growing beef. When we introduce those little creatures into our herds what kind of oxen shall we have? What do we want of them?"

The creatures were condemned, and these people were right, because beef growing was the specialty they were pursuing. They realized that the Jersey blood was so different from the beef blood that its introduction would ruin their work. But the Jerseys found their way on to the farms of Maine, a few in a place, as full-bloods and grades. They were treated in the same way in which the farmers were treating the beef creatures,—turned out into the yards in the cold, winter mornings, and fed on corn fodder or straw, which the farmer gave them before going into the woods, and perhaps they staid there until the boys got home from school, or until the farmer came home at night.

The little Jersey creature, thin skinned, thin haired, and nervous as she was, put out there and roistered around by those great beef steers, grew rather scrawney, and was rightly out of place. But in some way, our mothers got the idea that the milk from these little, diminutive creatures was different from the milk they got from their Short-horn cows.

The butter they made from it was a different kind of butter. They pleaded for the lives of these creatures, and they were given better shelter, better feed, and more gentle care, and from that they have developed into the grand dairy stock which we have in our state to-day. And I feel free in saying, from a close observation, that no state in the country has a better foundation for carrying on this great work of ours, than we have in our grade and pure bred Jerseys. They have developed into what they are.

But there is something required besides the Jersey blood, in the animal with which we shall do our dairy work. When these Jerseys came to the state we awoke to the fact that dairying was going to be the leading line of work. When the price of beef went down and the price of butter went up, every dairyman sought to possess Jersey cows. That was all that seemed to be required,—that his stock be Jersey. Our people realized that the milk of the Jersey cow, and the butter made from it, were different from the milk and butter of any other breeds. People outside got a taste of the butter, and there was a greater demand. The dairy interest has become a prominent one from Maine to Minnesota, and yet, with this wonderful increase in dairying we are not making more butter than our people are eating, we are just beginning to export. The consumption has so increased that the demand has increased with the increase in dairying, and we are not yet able to overstock the market. The dairy cow is yet able to give us more for the food she eats than is the beef steer, or any other class of animals.

We have begun to make some investigations regarding the receipts of farmers during the last few years, particularly with reference to our dairy concerns, and we have found by asking the creamery operators to return to us the number of farmers furnishing them cream and the amount of money paid to their patrons, that out of 60 creameries one has returned $60 as the amount paid for each cow furnishing milk or cream for the year. This was a large return, it was exceptional. A few creameries have paid the farmers $50 per cow, an average for all the cows furnishing milk or cream for the year; quite a number have paid $40, a good many $30, and some as low as $20. What is the matter?

We realized that we wanted the Jersey cow, because only through the Jersey and Guernsey could we get butter of this high quality sufficient to supply this great demand that has been created, and sufficiently good to give us the high price we desired. So anxious were we to develop our work, so anxious was everybody to engage in it, that every heifer calf has been raised.

We have not pursued the course that the Englishman, the Dutchman and the Jerseyman pursued. We have not selected the best and rejected the poorest, but we have gone on and raised every heifer calf from the first. I do not think that I have ever known of a breeder killing a Jersey heifer because it was not good enough to raise. We have raised the good ones, and we have raised the poor ones. The good ones have given us the high returns. The poor ones are largely responsible for the low prices we are receiving for our hay and grain when fed.

I want to illustrate this: In this cow on the chart, we have the Jersey Belle of Scituate, a good cow, not the best. She made, for five months, nineteen pounds of butter a week.

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Your human tenement should be given even more careful attention than the house you live in. Set it in order by thoroughly renovating your whole system through blood made pure by taking Hood's Sarsaparilla. Then every organ will act promptly and regularly.

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Perhaps you never saw it. A Fastener **entirely new**; suitable for all creamery packages, egg cases, and all light boxes. Patented May 2, 1899. Send for circulars and samples.
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CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

We have others that have given us more, but we have none that illustrates better than she what a good cow is. Let us look at her form. You will notice that her fore quarters are much lighter than her hind quarters, that she has no great depth in the shoulders. You find that she has an immense depth through the loins, through the flank; she has an immense development of the hind quarter; she is broad over the loins, broad over the rump.

That great depth there gives a chance for storage of large organs of milk production and reproduction. Notice her neck. It is not a fine, narrow neck; it is not the rounded neck of the beef type, but it is a neck somewhat wide on top and widening down to the neck vein. Notice the head, the dished face, the great depth of jowl, the great depth across the eyes, the length of the face from the eyes to the muzzle.

She has a large barrel where she can carry large quantities of food; a large udder, long lines of connection with the body, in front, behind and up the sides; a great laboratory where she manufactures the blood into milk. Notice the upheadedness, the courage, the strength. She gives evidences that she has the ability to work. That is the kind of a creature we should aim to produce.

Some on said the other day: "That is the kind of cow the farmer can just as well have as not; and why don't they all have that kind?" That is all nonsense. We shall not live to see all the cows brought up to that standard. We shall not live long enough to perfect all cows perfect as she is perfected. But we can *make* some improvement.

I now wish to call attention to the other cow on the chart. She is a thoroughbred Jersey, registered in the American Jersey Cattle Club. She makes yellow butter, firm butter; but she shows at once to you that she is lacking in physical capacity. She is lackin in strength, she is lacking in the ability to perform. She is peaked behind and in front, narrow at the chest, long and thin in the neck, narrow through the heart, with small contracted lungs. I said that we wanted a long neck in the dairy animal and a short neck in the beef animal. This is true, but we do not want the neck too long. This neck is long and thin; it is not connected closely with the skull, which indicates weakness. The head is long and the jowl narrow across the base. She is narrow over the loins, her organs of reproduction and milk production are restricted. She has a small barrel, her thighs are near together, and she has a comparatively small udder, with a short line of attachment in front, and teats close together. Her legs are too small and fine. She shows us that she has not the ability to work.

The well-made dairy cow, the cow through which the farmers of Maine are to market their produce, should be a creature that will eat a reasonable quantity of food and assimilate it, and continue to do that work for a great length of time. We give our cows about twenty pounds of hay and about five to ten pounds of grain, with silage and roots, and we expect a cow of the type of Jersey Belle of Scituate to do work, and give us good blood and milk for a dozen or fifteen years. She is strongly made; she does it and will do it.

But if you attempt to give this other animal the normal ration, for a time she will consume it, but after awhile you find part of the hay or grain left in the manger. She has rejected it, she is "off her feed," you say. I know nothing more annoying than this. She does not take it because she has not the power to eat, digest and assimilate it. You find her udder out of condition, you find one quarter of it inactive. It is very annoying to try to run this weak machine. And after you have coddled her and nursed her along all this time, you find that she has only given you a small price, per ton, for the hay you tried to market through her.

Now had the weak calves been rejected, we should not have had so many weak cows, but cows of a higher quality.

I wonder if you have thought what this matter of constitution means? We must have it in our beef type. We carry the beef animal only from two to four years, but we expect that creature to stand high feeding that length of time, and must have a strong constitution. It is not something that is fed into an animal, or that is put into her by care; it is born into the animal. This cow (Jersey Belle of Scituate) was born with a strong constitution; but this other animal, no matter how good care she might have had, would never have developed, because she was born a weakling.

The matter of cross breeding is constantly coming up for discussion. Some one will say, "what do you think about crossing my Jersey cows with Holsteins?" I want to get a little more milk than the Jersey cow is giving, and I think I could cross her with a Holstein." Or, just now, the question might be in regard to the Short-horn. There is a call all around for an animal that will grow good steers, and give a large quantity of milk, and the people that attempt to combine beef breed and the milking breeds, are not going to be satisfied, unless they get a cow that will give all the milk possible, for a cow to give, and make the best beef, and all the beef possible. They expect to get a cross that will do all the work in both directions. But can we take the beef and the milking breeds, and cross them to advantage?

This creature that produces milk, has been bred for that for 200 years. She has been bred not to make flesh. The beef animal has been bred to make beef for all these years and do nothing else. The ability to make milk has been almost entirely eliminated. Now you are proposing to take these two creatures, whose tendencies are just opposite, and produce a cow in which you will unite them. You want to combine the qualities of those two creatures, and get an animal just half way between. You cannot do it, but we will suppose you could. What is going to be the result?

The Jersey has the ability to get the greatest number of dollars out of the hay you give her, in the form of butter. The Short-horn has the ability to get the greatest number of dollars in the form of beef. When you put them together you make an imperfect creature. You have introduced into the beef creature the milk producing tendency, and it cannot make beef to advantage.

On the other hand, it cannot make milk to advantage, because you have introduced the tendency to flesh production. When you feed the cow for beef, she will make more milk; she is annoying you because she is putting it into milk. When you feed her to make milk, instead of giving more milk she fattens up, and is unsatisfactory.

There is so much antagonism between blood elements, that are dissimilar and unrelated, that they do not unite well and evenly. They are apt to diverge. It is the hardest thing in the world to get two animals of opposite tendencies to unite their blood elements. You cannot have them divided just evenly. They are apt to side over towards the dairy animal, and give you dairy animals with beef indications but slightly developed, and with milking organs impaired, or they will go towards the beef animal, and give you an inferior beef animal with small tendencies to produce milk. I would not cross breed.

I certainly would object to throwing away the work that has been done. What does it mean when you take your pure bred Holstein, and your pure bred beef animal, and breed them together? You throw away 200 years of work that has been done in one direction, and propose to start over. This work is too valuable, life is too short for us to ignore it. We have animals that are good enough in any of the breeds, and our work is by selection, care and handling to make these breeds better. Take cows like Jersey Bell of Scituate, or the Holstein cow Aaggie, and make selections, and keep within the breed, watching where you can select and make the best of them.

Skim Milk for Calves.

Many points will have to be briefly noticed to understand the essential changes that take place from the time the milk is drawn from the cow until the cream is separated from it. Separator skim milk makes the best feed for any growing animal, outside of the whole milk, and we are nearly convinced that after the young animal is a week or two old and the skim milk is fed warm, with the animal heat still in it, it gives equally as good results as the whole milk, especially where a small quantity of oil meal is fed in it. I want to be understood that it is only where the milk is separated directly from the cow, with all the animal heat yet in it, that such results are to be secured. Where the animal heat is allowed to escape and the milk is reheated, a large per cent of its value as a feed has left it. Of course, none of its elemental value has left it, yet we regard the animal heat, with its gases still in it, of essential worth and of great importance in digestive value. When cold and reheated the animal must necessarily furnish the gases, before digestion can begin, hence calves do not grow with the vigor and healthful degree of rapidity that they do on the fresh, warm skim milk.

The next best class of skim milk comes through the deep setting process of Cooley system, where the separation occurs, when submerged in cold or ice-water, taking from 12 to 24 hours. The skim milk is always in its greatest purity when kept cold, and will keep fresh longer after drawn from the cans, to be reheated, than by any other process we know of. Yet the same difficulty must be met in the reheating of this milk as in cold separator milk, though we have secured fair results from the deep setting plan.

Then comes the creamery separator milk, which we have never felt like praising very highly during summer months. Too many opportunities are afforded milk, taken to creameries but once each day, to become inoculated with the most undesirable kinds of fermentive bacteria, which greatly injures the feeding value of it when returned to the farmer. The reheating process, especially of the evening's milking, starts bacterial activity which carries the same process into the morning's milk, resulting in the souring of the whole mass, or if not entirely sour, brings it to that point when again reheated, and causes the cheesy separation that Mr. Porter mentions, which is so undesirable.

We have tried sterilizing the skim milk at the factory, but frequently found that overheating produced a separation of the curd and whey, making it unfit for calves; consequently we had to go back to using the Cooley and sending nearly pure cream to the factory so as to have skim milk fit for our calves.

Our experience is that summer skim milk from the factory is not fit for calves, at least after the morning's feed. When we have used our own skim milk from the Cooley we never have any trouble from the disease. We are sure that continued use of factory milk will vitiate any calf's stomach and destroy proper digestion.

In conclusion we would encourage Mr. Porter and any others similarly situated, to purchase a separator and feed the skim milk direct from the separation and place the cream at the factory as per butter fat test. On the other hand we see that there is profit in the departure, from the saving of butter fat over the processes of separation and nearly the doubling of feeding value from the skim milk. We appreciate the fact that separators are expensive, but they have come to stay; their increased use is apparent on every side, and they will continue to increase as farmers come to realize their advantage — GEO. E. SCOTT, in *Ohio Farmer*.

BACTERIA, in one sense, resembles a mortgage, they work day and night but not always for the farmer's benefit. They are just as likely to pile up interest against him as for him and will do so unless he has made suitable provison beforehand to destroy his enemies and keep hisfriends under control.

BILIOUSNESS

Do you get up with a headache?
Is there a bad taste in your mouth?
Then you have a poor appetite and a weak digestion. You are frequently dizzy, always feel dull and drowsy. You have cold hands and feet. You get but little benefit from your food. You have no ambition to work and the sharp pains of neuralgia dart through your body.
What is the cause of all this trouble?
Constipated bowels.

Ayer's PILLS

will give you prompt relief and certain cure.

Keep Your Blood Pure.

If you have neglected your case a long time, you had better take

Ayer's Sarsaparilla

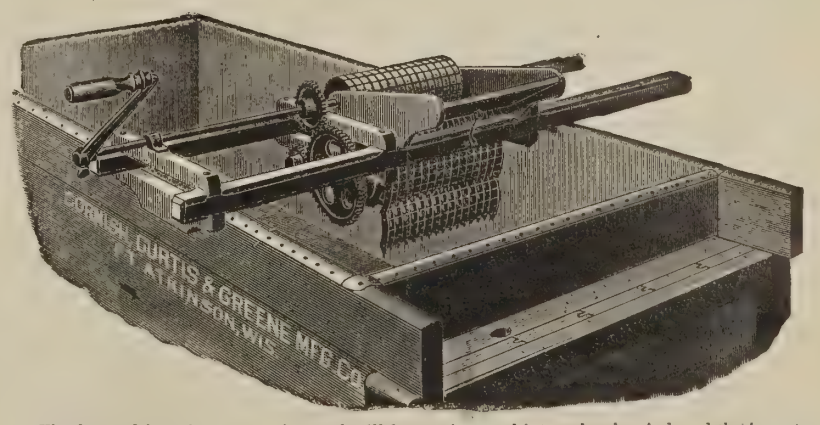
also. It will remove all impurities that have been accumulating in your blood and will greatly strengthen your nerves.

Write the Doctor.

There may be something about your case you do not quite understand. Write the doctor freely: tell him how you are suffering. You will promptly receive the best medical advice. Address,
Dr. J. C. Ayer, Lowell, Mass.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.
Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.
Agents for DE LAVAL ALPHA SEPARATORS.

The Delaware County Dairy Association.

ED. HOARD'S DAIRYMAN:—A meeting of the Delaware County Dairy Association was held at Andes, New York, June 22nd. The representative farmers of Delaware County were in attendance, and discussed some important topics of interest to farmers. The president, Mr. R. Garrison, made the opening address in the morning. Some time was then given to the discussion of the financial condition of the society, and the appointment of committes. The president said that many members neglected to pay the annual fee, and the funds were not adequate for the needs of the society.

After some discussion of plans for collecting fees, the following was adopted: The secretary is to be provided with cards for holding coins. These, with envelopes for returning them, are sent to the delinquent members. These remind him about his fee, and furnish him a convenient way of remitting.

Mr. Elliott Graham, of Andes, New York, was the first speaker. His subject was, "To What Extent Can Sheep be Profitably Kept in Connection With the Dairy." He said that he had always kept sheep on his farm, and had made them profitable. Only a few sheep should be kept in the same pasture with cows. Too many will injure the pasture for the cows. On a pasture that will keep thirty cows, I think ten sheep could be kept without loss to the cows. If the fences are not good, you may have trouble with the sheep, and would not want to keep them on such a farm, unless you had good neighbors, for they will generally find the best feed in the neighborhood. You can, however, confine sheep with a fence made of six wires.

One good use of sheep is to kill weeds. If you have a field that is very weedy, build such a fence around it, and put so many sheep in it, and they will eat the feed down very close, and you may feed them a little grain if the pasture is not sufficient for them. Whether or not it will pay to keep many sheep, will depend on the condition of the farm and the help you have. If a part of the farm is rough, and not easily tilled, and there is not sufficient help to care for a large dairy, it may be profitable to keep more sheep, and less cows.

On a farm adapted to dairy farming, and with the help on the farm to care for the cows, I think the cows the most profitable. If many sheep are kept, they should be yarded, except when on the pasture, as they will injure the meadows, if given the range of the farm. I feed some ensilage to the sheep in the winter, for I think they need succulent food. I think the best time to have the lambs come, is just before grass.

Mr. John Dickson, of Andes, New York, was the next speaker on the subject of the "Profitable Use of Agricultural Machinery." He said, I do the most of my work by machinery, and I think it pays me. All farmers do not make machinery pay, because they do not keep it in order, and do not put their ground in suitable condition for using it. If a farmer uses machinery on rough and unsuitable land, it will cost him more to keep it in order than it is worth to him.

Questions—On a small farm would it be more profitable to buy machinery to do the work, than to hire the extra help needed to do it?

This depends on how cheap help can be hired, whether help can be got any time when wanted, and on the man who runs the machinery. A careful man will keep a machine, used on suitable land, in good order for many years, with only a small expense for repairs.

Would it be cheaper to hire some one owning machinery to do your work than to buy the machinery, keep it in repair, and provide a building in which to store it?

I do not think so, except on the very small farms. Unless a man owns machinery, he cannot depend on getting work done when it needs doing.

Can the average farmer in this county afford to use such expensive machinery as the hay loaders and grain binders?

The hay loaders do not work well, except on smooth, level land; with such land and a large haying to do, I think the loader would pay. The binders pay on large farms; on the small farm would hire a binder to do the work.

Mr. Wm. Hymers, of Delancy, N. Y., spoke of the change that had been made in farming by the invention of labor-saving farm implements. No one now would think it hardly possible to go back to the old way of doing farm work.

Mr. N. Jenkins, of Walton, N. Y., next read a paper on "Small Fruits and the Farm Garden." Mr. Jenkins has had considerable experience in farm gardening in connection with dairy farming.

To show how that with a near-by market for truck and with little help except the force required to run the dairy, it sometimes pays to cultivate a large garden by the use of the best labor-saving implements, using horse power to do most of the work, a large supply can be cheaply grown for market and home use, I will give quite a full extract of his paper:

"In the farm garden intelligent planning is needed for success. Study the best methods, and make the plan for the garden early in the spring. Order seeds in February, so as to have seeds ready for sowing the hot-bed, or in the house. It is poor economy to buy at the village store. Better ask several reliable seedsmen to send you their wholesale catalogue. Get some of your neighbors to combine their order with yours; order in quanties, and have the seeds come by freight. First in value in the farm garden, I think are peas. The area given to them should be liberal.

Be sure to plant several varieties. The extra early, the medium, and the late peas. Peas are easily grown. Plow furrows three and one-half feet apart, five inches deep, and drop the peas quite thickly. Cover about two inches deep, and when the peas are six inches high, draw more soil around them. The ground for peas should not be too heavily dressed with stable manure, or they will run too much to vine, and there will be less peas. Beans should be planted in plenty and variety.

In the winter when you are getting the year's supply of wood, is the time to provide brush for the peas, and poles for the running beans. Peas and beans are the best of food, rich in protein, and help to balance the ration for the farmer's family.

Sweet corn is another vegetable that can be had in large supply with but little labor. Varieties can be selected which will afford a continuous supply from mid-summer until late fall. Peas, beans and sweet corn I consider the staple crops in the farmer's garden. If one prefers, all these may be planted with the one horse corn planter and fertilizer drilled in at the same time.

The planting and cultivation being done by horse power, they are so cheaply grown, that the busy farmer can grow them in large quantities for home use, or for market. They are easily canned, and may be eaten the year round, and cheaply furnish the farmer's table with many good meals. The other garden vegetables require more work, and can be grown according to the time the farmer has at his disposal.

I wish to urge the farmer to do away with the little square garden plot, where everything is done with the hoe, and stretch it out to a good length. Plant everything in straight rows, and far enough apart for horse cultivation. Purchase a combined seed drill and wheel hoe, and you will be surprised at the amount of work you can do in a few hours, both in sowing seeds and cultivating the plants.

The farmer loses much who neglects the supply of small fruits. I am not the one who will tell you that they are as easily grown as corn and potatoes. It requires some work, and a knowledge of methods of culture to grow them well, but they are worth all they cost. I think it possible for farmers to have some product of the garden for the 1095 times during the year when the farmer's wife must solve the ever recuring problem, of what shall she get to eat.

Some time was given to the question box, and the following were asked and answered:

Is it good economy to build a round barn?

J. W. McArthur.—When you leave the square and approach the circle, you get more space for the material used.

I have a round barn. The bay for hay is in the middle, and the drive way is around the outside. The cows in the basement are arranged in a circle around the outside. The drive way on the second floor is used for storing wagons, and agricultural machinery.

Does it pay to feed grain when the cows have good pasture? Not when in full feed.

How can we get rid of the Orange hop weed? Grazing will not keep it down, the field must be cultivated until it is destroyed.

How can the hired man best gain the respect and confidence of his employer?

Mr. Grant.—One way is for him to be kind to all the animals, and especially to the farm team.

Why is buckwheat not a good feed for the dairy cow?

Mr. Grant.—I have fed buckwheat to cows, and when feeding it the butter will not gather I cannot tell why.

Mr. Hymers.—I have some experience in feeding green buckwheat straw when it did not fill well. It certainly increased the quantity of butter, and the quality was good.

Can butter be made cheaper in the butter factory than at home?

Mr. Mable.—If you have the help in your own family, make the butter at home. If you must hire it made, it is cheaper to have it made at the factory. Factory butter is more uniform in quality, and will sell for a higher price.

W. J.

Delaware Co. N. Y.

The Effect of Good Stabling.

[By J. S. WOODWARD, Lockport, N. Y.]

In a perfect stable with all the conditions just right, about 18 pounds of good mixed hay a day will be used by a 1,000-pound cow to simply exist. If no food is given beyond this, no production of milk can take place except at the expense of the cow's condition. Dr. Lehman made some very instructive experiments as recorded by Prof. Henry in his very excellent work, "Feeds and Feeding," in which a flood of light is thrown on this question of feeding cows. He shows that the same cow that was kept in the pink of condition on 18 pounds of dry matter in hay, ate all the way up to 25 pounds as she was placed in less favored conditions. That when turned out for a couple of hours each day, as cows are usually treated, she ate 21 pounds with no gain of milk production. He then continued to show the cost of milk production in food beyond this point. His experiments were so instructive that I compile and include the following table:

HOW KEPT.	Dry matter eaten.	Protein.	Carbo-hydrates.	Fat.	Nutritive ratio.	Milk Produced.	Lbs. of food for one lb. of milk.
	lbs.	lbs.	lbs.	lbs.		lbs.	
In warm stable	18	0.7	8.0	0.1	1:11		
In cold stable	25	0.9	12.7	0.6	1:14.7		
In warm stable; out two hours each day	21	0.9	12	0.2	1:11.6		
In warm stable; out two hours each day	25	1.6	10	0.3	1:6.7	11	2.27
In warm stable; out two hours each day	27	2.0	11	0.4	1:6	16.6	1.63
In warm stable; out two hours each day	29	2.5	13	0.5	1:5.7	22	1.32
In warm stable; out two hours each day	32	2.3	13	0.8	1:4.5	27.5	1.16

By this table we see that when eating 25 lbs. dry matter in the cold, no milk resulted, and the same when eating the 18 and 21 lbs. under more favorable conditions, so that in each case, the food eaten was entirely wasted so far as production of milk was concerned. That when eating the 25 pounds of dry matter, under ordinary conditions, 11 pounds of milk was made at an expense of 2.27 pounds of dry matter for each pound.

But as the ration was increased for each two pounds of dry matter, the increase of milk was about 5.6, and at a gradual reduction in the amount of dry matter, until when eating 32 pounds, it only took 1.16 of dry matter to produce a pound of milk.

The conclusions of the above turns a bright light on one grave mistake often made, that of deficient feeding.

A bright, clear headed man will look into this question, and will see that the milk costing the least is produced when the cow is fed an *abundant* ration, properly balanced. We have often heard farmers remark concerning a neighbor who was a liberal feeder: "Yes, I know he gets lots of milk, but it costs him all it is worth in feed."

By the above, it will be seen that it took just about half the food to produce a pound of milk when the cow was fed 32 pounds of dry matter that it did when she was fed 25 pounds, conditions being the same. Many feed their cows only about enough to maintain life. They get but little milk, and what they get costs high.

The Drouth and Its Probable Effects.

ED. HOARD'S DAIRYMAN:—Hardly more than once in a generation do we have so wide-spread and severe a drouth, so early in the season and long continued, as is being experienced this year. It is affecting nearly all of New England, New York and some of the other states in a greater or less degree.

It commenced early in the season, as we did not here get our usual spring rains, and have had but a comparatively small amount up to the present time, June 25th.

The effects are being very severely felt in some portions of the terriotory mentioned. From all around come reports of a short hay crop; in many places not more than half of the usual yield will be secured. This appears to be a foregone conclusion. Plentiful rains now would greatly benefit other crops, including pastures, but will be too late to help the mowing fields. They would, however, be of much use in starting up a second crop of grass and in replenishing the failing sources of water supply.

The dry spring enabled farmers to put their seed into the ground in the best manner, and with suitable cultivation the best has been done that could be under the circumstances to insure satisfactory crops at harvest time. This is our part of the work, and we must then trust in an over-ruling Providence for the rest, the sunshine and rains and conditions favorable for plant growth. But we have the promise of the "early and later rains," so then let us work in hope and wait.

In northern Vermont, crops, with perhaps the exception of hay, have done better than could have been expected, and if we are favored with seasonable rains for the next two months, the outcome must be fairly good, at least.

In one respect the farmers throughout this part of the country, where the drouth is prevailing, have reason to be grateful, and that is the large amount of old hay that is being carried over. This will help to supply the demands of trade and save many farmers from having to dispose of valuble stock at a sacrifice for want of forage to keep them. To me it seems poor policy for a farmer to feed out all of his hay from year to year, thus making trouble for him when there is a short crop. Far better to have a little left over for such a time.

Of course, farmers have been careful to secure their hay in the best possible condition, and have been doing all they can with the other crops to help make up for the deficiency, but thus far it has been too dry to expect much from late seedings of any kind. I hope ere this article finds its place in the DAIRYMAN there will have been a change for the better.

The pastures have been fairly good and cows thus far have done remarkably well, the yield of milk and butter being more than the average. This must be owing in part to better methods in caring for the dairy the past winter, the good effects of which are being felt even now. But the yield of milk is beginning to decrease, as should be expected this season of the year, and during July and August farmers will do well to take a little extra care of their cows, for these are usually trying months for them, and with present prices for milk and butter, and which from present indications, must continue, it will be found to pay.

The Franklin County Creamery Association made the hearts of its hundreds of patrons glad with the very liberal payment for May milk. A large sum of money was distributed among them at this time, and if this liberal policy—owing in part to improved methods in the business—can be maintained through the season, it will be one of the most convincing arguments in favor of the creamery management.

On account of the short hay crop, we can

hardly expect so brisk a demand and satisfactory prices for cattle as was the case a year ago, but as so large a number have already been disposed of, there may be no difficulty in getting rid of such surplus stock as may be on hand. E. R. TOWLE.

Franklin Co., Vt.

A New York Herd Record.

ED. HOARD'S DAIRYMAN:—I enclose a few figures from my herd of Holstein cattle. They were not forced, but had good liberal feed. Had no ensilage this year, or could have done better.

ELWOOD STOCK FAKM.

Calved.	*Age.*	*Babcock Test.*	*1 day.*	*30 days.*	*60 days.*
Dec.	5	3.8	58	1606	3077
Dec.	7	4	57	1572	3056
Dec.	6	3.4	55	1575	3065
Jan.	5	3.6	58	1587	3090
Mch.	3	3.2	60	1615	3001
Mch.	3	3.4	52	1358	2672
Apr.	3	3.4	58	1603	2960
Apr.	4	3.2	50	1309	2601
Apr.	3	3.0	56	1450	2791
Apr.	4	3.3	53	1364	2702
Apr.	6	3.2	56	1562	3041

The four cows in brackets ate fifty pounds bran per day, which cost 40 cents, also twenty pounds clover hay each, cost $4.00 per ton, and what corn fodder they would eat clean.

I produced milk at less than 30 cents per 100 pounds; all high grade and full blood Holsteins. I recently drew 1,067 pounds milk in one day from twenty cows, and nine two-year-old heifers. No grain feed after turning to grass, and three cows being fresh in December. Average tests of entire dairy by state milk inspector in May, 3.4.

Jefferson Co., N. Y. GEO. T. MCNEIL.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of trade was unusually light, aggregating but 8,520 pounds. All bids were at 18c and 1,560 sold at that figure, 1,860 pounds remained unsold, with 18c bid.

The only sale reported was Keystone 1,560 lbs. at 18c.

The sales for the corresponding week of the three preceding years were as follows:

July 2, '98, 26,100 lbs. of butter sold at 16c.
July 3, '97, 40,980 lbs. of butter sold at 14½c.
July 6, '96, 36,840 lbs. of butter sold at 15c.

Elgin, Ill., July 3, 1899. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., July 3—Butter—142 tubs offered; 26 tubs sold; quiet at 18c.

CHICAGO, Ill., July 3—Butter—Creamery, extra 18c; firsts, creameries, 16½@17c; seconds 13½@14c; dairies, selections, 15@15½c; No. 1, 14c; No. 2, 12@13c; extra ladles, 12½@13c; packing stock, fresh, 12c.

Eggs—Fresh, at mark, cases returned, sold at 11@11½c; loss off, cases returned, 12½c.

Cheese—Full cream, Twins, new good to choice, 8½@8¾c; Young America, 8⅝@9c; Swiss, 11@13½c; Limburger, 7@8c; Bricks, 7½@8¼c.

Cattle—The market was active and prices were fully 10@15c higher. Exporters had to pay as high as 5.65. Distillery cattle, 1,170@1,377 lbs. sold at 5.35@5.45. Corn-fed Westerns, 5.25@5.65. The 1,518-lb. average cattle at 6 were the highest since March 20, when fancy Texas cattle sold here at 6. In February choice native cattle sold at 6.10. The bulk of the beef cattle sold at 5.25@5.50, or the highest of the year. Cows and mixed lots sold readily at strong to 10c advance. Stockers and feeders ruled dull, some 1,199@1,268-lb distillery bulls sold at 4.35@4.50.

MILWAUKEE, Wis., July 3—Butter—Creamery, fancy prints per lb, 18c; extras, 17½@18c; firsts, 16@17c; seconds, 14@15c; imitations, 14@15c. Dairy selection per lb 14@15c; lines, 12@13c. Market active; receipts 15,860 lbs and quickly taken by shippers, storage men and consumers.

Cheese—American Full Cream—New choice to fancy 8@9c. Brick—New per lb. choice, 8@8¼c. Limburger—New, choice per lb 7½@8c. Swiss—Drum, choice, 12½@13c; new block, choice, 10@10½c.

Eggs—Fresh per doz 12c, loss, off cases returned. Market firm and wants exceed the receipts, which are 321 cases.

AVOCA, Wis., July 3—Offerings on the Dairy board to-day were 1,539 boxes; market firm at 8@8⅛c for Twins, 8¼@8½c for Daisies, 7⅞c for Cheddars; all sold.

PLYMOUTH, Wis., July 3—Sales to-day 1,250 Twins at 8c; 75 Americas at 8¼c; 720 Americas at 8⅜c, and 240 at 8½c.

FOND DU LAC, Wis., July 3—Offerings 647 Twins and 750 Daisies.; market active at 8½c for Twins and 8¾c for Daisies.

MANITOWOC, Wis., June 28—Offers of cheese at Dairy Board to-day were 600 boxes Daisies, 100 boxes Twins, 800 boxes Young Americas. All Daisies and Twins sold at 8c, 338 boxes Young Americas at 8¼c and 462 at 8½c.

SHEBOYGAN FALLS, Wis., June 28—Sixteen factories offered 1,324 boxes of cheese on the call board to-day, and all were sold as follows: 293 cases Young Americas at 8⅝c; 509 at 8½c; 131 Twins at 8⅝c; 191 at 8½c; 30 at 8⅜c; 170 Daisies at 8¾c.

PLYMOUTH, Wis., June 27—Sales to-day 1,150 Twins 8¼c; 920 America 8¾c; market active.

CHILTON, Wis., June 28—The sales reported were 350 Twins at 8c, and 500 cases Young Americas at 8¼c,

BRILLION, Wis., June 23—Sales of cheese on the Brillion board 1,241 Daisies 949 Twins 8c, 365 Young Americas 8¼c.

SEYMOUR, Wis., June 27—On the dairy board there were 640 boxes Twins sold at 8c and 150 Daisies at 8¼c. Market active.

LITTLE FALLS, N. Y., June 26—This market is in just about the same position it was last week. Small cheese is firm at 7¾c, which is the uniform price for about all the sales. They are sold off on the average to June 10. The yield of milk keeps well up, feed being excellent and flies are not as yet giving any trouble. Buyers are filling some orders, but the bulk of the small stock bought doubtless goes into storage. The sales are: 89 lots, 6,449 boxes at 7¾@8c.

Butter—Sales of 37 packages dairy butter were made at 15@17c, the ruling price being 16c.

UTICA, N. Y., June 26—Notwithstanding the firm tone of the northern markets last week, nearly 4,000 boxes of large colored cheese were reported to have been sold at 7⅞c. A considerable proportion of large colored, however, sold at last week's ruling, 8c, and this was the ruling figure of the day, all grades being taken into consideration. The sales aggregated 141 lots, 10,093 boxes at 7⅞@8¼c.

The transactions on June 28, 1897, were 9,790 boxes, with 7⅜c the ruling price. The transactions on June 27, 1898, were 7,233 boxes with 7¼c as the ruling price.

There were no sales of butter officially reported. Outside the board, however, there were sales of 115 packages at a range of from 17@17½c, the bulk at the latter figure. There was a rumor that 18c was paid for a few very fancy lots.

OGDENSBURG, N. Y., June 26—On the street Saturday 1,335 boxes of cheese were sold at from 8½@8 9-16c; the bulk at the former figure.

CANTON, N. Y., June 26—On the board Saturday 2,332 boxes of cheese were offered. These were eventually sold at 8⅜c. There were 1,342 tubs of butter sold at 18c.

FULTON, N. Y., June 26—On the board to-day 19 factories were represented with 163 boxes of cheese. These were sold at 8c for large and 8¼c for small. No butter was offered.

BOONEVILLE, N. Y., June 23—The market to-day was firm. The sales were about 800 boxes of colored at 7⅞c, one lot at 8c and two large white at 8c. There were 250 boxes of small colored sold at 8⅛c.

WATERTOWN, N. Y., June 26—The total transaction were probably fully 7,000 boxes, of which 2,790 were sold at 8½c, 1,200 at 8⅜c, and the balance at from 8@8¼.

PHILADELPHIA, Pa., July 3—Butter—Receipts were not large, but offerings were ample for the demand, which was very moderate. We quote: Solid-packed creamery extra, 18½@19c; firsts 18c; prints, fancy, wholesale, 20c; average extra, 19c; jobbing, 2 @24c.

Eggs—Supplies were moderate and the market ruled firm, with a fair demand for fine, fresh stock. We quote: Pennsylvania, choice, fresh "loss off," 14½c; Western choice, fresh, in free cases, "loss off" 14½c; fair to good 13½@14c.

NEWARK, N. J., July, 3—Market quiet; 18½c for fancy creamery. Receipts liberal.

BOSTON, Mass., July, 3—No excitement on butter at 19c for best. Cheese steady at 8@8½c. Eggs—slow, 14@15c.

WASHINGTON, D. C., July 3—Market steady, extras 19c; firsts 18c.

NEW ORLEANS, La., July 3—Market easy; creamery 18½@19c. Stock accumulating.

Latest quotations for fancy creamery—Baltimore 19c, St. Louis, 18½@19c, Cincinnati 19@20c Buffalo 19c, St. Paul, 17½c, Minneapolis, 17c, Detroit 19c.

NEW YORK MARKET.

NEW YORK, July 1—Butter—Receipts for the week, 65,299 packages: exports for the week, 1,307 packages.

Refrigerators are filling up here, and there is more stock coming than can be consumed. The market is a little top heavy. Exporters are confining their purchases to low priced and low grade goods, and people, this week, have so scattered into the country that local consumption is light. Some speculative purchases aggregating, say, 3,000 packages of fine and extra creamery in long lines at 18@18½c may be noted. Fine ladle butter is quiet but holders are firm in anticipation of more export enquiry later on. N. Y. State dairy sells at 17@17½c for selections, and under grades sell at lower and irregular prices. We quote:

Creamery, extra 18½c; medium 17½@18c; poor 15@16c. Dairy, extra 17½c; medium 16@16½c; poor 14@15c. Ladle, extra 14½@15c; medium 13¾@14c; poor 12@13c.

Cheese—Receipts for the week, 44,048 boxes; exports for the week, 11,188 boxes.

The market is well cleared. Exporters and local trade bought freely and prices were advanced fully ½c per pound on the week's business. We quote:

Full Cream, extra 8⅝@8¾c; medium 8@8¼c; poor 6@7½c. Part Skimmed, extra 7¾@8c; medium 6@7c; poor 4@5c. Skimmed, poor 2@5c.

Eggs—Receipts for the week, 60,626 cases.

Arrivals were free this week and prices a trifle lower on all grades. We quote:

N. Y. State & Pennsylvania, per doz., 15½@16c; Northern & Western, best marks, 15@15½c; Western & Southern, 13@14½c.

DAVID W. LEWIS & Co.
177-9 Chambers St., New York.

BALTIMORE MARKET.

BALTIMORE, June 29—Butter—The receipts of separator creamery have been liberal, and the grading higher than for the previous week. As the sales have been limited almost to the daily distributive wants, much of this stock has gone into the freezers, some for account of the shippers, but the bulk of it is owned by the local receivers and they are by no means proud of their possessions, for notwithstanding the cheerfulness expressed by receivers elsewhere our merchants are ingenuous enough to admit that they would much prefer having no butter to carrying creamery, of no matter how high degree, at present cost. Gathered cream goods are in fair supply and the bulk of them have reached the limit of grading and have gone on the slide down to sour and summery, which is their annual fate. The bulk of the business now doing in this line, is in the varieties ranging from imitation creamery to store-packed, and this would indicate that speculators doubt the ability of the people to pay the price of the higher grades later on. Transactions within the low range of prices are as heavy as usual, and perhaps heavier; some large lines of packing stock have changed hands within the past two or three days. Blocks and prints are in moderate supply, and the demand shows an increase. Of store-packed, the receipts are light and the demand active for all grades.

"ALPHA" DISCS.

The system of milk dividing plates or discs used in separating bowls of the "Alpha-De Laval" machines makes all the difference in the world in the efficiency and general practicability of the cream separator.

A virtually complete separation without loss of a material amount of butter-fat in skim milk is possible only with the "disc" type of separator. This is particularly true with separation at low temperature or in running heavy cream.

The "disc" construction at same time permits of the separating bowl being made smaller and run at much less speed. 25,000 rev. will not accomplish as good results in the same bowl without discs as 6,000 rev. with them. Hence "Alph" disc machines require only about one-third the power of other separators, use only about half the fuel in power operation, and are three times as durable and easy to keep in repair.

The closer work of the "disc" system insures a smoother cream and a complete removal of dirt and fibrous matters, thus producing a higher quality of butter than is possible with any other separator or creaming system. The universal prize winning record of "Alpha" made butter bears witness to this fact.

"Alpha-De Laval" machines are as superior in mechanical construction as in scientific principle. The De Laval factories are reckoned among the finest machine shops in the world. The De Laval machines are not made for "cheap" sale and the item of cost does not enter into their construction, finish nor completeness. They are simply the best that can be made.

The De Laval catalogues illustrate all these matters in detail and can be had for the asking—"Creamery" or "Dairy."

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Creamery Separator, extras 19c; firsts, 18c; seconds 17c. Creamery gathered cream, extras 18c; firsts 17c; seconds, 16c. Creamery Ohio, extra, 18c; firsts, 17c; seconds, 16c. Creamery imitation, extras, 16c; firsts, 15c; seconds, 14c. Iowa & N. W. Ladle, extras 14c; firsts 13c; seconds 12c. Ohio & Indiana ladle, extras 14c; firsts 13c; seconds 12c. Ohio store-packed, extras 12½@13c; firsts 12; seconds 11½c. W. Va. store-packed, extra 12½@13c; firsts 12c; seconds 11½c. Creamery Blocks (2 lb) extra 21c; firsts 20c; seconds 19c: Creamery prints (½ lb) extras 21c; firsts 20c: seconds 19c. Md., Va. & Penna. Prints extras 19c; firsts 18c; seconds 16@17c.

Eggs—Up to the first of this week our receipts were very light, hardly enough to supply the active demand. But for the past few days there has been quite a considerable increase in the receipts; the demand less active, and there is a greater disposition on the part of the receivers to effect sales. The buyers, on the other hand, are very choice in their selections, nothing but choice to fancy stock will satisfy them. All heated and other faulty stock is slighted. Market at 14½c.

Cheese—The receipts are ample for requirements; the market is firm as quoted; demand good.

N. Y. State—Cheddars, fine 9@9¼c; choice 8¾c; fair 8½c. Flats, fine 9¼@9½c; choice 9c; fair 8½@8¾c. Small, fine, 9½c; choice 9¼c; fair 9c. Ohio Flats, fine 9c; choice 8½c; fair 8@8¼c. Ohio Picnic, fine 9½@10c; choice 9@9½c; fair 9c Swiss cheese, fine 13½@14c; choice 12@13c; fair 11c.

J. M. LAMB & BRO.
301 Exchange Place,

FOREIGN MARKET.

BOSTON, July 1—Cabel advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as more active with prices the turn dearer. Danish selling at 21@22c; Irish 21@21½c, with finest Canadian in boxes bringing 19@19½c. There is a little better inquiry from speculators for ladles at 14½@15c, but there is very little offering. Weather conditions in some sections are not so favorable to the make, rain being badly wanted. No further advance in prices looked for at the moment.

Cheese markets are steady with values slightly higher in sympathy with higher quotations from Canada. Finest American and Canadian selling at 9¼@9½c.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—To correspond with a first-class cheese maker. Address BOX 422, Cameron, Clinton Co., Mo.

For Sale Cheap—A fine Guernsey bull calf. GEO. W. McCREADY, Black Hawk, Wis.

For Sale—Creamery located in good dairy country. Three railroads and express companies. Market convenient. Address "CREAMERY," Lowellville, Ohio. 21-4

On July 21st, 1899, 1 p. m., the Mt. Pleasant Co-operative Creamery Co. will be offered for sale as a plant. If not sold as a whole, will be sold in parts on same date, Address MT. PLEASANT CO-OPERATIVE CREAMERY CO., Mt. Pleasant, Ohio.

Married man wants position on dairy or stock farm to take management or otherwise. Can run separator or make butter if necessary. Address H. J., care of HOARD'S DAIRYMAN.

Wanted—An honest and reliable man, capable of managing a large dairy. Must be experienced in all dairy work and with all dairy machinery. Liberal wages to good man. G. C. STREET, Houston, Texas. 18-4

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Exceptionally Low Rates to Denver, Col., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, June 25 to July 11, inclusive, limited to October 31, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y. 19-3

Exceptionally Low Rates to Denver and Salt Lake City, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, until July 11, inclusive, limited to October 31, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western Railway. 20-2

Exceptionally Low Rates to Richmond, Va., via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, July 10, 11 and 12 (but not for trains arriving Chicago before July 11 or later than July 13), limited to August 15, 1899, inclusive, on account of National Convention B. Y. P. U. Apply to agents Chicago & North-Western R'y. 20-2

Special Excursion Rates to Portland, Ore., and other North Pacific and Coast Points, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, until July 8, inclusive, limited to September 4, 1899, inclusive. Variable routes, delightful scenery. Apply to agents Chicago & North-Western Railway. 20-2

Excursion Tickets to Janesville, Wis., via the North-Western Line, will be sold from stations in Wisconsin, Michigan and Illinois at reduced rates, account of L. A. W. Meet, etc., to be held July 12-14. For dates of sale, limits of tickets, etc., apply to agents Chicago & North-Western Railway.

Excursion Tickets to Woodstock, Ill., via the North-Western Line, will be sold at reduced rates, from stations within 75 miles, July 12 to 15, inclusive, limited to July 17, inclusive, on account of Horse Races. Apply to agents Chicago & North-Western Railway.

Exceptionally Low Rates to Indianapolis, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations. July 18, 19 and 20 (but not for trains arriving Chicago before July 19 or later than July 21), limited to August 20, 1899, inclusive, on account of National Convention Epworth League. Apply to agents Chicago & North-Western Railway. 21-2

Excursion Tickets to Madison, Wis., via the North-Western Line, will be sold at reduced rates, from stations in Wisconsin and certain stations in Illinois, July 17 to 31, inclusive. limited to August 1, inclusive, on account of Monona Lake Assembly. Apply to agents Chicago & North-Western Railway. 21-2

GOOD FOR GEORGIA.

Nothing finer in a literary way, has met our eye in many a day, than the welcoming speech Hon. Winter Wimberly, of Macon, Georgia, addressed to the Georgia Dairymens' Association, which convened in that city last December. We copy the following passages:

"The shepherds, tending their flocks upon the Chaldean hills, saw the glittering star that hung suspended like a jewel over Bethlehem; that star, that, in its mild refulgence, was the beacon light of humanity—it marked the spot where our blessed Saviour was born in a manger among the cattle. Little wonder is it that cows are held sacred."

* * * * *

"When the dairyman from every hill top shall lead his lowing herd to the music of their tinkling bells, in green pastures and by still waters,—then, O my countrymen, in that blessed time to come, the great God of nature will, upon the red old hills of Georgia, still bearing upon her naked heart, in her bare hill sides and rugged gullies, the serried scars of the whip of slavery, and the scourge of cotton, spread like a benediction of God a beautiful mantle of grass. All hail the coming time, and we, in anticipation, welcome you to our home and hearts."

A Ration With Separator Milk.

ED. HOARD'S DAIRYMAN:—H. B. C., Menomonie, Wis., writes: "If 100 pounds of water are added to 100 pounds of separator skim milk, how many pounds, and what kind of dry digestible matter must be added to the whole bulk, 200 pounds, to give it about the same feeding value as contained in the 100 pounds skim milk, prior to adding the water?"

Expressed in simpler form, our inquirer asks the quantity and kind of feeding stuffs which will furnish the same amount of nutriment as 100 pounds of separator skim milk.

Placing the nutrients of skim milk and the food substances chosen, we have the following:

DIGESTIBLE NUTRIENTS IN 100 POUNDS.

	Protein Lbs.	*Carbohydrates Lbs.*	*Ether Extract Lbs.*
Separator skim milk...	2.9	5.2	0.3
Wheat middlings.....	12.8	53.0	3.4
Linseed meal (old process).....	29.3	32.7	7.0
Mixture of last two....	21.1	42.9	5.2

A mixture of oil meal and middlings, equal parts by weight, contains the several nutrients in nearly the same proportions they exist in skim milk. A little calculation will show that between fourteen and fifteen pounds of this mixture will contain about the same nutrients as one hundred pounds of the skim milk.

These figures present a close approximation to the figures called for by our inquirer, but by no means cover the whole ground. In some recent experiments at the New York Station it has been shown that protein from animal sources is superior in feeding value for chicks and ducklings to protein from vegetable sources. These experiments open up a most interesting field for study and teach us most plainly that while feeding tables are useful and helpful, they do not always express the whole truth. While 15 pounds of the mixture named may, for some purposes, equal one-hundred pounds of separator skim milk in feeding value, it is doubtful if such is true with young animals.

There is much opportunity in this line for further studies at our experiment stations and all will await the results with interest. Meanwhile use skim milk wherever possible and extend it or supplement it by the use of materials similar to those here mentioned.

W. A. HENRY.

Wisconsin Agricultural Experiment Station.

A Dairyman on the Stave Silo.

ED. HOARD'S DAIRYMAN:—Last fall I built a stave silo 24×24, using the lumber rough, and edges not beveled, and I believe it has paid for itself in the one winter. Certainly, the better a silo is built the better it is for the owner, but I contend that a silo is *tighter*, and therefore *better*, by *not* beveling the edges of the staves, for the reason that the corners of the staves will mash together tighter than the flat edges, when beveled.

There is many a reader of your valuable paper who would, and I dare say will, build a silo of rough lumber, unbeveled, and by doing so probably change his business from a losing to a gaining one, while if he had to build one as expensive as is necessary to build a fine appearing one, he could not do it. "Big houses won't build big barns, but big barns will sometimes build big houses," and a silo can be constructed cheaply that will do the work just as well, and I believe last longer than an expensive one bought of a manufacturer.

Help the poor men to get on their feet. If the manufacturer can devise a way to build a silo cheaper, that will do the work as well as the unbeveled, home-made, he will benefit humanity, as well as his pocket-book.

I used a square silo, built the best way we could find out, from about 1888-1896, but with much loss. That silo cost about three times as much, per ton capacity, as my present one, and was not half so good. At that time, I conceived of building one just as I did build last fall, but had not heard of such a thing before. After a few years I found that they were being built that way and used with great success.

I expect to build two more, but would not bevel the edges if they were to pay me a bonus to do it.

Men of limited means: If you milk cows, you need a silo; do not hesitate to build a cheap one; get good quality 2×6's as long, or half as long, as you want the silo high; discard the unsound and crooked ones, and those with knots on the edges; you don't need to have them dressed or beveled; put up a scaffold, set up your 2×6's at places where hoops meet, put up two hoops, then your staves, one at a time, toenailing them together, and occasionally fasten it to the hoops; then put on the other hoops and draw tight, put on any kind of tight roof, (I have a round one with two dormer windows,) and fill it up.

I believe a good silo can be built for fifty to seventy-five cents per ton capacity, and the corn put in at an expense of one dollar to one dollar and a quarter per ton for the corn, and the cutting of it into the silo, making the cheapest and best cow feed we can get.

Des Moines, Ia. F. M. PARSONS.

Preservatives and the Human Body.

ED. HOARD'S DAIRYMAN:—Mankind is composed of numerous elements. They constitute the stuff that is necessary to fulfill the duties assigned to us during life. For every act we do, (mentally or physically) we have to draw on the above mentioned resources and they must, of necessity, be replaced by new material. This is called the process of waste and repair. If that goes on vigorously, it means health; if only sluggishly, it brings sickness; if it stops the result is death. Any substance, other than those elements, taken into the system is matter misplaced, and becomes a disturbing, disease promoting enemy.

It is thus easy to realize the vital importance of providing the above mentioned stuff (called constituents) in their purity. True that some of the organs have the power of eliminating noxious matter (non-constituents) from the system, but if they are taxed beyond their ability, become over worked, tired out, finally paralyzed and their usefulness destroyed. Then the blood, having lost its natural protector, gradually becomes surcharged with these foreign interlopers, and the consequence is, chronic disorders of innumerable forms, that only too often baffle the skill of the physician.

Antiseptics, called preservatives, that are not constituents (such as salt for instance,) must, from the very nature of things, antagonize the all important process of waste and repair, the aseptic is taking the place of the antiseptic. Among the great lights of medical science, experience has established the stubborn fact that since its use as a preventive, blood poisoning has increased to an alarming extent. Cleanliness is granted supremacy as a preventive at the present time.

M. SCHEMBRI.

Rape Culture in the United States.

It is no exaggeration to say that for the past four years a thousand inquiries respecting the nature, culture and uses of rape have annually come to the office of the *American Sheep Breeder*. The impossibility of answering each of these inquiries in detail, through the columns of our paper, leads us to make the following general statement regarding this remarkable plant:

Generically, rape belongs to the same order as cabbage, kale, turnips, etc., and is a grazing and soiling plant, not susceptible of conversion into hay. It may be sown broadcast, or planted in drills from 26 to 30 inches apart, if desired for cultivation with the plow or cultivator. From four to five pounds of seed may be used for seeding broadcast, and from two to three pounds per acre if planted in drills.

For quickness and immensity of growth, it is without a rival; growing upon good rich soils to a height of 12 or 15 inches in six or eight weeks, and in its full growth three or four feet high, producing 20 to 30 tons of feed to the acre. Sheep, cattle or swine may be turned into the rape field when it has reached a height of 10, 12 or 15 inches, the owner always using caution to limit sheep or cattle to an hour, or less, of grazing for the first four or five days to prevent the possibility of bloating until they are accustomed to the feed.

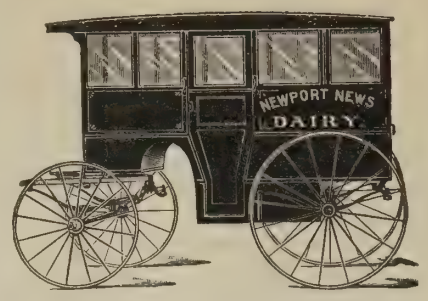
For early summer grazing, rape should be sown about oat seeding time in April or May, according to the latitude, and for late summer and fall feeding, it may be sold in June, July and early in August. It may be sown alone for a fall early crop, or sown with oats, in which case it makes slow growth until the oats are harvested, when it comes forward with great rapidity. It is often sown on oat, wheat, or barley stubble, without plowing, and harrowed in with a light tooth harrow; in this way making an abundance of fall feed. As a supplemental crop, however, it is more extensively sown in corn, by scattering the seed ahead of the cultivator at the time of last cultivation. The corn shades and protects the young plant during its early growth, and within six or eight weeks lambs may be turned in for weaning. Rape in the cornfield is a paradise for lambs before corn harvest, and makes a splendid fall feed for sheep, cattle, or swine when the corn is harvested. In seeding the cornfield to rape it is a good plan to use about two pounds of rape seed mixed with half a pound of common flat turnip seed for each acre. The same mixture may be profitably used in seeding with oats or on stubble land.

The progress in rape culture in this country is one of the marvels of latter day husbandry. Five years ago the plant was little known and less understood. Last year millions of acres were devoted to its culture and other millions of acres will be added to its broad, green domain this present year. All progressive English and Canadian shepherds cultivate it mainly for sheep, but progressive American farmers are turning it to broader uses, having found it quite as profitable a grazing and soiling plant for their cattle and swine.

To say that rape is revolutionizing the sheep industry in this country is putting the case none too strong. It adds immensely to the popular tendency toward extensive sheep farming by yielding a vastly greater amount of succulent and healthful green food to the acre than any other crop, thereby increasing in like ratio the sheep carrying capacity of the farm. It tides the sheep farmer over the dry, hot season when the grasses are dead and the fields are brown, with a wealth of green, palatable and nourishing feed, such as no other product of the farm can or does furnish. It is alike valuable for the silo, for soiling the flock in the cool shadows of grove or barn in the scorching heat of the midsummer day, or for grazing the sheep in the cooler hours of morning and evening. Nothing equals it for ewes and lambs during the nursing period, and for weaning lambs it is incomparable, carrying them from mother-milk to self-sustaining lamb-hood with scarcely a sign of shrinkage. It is without a rival in all the list of succulent summer and autumn feeds for starting mutton sheep and lambs on the flesh-making road to full grain feeding.

It promotes the healthful growth of wool by furnishing the best wool producing food in the best elemental form. It furnishes more and better green food to the acre and at less expense than any other plant in all the long list of succulent summer feeds. It is not a feed of the week or month but carries the flock in perfect "bloom" from early June to bleak December. It enriches the soil with a wealth of nitrogen possessed by few other plants. There is nothing that can be succesfully substituted for it, because nothing in the whole range of plant life carries in such measure, the flesh-making, health-giving, life-inspiring, wealth-yielding elements that make the "golden hoof" and "golden fleece" the blest of heaven and the best friend of the farmer. To the rape culturist whether for sheep, cattle or swine, we give joy of his possession of this most generous product of his lands and toil! For sheep it is permanently the summer "feed for the million," and may its shadow never grow less on the American farm.—*Western Plowman.*

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Hairy Vetch.

More attention is being given to this plant, which is new to Michigan, and there are some farmers experimenting with it at this time, and it will be a good idea for many more to sow a small plot and learn, in a practical way, something of its habits. Concerning it, the Michigan Experiment Station has published this:

"This plant has also been called Villous vetch, Sand vetch, Winter vetch, Russian and Siberian vetch. It is a native of Western Asia and has been cultivated to some extent in Europe for about fifty years, particularly in northern Germany. Other species of vetch are cultivated in certain parts of Europe more largely than this one, but within the past few years hairy vetch has received increased attention both in Europe and America. This plant is of special interest to growers in this country on account of its hardiness, and its prospect of filling a place not fully occupied by any of our other leguminous crops. Then, too, while some of the other vetches have been of greater value in Europe, this one appears to be the only species which, thus far, has shown a fair prospect of success in the United States. Among the inquiries that have come to the station regarding this plant, within the past two years, several are from seedsmen who have been investigating its merits with the view of offering the seed to their customers.

"This vetch is usually considered a winter crop, but it may be sown in either fall or spring. In this locality, self-sown seeds usually germinate in the fall, and the young plants live over and produce a crop the following season. A plot sown to hairy vetch will thus maintain itself year after year. It is recommended abroad to sow the seed with oats, as is done in this country with field peas, and harvest both crops together, for feed. In the spring of 1896, this station sowed half an acre of mixed oats and vetch according to this plan. The vetches, however, made practically no growth until after the oats were harvested, although the young plants maintained their existence. After the oats were removed, there was a plentiful supply of rain, and the vetches came on and made a vigorous growth. Our notes on August 19 says: 'Villous vetch sown in oats last spring is now thrifty and as high as the oat stubble—a few flowers are seen.' Three days later the statement appears: 'Vetches growing rapidly and now hide nearly all the stubble.' Growth continued luxuriant through September, but was checked by the frosts of October, although the foliage was still uninjured.

"On November 12, five square rods were cut and weighed, furnishing 430 pounds of green forage, or at the rate of nearly seven tons per acre

Our experience in feeding this vetch was somewhat unsuccessful at first. During about six weeks, the rams belonging to the college were pastured on rape and crimson clover in an enclosure adjoining the plot of vetch, and from time to time small quantities of the latter were cut and given to them. This was eaten quite reluctantly, although the pasture was very short. A little later, two valuable rams, newly purhcased, were fed in the stables on green rape and vetch. At first the rape was eaten freely and the vetch with some hesitation, and after a few days the rams refused the vetch altogether. Later in the season, as cold weather came on and other green feed became scarce, some of these vetches were cut and fed to cows and

sheep. The cows ate them heartily; the sheep not quite as well. Possibly the frosts of autumn may have modified the flavor of the vetches, somewhat, or the result may have been due to the keener appetites of the stock as colder weather came on. Vetches are highly nutritious, even more so apparently than clover. An analysis quoted in a circular on this plant, issued last year by the Department of Agriculture gives their content of protein, or nitrogenous matter in the dried material, as 22.78 per cent. It is not at all uncommon for stock to refuse leguminous plants as food, or choose the ordinary grasses in preference, notwithstanding the higher nutritive value of the legumes. With a little care in feeding, however, it is well-known that the pea vines, bean straw and other fodders of this class are eaten by most kinds of stock, and prove highly desirable foods. We think, therefore, that no one need have any apprehension that this vetch cannot be made available as fodder, or that any reluctance that may have been manifested by stock toward accepting it cannot be overcome."—*Practical Farmer.*

Close Hits.

That practical Iowa dairyman E. C. Bennett, in his "Dairy Department" of the *Northern Post* fires in some bulls eye hits. Here are a couple of them.

Terry tells of two cows bought at the same time by his boy. One of them was of the dairy type, and one the dual-purpose type. The latter gave fifty pounds of milk when fresh, but dried fast. The two were kept two years, and the dual-purpose cow was then sold for beef at $38, while the dairy cow would, perhaps, sell for half that, for the same purpose. But in the two years, the one with the dairy form gave $38 more of milk, and he has her yet. The two cows have, therefore, yielded exactly the same amount of money, but one is still alive and earning money, and the other is dead and in the city sewers, and will never again be heard from. Which is the better cow?

We lately ran across a contented farmer. He sold 231 pounds of butter from twelve fresh four-year-old cows for thirty days. He keeps dual-purpose cows, feeds hay and ground corn and corn meal, and sets the milk for the cream to rise, sells the butter at the store at 15 cents. He is satisfied, because he has not learned how he is missing his opportunities. He ought to have fifty per cent more butter. Better feed and a separator would have gone far to accomplish this with dual-purpose cows, either at home or by patronizing the creamery, and good dairy cows would have gone beyond these figures even. Hay and corn alone is not a fit feed for a cow in milk. It lacks nitrogen. If the hay is clover it helps matters, but a hay and corn diet means a limited yield every time.

A Growing Industry.

The Marengo Sugar of Milk Factory Is Increasing Rapidly.

One of the industries of Marengo is the Marengo Creamery and Sugar of Milk Company. This company was organized about a year ago. There are eight men employed in the factory here, and three at each of the eleven factories, whose product is made up here, making all together forty-one men who are in its employ. The Marengo Creamery and Sugar of Milk Company make butter, curd or cheese, and sugar of milk. They handle the product of eleven creameries, which are scattered around Marengo within a radius of twelve miles. The milk received at the factories is first passed through separators, extracting the cream, which is made into butter. The skimmed milk is then heated to a certain temperature and curdled with acids; the curd is then taken to the refinery at Marengo, where it is first ground in sausage mills, then dried by a hot air blast. When it is thoroughly dry it is ground to the fineness of corn meal. It is then ready for the consumer, and is shipped in sacks to paper manufacturers who use it for calendering or polishing of paper. It is expected that the output of curd for the coming spring will reach 100,000 pounds per month.

The whey of milk that remains after the first process is crystallized into sugar in a solution from which it emerges absolutely pure and white.

For domestic trade it is nearly all put up in barrels, and for exportation is neatly cased in boxes.

The company, though in its infancy, is now exporting sugar of milk both to Germany and Japan.

The sugar of milk is nearly all used for medical purposes, for the coating of pills, discs, pellets, and in the combinations of lactated foods and patent medicines.

The product of sugar of milk for the year amounts to about 400,000 pounds. Aside from the manufacture of sugar of milk, the company maufactures and sells from 750,000 to 1,000,000 pounds of the finest creamery butter.—*Ex.*

Milk Fever.

Characteristics of the Disease.—Treatment and Prevention.

The New Jersey Experiment Station has issued an excellent bulletin on milk fever. It is claimed that one form of the disease is caused by germs. This may count for the fact that, in some herds and barns, milk fever seems to be contagious.

Treatment should begin a week or two before the calf is expected, and should be practiced on every cow whose condition is such as to lead the owner to fear the occurrence of milk fever when she calves. The treatment is to continue for a week after calving. Begin giving short rations; feed sparingly of rich food, such as grains and clover; rather give apples and bran mash. Give salt to provoke thirst, and encourage the cow to drink, by warming the water, if it is cold. Large doses of Epsom salts, (a pound to a quart of water,) may be given once, or even twice, a week, to provoke an unwonted activity of the bowels, and to counteract the tendency of constipation. If the udder is distended, it should be rubbed and milked regularly. The cow should be kept in a place which is dry, clean, airy and cool in summer and warm in winter, away from the other animals. Should the owner fear that his method has not succeeded in reducing the blood sufficiently, as may happen when the time is short, a veterinarian should be called to let out several quarts of blood from the jugular vein of the neck.

Just before calving the vagina should be washed out with a generous injection of two per cent creolin solution, which should be repeated daily, after calving, for a few days. Immediately after the calving is completed the veterinarian should inject creolin solution into the uterus, as in cases of abortion. Neither carbolic acid nor corrosive sublimate nor iodoform can be recommended for disinfecting the genital passages, but these disinfectants and others may be used liberally upon the soiled bedding, barn floor, etc. If the cow is down, she should be propped up on the brisket, to prevent the running of food into the lungs, from the stomach.—*Ex.*



Buhl Sunlight Milk Cans.

NOTICE OUR PATENT BREAST and BOTTOM HOOPS.

These cans are properly shaped, well tinned and easy to clean. They will last twice as long as any other low priced cans on the market. If your dealer has not got them, send your order direct to the makers and instant shipment will be made. Capacity 5, 8 and 10 gallons. Write for Handbook No. 32, "A Study in Milk Cans."

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Mention HOARD'S DAIRYMAN. **Detroit, Mich.**

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.

COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to sell it? Send to us for the material for making the test and we will mail it to you free of charge.

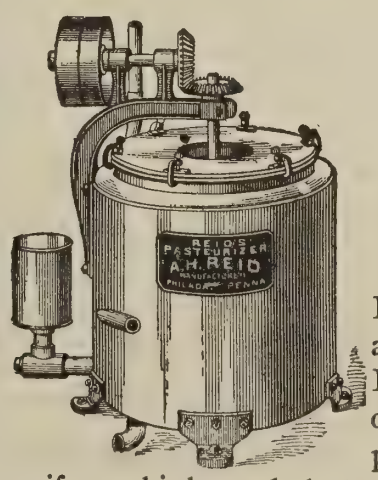
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Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

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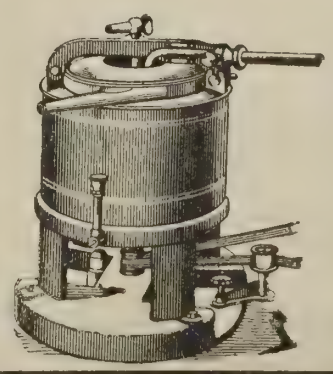


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Practical and personal experience with the Reid Pasteurizer is the best test of the merits of pasteurization and the strongest argument in its favor. The Reid Pasteurizer is a fact which upsets the theories of the opponents of hot skimming. The creameries that use it produce perfect cream for all purposes and make the most uniform, high-grade butter, entirely and always free from bad flavor, and undesirable odors. A fair trial of the

REID Pasteurizer

is more convincing than any amount of talk. Write at once for complete description and price and don't forget to ask for the **Reid Long Spindle Separator** book. All free by mail.



A. H. REID, 30th and Market Streets, PHILADELPHIA, PA.
And CEDAR RAPIDS, IOWA.

Selecting a Cow.

Having decided what kind of a cow is wanted on the place, or what the cow is wanted for, the next thing is to select the individual cow for the purpose. The shape and style of the cow being the first thing to take the eye, fix in the mind the type of a good cow for milk.

Without going into the detail of points, as given by some writers, which might be varied also for different breeds, remember that the good milker is wedge shaped when looked at directly in front, that is, with slim, flat neck, rather thin through the shoulders, thick and deep in the body, to give abundant room for her digestive organs and the food they contain, and broad across the hips.

The head should be carried well up, or not drooping when not feeding, broad between the eyes and rather long and narrow below them down to the nose, with the eyes large, full and clear looking, but not staring, as if scared. The wild-looking eye denotes a wild cow, not always pleasant to handle, possibly cross, while the dull, watery eye is a sign of lack of vigor, if not of actual sickness at the time.

The forelegs large above the knee and small below; the thighs, thin and flat and well spread apart behind by the udder, the hoofs not too large and of a clean, waxy look, and well set on the ankles. Beware of a long ankle, particularly if not erect, lest it result in bone ail, or "cripple ail," which disease has been variously attributed to inbreeding and to a lack of bone-forming material in the food, and, as I think, is the result of the latter cause, seldom occurring on a limestone soil or among herds where wheat bran is liberally used for food.

The udder should be the main point of observation. This should be large, and run well forward, as well as broad behind, with the teats well spread apart, and the latter should be of convenient size to grasp well in the hand. In the Jersey grade it is more apt to be too small than too large. The udder should be soft and skinny rather than fleshy when empty. Too much or too long hair on the udder is considered a defect, though some very good cows have more hair there than some poor ones. It is an indication of coarseness rather than of poor milking capacity, and such cows do not usually respond quickly to a change in feed, whether for the better or worse.

A fine, soft and silky coat of hair on the body is usually an indication of what is called an easy feeder, that is, one which will quickly show by an increase in amount of milk or the thickness of the cream, or by taking on fat, when she is being well fed. Of course the harsh, wiry hair indicates the reverse under the same conditions, but it may be only proof that the animal has not been well fed or well cared for. Cold barns and exposure to cold storms may cause coarse, wiry hair, long and standing out, unlike the smooth, slick coat of the well-fed animal in a warm stable, and it may be a symptom of an unthrifty condition, if not actual sickness.

Such a cow may improve greatly under an improvement of her care, but the novice would do well to pass them by, and let those more skilled in the care of cattle, handle them.

If the cow submits quietly to being handled, she is of a quiet disposition, and the udder should now be handled and the teats tried. If she is a bad kicker she will be apt to let you know it, and it is better that she should kick you once before you buy her than twice a day afterward. See that she milks easily. Some cows milk so hard or give so fine a stream that it is worth nearly the value of the milk to get it from them.

Look at pasture fences and see if they have been made extra high and strong to keep in the herd, or if they have been frequently broken down and mended. Even though she may not be the rogue that has done such mischief, one breaking cow in a herd soon teaches others to follow her example, and when they have once learned the trick of breaking bounds it is not easy for them to forget it.

It is seldom well to buy a cow of one who has pastures much better than yours, or who feeds more liberally of grain than you intend to. The old Quaker who sold the cow that did not give as much milk as he claimed said to the buyer, "Thee should have bought my pasture too." A cow that has long been kept by a milkman is apt to have been grain fed up to her full capacity, and will not do well on less liberal rations.

A cow from a large herd will often run more quietly alone than one which has been kept with only one companion. I never like to buy any animal of an ill-tempered man. He is apt to soon make them as ill-tempered and fractious as he is.

The cow is in her prime when from six to nine years old if she has been well cared for, and if I were to buy a cow for family use I should prefer to buy her when fresh after her first calf, that by care I could establish the habit of keeping up her supply of milk until she was nearly ready to drop another. Then for three or four years she would be growing more valuable each season.

One not used to the care of cows, may do better to buy an old cow that is fresh in milk, and after the calf is two or three weeks old, begin to feed grain, gradually increasing the amount given, so that in six or eight months the cow would be nearly ready to dry off and fat enough to sell to the butcher. It is true that old cow beef sells at a low price, and there might not be much profit in the transaction, but there need not be any loss. The milk should pay well for the feed, and the owner would be gaining in experience without fear of much loss, which might not be the case when he experimented with a valuable young cow.

If one desires to keep more than one cow for butter making they should be as much alike as possible in two respects at least, the time which is required for the cream to rise on the milk, and that taken for churning the cream. If they differ there will be apt to be cream thrown out in the skim milk or buttermilk, and perhaps in both.

I have never known a large record for butter made by a herd of cows unless they were all of one family, but when one cannot raise his own stock he should buy them as much alike as possible. Then the same feed and care will produce similar results in all, and the cream, all requiring the same amount of churning, will all be alike churned.

Of course this may not be the case when one cow is fresh in milk and another far gone with calf, but even then their cream churns together better than if they are of breeds not alike.

These hints are intended for the new beginner rather than for the experienced farmer or farm hand, but there are some who have fed cows and milked them for years who really know but little more about selecting a good cow or herd of cows than the daily passenger on the railroad would know about selecting a locomotive. They have learned to do their part of the work each day, as they were directed, but know but little of the reason for doing the one way or some other way. They had imitated, but not learned.—AMES in *American Cultivator*.

Calf Raising.

From the earliest history of the human race, whether recorded or a matter of mere tradition, the cow and her calf have been the almost indispensable companions of man. They have furnished him milk, butter, cheese, veal and beef, and in addition materials for boots, shoes and robes. They have furnished glue to the cabinet maker, hair to the upholster, buttons to the tailor, and delicacies innumerable to the sick. Without the cow and her calf, this would be a sad and dreary world.

During all these years and ages calves in countless millions have been grown and the problem has been so simple and easy that it has been left to the hired girl in the countries of the Old World and to the hired man, or to the oldest boy or girl, in the New.

The problem of raising the calf was easy then, nor is it any more difficult now, over large sections of the world where cattle are grown under practically patriarchal conditions; as, for example, in the vast range country comprising two-fifths of the United States; in all sections, North or South, where it will pay, on account of the cheapness of the land, to keep a cow a year for the chance of a calf, on the vast ranges of South America, Australia, South Africa, the plateaus of Central Asia, and on some portions of our tropical islands. Nature's method of growing the calf, when the comfort of the cow and the calf and not the interests of the owner are to be considered, has not been improved and never will be.

In the development of civilization, the time comes when the human family appreciates the value of milk, butter and cheese. The mechanical instincts are developed, the intincts also for trade and traffic, the system of the division of labor is adopted, each man doing what he can do best, and each farm, section and country producing what it can produce to the best advantage, cities grow, and there is a market for dairy products, for beef, and all the by-products of the animal. Necessity then compels the farmer to milk cows. It requires some sort of compulsion. We do not believe that any man naturally likes to milk. He, however, adapts himself with more or less grumbling to the new conditions. He sells the calf for veal and when the demand for milk and butter creates a price in excess of the value of the veal, he deacons the calf, that is, kills it on sight, and thus avoids the other equally disagreeable task of raising the calf by hand.

As agriculture develops still further, the farmer finds the need of the matured calf, both to keep up his stock of cows, and to supply himself with the means to use, to the best advantage, the coarse grain, the fodder and the summer grass of the farm, converting them into marketable products; or, to change the figure, he needs to grow packages in which to condense these products, and save freight, and he then reluctantly undertakes to teach the infant boss to look down, instead of upward for its nourishment, and to drink instead of suck.

Usually, on the farm where but few cows are kept, and where the butter is made at home, there is some member of the family who has the patience, even temper and tact required for this bovine education. The methods of separating the cream from the milk that have been in vogue in all lands from time immemorial down to the last ten or fifteen years, have uniformly failed to secure the complete recovery of the butter fat, and, hence, have not thrown the ration so badly out of balance, as we might at first suppose. The modern dairy cow gives richer milk than the cow of the patriarchal ages of the range. The old-fashioned skim milk, fed sweet, contained from one-fourth to one-third of the butter fat during the summer season, in which three-fourths or more of the calves are fed milk, and, hence, contained

Fancy's Harry-Tormentor Bull Calf 10 mos. old.
Dam, 42 lbs. milk per day; 21 lbs. 5 oz. butter in 7 days. Price $75. Buy a Good One. J. P. BRADBURY, Pomeroy, O.

Hood Farm Jerseys Choice young bulls, partaking of the blood of the great World's Fair Winners, Brown Bessie and Merry Maiden, generally on hand for sale. Remember the bull is one-half the herd. All young stock will have 50 per cent of his blood. You should therefore have the best you can get. Write to HOOD FARM, Lowell, Mass., and you will be likely to find just what you want and at a reasonable price.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS
The blood of Combination. (Sire of **25** in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

We Have Sold
SEVERAL OF **The A. J. C. C. COWS** advertised March 17th (see page 92), in fact we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada.

A Good ST. HELIER Bull Calf
- - Sired by Osprey, 17385. - -
72 per cent St. Helier, out of a daughter of Stoke Pogis of Prospect. Well grown, strong and vigorous. One year old. Ready for service. For sale at reasonable price. For pedigree and price address. C. A. SWEET, Buffalo, N. Y.

St. Lambert **Jerseys,** all ages, both sexes. Some from **tested cows** at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

ST. OMER HERD
Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested.
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GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. J. E. TYRRELL, Marysville, O.

ONE YEARLING BULL
Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

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. . BREEDERS OF . .
Fancy Jersey Cattle.
Service Bull,
PEDRO'S HANDSOME PRINCE, NO. 42794.
The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

For Sale . . . BULL CALF,
Grand-son of the great **Exile of St. Lambert 13657,** sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz. in seven days. He will be sold cheap.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 205¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
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Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

from one-third to one-half as much butter fat, as the milk of the cow under range, or natural conditions. With care, and a little supplementary feed of corn meal, or its equivalent, a fairly good calf could be grown, which, at the end of the year, could not be readily distinguished, when in the best hands, from those fed in nature's way.

The development of the railroad system, with its refrigerator service, rendered the creamery possible and led to the transfer of butter making to it, from the farm. The introduction of the separator at the creamery, with its perfect and complete separation of butter fat from the milk, and the necessary location of this creamery at or near the station, miles from the home of the calf, has radically changed all the conditions under which the calf is reared.

First, by removing the butter fat completely, it changes the ration so radically, that under no circumstances can the calf be properly nourished by separator skim milk alone.

Second, the delivery of the milk at the creamery, and the return of the skim milk, requires a lapse of from twelve to twenty-four hours from the time that the milk leaves the cow's udder, until it reaches the stomach of the calf. During this period, the germs, which cause acidity, get in their work, and the result is, that often the milk becomes sour, thus impairing digestion, and developing the disorders common to the young of all animals, especially during the summer season. In short, the cow in the state of nature, feeds her calf on a perfectly balanced ration. She feeds that ration sweet, warm and often. Under the conditions created by the gathered milk separator system, the calf is ordinarly fed a totally unbalanced ration, sour, cold and seldom—twice a day at the most.

Is it then any wonder that the patron who has given no attention to the chemistry of milk and the changes which it undergoes under our climatic condition, who has never studied the balanced ration, and to whom the milk is delivered sour, or sweet one day and sour the next, concludes that separator skim milk is worthless, if not positively injurious to the calf. Even before the separator system came in, it had become a maxim in the West that "When the creamery comes in, good calves go out," and for two reasons: The introduction of the special dairy cow, whose calves lacked beef qualities, and also because farmers had so long been used to growing calves in nature's way that the art of growing had been lost to the greatest portion of the generation that has grown up since the first settlement of the prairies of the West.

Meanwhile, there is a great and ever pressing demand for calves of beef quality to consume the products of the empire of virgin soil opened up in the last forty years, and to fit these products for shipment to the world's markets, and as a result prices for calves are higher on a gold basis in themselves and have a higher exchangeable value than has ever been known in the history of the nation. There has been a steady decrease, partly from the causes above mentioned, and partly as a result of the emptying of the range because of short feed and hard times during the past seven years; a decrease in the absolute numbers of cattle, and a still greater decrease in the number in proportion to population. The great ranges now carry about as many cattle as they can, with safety. The demand for veal, milk, butter and cheese in the cities, limits the capacity of the Eastern states and foreign countries to furnish young cattle, until it has become an economic necessity, now generally realized, state wide and nation wide, for the prairie regions of the West to increase the number of well fed and well nourished calves.

To point out how this increase can be made with profit to the farmer and the creamery alike, and to obviate the difficulties created by the separator system, is the object for which these articles are written.—*Wallaces' Farmer.*

A Scotch System of Ventilating a Cow Stable.

At a recent meeting of the Glasglow and West of Scotland Agricultural Society, Mr. Alex. Blair gave the following method of ventilating a cow stable:

"In the outside wall, opposite every pair or cows, and just on the level of the floor, is placed a large grating, admitting a full half square foot of air, exclusive of the ribs of the grating; the air passes through this, over the hot pipes, and up through the inlet into the byre, which, as I stated before, is placed on the top of the heating chamber, and in front of each pair of cows. The gratings on these inlets are made on the hit-and-miss system, so that the flow of air may be regulated in the stormy weather. The flow of air provided for each cow, when the wind has a velocity of three miles per hour—and it is seldom we have it of less velocity than this—is 3,600 cubic feet per hour, a quantity which should be sufficient to satisfy the most rabid advocate of fresh-air ventilation. The roof ventilation is carried out on an entirely new principle, and it may be worth while to describe it to you rather minutely. The system of this ventilation is such that it is impossible to close it, and yet there can be no down draught, which is such a bugbear in the farmers life with regard to weeds in milk cows. In outside appearance the ventilator is an ordinary louvre ventilator, running the whole length of the ridge of the byre, except a few feet at both ends. The sides of the ventilator are solid boards for a height of 12 inches, and the louvre boards are above this, the whole being covered with a corrugated-iron circled roof. A division runs along the inside the whole length of the ventilator, and every 4 feet is divisioned off crossways. In this longitudinal division holes are cut about 12 inches square, and in front of them the sarking of the main roof is cut away. In these square holes frames are placed on which are hung silk valves. All air passing to the outside must pass through these valves, and nothing whatever can enter. In addition to these valves there is provided a hinged flap behind each pair, which is controlled by a rope, and can be opened in calm weather. This means that, practically, the whole ridge is opened up at will, for roof ventilation. This ventilator has been put up on several byres, which had only the common louvre ventilator, with excellent results; in one case the milk supply was very materially increased, to the benefit of the farmer, although I am of the opinion that the landlord ought to have shared it with him. The heating apparatus consists of a slow-combustion Canadian boiler, situated at one end of the byre, in a pit, from which the four rows of pipes, going along each side of the byre, are fed. The pipes are four inches in diameter, giving fully a square foot of heating surface for every foot of pipe, and as there are 560 feet of piping there is fully that number of square feet of heating surface available. The cost works out about 40s per cow. The open winter, we have had up to the last week or two, did not give us a chance to test the apparatus, but it has been in use frequently of late, and I am enabled to give you a few particulars of the temperature of the byre. Over the last two months, I find that the average outside readings have been a little over 40 degrees, ranging from 22 degrees, as the lowest, to 54 degrees, as the highest. The inside readings show that the cold air, after passing over the pipes, enters the byre at about 55 degrees, while the cows themselves raise the normal temperature of the byre to 60 degrees, on an average; the lowest reading of this latter shows 52 degrees, and the highest 64 degrees. The lowest figure occurs twice, and was due to very stormy weather; but, outside of this, the ventilation appears to work with remarkable regularity, keeping always near the 60 degrees."

The Saving of Soil Moisture.

[Press Bulletin, Tennessee Experiment Station.]

Capillary action, or movement of water in the soil, is due to the tension of the soil particles. If the particles are coarse, the action is weak and the soil cannot hold much water. If the particles are fine and the soil compact, the capillary action is strong, and a large amount of water will be held unless lost by evaporation.

Moisture may be retained in the soil by subsoiling, plowing, harrowing, cultivating, mulching, rolling, and by the addition of humus or decayed vegetable matter.

Subsoiling increases the depth of clayey and compact soils, and allows more water to enter them instead of running off on the surface. Subsoiling is thus an important means of preventing washing, and it also enables the roots to penetrate deeper, thus increasing the feeding area. Both spring and fall subsoiling are of advantage on stiff, heavy land.

Plowing is an important factor in saving soil moisture. The reason why lands wash so seriously is that the plowing is too shallow and it is frequently done when the soil is in an unfit condition. The plow should be run as deep as possible, being set slightly lower each year, until the top soil is eight or ten inches deep. The best plowing is that which leaves the soil in the finest state of division. Cloddy or lumpy land cannot hold a large amount of water; therefore it is important to plow when the land is neither too wet nor too dry.

Land should be harrowed after plowing before the clods become hard and difficult to crush, and the surface made as fine as possible. Frequent harrowing of lands already planted will check the loss of water. Orchards, especially those containing young trees, will be greatly benefited by harrowing at brief intervals until mid-summer. The harrow is best adapted to clayey soils. The disks should be set at such an angle that the entire surface will be tilled. As a saver of soil moisture, however, the disk harrow is considered inferior to the Acme or spring tooth harrows. If the land has been put in the proper condition early in the season, a spike tooth or smoothing harrow will be all that is needed during the summer.

The frequent cultivation of hoed crops is necessary to prevent the rapid evaporation of moisture. If the ground is sufficiently loose an implement with many small teeth should be used, as such a cultivator leaves a finer soil mulch than one with large teeth. A soil mulch three inches deep is more effective in saving moisture than one of less depth. The land should be tilled after every rain, whether the fall is heavy or light. The object of cultivation is to destroy weeds and to prevent the formation of a surface crust. This crust, if allowed to remain unbroken, favors the capillary movement of water to the surface of the ground, where the moisture evaporates. Use the cultivator several times between rains, if the intervals are long.

Nothing is more effective as a mulch than fine soil. Straw, spoiled hay, leaves, pine needle, etc., are used to a limited extent in the culture of fruits and vegetables. These materials check evaporation, keep the soil moist and loose, and help to restore fertility.

Rolling is an advantage in preventing the loss of moisture from soils not compact enough to hold much water. The compacting of such soils by repeated rolling decreases the amount of water that passes through them and beyond the reach of roots. When the object of rolling is to save soil moisture, a tooth harrow should be used if possible after rolling, so as to form a layer of loose soil on the surface; otherwise rolling will decrease the soil moisture. The roller should be used with caution on clayey lands. The purpose of using the roller after seeding during dry weather is to compact the soil, thus increasing the capillary action, which carries the necessary amount of moisture to the seeds to cause germination. The roller is sometimes used after the plants are up, which of course favors the rise of water to the young roots.

The addition of humus to soils deficient in organic material will greatly increase their capacity for holding water. This may be supplied by using vegetable mold, cover crops, rotations, green manures and stable manures. Soil moisture may be saved by other means, but those mentioned in this bulletin are the most important.

Hot or Cold Water for Inflamed Udders.

ED. HOARD'S DAIRYMAN:—Dr. Kitchen, of New Hampshire, in last week's DAIRYMAN, asks, "Is there any reason for not doing this?" i. e., the liberal application of cold water to reduce inflammation by the shrinking of blood vessels and reduce the irritability in the parts, when treating caked udder. We don't believe in the shrinking of parts. Hot water is the only thing, it relaxes the tissue and allows the free flow of blood and lymph, thus reducing the inflammation. From an Oseopathic standpoint, the rubbing and manipulation should be to stimulate the blood and lymph flow to the udder and not necessarily from the udder; thus reducing the danger of bruising the tender parts.

Kirksville, Mo. FRED ZIMMERMAN.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

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Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

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MEADOW LAWN HERD Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

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OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
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Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis.

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

MECHTCHILDE
The greatest butter cow in Holstein history is owned, with her son and two daughters, at **Valley Mead Farm.** Mechtchilde's butter record is the largest in the world, 39 lbs. 10½ oz. from 717 lbs. milk in seven days. Breeders Gazette says: "**Mechtchilde** was one of the 'wonders' of the breed." Men who are interested in phenomenal cows are invited to come and see the greatest butter, milk and prize winning cow that ever existed in America, and that sold for the largest price ever paid, $2 500. **Valley Mead Farm, Monticello, Green Co., Wis.**

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Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

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Best from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

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GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America. Breeding Stock for Sale. Inspection invited.
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AT NEW YORK STATE FAIR,
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Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
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First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
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84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
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AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Growing Alfalfa.

Among the many excellent and valuable papers and addresses brought together by Secretary Coburn for the recent Twenty-Eighth Annual Meeting of the Kansas Board of Agriculture, was an exhaustive article treating on alfalfa, by Mr. H. D. Watson, of Kearney, Neb., giving helpful information and advice suggested by his exceedingly sucessful experience, as to the preparation of the soil, sowing of the seed, etc.

Mr. Watson is probably the most extensive alfalfa grower in the central west, having 2,800 acres of land now set in this wonderful clover.

He says, in part:

PREPARING THE SOIL.

Our land is invariably plowed in the fall, in such a manner as to leave no back or dead furrows, and as deeply as possible, using a subsoiler on all land, the surface of which is more than fifteen feet above the sheet-water that, I am told, underlies the greater portion of Nebraska. The land is left in furrow until all the frost is out of it in the spring. We then go on to it (sometimes as early as February) with a float—an implement made of oak plank. Mine is sixteen feet long. With this, we thoroughly crush and level the ground, and follow immediately with a disk harrow, going over the land as many times as may be necessary to perfectly pulverize it, with the wheels set straight in order to pack the soil as much as possible. I am so particular about the preparation of the soil that in some instances the land is disked five times. After disking, the land is dragged thoroughly, using four horses on a twenty foot harrow at least once a week on the average, or after each rain storm. This is done to prevent evaporation of the moisture which is so necessary to the growth of all vegetation, and especially this plant.

SEED PER ACRE.

Based upon the result of many tests, I invariably use twenty pounds of seed to the acre, sowing with a Cahoon seeder, ten pounds each way; that is, ten pounds to the acre is sown crossing the field in one direction, then reseeding the same land with ten pounds to the acre, crossing the field at right angles to the first sowing. I never sow oats or other grain with the alfalfa seed now, as my experience has been that the alfalfa plant requires all the moisture available in this section, and cannot afford to share this very necessary requisite to its growth with any nurse crop. The seeding is completed between April 10 and May 15. As experiments, I have seeded every month in the year, and found that the best results followed early seeding, as the young plants then receive the benefits of the spring rains.

About the middle of June, or sooner, if the weeds are large enough to shade the ground (with us the sunflower and redroot are quite rank by that time,) I mow the land, leaving the weeds to dry where they fall, as they make a very fine mulch for the alfalfa. In four or six weeks more, according to the growth of the weeds, I mow again, leaving the weeds on the ground as before. This has given me in two instances a crop of alfalfa in September of the year of seeding, although generally I have got no hay crop until the second year.

My first seeding was in alternate strips of eighty acres, one strip with one bushel of oats to the acre and the next strip without the oats. The stand on the strips sown without the oats is to-day more than twice as heavy as on those sown with oats. Two or three times since I have seeded small areas with oats, and once with barley, only to find the same result.

BLUE-GRASS WITH ALFALFA.

Hereafter, when the alfalfa is old enough, so its roots are relying for their support entirely upon the soil below that which the blue-grass roots will penetrate, I intend sowing blue-grass upon my alfalfa fields, as this will do away with the danger of bloat that has heretofore existed in pasturing alfalfa, having observed that the cattle eat liberally of the blue-grass before eating any of the alfalfa, which prevents them from consuming sufficient of the latter to injure themselves. Also, when there is a wet spring and a heavy crop of blue-grass, we invariably get a much finer quality of hay then when we have alfalfa alone.

CUTTING AND CURING.

My experience is that it should be cut as near as possible when in full bloom. Having so large an area, this necessitates cutting a portion of mine before it commences to bloom at all. No cutting is done in the morning until the dew is off, that the alfalfa may fall upon well-warmed ground. The men are employed before that time in cultivating other crops. As soon as the hay is thoroughly wilted it is raked into small windrows, from which it is gathered later by buck-rakes into stacks. As a rule there are three men on the stack, four men on the buck-rakes one man to attend the stacker, and a boy to guide the team used with the stacker. There is a large loss of leaves attending this process, and had I a small area the hay would be gathered as I was taught to cure red clover in New England, by cocking it and letting it cure in the cock, after which it was immediately hauled to the barn that it might not get wet. As it is, what hay will be necessary for the dairy cows and breeding ewes and perhaps for all of my ruminating animals, will hereafter be cured in the cock, as I am certain that the additional expense will be more than compensated by the increased value of the hay. While there is no more valuable forage for cattle, sheep, colts or hogs than well cured alfalfa, so also there is no hay which can receive greater damage from wetting. Because of this I will hereafter put as much as possible in barns and sheds. I will put the remainder in stacks, which I shall protect with stack covers, which are now manufactured for that purpose.

In regard to the feeding value there is one thing it may be well for me to tell you, particularly as it is generally understood that alfalfa makes poor horse feed, and so it does for driving horses. In July, 1894, finding myself without old hay or grain, and no corn to be had for less than sixty cents per bushel I was compelled to depend entirely upon new alfalfa hay to feed some eighty work horses for more than thirty days, during which time they were worked unusually hard, as I was trying to subdue a swamp which was, in many places, very difficult to plow. During this time the horses were maintained in their usual condition of health and flesh, although I believe it better practice to feed some grain, in connection with the alfalfa, to all horses when hard worked. Since that time I have fed all my work horses on well-cured alfalfa, choosing for this purpose cuttings when the plant was passing out of bloom, having learned that there was more protein in alfalfa cut late.

I urge the importance of great care in procuring seed, as otherwise considerable trouble may ensue.

A Good Talk on Cows From The Dairy Standpoint.

At the late Maine Dairy Conference, in Portland, Mr. Valancey E. Fuller, who will be remembered as having charge of the Jerseys at the Chicago World's Fair, made a most excellent address on "The Dairy Cow." We clip from the same the following extracts:

The modern dairy cow, as she exists to-day, is the creation of man's handiwork, a triumph of mind over matter.

In a state of nature, the cow gave but enough milk to nurture her calf for a few months, and was dry till next calving. The enormous milking machine we have to-day in our dairies is the result of careful selection, wise coupling and judicious care and handling.

She may be aptly called an artificial machine, and, being artificial, there is a strong tendency to revert back to the less desirable side of her ancestry. To produce improvement in our cows in each succeeding generation, should be the aim of every breeder and dairyman. But such improvement is not attained by chance. Eternal vigilance, judgment and patience are the price exacted by success.

Dairying and dairy ideas have changed in the past decade.

Specialties have become the necessities of the hour in that keen competition that exists in every line of business. The dairy cow has become an institution of herself. She has come to stay.

The farming community, including the dairymen, have been passing through a period of trying depression. Low prices and low

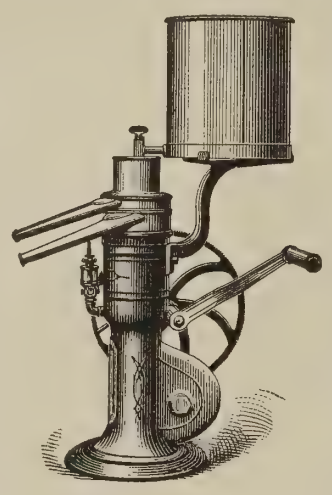
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Quality of Cream . . .	The NATIONAL is the Best
Strength and Durability .	The NATIONAL is the Best
Ease of Cleaning . . .	The NATIONAL is the Best
Simplicity	The NATIONAL is the Best
Design and Finish . . .	The NATIONAL is the Best
Price	The NATIONAL is the Lowest

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551 Marquette Building, Chicago

profits, and, in too many cases, no profits at all, have been the return for expenditure of labor and capital. Mark you, I do not say for expenditure of thought, labor and capital; for the thoughtful man, seeing the turn of events, usually puts his house in order to meet the exigencies of his changing conditions.

No successful dairyman, actuated by the desire for profit, can now afford to keep the general purpose cow. His pocket teaches him that the hereditary tendency to put fat on the carcass is incompatible with economy in putting milk in the pail in the last period of gestation, and that the larger carcass of necessity takes the greater quantity of feed to sustain life and to give the necessary heat to the body, after which the surplus feed is converted into products. Taking cows, therefore, of equal ability at the pail or churn, the smaller cow is the more economical in production, and economy is really the key-note to success.

For economy in dairying, the successful dairyman must have the cow, be she pure or cross bred, of a breed especially bred for the dairy. Such a one, if pure bred, possesses by inheritance the characteristics he seeks, and has the power fixed in her to transmit her own qualities to her offspring, thus fulfilling the double function of a profitable dairy cow and a breeder.

It must be manifest that if we can have our heifers come into profit at two years old, in place of three, without detriment to her future growth, we have gained one year in profit.

The custom of bringing her in when so young, in my judgment, tends to prevent the habit of putting fat on her back, and to fix in her the milking habit; if liberally fed and well cared for between her second and third year, her growth will be all that is desired.

The necessity for tenacity in milking, and the economy there is in this feature of the cow, is so apparent it seems almost superfluous that I should dwell upon it; yet, in my travels through even well established dairy districts, I find its importance is not thoroughly appreciated.

Any dairy cow worthy of the name will give a profit to her owner in the first period of lactation, but far too many cows in the last four to five months of gestation fall off so rapidly in their milk that they rob the owner of the profit they have made in the first period of lactation. Many men, owning cows giving a very large flow of milk at flush, are prone to believe they are the most profitable cows. Unless they are in the habit of weighing their milk, they do not realize that the largest milker at her flush is not always the cow that gives the greatest quantity of milk throughout the year.

Some of the most profitable cows a man can own are those which do not give so large a flow of milk immediately after calving, but which being very tenacious in their milking, give a large quantity of it throughout the year.

If you are selling cream, you must have a cow of a breed whose milk contains a large percentage of cream. Even for the milk route, the same necessity exists in towns and cities to deliver a rich milk.

Economy in production is the keynote to success and this might be considered in conjunction with, and as a part of requisite No. 1: "An animal of a breed especially bred for the purpose;" because if you have a good animal so bred, economy in production is assured.

In the earlier part of my paper I reminded you of the generally accepted axiom that a cow consumes food in proportion to her weight. I must not, however, be construed as advocating that the cow that eats the least food is the most profitable one; on the contrary, my experience teaches me a cow that can profitably consume food is the best one for dairy purposes; that is, if she will convert that food into milk after appropriating what is necessary to support her own carcass, without putting fat upon her back. A cow with a natural tendency to fatness must be avoided in the dairy.

Having considered the requisites in the profitable dairy cow, let us next see how we can acquire such. There are two ways open: By purchase or by breeding.

I am an advocate of having them bred on the farm, by means of a pure bred bull. If you have such a bull descended from a long line of large milkers and buttermakers, he ought to breed with a uniformity that will ensure you the class of animals you desire. They will be profitable to you to keep, and profitable to sell when you have too many. By raising your own stock you can sell off old cows, replace them by those of your own breeding, and thus keep cows only during the most profitable time of their life. A man who is constantly changing his cows by purchase is very liable to introduce disease into his herd.

For the characteristics of a profitable dairy cow we must seek the reverse of a beefy animal. We want a cow with a long, slim neck, thin over front shoulder and gradually widening along her barrel and belly until it forms a perfect wedge. If this be coupled with a long, deep barrel, large paunch in which to stow away her food; if she be wedge shape; if her hip bones be prominent, affording a resting place for your hat; if her thighs be flat, then you may be reasonably assured that you have the form of a cow with a natural tendency to convert her food into milk, rather than put it upon her back.

If with these characteristics, she spreads wide her legs in walking; if she has a large udder, not too fleshy, fed by large tortuous and elastic milk veins, that spring back rapidly when compressed; if she has good lung power; if her jaws are large, and she has open, well-sprung ribs, and her general conformation shows good constitution, then you may expect a deep milker.

I have found the more loosely jointed a cow is the better she is as a dairy cow.

I have often been deceived in a deep milker by her having small milk veins, but I have generally found that while they are small, they resist the pressure of the fingers, and when compressed spring back rapidly into place, showing that the veins are very active, though small.

See that your cow be provided with good storage capacity; that she is not leggy or flat-sided.

A FEW years ago, the New York State Commissioner of Agriculture, investigated the cost of oleo, and gave the following statement:

COST OF 100 POUNDS OF OLEO.

34 pounds neutral lard, 3⅞c per pound	$1.32
27 pounds oleo oil, 3½c per pound	.84½
12 pounds cotton seed oil, 4c per pound	.48
18 pounds milk, 1c per pound	.18
9 pounds salt, about 1c per pound	.08½
Trace of color	.00
100 pounds	$2.91
Tubs, per 100 pounds	.50
Tax, per 100 pounds	2.00
Cost of mixing, per 100 pounds	1.00
Net cost at Chicago, per 100 pounds	$6.41

No wonder the oleo men have millions at their disposal, and are fighting hard for a continuance of their right to sell oleo for creamery butter. It is a stake well worth contesting; but what chance has the dairyman got to compete with pure butter, against any such figures as the above?



THE LIGHT THAT SAVES.

One dark night during the siege of Santiago Harbor a Spanish Torpedo boat darted out under cover of darkness to launch its deadly missile against an American war vessel. If she had been struck she would have gone to the bottom. What saved her? Was it her big 13-inch guns? No, it was her search-light: the dazzling white beam of light that shot straight out like a sword-thrust through the darkness, revealed the approaching danger.

What is it that saves thousands of men from death every day in the year when the deadly foe of disease is creeping unsuspected upon them? It is the white light of science; the educated understanding that reveals the source of danger and indicates the exact point of attack.

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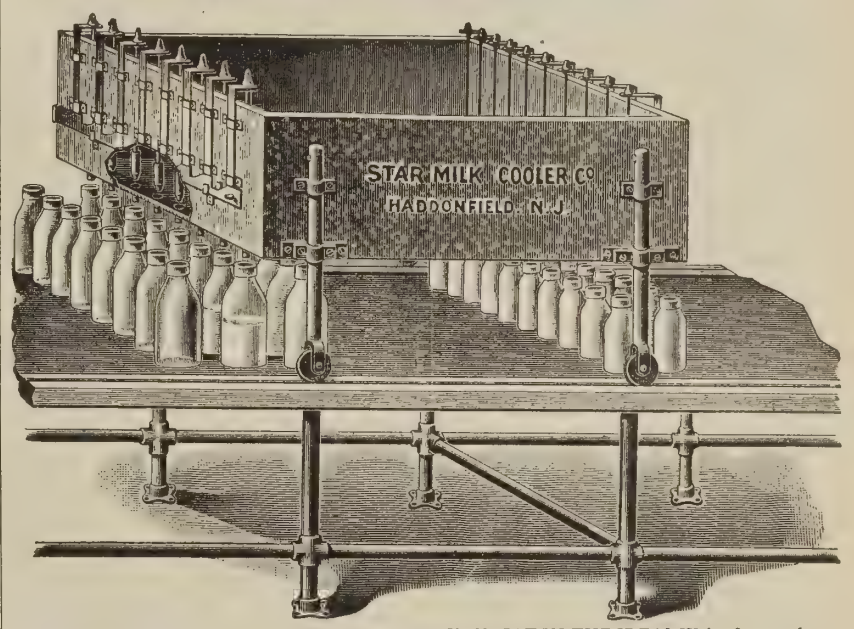
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Sterility in Cows.

Pateley Bridge discourses at length in *Farm and Home* on this subject, which is of considerable interest to dairymen who not infrequently complain of the failure of some of their cows to breed. The writer says:—

Dr. Fleming says that "in the cow the fecundations appear to average about 79 per cent." If we may judge from the frequent complaints of failure to breed, and the number of times we see cows being sent to the bull, this estimate appears almost too large.

The two principal conditions under which farmers and dairymen complain of infertility in their animals are when heifers and cows appear periodically in season, but do not prove in calf to repeated service, and when, after calving, oestrum does not make its appearance for months together. Sometimes the defaulters are not worth the trouble and cost of saving or retaining them as breeders, but the owner is generally very much put out about it, and sometimes to have to send a really valuable animal off to the butcher as hopelessly barren, is most disheartening. As a general rule, the owner of cows or heifers which, after a fair trial, fail to produce their kind, would do well to consult an experienced veterinary surgeon and have a careful examination made.

Sterility may depend upon organic or physical causes, and may amount to permanent impotence, more particularly when congenital and located in the generative apparatus. Whether the impotence is permanent on account of some congenital deformities, or the deformity has resulted from disease, it saves time and money to be assured of the uselessness of attempts to get the animal to breed, while the examination may result in the discovery of an obstacle to successful fecundation that is removable. A cow or heifer may come in season all right, and accept service with alacrity, and yet there may be obstacles to conception that may or may not be removable. The number of diseased conditions of the generative or other organs, as well as general derangements, that may prove a bar to fecundity, are very large. They include most of the diseases causing alterations in the ovaries, fallopian tubes, uterus and vagina, and tumors of various kinds in these organs are not an infrequent cause of sterility.

The chief obstacle to generation is the existance of some abnormal condition of the cervix uteri—and this, Dr. Fleming says, is a circumstance much more common than is generally supposed. Occlusion of the os—the canal leading to the cavity of the uterus—has been recognized as a cause of sterility from the earliest times, and the occlusion may be partial or complete. In these cases the local application of belladonna is sometimes successful, while dilating the os by means of various instruments devised for the purpose often answers very well. Hypertrophy, from plastic exudation and the formation of false membranes, is a very frequent cause of sterility in the cow, particularly in those cases that prove barren after having produced one calf. Hypertrophy, disorganization or rigidity may readily follow on injuries received in parturition. It ought not to be difficult to understand that operations may easily overcome these obstacles, and those who have cows which are really worth conserving as members of the breeding herd, would do well to remember that as the removal of obstacles to generation are, in many instances, quite within the scope of surgical measures; an expert examination is a measure of economy. It will save the waste of time and cost of keep associated with keeping an animal doing nothing, and constantly sending her to the bull, whether the examination prove that the obstacle is removable or that the impotence is permanent.

There is no doubt that sterility, like fertility, is very often a family characteristic. There are families of shy breeders, just as there are families which are regular breeders or frequent producers of twins and triplets. Very often these shy breeders are found among the aristocrats of the bovine race, the line-bred, pampered, pedigree animals. Indeed, the complaint about the heifer or the cow that is infertile is generally of a "valuable" animal—that is, valuable in point of having cost a pot of money on account of good looks and pedigree, and that would be valuable commercially if she could be persuaded to breed, and having done so, produce enough milk to bring up her calf. There are a good many owners of herds of high-bred cattle who esteem themselves fortunate if they get a calf once in two years, and this is doubtless due to infertility having become a family characteristic, as the result of long-continued exposure to artificial conditions, and high feeding of the young animals for exhibition purposes. It may be all right for the rich owner of such animals, but the ordinary farmer, who keeps cows that he may live out of them instead of living to breed cattle for exhibition purposes, cannot stand it. He wants a calf every year, and therefore these infertile, milkless animals, around which an admiring, if not particularly discriminating, public crowds at the big shows, find no place in the working herd.

The usual thing when a cow comes regularly in season is to assume that the fault lies with the bull. It may be so, for sterility in the male is not uncommon, and may arise from overwork, over-fatness, sexual debility or any of those causes mentioned as associated with the maintenance of high condition for show purposes, but the bull is very frequently changed, another is tried, sometimes three or four animals, but with no better results. It is very often only after saying nasty things about the capacity of his neighbor's bull, and doing his best to injure the animal's reputation as a sure stock-getter in the district, that the owner is driven to the conclusion that the cause of the failure resides in his own animal.

Over-fatness is a cause of infertility, and this is often associated with want of exercise and life under generally un-natural conditions. Complaints of sterility rarely come from the purely beef breeds, where very often the bull runs with the herd in the fields. But for the uncertainty associated with calving dates, there is no better method than this of insuring fertility, and if the herd is well looked after by an intelligent, painstaking man there need be very little difficulty about this. As an instance of the influence of fat, fatting foods and unnatural conditions, Lyford, an American authority, says:—"I have known a case where, of a litter of six pigs, four were fed on sugar and molasses to hurry up growth, after which all four proved barren, while the two which were turned out on ordinary feed were productive."

The association of breeding failures with the existence of epizoötic abortion is too well understood to need more than passing comment. The man who puts his aborting heifer or cow to the bull when next she appears at oestrum, without the slightest attempt at treatment, deserves nothing better than failure, but ignorance or hope causes it to be done very often—with disastrous results, as regards spreading the disease, by infecting the bull. Tuberculosis is also frequently associated with infertility, and sometimes the lesions are situated in the generative apparatus. Very often these animals are always at oestrum, and the "buller" is a recognized tuberculosis subject.

There is one point in connection with the regular appearance of oestrum that deserves mention before we leave this part of our subject. It is usual to assume that its non-appearance at the regular interval after the last service is evidence of successful fecundation, and that its re-appearance is indicative of failure. That is certainly the rule, but to both there are frequent exceptions, and we are not absolutely safe in assuming that the animal in which oestrum is absent is in calf, or that the one in which it is regularly recurrent is not. There are some animals which return to service periodically, sometimes with remarkable regularity, at the end of three weeks, long after conception, and even until close upon the period of calving.

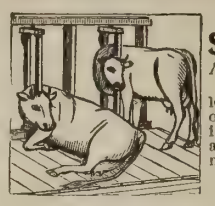
Writing on this point some ten years ago, a correspondent of *Farm and Home* said:—We have known a cow to produce a healthy and vigorous calf scarcely a month after her last service; and we have known a cow slaughtered as barren, having come in season within the last three weeks of her life, when she had within her a pair of fine heifer calves, evidently within about six weeks of being due for birth. In these cases a stethoscope, in the hands of a veterinary practitioner, or in the hands of the owner, or any other person, if he knew where to apply it, and how to use it, would have detected the presence of living calves, by the beating of their hearts. Cows playing this trick, although not always shy breeders, are perilously liable to condemnation as such, through the owner's want of care or knowledge.

While dissenting from the statement that it is easy for anyone to determine the pregnant condition of a cow, that regularly appears in season and accepts service, I can confirm the frequency with which cows, fattened and sold to the butcher as barren, are found, when slaughtered, to be forward in calf. Every butcher of experience can tell of many such cases, and it is well to take every precaution to ascertain the condition of such animals before they are sold out to go on grass for beef, or put up to fatten at home. The cow which, having produced one or more calves, does not appear in season for months together, belongs to another class. She is none the less a nuisance than the sterile cow, or the shy breeder, which does, because she upsets the routine of management, and her place in the dairy often has to be taken by a fresh purchase, to provide for the requirements of milk contracts. There are, doubtless, many causes for the non-appearance of oestrum, but with the class of cow in question, it is due to the fact that she is producing milk. This is proved, if proof were needed beyond that afforded by experience of what happens in other animals, by such cows breeding readily when dried off. It is quite a common thing for the owner to keep waiting and waiting for the cow to come in season, without any appearance of it, until she begins to fail in her milk, when he wants one in full profit, and she is sold as she is, or dried off and disposed of as barren. About the first thing she does then, is to come bulling in her new owner's hands, and make herself a nuisance that way. It is not at all uncommon for a dairyman to buy back the cow forward in-calf he sold empty some months before, and the only secret in the matter is, that she failed with him because she was in milk, and succeeded with the other man, because she came in season as soon as lactation ceased. Medical men meet with many such cases in their practice, especially among the poor, where large families are unwelcome.

There is no real remedy in these cases—it is purely a question of profit and loss. Does it pay to retain a cow doing nothing to earn her keep during the whole period of gestation? Most people think not, but there seems no alternative but to do so, or sell the animal out when her milk yield no longer comes up to the standard of profit. All these difficulties, coupled with lack of convenience for keeping "drapes," make people willing to pay high prices for cows that have just calved or that are on the point of calving, with the intention of selling them out as soon as their milk yield falls below a certain point. But even the men who supply this market cannot afford to keep cows doing nothing but carry a calf and no one wants animals that are dry for more than a month or six weeks before they calve again. Failure to appear in season, while in full milk, seems a trouble that is very much on the increase, and probably will continue to increase with the cultivation of the milking habit.

There is one point worthy of note in connection with the cases. Very often the cows appear in season once, just after parturition, and if that is missed the opportunity for service does not occur again while milking continues. Very often the period is allowed to pass, because the owner considers it too close on the birth of the previous calf, or perhaps because he wants her to come in at a particular time, which would not accord with the convenience of the cow. There is, no doubt, a good deal in the popular notion that if the first period of oestrum after parturition

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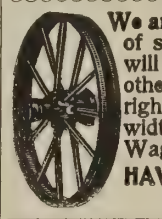


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is missed, the opportunity may not occur again for some time, and also in the notion that it is the most certain as regards conception. The cow, ass, sheep and mare, it is believed will copulate with greater certainty of success on the ninth day after parturition, than at any other time, and there seems a good deal of warrant for it. It is for this class of irregular breeders that the great demand for recipes to bring them in occurs.

I am no believer in drugs for this purpose, for these "remedies," known technically as aphrodisiacs are most uncertain in their action, and special stimulants, given in doses, calculated to be effective, are not wholly free from danger. That most frequently employed cantharides—has in large doses, a most deleterious action on the kidneys, and is a powerful irritant poison. Other aphrodisiacs—perchloride of iron, nux vomica, phosphorus, and the peppers— are uncertain, or only useful in cases where there is debility, and blood and nerve tonics are indicated. So called "procreative powders" are largely advertised at high prices as certain to be effective, but it is always well to take a liberal discount off the claims of the proprietary medicine man. An example of such medicine is: Powdered cantharides, 2 drachms; aniseed, grains of paradise, bayberries, and pimento, all freshly powdered, of each one ounce. Give in a quart of milk two hours before food. This formula was given to me as a great favor by an old man who declared it would certainly cause the cow to come fit in 10 days. I have never ventured to try it; but a single dose could hardly do harm, and anyone in difficulties might put it to the test.

Power for a Silo Cutter.

ED. HOARD'S DAIRYMAN:—Will say to Buff Jersey that we use a 17 inch cutter, 28 foot elevator and 18 foot conveyer. Engine 100 feet from cutter, power transmitted with ¾ inch Manila rope. For eight or nine years we used a 5 H. P. engine, 6 H. P. boiler and it worked well. The engine was an old one, and four years ago we put in a new 8 H. P., still using the old boiler and feeding engine with one inch pipe, and have all the power we need. Rope lasts from five to six years, cutting from 400 to 500 tons yearly, besides grinding.

I have a neighbor who uses same size cutter, 30 to 35 feet carrier; 6 H. P. engine located fully 125 feet from cutter; transmits power with rope, and as he has used it nine or ten years, and continues, I conclude it gives him satisfaction. T. BACON.

Lake Co., Ill.

A Good Law.

New York dealers find that since the enforcement of the law which requires process butter to be marked "renovated," they can not handle it at all. People do not want butter that they know has been made out of what would otherwise be unsalable, no matter how clean it may appear after renovation. —*New York Farmer.*

The above quotation well illustrates the beneficial effects of such food laws as place dishonest greed and sophistication in the light of a plain and truthful statement. What all these dealers and manufacturers of oleo, and other deceptive substitutes dread, is publicity.

Butter, Cream or Cheese.

In these times of close competition in dairying, to be master in his business, one must know how much milk will yield, made up into various products, when their market prices are such as to warrant a diversity. When milk, testing 4 per cent, sells for five cents a quart, and skim milk is worth twenty cents per hundred pounds for feeding, it is bringing the equivalent of forty cents per pound for butter. One hundred pounds of milk testing 4 per cent fat would yield, on the average, 4.5 pounds of butter. In one hundred pounds of milk there are about forty quarts. This, sold at five cents per quart, would bring $2, and taking out twenty cents, price of skim milk, if butter were made, we see that 4.5 pounds of butter must sell for $1.80, or forty cents per pound. In a similar way, we see that sixteen cents per quart for cream testing 20 per cent fat is the equivalent of 29.3 cents for butter.

The yield of butter is estimated in many creameries by adding one-eighth to the butter fat; the yield of green cheese by multiplying the fat by 2.7, and that of cured cheese by multiplying by 2.6. This estimate is based upon milk containing about 3.7 per cent fat, however, and the richer the milk the greater the yield from a given amount.

A hundred pounds of milk testing 4 per cent fat, will yield about 4.5 pounds of butter, or 10.8 pounds of cheese. If it costs three cents per pound to make the butter, and one and a half cents per pound to make cheese, eighteen cents per pound for butter will be equivalent of 7.6 cents per pound for cheese.

Such problems as the above, the up-to-date creamery man must solve readily, and then turn his milk into the most profitable channel.—PROF. H. HAYWARD, of Pennsylvania Experiment Station.

"Profits Scarcely Visible to the Naked Eye".

"What Shall We do to be Saved".

The above titles are the remarks made by a Kansas creamery patron. His year's record shows that he milked eight cows, which yielded him an average of 131 pounds of butter fat, for which he received $19.63. His cows consisted of three Jerseys and five mixed Holsteins and Short-horns. These he bred either to a Short-horn or Hereford bull. His winter grain was corn and oats, and his roughness clover hay, millet and corn fodder. Until prices for butter fat improve he expects to get the most profit from "good calves and fat cows".

From the above it will be seen that this patron is very changeable. First he runs to dairy stock, and as soon as the price of butter fat falls a little he changes to beef. This changing from milk to beef and from beef back to milk is enough to ruin any herd. A person familiar with the laws of breeding knows that a cross of two distinct breeds is liable to produce offspring with characters foreign to both. We sometimes hear it remarked that if we should cross a Holstein on a Jersey the offspring would be a cow that would yield the quantity of the Holstein and the quality of the Jersey. The result is much more apt to be a cow with the quantity of the Jersey and the quality of the Holstein.

This is an age of specialties, and the man who makes the greatest success is the one who selects a specialty and sticks to it. The successful dairyman is the man who stays by his cows, even though the price of butter fat should be low for a season. If he should attempt to change to beef it would take several years to do so, and by that time the price of butter fat may be high, while his cows are ruined for dairy purposes. When butter fat is low is just the time to push the dairy business, for sooner or later there will be a reaction, and the man who is ready is the one to reap the profits.

The patron realized for butter fat $19.63 per cow, per annum. The agricultural college scrub herd that had been pushed along dairy lines brought an average of $37.75 per annum. This difference of $18.12 per cow is what would have been visible to the naked eye had his cows been handled as the agricultural college cows were handled. "What shall we do to be saved?" Settle upon some definite line of work, study the business in all the details, find out what others are doing in the same lines, make it a hobby, and, above all, stick to it. D. H. O.

Kansas Experiment Station.

Feeding Fat Into Milk.

We are in receipt of a letter from an eastern subscriber, in which he says: "*The Practical Dairyman* asserts that fat cannot be fed into milk. This is contrary, I think, to the position taken by the Massachusetts Experiment Station. In one of the bulletins of that station, I believe, it was asserted that both protein and fat would increase the fat in milk."

Our correspondent is both right and wrong. In looking over the bulletins of that station, we find one in which occurs the following: "Feed has very little, if any, effect upon the quality of milk. By quality we refer to the per cent or amount of total solid matter in the milk. It is a well-recognized fact that some feeds affect the flavor of milk, and possibly, to a slight extent, its color. Feeds rich in protein have a tendency to slightly increase the percentage of fat in case of some cows; the same can be said of feeds rich in fat. This increase is probably only temporary, however, the milk gradually coming back to its normal composition. Animals very thin in flesh and insufficiently fed, if brought into good condition by proper feed, will probably yield milk of rather better quality. The improvement in quality will not, as a rule, be very marked. The milk-producing function is, to a large extent, under the control of the nervous system. Any influence that disturbs the quiet or normal condition of the animal, be it rough usage, extremes of temperature, exposure to rain, etc., will have its effects upon the quality of the milk. On the other hand, plenty of good feed increases the quantity of milk until the animal reaches her maximum production. What has been said with regard to the influence of feed upon the quality of milk is equally true relative to the amount of butter that can be made from a given quantity of milk. No method of feeding has yet been discovered that so improves the quality of the milk as to make a given quantity of milk produce more butter at one time than another. The quality of milk varies during the different stages of lactation, but this is entirely independent of the influence of feed. The above statements are based on the teachings of carefully conducted experiments. They are contrary to the general belief that the better the animal is fed the better the quality of the milk produced."

There is no criticism to make upon this position, except that it is pretty well settled that when there is an increase of fat, seemingly as a result of a change of feed, it really can not be traced to the feed. As some have expressed it, "it probably was owing to some other cause." If the food could accomplish this, why should not the better quality continue as long as the feed continued? It never has, so far as we are conversant with experiments in that line.—*Practical Dairyman.*

Sow More Clover.

At a recent Canadian meeting of farmers the writer of this was much impressed with the address of Professor Saunders in regard to the importance of the clover crop and its relation to the maintenance of soil fertility. It was so greatly at variance with the old-time doctrine that it sounded like a new revelation. The old doctrine, says a writer, in New York *Tribune*, was that clover took all its properties from the soil, and this address was, that latest investigation revealed that about all of the nitrogen was caught from the air, and, while there was no new gifts of potash and phosphoric acid, the clover plant gathered up stores of the latent materials of these and gave them back to the soil in an assimilated form for the succeeding crop, which really amounts to a new supply. Another thing which was valuable, if it is confirmed, is that a crop of clover left upon the ground and not plowed under until spring would, as a mulch, add a large percentage of nitrogen to the soil by this covering, in addition to the stored nitrogen gathered by the plant during its growth. It was also noticed that the figures given by the Canadian investigations run very even with those figured out by Professor Roberts at Cornell, and show that clover is clover wherever it can be grown. The figures show that the plant food secured by a full crop of clover was about an average of 125 pounds of nitrogen an acre, 35 pounds of phosphoric acid and about 120 pounds of potash, or about $22 worth, as purchased as high-grade fertilizers. Clover improves the land, as does no other crop, in texture, and supplies other plants with exactly the food they require, so that when one has a clover crop to plow under, the succeeding crop is assured. One of the things about the plant food supplied to following crops by clover, is its availability and the readiness with which it can be assimilated by the plants, while the farmer has little foreknowledge of what the effect of a purchased fertilizer will be. The fertilizing ingredients of a commercial fertilizer are not always in available forms for the plants, and possibly may be in quite as inert a condition as the plant food may be, in soil depleted of its fertility by cropping. The nitrogen in dried blood, nitrate of soda and the like, is quickly available, but in wool waste, hair, hoofs and leather scrap, it is so slowly disintegrated that the plant would starve before it could get a meal of it. Materials sold in fertilizers may show high percentages of plant food, and still be almost worthless as food for plants, owing to the fixed character of the material, which even sulphuric acid cannot liberate; but the clover plant is a fertilizing agent whose goods are as represented, are in available form, and need no liberating reagent to set them free, beyond the natural ferments of the soil. The cheap price of clover seed this season, and the possibilities of sowing it with all small grains, and as a catch crop in the corn, and a special crop by itself, should stimulate all farmers to sow clover with an unstinting hand, and return as nearly as possible to nature's methods of restoring and building of soils. Possibly the soil, after several successive rotations of crops and clover, would need to be reinforced with an application of South Carolina acidulated rock and some muriate, or sulphate of potash. Then the rotation will go on again, as the nitrogen is all the time being supplied through the agency of the clover. Peas, rich in nitrogen, come in as a wonderful help as a catch crop, as they can be grown in fifty days, and are valuable aids in supplying plant food. Their mechanical effect upon the soil is second only to clover. Try it this year and see if 75 cents' worth of clover seed, put on an acre, will not result as beneficially as would a ton to the acre of $22 phosphate, and with these advantages: The clover fertility would last two or three years, instead of only one, and the mechanical effect is far superior to purchased plant food; and, lastly, there will be $21 difference in the expense account.—*Prairie Farmer.*

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One Pound Secures Confidence.

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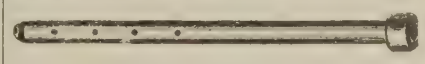
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Official Tests of Holstein-Friesian Cows, from January 1, 1899 to March 1, 1899.

ED. HOARD'S DAIRYMAN:—These tests are for seven consecutive days and are supervised by officers of agricultural colleges and experiment stations, or by persons vouched for, by such officers. The amounts of butter fat are determined by the Babcock test and the amounts of butter are calculated on the basis of 80% fat to a pound of butter, the rule established at the Chicago World's Fair.

Adventuress 6452; age 9 years, 8 months, 9 days; amount of milk, 409.7 pounds; amount of butter, 18 pounds, 11.1 ounces.

Belle Korndyke 13913; age 10 years, 9 months, 13 days; amount of milk, 509.8 pounds; amount of butter, 25 pounds, 12.3 ounces.

Clothilde Artis Belle 34740; age 5 years, 9 months, 23 days; amount of milk, 466.8 pounds; amount of butter, 20 pounds, 6 ounces.

Duchess of Beechwood 35703; age 5 years, 7 months; amount of milk, 397.1 pounds; amount of butter, 16 pounds, 8.7 ounces, in an economic test; cost of butter, 7.07 cents per pound.

Duchess Ormsby 16004; age 9 years, 10 months, 14 days; amount of milk, 359.9 pounds; amount of butter, 24 pounds, 4.4 ounces.

Kitty Clyde's 2d Coral 33958; age 6 years, 4 months, 19 days; amount of milk, 482.5 pounds; amount of butter, 24 pounds, 6 ounces.

Leaffy 38708; age 6 years, 3 months, 8 days; amount of milk, 378.9 pounds; amount of butter, 17 pounds, 12.5 ounces.

Nancy Dewdrop 2d's Hollander 36584; age 6 years, 1 month 20 days; amount of milk, 421.3 pounds; amount of butter, 19 pounds, 8.9 ounces.

Nattie Maid 33314; age 5 years, 9 months, 6 days; amount of milk, 467.4 pounds; amount of butter, 18 pounds, 10.7 ounces.

Orrice 5th 34662; age 5 years, 10 months, 7 days; amount of milk, 331.6 pounds; amount of butter, 15 pounds, 13.3 ounces.

Princess Penrosa 12711; age 10 years, 3 months, 9 days; amount of milk, 409.2 pounds; amount of butter, 19 pounds, 13.1 ounces.

Springvale Duchess 33986; age 6 years, 2 months; amount of milk, 376.4 pounds; amount of butter, 16 pounds, 12.3 ounces, in an economic test; cost of butter, 6.37 cents per pound.

Wing Vergens 9824; age 10 years, 11 months, 25 days; amount of milk, 424.7 pounds; amount of butter, 18 pounds, 2 ounces.

Johanna DeKol 36478; age 4 years, 8 months, 16 days; amount of milk, 437.6 pounds; amount of butter, 20 pounds, 4.4 ounces, in an economic test; cost of butter, 6.46 cents per pound.

Piebe Queen 2d 37957; age 4 years, 9 months, 17 days; amount of milk, 320.4 pounds; amount of butter, 15 pounds, 4.1 ounces.

Jennie Marie 45219; age 4 years, 4 months, 6 days; amount of milk, 322.4 pounds; amount of butter, 15 pounds, 1.5 ounces.

Nannette 3d's Pledge 2d 39518; age 3 years, 10 months, 1 day; amount of milk, 412.7 pounds; amount of butter, 17 pounds, 5.9 ounces.

Piebe Queen 3d 39580; age 3 years, 10 months, 13 days; amount of milk, 310.7 pounds; amount of butter, 15 pounds, 5.3 ounces.

Ginger 40757; age 3 years, 3 months, 19 days; amount of milk, 541.8 pounds; amount of butter, 20 pounds, 6 ounces

Pieterje Hengerveld Lady DeKol 41977; age 2 years, 7 months, 24 days; amount of milk, 308.1 pounds; amount of butter, 14 pounds, 2.1 ounces.

We Repeat 41016; age 2 years, 10 months, 3 days; amount of milk, 301.6 pounds; amount of butter, 12 pounds, 5.7 ounces.

Johanna DeKol 2d 42168; age 2 years, 27 days; amount of milk, 348.4 pounds; amount of butter, 16 pounds, 0.8 ounces, in an economic test; cost of butter, 5.7 cents per pound.

Johanna DePauline 42169; age 2 years, 2 months, 8 days; amount of milk, 311.9 pounds; amount of butter, 14 pounds, 0.7 ounces, in an economic test; cost of butter, 6.8 cents per pound.

Natsey's Lady Baker 41879; age 2 years, 2 months, 24 days; amount of milk, 303.3 pounds; amount of butter, 12 pounds, 12.4 ounces.

Paula Parana 43512; age 1 year, 11 months; amount of milk 202 pounds; amount of butter, 10 pounds, 1 ounce.

Paula Rixa 43514; age 1 year, 10 months, 18 days; amount of milk, 255.5 pounds; amount of butter, 12 pounds, 2.7 ounces, in an economic test; cost of butter, 7.95 cents per pound.

Piebe Queen 2d's Princess 45006; age 1 year, 8 months, 13 days; amount of milk, 253.3 pounds; amount of butter, 11 pounds, 2.7 ounces.

Wimpje's Albino DeKol 42754; age 2 years, 4 months, 28 days; amount of milk, 294.4 pounds; amount of butter, 12 pounds, 12.3 ounces.—S. HOXIE, Sup't Advanced Registry, Holstein-Friesian Association of America, Yorkville, N. Y.

Drying Off Cows and Calving Time.

It is not unusual to find a cow which shows no inclination to dry off at any time after dropping her first or second calf. Such an animal shows an excellent dairy trait—persistence in the milking habit—but it is doubtful if continous milking is profitable. Better results are believed to be obtained from cows which are inclined to take an annual rest, if not too long. A month is long enough; three weeks will do in most cases, and six weeks should be the longest time encouraged or allowed for a cow to be dry before calving. An accurate record of service by the bull is essential to preparations for drying off cows at the right time. A table should be kept of the dates when cows of the herd are successively due to calve, with notes as to milking habit of every one. When the time comes for drying off a cow the grain food should be gradually withdrawn. This may of itself cause milk to cease forming. If not, omit one milking a day, then milk once in two days, and thus extend the drying period over two weeks. The udder must be watched, and if any hardening or unnatural heat is shown regular milking must be resumed. If the cow continues to secrete milk it must be drawn. No cow should be forced to "go dry" against manifestly natural resistance to so doing. On the other hand, if an unpleasantly pungent or "smoky" taste appears in a cow's milk, she may as well be dried at once, regardless of dates, as her milk will not be good until she is fresh again.

The dry cow may be kept on pasture alone, not too luxuriant, or on a low stable diet, mainly, of coarse forage, until about two weeks before calving. Yet the ration, while comparatively "wide," should be nutritious, and it should include a share of succulent food—roots or silage. Then a slow but steady increase of feeding may proceed, of a nourishing, cool and laxative kind, so as to become narrower in ratio. Wheat bran is a good material to use at this time, but new-process linseed meal is better. Experience has led the writer to endeavor to have his cows calve on an up grade, as it were, while daily gaining in strength and vigor, on a judiciously prepared, nourishing diet, but without high feeding or plethora. A week before calving remove the cow to a roomy, comfortable, quiet box stall, preferably within hearing of the herd, if not in sight. Be sure the bowels are quite loose and moving freely for two days before calving. Watch for the event, but do not disturb the cow or interfere unless something goes wrong or assistance is manifestly necessary.—*Primrose Bulletin.*

Transfers of Guernsey Cattle from June 1 to 15, 1899.

BULLS.

Clement K 6010, Franklin S. Kendall to J. A. Thompson & Son, Melrose, Conn.
Culla 5585, Cullasa 5584, Isabella's Son 5892, O.T. Remington to Geo. C. Hill & Son, Rosendale, Wis.
Colonel S., of Fairview 6025, Duke S. of Fairview 6026, N. E. Smith to J. M. Duncan, Silver Springs, N. Y.
Darius Fisher 5754, G. E. Foster to S. B. Millet, Palmyra, Me.
Dewey of Lime Valley 5838, S. C. Heisey to I. R. Scott, Ward, Pa.
Imp. Evory 3977, R. C. Conde to F. B. Buckley, Valley Falls, N. Y.
Earl of Chatham 5075, M. B. Rowe to A. J. Snyder, Plumsteadville, Pa.
Golden Nereus 6002, Sydney Fisher to Robert Watson, Lachute, Que.
Gem of Linden Home 6023, Chas. Solveson to J. J. Bush, Elmira, N. Y.
Garner's Admiral Dewey 6029, James B. Case to Geo. W. Hancock, Wayland, Mass.
Glennoyne 2d 5513, J. M. McCamant to R. Francis Wood, Philadelphia, Pa.
Gypsy John 5613, J. J. and O. W. Bean to Geo. C. Hill & Son, Rosendale, Wis.
Hobson of Lime Valley 5838, S.C. Heisey to J. D. Cameron, Rheems, Pa.
King of Prospect 6034, C. O. Potter to Chas. J. Thompson, Farmington, Conn.
Merritt of Lime Valley 5836, S. C. Heisey to D. W. Heisey, Rheems, Pa.
Millwood's Young Count 6020, Est. E. F. Bowditch to Albert Webster, Blackstone, Mass.
Neruba 5108, Sydney Fisher to M. H. Chipman, Haliax, N. S.
Our Wrangler's Boy 6028, E. W. Tillotson to H. K. Herrick, Blandford, Mass.
Raphael of Pinehurst 6032 Jas. H. Beirne to E. R. Strawbridge, Moorestown, N. J.
Rosemoor 6035, W.H. Ridge to Charles Atkinson, Somertown, Pa.
Salem 6016, Geo. Mixter to W. Putnam, Cooleyville, Mass.
Sir Applecot 6018, C. O. Potter to R. A. Borden, Easton, N. Y.
Standard Jim 5228, F. B. Buckley to E. H. Miller, Dummerston, Vt.
Schley of Lime Valley 5835, S. C. Heisey to E. Maule & Co., Leonard, Penn,
Sampson of Lime Valley 5834, S. C. Heisey to J. W. Little, Hanover, Pa.
Sir Thomas Page 4490, A. W. Andrews to John H. Webb, West Brookfield, Mass.
Stella P's Gold Bar 5986, Chas. Solveson to Christ Muth, Manitowoc, Wis.
True Type's Lad 6031, A. J. Snyder to H. S. Wright, Lysander, N. Y.
Vogel H. 5925, John Barth to Chas. Solveson, Nashotah, Wis.
Watson of Lime Valley 5837, S. C. Heisey to Elias Lindamuth, Mount Joy, Pa.

COWS.

Imp. American Beauty 11123, Dandelion of The Glen 10198, Imp. Florham Lily 11126, Imp. Floresta 11127, Imp. Island Rose 11125, Lady Rotha 2nd 9960, Imp. Lady Susan 11729, H. Mc K. Twombly to Robert & Herbert Scoville, Chapinville, Conn.
Belle Butler 11718, Homer Blossom 11719, J. C. Long to Howard Reiber, Butler, Pa.
Calynera 11712, Clytemnestra 10033, Sidney Fisher to M. B. Chipman, Halifax, Nova Scotia.
Duchess of Andover 4080, Duchess 3rd of Andover 11609, Lyman Duchess of Andover 9356, A. H. Lyman to Buell T. Holcomb, West Simsbury, Conn.
Esther K. 11693, Franklin S. Kendall to J. A. Thompson & Son, Melrose, Conn.
Evaline's Nubia 11414, Chas. Solveson to James H. Beirne, Oakfield, Wis.
Edna Carter 10502, Empress 9192, Kitty of Castel 10500, Loline 11384, A. J. Sneider to Hon. J. Donald Cameron, Harrisburg, Pa.
Gold Dust of Maplehurst 11733, Portia of Maplehurst 10071, Pride of Maplehurst 10070, J. E. Middaugh to G. B. Tallman, Perry, N. Y.
La Grande 4th 3429, J. J. C. Abbott to J. M. Greenshields, Danville, Que.
Miss Orange 8399, Royal Camilla 10299, Royal Elizabeth 10305, Orange Prim 11706, Royal Rowena 10303, F. B. Buckley to L. H. Washburn, Stony Point, N. Y. WM. H. CALDWELL Sec. Peterboro, N. H.

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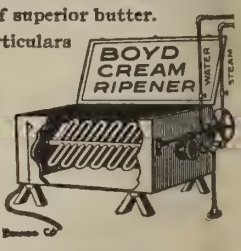
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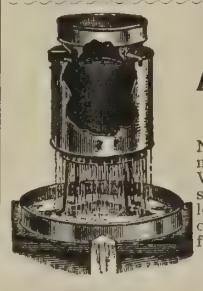
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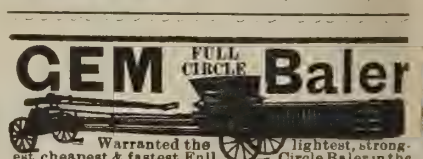
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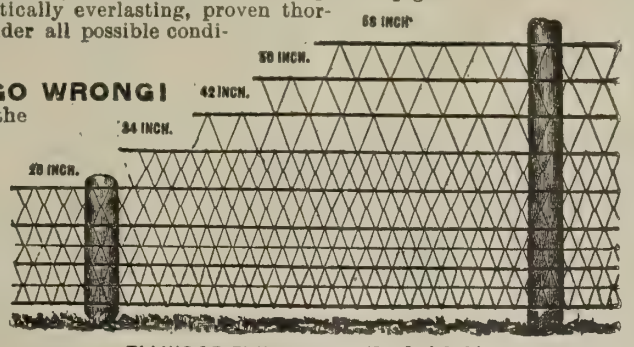
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WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.

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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,
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PRICE IS OUR ARGUMENT.

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The Best $26. Buggy on the Market.

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Crawfordsville Carriage and Harness Co.,
22 Main St., Crawfordsville, Ind.





DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

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Makes Woven Wire Fence that "Stands Up." **Cannot Sag.**

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Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.*

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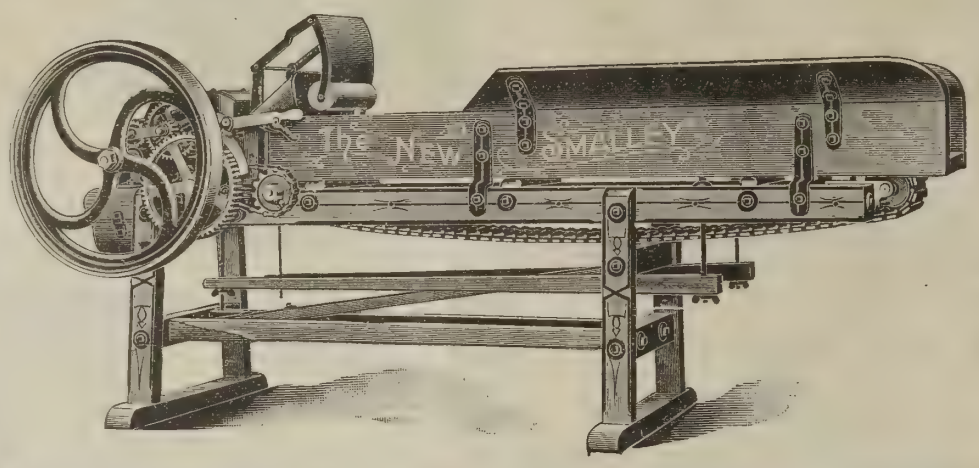
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The most Up-To-Date Silo Cutter On Earth.

Smalley Cutters



For 1899 are more complete than ever before. They will be furnished, if desired, with Patent Automatic Self Feed, **increasing capacity greatly and diminishing labor of feeding nearly ONE-HALF.**

Nos. 16, 18, 20 and 26.

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SMALLEY MFG. COMPANY, SOLE MAKERS, **MANITOWOC, WIS.**

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Ever since the ensilage system has been introduced in this country it has been the ambition and effort of siloists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste.

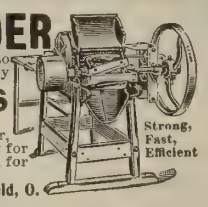
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It is the Original Shredding Machine and all other so-called shredders are merely imitations of this one. ***It will certainly pay you*** to look into the merits of this proposition and machine before buying. We mail free a pamphlet on the subject.

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is equal in feeding value to the best hay when prepared by

THE ROSS ENSILAGE MACHINERY.

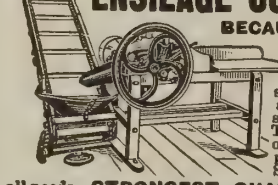
Strong, Fast, Efficient

Cuts ensilage, corn fodder, hay, &c., for **feed**, and straw for **baling and bedding.** Send for free catalogue No. 7

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SILOS Are Filled Quickly and Economically with "New Hero"

ENSILAGE CUTTERS

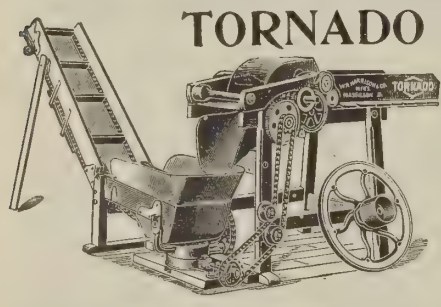


BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. **STRONGEST GUARANTEED.**

SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER, runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed **FREE.** Tells all about Hero Ensilage and Fodder Cutters, Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Shellers, Peck's Corn Thresher, etc.

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IMPROVED FOR 1899.

Do you expect to put up Ensilage this Fall? If so, the **TORNADO** will do it better and faster than any other. With our Improved 1899 **Carriers** or **Conveyers** they make the best Ensilage outfits known. **Unequalled for dry Cornfodder and Hay.** Send for catalogue and **Free Sample of the TORNADO'S work on Cornfodder and Hay.** Also **LAND ROLLERS and Sweep HORSE POWERS.**

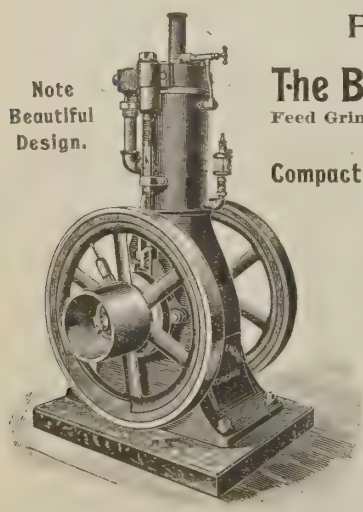
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Treatise on Cheap and Practical Silo Building mailed FREE. Mention HOARD'S DAIRYMAN.

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FOR GAS OR GASOLINE.

Note Beautiful Design.



The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

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Price includes Gasoline Tanks and full set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

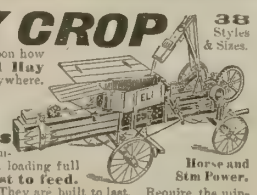
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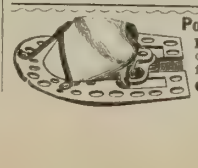
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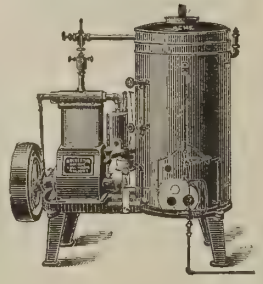
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Pounder's GREAT Bog Shoe proves a **Success** on marsh or soft land. Write for my **free catalogue.**

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ON THE MARKET TEN YEARS.

The Acme Engine



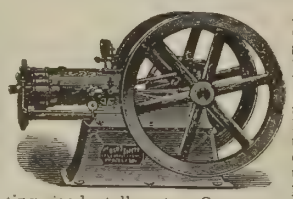
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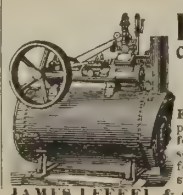
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The OLDS GASOLINE ENGINES! SIMPLE and ECONOMICAL



Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**



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Cheap Power and Effective Power can be best secured in one of these

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Either horizontal or upright from 3 h. p. up. Ideal for **cutting and grinding feed, pumping water, sawing wood, separating milk, churning, &c.** Best for farms, dairies, creameries, &c. Send stamp for **Book on Power.**

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and its possibilities under the Silage system—being the theme of

"A BOOK ON SILAGE"

By Prof. F. W. WOLL,

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Machines for Threshing and Cleaning Grain.

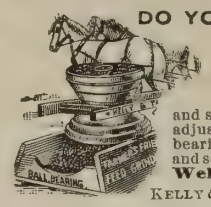


Also machines for **SAWING WOOD,** with **circular** and **cross-cut drag saws.** Acknowledged by all to be

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With one of our **FARMER'S FRIEND Sweep Feed Mills,** and save cost of hauling. It has adjustable force feed, steel ball bearings, burrs 30 in. diameter and self-sharpening **We make Well-Drilling Machinery.**

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It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

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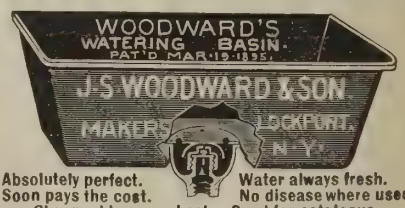
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STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

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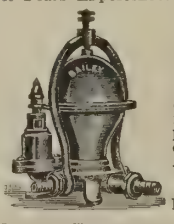
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Runs 24 hours a day and 365 Days a Year.

40 Years' Experience. **Water FOR House Water FOR Stock Water FOR Irrigation**



Once started costs one cent per month. As simple as a wheelbarrow and as efficient as a Corliss Engine. Information and instruction in plain terms. Prices on Ram or complete outfit by return mail Address

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VOLUME XXX. FORT ATKINSON, WIS., JULY 14, 1899. NUMBER 22

University of Ill

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Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893,

Print Butter Should be wrapped in GOOD **Parchment**
(NOT THE CHEAP KIND.)
YOUR NAME or CREAMERY should be PRINTED on Every Sheet.
SEND FOR SAMPLES.
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"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.
A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Oder to Destroy One.

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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
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Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
FITCH CHEMICAL COMPANY, Bay City, Michigan.

Melts in Your Butter
quicker, easier, better than any other salt ever made. That's the reputation of Diamond Crystal Salt. It lives up to its reputation. The reason is that
Diamond Crystal Salt
is composed of flakes, not grains. It dissolves not only quickly, but entirely. No waste of labor or time. The salt is all in the butter and the butter is the better for it. Send for book about the *"Salt that's all Salt."*
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SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

Revolutions vs. Efficiency.

25-inch Danish-Weston Separator.	First made in 1884. Now out of use. Very dangerous. Many fatal accidents. Very inefficient.	Revolutions 2500 per minute.
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The history of cream separators is that efficiency, durability, and desirability keep pace with increasing revolutions per minute. Increaced revolutions does not mean increased speed. A slight calculation will show that circumferential speed of all above named separators is between 20000 and 25000 ft. per minute.

Increased revolutions means increased centrifugal force; hence a smaller bowl gives more safety, more efficiency, and a finer produce.

Send for Circular No. 46.

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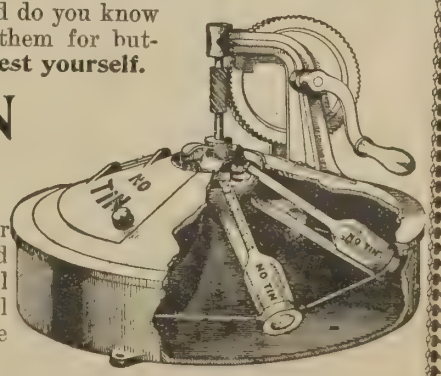
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ALDERNEY BUTTER COLOR
Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

What are Your Cows Worth?
Do they pay you a profit, and do you know how much? Have you tested them for butter fat? **You can make the test yourself.**
The NO-TIN Tester
is made in six-bottle size for farmer's use; it is driven by hand and is substantially built. Will last a life-time; fitted with ball bearings, and it does not rattle and does not wear out.



It uses the ordinary Babcock bottle and it does accurate work. Send now for our Catalogue, No. 71.
ELGIN MANUFACTURING CO., Elgin, Illinois.



The Gem Fibre Butter Package

THE NEATEST, CHEAPEST AND BEST SMALL BUTTER PACKAGE Ever Made.

...THIS package is the result of years of study and experiment. It is made of waterproof Jute Board, and is lined with the very best quality of parchment, making it CLEAN, TASTELESS and ODORLESS It is constructed without seams or open joints, being made one solid piece under heavy pressure, hence it is STRONG and NEAT. Owing to the material used it is LIGHT. It has more desirable features than any package on the market. These packages are put up in cases for carrying butter to distant markets or in bulk for local trade.

Write for full information and prices.

...SAMPLE BOXES FREE...

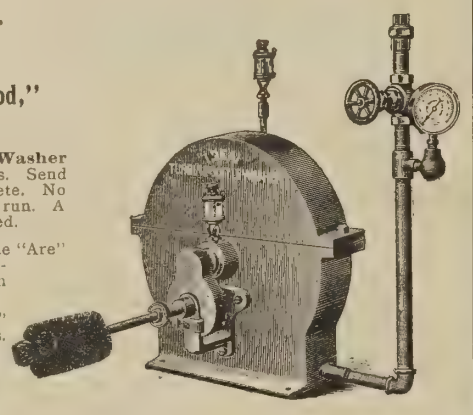
Some New Things are "No Good," some "Are."

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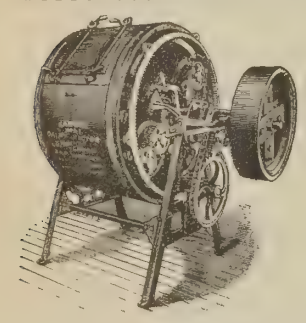
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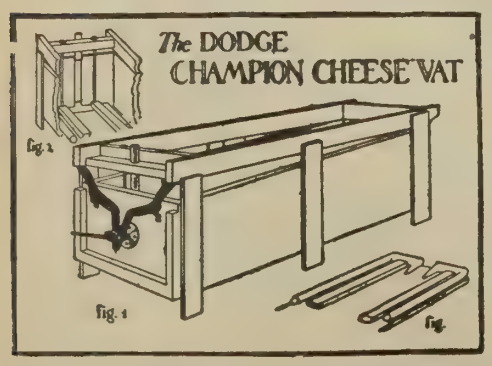
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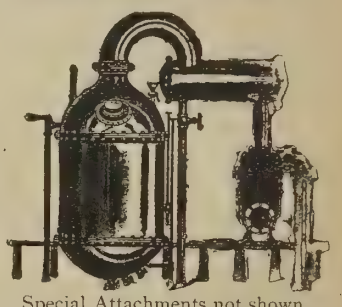
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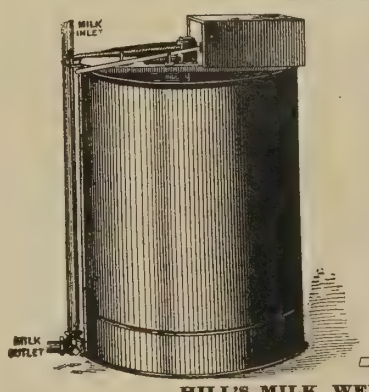
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Empire Cream Separators



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U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

The first fine under the new Minnesota Renovated Butter law was inflicted in Minneapolis recently. A. D. Housan was fined $25 for not labelling properly the renovated butter he was manufacturing. Renovated butter, oleomargarine and all other attempts to impose doctored substitutes upon consumers, find little favor in Minnesota.

Creamery patrons are beginning to see that their interest lies in supplying pure milk and not endeavoring to place all responsibility for poor butter on the shoulders of the buttermaker.

The directors of the Richland (Ill.) Co-operative Creamery Co. have adopted the following resolutions:

Resolved.—That no milk shall be sent or brought to said factory that is taken from a cow twenty days before due to calving and sooner than eight days after calving.

Resolved.—That any person found guilty of sending or bringing milk to said creamery that is known to be impure or unwholesome in any way will be prosecuted to the extent of the law, and such party's milk refused at said creamery.

MISSIONARY WANTED.

A farm paper, published in an eastern state, devotes half a column of its editorial page to an article on the "Five Minute Churn." It describes the action of the machine as follows:

It consists of forcing an air current through the milk, which, combined with the centrifugal motion of the milk, causes a reaction of the phosphates and oxidation of the casein. This liberates and gathers the fat oils as butter without a chemical change in the milk.

It seems strange that a reputable farm paper should descend to printing such a mess of nonsense as the above, but not being content with a single explanation, it repeats as follows:

The churning, the separation of the fat, is caused by a current of air forced through the cream which oxidizes the coverings of the fat globules.

No details are given as to the thoroughness of the work or analyses of the buttermilk, but the "butter was laid on a board for half an hour to drain, after which it was ready to put in a crock for use without further working."

If the above is an example of eastern dairy knowledge, as shown in the columns of a prominent farm paper, then there is a decided call for missionary work in, at least, one editorial office.

It is no wonder that fakes and butter nostrums flourish, when such is the quality of dairy knowledge furnished by farm papers.

THE TUBERCULOSIS QUESTION.

The communication from Prof. Beach, printed elsewhere in this issue, as well as various "news" items in the daily papers, brings the tuberculosis question into greater prominence than it has had for some time. The "scare" that was developed some four or five years ago, and was so industriously promoted by Dr. Ernst, of Massachusetts, and others, had measurably subsided under the logic of experience and scientific experiments, both in this country and in Europe, but recently certain boards of health, having little or nothing else to do whereby they could attract attention to themselves, have re-opened the question of the danger of infection from the milk and meat of animals which react to the tuberculin test.

The position of Hoard's Dairyman on this question is well known, and has been consistent and conservative from the first. It accepts every fact and every logical conclusion from these facts. When the evidence is conflicting it endeavors to weigh the same dispassionately, and discriminate between that which rests upon established facts and that which is mere opinion.

One of the primary facts, established by the concurrent testimony of the tables of mortality and individual observation is, that human tuberculosis is on the decrease, notwithstanding there has been both actually and relatively large increase in the consumption of both meat and milk. This does not prove that meat and milk from tuberculous animals may not be infectious, but it does afford a sufficient basis for insisting that there is no occasion for a panic, and no necessity for resorting to heroic measures.

Another primary fact is that the statement so freely made and so frequently repeated to the effect that bovine tuberculosis has largely increased within recent years, and this more especially among dairy animals, has not so much as the shadow of a foundation upon which to rest. Ten years ago, there was practically no way of determining whether an animal was tuberculous, unless in the very last stages of the disease; to-day with the tuberculin test, the existence of a single tubercle, no matter where located, whether in the lungs, the abdomen, or the knee joint, suffices to set up a reaction and thereby assign the animal to the infected list, although she may live to full age, and never exhibit any physical symptoms of the disease.

There are no more stars or comets in the heavens to-day than there were a thousand years ago, but the telescope has multiplied our knowledge of them a thousand fold or more. It is somewhat so with bovine tuberculosis. Whether the disease is more prevalent now, than it was years ago, we cannot determine, because the means of discovering and detecting it have been so marvelously increased.

Moreover, we want to know something more definite about the infectiousness of milk from tuberculous cows. If, as Prof. Beach suggests, all these cases in the Storrs College Herd developed from one purchased animal, and in a single year, it is evident that the danger of infection from contact outweighs that from using the milk, and raises the presumption that in not a few of the reported cases, where it is alleged that the disease had its origin in the milk, there have been too hasty conclusions.



JERSEY CALVES IN CLOVER.

Property of Milo C. Vosburg, Fort Atkinson, Wis.

That the disease does exist, and that it is a menace to our herds, is abundantly exemplified in the experience with the Storrs College Herd. It is also shown that utmost care does not suffice to exclude its ravages, and that so far as is yet known, there can be no guaranty against its introduction and development. In other words, there is much yet to learn, and it is the duty of our experiment stations to become the pioneers in the search for the facts concerning tuberculosis.



SUSIE THE MILK MAID, AT EIGHTEEN MONTHS.

Property of C. T. Kaler, Olympia, Neb.

It is fortunate for all of us that Storrs College has been forced to take up this duty, and that it has had the manly courage not to shrink or turn aside. We are told on every hand, that healthy offspring can be raised from reacting dams and sires. If this be true,—and we believe it is—it is important that the evidence should be not simply conclusive, but so overwhelming that a denial or even suspicion should be as impossible as it is to contest the multiplication table.

What the world needs is more facts, and fewer theories and opinions. The Wisconsin Experiment Station once had a serious outbreak of tuberculosis in its herd, and in excess of zeal slaughtered every animal. Sometime later it got permission to experiment with a private herd, and the results were so encouraging that it purchased the infected herd that it might have it at closer range, and under more definite control. If experiments in Wisconsin and Connecticut produce similar results, we shall begin to have some facts that it will be safe to tie to.

DIFFERENCES IN PATRONS.

The great range in the price received by patrons for their milk, in the same creamery, was well illustrated by the dividend paid by the Valley Falls Creamery at Himsburgh, Vermont, for the month of March. The highest test of any patron for the month was 5.125; the highest price paid any patron was $1.20½; the lowest test of any patron for the month was 3.30; the lowest price paid any patron was 77½ cents; the average test of all patrons for the month was 3.77; the average number of pounds of milk received per day was 23,217; whole number of pounds of milk was 719,739.

At the Cabot Creamery the highest test, for any patron for that month, was 6.30; the lowest test for any patron was 3.40. Here is a difference of nearly 100 per cent. It is these marked differences in the quality of milk, and also in the amount of money received for 100 pounds of milk, that show the necessity for a much better state of dairy knowledge among the great mass of dairy farmers.

J. J. Clark, a graduate of the Wisconsin Dairy School, has built and runs a creamery, near Berlin, Wisconsin, and is withal a dairyman. Notwithstanding he was reared and lives in a community much given to the general-purpose heresy, experience has taught him that success in dairying, as in any other business, calls for singleness of purpose, and tools, implements, machines and animals adapted to that purpose. To this end he has recently purchased, of Mr. H. C. Taylor, his third Jersey bull, a grandson of Diploma, (sire of Merry Maiden) and of Recorder (son of Brown Bessie.)

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THERE has been no rain in some portions of Massachusetts in 83 days and as a consequence a milk famine is threatened.

BORAX, boracic acid and nitrate of potash, cost from six to ten cents per pound. When made into "Preservaline," and put up in a nicely colored box, they retail at over twenty cents per pound. From the above figures, we can judge how perfectly disinterested is the advice of the preservative men, to use Preservaline, and how absolutely sure they are, that it is harmless.

DIVIDE AND CONQUER.

This was the maxim of the ancient Romans, and by following it they were enabled to conquer the world. Artifice, fraud, false pretence, money and sometimes force were used to divide their opponents and set them to warring with each other, when Rome would step in and subdue them, one after the other.

The oleomargarine combine of to-day is trying to follow the same tactics. In its estimation, all it has to do to break down the efforts of the National Dairy Union to secure national legislation against the great fraud, is to set certain men and papers (that claim to be exponents of dairy sentiment) at the work of maligning the officers of the Union. It is a silly conceit, and only outmatched by the silliness of those who are thus lending themselves to do this dirty work.

No paper can make, or long mar the dairy cause.

All frauds, whether oleomargarine, process butter or anything which pretends to be what it is not, (including the men and papers aforesaid) must eventually come under public ban, when the public gets to know them as they are.

THE FILLED CHEESE LAW.

The result of the national law for the regulation of filled cheese is beginning to be evident.

In 1893 there were about 150 factories in Wisconsin making 8,000,000 pounds of filled cheese per year. Most of this cheese was exported with the brand "Wisconsin Full Cream Cheese." The result was that Wisconsin cheese received a reputation that it will take years to overcome. The same is true of Illinois, where 12,000,000 pounds were manufactured annually.

The government reports just issued, show that for the period of two years, since the law was passed, there has been manufactured in the United States only 3,065,000 pounds of filled cheese, as against an annual product, previous to 1896, of from 12,000,000 to 14,000,000 pounds. Of the 3,065,000 pounds manufactured since the law was passed, only 205,000 have been exported. There was a falling off in the production of filled cheese in this country from 1,663,067 pounds for the fiscal year ending June, 1897, to 1,402,861 pounds for the fiscal year ending June, 1898. All the filled cheese now manufactured is produced in Illinois, Louisiana, Maryland and New Jersey, and from the tax on it the government has received a revenue in the past year, amounting to $16,518.

It requires no prophet to tell that the law has been of great benefit to every dairy state, and that the suppression of the fraud has and will continue to benefit the dairy interests of the country.

Is There Waste in This Style of Feeding?

A California Inquiry.

ED. HOARD'S DAIRYMAN:—Mr. Argol's query in your June 2nd edition as to "what kind of fellows live west of the Rockies any how?" leads me to ask wherein my present ration is wrong. I am milking 480 cows, mostly heavy Holsteins and grades for the city milk trade. These cows get, during our dry season, practically no pasturage. The ration they are now getting is all the alfalfa hay they will eat without waste(30 to 35 lbs.), bran 5 lbs., corn meal 2 lbs., and oil meal 1 lb. Values are: Wild clover and oat hay $7.50 per ton, alfalfa hay $7.50, bran $15, oil meal $27, corn meal $23.50, ground barley $22, rice meal $18.

If you will kindly suggest a better ration, would be much obliged, and will report results as soon as determined.

California. GEO. R. SNEATH.

The ration given above contains digestible nutrients as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. alfalfa hay....	27.48	3.30	11.88	.36
5 lbs. bran.....	4.51	.63	1.93	.15
2 lbs. corn.....	1.78	.16	1.33	.09
1 lb. oil meal.....	.91	.29	.33	.07
Totals.....	34.58	4.38	15.47	.67

It seems almost incredible that any cow, not giving an extraordinary yield of milk, can utilize so much feed, and hence the presumption arises that an undue proportion of the nutrients pass off undigested. Cows, like men, can get into the bad habit of eating too much. Of course, these large cows must be expected to require more feed than small cows, and, if they are of the right temperament, they may also be expected to give a larger yield. For a herd averaging 1200 lbs. in weight, a daily allowance of 27 lbs. of dry matter, per animal, is believed to be quite ample. When the average weight is 1500 pounds, this allowance would reach about 33 lbs. This should suffice for cows in the ordinary full flow of milk, and may be decreased as the flow falls off.

Whether Mr. Sneath can safely make any material reductions in the amount of feed allowed to his cows is a somewhat different question. As we have said many times, cows are creatures of habit, and whatever seriously interferes with their accustomed routine is pretty sure to cause at least a temporary decline in the yield of milk. If he is feeding hay now three times a day, he might try reducing the mid-day allowance, little by little, and finally omit it altogether. The cow cannot get the full benefit of her feed unless it is remasticated, and feeding three times a day is not calculated to encourage this process.

Our California readers might get a hint for future guidance in raising crops for dairy cows, from the feeding experiments at the Kansas Agricultural Experiment Station, where kafir corn was used to supplement alfalfa hay.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	Digestible nutrients		
	Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

OAT ENSILAGE.

Please let me know the relative value of oat and corn ensilage; also the probable yield of each on good land.

We have 120 acres of tillable land in Angola. How many cows should that entirely feed and how much help would it take for both stock and cows?

In your opinion would it pay to raise heifer calves for cows when we can buy four or five year old grades giving 12 to 14 quarts a day, for from $35 to $45? All our milk is sold for six cents a quart, and skim milk at three cents a quart. T. M. D.

Buffalo, N. Y.

It is not advisable to attempt making silage from hollow-stemmed grain, for the reason that it is difficult to expel the air sufficiently to prevent decay. But even if it was practicable to put oats in silo, experience shows that in localities when the corn plant thrives there is no other crop that will yield as much forage per acre as corn.

The number of cows that can be kept on one hundred acres of tillable land depends so much upon the style of farming that one can make no approximate estimate of the number of cows that much land can be made to keep. Some farmers would easily keep 50 cows and the necessary stock to go with them, on that much land, while others would find it difficult to keep half that number. If much of he land is reserved for pasture the number of cows would not be as great as where soiling is largely practiced. In general farming it is estimated that there should be at least one good man for every 15 or 20 cows, and where milk is delivered to families, there is needed at least one man for each ten cows. We should prefer to raise cows rather than to purchase at the price named.

SILO DRAINAGE—COW STALLS—FLY REPELLENTS.

We are about to build a silo in the barn. It will be made of staves, about 12 feet in diameter; will dig a pit in the ground about five feet, and wall it up with stone for a foundation; build on that with 18 feet 2×4; will cement the bottom, filling in first, with small stones, about 6 inches. Would it be a good plan to leave a place in the center of the bottom uncemented, for drainage, or would you cement it all over?

What is the best and cheapest cow stanchion?

What is the best lotion to keep flies away from cattle? F.

Pine River, Wis.

It is not necessary to leave any provisions for drainage. They will only suffice to admit air to the silage and cause rotting of the same.

If the corn is in the proper condition when put in the silo, there will be no water or corn juice in the bottom of the silo.

We do not know of any cheapest and best stanchion, the two qualities do not go together. The cheapest stanchion is the old-fashioned kind, so widely used, but many dairymen object to the cows being kept with so little freedom of motion, and several stalls without this objection have been suggested. You will find ads. of several of them in the DAIRYMAN.

Several formulas have been given in the DAIRYMAN in the last few weeks, and you will find reliable preparations advertised in its columns.

NEW YORK FEED MERCHANTS.

A subscriber in the British West Indies desires the addresses of establishments in New York City, from whom he can purchase corn fodder, oat hay, wheat and rye straw, corn and rye bran, gluten meal, cotton seed meal and oil meal.

It will appear somewhat strange to home readers that we are inquired of concerning business establishments a thousand miles and more away, but it should not be forgotten that residents of other countries are likely to be as unfamiliar with distances here, as we are with the relative location of places there.

While, therefore, we cannot give the names of dealers in feed stuffs in New York, it will be quite safe to say that neither corn fodder nor oat hay will be on sale in any market, and that the price of straw will be much above its feeding value, because of the demand for it in paper making and for packing merchandise.

It is altogether probable that a letter addressed to, or an order placed with, any of the commission merchants in that city would receive prompt and careful attention.

SILO QUESTIONS.

I am desirous of building a silo for about twenty-five cows. Would like to know which is the most approved one to build outside, as I have no room in cow stable; also the name and address of some of the firms who build silos. F. D.

Lutherville, Md.

The kind of silo to build depends much on a man's taste; but the round, stave silo seems to have a preference in a majority of cases. For twenty-five cows you will need about 90 tons of ensilage. The silo should be 18×21, and will hold enough for 180 days feeding, but as the supply of pasturage is liable to be very uncertain, it is advisable to supply larger storage capacity, and store some silage for contingencies. The Williams Manufacturing Co., Kalamazoo, Mich., and Geo. D. Harder, Cobleskill, N. Y., manufacture stave silos.

A CITY RATION.

Having read your paper a couple of months, am impressed that we need a well balanced ration in the city, as well as on the farm.

Where we have to buy everything in open market, what is an economical and proper ration for Jersey cows, with feed at following prices?

Upland prairie hay $7 per ton, timothy $8; bran $12, shorts $14 and gluten at $14.

Des Moines, Iowa. H.

Upland prairie hay, if cut in proper time and well cured, is more valuable than timothy hay. On the contrary, if the prairie grass was well ripened before it was made into hay, it is decidely inferior to first-class timothy.

Assuming that in this instance the prairie hay is of good quality, we advise the following as a minimum daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. prairie hay....	13.13	.52	6.27	.21
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. gluten feed.....	3.69	.82	1.94	.20
Total.....	20.34	1.84	9.73	.53

Give a little salt every day, or better yet, with every feeding of grain—a small tablespoonful in all for the day.

The above is moderate feed for a small cow. If already on heavier feed, do not reduce the total amount, but apportion about as above. If now receiving less, increase the

daily allowance gradually as long as the cow responds at the pail and does not lay on superfluous flesh.

The amount of hay specified is simply an approximate estimate. The proper practice in all cases, where the animal is not a gormandizer, is to give all the hay or other roughage the cow will eat up clean. Never feed more than this.

WHO KNOWS ABOUT BROOM CORN MILLET?

Will you kindly advise me if broom corn millet is a desirable feed for cows, and will it make good silage? At what stage of growth should it be cut? B. P.

Havana, N. D.

"Broom corn millet" is a new term to us and one that we cannot find used in any of the standard works on forage crops or feeding. If any of our readers can answer the above inquiries we shall be much obliged.

RATION FOR COW ON GRASS.

Please give ration for cow on grass, with bran or meal costing $18 and gluten feed, $20. C.

Madison Co., N. Y.

It is quite impossible to give a formula for ration for cows at pasture, because one can never know with approximate certainty how much grass the cow gets, or what is its condition. Where good pasture is at its best, little or no grain is required. In fact, some good bright hay would be better than grain. When the pasture begins to get short and brown, there must be some soiling crop and grain to produce best results. About the best that can be done under the circumstances is to advise mixing bran and meal in equal proportions by weight, and feed enough of this to keep the cow up to a normal flow of milk. It may require only two pounds per day just now and four weeks hence six pounds may not be too much.

THE RELATION OF FAT TO VALUE OF SKIM MILK.

Does the amount of butter fat in milk show also the approximate comparative feeding value of the skimmed milk, or would you value all skimmed milk alike, as a recent correspondent did in estimating the comparative value of two cows?

Hamilton, N. Y. J. P. COLNON.

The solids-not-fat in milk vary somewhat as the fat varies, but not in equal amounts. Hence, the richer the milk in fat, the more valuable will be the skim milk; but as this increases in value, does not keep pace with the increase in fat, there is no way, except by tedious chemical analysis, for determining this increased value. Hence, it is customary to value all skim milk at a uniform price.

HOW MUCH MILK TO PAY FOR KEEP.

Alfalfa hay, two-thirds cured, is worth $8 delivered; bran at mill, $20.50; oil meal, $40; corn meal, $23; barley hay, $10. Have to buy all feed at present. What should an average grade Jersey-Holstein and Durham give per day to pay a profit at 40c per three gallon can? When should alfalfa hay be cut to be best for cows? O. W. L.

Los Angeles, Cal.

Thirty pounds of the two-thirds cured alfalfa hay and six pounds of corn meal would be a fair daily allowance per cow, and at the prices named would cost 19.5 cents. The income from a good cow ought to be about double the cost of her feed, in order to realize much profit. Cut for hay when in blossom.

WHAT TO FEED WITH GREEN ALFALFA.

Please give me a ration with the following feeds: Green alfalfa, green corn fodder, wheat straw, brewers' grains wet, barley, corn and cob meal, flax seed meal cake, wheat bran. If it is any trouble giving alfalfa in connection with brewers' grain, what is it? I have plenty of good green alfalfa the year round. J. R. T.

Morelia, Mexico,

We know of no special objection to feeding brewers' grains in connection with green alfalfa, unless it be on account of cost. Both feeds are in the nitrogenous class, and, hence, are not specially called for at the same time. With either one at hand, the other could be safely omitted, if necessary, or expedient.

When both alfalfa and the green fodder corn are used, the following allowance would constitute a satisfactory ration.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. green alfalfa	5.64	.78	2.54	.10
20 lbs. green fodder corn	4.14	.20	2.32	.08
20 lbs. brewers grains wet	4.86	.78	1.86	.28
6 lbs. corn and cob meal	5.34	.38	3.78	.21
3 lbs. barley	2.67	.26	1.97	.05
Totals	22 65	2.38	12.47	.72

In addition to the above give the wheat straw *ad libitum*. The amount eaten will possibly approximate five pounds.

When there is no fodder corn, the alfalfa may be increased to take its place, and if the brewers' grains are omitted, increase the alfalfa correspondingly, and substitute bran for barley.

SUNFLOWER SEEDS AND SOJA BEANS.

Will you kindly tell me through your paper what is the composition and feeding value of sunflower seeds?

Are they suitable in a ration for a dairy cow?

How many can be raised per acre?

We sowed a small piece of soja beans this spring as an experiment, and I would like to know at what state in its growth it should be cut for hay?

I would not be without HOARD'S DAIRYMAN if I had to work nights for the price of it. WALTER R. R. C.

Gilbertsville, N. Y.

Sunflower seeds contain digestible nutrients as follows:

Protein	12.1 per cent.
Carbohydrates	20.8 " "
Ether extract (fat)	29.0 " "

Prof. Robertson, of Canada, some years ago proposed growing corn, horse beans and sunflower seeds to make a combination silage. The proportions were ten tons of green fodder corn, three tons of horse beans and one and one-half tons of sunflower heads. This mixture proved very satisfactory, both with milch cows and fattening steers. We are not aware of any experiments with the seeds alone, but should not hesitate to try them in a moderate way, commencing with, say, one-half pound or less per day, and gradually increasing the amount as results may indicate.

Soja beans, like all other plants intended for hay, should be cut sometime before ripening, or, say, when the greater part of the beans are fairly well formed, and earlier than this, rather than later.

PENNSYLVANIA FEEDING PROBLEMS.

I am on a small farm and trying to keep as large a dairy as the place will support. I use for fodder, corn hay, millet and barley straw. The grain produced on the place is barley, oats and corn. Now will you please give me a balanced grain ration for the best results in milk and butter regardless of whether it is produced on the place or not. Please give the ration for each of the above fodders. W. F.

Austinville, Pa.

It is not possible to make a satisfactory reply to this request without knowing what feeds are available and their approximate market value. The formula we submit below will serve to explain the difficulty.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn stover	14.38	.43	8.10	.28
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. oil meal	1.82	.59	.65	.14
2 lbs. cotton seed meal	1.84	.74	.34	.24
Totals	23.33	2.51	11.41	.84

If all these feeds could be had there is no question but what a ration following the above formula, would give good results, but it is quite possible that an equally good ration could be had for less expense.

We have specified corn stover above, but the letter as written reads corn hay. What is meant by corn hay?

We request W. F. to write again giving us a better opportunity to serve him acceptably.

PER CENT OF FAT IN MILK.

I have two grade Ayrshires which I have tested at the creamery. The first test was No. 1, 4.20; No. 2, 3.80. Second test was No. 1, 3.70; No. 2, 3.35. Third test was No. 1, 3.90; No. 2, 3.05.

I had these cows tested over three times, unbeknown to the man that tested the milk. The milk was handled the same each time, and if you have any idea why these cows differed so many points at each test, I wish you would please let me know. F. S. K.

North Ferrisburg, Vt.

Individual cows will frequently give milk differing in fat content from day to day.

On heavy feed, an attack of indigestion has been known to cause a difference of 2% in the fat content, while with cows on average feed, a difference of half a per cent, or even more, is not uncommon.

Such changes in fat content of the milk, as you observe, are not at all strange, and are as liable to increase as decrease.

OVERRUN OF BUTTER.

How many pounds of butter may I reckon to make out of 100 pounds of milk, testing by Babcock tester 4% butter fat?

I am thinking of starting a small creamery and wish for the above information to guide me in buying milk.

What return would milk of 3% butter fat give in 100 pounds?

Jamaica. H. FARQUHARSON KERR.

The average overrun for creamery work is about one-sixth. Thus 4% milk will make 4.66 pounds of butter. Of course the overrun will vary somewhat, above or below the average, according to the manner of handling the milk. Three per cent milk would give 3.5 pounds of butter.

CONDENSED MILK QUESTIONS.

Do condensed milk factories buy milk from cows fed on ensilage?

How much condensed milk will 100 pounds of 4% milk make?

Do condensed milk factories buy milk by the Babcock test?

What do they usually pay for 100 pounds?

What are they paying now?

How many pounds of cheese will 100 pounds of good 4% milk make?

Selma, Ohio. F. M. W.

The Michigan Milk Condensing Company buys ensilage milk and encourages its patrons to put up silos. We cannot say regarding other companies.

It will depend on what kind of milk is made, and whether a part of the fat is removed.

Analyses show that much of the milk in the market is partly skimmed, which of course will influence the yield.

The milk is bought by the hundred, but its quality is looked after very carefully.

The prices range from an average of 80 cents for summer, to $1.15 per hundred for winter milk.

One hundred pounds of 4% milk will make about 10.4 pounds of cheese.

WILD GARLIC FLAVOR.

Can you give me a remedy that will destroy the flavor of wild garlic in the milk and butter? R. F. S.

Appleton, Mo.

The following method has been successfully used by DeWitt Goodrich, of Iowa:

The milk is very carefully examined when received and all that is the least affected with the onion or weed flavor is set aside by itself and then run through the separator and its cream kept separate. To this cream is added twice its own bulk of hot water, in which saltpetre, in the proportion of one ounce to three gallons of water, has been dissolved. This raises the temperature of the mixed cream and water to about 160°, and it is immediately run through the separator again.

The result is, a fine, thick cream with no trace of weed flavor in it, and withal thoroughly pasteurized, and the Babcock test shows no loss of fat in the operation.

In practice, this cream is cooled and then mixed with that from the non-affected milk, the whole ripened naturally, and the resulting butter passes inspection by the most expert critics.

Of course, if all the cream were thus treated, it would be necessary to use some kind of a starter to re-introduce the proper species of flavoring bacteria, as those previously in the milk and cream were killed by the heat.

SORGHUM FOR FORAGE.

I would like some information concerning the value of cane or sorghum as a rough feed for cattle; also if there is danger in feeding a second or third growth of cane, either green or after it is cured. Some writers have contended that second growth cane frequently kills cattle. If this is true, is the harm done in feeding green or cured? Cane is raised largely as a forage crop in Nebraska, and while I have used it with excellent results, it has always been as fodder after being cured, and where there was a single crop raised in a season. I will be pleased to receive information on this subject from the editor or from some one of his corps of intelligent contributors. W. L. H.

Lincoln, Neb.

Prof. Henry in his work on "Feeds and Feeding," which ought to have a place in every farmer's home, says:

In the semi-arid region of the Southwest sorghum grows with great vigor, withstanding drought and drying winds remarkably well. Because of these characteristics and the abundant nutrient contained in stems, leaves and seed heads, the sorghum plant is destined to occupy a prominent place in the agriculture of this district, furnishing green forage to stock during shortage of pastures in summer and fall, and the best of dry fodder in winter.

He also quotes from various station reports showing that second growth sorghum is credited under certain unknown conditions with being very destructive to cattle. In a Mississippi bulletin it is said: "It seems to affect only certain animals, or perhaps only certain plants produce the ill effects, as generally only a few animals in a herd are killed, and these are commonly found near together."

The reports from individual farmers which come to HOARD'S DAIRYMAN are exasperatingly conflicting. Some of our readers write that they have used second growth sorghum for years without experiencing any trouble whatever and consider it one of the most profitable forage crops that can be raised, whether for soiling purposes or for winter feeding. Others report cases where the green sorghum has undoubtedly proven fatal. We do not now recall a case where the dry fodder has proven injurious, but shall be very glad to hear further from our readers on this subject.

COW PEAS FOR FERTILIZER IN WISCONSIN.

Is it advisable to sow cow peas for fertilizer on oats ground after the oats have been harvested? Which is considered the best way of putting in the seed? When is it most profitable to turn them under, spring or fall? R. K.

Waukesha, Wis.

There has not been sufficient experience with the cow pea in northern latitudes to warrant a specific answer to the above inquiry. We certainly could not recommend more than a trial in a small way.

The few experiments made last year and the year before with crimson clover, seem to indicate that it is well adapted for the purposes above indicated. The senior editor tried them in a limited way, last season, and was much pleased with the result. He turned the crop under in the fall, but some of the experts say this is not the better plan. There is a growing conviction that it is not desirable to expose a bare surface to the elements, even in winter, but this is contrary to the practice of many first-class farmers. Until more definite experiments are reported, we should be largely governed by the matter of convenience in getting the season's work advanced. If fall plowing would sensibly expedite the spring's work, we would plow in the fall.

Comment and Suggestion.

Speltz Wheat, and the Moral it Teaches—Planting Corn the Last Week in June—Cost of Production as Important as Amount of Production—Spare, Deep-Bodied Cows are Economical Producers.

ED. HOARD'S DAIRYMAN:—Referring to the note from A. P. McKinstry, in regard to speltz wheat, will say that the sample reached the experiment station and analysis of same shows that it contains an unusual amount of protein which is a pretty fair measure of its feeding value for dairy cows. In the following table is given the percentage of protein in our ordinary grains:

Speltz	14.6
Barley	12.4
Wheat	11.9
Oats	11.8
Sweet Corn	11.6
Field Corn	10.4

The high feeding quality of the speltz is quite in harmony with some other peculiarities noticed in grain intended for feed. I have noticed that slim or small kerneled barley contains a larger per cent. of protein than is found in the full, plump berry; that shrunken wheat or barley makes better feed for cows than when the kernels are well filled and rounded. The average per cent of protein in wheat is 11.9, while the average for our high grade hard wheat is 13.75. The wheat grown in the Red River Valley has not a plump, berry but is small and thin, resembling the wheat we used to find in the screenings years ago when I was a boy. Isn't it strange that we all admire a fine, well rounded berry and assume that that kind is the best, just as most people do about a cow. They blindly prefer any big hulk, never stopping to consider as to whether the big thing is adapted for the work she is to do. We all are more or less afflicted with the "bigs." If anything is large and looks well then it is satisfactory.

This is the 23d of June and we still have a field of ten acres to seed to fodder corn. The ground is ready and the corn will be planted before the close of the week. We intended to get it in by the 20th, but the field was low and frequent rains kept the soil so wet that we could not work it.

Last week we turned over ten acres of timothy, on which the cows had been grazing, and planted it to fodder corn. The ten acres would have yielded about twenty-five thousand pounds of dry matter, while the ten acres planted to fodder corn will yield from seventy-five to eighty-five thousand pounds. We planted in double drills and the double drills forty inches apart; kernels from one to two inches apart in the row.

I notice in your last issue that Prof. Soule says in a paper read before Rural Science Club of the University of Tennessee, that "if you find a cow that gives 5,000 pounds of milk and yields 300 pounds of butter you have a cow well adapted for that speciality"—butter producing. Had he added "at a reasonable cost" I would be better pleased with the statement. Too many are losing sight of the present office of the dairy cow. She used to be a mere convenience to the household, and so long as she gave a fair mess of milk she was to all intents and purposes a good cow. It did not matter whether she could yield two or four hundred pounds of butter, or whether she charged five or ten cents, so long as she gave milk for the babies, cream for the coffee and now and then a roll of butter. Not so now. She has stepped into the commercial arena and her product now comes in competition with that of other countries and if she fails to produce it as economically as they do, she will be discarded just as surely as was the hand sickle, the cradle, the reaper, and the harvester. The time was when the price of butter was such that a dairyman could make money with any kind of a cow; but when butter is fifteen cents a pound he will have to look very close to the expense account, or his profits will not meet the requirements of the times.

Take bran at $12, linseed meal at $25, hay at $6, oats at 30 cents, corn at 28 cents, and barley at 35 cents and see what a close margin there will be between the cost of production and the receipts for the products. And then when you take into account the many steps required to produce a fine article of butter and the many leaks and losses, one comes to the conclusion that he gets little enough pay for the most economical producer. So the question of cost comes foremost. What benefit is it to me if my cow gives 300 pounds but don't give it at a profit? Cows of that caliber cost, for keep, from $30 to $35 per year. So if the product nets 15 cents we have from $10 to $15 per cow, which would require an enormous herd to bring a profitable income.

It may be a very difficult matter to judge from a picture the amount of milk or butter a cow will yield; in fact, is a difficult matter to tell it from a close inspection of the cow. Really, it is a matter in which the dairyman is not very greatly concerned. The question that interests him is the usefulness of a cow, not in any one year, but during her lifetime. How much can she earn? And fortunately this is a much easier question to decide than the quantity of milk or butter yield for a given year. One may safely take a cow of the spare, deep-bodied type into the dairy for there will not be one disappointment out of twenty, and then if one is found that brings disappointment, an examination into her history will show that the owner was at fault.

I find that the daily food of maintenance is about twelve pounds of dry matter per thousand pounds of live weight for an animal having a quiet, tractable disposition, and that with others it may require as high as fourteen pounds; that it requires from eight to nine pounds of dry matter, over and above that needed for food of bodily maintenance, to provide the nutrients required for the milk that will yield a pound of butter fat; that cows in calf will store up during the latter part of their period of gestation reserve energy and nutriment and that after parturition, at least a portion of the reserve is available either for the production of milk solids or for bodily maintenance. If a cow has a strong dairy heredity she will, during the early part of her period of lactation, milk down the surplus weight and may thus be able to produce considerable more butter than the nutrients in the food she eats during that time can provide for. But this excess in yield will gradually decrease as she approaches her normal weight, after which she can yield only as much butter as the nutrients consumed in the feed, in excess of that needed for bodily maintenance, provide for. She may, however, when the lacteal functions are exceptionally active for a time, continue such excess yield by drawing on body tissue and fall below her normal weight. But the time comes, sooner or later, when she must make good this loss and she can do it only with the nutrients provided over and above the amount needed for support and must then rapidly decrease in butter yield. Again, a cow having considerable rest during the latter part of her period of lactation may store up a large reserve and not having a strong dairy heredity fail to milk down the increased weight, in which case she would require proportionally more food for bodily maintenance, and would have proportionally less available for dairy products. Cows also vary from year to year in physical tone and appetite. Some years they are in high feather, physically, and will do an abnormal amount of work, but in such instances they will generally do an exceptionally small amount of work the year following. It therefore follows that a cow's usefulness in the dairy cannot be determined from a single year's work, neither can it be determined in a number of years, unless an exact account is kept of the amount and cost of the food consumed.

It is simply a question as to how much food she can eat and digest, over and above that needed for her own support, and what disposition she makes of the surplus. It is, therefore, important that she is provided with a capacious and active middle which will enable her to eat and digest much, that she has a dairy heredity, and has light quarters in order to reduce the food of maintenance to the minimum. Our records show that it takes as much food to put a hundred pounds of solid gain on a cow as it does to produce a hundred pounds of butter and that every hundred pounds of surplus tissue on a cow reduces her butter capacity by about one pound in eight days or about 37 pounds per year; and in view of the fact that an increase in weight does not increase her feeding powers, it is a matter of considerable importance whether she weighs 900 or 1,200 pounds.

So let us get down to the business end of the question and study the cow from the standpoint of a money maker. The question is not how much butter or milk she yields, but what will she earn for us.

T. L. HAECKER.

Seasonable Notes From Michigan.

Packing Dairy Butter.—Handling the Cream.—Selling Packed Butter.—Demand for Summer Make—Summer Pasture.

ED. HOARD'S DAIRYMAN:—"I am going to begin to pack my butter next week," said a farmer's wife the other day. "We always stop selling the first or middle of June, when the price gets very low, and put the summer's make into crocks and keep it until fall."

Knowing that the lady had a good reputation as a butter maker, some questions were asked concerning her method, resulting, substantially, as follows:

"About ten cows are kept, and the milk creamed by the deep setting process, allowing it to stand twenty-four hours before drawing off.

The cream is kept in tin pails or cans under the water vat of the creamery, where it is cold enough to prevent its getting over sour between churnings, which occur every other day.

Great stress is laid upon having the cream not over ripe, but just nicely acid when churned. Butter from such cream keeps longer in good condition, than that made from cream excessively sour. Another point is to churn the cream quite cool, so that the butter comes hard. It is gathered in granules, thoroughly washed from buttermilk, and salted rather heavy. It is worked twice, the second time very lightly, however, then packed in stone crocks and covered to the depth of an inch or more with very strong brine, a saturated solution, in fact. This brine is renewed every little while during the summer, as evaporation takes place, the object being to thoroughly exclude the air from the butter. Between the butter and the brine is placed a circle of parchment paper.

The coolest corner of the cellar is chosen for the crocks, and the door and windows are kept closed during the middle of the day, when hot air would enter.

In the course of the season the family use from the butter first made; in this way all the June make is disposed of. In autumn, when the price rises, the butter is sold.

Sometimes buyers refuse the packed butter, and then it is that it is taken from the crocks and made into rolls, a process involving considerable labor, but paying one, however.

Several hundred pounds are put on the market at once in this way, and a nice little sum realized, with the satisfaction of knowing that it is bringing several cents a pound more, than if sold during the summer.

The writer does not recommend keeping butter in this way for the average farmer. One needs to have better facilities for storing, than are ordinarily found, to do it satisfactorily, and the disappointment, if it should prove a loss, would be great. It is much better, as a rule, to sell as fast as made.

Let pains be taken to find steady customers, asking about what would be realized in the fall. I know of farmers' wives who do this; disposing of all they make through the summer, at from 15 to 18 cents a pound.

The most common fault with summer butter is, that it tastes sour or over ripe. Such butter is, no doubt, made from over ripe cream. To add to this tendency to sourness in taste, is lack of thoroughness in washing. All the buttermilk not being removed, it soon turns rancid; for what smells so vilely as buttermilk, allowed to stand several days in warm weather, when decomposition progresses so rapidly.

Thorough washing is a necessity, if butter is to be kept any length of time in hot weather. If to carelessness in washing is added too high a temperature, so that the butter globules become broken, the matter is all the worse.

A dairyman in an adjoining township who owns a large herd of Jerseys keeps all his summer's make of butter until about October. He has excellent cold storage facilities; a refrigerator built after the plan of those in markets, roomy enough to accommodate thousands of pounds.

The churnings are done regularly, from carefully ripened cream, butter washed and salted in granular form and not worked sufficiently to break the grain It is then packed into one gallon stone crocks, leaving an inch of space at the top of each. A circle of butter cloth covers the surface and this is filled in with salt snugly packed down. The jars are set on shelves in the storage room and no further attention paid them until fall. Of course the supply of ice is not allowed to get low. I asked why butter cloth was used over the butter instead of parchment paper, and was told that the latter often shows greenish spots after it has stood several weeks, the supposition being that the action of the salt upon it caused it to become discolored by reason of the chemicals used in bleaching. For this reason it was discarded and cloth used instead.

There is not the demand for June made butter that formerly existed. We rarely find parties now-a-days who prefer it for winter's use as was frequently the case a few years since. The reason for this is found in the fact that at that time few farmers manufactured butter during the winter months and it was more difficult to secure that which was freshly made, in which case well preserved June butter was in demand.

It is an indisputable fact that the so-called creamery butter, whether made on the farm or at the factory, does not possess the keeping qualities of that made by the open pan system.

I think the reason for this is not difficult to find. In the old way a medium temperature was preserved throughout the process. The milk and cream were exposed to the air and no attempt made to reduce the temperature of either milk or cream below the normal. Butter thus made is, it seems to me, better prepared to stand a temperature such as is ordinarily found in a farm house cellar during several weeks of warm weather, than that where an abnormally low temperature is maintained until after the butter is made, then allowing it to take its chances in an ordinary cellar.

By far the better way, in my estimation, is to sell as fast as made, securing even a few cents over the regular market price by de-

"He Laughs Best Who Laughs Last."

A hearty laugh indicates a degree of good health obtainable through pure blood. As but one person in ten has pure blood, the other nine should purify the blood with Hood's Sarsaparilla. Then they can laugh first, last and all the time, for

Hood's Sarsaparilla
Never Disappoints



Not a Preservative

but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

livering weekly or semi-monthly to private customers.

It is hard work to make butter, especially where conveniences are lacking; yet one who is determined, will secure desired results even if she has to hang her cream and butter in the well in lieu of cooling it with ice.

Not long since I visited a dairyman who had had the misfortune to break his milk separator and for a time was creaming his milk in large cans. These had tubes running through them to allow circulation of water, the cans being placed in tubs of cold water, skimming being done twenty-four hours after setting.

The fear was expressed that considerable butter fat was being lost, so the Babcock machine was brought into use and a test of the skim milk made. A most gratifying showing resulted, it was found that the amount of fat remaining was so small as to be perfectly satisfactory, in fact scarcely any was perceptible, a surprise to all who witnessed it.

Nice rains have visited this section of the state, but pastures had become quite short before they came. This method of feeding is most costly of all. The amount of forage grown upon one acre of good land will furnish ten times the food material obtained by pasturing, as has been proven to my entire satisfaction. Where one has waste land, that which is untillable, pasturing is of course the only way of utilizing it, but it is very wasteful to turn a herd of cattle into a field of good clover, much more being trampled under foot and wasted than is consumed.

The ideal way of keeping cows, in my estimation, is to keep them in darkened stables during the heat of the day, turning them out in some convenient paddock or yard at night; furnishing them abundance of food by way of soiling crops, beginning with early cut rye and finishing with corn. It is astonishing how far one acre of clover, for instance, will go by feeding in this way.

Mich. W. C. ROCKWOOD.

Observations on Tuberculosis in the Storrs (Conn.) College Herd.

Tuberculosis and Dairy Capacity.

ED. HOARD'S DAIRYMAN:—The Storrs College herd has recently been tested with tuberculin, and eleven animals out of twenty-five responded to the test. There is a prevailing opinion that the most productive dairy cows, on account of the greater tax upon their systems, are less hardy, and more susceptible to tuberculosis than those only moderately productive. This opinion is not substantiated by our experience, as the following observations show. If these twenty-five cows are arranged in the order of their butter production, with the one having the highest yield first, then those designated by the following numbers reacted: Numbers 1, 2, 4, 11, 13, 15, 18, 21, 22 and 25. Fifty per cent fall in the half of the herd having the lowest records. In the same line, it is interesting to note that one Jersey out of four, one Guernsey out of three, one Ayrshire out of four, and eight grades out of eleven responded to the test. And according to type, two 'Typical Dairy', four 'Dairy'; three 'Lacking Digestive Capacity', and two 'Beef Type' responded.

THEORY OF INFECTION.

Great care has been taken to avoid the introduction of tuberculosis into the herd. The tuberculin test has been used frequently, (once a year). All animals purchased have been tested before, or shortly after coming into the herd. Up to the fall of 1898, we have had no animals respond, and no known case of tuberculosis. A year ago last November, there was purchased an eight-year-old cow (No. 18) of a neighboring farmer. This man raised the cow from a calf, and reports that he has never had a case of tuberculosis in his herd, and that he had never used the tuberculin test. Cow No. 18 was tested with tuberculin soon after purchased, and not responding, and showing no physical signs of disease, was given a permanent place in the herd. A year later, she commenced to refuse her feed, ran down rapidly, and died after one month's sickness. An autopsy showed a generalized and advanced case of tuberculosis. The herd was immediately tested with tuberculin, when eight cows responded, and again after five months, when three more responded, or a total of eleven out of the twenty-five cows in the herd. The most plausible theory of infection, to us, is that cow No. 18 was, when purchased and tested with tuberculin, suffering with the disease in an advanced form, and for this reason did not respond to the tuberculin test. It is hardly reasonable to believe that in less than one year, she could have contracted the disease, and that it should have developed to the extent that the autopsy showed. Dr. N. S. Mayo, our college veterinarian, reports:—'Judging from the extent of the disease, and the number of encysted tubercles, I am of the opinion that the case was one of long standing.'

PROPOSED OBSERVATION.

Two courses are open to us in the management of the herd. First, to kill the infected animals; or, second, to isolate those which responded to the tuberculin test, and keep them under the best sanitary conditions until they show some physical signs of breaking down. In order to form some idea as to the condition of the reacting animals, five of the eleven that responded were killed. The animals selected for slaughter were the ones that showed, most markedly, physical signs of disease. Four of the five had twice responded to the tuberculin test. The autopsy showed that the disease was, in each case, in the earlier stages of development. The mediastinal gland in each animal was affected, and in addition, the bronchial gland in one case, and in two cases one lung each—in one animal slightly, and in the other quite seriously. The animals slaughtered showing so little affection, it was then determined to isolate the balance of the reacting animals, and keep them under observation.

At present, the reacting herd is quarantined in a barn adjacent to the one occupied by the healthy herd. This barn is well ventilated, and admits plenty of sunlight. The infected herd occupy a separate yard, pasture, and watering place from the healthy herd, and at no point do the two herds come in contact. As little communication as possible is permitted between the barns. The attendant who milks, feeds, and cares for these animals, waits first upon the healthy herd, and later upon the infected herd, and only in this order. A special over-suit and shoes are provided to be worn by the attendant while at work in the stables occupied by the infected herd.

More stringent rules in regard to communication, even to complete isolation, could be made and enforced, but if this experiment is to be an object lesson of practical value, the conditions must be such as could be applied upon any farm. C. L. BEACH.

Storrs, Conn.

Assimilation of Nitrogen by Legumes.

In the report of the chemist of the central experimental farm Department of Agriculture, Canada, we find the following note on this important subject, as yet but little understood by farmers generally. "So many letters," Mr. Frank T. Schutt, the chemist, writes, "have been received during the past year respecting this question that it may prove of more than passing interest if I here insert brief replies to some of the more frequently occurring and important inquiries:"

1. Do the legumes absorb nitrogen by the leaves?

A.—There is no nitrogen assimilated by the leaves of the legumes. All absorption of free nitrogen is by means of the bacteria in the nodules on the roots.

2. Do the legumes use nitrogen other than that in the air?

A.—Legumes, like all other plants, can make use of soil nitrogen (not free nitrogen), and this they specially do when young. Unless the soil is somewhat poor in nitrogen—when it is said to be "nitrogen hungry"—there appears to be but little assimilation of free nitrogen and but a poor development of nodules.

3. How can it be said that the free nitrogen of the atmosphere is utilized by the legumes, when it is stated that assimilation is by roots?

A.—The free nitrogen made use of by the micro-organisms in the nodules is in the air occupying the interstices of the soil. In all soils, but especially in well drained and light soils, there is a large quantity of air.

4. How do the organisms in the nodules make use of the nitrogen, and what becomes of the nitrogenous compounds formed in the roots?

A.—It is not known how the legumes utilize free nitrogen and convert in into organic compounds. It is, however, evidently a life function.

The nitrogen compounds elaborated in the nodules migrate (most probably as amides, soluble compounds afterwards converted into albuminoids) into the stems and leaves. This, as a rule, leaves the roots poorer in nitrogen than the foliage. The ratio of the nitrogen in the roots to that in the foliage is a fluctuating one, depending chiefly on the stage of growth or maturity of the plant.

5. When is the best time to turn under a crop of clover or other of the legumes?

A—After the time the seed has begun to form, there will not be much more assimilation of free nitrogen. If, therefore, it is wished to enrich the soil, in addition to the nitrogen, with a large quantity of humus capable of ready decomposition in the soil, the plowing should be done soon after the flowering of the plant, and before the fibre becomes hard and the nitrogen for the most part gone into the seed.

If sown after cereals as a "catch" crop, it will usually be the best practice to plow it under in the autumn, at the end of the growing season. If sown as a "cover" crop, as in orchards, it should be left till the following spring.

6—What loss of nitrogen would ensue on allowing the clover to freeze down and remain uncovered all winter?

A—There would, in all probability, be some loss, but unless the winter were an open one, it would be very slight.

7—Is green manuring with the legumes as profitable as purchasing commercial fertilizers?

A—Under ordinary circumstances it is the cheapest and most economical means of supplying nitrogen and humus---both essential constituents to soil fertility. Green manuring not only enriches the soil composition in these elements, but adds largely to the store of available mineral food, and greatly improves the tilth of heavy clays, light and sandy soils, and all soils deficient in humus.

Dairy Business.

It is noticeable that in every community, in which the dairy is well developed, there is a high degree of prosperity and refinement. The influence of the business is uplifting. It requires intelligence and a wide study to make the business a success, and all this is on the line of refinement. It demands gentleness of disposition. No rough, brutal man can achieve success in the dairy. He must be kind, and, if not naturally so, he must cultivate the spirit of kindness. The cow must be loved, must be petted, must be fed well and fed properly, and all this leads to the broadening of the mind and the improvement of our natures. Then, there must be cleanliness, not only about the premises, but about the person. An Indiana dairyman has a covered barnyard, and he was asked at an institute if he was satisfied with that way of keeping manure. "Why," said he, "I do not have a covered barnyard for the purpose of keeping manure. All manure is hauled out as soon as made in order to keep the yard clean. I constructed a cover over the yard for the comfort of my cows." There was a whole volume of dairy instruction in those few words. The watchfulness to preserve cleanliness and the kindness to the cows are the corner-stones to successful dairying.—*Practical Dairyman.*

Only Thirty and Gray

How is this?

Perhaps sleepless nights caused it, or grief, or sickness, or perhaps it was care.

No matter what the cause, you cannot wish to look old at thirty.

Gray hair is starved hair.

The hair bulbs have been deprived of proper food or proper nerve force.

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increases the circulation in the scalp, gives more power to the nerves, supplies missing elements to the hair bulbs.

Used according to directions, gray hair begins to show color in a few days. Soon it has all the softness and richness of youth and the color of early life returns.

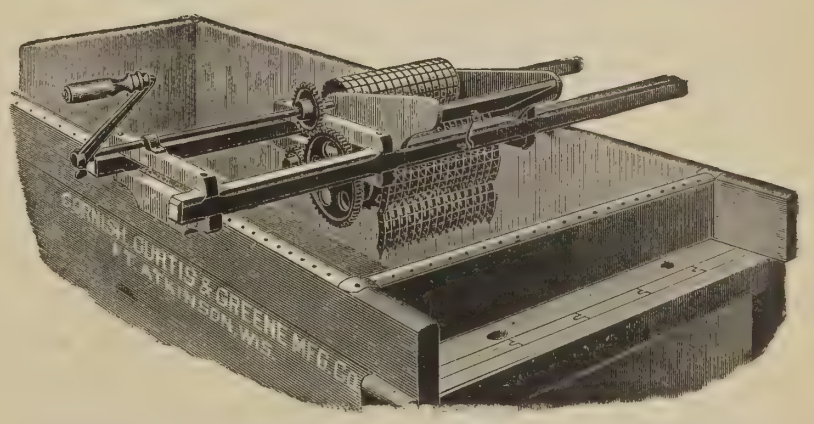
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If you do not obtain all the benefits you expected from the Vigor, write the doctor about it. He may be able to suggest something of value to you. Address, Dr. J. C. Ayer Co., Lowell, Mass.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

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Nuisances in the City Milk Supply.

(Continued from May 5th.)

ED. HOARD'S DAIRYMAN:—While the readers of HOARD'S DAIRYMAN may think they have had enough of these nuisances, still I am sure if they will keep up their patience and read these final remarks, they will admit that at least some of these should not pass unmentioned. While it is a well known fact that the process of bottling the milk and cream, shipped by railroads to the city dealers, is by no means done in such a careful and cleanly manner as it should be, still only a very few consumers have the remotest idea of some of the nasty, not to call them still worse, ways in which this is done.

Even in the very best and cleanest city dairies we find it common practice that the men or boys who put up the milk, carry the empty bottles to the filling table by sticking one finger (clean?) into each bottle, thus carrying ten bottles at a time.

The bottles have often been standing all day in a warm room, full of dust and flies, with the open end up, and I recollect cases of caterpillars being found in the milk, having lowered themselves down into the bottles from the ceiling during the day.

We use racks with wire bottoms and partitions in which the bottles are placed during sterilization, and in which they are left till just before using; never set a bottle flat with the bottom up on a filling table, as no matter how clean the table, if the air has no access the bottles will soon smell foul, which applies just the same to the large milk cans and other vessels.

The caps used for the "common sense" bottles are carelessly handled, left in some vessel near the bottles being filled, and some splashes of milk often reaches them. Some are then left for next day's use, nobody paying any attention to the mischief which may be done to the fresh milk or cream by a drop of old milk on a bottle cap.

Then the milk which overflows the bottles in filling and runs over the table is caught in pails below and poured right back into the general supply. Now, if (and that is an important if) the table was kept strictly clean and free from dust, this might not be so bad, but how often have we not seen some of the boys, the same who drive the milk wagons and tend to the horses, leaning upon the table with clothes on, which were not as clean as they look in some of the advertising pamphlets, yes, even sitting down on it. And yet, we all learn, or at least may do so continually.

I learned one trick which caps the climax, in my experience, as to nuisances in the city dairy; I can vouch for the truth of this, and could give the name of the well known dairy, which runs several retail wagons here in Washington. A colored man, who was bottling milk,

HELD THE PAPER CAPS BETWEEN HIS TEETH

in the same manner a plasterer holds the tacks with which he is going to nail on the slats for plastering. I shall make no comment on this extraordinary clever proceeding, but will only ask the producers of good, clean milk if they do not think it a good idea, that they should find out for themselves how their milk is handled by those who retail it?

The producer may think it none of his concern what is done with his milk in the city, just so that he gets his pay. But mark it, some day he will find to his sorrow that it makes a difference, just as much as it does for a butter maker to have his product properly taken care of by the dealer. And while the holding of paper caps between the teeth is rather bad, still I believe it almost as bad when a milk driver keeps a collection of caps in his vest pocket, together with dirty coins, old tobacco, etc., etc., and while on the wagon fills a bottle taken from some house, and puts on a cap from his vest pocket. And this you probably know is a common practice in all cities, that may be observed daily in the streets. The wonder is that no health inspectors interfere. This makes me think of the rather useless manner in which

SAMPLES ARE TAKEN FOR INSPECTION.

Here is the way: The other day a gentleman entered our office at the laboratory, handed me a small medicine bottle (sterilized) and asked me to put in a half pint of milk, such as we sold. I, of course, knew at once that he came from the health officer, and I did not hesitate to tell him, that it certainly would be a very easy matter for any dairyman to give him of his best milk for a sample, and that he certainly would not give him any of the inferior kind he sold to some.

The fact is that the whole manner of milk inspection is perfectly ridiculous. And yet, while we thus may be sure that no inspector gets the *worst* milk kept for sale, still many samples show very inferior quality; what would the result be if the samples were fairly taken from the average supply? And I see no chance for any real improvement in the milk supply of our cities, until sufficient means are provided by the city authorities for an efficient inspection by men who understand all about milk and its proper treatment.

NEW AUTOMATIC MILK DISTRIBUTOR.

It is claimed from Germany that after much tedious experimenting, one, L. Hoffman, has finally succeeded in putting upon the market a practical apparatus for the above purpose.

The "Milk Automat" is so arranged that it not only will supply milk and receive payment for same, but also keeps the milk in proper condition by stirring and cooling, and cleans the drinking cups. When "sold out" it shows on the outside, and at the same time the receivers for cash will be closed.

This apparatus should be of considerable value to milk dealers, as it would make distribution of milk easy in schools, play grounds and public places of amusements. If the apparatus really is what is claimed for it, we shall be sure to hear more of it; it looks as if it might be of considerable value in this country, where all distribution and delivery is far more expensive than in Europe.

Washington, D. C. J. MOLDENHAWER.

Function of Fertilizer Ingredients.

ED. HOARD'S DAIRYMAN:—There is no question on the farm of greater importance, and probably none is less understood, than that of the functions of the fertilizer ingredients. When we speak of fertilizer ingredients, we mean nitrogen, potash, and phosphoric acid, and it may be well to add lime, since this material also is a factor in farming. It is generally admitted, and as a rule well understood, that the object in fertilizing a soil is to supply nitrogen, potash, and phosphoric acid, hence a complete fertilizer may be defined as one that contains these three ingredients. Each has its own part to play, and one cannot take the place of another. All three must be present, and in the proper proportions in order to insure full returns.

Nitrogen has much to do with promoting the growth of leaves and stems. Besides it has a very marked effect upon the foliage, deepening the color considerably. Nitrogen can be supplied in several ways; first, employing mineral substances, like nitrate of soda and sulphate of ammonia. Secondly, by the use of organic material, such as tankage, fish scrap, dried blood and cotton seed meal. If too much nitrogen is applied, it tends to a too rapid growth of foliage at the expense of fruits or grain, as the case may be. The effect of a disproportionately heavy application of nitrogen is well illustrated by stable manure, which is a natural fertilizer, containing considerable nitrogen. Every farmer knows, that when he puts on a heavy dose of barnyard manure, a luxuriant growth of foliage results. The cheapest and best way of supplying nitrogen is by growing clover, cow peas, or other plants of the leguminous family, which have the faculty of absorbing this ingredient from the atmosphere.

Phosphoric acid seems to hasten the maturity of plants; it also causes the crop to assimilate other ingredients to better advantage, and unless there be plenty of phosphoric acid available for the plant, it will not come to maturity, and therefore produce no seeds. Phosphoric acid can be supplied in the form either of acid phosphate or of dissolved bone, both of which are cheap and readily available sources.

In the growth of plants, the formation of starch is a prime consideration, and potash is necessary to assist in this process. It also causes a development of the fleshy portions of fruit and of the woody parts of the stems of plants. Its action is distinct, and can not be performed by any other element of plant food. The main sources of potash on the market are muriate of potash, sulphate of potash, kainit and double manure salt. Woodashes also contain a small quantity of potash.

Although the function of lime is dwelt upon here, this ingredient is not included in the same class as the other three just enumerated. There is usually, if not always, a sufficient supply of lime in the soil from which the plant itself can feed. The principal value of the lime, however, consists in its action upon the soil. It improves the physical condition of heavy clay soils by loosening them and when supplied to light sandy soils, it has a tendency to bind the particles together, thus making such soils more compact. When considerable animal or vegetable matter is present in the soil, a dose of lime will hasten its decomposition, and convert the same into available food for the plant. The best form to apply is the slacked lime, which should be used at the rate of 25 to 40 bushels per acre. The proper time for the application of this material is the fall or winter, or at any rate early in the spring, some weeks before planting time. When put on this early, it is afforded plenty of opportunity to sink into the soil and to accomplish its important mission.

GEO. WILSON.

Segworth Farm Notes.

Boulders.—Jerseys.—Short-horns.

ED. HOARD'S DAIRYMAN:—If we were to take the opinion of the farmers all over our country, in regard to their preferences for cows, some would choose one and some another breed. Having been raised on a farm, and always to a certain extent been a dairyman, after going for myself I worked in the oil country for a few years, but my heart yearned for a farmer's life, so eighteen years ago I moved on my present farm, which consisted of 100 acres.

It was very poor, worn out by excessive grain raising; stone piles in every field; fence rows grown up in brush and not a rod of good fence on it, with buildings in a chronic state of dilapidation, and all my capital invested; no machinery, a worn out but strong team, and lots of days' work, and hopes of success in myself.

I had always been on a smooth farm and could not farm around boulders and stone piles, but by the use of dynamite and lots of elbow grease, and after a good many back aches, my boys and I can sit down and look across our fields and have the satisfaction of knowing that all of the obstructions large enough to harm a binder, are in one corner, and not more than a dozen of them, and, Mr. Editor, although several of them will weigh 50 tons, they too will go next year.

On the 60 acres that we farm, we have blasted out 200 boulders, and hauled off with a chain at least 1,000. Now this is not a fish story, either.

But I started to tell why I choose the Jerseys. I was located six miles from Franklin, a city, then, of 5,000 inhabitants; now it contains 10,000. I concluded to keep some cows, and bought three head of natives, part Short-horn and part just plain cows. I bred to a neighbor's grade Short-horn bulls, which were chosen specially from a milk strain of dams, and got a herd of, for that time and place, good cows. In a few years I began breeding to a grade Jersey, and two years ago I purchased a pure blood Jersey of the Stoke Pogis family. I have changed bulls several times since, always getting a pure blood.

A few years ago a neighbor imported a herd of Holsteins, and it was said that they were the ideal farmer's cow for beef and butter, so I went to see for myself. We both used the Cooley system of cream raising; he had a cabinet, I had a good spring of water. I did my own work, he had a foreman and bossed the job.

I got on an average 1¼ gallons milk, per cow, per milking, which showed on our cans 10 to 13 spaces of cream per can, of 4½ gallons; he got 2½ gallons of milk, which made 8 to 10 spaces of cream. I churned from 1½ to 1¾ pounds butter per gallon of cream; he churned from ¾ to 1¼.

Now I was feeding a 600-lb cow to get better results than his 1200-lb., and concluded I had better stick to my pot-bellied Jerseys. This beef idea is a delusion any way; 25-cent butter and 3-cent beef won't average. Our herd at the present time contains 3 two-year-old heifers and a number of old milkers, and after using lots of cream for berries (we grow our own berries and use some days 10 quarts) ice-cream, etc., we average 1¼ pounds, per cow, per day.

Swift said, he who caused two blades of grass to grow where one grew before was a public benefactor. If he told the truth, I am trebly so, for I have caused at least four to grow where none grew before, and I say all thanks to the Jerseys. SIGWORTH FARM.

Vernango Co., Pa.

Hog Feeding.

(Press Bulletin.)

The Experiment Station of the Kansas Agricultural College has, from time to time, by bulletins, short articles for the papers,

Preserves

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Sold everywhere. Made by
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GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

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Study your own interests, use **GENESEE SALT**, and write to Mr. F. A. TRIPP, No. 34 Clark Street, Chicago, for Entry Blank for the **1899 GENESEE EDUCATIONAL CONTEST.**

Yours truly,

THE GENESEE SALT COMPANY, New York.

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800 acres cleared, alluvial land, 300 acres in timber and brush. On Yakima River, Yakima Co., Wash.; abundance of water and independent water distributing system. Close to N. P. Railroad, near foot hills and outside range. Mean temperature, winter (Nov.–Feb.) 31 degrees, summer 59. Annual rainfall 10 inches. Alfalfa 3 and 4 crops a year. $45,000. Can be sold in 80 acre tracts. **E. SHORROCK,**
94 West Columbia St., **Seattle, Wash.**

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Western Dressed Beef, Sheep, Veal, Hog Products, Etc.
OAKDALE AVE. & HERNDON STREET.

THE EDGEWOOD REFINING CO., CHICAGO, ILL., Sept. 5, 1898.
Gentlemen:—We have used your Diamond Anti-Fly on our horses this season with such success that we intend to use it every season, and strongly recommend it to all stock-owners, especially to packers and butchers, where the flies are so numerous. Yours truly, SCHWARZSCHILD & SULZBERGER BEEF COMPANY.

Circulars Free. MANUFACTURED ONLY BY **Sample 25 Cents.**

THE EDGEWOOD REFINING CO., Cleveland, Ohio.

etc., shown the value of feeding to fattening hogs, something besides those highly starchy feeds, corn and kafir. In feeding over 200 head of hogs experimentally, not a case has come up where the results were not most favorable to feeding some feed rich in protein, along with the corn and kafir.

But what is intended to be brought out in this item is not the pecuniary gain from feeding such feeds as alfalfa hay, skim milk or soy bean meal, with the other feeds, but it is the humanity of doing so. Putting a hog in a small pen and giving it no feed but dry corn and kafir and water is inhuman. Hogs so treated, when you come to the pen, will walk away as far as they can, and eye you as though they knew you were responsible for their pains of digestion, the annoying lice, and all the other unfavorable conditions of the young hog that is being starved on carbohydrates. Protein is the source of the blood, bone, hair, muscle and nerve—take away this supply, and what has the poor hog to live for? Their hair drops out, their belly bows up as well as the back bone; great rough wrinkles of hide seem to work out on the tail, but instead of wrinkles working out, the body has drawn up and left the hide, like the insect that pupates in one end of the worm, as we say. The hog has a cough, and undoubtedly if such a hog could read and had access to our family papers, and not the experience of many persons, it would send for remedies for a dozen different complaints.

Dumb animals have a spirit, as we say, as well as human beings, and if this element of their nature is destroyed by unfavorable circumstances and conditions, they are subject to the same moods; and it will require a great effort to bring this spirit back, yet until this is done they will not grow or fatten. If the hogs are fed the proper feed and treated kindly, they come to meet you when you approach the pen, and have an appearance of perfect content, which is as different from the above described condition as day is from night.

Feed your hogs a variety, and make sure that you know that the feed contains the proper elements to insure a good, healthful condition.

J. G. HANEY.

Kansas Experiment Station.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 22,440 pounds. Bidding opened at 17 cents and advanced to 18 cents on call.

At this price 7,140 pounds were sold: 3,000 pounds remained unsold, with 18 cents bid and 17⅝ cents was declined for 12,300 lbs. The market was reported steady at 18 cents.

The sales made were:

Factory.	*Pounds.*	*Price.*
Oregon	4,800	18c.
Triumph	900	18c.
McConnell	1,400	18c.
Total	7,140	

The sales for the corresponding week of the three preceding years were as follows:

July 11, '98, 19,745 pounds of butter sold at 16c.
July 12, '97, 15,900 pounds of butter sold at 14½c.
July 13, '96, 52,980 pounds of butter sold at 14¼@15c.

The New York market was reported steady at 18½c.

H. C. B.

Elgin, Ill., July 10, 1899.

DAIRY MARKETS.

ELGIN, Ill., July 10—Three hundred and seventy-four tubs butter offered; 119 tubs sold at 18c. Committee reported market steady at 18c.

CHICAGO, Ill., July 10—Butter—Creamery, extra, 17@17½c; firsts, creameries, 16@16½c; seconds, 14@15c; dairies, selections 15@15½c; No. 1, 14c; No. 2, 13c; extra ladles 12@13c.

Eggs—Fresh, at mark, cases returned, sold at 11@1 ½c; loss off, cases returned 12½c.

Cheese—Full cream, Twins, new, good to choice, 8¼@8¾c; Young America, 8¾@9c; Swiss, 12@13½c; Limburger, 7@8c; bricks, 7¾@8¼c.

Bran—In light supply and prices higher, with sales at $11.75 per ton.

Cattle—Beef cattle sold about 10c higher than the close of last week and as high as the high time of last week, quality considered. Sales were at $4.95@5.90, largely at $5.35@5.55; against $5.20@5.50 for the bulk last Thursday, $5.30@5.60 on Wednesday, and $5.25@5.50 on Monday of last week. Sales included 1,100@1,331-lb. stillers at $5.35@5.75, and 1,412@1,536-lb. Westerns at $5.40@5.75. Texas steers sold at $4.65@5.05. The cow market was weak to lower.

MILWAUKEE, Wis., July 10—Butter—Creamery—Fancy prints, per lb., 17½c; extras per lb. 17½c; firsts per lb. 16@17c; seconds per lb. 14@15c; imitations per pound 14@15c. Dairy—Selections per lb. 14@15c. Market a shade off, wants being less urgent; receipts 16,598 lbs.

Cheese—American Full Cream—New, choice to fancy 8½@9½c. Brick—New, per lb., choice 8@8¾c. Limburger—New, choice per lb. 8@8¼c. Swiss—Drum, choice 12½@13c; new block choice 10@10½c.

Eggs—Fresh per doz. 12c, loss off cases returned.

AVOCA, Wis., July 10—Offerings on the Lone Rock and Muscoda Dairy Board to-day were 740 boxes Twins, all sold at 8@8¼c; market firm.

FOND DU LAC, Wis., July 10—Offerings to-day 600 Twins and 590 Daisies; market active at 8½c for Twins and 8¾c for Daisies.

PLYMOUTH, Wis., July 3—Cheese—Sales to-day, 1,250 Twins at 8c; 75 Young Americas 8¼c; 720 Young Americas at 8⅜c, and 240 at 8½c.

CHILTON, Wis., June 28—Cheese—The sales reported were 500 Twins at 8c, and 640 cases Young Americas at 8¼c.

APPLETON, Wis, June 29—Cheese—The offerings on the call board, today, were 531 Twins. All sold at 8¼c. Market active.

BRILLION, Wis., June 30—Cheese—Sales of cheese on Brillion Dairy Board today, were 1,427 Daisies and 835 Twins at 8⅛c; 327 cases Young Americas 8¼c.

HORTONVILLE, Wis., June 29—Cheese—Offerings on Board today, were 666 Cheddars and 1067 Twins. Sales, 240 Cheddars at 8¼c, 137 Cheddars at 8⅜c; 157 Twins at 8¼c; 653 Twins at 8⅜c. Ruling price: Cheddars 8¼c, Twins 8⅜c. Market active.

SHEBOYGAN FALLS, Wis. July 5—Fourteen factories offered 1,195 boxes of cheese on the call board to-day, and all were sold as follows: 660 cases of Young Americas at 8⅝c; 240 boxes Twins at 8⅜c and 95 Daisies at 9c.

MANITOWOC, Wis., July 5—Offerings of cheese at Dairy Board to-day were: 600 boxes Daisies, 135 boxes Twins, 888 boxes Young Americas. Sales were, 400 Daisies at 8c; 200 at 8¼c; Twins, 8@8¼c; 740 Young Americas, at 8c; 140 at 8¼c.

PHILADELPHIA, Pa., July 10—Butter—Solid-packed separator creamery, extra, 18½@19c; creamery, firsts, 18c; seconds, 16@17c; imitation creamery, extra, 16c; firsts 15c; seconds, 13c; ladle-packed, extra, 14@14½c; firsts 13½c; seconds 13c. Print butter, creamery, extra 20c; firsts 19c; seconds 17@18c.

Eggs—Pennsylvania and near-by, 14c; Western 14@13½c; Southwestern, 14c; Southern 12c.

ST. LOUIS, Mo., July 10—Butter—Quiet, creamery 15@18½c; dairy 12@15c.

Eggs—Steady; 9½c.

KANSAS CITY, Mo., July 10—Butter—Creamery, 14¼@16½c; dairy 13c.

Eggs—Fresh 10c.

CINCINNATI, O., July 10—Butter—Steady, 19c.

Eggs—Quiet, 9½c.

Cheese—Firm; good to prime Ohio Flats, 8½c.

BOSTON, Mass., July 10—Butter—Market quiet, 18½@19c.

Cheese—Steady, 8½c.

Eggs—Quiet; 15c.

PHILADELPHIA, Pa., July 10—Butter—Creamery 18½@19c; prints 20c. Market firm.

NEWARK, N. J., July 10—Butter—Market steady 18½c for fancy Elgins. Receipts liberal.

WASHINGTON, D. C., July 10—Butter—Market steady; extras 19c; firsts 18c.

NEW YORK, July 10—Butter—Creamery, Western, extras, 18½c; firsts, 17½@18c; state extras, 18½c; firsts, 17½@18c.

Cheese—State full cream, large, colored or white, choice, 8c; small, 8½c.

Eggs—State, Pennsylyania, and Western, 15@16c.

BOONEVILLE, N. Y., June 30—The cheese market on the Booneville Board to-day was firm. The buyers present were Messrs. McLeod, Miller and McAdam. Sales: Thirteen lots large, 859 colored, 8c; one lot large, 100 colored, 8⅜c; five lots large, 250 white, 7⅞c; five lots small, 260 colored, 8⅜c.

NEW YORK MARKET.

NEW YORK, July 8—Butter—Receipts for the week, 58,103 packages. Exports for the week, 987 packages.

There is a moderate speculative demand for strictly extra creameries at 18½c and price is firm, as the proportionate receipts of that grade is comparatively so small that even a fraction above 18½c has been reached on some favorite lots; but below that grade of which the main bulk of the receipts consists, the demand is light and trade unsatisfactory. Local trade is buying only enough to supply their immediate wants and exporters are about out of the market. We note sales of fine creameries at 18@18½ and really good ones at 17½@17¾c. Fine dairy butter sells quick at our quotations, while off qualities are sold down to 14@16c. Market closes with more offerings of all grades and easier prices would be accepted for any long lines of butter. We quote:

Creamery, extra, 18½c; medium, 17½@18¼c; poor, 15@16c. Dairy, extra, 17½c; medium, 16@16½c; poor, 14@15c. Ladle, extra, 14½c; medium, 14@14¼c; poor, 13@13½c.

Cheese—Receipts for the week, 38,502 boxes. Exports for the week, 13,214 boxes.

Cheese are quoted in this market at 8@8¾c for finest, and yet they can't be bought for less than 8¼@8½c and some receivers are asking even more. A good many of the cheese arriving this week went into cold storage for later markets. We note sales of fine, large size at 8¼@8¾ and small cheese at 8¾@8⅝c. Sales in Catteraugus County this week are reported at 8¼@8¾c. Market closes firm. We quote:

Full cream, small, extra, 8½@8⅝c; medium, 8@8¼c; poor, 6@7c; large, extra, 8¼@8½c; medium 7¾@8c; poor, 6@7c. Part skimmed, extra, 7¾@8c; medium, 6½@7c; poor, 4@5c.

Eggs—Receipts for the week, 56,029 cases. Receipts continue heavy and a large proportion of the arrivals show more or less defect from the heat. Prices however for fancy stock is firm and sales liberal. We quote:

N. Y. State and Pennsylvania, per dozen, 15@16c; northern and western, best marks, 15@15½c; South-western, 13½@14½c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE, Md., July 10—Butter—Market steady; creamery, separator, extra, 20c; extra first, 18@19c; creamery, first, 17@18c; creamery, imitation, extra, 15@16c; ladle, extra, 14@15c; Western, store-packed, 11½@12¼c.

Eggs—Market weak; strictly fresh, 11½@12c.

BALTIMORE MARKET.

BALTIMORE, July 6, 1899—Butter—Receipts of separator creamery have been quite liberal; particularly is this the fact with respect to regular marks from the Elgin district, which it is pleasant to learn have again graded satisfactory. It has been a common experience with nearly all receivers that, since our last issue, there has been freer buying by the distributors and cutters of this variety of butter, presumably to make good the deficiencies in the supply of near-by creamery—deficiencies in quality and quantity, the latter largely the effect of an increased demand for cream in its unmanufactured state for other uses, principally the production of "frozen victuals" for patriotic observances or cooling purposes. June has come and gone, and yet there has been little or no stocking up by speculators of the one article that has heretofore been deemed essential to an intelligent prosecution of the butter business; and to the thoughtful observer it seems to mark the "passing" of June creamery. There were two principal reasons assigned for not buying it, as it was being produced.; the one was, it was not considered cheap; and the other, that later on the product of the same creameries would be for sale for less money, and be fully as desirable. Gathered cream and ladles have been in lighter receipt, with a demand fully equal to absorbing the offerings. Out-of-town trade has been very light; exporters have no orders for creameries. Storepacked is in light receipt, with a quick demand for all grades.

Creamery Separator, extras, 19c; firsts, 18c; seconds, 17c. Gathered Cream, extras, 18c; firsts, 17c; seconds, 16c. Ohio, extras, 18c; firsts, 17c; seconds, 16c. Imitation, extras, 16c; firsts, 15c; seconds, 14c. Iowa & N. W. Ladle, extras, 14c; firsts, 13c; seconds, 12. Ohio & Indiana Ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio store-packed, extras, 12½@13c; firsts, 12c. W. Va. packed, extras, 12½@13c; firsts, 12c. Creamery Blocks (2 lbs.) extras, 21c; firsts, 20c; seconds 19c. Prints (½ lb.) extras, 21c; firsts, 20; seconds, 19c. Md. Va. & Penn. Prints, extras, 19c; firsts, 18c; seconds, 16@17.

Eggs—While there has been no great increase in the receipt of eggs so far this week, the supply is more than equal to the demand, and there is some accumulation of shock, even at the lower prices prevailing. We would advise that you exert the greatest care in the selection and shipping of your eggs. As is usual at this season of the year, the quality is unsatisfactory; the best is none to good, and buyers will take nothing, but the best fresh stock: market quiet and barely steady at 12½c.

Cheese—The receipts are ample for the demand; the market quiet; demand fair.

N. Y. State Cheddars, fine, 8¾@9c; choice, 8½c; fair, 8@8¼c. Flats, fine, 9@9¼c; choice, 8½@8¾c; fair, 8¼c. Small, fine, 9¼c; choice, 9c; fair, 8½c. Ohio Flats, fine, 8½@8¾c; choice, 8@8¼c; fair, 7½@8c. Picnic, fine, 9¼@9½c; choice, 9c; fair, 8¼@8½c. Skims, fine, 7½@7¾c, choice, 6@6¼c; fair, 5@5½c. Swiss Cheese, fine, 13½@14c; choice, 12@13c; fair, 11c.

301 Exchange Place. G. M. LAMB & BRO.

Latest quotations for fancy creamery: New Orleans 18½@19c; Buffalo 19c; St. Paul 17½c; Minneapolis 17c; Detroit 19c.

LIVERPOOL, July 10—Butter—Good United States 62s.

Cheese—American finest white and colored 42s.

FOREIGN MARKETS.

BOSTON, July 8—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrané give butter markets as all the turn easier. The most pronounced drop is in Danish which has fallen to 20@21c, Irish 20@20½c. Finest Canadian in boxes is selling at 18½@19c. Low grades of butter are working into better shape and there is a better inquiry for fine ladles that would bring 14½@15c. Weather conditions are more favorable with pastures much improved all over Europe.

Cheese markets are all steady with the demand fully equal to the supply, which has prevented any accumulations. The consumption is very large. Finest American and Canadian selling at 9@9½c, white having a slight premium over colored.

THE

SEPARATOR QUESTION.

An "Alpha" disc separator and savings which almost insure success?

Or a "hollow-bowl" separator and losses which mean ultimate failure?

Which promises best? Which is "cheapest?" Is there much ground for hesitation? No!—not in your case nor that of any other user of a cream separator.

The "Alpha" disc system makes all the difference imaginable—it marks the line between success and failure in up-to-date creamery operation.

De Laval catalogues illustrate separator principles and differences in detail. They may be had for the asking—"Dairy" or "Creamery."

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Creamery located in good dairy country. Three railroads and express companies. Market convenient. Address "CREAMERY," Lowellville, Ohio. 21-4

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

An up-to-date Farmer of good character and standing, who understands his business, would like a situation as foreman or manager by January 1st. Best of references. Address, BOX 204, Framingham, Mass.

Wanted—Position as forman, buttermaker, or herdsman on dairy farm. Single man, 35 years of age. Taken two courses in Agricultural College. 10 years experience. ABE SAUERS, Bristol, Tenn.

For Sale—Holstein-Friesian Cattle. Three cows, eight heifers and three young bulls, all richly bred, beautifully marked and of fine individuality. Write for prices and particulars. A. T. CORDRAY, London, Ohio.

Married man wants position on dairy or stock farm to take management or otherwise. Can run separator or make butter if necessary. Address H. J., care of HOARD'S DAIRYMAN.

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

Excursion Tickets to Freeport, Ill., Via the North-Western Line, will be sold at reduced rates, from stations within 75 miles, July 18 to 21, inclusive, limited to July 22, inclusive, on account of the Horse Races. Apply to agents Chicago & North-Western Railway.

Exceptionally Low Rates to Indianapolis, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations. July 18, 19 and 20 (but not for trains arriving Chicago before July 19 or later than July 21), limited to August 20, 1899, inclusive, on account of National Convention Epworth League. Apply to agents Chicago & North-Western Railway. 21-2

Excursion Tickets to Madison, Wis., via the North-Western Line, will be sold at reduced rates, from stations in Wisconsin and certain stations in Illinois, July 17 to 31, inclusive. limited to August 1, inclusive, on account of Monona Lake Assembly. Apply to agents Chicago & North-Western Railway. 21-2

Relation of Water Supply to Animal Diseases.

[United States Farmers' Bulletin, No. 97.]

About three-fifths of the animal body is water, and while water is not strictly a food in itself, no food can be assimilated without the aid of water, large quantities of it being required to carry on this process.

According to a bulletin of the Indiana Station:

"The horse requires from 64 to 80 pounds, or eight to ten gallons per day, a gallon of water weighing eight lbs. During the month of February and March, five horses drank from 48 to 60 pounds, per head, when not at work, and from 62 to 84 pounds, while at work. Forty-four per cent of the water was drunk in the forenoon, and 56 per cent in the afternoon.

"Cattle drink more than horses. During the period above referred to, cows not giving milk drank 78 pounds, and cows in full flow of milk drank 112 pounds, per day. The largest drink was 122 pounds, and the greatest amount taken by one animal, in one day, was 176 pounds. The Utah Experiment Station found that steers, feeding upon dry feed, required 83 pounds of water, per day, while those fed upon green food consumed only 33 pounds per day. Cattle drank 72 per cent of water in the morning, and 28 per cent in the evening."

Pigs, fed corn and skim milk (3 pounds per day) drank 2.65 pounds of water per day; those fed wheat and skim milk, 5.2 pounds; those fed corn, wheat and skim milk, 3.9 pounds; those fed soaked wheat and skim milk 5.3 pounds. These figures indicate, as in the experiments with steers at the Utah Station, that the amount of the water drunk is influenced to a considerable extent by the character of the food.

"No attempt has been made to determine the quantity of water needed daily for sheep. * * * They drink comparatively little water while upon pasture. They can endure privation as regards water far beyond other domestic animals. This has led to the belief, common among farmers, that sheep do not need water and that dew is sufficient. This is a serious mistake, and accounts for the loss of many hundred lambs in this state, every year.

"The number of times an animal will drink during the day, when allowed full opportunity, is not known, but is indicated in a general way by the stomach. The stomach of the horse is small and, as might be supposed, does not require much water at a time, but often. The stomach in cattle is very large, and rumination (chewing the cud) is performed. This necessitates saturating the food with water before rumination can take place, and probably explains why so much water is drunk in the morning."

The above facts make it clear that we may expect a close and important relationship between water supply and disease in domestic animals, and this fact is most strikingly demonstrated when the supply is insufficient, or is contaminated with matter which causes disease.

"The diseases which arise, as a result of supplying water in insufficient quantities or not providing water in accessible places, are sporadic in character; that is, affect only an occasional animal, or a few in a herd or flock. Probably the most serious disease having such cause is mad itch in cattle. This occurs especially in the fall of the year, when the cattle are upon dry pasture, or when turned in upon a dry stalk field. It may occur at other times, and also be due to other causes, but without doubt ninety per cent of the cases occurring in this state are directly traceable to this cause. Sheep also suffer from impaction and constipation, and large numbers die for want of proper water supply. Hogs, especially young ones, often succumb from like treatment. Horses, probably, suffer least loss, because they receive the greatest care in this respect, but, no doubt, many cases of colic, impaction, and constipation are traceable to this source."

The losses that arise from an insufficient water supply are small compared with those caused by water of an improper character. Water which comes from deep wells, properly protected, is free from disease germs; that, however, which comes from ponds, ditches, and streams may contain such germs. "Not all surface waters are dangerous, but all are more or less exposed to infection, and may become dangerous at any time."

Careful investigation has shown that hog cholera has been largely disseminated in Indiana by contaminated streams, thus bearing out the conclusions from investigations by the Bureau of Animal Industry of this Department that "perhaps the most potent agents in the distribution of hog cholera are streams. * * * The first step to be taken in the prevention of hog cholera is the securing of a wholesome water supply."

There are numerous parasitic diseases to which all animals are subject. Water is necessary to the growth of these, and is an important carrier of them. Such parasitic diseases as twisted stomach worms, nodular disease, paper skin, liver fluke, and lung worm of sheep, and worms in hogs, horses and cattle, are largely due to surface water. "Pure water from deep wells is the preventive."

What Does Milk Cost?

Figuring the Financial End of the Dairy Business.

There is probably no farming question as to which there is so wide disagreement among farmers, as there is about the cost of milk. It undoubtedly costs more in winter than it does in summer, and this was especially true under the old time system of feeding on dry hay and cornstalks, with sometimes a little grain for variety, which, however, usually went to make fat on the body rather than to increase the milk flow. There was no inducement in those days to have cows calve in the fall, for the fresh flow came at a season when it was almost impossible to keep it up. Milk is always dearer in winter than in summer, but under these conditions the slightly increased price did not pay the extra cost, and all the winter made milk had to be sold at a loss.

Now, however, a farmer who has a basement barn and silos to ensilage his corn fodder, can have cows drop their calves in the fall with some confidence that the winter product will pay its cost. Corn fodder is so much cheaper than is pasture on high priced land, that if it can be given in succulent form and if cows can be protected from winter's cold the w inter's milk does not cost any more than that made in summer, where the main dependence is on pasture. We believe that good pasture in June will bring more milk from a new milk cow than will any other feed. But that is not saying that even then it is the cheapest feed. It must be remembered also that June pasture fills out only a small part of the summer.

The grass is sappy and innutritious in May, and by July or August it either grows hard and woody or dries up so that cows will not eat so much of it, and what they do eat will not make so much milk. So great is the need of extra feed for cows at this time that corn drilled for fodder is often cut before it has even got into blossom, and when it, of course, has very little nutrition. So soon as corn matures sufficiently, that will furnish a ration that will materially increase the milk flow in cows at pasture. Indeed many of the best farmers put their cows in darkened stables during August heats, partly to protect them from flies. They find that entire reliance on soiling with green corn or with clover makes a larger milk flow, and makes it more cheaply than does reliance on pasture, even when corn is cut and fed daily as an adjunct to it.

This, we think, pretty nearly proves that, considering results, the winter feed of cows costs less than it does while they are at pasture. Most farmers deceive themselves into thinking that their summer pasture costs nothing, because they expend neither money nor labor to secure its product. The cow is turned in, eating with one mouth, but all the time trampling the tender grass with four feet, soiling the grass, besides more or less bruising it and injuring its roots. If the pasture is clover, this injury is so serious that stock ought never to be turned into a clover field until it is nearly ready to blossom. Until this time, clover is about the poorest feed that can be offered to a cow. But turn a cow into a field of clover when it is in blossoms, and what will be the result? She will trample through it, biting off the clover heads and soiling or destroying fully twice as much as she eats. If the same clover were cut and fed green to the cow, she cannot separate the heads from the stem so well and will eat the whole of it. In this way three times as much feed will be got from an acre of clover as can be secured by pasturing. Some of the clover will be soiled so that the cow will not touch it through the remainder of the season.

Every farmer who has pastured clover, knows that toward fall, while most of the clover will be eaten down almost to the roots, there will be a considerable portion that has grown hard and woody, so that it has little nutritive value. When the clover is eaten off early, the second growth promptly springs up and is both palatable and nutritious. That is what grows up after the first crop has been cut for soiling or for hay. A second, third and even fourth crop of clover may be grown if the soil is rich enough, and each one will be more nutritious than the first. This repeated cutting of clover is far better for the root growth, than pasturing it can be, for in pasturing, the constant trampling of the ground hurts the plant and lessens both its roots and top growth. In short, clover will usually produce, not only three times as much feed when cut with a scythe or mower, as when pastured, but it is nearly or quite three times as much benefit to the land. When the clover is cut, more or less leaves fall upon the soil, and it is the rotting of these that doubles and trebles the growth that the clover would otherwise make. The cow returns only the excrement from the clover she eats, but that is not in condition to help the clover growth materially, the same season.—*Boston Cultivator.*

The Size of the Silo.

Until quite recently the idea has been to build the silo just large enough to afford six months feeding, but now there is an enlargement of the plan, as it is found by exhaustive trials, that silage in summer is the most effectual soiling crop yet tried, and surest. The man who has silage in summer, to feed with pasturage, is independent of the feed seller, and nothing will hold the cows up so from shrinkage. So there is a larger planning, more silage capacity, either in larger silos or in smaller ones, now that the tub silo is so much in evidence.

The old allowance of four and one-half tons per cow, allowing for wastage, is now made larger, and six tons per cow is supposed to be about right, so as to give her a ton and a half in the midsummer. The capacity of the square silo is quickly ascertained, by estimating that a cow will need a cubic foot of silage a day. This for 180 days would be a little over four tons, and forty-five pounds to the foot would make it necessary to provide about 200 cubic feet for each cow; so multiply the number of cows by 200 and build the pits to hold correspondingly. In round silos the figuring is different, and as a circle has never as yet been squared, we append a table figured out for all sizes of round silos.

Diameter of Silo.	*Height of Silo.*			
	20 ft.	22 ft.	25 ft.	30 ft.
10 ft. tons capacity.....	31	34	40	47
12 ft. " "	45	49	56	65
14 ft. " "	63	68	77	90
16 ft. " "	80	90	105	130
18 ft. " "	100	110	125	150
20 ft. " "	125	135	155	185
22 ft. " "	145	160	180	215

Silo costs, depend upon location, cost of lumber, labor and all such items, as to time and place. In general terms, a silo should be built square, and outside, for somewhere near $1 a ton storage capacity. Inside the barn, 50 to 60 cents per ton, and a round one may be built for from 40 cents to $1.00 a ton, though some have cost full $3.00, and all styles for that matter, says John Gould in *Ohio Farmer.*

Rules and Regulations of the Dairy Department of the Wisconsin State Fair.

We have received copies of the 1899 premium list of the Wisconsin State Fair to be held in Milwaukee, Sept. 11th to 15th inclusive. Mr. J. W. Thomas, of Anson, Wis., is the Superintendent of the Dairy Department, and has secured the following liberal assignment of premiums:

For creamery butter, to be exhibited in 60-lb. tubs, $230.00.

For dairy butter, to be exhibited in 8-lb. packages, $140.00.

For print butter not less than 6 lbs., $32.00.

For granulated butter in two quart jars, $18.00.

For butter in novel forms not less than 8 lbs., $15.00.

For factory Cheddar cheese, in box not less than 60 lbs., $100.00.

For Flats or Daisies, two in a box, $125.00.

For Young Americas, weighing not less than 10 lbs., $20.00.

For Brick cheese, 60-lb. case, $75.00.

For Swiss cheese, not less than 60 lbs., $75.00.

We print below the published rules, which will govern dairy exhibits, and if further information is desired, write Superintendent Thomas, at Anson, as above:

RULES.

Persons, after making entries with the Secretary, can ship their exhibits to the Superintendent of this department, express prepaid, marked, "State Fair Park, Milwaukee, for Exhibition Dairy Hall."

The superintendent will receive the same, attend to its exhibition, and if so directed by owner, dispose of the butter or cheese at best possible advantage and remit proceeds to exhibitor.

When entry is made, state, if you wish, exhibit sold or returned, giving post office address and express office.

Mark exhibits with removable tags, giving name and address of owner, but do not mark packages with name of exhibitor, as this must be withheld from Judge.

Butter and cheese will be kept separate. A large glass refrigerator, well supplied with ice, constructed for exhibition purposes, has been provided for each.

No brand or other distinguishing marks will be allowed to remain on any article entered in this department prior to or during judging.

Butter from the milk of a single herd of cows, owned by one person, partnership or corporation, and made on the premises where the milk is produced, shall be classed as Dairy Butter. Butter from the mixed milk or cream, gathered and brought to a factory from two or three herds, owned by different persons, partnerships or corporations, and made in a factory, shall be classed as Creamery Butter.

All dairymen, creamery men, commission men and manufacturers of dairy implements are cordially invited to make Dairy Hall their headquarters.

Manufacturers, dealers and inventors will be welcomed with their implements. Every facility will be extended for making a good display.

Exhibits should be billed so as to reach Milwaukee on or before 12 o'clock noon of September 12th. Exhibits arriving on Sunday will be promptly taken to the refrigerators on the grounds.

Butter and cheese will be judged on a scale of 100 or perfection, according to the standard adopted by the markets of Chicago and New York, as follows;

BUTTER.

Flavor	45
Body	25
Color	15
Salt	10
Style of package	5
	100

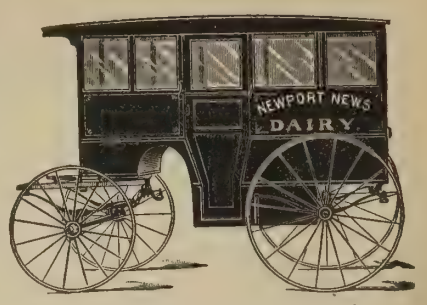
CHEESE.

Flavor	45
Texture	30
Color	10
Salting	10
Style of make-up	5
	100

All premiums in this department, unless otherwise noted, will be awarded on the pro rata plan, and 90 points will be the minimum for all awards on creamery butter and cheese, and 88 points the minimum for dairy butter.

The premium will be divided among the scores above the stated minimum, on the following basis:

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Creamery butter and cheese scoring over ninety points will be entitled to one share of pro rata for each point scored above 90 to 95 inclusive, and two shares for each additional point scored above 95.

Dairy butter scoring over 88 points will be entitled to one share of pro rata for each point scored above 88 to 93, inclusive, and two shares for each additional point scored above 93.

Provided that the maximum amount awarded to any one exhibitor of creamery butter, shall not exceed $30.00, and the maximum amount for dairy butter shall be $15.00, and for print butter, $8.00.

The maximum premium for Cheddar or Twin cheese shall not exceed $25.00, and for all other kinds of cheese $15.00.

When the award on any one entry shall amount to the maximum limit, the awards on all other entries in competition may be pro rated according to merit as compared with the highest,

By this method of awards all exhibits of high merits will receive a certain proportion of the premiums offered, according to the score, and as the awards are all based on the score, the Judge will carefully review his work that no mistake may happen, and a mistake in judgment of one or two points will only affect the premium two or three dollars at most, and it makes it impossible for three or four exhibitors to take all the money offered.

All manufacturers of butter or cheese are most cordially invited to exhibit samples of their products that this department may well represent one of the great industries of the state. The State Board of Agriculture fully recognize the importance of the dairy industry, and expect another year to be able to offer premiums in each branch of the business according to its magnitude.

It is the desire of the Board to make this department as instructive to the exhibitor as possible. All the judges will be the very best experts to be had, and the superintendent will be supplied with duplicate score cards for each entry, one to be filled out and signed by the judge, who shall also make a note on the card of any special defect in the exhibit, stating what it is. As soon as the Judge has completed his work, the Superintendent shall see that the duplicate cards are carefully copied and compared with the original, then put in a sealed envelope, properly addressed, and mailed to the exhibitor.

No butter or cheese should be previously scored by an expert.

Milk.—Bacteria.—Cream Mark.

ED. HOARD'S DAIRYMAN:—I am buying milk from one of my neighbors to help out my summer trade. After setting and skimming, we had some skim milk to-day for dinner and I noticed that it was sour, it was yesterday morning's milk and is sour at about 30 hours old, which my wife says never happens to the milk from our cows. Both of his cows have had calves since mine have. The same milk from my cows, set under same conditions, same age, etc., is perfectly sweet now. Why is it? Is it the bacteria in his milk, and is there danger of getting it in my milk utensils?

I had my milk tested at the experiment station and it tested 4.6 per cent butter fat. I was telling one of my neighbors, who runs a milk route, about it and he says: "Is that all, why, you can't sell milk in Newport unless it tests 12½ per cent." I tried to tell him the difference but I gave it up and thought I would wait till I knew what I was talking about. I knew he did not know what he was talking about and I was sure I did not.

I have seen quart milk bottles with a mark near the top marked 12½ per cent or "standard." What does it mean? J. E. K.

South Portsmouth, R. I.

The souring depends entirely on the cleanliness of the milk utensils, the temperature at which the milk is set, and also whether the milk is aerated and thoroughly cooled.

There are bacteria in all milk, in yours as well as in that you buy. The time of souring, depends on the number present in the milk; the fewer they are the longer the milk will keep. Dirty surroundings will cause them to multiply very quickly and in immense numbers; the result is that the milk sours very rapidly. If you do not have facilities for keeping the milk cold, pasteurization is the best remedy.

Milk containing 4.6 per cent of fat, is of exceedingly good quality and is considerable above the average. The legal standard in Rhode Island is 2.5 per cent fat. The mark on the bottles is supposed to indicate the amount of cream in the milk and is only an idea of the bottle manufacturers. There is no law regarding it.

Artificial Flavor in Oleomargarine.

Closely associated with the application of bacteriology to butter making, is its application to the preparation of artificial butter and various oleomargarine products. This subject, however, may be passed over with only a word. In certain European countries, especially in Holland, oleomargarine is made in very large quantities. The largest factories in the world are located in Rotterdam. In these factories the use of pure cultures has for some time been adopted with almost absolute uniformity. The shrewd business men who manage these factories have thoroughly learned that if they wish to obtain in their products a flavor imitating that of butter they are obliged to use bacteria to give them this flavor. They therefore buy the artificial pure cultures and inoculate them into large quantities of pasteurized milk in essentially the same way that the butter maker inoculates them in his cream. They allow this milk to stand in a warm place for a length of time, which will produce the proper amount of souring, and then this ripened milk is mixed with the fats, and the mixed oils made into margarine products. The result is that a flavor of butter which is, of course, derived from bacteriological products of the souring milk, is imparted to the margarine. All of the better grades of artificial butter are made in this way.

The margarine factories use various kinds of pure culture and experiment upon them with a good deal more care, and know much more about their use than do the butter-makers. Butter makers make comparatively small quantities of butter, while oleomargarine factories make their product in very large quantities, and their market is much more dependent upon the grade of their product than is the market for butter. Some of these oleo factories have their own bacteriological laboratories, where experiments are going on constantly, and where they can obtain their own pure cultures and make use of the very best results of the most recent advances in bacteriology. The wide application of bacteria in the manufacture of oleomargarine products, should be a lesson to the butter maker. PROF. H. W. CONN.

Storrs' College Report.

The Minnesota Anti-Preservative Law.

The legislature of Minnesota recently passed the following law:

Section 1. Any person, firm or corporation who shall sell or offer for sale, or consign, or have in his possession, with intent to sell to any person or persons any milk, cream, butter, cheese, or any other dairy products, or who shall deliver to any creamery or cheese factory, milk or cream to be manufactured into butter or cheese, to which has been added any preparation in powdered or liquid form, known as preservatives, or any other compounds containing antiseptics, shall be deemed guilty of a misdemeanor, and upon conviction therefor be punished by a fine of not less than twenty-five or more than one hundred dollars, for each and every offense.

This shall not be construed to prohibit the use of salt in butter.

Section 2. The state dairy and food commissioner and his assistants, experts and chemists, by him appointed, shall be charged with the proper enforcement of all the provisions of this act.

Section 3. In all prosecutions under this act the costs shall be paid in the manner now provided by the law, and the fines resulting therefrom shall be paid into the state treasury and placed to the credit of the state dairy and food commissioner's fund.

Section 4. This act shall take effect and be in force from and after its passage.

The Cow Is a Law Unto Herself.

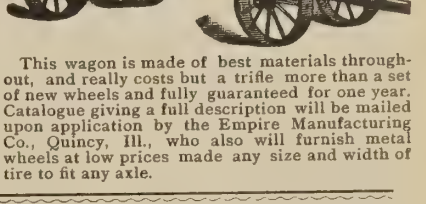
Most farmers have been led to believe that the per centage of fat in the milk is determined largely by the quality of the food given to the cows. On the other hand, the results of nearly all the scientific experiments and tests go to show that the kind of food fed to the cow has little influence upon the fat in the milk, but that everything depends upon the cow. There are some cows that seem to be born with the ability to produce milk rich in fat, and food of any kind will keep up this supply. Of course, starving and gradual degeneration of the animal will decrease the supply of milk and consequently the quality of fat. But with fair care and food the percentage of fat will remain good and quite constant.

This brings us to the important matter that all dairymen must consider. The cow is a law unto herself She is created a milking machine that is valuable to her owner, or she is a poor milker whose existence on the farm is unprofitable to the farmer. Experiments, conducted in the most careful manner, have failed to increase the fat of a cow's milk to any material extent. Under forced feeding, the fat percentage might be increased, but it would only be temporary. Some seasons of the year the percentage of fat is much higher in one cow's milk than at another time, and this change should not be attributed to the food. It is due to natural causes that cannot be easily explained. So we come to the conclusion that while breed and the individual cow may not be everything, it certainly is more than half the question. Food plays an important part in keeping the cows up to a standard of health and functional activity; but its influence is comparatively small in determining the quantity and quality of the fat in the milk. The moral is obvious. If we expect to have good milkers, we must select cows that have a special gift for this.—*Ex.* E. P. SMITH.

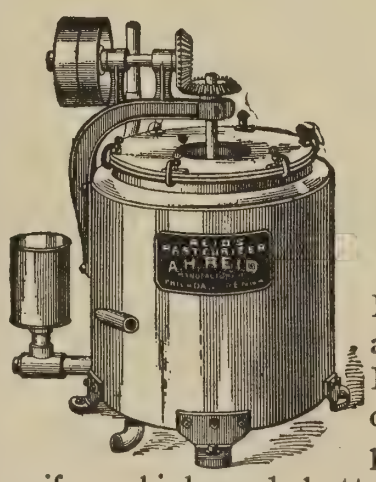
THE creamery at Warsaw, Mo., has suspended for awhile. The reason given is, "The farmers are too busy to bring in milk." This illustrates the folly of building creameries in communities where the farmers have no sort of sympathy, training or knowledge consistent with the business.

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best materials throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

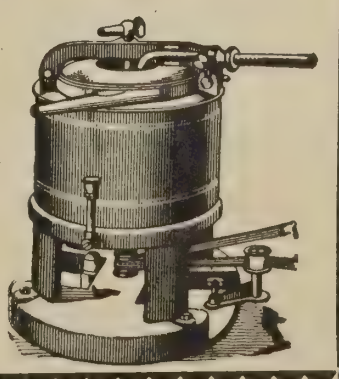


You Can't Deny A Fact.

Practical and personal experience with the Reid Pasteurizer is the best test of the merits of pasteurization and the strongest argument in its favor. The Reid Pasteurizer is a fact which upsets the theories of the opponents of hot skimming. The creameries that use it produce perfect cream for all purposes and make the most uniform, high-grade butter, entirely and always free from bad flavor, and undesirable odors. A fair trial of the

REID Pasteurizer

is more convincing than any amount of talk. Write at once for complete description and price and don't forget to ask for the **Reid Long Spindle Separator** book. All free by mail.



A. H. REID, 30th and Market Streets, PHILADELPHIA, PA.

And CEDAR RAPIDS, IOWA.

Growing Ensilage Corn in the Maritime Provinces.

ED. HOARD'S DAIRYMAN:—I herewith hand you replies from two other prominent dairy farmers in the Maritime Provinces on growing the corn crop. From Supt. Robertson, of the Experimental Farm, Nappan, N. S., probably one of the most up-to-date dairyman in all Canada, and while in Quebec was probably the most successful breeder of Aryshire cattle in Canada, according to results at Canadian fairs.

The second reply from Mr. Parlee, of Sussex, New Brunswick, shows that a man may be a successful dairyman without the use of ensilage, for Mr. Parlee is undoubtedly the most prominent breeder, of not only dairy cattle, but of swine, sheep and poultry as well, in the Province of New Brunswick.

No doubt in Mr. Parlee's case the soil and climate in his vicinity, as in many parts of the Province of New Brunswick is not adapted to paying crops of corn ensilage; manifestly if corn would grow paying crops, such an up-to-date man as Mr. Parlee would certainly be growing it. From Mr. Parlee's reply we can therefore conclude that in some parts of the Maritime Provinces, notably parts of New Brunswick, it will not pay to try growing ensilage corn and secondly, as in Mr. Parlee's case, a successful dairy can be carried on, and high class dairy stock can be had without ensilage corn. From the four replies received, from as many dairymen representing the three Maritime Provinces of Nova Scotia, New Brunswick and Prince Edward Island and each thoroughly representative of their calling, three of them are successful corn-growers and think highly of the feed for dairy cows. They have given the *modus operandi*—minute details of the methods, that any dairyman who, upon reading these two articles, thinks of building a silo next summer and growing a crop of corn to fill it, can adopt either of the three methods of growing the crop, Mr. Brow's, Mr. Fuller's or Mr. Robertson's. It would be well to preserve these numbers of the DAIRYMAN, for if corn cannot be made a success by either if these methods the crop cannot be grown at all in the Maritime Provinces.

Those farmers, however, who are located in a moist district like Mr. Parlee and where the soil is more adapted to the growth of hay crops need not lose courage. Like Mr. Parlee they can grow lots of roots, and these fed with hay and other green crops will be found an excellent feed for dairy cows. Thanking the gentlemen for their prompt and exhaustive replies and the readiness to which they acquiesce to furnish the DAIRYMAN with the results of their experience for the benefit of their brother farmers in the Maritime Provinces who are readers of the DAIRYMAN.

J. A. M.

I have had but little experience in feeding ensilage corn to cows. We use the turnips and mangels here mostly, as corn is hard to grow, and not a very sure crop. A few years ago, our farmers started growing corn quite extensively, and some went to considerable expense in putting in silos, but now there is but little grown, and it is usually fed off before the frost comes in the early fall.

My ration for milch cows, during the winter is, cut hay, or straw if scarce of hay, and often the chaff and tailings from harvesting machines, wet thoroughly with a mixture of ground oats, wheat middlings and turnips or mangels pulped. Quantity: I sometimes vary according as the cow will feed or take, and then as much clover hay as they will eat up clean. I find my cows do well and milk well on this ration, provided the hay is good.

Sussex, N. B. M. H. P.

While I doubt very much if corn ensilage can be made as much the principal food for dairy cows here in the Maritime Provinces, that it is a little west of us, yet I think it can and should be grown much more extensively than it is. That was my impression when I came here a year ago. I did not say much about it, feeling that it was best to give it a trial first, which I have, and am very well satisfied with the results, getting from 12 to 22 tons per acre, with the field corn averaging about 18 tons, in first-class silage stage. Of course that is only one year up to July 1st, it could hardly be a worse year for corn, but July was good. I do not wish to put myself on record as saying that the great majority of the farmers understand growing some crops better than they do corn. (It would come badly from me). Still I am much inclined to believe that with the methods of growing corn studied, instead of being condemned before being learned, that the cost of ration for our dairy cows can be lessened considerably, which is one of the great essentials in success.

It seems to me strange, to begin to write about methods of growing corn, when so much has been written by able writers, of a business so well known. I hardly know where to begin, and will likely leave out some very essential points.

I prefer a sod field manured in the fall on the grass, left as long as possible in the spring, before plowing, getting all the grass possible to turn under, (clover preferred) plowed not at all deep, very well worked up, (not extra deep.) Hills, mostly, give rather more ears than drills, sow three-fourths bushel per acre; better to harrow out three stalks than to have to dibble in one. If a shower of rain comes after planting, harrowing before up will help; as soon as it is properly up, I start a light swathing harrow, one with teeth slanting backward best, and keep that up once or twice per week, until six to eight inches high. I then start the cultivator between the rows, taking care to always go the same way, (in going the opposite way the little rootlets, that have been growing in the direction started by the last time passing through, will get broken off.) I like always to plant as near north and south as I can, and never hill up, giving the sun all possible chance to heat up the ground around the roots. By using a short whiffletree, just the width of the horses hips, keeping it up to his hips, and using a chain about five feet long to the cultivator, it can, and, I think it should be cultivated at intervals of about one week, until too high to see either man or horse, which will be three or four times.

Nappan, N. S. R. ROBERTSON.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series No XX.

BENEFICIAL BACTERIA.

We are so accustomed to look upon the bacteria as the cause of disease, in either man, beast or plant, that it is rare that they are considered in any other light. While they not infrequently play the role of an enemy, still they often appear in the guise of a friend. To the farmer, one class of these animated beings is of special service, for by means of their activities, he is enabled to restore the fertility of soils in a way that is almost without expense to himself. It isn't often in this world that one gets something for nothing, or almost nothing. The farmer is apt to think that such a chance never comes to him, yet, in the process of nature we are to consider here, the law of compensation comes the nearest to being broken.

That the fertility of land is dependent upon the presence of certain chemical constituents in the soil, is now so well known that it may be considered axiomatic. A generation ago, our fathers thought that these broad western prairies were practically inexhaustible, that no amount of cropping could deplete the fertility of the soil to such an extent that it would require a restoration of the necessary fertilizing elements before a fair crop could be produced. It has not taken many years to convince them and their successors of the error into which they fell, for by sad experience, they have learned that the soil could not be robbed of its fertility for an indefinite period of time, without their paying the penalty in a reduced return. If wheat, rye, oats, or any cereal grain is continually removed from the soil without putting back an equivalent amount of manurial elements, the balance sheet of nature is sure to be struck, and diminished returns are then forthcoming. Science, as well as practical experience, has demonstrated that certain elements removed in the growing crop must be replaced. Nitrogen is one of the most important of these, and in some available form must be returned to the soil. The application of manures of the proper sort fulfill this need whether they are added to the soil in the form of our common barnyard manure, or in the form of a commercial fertilizer. In either case money and effort is required to put back the soil into its original condition.

Nitrogen, in the form of nitrates, or in an organic form as it is in barn yard manure, is more or less expensive substance; expensive either to buy as in a commercial fertilizer, or to make as in the case of animal wastes.

NITROGEN OF THE AIR UNAVAILABLE AS PLANT FOOD.

In the mantle of air which surrounds our globe, nitrogen exists in almost illimitable quantities, but in this condition it is a gas, a substance that cannot be appropriated to any extent by any of the ordinary cereal crops. If it were possible to utilize this great magazine of nitrogen, what an inexhaustible resource would become available. The golden sands of the Klondike would sink into insignificance compared with such a source of profit. But Nature in her laboratory has conceived of a way in which this unavoidable supply of nitrogen that exists in gaseous form in atmosphere may be utilized. She has done it by combining the efforts of two widely separated living structures of the organic world. By means of a peculiar combination between one of the lowest of animate objects, and one class of the more highly organized plants, this useless but nevertheless potentially valuable chemical substance of the air is appropiated and worked over into condition so as to become available for other forms of life.

CLOVER A NITROGEN CATCHER.

Every farmer's boy has been taught from earliest boyhood to regard the clover plant

Fancy's Harry-Tormentor **Bull Calf 10 mos. old.**
Dam, 42 lbs. milk per day; 21 lbs. 5 oz. butter in 7 days. **Price $75. Buy a Good One.** **J. P. BRADBURY, Pomeroy, O.**

Hood Farm Jerseys To head your herd you should have a bull of the very best breeding—one that will give you better dairy animals and greater profits. Write to Hood Farm, stating your needs. You will be surprised to find how easy it to get a young bull that has in his veins the best Jersey blood in the world. Write to-day. HOOD FARM, Lowell, Mass.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." **FILSTON FARM, Glencoe, Md.**

High-Class JERSEYS
The blood of Combination. (Sire of **25** in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted. **H. C. TAYLOR, Orfordville, Wis.**

We Have Sold
SEVERAL OF The A. J. C. C. COWS advertised March 17th (see page 92), in fact we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2. **WINTERGREEN HILL FARM CO., Scottsville, N. Y.**

WILL SELL FOR $100
A GRAND-DAUGHTER OF PEDRO 3187, carrying also, Eurotas blood close through dam, besides plenty other butter blood. Five months old, solid color, extra udder; crated, f. o. b. **W. F. McSPARRAN, Furniss, Pa.**

For Sale . . . BULL CALF,
Grand-son of the great **Exile of St. Lambert 13657,** sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz. in seven days. He will be sold cheap. **P. J. COGSWELL, Rochester, N. Y.**

St. Lambert **Jerseys,** all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

ST. OMER HERD
Choice lot of Exile and Signal bulls now ready for service. All stock tuberculin tested. **JOS. T. HOOPES, Bynum, Md.**

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to **GEO. F. WESTON, Supt., Biltmore, N. C.**

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.
For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. **J. E. TYRRELL, Marysville, O.**

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

ONE YEARLING BULL
Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. **W. R. THOMAS, Bellmore, Ind.**

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 205¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Chilwen's Ponies and Imported Shropshire Sheep. **Franklin, Venango Co., Pa.** **224**

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.** **F. H. SCRIBNER, Rosendale, Wis.**

Linden Lawn Farming Co., **OLNEY, ILL.**
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

J. D. THOMPSON, Superintendent. FRED P. STORY, Herdsman.
HICKORY HERD,
JOLIET, ILL.,
H. N. HIGINBOTHAM, Prop.,
. . BREEDERS OF . .
Fancy Jersey Cattle.
Service Bull,
PEDRO'S HANDSOME PRINCE, NO. 42794.
The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

with more than usual notice. Why? Because in this plant and its allies, the farmer has a crop that taketh from the soil, and yet increaseth the same in richness. Surely, such a condition must seem anomalous, and indeed it is, but it is nevertheless true that the clover family does not deplete the fertility of the soil by constant cropping. Nay more, not only is the ground not impoverished, but what is more surprising, the fertility actually increases where this crop is grown.

How is it possible for such a condition to occur? Why are all the laws of nature apparently set at defiance with this family of plants? Practical experience long ago determined this valuable property, but it was left for recent years to unfold the mystery that enveloped this peculiar relationship.

If one digs down and removes carefully a thrifty, rapidly growing clover plant, he will find scattered over the surface of the roots, tiny nodules or swellings. The form and location of these varies much in different species, but they are generally present in larger or smaller numbers. At first glance, these wart-like proturberances seem to be an abnormal condition, and indeed for hundred of years, they have been supposed to be some disease process, the true nature of which was not known. On a vigorous healthy plant, these nodules generally exist; on a sickly plant growing under certain conditions they may not exist. Indeed the vigor of one plant is largely determined by the presence of these tiny swellings, for in these structures are to be found the tiny microbes which, living in the clover root, are able to fix the free nitrogen that bathes all nature about us. No story of fairy land can be more interesting than this. The clover alone is unable to accomplish this result; the germ alone is not prepared to thrive luxuriantly, but if the two meet, together are they able to accomplish what no other cultivated crop plant can do.

The explanation of why the clover is able to forego nitrogenous fertilizers is thus made. The mystery which has enveloped this common plant has thus been cleared up. Does it not enhance our interest in it all the more? For, indeed, such a discovery as this opens up possibilities that could scarcely have been dreamed of before such a process had become thoroughly known.

While this characteristic of fixing the elemental nitrogen of the air is shared by some other organisms than the clovers, it is within the limits of this family that we find it possible to utilize this property. Peas, beans and vetches, as well as the clovers, possess this peculiarity. In general it is confined to the legume family, but a few species of plants outside of this genus also have a similar property, although in these cases no practical value inures. Probably some of the lower algae, and also some species of bacteria, independently possess a similar power, but it remains so far the peculiar province of the legumes to function as nitrogen collectors in a practical way.

The Cost of a Ration. Mr. Phelps Figures.

ED. HOARD'S DAIRYMAN:—In your issue of June 30th, I find my name mentioned several times in connection with a communication from the pen of C. W. Jennings, quoting from a statement made by Mr. J. W. Ingram, which, to say the least, is misleading, and why any man should write such misstatements, without first finding out the truthfulness of the statement, purporting to come from me, is an enigma; especially a writer for agricultural papers to be read by the public.

I scarcely ever write for the press. I am more content to read of others doings, and practicing the best information I can obtain, to build up and solve the economic questions in dairying. I flatter myself that I have been somewhat successful, yet I believe that what I don't know, to be demonstrated in the future in comparison to what I do know, would fill volumes.

I have traveled over the state and have attended many farmers' institutes, as a speaker, and one of my hobbies has been "economy in cattle foods," as I consider that one of vital importance to the dairyman.

Now in regard to the statement I did make: At the Pennsylvania State Dairyman's Association, held at Corry, February, '98, in speaking on the subject, Enonomy in Cattle Foods, I gave my experience in my own dairy, not to boast, but to show the dairymen that what one man could do, others could do. I write this from a memorandum written that year. The ration I was giving our cows was this:

Cotton seed meal, 2¼ lbs. at $18.00 per ton..	$.02
Bran, 2 lbs. at $12.00 per ton.....	.012
Ensilage well cured, 30 lbs. $1.66 per ton...	.025
Hay good clover, 20 lbs. $5.00 per ton.....	.05
Cost of ration per cow.....	$.107

I reckon three tons ensilage equivalent to a ton of hay. Allow me to state our dairy is a winter one, cows becoming fresh in the fall. Now the result: Twenty-three cows gave twenty-six pounds butter per day at a cost, for feed, of 9½ cents per pound. Butter made in one pound prints, and churned each day. Sold for from 18 to 25 cents at the railroad station, and sold to the grocery trade; not a very great price, but as neighbors about me were selling their butter, at the same time for from 12 to 14 cents, costing them for feed 18 to 20 cents a pound, I thought our work was encouraging. Would have fed more ensilage and less hay, but corn was short that year.

Now I will give our report of our doings the past winter. Our ration consisted of:

50 lbs. ensilage well eared, $1.66 per ton.....	$.04
7 lbs. hay at $5.00 per ton.....	.014
5 lbs. cotton seed meal, $18.00 per ton.....	.045
Cost of ration per cow.....	$.099

Twenty-six cows, including five two-year-old heifers and one farrow cow, made thirty-two pounds of butter per day, at a cost for feed alone, of eight cents per pound, made in the same form as the year previous, sold a little higher in price.

For the benefit of Mr. Jennings and all inquiring friends, I will say that we sold seven old cows, that I did not want any longer, for beef; could have sold all of them for the same purpose, and I can assure all concerned, that our cow's "bones never sigh for pastures they know not of."

As for Mr. H. C. Crawford's case, I know nothing of. Am well acquainted with him, and can assure the public his word is as good as his bond. It is more than likely that the whole business is tarred with the same stick. My cotton seed meal ration is large, but I found it to be adulterated with hulls, had to increase it. J. B. PHELPS.

Crawford Co., Pa.

MILKMEN who assume that formaldehyde cannot be found by the chemist, should "watch out." A Kansas milkman has found out that the chemist can find it and he paid $1,000 in fines in consequence. It would have paid him better to have had a little sour milk left on his hands.

CONCERNING OUR ADVERTISERS.

"FARMERS who have never used a low down Handy Wagon do not know that a large per cent of the labor on the farm is useless, as it can be saved by using labor saving tools. The Handy Wagon ranks first as a labor saver.

"The Havana Metal Wheel Co., of Havana, Ill., are making a specialty of low down Handy Wagons, made of both steel, and steel and wood. Also steel wheels for ordinary farm wagons made to fit any skein. This class of wheels does not rot or dry out and lose the tires, but the wheels are always ready for use. Write them.

BINDER TWINE HISTORY.

The single strand binder twine, in general use to-day, was the original conception of Mr. William Deering, of the Deering Harvester Co., Chicago. The value of the idea is apparent, since without it the modern twine binder would be impossible. The Deering Harvester Company is the largest manufacturer of binder twine in the world.

THE T. M. Roberts Supply Co., Minneapolis, Minn., offer bargains in almost everything that is bought and sold for household or farm use, comfort or luxury. They advertise bargains this week in Binder Twine. One can save money, and much of it sometimes, by watching these bargains offered by enterprising firms.

THE Edgewood Refining Co., of Cleveland, O., are advertising their Diamond Anti-Fly preparation. The users of this preparation speak very confidently as to its merits. They send samples sufficient for trial for very small consideration. See the ad.

THE Genesee Salt Co. advertisement mentions the fact that users of their salt have captured the sweepstakes premium at National Creamery Association for five consecutive years, a record they may well feel proud of. As well is it a record that ought to interest buttermakers everywhere. In these days of sharp competition there is economy only in the use of the very best methods and the profit lies mainly in quality. Read the ad. and write F. A. Tripp, No. 34 Clark St., Chicago, Ill., western representative of Genesee Salt Co., for entry blanks in their 1899 Educational Contest for creamerymen.

THE American Well Works, of Aurora, Ills., are putting on the market a Well Drilling Machine, with gasoline engine mounted on same trucks. This is particularly desirable, as it is their well known "Elliptical" driller, which handles equally well cable rock tools, or hydraulic and jetting tools. Description and illustration can be had by writing them.

CONCERNING Shoo-Fly, advertised before the DAIRYMAN readers, "Buff Jersey," well known to all, has following to say:

"Brother dairymen, be humane and protect your cows from flies. It will pay you a hundred fold in dollars and cents. I have used "Shoo-Fly," made by the Shoo-Fly Mfg. Co., 1005 Fairmount Ave., Philadelphia, Pa., several years, in different states. It has always proven effectual and profitable. In September, 1898, I exhausted my supply and concluded to do without for balance of season. My cows expressed their indignation by cutting off the flow of milk to such an extent, I hastened to order another ten gallons. This June, (1899). I ordered twenty gallons for my herd. It pays." BUFF JERSEY.

COMBINATION BULLS FOR OREGON AND PENNSYLVANIA.

Mr. L. T. Birchard, Birchardville, Pa., has placed a combination bull at the head of his herd. He selects Brown Bessie's Diplomatist 52090, grandson of Brown Bessie, champion butter cow at the World's Fair, and Diploma, sire of 49 in the list, including Merry Maiden. The reputation of Combination 4389, the sire of Diploma and 25 daughters with records, is wide. It was not only that he was the grandsire of Brown Bessie and Merry Maiden, the unapproachable cows in the great World's Fair tests, Brown Bessie making more butter than any cow in the test and gave more milk than any Jersey, and Merry Maiden being the champion of all breeds in the three tests combined; these facts in themselves establish the reputation of Combination as a foundation unassilable. Mr. Birchard owns a splendid herd, and young Diplomatist will have ample opportunity to extend the reputation of the Combinations in the Keystone state.

Mr. G. B. Miller, Gervais, Oregon, has been casting about for a first class Combination bull, and settled upon Diploma's Mariner 53544, a grandson and great grandson of Diploma. His dam Marine 53459 has a record of 16 pounds, 8 ounces made a long time after passing her prime, and her grand dam has a record of 14 pounds, 8 ounces. Both were dairy cows in every sense of the word, the type of cows that Mr. Miller wishes to duplicate.

The demand for the blood of Diploma increases as the list of his tested daughters and grand daughters increase. Diploma left behind him 85 daughters, and the fact he has 49 tested daughters proclaims the prepotency of his great sire Combination, and when it is stated that in addition to his 49 tested daughters, Diploma has 14 sons with tested daughters, it places him above his sire and demonstrates that he not only inherits his prepotency, but he is handing it down in every line and through every channel. H. C. TAYLOR, Orfordville, Wis.

THE Jersey Bull by Pedro Signal Landseer out of Lois Emerson, recently advertised in this paper by Hood Farm, Lowell, Mass., has been sold to C. T. Rossiter, of Claremont, N. H. He is a very fine bull and gives a great promise of developing into a show animal. His sire and dam are both prize winners. Lois Emerson is one of the deepest and most persistent milkers in the Hood Farm herd. She has given for the last five months 6,000 pounds of milk, and she will make a large yearly milk and butter test. Hood Farm has also recently sold to E. E. Day, of Weeping Water, Neb., a bull carrying a large per cent of the blood of the great winners in the World's Fair tests. He is by Brown Bessie's son and out of Islip Lenox, the cow that stood seventh in the ninety days test at Chicago.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians.
Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

MECHTCH'LDE
The greatest butter cow in Holstein history is owned, with her son and two daughters, at **Valley Mead Farm.** Mechtchilde's butter record is the largest in the world, 30 lbs. 10½ oz. from 717 lbs. milk in seven days. Breeders Gazette says: "**Mechtchilde** was one of the 'wonders' of the breed." Men who are interested in phenomenal cows are invited to come and see the greatest butter, milk and prize winning cow that ever existed in America, and that sold for the largest price ever paid, $2 500. **Valley Mead Farm Monticello, Green Co., Wis.**

Markham Manor Farms. Simonsville P. O. Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

GUERNSEYS AND POLAND-CHINAS.
Best from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

FAIRVIEW FARM GUERNSEYS.
FOR SALE—Yearling Bull, BEAUTY'S KING 5301. Sire, King of Kenosha 3706, Dam, Kenosha Beauty 5293. Grandson of Benjamin and Squire 4th. Also younger bull calves of good breeding. Address C. W. WILCOX, Des Moines, Ia.

GUERNSEY Cattle—SHETLAND PONIES—Old Homestead Herd was Champion at O., Ill. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America.
Breeding Stock for Sale. Inspection invited.
L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys, CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

[Second Paper.]

Delaware Co., N. Y., Dairy Association.

ED. HOARD'S DAIRYMAN:—Afternoon Session.—The program was now resumed, and R. P. McIntosh, of Delhi, N. Y., read a paper on "How to Conduct Agricultural Exhibitions." Mr. McIntosh reviewed the history of the fairs held in Delaware County. Some of these fairs were very successful, and the plan of conducting them was described.

The purely agricultural fairs had given the best satisfaction to the majority of the people. At these fairs exhibitors used their opportunities, and the exhibits were large. The attractions were, good music and an address. The farmers in the vicinity took an unselfish interest in the fair. The greater part of the premiums were given to farm animals, and not to trotting horses. The admission on the grounds of the vulgar sideshow and fakir have been causes of the decline of our fairs. The managers sacrifice principle for temporary gain.

Mr. C. O. Potter, of Leonta, N. Y., followed with a paper on "Breeding the Dairy Cow." He said:"Choose the breed you like the best, that will the best serve your purpose. Begin by buying the best sire you can get of that breed. We hardly appreciate the value of the well-bred sire, for he may have concentrated in his blood the characteristics of several generations of the best dairy type of cows. We can generally depend on the laws of heredity to transmit these qualities from the sire to the offspring, although there are occassionally variations from an established type. The type of the cow will be changed by a change of environment. Breed constitution and individuality in your stock."

Mr. George Grant, of Delhi, N. Y., read an excellent paper on "Making Farming a Success under Present Conditions." The following is an abstract of the paper: "This is the time of close competition and small profits, and many farmers are discontented and dissatisfied with their business. Yet, with good management, I believe we can still make a good living on the farms. I will mention what I believe to be some of the reasons why farmers do not succeed. I believe that failures are more often made on large farms. One hundred acres are usually enough for one man to farm successfully. I would divide such a farm as follows: 15 acres of woodland, one half the remainder for tillable land, and the other half for pasture. Such a farm should be made to keep thirty cows. The most of the work on a farm of this size could often be done by the man and his family, and save the expense of hired help. On the small farm the work would be much better done, more stock kept to the acre and therefore more manure would be used per acre.

The foundation of all successful farming is the saving and the right use of the manure. I would as soon have a leak in the bottom of my grain bin, as in the manure gutter. The farmer should be continually working to increase the quantity, and improve the quality of his manure, and he will obtain the best results, if it is applied to the land as fast as made. As to the commercial fertilizers, my advice is to go slow. If I had $40 to spend for commercial fertilizers, I would take half of it and hire a man to draw leaves, muck and other material and make a compost heap.

While I would not advocate economy that amounts to penuriousness, yet with the small profits in farming, there is but little money to spend for luxuries, and especially the farmer who is in debt, should be very careful about spending money for what he does not need. The farmer with good habits has a much better prospect for success.

I am sorry that some farmers have habits that are not only expensive, but injure the health. I refer to the use of liquor and tobacco. The farmer who has the liquor habit is almost certain of financial failure. I can hardly say too much against the tobacco habit. The weed is so distasteful to animals, that none will touch it, and the only good use for it, is to destroy insects on animals and plants. Ten cents a day spent for cigars, if the interest was compounded for every year, for forty years, would amount to $6,000, which is sufficient to buy a good farm of one hundred acres. Surely, the habits take more money from the farmers, than does the tax collector. Many farmers do not succeed for lack of energy, or, in plainer words, laziness. Hard and well directed work is the price of success."

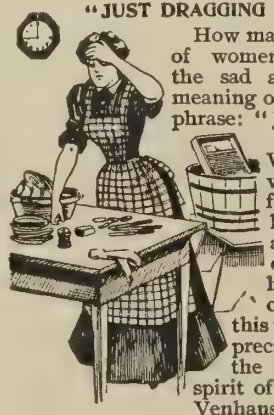
Mrs. R. E. Haddow read an essay entitled "The Man Behind the Plow." The essay was full of good thoughts, well expressed, and delivered.

Wm. Hymers, of Delaney, N. Y., spoke on "Supplemental Feed for the Dairy". The following are some of the good points in his address: Don't buy feed for your cows, grow it on the farm. Commence in the fall before the next season, and sow rye. Sow about one-half an acre for twenty cows. Don't turn the cows on the pasture too early in the spring, but commence to cut the rye when it is about one foot high. Feed this until the first of June. As you will have full feed for your cows in the pasture through June, you will not need to feed the cows this month. Plan to have oats and peas to feed when the pastures become short. Sow oats and peas at different times, and don't be afraid to sow too many, for if you don't feed them green, they make good hay, or you can let the oats and peas get ripe, and thresh and grind them.

After the peas comes the corn. I don't think dairy farming can be made profitable here without corn. We must depend on the silo for cheap food for the cows. You ask how are we going to get the manure to grow these crops? I answer you must save all the manure, and keep all the stock you can to make manure. Make the gutters tight, and use absorbents. The best absorbent is cut straw. After you have made and saved all the manure you can, if you still lack manure for the soiling crops, use some commercial fertilizers.

Mr. Walter Gladstone next talked about "The Best Education for Farmer's Sons and Daughters." He first spoke about the laws of heredity, and said the child is the result of the life of the several generations of his ancestors. If I were to educate a child, I would want one well bred. First in importance is the home education. If this is good, it will do more toward starting the child right than anything else. First give a child a general education, and then technical education. Teach them some useful avocation.

"JUST DRAGGING AROUND."



How many thousands of women understand the sad and pitiful meaning of that simple phrase: "Just dragging around." Women everywhere who feel that they have a work and a mission of womanhood to accomplish in this world will appreciate instantly the disheartened spirit of Mrs. Mattie Venhaus, of Tioga, Hancock County, Illinois.

"I had been sick for seven years," she says; "not in bed, but just dragging myself around. At last I took three bottles of Dr. Pierce's Favorite Prescription and five of 'Golden Medical Discovery,' and it is *impossible to describe in words* the good these medicines did me. My husband says 'Golden Medical Discovery' is the best medicine he ever tried for a cough. No praise is too high for Dr. Pierce's medicines."

Another lady, Mrs. R. P. Monfort, of Lebanon, Warren Co., Ohio, says, "I think Dr. Pierce's Golden Medical Discovery the finest medicine on record. I have taken a number of bottles and it is the only medicine that relieved my terrible headaches."

Women who suffer should write to Dr. R. V. Pierce, of Buffalo, N. Y. He will send them the best professional advice that can be had anywhere in America and entirely without charge. Neither the "Golden Medical Discovery" nor the "Favorite Prescription" contains any alcohol to inebriate or create a morbid craving for stimulants.

Every woman should own a copy of his splendid book "The Common Sense Medical Adviser." It is the grandest medical book for popular reading ever written. It contains a fund of knowledge of precious value to women. It has over a thousand-pages elaborately illustrated with engravings and colored plates. The first great edition of more than half-a-million copies was sold at $1.50 each. The profit from this induced Dr. Pierce to carry out his cherished intention of issuing a free edition one copy of which in paper-covers will be sent for the *bare cost of mailing*, 21 one-cent stamps, or a heavier cloth-bound copy for 31 stamps.

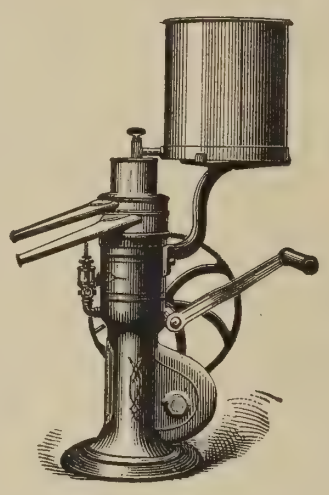
The One Successful Color

IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co.'s Color has the highest standing in the markets. . . .

Wells, Richardson & Co.'s Improved

There is just One Perfect Color and it is

"The Kind That Has No Mud."



National...

Cream Separator.

Ease of Running . . .	The NATIONAL is the Best
Perfection of Skimming .	The NATIONAL is the Best
Quality of Cream . . .	The NATIONAL is the Best
Streng h and Durability .	The NATIONAL is the Best
Ease of Cleaning . . .	The NATIONAL is the Best
Simplicity	The NATIONAL is the Best
Design and Finish . . .	The NATIONAL is the Best
Price	The NATIONAL is the Lowest

CAPACITIES 330, 500, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

ENDORSED BY THE HIGHEST AUTHORITIES.

CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

NATIONAL DAIRY MACHINE CO.,
Newark, N. J.



Canadian Agents:
RICHARDSON & WEBSTER, St. Marys, Ont., and
S. M. BARRE, Winnipeg, Man.

THE

AMERICAN

Cream Separator

PRICE - - - $65

Still at the Head, Receiving **First Premium and Diploma**

At the ST. LOUIS FAIR, as the

BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

CURD PRESS CLOTH

Send for samples and prices.
BOOMER & BOSCHERT PRESS CO.,
No. 415 W. Water St., SYRACUSE, N. Y.

REDUCE YOUR COAL BILL

BY USING
The No Scale Company's
High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. M. D. Watson, Gen'l Agt.
551 Marquette Building, Chicago.

Teach them to be good citizens. Teach them to depend on self.

In the absence of Mr. J. B. Mable, whose name was on the program to talk about the "Silo and Ensilage," the subject was taken by Mr. R. Garrison. In his experience, the best ensilage corn was grown by planting in rows three feet apart in drills, and thinning the plants to six inches apart. "The stalks on my ground have grown 16 feet high, and will make twenty tons of ensilage per acre. Five tons will winter a cow. I can put the corn in the silo, when it is grown, for forty cents per ton. This is cheaper than I have been able to put in my hay. Nothing is added to the corn by putting it in the silo, but the process of fermentation makes it more digestible.

Good ensilage never makes poor milk. In every instance where poor milk has come from ensilage fed cows, the quality of the ensilage has been found poor. Changing the ensilage ration to first-class hay in my dairy has always resulted in loss.

Ensilage well put up will keep two years or more, and one need not fear getting too much, as it may be needed to carry the cows through a drouth in the summer."

The program was concluded by an address by J. W. Mc Arthur, of Bloomville, N. Y., on "Diversified Farming". Mr. McArthur did not advocate, as a rule, diversified farming. He thought the farmers who have adhered the most closely to the cows, have made the most money. Raising colts and keeping sheep, and poultry in connection with the dairy has not paid me. To what extent diversified farming is profitable, will depend on the condition of the farm and the near by market. If one has a taste for them, under the right conditions, truck and poultry farming, in connection with the dairy may be made profitable. W. J.

Delaware Co., N. Y.

Cream Not Churning.

ED. HOARD'S DAIRYMAN:—I have lately had what, to me, is a novel experience. Have been making about fifteen pounds of butter, at a churning for some time; suddenly the butter fell back as much, almost, as half, though the cows are in fine pastures. I couldn't find anything wrong—skim milk had no cream on it; butter apparently all came out of the milk. After some time it was suggested to me that I churn the buttermilk. I did so, though I had never done such a thing in my life—and the result was one to two pounds of butter, though not as much as I had been getting. Today it yields, apparently, as it did before, and I got no butter from the buttermilk.

Bedford Co., Va. MRS. A. W. SCOTT.

The cause of such partial churning can usually be found in the cream, and is of bacterial origin.

The exact cause in this case is, of course, impossible to state, and the most we can do is to make some general suggestions as to the cause and its remedy.

The fact that part of the cream churns out first, would lead us to suspect a difference in the degree of ripeness in different parts of the cream.

If the churning is of the cream from several batches of milk, it is extremely likely, in this hot weather, that there is a decided difference in the degree of ripeness of the different batches of cream. This would not appear when it is mixed, but would show very decidedly in the churn; the ripest cream churning first, and the sweet only separating on rechurning.

Temperature may also have an effect, if your herd is composed of fresh cows and strippers. The cream from the fresh cows will churn at a lower temperature and in less time than cream from cows advanced in lactation.

The kind of ferment present in the cream would also affect the churning; sometimes preventing entirely the formation of butter, at other times allowing partial churning.

The above are merely suggestions as to what may cause the result given in the letter, and the only way to remedy the trouble is to watch carefully the ripening and temperature of the cream, and note how the churn follows.

How Renovated Butter is Made in One of the Factories.

The subject, renovated butter, has occupied considerable space in the dairy press of late, but nothing has been said about the manufacture of same; and thinking it may be of some interest to the readers of the *Reporter*, I will tell them what I saw in one of the so-called manufacturing establishments. It must be understood that no one, not connected with the concern, was allowed admission, but, being armed with the necessary credentials, (a search warrant), we were not refused admission to this sceret den where loud butter was hushed, and green, white and gray butter made yellow, sour butter made sweet, and in fact, everything that was not butter was turned into butter.

The first floor had the appearance of an ordinary butter store or commission house. A long-whiskered man in charge was asked to lead the way, which he did, after some hesitation. A door leading into a dark hall was opened, and immediately behind it was another leading to the cellar. There was only room enough for one man at a time, and the first door had to be closed before the second could be opened, leaving one in perfect darkness; a long, narrow, dark stairway led to the basement. After reaching the bottom no one can imagine what first drew our attention. With a dim light of a kerosene lamp we commenced the search and found what renovated butter was made from; butter and butters, white butter, green butter, brown butter, soft butter, butter old enough to talk loud, butter old enough to walk, butter in jars, boxes, tubs, tins, cans and barrels.

A door was discovered, pushed open, and we were in the work room where the secret process was carried on. A large wooden tank about five feet in diameter and six feet high, was in one corner. A trap door from the floor above was discovered, which probably was used in filling the tank from above. Steps leading up to the tank were climbed, after slipping back two or three times on account of the grease on them, and there is where the melting or renovating was going on. This was heated with a set of steam pipes leading from a boiler in another corner. From the tank the oil was drawn off and cooled in another set of tanks, and from there it was put into a churn and churned in buttermilk, washed, colored, salted and worked, then packed into tubs and put upon the market and sold for what it would bring.

Before the renovated act went into effect, the public was deceived by the manufacturer putting this stuff into pound prints and giving it some fancy name; but since people have found out what renovated butter is, it has almost entirely disappeared from the market.

The claim is made by some that it is the poor man's butter, and that it is butter made from what may be termed by-product, and it is a step forward; it is using poor dairy butter and putting it into a marketable article. All of which looks good on paper, but is not true, because the public was charged within one cent per pound of what creamery butter was being sold for, and in most cases it was sold for creamery butter and since the required labeling has revealed its character no one wants to buy it, and all that has been necessary is to inform the public what it was.

During the past winter it has been a greater enemy to the dairymen of Minnesota than oleomargarine.—B. D. WHITE in *Dairy Reporter*.

NO PRESERVATIVES IN MICHIGAN.

The following law was passed at the late session of the Michigan legislature, and Gov. Pingre has signed the same. There are only two sections. The first reads as follows:

"Section 1. No person shall offer or expose for sale, sell, exchange or deliver, or have in his possession with intent to sell exchange or deliver any milk to which water, chemicals or preservatives or any foreign substance, has been added. The term milk, as used in this act, shall include all skimmed milk, buttermilk, cream and milk in its natural state, as drawn from the cow."

The second section says:

"Who ever shall do any of the acts or things prohibited, or neglects or refuses to do any of the acts or things enjoined by this act, or in any way violates any of its provisions, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than one dollar nor more than one hundred dollars and the costs of prosecution, or by imprisonment in the county jail not more than ninety days, or by both such fine and imprisonment, in the discretion of the court."



The JERSEY MILK CAN

A Strong, Well Shaped and Well Finished Milk Can at a low price.

This can has our "Victor" Can Breast, is perfectly shaped, will not leak, and has no crevices inside where milk can lodge and sour and smell. Capacity five, eight or ten gallons.

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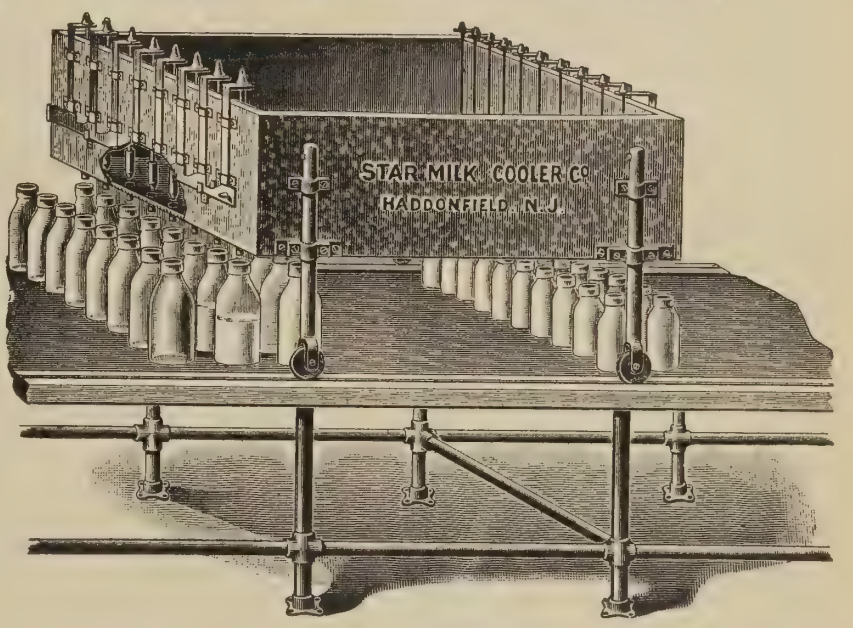
is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

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COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to sell it? Send to us for the material for making the test and we will mail it to you free of charge.

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Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

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Metal Wheel Co.

HAVANA, ILLINOIS

Cheese Bacteriology.

In his report of practical application of bacteriology to European dairying, published in the eleventh annual report of Storrs (Ct.) Experiment station, Prof. H. W. Conn makes the following observations in regard to the development of bacteriology in connection with cheese making in Europe:

"During the last few years a considerable majority of the students of dairy bacteriology have turned their attention from the study of milk and butter to the study of cheese. The reason for this is a practical one. It has been recognized for some time that the character of the different varieties of cheese is due, at least in considerable degree, to the peculiar kinds of fermentation which take place in the cheese during the ripening. In the cheese which are popular in the markets of Europe, the variety of flavor is very great. One who goes through the markets in the different countries of the Continent is especially struck with the extremely great differences between the different kinds of cheese, and the great number of varieties which are popular in different localities. If these differences are due to types of fermentation it would be plainly a matter of great practical value to dairying if there could be discovered some strictly scientific method of producing the different varieties. The bacteriologist who shall discover the means of applying, in a practical way, to cheese making, the facts which have been discovered in connection with bacteriology will not only gain a great reputation for himself, but will undoubtedly reap a large amount of financial profit at the same time.

The problems connected with cheese offer, therefore, a very fertile field for research. In the application of bacteriology to butter making, it has been thought that perhaps no further great improvement can be made now that we have actually learned to control the flavor of butter, at least to a considerable degree, by the use of pure cultures. But in the operation of cheese making, there are almost limitless possibilities, because of the many varieties which each country demands. If it were possible to find some means of making the popular cheese in other localities than those where they are ordinarily made, it is plain that a great impetus could be given to dairying. If Edam cheese could be manufactured equally well in all countries, where they are in demand, if Swiss cheese could be made with equal ease and equal surety outside of Switzerland, it is of course plain that the whole condition of the dairy industry would be changed. For these various reasons it is that in the last few years bacteriologists have ceased to pay much attention to the problem of the relation of bacteria to butter, and have given a correspondingly great amount of study to the problem of cheese making.

The problem, however, has proved to be an extremely difficult one. Its very complexity has made the subject very difficult to reach. There is no question that the flavor of the cheese is developed during the period of ripening, which occurs after the cheese is made. But in that ripening there are a variety of changes that take place. The changes in the chemical nature of the cheese are very profound, and while these are, in part, due to bacteria they are apparently also in part due to certain unorganized ferments which are present in the milk. Moreover, the growth of bacteria in such cheese is irregular and presents problems which have hitherto been largely insoluble. That the cheese flavor is due to bacteria or to moulds is everywhere agreed.

Bacteriologists are as yet unable to agree as to what kind of bacteria are most intimately concerned in the ripening process. While there are some who bring forward an abundance of evidence that the lactic organisms are those primarily concerned in the process of cheese ripening, there are others who bring forward a large amount of good evidence that it is not the lactic organisms, but rather bacteria, which give rise to an alkaline reaction and which have power to digest proteids; while beyond doubt some types of cheese owe their peculiar character to molds, rather than bacteria. It is, of course, clear that when such a simple, primary matter as this cannot be settled with any degree of unanimity, we cannot expect to find any very considerable amount of practical results arising from bacteriological work. Until a more thorough knowledge of the whole process is obtained we can expect to find very few practical applications of bacteriology in cheese making.

At the same time, there have been some improvements which have taken place in cheese manufacture as the result of bacteriological knowledge. It has been shown beyond peradventure that a majority of the "faults" which arise in cheese, and which make their appearance during ripening, are due to the growth in the cheese of certain malign kinds of bacteria, or sometimes due to the undue growth of bacteria, which, under different conditions, would produce no injurious effect. The "faults" which arise in the cheese during ripening are quite varied and need not be enumerated. They concern the appearance, the consistency, the taste, the odor, and the healthfulness of the cheese, and while it would be premature to say they are all due to improper fermentations, it is now known beyond question that at least a majority of them may be attributed to such causes. Moreover, it is known that in many cases the sources of such troublesome fermentations lie in the fact that there has been used in the manufacture of the cheese, milk which has become unduly contaminated with malign bacteria. There have been enough instances discovered where a troublesome "fault" in the cheese has been traced to the milk from a single dairy to indicate that in the successful method of cheese making of the future it will be necessary to have a more careful control over the kinds of milk used in the manufacture of cheese.

It has been suggested that perhaps it may be necessary to use the same process of pasteurization for the purpose of getting rid of such possible errors as is used in the butter manufactories. The pasteurization of the milk for cheese making has as yet, however, not been applied in any cheese factory. A few experiments have been made by bacteriologists to determine whether it is possible to pasteurize the milk without injury to its curdling powers under the influence of rennet. Of course, if such were not the fact, it would follow that pasteurization could never be used with success in cheese making. These tentative experiments have indicated that when the time comes that bacteriologists can offer promise of a great surety in the results, pasteurization of the milk for cheese making is perfectly feasible, for when it is properly conducted the milk will be curdled by the rennet in a perfectly normal fashion.

Almost the only practical application of bacteriology in general cheese making which has been introduced as yet, has been in the development and the application of a so-called "fermentation test" designed for the purpose of enabling the cheese maker to exclude from his cheese any milk which is likely to produce trouble. Its application is extremely simple, and there have already been devised and put upon the market forms of apparatus which make it convenient to use in ordinary cheese factories. It consists simply in testing separately samples of milk from each patron. The essence of the process is merely this:

A small sample of the ordinary milk is put in a special vessel by itself, and is then subjected to a moderately warm temperature and carefully watched. If the milk is found to curdle in a proper time in a normal fashion, it is regarded as perfectly safe to use; but if the milk becomes full of gas bubbles in the curdling, if the nose or the tongue detects any specially unpleasant or unusual qualities, it is inferred that the milk is filled with bacteria that will be deleterious to the process of cheese making. When this occurs, the milk from the sources from which the sample is taken is not allowed to be mixed with the ordinary milk for the purpose of making the cheese. This fermentation test is not used very widely. As a rule, cheese is made today practically as it was fifteen years ago, before any knowledge of bacteriology was obtained. But cheese makers have learned that this fermentation test may be used at times of trouble, and may be used as a means of discriminating milk that can be safely put into cheese from that which is not safe to use in this way. The practical difficulty in the way of the test is, of course, that the cheese maker may not discover until weeks after the cheese are made that they are likely to develop certain undesirable faults, and by this time the fermentation test is of comparatively little use. The original source of error has very likely disappeared, and the application of the fermentation test after the discovery that the cheese are liable to "faults" is too late to be of much use. Nevertheless, the fermentation test has been in some cases found to be of practical value.

The success of the use of pure cultures in improving the quality of butter, and the manifestly close relation between the form of fermentation in ripening cheese, and the character of the cheese, suggests, of course, a very great possibility of the application of pure cultures to the process of cheese making. If it is true that the flavors of different kinds of cheese are due to different species of bacteria or moulds, it ought to be possible to use pure cultures of the proper species in such a way as to give rise to perfect uniformity in the results, and to make it possible to produce, in any part of the globe, any particular kind of cheese. It is along this line that bacteriologists are working today, hoping that by an extension of their experiments they will learn what kind of pure cultures can be used in cheese making to give the most desirable results. Up to the present time, however, no practical results in this line of work have been reached. There is, it is true, one European bacteriologist who has put upon the market a pure culture of bacteria for cheese making, making great claims for it, as giving rise to a very high grade of cheese with uniform results. It has not been as yet used to any very great extent, and, certainly, has as yet no very great reputation. There is another who has succeeded in making fine cheese by the use of certain species of mold. Beyond this, while other bacteriologists have species of bacteria which in their laboratory experiments have produced very desirable results, and have given rise to cheese with flavors that appear to be normal and uniform, the application of the method of the artificial use of bacteria in cheese making has scarcely extended beyond laboratory experiments, and in practical cheese making is as yet almost unknown.

Tests of Holstein-Friesian Cows from March 1 to May 1, 1899.

ED. HOARD'S DAIRYMAN:—The following are tests of Holstein-Friesian cows, made by Agricultural Colleges and Experiment Stations from March 1 to May 1, 1899. The butter fat is determined by the Babcock test and the butter calculated on the basis of 80 per cent fat to a pound of butter, the rule established at the World's Columbian Exposition.

Aagie Maxima 6001; age 12 years, 9 months, 29 days; milk, 440.1 pound; butter, 18 pounds, 11.3 ounces.

Fanny Douglas 4th 41943; age 2 years, 11 months, 15 days; milk, 376.7 pounds; butter, 14 pounds, 14.8 ounces.

Belle of Schillaard 3d's Aaggie 36825; age 5 years, 5 days; milk, 377.1 pounds; butter, 16 pounds, 13.5 ounces.

Leah Canpbel 35275; age 5 years, 10 months, 26 days; milk, 368.7 pounds; butter, 15 pounds, 7.2 ounces.

Maplecroft Gem 35909; age 5 years, 5 months, 11 days; milk, 475 pounds; butter, 20 pounds, 1.6 ounce.

Maplecroft Maid 35907; age 5 years, 4 months, 2 days; milk 530 pounds; butter, 22 pounds, 9.3 ounces.

Nieta 2d 36583; age 5 years, 3 months, 22 days; milk, 469.6 pounds; butter, 15 pounds, 10.5 ounces.

Pana 33959; age 6 years, 6 months, 18 days; milk, 539.7 pounds; butter, 19 pounds, 6.6 ounces.

Piebe Queen 29065; age 7 years, 14 days; milk, 342.4 pounds; butter, 15 pounds, 3.1 ounces.

Piebe Queen (second test); milk, 427 pounds; butter, 18 pounds, 12.6 ounces.

Sylva Netherland 44119; age 5 years, 10 months, 29 days; milk, 444.8 pounds; butter, 16 pounds, 4.1 ounces.

Flora Brank 38769; age 4 years, 7 months, 25 days; milk, 467.2 pounds; butter, 17 pounds, 1.6 ounces.

Piebe Queen 2nd 37957; age 4 years, 9 months, 17 days; milk 319.4 pounds; butter, 14 pounds, 15 ounces; cost of food per pound of butter (by economc test), 7.7 cents.

Lady Longfield 2nd 37842; age 4 years, 4 months, 15 days; milk, 346.8 pounds; butter, 16 pounds, 0.5 ounces.

Small Hopes Aaggie 2nd 39111; age 4 years, 5 months, 7 days; milk, 457.8 pounds; butter, 17 pounds, 8.5 ounces.

Dieuwertje Twisk 2nd's First Bell 40501; age 3 years, 9 months, 15 days; milk, 426.1 pounds; butter, 17 bounds, 5.4 ounces.

Edith Prescott 4th's Clothilde 40525; age 3 years, 10 months, 6 days; milk, 295 pounds; butter 13 pounds 11 ounces.

Fanny Davenport 39943: age 3 years, 9 months, 18 days; milk, 359 pounds; butter, 16 pounds, 2.3 ounces.

Jessie Fobes 5th 39948; age 3 years, 9 months, 20 days; milk 363.2 pounds; butter, 14 pounds, 1.3 ounces.

Lady Longfield 3d 39945; age 3 years, 11 months, 20 days; milk 444.8 pounds; butter, 21 pounds, 2 ounces.

Vivie Night's 2nd Dorinda 39388; age 3 years, 11 months, 8 days; milk 328.2 pounds; butter, 14 pounds, 2.7 ounces; cost of food per pound of butter (by economic test) 7.2 cents.

Aaggie Paul 40930; age 3 years, 1 month, 23 days; milk 218.8 pounds; butter, 16 pounds, 4.6 ounces; cost of food per pound of butter (by economic test), 4.4 cents.

Felicia 3d 47669; age 3 years, 28 days; milk, 411.7 pounds; butter, 15 pounds 14.9 ounces.

Gewinda's 2nd Lulu 41945; age 3 years, 10 months; milk, 338.1 pounds; butter, 17 pounds, 2 ounces; cost of food per pound of butter (by economic test) 5.7 cents.

Ollie Watson 3d 41944; age 3 years, 12 days; milk 344.7 pounds; butter, 13 pounds, 5.1 ounces.

Fanny Douglas 5th 44151; age 2 years, 11 months, 21 days; milk, 276.8 pounds; butter, 11 pounds, 5.1 ounces.

Sylva Fhorus 42079; age 2 years, 9 months, 28 days; milk, 316.5 pounds; butter, 13 pounds, 7.6 ounces.

Blanche Frisby 44132; age 2 years, 1 month; milk, 236.4 pounds; butter, 9 pounds, 7.2 ounces.

Bomaz 2nd Bettina 2nd 43515; age 1 year, 11 months, 21 days; milk, 210.9 pounds; butter, 11 pounds, 6.7 ounces; cost of food per pound of butter (by economic test) 6.4 cents.

Flora Bank 2nd 47416; age 2 years, 1 month, 14 days; milk, 291.2 pounds; butter, 11 pounds, 8 ounces.

Grace Fayne 2d 44124; age 2 years, 1 day; milk 222.1 pounds; butter, 9 pounds, 6.9 ounces.

Inka 8th's De Kol 43391; age 1 year, 11 months, 3 days; milk, 348.6 pounds; butter, 12 pounds, 15.2 ounces.

Jessie Fobes 2nd Tritomia 44130; age 2

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T. M. ROBERTS' SUPPLY HOUSE, Minneapolis, Minn.

BEWARE There is always rejected short fiber Sisal and Manila in the market that is not ordinarily used in making Binder Twine. We understand this is now being picked up and twine made of it and put on the market at apparently low prices.

Special St. Louis White Lead, Put up in 12½, 25, 50 and 100-lb. kegs, per lb. 3 3-4c. Why pay from 6c to 8c per lb. for a name on your lead when you can buy our Special for one-half that amount. Once used, always used.

T. M. ROBERTS' SUPPLY HOUSE,
MINNEAPOLIS, MINN.

years, 4 days; milk, 225.5 pounds; butter, 9 pounds, 3.8 ounces.

Lady Dora Thorn 2nd 44127; age 1 year, 11 months, 1 day; milk, 269.3 pounds; butter, 11 pounds, 12.4 ounces.

Lady Longfield 4th 44125; age 1 year, 10 months, 26 days; milk, 248.8 pounds; butter, 10 pounds, 15.3 ounces.

Laura Welcome 43498; age 1 year, 11 months; milk. 186.4 pounds; butter, 9 pounds, 0.4 ounces.

Lily of Wild Rose 2nd 44716; age 2 years, 1 month, 15 days; milk, 299.5 pounds; butter 13 pounds, 8.7 ounces.

Maggie of Wild Rose 44974; age 1 year, 9, months, 22 days; milk, 250.6 pounds; butter, 9 pounds, 3.1 ounces.

Ollie Watson 4th 44154; age 2 years, 1 day; milk, 215.9 pounds; butter, 9 pounds, 4.2 ounces.

Orleans Maid 45008; age 1 year, 11 months, 1 day; milk, 289.9 pounds; butter, 11 pounds, 5.3 ounces.

Piebe Queen 4th 45006; age 1 year, 11 months, 8 days; milk, 242 pounds; butter, 11 pounds, 2.7 ounces.

Pietertje Maid of Grouw 42832; age 2 years, 4 months, 6 days; milk, 286.2 pounds; butter, 12 pounds, 1.4 ounces.

Plum 10th 43773; age 1 year, 11 months, 13 days; milk, 254.2 pounds; butter, 10 pounds. 4.7 ounces.

Whittie 45172; age 1 year, 11 months, 28 days; milk 207 pounds; butter, 10 pounds, 10.1 ounces. S. Hoxie,
Supt. Advanced Registery, Yorkville, N. Y.

Transfers of Guernsey Cattle from June 15 to 30, 1899.

BULLS.

Admiral Dewey, of Upper Friehold 6059, R. T. Woodward to Jesse Gilbert, Cream Ridge, N. J.
Crusoe's Ferncliffe 6048, William Munroe to Geo. W. Hancock, Wayland, Mass.
De Lancey Boy of Riverside 6058, James Forsyth to H. R. Pettis and Wm. Hymers, De Lancey, N. Y.
Dewey of Brookside 5512, Geo. D. Telfer to L. G. Moon, Stanley, Wis.
Dolly's Duke 2d 4479, S. Niederriter to P. B. Black, Valley, Pa.
Golden Lad of Moose Hill 6071, Homer E. Clarke to Howard W. Andrews, Brookfield, Conn.
Hista 1951, Cyrus McCully to A. M. Carr, Salem, O.
Illia's Duke 5666, Jno. S. Pottorf to Adam Bower, Salem, O.
King Birchard 6047, Est. L. W. Upham to Henry Griffis, Birchardville, Pa.
Klondike's Boy 6057, J. B. Duke to Wm. L. Tharp, Pittstown, N. J.
Ole Bull of Peacedale 6064, Bell W. McFadden to John Miller, Lewisville, Pa.
Pilot 6055, R. J. Wood to William Denton, Maltaville, N. Y.
Sim 6052, A. H. Kellogg to W. F. Young, Sherwood, Ore.
St. Jacob 6062, Louis McLane to Jacob Zouch, Glyndon, Md.
Turner's Prince 6051, Wm. C. Lamont to Warren Turner, Franklinton, N. Y.
Theodore 6061, Clayton C. Taylor to A. S. Calkins, Ballston Center, N. Y.
Tostevina Colonel 6065, C. Hildreth Reeves to John Loper, Salem, N. J.
Von M. 4717, Webster E. Brown to The John Hein Co., Tony, Wis.
Vera Boy 6054, W. D. Richardson to Frank Coyne, Montrose, Ia.

COWS.

Atabella of Brookside 10746, Sarnia's Beauty 7220, Geo. D. Telfer to L. G. Moon, Stanley, Wis.
Beauty of Guy Park 11747, Bessie of Guy Park 11749, R. Hallowell to Mrs. M. E. Phillips and Mrs. H. P. Carmichal, Amsterdam, N. Y.
Barnet of Spencer 11758, Pride of Spencer 11759, C. L. Richardson to Noah Sagendorph, Spencer, Mass.
Bessie of Clifton Hill 11789, Clifton Hill Daisy 11790, C. P. Sweet to Geo. B. Schauber, Ballston Lake, N. Y.
Helen of Hazelwood 11760, W. D. Richardson to W. D. Hall, Big Stone City, S. Dak.
Illia 6258, Jacob H. Pottorf to A. M. Carr, Salem, O.
Imp. Jane de la Croix 3d 1792, Samuel C. Kent to Percival Roberts, Jr., Philadelphia, Pa.
Lady Editha 11754, Lady Jean 2d 11755, Lady Patsey 11756, Geo. W. McCready to J. J. & O. W. Bean, Abbotsford, Wis.
Lady Columbine 10523, Larissa's Lass 11047, F. W. Tratt to L. G. Moon, Stanley, Wis.
Lassie's Pride 11799, E. B. Crane to L. N. Kettle, Weston, Mass.
Miss January 11725, Louis McLane to E. Gittings Murryman, Cockysville, Md.
Maurine Lucile 11737, Sylvester Kitchen to Mrs. H. Hayward, State College, Pa.
New Year 5017, S. S. Sickman to R. M. Huston, Ranelton, Pa.
Pittstown Belle 11786, Geo. La Monte to William L. Tharp, Pittstown, N. J.
Rose Springbrook 7401, R. C. Conde to R. J. Wood, Jonesville, N. Y.
Regal Lady 7270, W. S. Crane to L. N. Kettle, Weston, Mass. Wm. H. Caldwell, Sec.
Peterboro, N. H.

One hundred pounds of cream from Jersey cows' milk gave 52 pounds of butter; the same quantity of cream from Short-horns, gave only 47 pounds; from Ayrshires, only 43 pounds; and from Dutch cows, called, erroneously, in the States, Holsteins, a little over 30 pounds.—*Farmers' Gazette*, Ireland.

Perhaps it did in the individual case above given, but you might turn the list upside down and be just as near the truth. The yield of butter from a hundred pounds of cream depends on the per cent of fat present as well as the other factors which enter into the churning.

Until these data are known, it is absolute nonsense to make any such statement, as the above.

VETERINARY.

Queries in this department answered by Wm. Horne, M. D. V. S., Janesville, Wis.

Cow Physic—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

ANTHRAX.

I have a very fine mule that is peculiarly affected. Under the collar, both on the shoulders and on the withers, there have been a series of eruptions similar to boils. That is, small risings would appear, very sore to the touch, the boil would form, and pressure would bring out a core, sometimes leaving a hole an inch deep. The relief would be but temporary, however, as others would form. Please give me a clue to the troubles and how to effect a cure. Since discarding cloth sweat pads and enforcing perfect cleanliness of both neck and leather collar I have not been troubled with galled necks, but the above case is too much for me. Falicon.
Clarksville, Mo.

ANSWER.

You give me positive symptoms of carbuncular anthrax. This is a formidable disease, and needs the best professional skill to be had, and upon the spot. Professional correspondence is out of the question. It is quite impossible to correctly diagnose in all such cases, without a close, studious examination. I would advise you to get the state veterinarian to make such examination, and I sincerely hope you will find me mistaken in my opinion. It may be the result of a scrofulous diathesis, and this is bad enough, but is not so serious as carbuncular anthrax.

BLINDNESS.—RINGBONE.

A few evenings ago the best cow in my herd came in from the pasture blind. Two evenings before that when turning them out to pasture, one of the other cattle hooked her and ran her up against end of barn. Do you think that would have anything to do with it.

I also have a valuable Jersey cow that is lame; something growing on one side of hind foot, that resembles ringbone on a horse.
Wales, Ontario. J. A R.

ANSWER.

First. As a matter of course, any or all such acts are liable to cause much damage. The concussion would be simply of much force, and quite various results might naturally be expected from it. No doubt the concussion caused the affection of the eyes. Keep her alone. Bathe the eyes with strong green tea, cold. To one pint add six grains of sulphate of zinc. Keep dark, but plenty of fresh air; above all, a full, immediate dose of physic and repeat. This will reduce the fever, etc., caused by the shock.

Second. Reduce all the fever, then cut off the hair close and apply Gombault' Caustic Balsam. Keep on until a blister is formed; then cover with hog's lard until all the scabs are off. Then repeat two or three times if needed. No doubt you have an adventitious growth of the bone, ring bone, spavin, etc. Such are the latter.

TESTICLE NOT COME DOWN.

I bought a nice, thoroughbred Jersey bull calf one year ago. The calf was then fifteen days old and is a little over one year now, and but one testicle has come down. The other one comes down a part of the way a little sometimes, but immediately rises.

Will he be all right to keep for raising from, or does this denote a weakness?
Lavonia, Ga. A. N. P.

ANSWER.

I think the bull will come O. K. after awhile. I have known many such, both in cattle and horses, which have come round all right. Doctoring is not needed beyond careful handling, massage of the scrotum. If the scrotum is hard and tense rub with lard oil once a day.

INJURY TO LEG.

I have a cow that has been lame in one of her hind legs for several weeks. I thought at first that she hurt herself in getting up in the stable. She is quite lame when she first gets up or stands in the stable, for some time, but, after walking some little distance, it is scarcely noticeable. She is in good condition, and gives a good mess of milk.
Edgewater, Col. K. Bros.

ANSWER.

I think there is little doubt in your case—no doubt she has, in some way, been injured, and, as a consequence, rheumatism has set in.

Oil of cedar, 2 ounces; tincture of opium, 2 ounces; sulphuric ether, 2 ounces; fish oil 8 ounces. To be well shaken each time before using, and kept tightly corked and out of the sun and light. Rub in hard twice a day, for a while. Give voluntary exercise each day.

SUPPRESSION OF MILK.

I have a fine Jersey cow, had a calf fifteen months ago. Calf was never with cow except for three days. I feed through the winter, wheat bran and clover hay. About five months ago I noticed that two teats were not giving as much milk as usual, and have kept giving less and at the present time I only get one quart of milk from both teats, together, three quarts from another and four and five quarts out of the remaining one. The teats going dry are the two farthest from the milker, front and rear. Subscriber.
Bozeman, Mont.

ANSWER.

There is no accounting for the oft repeated freaks in the giving of milk. Sometimes it will double in quantity quite suddenly, again, the milk will fall off as quickly without apparent cause or notice of any sort. In your case the milker may be the cause. Five months makes the conditions quite chronic and much less amenable to treatment. I believe you had better not attempt doctoring, but wait the issue of next calving. Fifteen months is a long time to milk, though some milk longer. This may be the direct cause.

TUBERCULOSIS.

I have a cow that has been coughing for about three weeks, and breathes very heavy, almost like a horse that has the heaves. When she first took to coughing, she failed in her milk, but gives about as much as ever now. She doesn't seem to be sick at all, eats as much as she ever did, but don't take on flesh; she is very thin now. R. C. R.
Baldwin, Ill.

ANSWER.

I advise immediate removal from the herd. She is a suspicious subject. Still, I, by no means, wish to scare you. Don't use the milk for a while.

Cut off the hair close, under the throat, and apply Gombault's Caustic Balsam, four times a day for a while. Rub in with the back edge of a case knife, for several minutes; after this apply with a thumb sized paint brush. Never again rub at all. When a good scab forms, stop the caustic, and cover with clean, pure hog lard, until the scabs are all off. Then, if needed, only, repeat the same process. On the roots of the tongue place three teaspoonsful of the following: Lobelia, one ounce; gelsium, one dram; water, one ounce, only, cold. Twice a day for four days. Then stop four days, then repeat, if needed, only. Then report, and I hope to have the cough cured; then we are not afraid of a worse condition.

SYMPTOMS OF TUBERCULOSIS.

Please give the symptoms of tuberculosis in cattle. H.
Pine River, Wis.

ANSWER.

It would take quite a large sheet to describe all the symptoms of tuberculosis. In the beginning scarcely any symptoms are manifest. General dullness, lassitude, tenderness of the withers, back and loins, also soreness of the chest. Dry nose, hot horns and ears, changing to cool, and a dry unpliancy of the skin. Usually slight increase of temperature, stiffness of the limbs, changing to first one and then the other. Dry cough, swelling of the joints, etc., etc. Constant desire for the bull, etc. Bone lameness.

TROUBLE WITH BACK.

I have a fine young horse, four years old, affected strangely. He is hearty and in good order and seems to feel well, but there is some trouble with his back. When riding or driving him down hill, he gives away in his back or loins, and sometimes squats almost to the ground. When under the saddle and I mount him, he gives away, and squats very much. He is a very fine horse, a good driver, and I would be glad to cure him. I have had him only a few months, and he was affected as he is now when I got him, so can't tell the cause. W. S. H.
Danville, Va.

ANSWER.

You have a bad case. Use him gently, never ride him, never back him, never overload him. Thus, you may get some usefulness out of the horse.

TO BRING COWS IN HEAT.

Can you tell me what to give, and how to give medicine to bring cows in heat, so as to have them in early spring. I have a few of such cows myself and my patrons are inquiring into the matter also. J. S.
Chippewa Co., Wis.

ANSWER.

All and every form of medicine to bring cows in heat are of a dangerous nature in the hands of the layman, but perfectly safe and effective when prepared by the qualified practical man. See ads. in Dairyman. I can't help you so well in any other way.

PIN WORMS IN HORSE.

What is good for pin worms in a horse? Also what makes the hair come out of the horse's tail, is it the pin worms?
Philadelphia, N. Y. Subscriber.

ANSWER.

Yes, it is the ascarides, i. e., pin worms. Medicines by mouth are of little avail in the getting rid of these parasites. They inhabit the rectum and lumbar region. Injections of cape aloes, one ounce to quart of hot water; when at 100° F. use as injection by a long nozzled syringe. Use carefully, so as not to wound the lining of the rectum. Lard the nozzle before inserting. Use considerable force in pushing in the fluid. Alternate this with fish oil and aloes. In two weeks give a physic to clean out the bowels, etc. A drench of one ounce of cape aloes, two drams of ginger, made into one ball, in two sections, with molasses and give as one dose.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

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Dr. Horne's Anti-Abortient

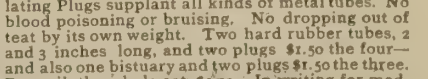
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

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DR. WM. HORNE, Janesville, Wis.

The Velvet Bean.

[Bulletin U. S. Department of Agriculture.]

The velvet bean is apparently a native of India and has been in cultivation, as an ornamental garden plant, for a good many years It is believed to have been first introduced into this country by the Department of Agriculture, for this purpose, about twenty-five or thirty years ago. In favorable localities it often forms vines 30 to 50 feet in length. It is an excellent plant for quickly covering unsightly objects or arbors. The purple flowers are borne in clusters at intervals of two or three feet at the joint of the stem. These are followed by clusters of short, cylindrical pods, covered with a black, velvety down, which has given the name to the plant. Each pod contains three to six, large, rounded brown and white mottled seeds. The pods are constricted laterally between the seeds, and are often more or less curved.

The value of the velvet bean as a forage plant was accidentally discovered about six or eight years ago. Being a native of the tropics it only matures seed in Florida and the lower half of the states immediately along the Gulf coast. It will probably not ripen seed north of a line drawn from Columbia, S. C., 160 or 200 miles back from the coast to San Antonio, Tex. Wherever it ripens seed it is considered to be equal or superior to cow peas, but where seed must each year be purchased it does not equal that crop.

SEEDING.

In Florida, the seed is sown in drills four feet apart, dropping from two to four seeds in hills two feet apart in the row. The seed may be dropped in furrows when the ground is plowed, and covered two or three inches deep. The crop should be cultivated several times. In orange groves and orchards the beans may be sown in drills four or five feet apart, and not less than five feet away from the trees in order to keep the vines out of them.

They make a better mulch crop in the orchard than the cow pea, because when the vines are cut down by frost they form a tangled mass which retains the leaves and protects the soil from rain and sun. The leaves stay on the vines longer than on cow peas. Farther north the seeds should be sown thicker, in drills two or three feet apart, or broadcast at the rate of one or two bushels per acre. Its range of profitable cultivation does not extend beyond that of cotton and will not until its period of cultivation has been extended long enough to result in the origination of new varieties suited to a wider range of soils and climates.

FERTILIZERS.

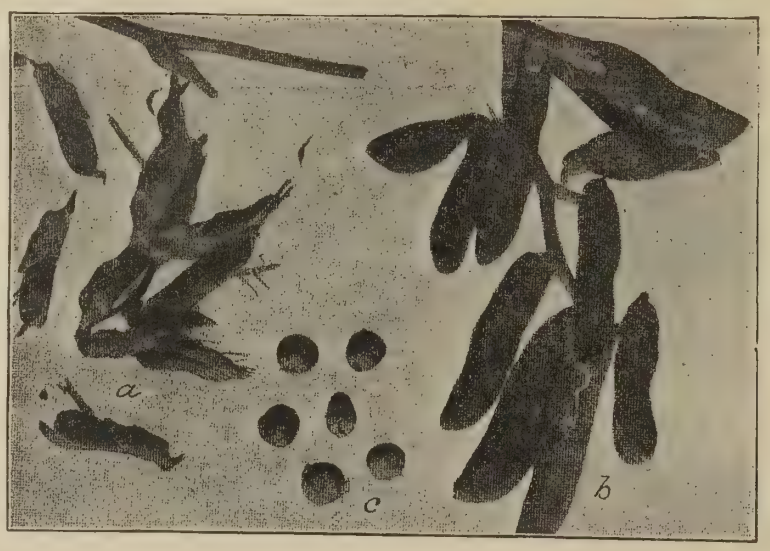
Velvet bean makes its best growth on the lighter, sandy soils. While capable of increasing the amount of nitrogen, it requires a liberal dressing of phosphoric acid and potash in the form of superphosphates and muriate or sulphate of potash. It pays to feed the crop well, because on rich ground the gain of nitrogen through the increased crop of vines is more than proportionate to the added cost of the potash and phosphoric acid.

YIELD.

The yields of hay are about the same as for the best varieties of cow peas on similar soils. The plant grows looser and bulkier, and looks as though it would yield twice as much hay as the cow pea, but experiments, conducted at the Alabama Experiment Station, prove that the superiority in this regard is only apparent. The reported yields range from two to four tons of hay per acre, or more in Florida, where two or three cuttings are made during one season. Farther north, the crop has not the same recuperative ability and can only be cut once. The yield of seed amounts to from 20 to 25 or 28 bushels per acre, about the same as for the most prolific varieties of cow peas.

FEEDING VALUE.

The beans have a high feeding value, as shown by analyses made by the Florida Experiment Station. The air-dried, shelled beans contain 6.29 per cent fat, 18.81 per cent crude protein, and 53.5 per cent non-nitrogenous extract. Cow peas contain 1.4 per cent fat, 55.7 per cent non-nitrogenous extract, and 20.8 per cent crude protein; the peanut 39.6 per cent fat, 15.6 per cent non-nitrogenous extract, and 27.9 per cent crude protein; while soy beans contain 16.9 per cent fat, 28.8 per cent non-nitrogenous extract, and 34 per cent crude protein. Digestion experiments have not been made either with the hay or seeds. Judging from the chemical analyses, they are about equal in feeding value to cow peas, but are of less value than either peanuts or soy beans. An analysis of velvet bean hay made at the North Dakota Experiment Station showed 5.3 per cent crude fat, 16 per cent crude protein, 20.7 per cent crude fiber, and 41.8 per cent non-nitrogenous extract. The plants were just commencing to flower at the time the analysis was made.



VELVET BEAN.

a flowers, *b* pods, and *c* beans.

VALUE OF FERTILIZER.

Comparative analyses of the vines, fallen leaves, and roots of the velvet bean, Spanish peanut, and "unknown" cow pea were made at the North Louisiana Experiment Station to determine the amount of fertilizers contained in each crop. For the velvet bean 4,113 pounds of vines and leaves contained 93.4 pounds of nitrogen, worth $14; 3,382 pounds of fallen leaves contained 58.2 pounds, worth $8.73, and 173 pounds of roots, without any stubble, contained 2.7 pounds, worth 40 cents, making a total of 154.2 pounds of nitrogen in the velvet beans produced on 1 acre of ground, worth $23.13. An acre of peanuts contained 193 pounds of nitrogen, worth $28.95, while the 108.5 pounds of nitrogen in an acre of cow peas was worth $16.26. Similar analyses have been made at the Alabama Experiment Station. Here a yield of 8,240 pounds of cured vines and fallen leaves and 1,258 pounds of roots, including about 3 inches of stubble, contained 201 pounds of nitrogen, worth, at about 15 cents per pound, $30.15. There was 2.29 per cent nitrogen in the cured vines and 1 per cent in the air-dried roots.

Experiments were also made at the Alabama Station to determine the value of the velvet bean as a fertilizer, judging from the yield of succeeding crops of oats and sorghum. The increased yield of sorghum fodder was 3,272 pounds per acre over the yield on the plat which had not been cropped the previous year—something over 1½ tons, valued at $12. The yield of oats grown on land where velvet bean stubble had been plowed under was 38.7 bushels, and where velvet bean vines were used 28.6 bushels, while land on which a crop of crab grass and weeds had been plowed under only yielded 7.1 bushels, an average gain of 26.5 bushels of grain as a result of growing velvet beans on the land the previous year. The average gain was about the same when cow peas were grown.

It is harder to plow under a crop of velvet beans than one of cow peas, on account of the tangled mass of vines. It is necessary to use a rolling cutter, unless the farmer has a disk plow. At the Alabama Experiment Station it was found that as good results were obtained from plowing under the stubble as from plowing under a full crop of vines. As a general rule, it may be considered a wasteful practice to turn under the entire crop, because the feeding value of any leguminous crop is always greater than its fertilizing value. A greater profit can be secured in the form of marketable meat products without materially lessening the influence of the leguminous crop on the succeeding one in rotation.



VELVET BEAN.

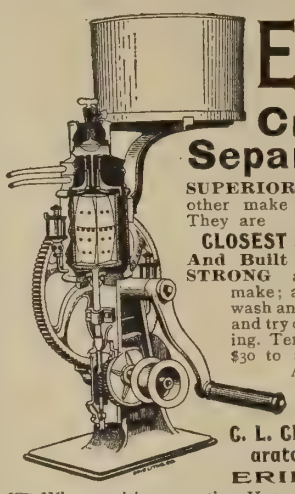
Showing leaves, flowers and young pods.

USE OF THE BEANS FOR FOOD.

Velvet beans have been used to some extent as human food. The general opinion, as expressed by correspondents of the Southern agricultural papers, is that they are richer and less palatable than cowpeas.

The seeds are large, difficult to thrash, and the pod does not break up readily. Special machines have been constructed for the purpose of cleaning them. For feeding purposes it is a good idea to grind them up, pods and all, thus saving the expense of threshing. The meal may be used as a concentrated feeding stuff in the same manner as cottonseed meal. It is said that cattle, sheep, hogs, and poultry are all very fond of them, but horses apparently do not relish them.

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Bouckville, N. Y.

Good Bulls.

Experiments Showing the Importance of Superior Sires.

One of our Kansas creamery patrons, says Prof. D. H. Otis, had two heifer calves in succession from an old red cow, one by a Holstein and the other by a Shorthorn. In a seven days' test the Holstein heifer with her third calf, produced 2.3 pounds of butter per day, and for the same time the Shorthorn, with her second calf, produced 1.2 pounds of butter per day, the Holstein giving milk 11 months of the year and the Shorthorn only five months. This speaks very emphatically as to the value of a good sire in raising dairy cows.

The dairy business is far more overdone by the "average" cow than from any other cause. The trouble is she eats and exists upon a man's farm to do just half what is required of her, and eats as much good food in the year as her betters. The amount of milk this average cow gives is 3,100 pounds yearly, and it should be as many quarts of better milk. If one looks at this average cow critically, the signs are too often reversed from what they should be—viz., her head is too large to correspond with her udder, her shoulders wider than her hips, and her tendency is to put tallow upon her caul and not in her milk. She has ample storage capacity for everything except milk. She is a parasite that eateth by noonday and wasteth a man's substance by night, and in the way of "fleecing the innocents" she beats all the trusts and rings combined.—*San Francisco Chronicle.*

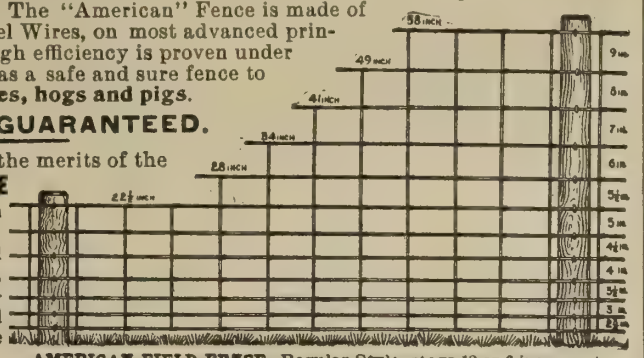
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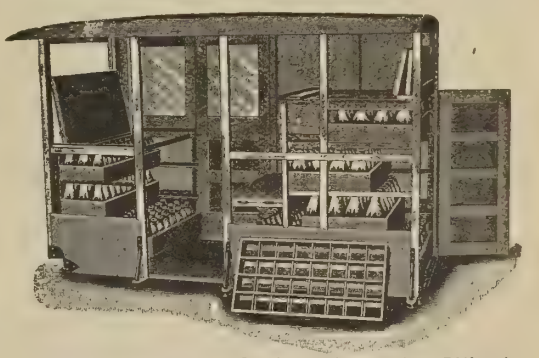
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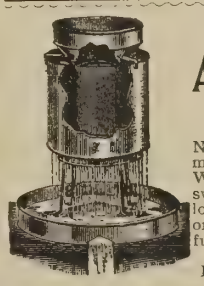
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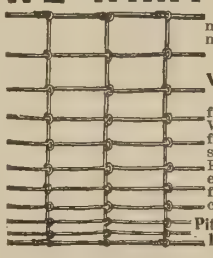
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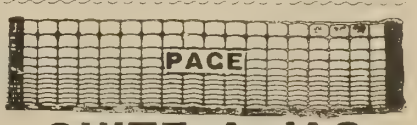


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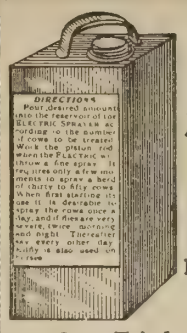
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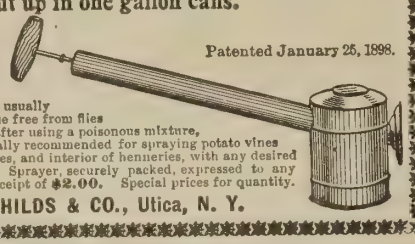
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ELECTRIC SPRAYER

Patented January 25, 1898.



Convenient and Practical in Every Particular.

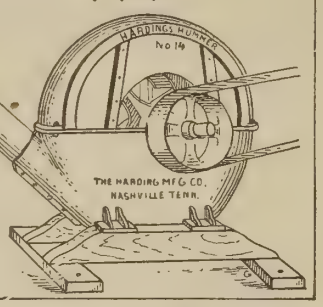
Throws a very fine spray of any of the liquids and mixtures usually used for destroying insects, bugs, etc., and for keeping cattle free from flies during the summer weather. Can be thoroughly cleaned after using a poisonous mixture, which is conveniently done by removing the cover. Especially recommended for spraying potato vines with Paris green, also all kinds of plants, bushes, vines, trees, and interior of henneries, with any desired formula. Sample Lot—One gallon can **KILFLY** and one Sprayer, securely packed, expressed to any address (except in State of Maine) charges prepaid, upon receipt of **$2.00.** Special prices for quantity.

Agents Wanted Everywhere. **CHAS. H. CHILDS & CO., Utica, N. Y.**

HARDING'S HUMMER not only hums but CUTS and ELEVATES ensilage, or any other product usually treated with a feed cutter, without sprocket-chain belts and consequently without the annoyance and vexatious delays usually attending their use.

"There are others" of course that cut, BUT TO ELEVATE-THERE'S THE RUB. The great virtue of the "Harding Hummer" lies in its profitable inexpensiveness in operation, and its wonderful capacity to keep every hand on the place busy. Write for Catalogue.

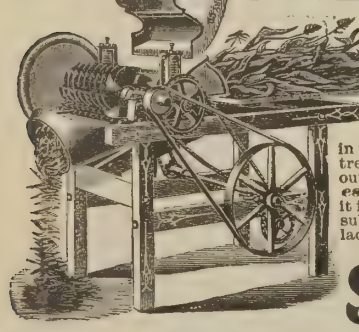
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The Harding Mfg. Co.,
Nashville, Tenn.

MAKE ONLY

SWEET ENSILAGE



Ever since the ensilage system has been introduced in this country it has been the ambition and effort of siloists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste.

The best way to Shred Ensilage is with the

St. Albans Ensilage and Fodder Shredder.

It is the Original Shredding Machine and all other so-called shredders are merely imitations of this one. ***It will certainly pay you*** to look into the merits of this proposition and machine before buying. We mail a pamphlet on the subject.

ST. ALBANS FOUNDRY CO., ST. ALBANS, VT.

WELL DRILLING MACHINERY

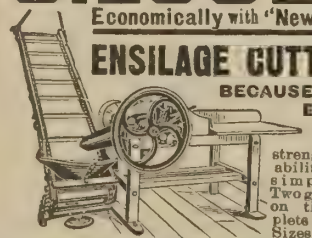


Established 1867.

Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address

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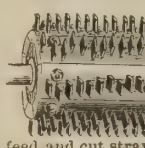
SILOS Are Filled Quickly and Economically with "New Hero" ENSILAGE CUTTERS



BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. **STRONGEST GUARANTEED.**

SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER. runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed **FREE.** Tells all about Hero Ensilage and Fodder Cutters. Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Shellers, Peck's Corn Thresher, etc.

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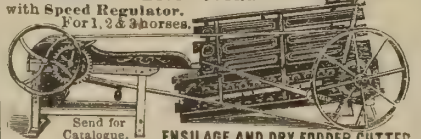


The ROSS ENSILAGE MACHINERY

cuts ensilage, corn fodder, hay and other roughage and shred fodder for feed and cut straw for baling and bedding. They have a reputation for high quality in material, construction, capacity and working ability. Send for Catalogue No. 7 **The E. W. Ross Co., Springfield, O.**

HEEBNER'S Patent Level Tread Horse Power

with Speed Regulator. For 1, 2 & 3 horses.



Send for Catalogue.

ENSILAGE AND DRY FODDER CUTTER with Crusher. Also Threshers and Cleaners, Feed Mills, Corn Shellers, Drag and Circular Saw Machines, etc.

HEEBNER & SONS, Lansdale, Pa., U. S. A.

SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS

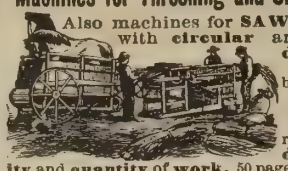
Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' *none* equal to '*SHOO-FLY.*' It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected

SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., Pa

LATEST IMPROVED

HORSE POWER

Machines for Threshing and Cleaning Grain.



Also machines for **SAWING WOOD,** with **circular** and **cross-cut drag saws.** Acknowledged by all to be

The Best

regarding **easy draft, durability** and **quantity of work.** 50 page pamphlet **free.**

A. W. GRAY'S SONS, Patentees and Sole Mfrs., **P. O. Box 6, Middletown Springs, Vt.**

WE SELL DIRECT TO THE FARMER AT ONE-HALF DEALERS' PRICES.



New Disc Harrow, Grain Drill and Broadcast Seeder.

Throwing the earth all one way. Revolutionizes the method of seeding, as the twine binder did the harvest. Discs 6½ in. and 9 in. apart. Send for circular.

DEATH TO HIGH PRICES.

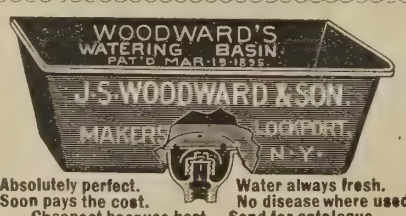
16-in. Sulky Plows, $25. 16-in. S. B. Plows, $9. Rolling Coulter, Extra $1.50. 64-T. Lever Harrow, $3.00. Mowers $29.40. Riding Gang Plows, $35. 12-16 Disc Harrow, $16. Hay Rakes, $11.65. Wagons, Buggies, Harness, Sewing Machines, Cane and Cider Mills, Hay Tools and 1000 other things at one half dealers' prices. Catalogue free. **Hapgood Plow Co., Box 322, Alton, Ill.**

Only plow factory in the U. S. selling direct to the farmer.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best. **Water always fresh. No disease where used. Send for catalogue.**



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If you want the best machinery for making wells to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

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RIFE HYDRAULIC ENGINE

You can get a constant stream of water delivered to your buildings from a stream or spring by means of this engine.

RUNS ITSELF. NEVER STOPS.

Send your conditions for catalogue and guaranteed estimates.

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Any style, size or shape. Farmers can **buy direct** from our Factory at lowest Wholesale Prices. ☞ Catalogue Free.

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HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

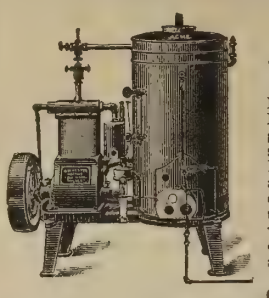
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ON THE MARKET TEN YEARS.

The Acme Engine

Still LEADS



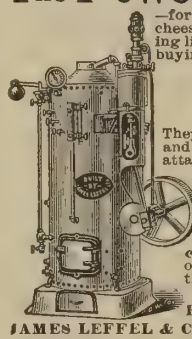
1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

No. 9 Center St., Rochester, New York.

The Power Question

—for farm use, dairies, creameries, cheese factories—anything requiring light power, is best settled by buying one of these



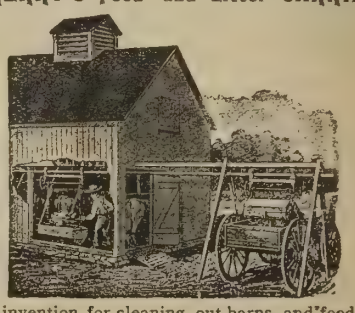
LEFFEL ENGINES.

They are made in both horizontal and upright pattern, with engine attached to boilers. Being very simple and direct in construction they are economic of fuel and **great developers of power.** Best for **cutting and grinding feed, sawing wood, pumping water, separating cream, churning, &c.** Made of the best material throughout they are durable and long lived.

Send stamp for our **Book on Engines and Power.**

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CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO. Batavia, Ill. Catalogue Free



Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

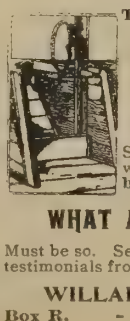
B. C. SCOTT, 211 Beach Street, **Bridgeport, Conn.**



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

The Willard Knapp ...Cow Tie...



The LEAST EXPENSIVE, the MOST DURABLE, and the BEST DEVICE for Fastening Cows.

NEVER BUY ANYTHING

Simply because it is cheap. But when the **least** expensive is the **best,** why not use it?

WHAT ALL DAIRYMEN SAY

Must be so. Send for circulars with up-to-date testimonials from up-to-date men.

WILLARD H. KNAPP & CO.,
Box R, - - **CORTLAND, N. Y.**

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JULY 21, 1899. NUMBER 23

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J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
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DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,
Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

JOHN JAMISON, ESTABLISHED 50 YEARS. **Butter, Cheese, Eggs, Poultry.**
Water and Market Streets - - - PHILADELPHIA, PA.
I reach every outlet and have a constantly increasing trade. REFERENCES; Dun and Bradstreets; Corn Exchange Bank, Philadelphia.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Print Butter Should be wrapped in GOOD Parchment
(NOT THE CHEAP KIND.)
YOUR NAME or CREAMERY should be PRINTED on Every Sheet.
SEND FOR SAMPLES.
Department H, PATERSON PARCHMENT PAPER CO., Passiac, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,
A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
FITCH CHEMICAL COMPANY, Bay City, Michigan.

WE MANUFACTURE....
Vats, Churns, Butter Boxes.
WE Build and Equip Creameries
WE ARE AGENTS FOR
Sharples Cream Separators
When ordering Vats or other creamery supplies, see that your local dealer furnishes those of our manufacture. Our name on the goods is a GUARANTEE of excellence. Send for catalogue
HANEY-CAMPBELL COMPANY, - Dubuque, Iowa.

The Home of Blaine.

The state of Maine is rapidly coming to the fore in its dairy interests. The Turner Center Dairy Association, of Auburn, Me., is one of the largest manufacturers of butter in America. An immense five story building; machine y the very latest and best; their plant is worth a visit, as it is the most complete of its type in America. **Of course they use the Sharples Factory Separators exclusively.**



At Dexter, Me., another great factory, operating on the same system, has lately been fitted up with new separating machinery. A thirty days' trial of Separators was inaugurated before finally deciding on a purchase. The **Sharples Tubular,** the Alpha, and one other make were placed side by side for trial. The following from a letter dated, Dexter, Me., May 26th, tells the story:— **"The De Laval man has boxed up his machine and sent it back home; they could not make it do the work the Sharples Tubular is doing."**

THE TUBULAR SEPARATOR

MAKES THE FINEST CREAM;
MAKES THE MOST BUTTER.

It is the safest separator. It is the simplest separator. The revolutions are high but the speed is low. But what we say or what others say don't count so much as the actual performance of the machine. You can have one to try.

Send for Catalogue No. 46.

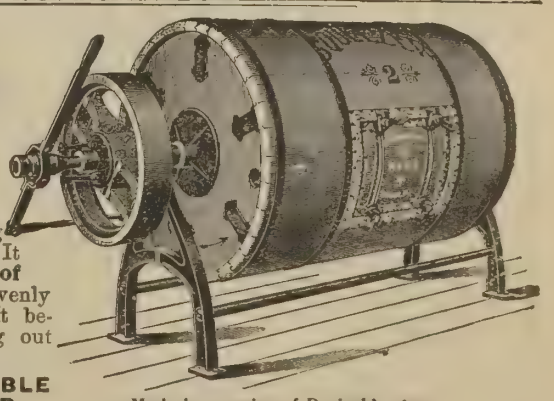
The Sharples Co., Canal and Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.
BRANCHES—Toledo, Ohio. Omaha, Neb. Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.



ALDERNEY BUTTER COLOR
Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

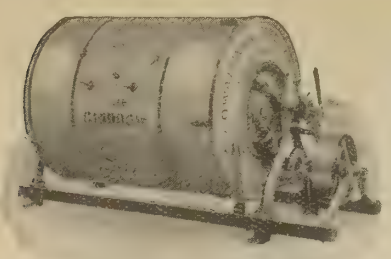
It Does Not Destroy the Grain.

THE SQUEEZER COMBINED CHURN AND WORKER
will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.
IT IS SIMPLE, DURABLE AND EASILY WASHED.



Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.
Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.



SOME DISBROW POINTERS

It has taken us several years to convince the buttermakers of this country of the value of combined machines. The DISBROW was the first machine put on the market. Imitators and infringers have been numerous, but today the DISBROW is the only UNIVERSALLY SATISFACTORY machine. Why? Because every buttermaker who has used one knows that he can make MORE BUTTER, make BETTER BUTTER, and make it EASIER with a DISBROW than with any other kind of churn and worker. Are you one of those who are not yet convinced of the merits of the DISBROW? Don't condemn it. Write to us and we will refer you to hundreds who are using DISBROW machines, and believe they are the modern wonder in creamery machinery.

OWATONNA MFG. CO.,

SOLE MANUFACTURERS. **Owatonna, Minn.**

Creamery Package Mfg. Co.,

GENERAL SALES AGENTS,

BRANCH HOUSES:— **1, 3 and 5 W. Washington St.,**

Minneapolis, Minn. Kansas City, Mo.
Waterloo, Iowa. Omaha, Neb.

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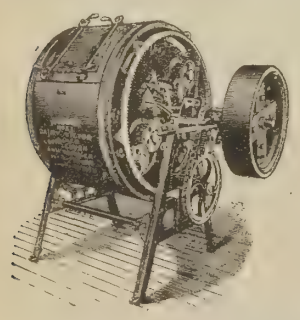
Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

Star Milk Cooler Co., ARCHITECTS, CONTRACTORS, and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. **Haddonfield, N. J.**

Send for Catalogue of Sanitary Dairy Apparatus.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

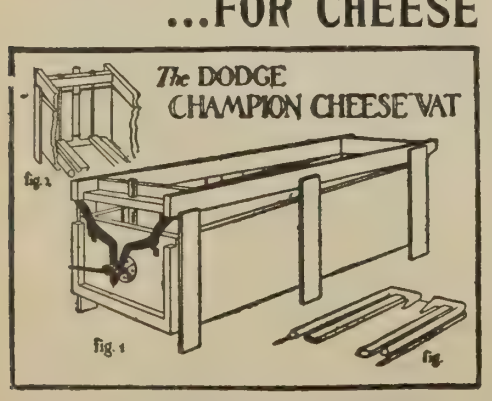
IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

THE DODGE TILTER

...FOR CHEESE VATS...



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat.

WRITE FOR PRICES.

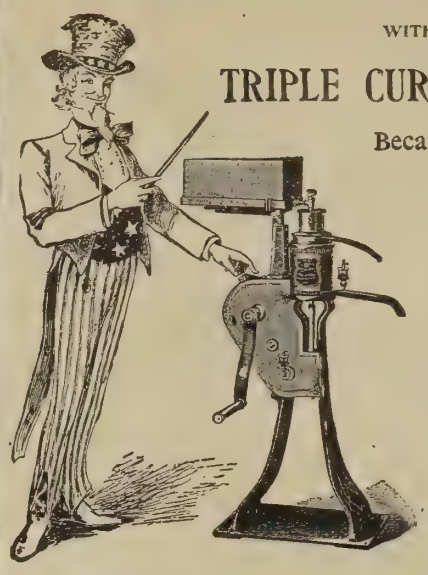
OAKES & BURGER, CATTARAUGUS, N. Y.

Uncle Sam Points with Pleasure to

The Improved U. S. Separator

WITH ITS

TRIPLE CURRENT BOWL



Because it

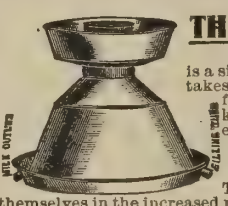
Skims the Cleanest,
Operates the Easiest,
Is the Easiest Cleaned,
Is the Most Durable,
And in other important points Excels all other Separators.

It does equally good work in the Dairy or Creamery as testified to by users the country over.

If interested, send for our large illustrated catalogues giving full particulars and containing hundreds of testimonials from users.

Remember we furnish everything necessary for a first-class Dairy or Creamery.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



THIS PERFECTION MILK COOLER AND AERATOR

is a simple device for cooling and aerating milk. It quickly and effectually takes out all animal heat, and with it all **animal odors, odors** arising from **stables, feed, etc.** This method of treatment makes the milk keep sweet much longer. It is better for making **butter, cheese,** etc., and will stand shipment much better.

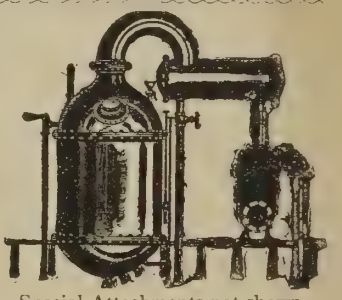
Cost But Little and Last Indefinitely.

They are made in sizes from 1 to 200 cows and will quickly pay for themselves in the increased reputation they give your product. They come very nearly taking the place of ice in warm weather. Send for illustrated catalogue and prices of **Farm and Dairy Supplies.**

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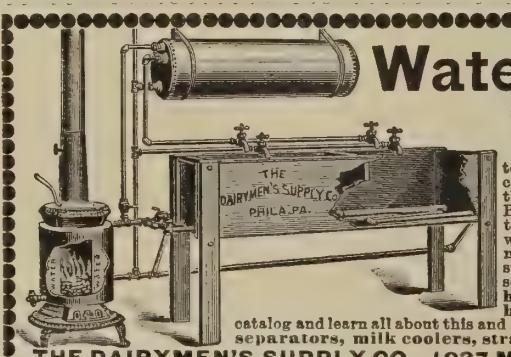
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THE DAIRYMEN'S SUPPLY CO., 1937 Market St., Philadelphia.

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In 1896.....THOS. MILTON
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Yours truly,

THE GENESEE SALT COMPANY, New York.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the Dairyman is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

It is announced that H. B. Gurler, of De Kalb, Illinois, who is one of the most accomplished and practical dairymen of the United States, will make an exhibit of his method of handling a dairy farm at the Paris Exposition next year. Mr. Gurler's dairy product is sold in Chicago at twelve cents a quart, and the business is conducted on such a scale that it requires eighteen men to milk the cows.

Accompaning the two cuts given on this page are letters from the owners of the animals, giving details of their performance. As is well known, the Dairyman has insisted that form was an indication of performance and that in proportion as the animal showed development in certain directions, so would her production be. In this case where both the form of the animal and her performance can be compared, our readers can easily observe to what extent theory and practice are companions.

SILO EXPERIENCE AND ADVICE WANTED.

Hoard's Dairyman would be particularly obliged if a score or more of its readers, who have had four or more years experience with the silo, would favor it with brief suggestions, founded upon such experience, as to the best methods of constructing and filling silos. They have doubtless learned some things which it is desirable to avoid and oftentimes this is most valuable information, and hence the main question practically takes the following form:

If you were to build a silo this year what departures (if any) would you make from the style or styles heretofore in use, and why?

Experience with stave silos and with silos with cement linings and with the use of the shredder in place of the ordinary cutting box, is especially desired.

WILD TALK.

Because in one herd, Springfield, Ill., of forty-six cows, twenty-five were found to respond to the tuberculin test for tuberculosis, the newspapers of Illinois seem to have gone wild on the subject. The *Springfield News* says in glaring head lines that "most cows have tuberculosis" and it declares that "almost one third" of all the cows from which milk is taken to consumers in that city are affected with tuberculosis.

A wise man once remarked that "on all those subjects that cannot be proved there is the most discussion."

The latest deductions of science and the average of all investigations show that not five per cent of the cows are affected by tuberculosis and not one in a thousand of those cases convey the disease through her milk. It is time that a little common sense was injected into boards of health and veterinarians on this question.

An Iowa Grade Jersey.

Ed. Hoard's Dairyman:—I herewith send a picture of a grade Jersey cow (31-32 Jersey) descended from good native stock. She is now nine years of age, and in 1894 made 399 pounds butter; in 1895, 345 pounds; in 1896, 399 pounds; in 1897, 401 pounds; in 1898, 280 pounds. I can give no reason for the variation, other than my cows are like apple trees, have their off years. I have other cows that have done as well, and better, all descended from the same source. For the past six years, the milk of each cow in my herd has been weighed twice a month, and tested once a month. This cow never dropped a male calf.

Springville, Ia. J. L. Hoyle.



GRADE JERSEY COW.

Property of J. L. Springville, Iowa.

Chemical analysis of the butter made by L. W. Pierce, of Pomona: Water 11%, ash 2.6%, casein 1.7%, fat 84.7%.

Babcock test, fourteen samples, average 5.2%, total butter fat 14.3968 pounds; estimated butter fat by adding 1/6 to total fat, 16.7958 pounds. The cream was separated after each milking, and two churnings made.

The cow freshened February 19th, 1899, and gave from February 21st, to May 1st, (seventy days) 2,849 pounds, 7 ounces. Her greatest milk yield for twenty-four hours, 52 pounds, 1 ounce, on March 15th; for forty-eight hours, 103 pounds, 10 ounces, March 15th, and 16th; from March 13th, to March 19th, inclusive, she gave 349 pounds, 2 ounces of milk.

I enclose memoradum of Babcock test made during butter test. The great variation in amounts of milk and fat, is due to the very trying weather of that week. The first three days were very cold, and a sudden hot spell followed, during which the themometer reached 104°. The cow also came in heat unexpectedly, which also helped to lower her record. No previous preparation, as to feed, was given. During the test she was fed bran and corn meal in equal parts, amounting in the seven days, to 107 pounds, with alfalfa hay and mixed pasture *ad libitum*.

Terry's Pet has the typical dairy conformation, which you so strongly advocate. She is a cow of enormous digestive capacity, and a grand individual, and a very persistent milker.

I hope later to give you a more extended account of my dairy herd, many members of which have produced over 400 pounds, one reaching 526 pounds in eleven months and a half. This result in selecting and feeding my cows is entirely due to the teachings of Hoard's Dairyman, which has been my constant adviser. J. Lansing Lane.

Rincon, Calf.



JERSEY COW, TERRY'S PET, A. J. C. C. 96851.

Property of J. L. Lane, Rincon, Cal.

Test of a California Jersey.

Ed. Hoard's Dairyman:—Under separate cover, I send you two photographs of my cow. Terry's Pet No. 96850 A. J. C. C. She has just completed a seven days' butter test, conducted by Mr. C. S. Burgess, of Arlington Place, in accordance with the rules of the A. J. C. C. Besides the churn test I made a Babcock test of each milking, and you will note how nearly the results coincide.

The test commenced April 3rd, a. m., finished April 9th, p. m. Amount of milk given, 278 pounds, 2½ ounces. Unsalted butter churned, 18 pounds, 11½ ounces. Salt added, 18½ ounces. Reworked butter, 16 pounds, 13 ounces.

WHAT IS THE MATTER?

On page 410, last column, in his most excellent address on the "Value of Breeds", Prof. G. M. Gowell, of Maine, states some practical facts from the farm end of the creamery business as it appears in Maine. He shows from actual statistics that certain Maine farmers obtained as high as $60 per cow from the creamery, while others got no more than $20, and he tells the reason why. It is the same in Maine as it is in Wisconsin, and the reason is a sad lack on the part of the $20 farmer of a "saving knowledge" of what constitutes a dairy cow, how to breed that cow, how to care for, and feed her so she may do profitable work. In its investigation among patrons of creameries, Hoard's Dairyman has found at least a hundred $20-per-cow men where it has found one $60 one.

It is this low state of knowledge, ambition, pride, and all that makes up a first-class farmer and dairyman, that is at the bottom of all ill luck and discouragement, these men meet.

They realize that they are making no money, and yet they never turn their eyes inward to see the cause.

They kick vigorously at the creamery, the transportation companies, the commission men and everything but their own lack of dairy knowledge. And so long as they continue in this frame of mind and keep in partnership with the "twenty dollar" cow, their kicking will bring them no relief.

A Silo in a Cistern.

Ed. Hoard's Dairyman:— I have on my property a solid mason work structure of the following dimensions: 19½ feet long, 13 feet broad, 6 feet 9 inches deep. Can I use this for making a silo without increasing the depth? To make it deeper will cost a good deal of money, and as I said in my previous letter, silage is only in its infancy in Jamaica, and our cows may require a lot of "training" before they will eat it. Therefore I should like, if possible, to use this structure just as it is.

If you think I could make silage in it, what weight would I have to use on the top of the silo, i. e., how many hundred pound weight to the cubic foot?

How many tons of fodder would such a silo hold?

What kind of covering should I have over it?

I shall be glad to hear all the information you can give me on the subject.

Jamaica. H. Farquharson Kerr.

A silo of the above dimensions will be very liable to spoil a large per cent of the silage, unless special precautions are taken to cover the surface with boards and tar paper, so as to exclude the air as much as possible, and then weight heavily. Even then it is doubtful whether it would pay for the extra work, as a tank of the above size would not hold more than twenty-five tons of silage. It would be better, in the long run, to build a square silo, using the tank as a foundation, and making the wooden part at least fifteen feet high, and twenty feet if possible. The weight of the silage would then do all the pressing necessary, and if the surface of the silage is covered with a foot or so of coarse hay of any kind, it will form a sufficiently tight cover.

If you wish to use the tank alone, cover the silage well with boards and tarred paper, and weight with stone at least fifty pounds to the square foot.

In feeding the silage, remove the cover in short sections, and cut the silage down at the end, as used, so as to leave as little surface exposed as possible.

The creamery at Turner Center, Maine, has taken up the business of separating the patrons' milk and shipping the cream, instead of manufacturing it into butter. Ten and a half tons of ice are chopped up daily by a machine and packed about the cream, which is enclosed in ten gallon cans, each can being enclosed in a wooden box and the space between the can and box filled with ice.

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ON another page of this issue, a correspondent gives the increase in cream from the addition to the comfort of the cows by stabling in hot weather and thus protecting them from heat and flies.

Small things affect the yield of milk and butter fat, and an uncomfortable cow will not do her best, no matter what food is given her.

DOING GOOD WORK.

Telegrams to the daily papers report that the Wisconsin Dairy and Food Commissioner has instituted prosecutions against several milk dealers in Beloit, for using "preservatives" in milk. Some of them have pleaded guilty and paid their fines and others propose to stand trial.

The use of "preservatives" in milk is not only a violation of the laws of Wisconsin, but is a reckless disregard of the rights of the consumers of the milk, because it is a menace to their health. That such things do not kill the victim instantly or produce immediate illness, does not by any means disprove that they contain dangerous ingredients. No well informed person would knowingly use milk that has been "embalmed."

FORM IN FOWLS.

There are yet too many people who do not accept the proposition that nature is always striving for the lines of least resistance, and, therefore, wherever it can, is adapting form to function. HOARD'S DAIRYMAN has been laughed at, sneered at, and made the butt of many a poor joke because it has insisted that there was such a thing as dairy form. The facts have all the time kept coming our way, and the doubters and disbelievers are becoming fewer every year.

In fact, the principle for which we have contended is being applied in many new ways, one of the latest being the selection of fowls according to form, and distinguishing between the fowls whose special purpose is egg production, and those better adapted for meat production. The former have a longer and slimmer body, heaviest in front, but with a thin neck and small head; the latter have a square, compact, closely knit body, indicative of more rapid growth and less waste in dressing.

VARIATIONS IN THE DAILY TEST.

Patrons of creameries frequently write to the DAIRYMAN concerning variations in the daily test, as shown by the Babcock test.

They do not understand that the per cent of fat in a cow's milk is not a constant, but a variable amount, and are apt to question the accuracy of the test itself or the honesty of the person performing the operation.

We would call the attention of those who have had such experience, to the following table, sent by the owner of Terry's Pet, and compare it with the account of the test given on page 447 of this issue.

The wide variations in milk, per cent of fat and total fat are very noticeable, and serve to emphasize how little things, affecting the condition of the animal, are recorded in the yield of fat. Following is the table:

April 1899.		*Milk.*	*Test.*	*Pounds Fat.*
3	a. m.	22 lbs. 15 oz.	4.2%	.9633
	p. m.	22 " 8 "	4.9%	1.1025
4	a. m.	22 " 7 "	4.7%	1.0545
	p. m.	21 " 14½ "	5.5%	1.2048
5	a. m.	20 " 15 "	5.1%	1.0678
	p. m.	19 " 6½ "	5.2%	1.0091
6	a. m.	18 " 6½ "	6.2%	1.1418
	p. m.	16 " 14½ "	6.3%	1.065
7	a. m.	19 " 6½ "	5.8%	1.1255
	p. m.	18 " 10½ "	4.7%	.8768
8	a. m.	18 " 10½ "	4.3%	.8022
	p. m.	19 " 2½ "	5.5%	1.0536
9	a. m.	18 " 14½ "	4.8%	.9075
	p. m.	17 " 15 "	5.7%	1.0224
		287 lbs. 2½ oz.		14.3968

Average test 5.2%.

A REPLY TO MR. GASTON.

Some Aspects of the Proposed Law for Taxing Colored Oleomargarine.

Mr. Gaston's communication, printed elsewhere in this issue, doubtless voices the sentiment of a very considerable number of people who have so little sympathy with frauds of any kind that they insist upon a purely prohibitive law and will assent to nothing less than this.

It would be entirely foreign to the long established practice of HOARD'S DAIRYMAN to discuss this subject in its relations to the liquor traffic, or attempt to prove or disprove Mr. Gaston's allegations. We have prohibitive laws in regard to oleomargarine in thirty-three states, but through the laxity or connivance of the officers whose duty it is to enforce these laws there are large areas in every state where they are practically inoperative, and it is at least doubtful whether any state law could be made operative to exclude oleomargarine or whiskey, purchased in one state and transported to another for private use. There is also the further trouble, expense and uncertainty of trying to follow up and convict a hundred or a thousand retailers. In short, it has to be admitted that state laws are not adequate to search and suppress the oleomargarine fraud even within the borders of the state. Nothing less than a strict search of every car, boat and wagon that crosses a state line would suffice for this purpose.

It is one of the maxims of the law that there is, or ought to be, a remedy for every wrong. This proposition is written in many of the state constitutions, and in Wisconsin is thus expressed:

"Every person is entitled to a certain remedy in the laws for all injuries or wrongs which he may receive in his person, property or character; he ought to obtain justice freely, and without being obliged to purchase it, completely and without denial, promptly and without delay, conformably to the laws."

What we ask, therefore, is that congress shall come to the help of the states, in such ways as it can under the constitution of the United States. Confessedly congress cannot enact a prohibitive statute *per se*, but it has "power to lay and collect taxes, duties, imposts and excises" and this too, contrary to common belief, without regard to the specific purpose of raising revenue. This conclusion is well exemplified in several of the tariff schedules, in the law taxing the circulation of state banks and in many other less notable instances. The only restriction is that "all duties, imposts, and excises shall be uniform throughout the United States."

It is, moreover, a mistake to suppose that the laying of a tax, duty, impost or excise upon any article or occupation thereby "legalizes" it or confers upon it any standing it does not otherwise possess, and least of all can an act of congress override, annul or repeal a constitutional state law. Not to multiply instances, it suffices to cite the case of the prohibitive laws of Maine, which are enforced with more or less thoroughness, notwithstanding the circumstance that the articles whose sale is prohibited have been taxed for more than thirty years by the United States. Oleomargarine itself has been taxed without regard to color for many years, but this gives no one a right to sell it contrary to state laws.

The only remaining questions, as it seems to us, are, will the imposition of a ten cent tax on colored oleomargarine tend to restrict its unlawful sale in the states where such sales are forbidden by local statutes, and if so, is such restriction desirable.

The manufacturers of oleomargarine, and all those who sympathize with them, their allies and attorneys will answer the last question in the negative. The *people* in thirty-three states, speaking through their legislatures, have answered it in the affirmative. It is a case of a few millionaires and their retainers, great and small, against the the people, including a hundred times more consumers of dairy products than dairy farmers. It is a gross misuse of terms to call this "class-legislation." In fact, not to pass some operative law in this behalf is class legislation of the most restricted kind. Not to do the proper thing is as gross a fault, as to do an improper thing.

What will be the probable effect of a United States tax of ten cents a pound on colored oleomargarine? Certainly this, if nothing more. It will bring the cost of the stuff to the manufacturer so near to the cost of butter, that he cannot afford to take many chances for conviction in the state courts for violating state laws. He will not, for instance, come into Wisconsin and say to dealers in Racine, Milwaukee, Ashland, Superior and elsewhere, "go ahead and violate the laws of your state, and if you are detected, prosecuted, convicted, and fined, we will pay the fine, and all the costs and expenses to which you may be subjected."

It will do another thing, which these millionaire sympathizers with their so-called poor laboring men are professedly so anxious about. It will enable every one who wants oleomargarine, to buy it for what it is, and what it is worth, and prevent him from being cheated by having oleomargarine imposed upon him for butter, and at butter prices.

It may serve as an actual prohibition of the sale of colored oleomargarine anywhere, just as the imposition of the ten per cent tax on state bank currency wiped that monstrosity out of existence years ago. And if it should, the mourners would be chiefly conspicious for their infrequency.

A Slander on Guernsey Cattle Refuted.

Although appreciating your reluctance to discuss the relative merits of breeds of dairy cattle, I venture to make the following inquiries trusting that you will be kiud enough to enlighten me if possible, through the columns of your valuable paper. It has come to me recently as the statement of a well known breeder of Guernsey cattle, confidentially made, that Guernseys as a breed are more difficult to get in calf and more subject to abortion than other thoroughbreds.

As I have recently purchased two thoroughbred Guernsey heifers from H. McK. Twombly, with the intention of breeding them to my thoroughbred Guernsey bull, Pasha No. 4860, as a nucleus for a small herd of thoroughbreds in addition to grade cows, I am anxious to get all the information I can in regard to the chances of making a success with my venture. Any statistics you could give me I should greatly appreciate.

Southville, Mass. R. F. P.

There are several herds of Guernsey cattle in our immediate vicinity, and others in Wisconsin and elsewhere with which the editors of HOARD'S DAIRYMAN are well acquainted, and it gives them pleasure to state from personal knowledge, corroborated by reliable information that there is no foundation, whatever for the statement above attributed to "a well known breeder of Guernsey cattle." This gentleman may have had these troubles in his own herd as others have with other breeds, but such instances are the exceptions and not the rule.

ON account of insufficient appropriations by the legislature, the trustees of the Pennsylvania State College have been compelled, along with other measures of retrenchment, to discontinue for the present the twelve-weeks Winter Lecture Course in Agriculture and the Cheese Making Course. The Creamery Course will be given as heretofore, beginning January 3d, and the work of the regular four years course, and of the special one year course, will go on as usual. Special efforts will also be made to increase the efficiency of the Correspondence Courses in Agriculture.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

AN ONTARIO RATION.

Which is the cheapest and best feed for dairy cattle during autumn and winter of the following, and at the prices named, accompanied with provender composed of peas and oats, which we produce on our own farms: Gluten meal at $18.00 per ton, cotton seed meal at $25, bran at $14, shorts at $15.

How much of a balanced ration should be fed to cattle, say of 900 weight, of the above mentioned feeds, accompanied with clover hay and timothy, per day. By kindly answering those questions you will oblige your oldest subscriber in this section.

Ontario. A. M. C.

The peas and oats alone would answer very well with clover and timothy hay. If mixed in equal amounts by weight they would contain digestible nutrients as follows:

Protein.....13.0 per cent
Carbo hydrates.....49.5 "
Fat (ether extract).....2.5 "

This does not differ very materially from

good bran, except in the carbohydrates, which is much the cheapest nutrient. It follows, if the peas and oats are worth much more than the cost of bran, it would not pay to feed them except in limited amounts and for the purpose of providing a variety in the ration.

The following formula suggests a ration that ought to produce very satisfactory results:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
18 lbs. mixed hay.....	15.44	.86	7.13	.29
3 lbs. peas and oats..	2.69	.28	1.49	.08
4 lbs. bran.....	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals.....	23.49	2.38	10.50	.67

FLY REPELLENTS—WHAT TO FEED WITH SKIM MILK.

The annual battle between the cows and the flies is now about to commence. The prepared articles are quite expensive and not altogether effective. Can you tell us of some mixture that we can make and the manner of applying it, that will materially assist the cows in this unequal contest.

We have sweet skim milk that we want to feed to sows and little pigs and also to weanlings, pigs and young hogs. What should we add to the milk to secure the greatest benefit when fed to these various kinds of swine. Give the proportionate rate of weight of each part of the feed for each kind of animal. T. E. E.

Fort Wayne, Ind.

The fly-repellent question is discussed in answer to an Ontario reader.

For the sows, mix ground oats, corn or middlings, or a mixture of them, with the skim milk in the proportion of one pound of the grain to 5 to 7 pounds of the milk. If the sow is an abundant milker and grows too thin, increase the proportion of grain. For young pigs, clear skim milk at first, adding grain gradually until it reaches the proportion of one part to three or four parts milk.

CHANNELS OF INHERITANCE.

A prominent, intelligent and successful breeder of dairy cattle maintains that a male calf inherits to a greater extent the qualities of its dam than of his sire, and that a female calf inherits the qualities of her sire more than of her dam. What does the DAIRYMAN say? A. M. C.

Ontario.

The DAIRYMAN says that its editors have observed many instances which seem to corroborate the "rule" above set forth, but on the other hand there are so many instances where this rule does not obtain that it is impossible to accept it as the final guide.

FEEDING DAIRY COWS IN GEORGIA.

I am now feeding my cows four pounds cotton seed hulls mixed with two lbs. cotton seed meal, two pounds pea meal, 2 pounds corn meal, 3 pounds bran, one day's ration, and fed to the cows in two parts, morning and night, with sorghum (early amber corn) and all the dry corn fodder, crab grass and pea vine hay they will eat. Is this ration right? J. W. D.

Cuthbert, Ga.

We do not see any way in which to improve upon the foregoing as an average. It it a pretty full ration—more than a cow much below her maximum yield can use to profit, but less than very many cows could utilize when at their best. When a cow commences to lay on superfluous fat, it is time to reduce her grain allowance, but as long as she uses her feed for making milk, one may be sure he is not overfeeding,—provided, always, that the ration contains sufficient protein to enable her to keep the milk making machinery properly supplied with the raw material out of which the milk is made. In this case the allowance of protein appears to be ample.

FLY REPELLENTS.

An Ontario reader wants to know the *best* remedy for the horn fly. An editor is in much the same position as a witness in a court of justice and needs to be quite as careful in giving expression to his opinions.

There are several excellent preparations for repelling flies of all kinds. Whatever will keep off other flies will also repel the horn fly. As will be seen in his communication in another column, "Buff Jersey" sets great store by the preparation called Shoo Fly, that has been advertised in the DAIRYMAN for several years. The editors have also used it with great satisfaction. Other preparations, ready for use, are on the market, and recipes for home-made mixtures have been published in recent issues.

WHAT SHOULD BE THE AVERAGE YIELDS.

Please advise me how many gallons of milk a herd of carefully selected Jerseys and grade Jerseys should average per cow the year round, cows to come fresh every twelve months; also give me the average of Durhams. T. G. S.

Norfolk, Va.

A herd of Jerseys and grades could not be called carefully selected if it contained any mature animals that would not yield with proper feed and care 600 gallons of milk every twelve months. This amount of milk, testing 5 per cent fat, would suffice for making 300 pounds of butter. Cows whose milk habitually tests below 5 per cent fat should be required to yield proportionally more milk, and those whose milk runs above 5 per cent might be tolerated if they did not quite reach the 600 gallons. A similar rule should apply to Durhams, (Short horns,) if kept for dairy purposes, subject, possibly to the slight deduction incident to the circumstance that the Durham calf is likely to weigh a few more pounds at birth than a Jersey or grade.

SIZE OF SILO FOR TWO ACRES OF FLINT CORN.

I have been a reader of your paper for five years, and it is a prize for me.

I would like to know, through your paper, how large a round silo I want twenty-two feet deep, to hold two acres of our flint corn, not cut or cut up, rows three feet apart, hills two feet apart. F. H. L.

Dinfield, Me.

A round silo ten feet in diameter and 22 feet deep will hold approximately 30 tons of silage, and this is probably more than one could expect, year after year, from two acres of common flint corn. We would not advise building less than ten feet in diameter and would prefer to have it twelve feet.

REMOVING DISEASE GERMS WITH THE SEPARATOR.—EFFECT OF PASTEURIZATION ON BUTTER.

Does separating remove all disease germs from cream?

What effect will pasteurizing the cream have on the butter? N. S.

Rockdale, Ill.

No. The separator will remove an immense number of bacteria from the milk and concentrate them in the separator slime, but there are enough left to cause the milk or cream to be dangerous if any disease germs are present.

Pasteurization gives a longer keeping, lighter flavored butter. The grain is also liable to be poorer in quality unless special precautions are taken as to cooling the cream before churning.

SILO QUESTIONS.

Will cement stay on a wall of earth, clay, sand, etc. I want to build a silo and dig in ground eight or ten feet and put a stave silo above. If I can do this, what size should I build and how many pieces of lumber and what size will be best for a silo for twenty milk cows, fifteen heifers and calves, seven horses, for at least six months in year. I would like to dig in ground eight or ten feet.

Where can I get iron lugs from, I mean for the hoops? J. B.

Greenville, N. C.

It will depend on the thickness of the coat of cement and the nature of the soil.

In some places in the South pit silos have been dug in a very stiff, tenacious clay soil and lined with a coating of cement. But this would not work in a sandy or gravelly soil unless the coating of cement was heavy enough to resist the thrust of the soil, and for this purpose a stone wall built with cement would probably be cheaper.

For details regarding building a stave silo, see page 267 of present volume and if further information is desired send to Cornell University, Ithaca, N. Y., for their bulletin on "Building a Stave Silo."

The number of head of stock you mention will require at least 100 tons of ensilage, requiring two silos 15×20. Two silos are better than one large one, as there is less loss from the surface of the silage molding during feeding.

Unless you have the right kind of soil for a pit, it will be cheaper to build above ground.

For silo fittings address Geo. D. Harder, Cobleskill, N. Y., and Williams Mfg. Co., Kalamazoo, Mich.

ALABAMA FEEDING PROBLEMS.

Will you kindly advise me when and how to plant rye and clover for winter pasture. How much of each of the above seed per acre, would you use? Where can I get the seed from, and what kind of clover would you use?

I am feeding wheat bran, at $18 per ton; corn meal, at $22 per ton; cotton seed meal, at $18 per ton; best timothy hay, at $12.50 per ton and cotton hulls, at $5.00 per ton. Kindly make a ration out of the above and oblige. I give the cows all of the green sorghum they will eat up clean, cut up fine, say one-half to one inch in length.

Mobile, Ala. P. R. T.

We are hardly competent to advise as to dates for sowing either rye or clover for winter pasture, as far south as Mobile. Under favorable conditions, rye will be fit for grazing in about four weeks from seeding. Clover will take much longer. In fact, we could hardly advise pasturing clover very much the first season. We would not think of pasturing at all for four months. Sow rye at the rate of two bushels per acre, and clover seed at about twenty pounds. We should use the common red clover, although not at all certain that crimson clover would not be better for the extreme south. It might not be amiss to correspond on this subject, with the Director of the Alabama Agricultural Experiment Station, which is located at Auburn, in that state. Any seed merchant can furnish the seed.

While the sorghum lasts, give in connection with it all the good hay and hulls the cows will eat, and from six to ten pounds of grain. With the smaller quantity, limit the cotton seed meal to two pounds, and in no case let it exceed three pounds. We should use but little corn meal, and none at all, except to such cows as were disposed to keep too thin in flesh.

It occasions us no little surprise, that in a section so well adapted to corn as the southern and gulf states, that corn products of all kinds should rule so high. More corn and less cotton would be a profitable change on many farms and plantations.

COST OF MAKING BUTTER.

Ought not butter fat to be worth the same price per pound as butter sells for? In other words, if I furnish milk and separator, and the butter maker runs the separator, makes and sells the butter, ought not the increase to pay him as well for labor, etc., as it does me to furnish the milk, etc? To make it more plain; I, with others, put up a skimming station and furnish it with the best separator and fixtures. The butter maker is at all expense in running it, making and selling the butter made from the butter fat of 3,000 to 5,000 pounds of milk. Ought not the patrons, in justice, to receive as much per pound for the butter fat, as the butter made from it sells for? Will not the one-fourth or one-fifth excess of butter, pay him well for making and selling the buttter fat, etc., etc.

Give us poor ignorant milk producers all the light you can, so that we may learn what is our share, and then we will demand it.

Kansas. A NEW SUBSCRIBER.

The patrons should be paid the market price for every pound of butter made, less the cost of manufacture. This should not be over three cents per pound, and usually less. All money should be divided on the amount of butter actually made, and according to the amount of butter fat furnished by each patron. There should not be an over run of more than one-sixth.

SEPARATOR SLIME.

Will you kindly inform me whether the cream or deposit left on the outside of the U. S. separator bowl, which does not go out after reasonable flushing, is cream and should be put in the cream pail, or should it be thrown out with the skimmed milk? The reason for the above question is that we are going to put in two separators, and do not want to make a mistake in purchasing.

Minn. A SUBSCRIBER.

The deposit left in the sides of a separator bowl consists of casein, together with a small quantity of fibrin and all of the insoluble dirt which the milk may contain. It also contains large quantities of bacteria, and taken all together consists of a mass of impurities. Of course it should never be returned to the cream or milk. There is no difference in separators in this respect.

SOJA BEAN.

Will you let me know through the columns of your valuable paper something in regard to the soja bean?

Where can I procure the seed, and how late can they be sown to get good results?

Also, tell something of the nature of the plant. A READER.

Meridian, Mich.

The Indiana Experiment Station gives the following information regarding the soy bean:

A comparatively new and promising leguminous crop for Indiana farmers is the soy bean. This plant has been succesfully grown in different parts of the state and at several points farther north in the United States. It thrives in good corn soils, and will grow wherever corn can be successfully produced.

Being a quick maturing annual, it will prove especially helpful to those who cannot grow clover. A crop of soy beans can be produced between the spring and autumn frosts anywhere in the state. The soy bean may be grown for pasture, green forage (soiling), for hay, silage or seed. It will yield nine to twelve tons of green fodder, 1½ to 2½ tons of hay, and 10 to 40 bushels of seed according to variety, condition of soil, etc.

Varieties.—If seed is desired, the earlier varieties, only, should be grown in northern Indiana. The medium early varieties will doubtless mature in most parts of the state, and are to be preferred owing to their greater yield. The later varieties might be grown for soil renewal or soiling, but they would hardly mature seed.

Culture.—The soil may be prepared as for corn. If impoverished by previous cropping the soil should be well supplied with lime, potash and phosphoric acid. Nitrogenous manures have also proved beneficial in New England. The seed may be sown broadcast, with the wheat drill, in rows 16 to 24 inches apart, or with the corn drill to be cultivated as corn. The earlier varieties of soy bean may follow a crop of rye or barley, or be sown in the standing corn at the time of the last cultivation, if the weather is seasonable. If sown in corn put in two rows of soy beans between each two rows of corn. Sow about two pecks to the acre in rows, like corn, and cultivate, if seed is desired. For pasture, soiling or hay, sow four or five pecks to the acre.

Food Value.—Soy bean hay compares favorably with clover hay in chemical composition. The seed is very rich in protein and can therefore be fed advantageously with corn. The seed should be ground before feeding. The seed is readily eaten. Stock, as a rule, do not relish the stems and leaves at first, but soon take kindly to this forage. Soy beans and sorghum supplement each other as soiling crops. Corn and soy beans, together, are said to make good silage.

Harvesting.—Begin cutting at the time of early bloom, for soiling. Cut for hay when in full bloom, and as soon as the pods have formed, for silage.

Cost of Seed.—Seedsmen offer soy bean seed at $2.50 to $5 per bushel. This makes the cost far too great to justify growing soy beans as a general crop. Farmers are advised to try soy beans in a small way as a special crop, and then grow their own seed, if the crop gives promise of being valuable.

ILLINOIS TUBERCULIN TESTS.

A recent test of sixty-five cows at the Elgin, Ill., Insane Asylum disclosed the fact that twenty of them gave evidence of being affected more or less with tuberculosis.

Smiley and Clarke, of Kankakee, Ill., out of a herd of fifty-seven cows found eight infected. Mr. Smiley believes that their cows were all infected by one cow brought from Iowa. According to the Illinois law, cattle when tested and condemned are appraised according to their value and allowances are made to their owners according to the length of time the animals have had the disease. In no case will more than $75 be allowed a head. Grade cattle are appraised at $40 a head, thoroughbred Jerseys at $60, Holsteins at $75, bulls from $50 to $75.

Owners of cattle which have been diseased a year or less are compensated at the rate of 75 per cent of the appraised value of their stock. An allowance of 50 per cent is made on the appraised value of stock that has had the disease two years. When the disease has existed longer than two years no compensation is allowed. Full compensation is made for condemned cattle which show no traces of tuberculosis after an autopsy.

THE TUBERCULOSIS SCARE NOT FAVORED IN ILLINOIS.

The Governor of Illinois and certain of the boards of health in that state are doing what they can to injure the dairy and beef farmers and even had the effrontery to request the managers of farm institutes to cooperate with them, by requesting permission to send lecturers of their own choosing to institutes to talk on the dangers of tuberculosis. This request was respectfully and most properly denied and for the reason stated in the preamble to the resolutions adopted, which reads as follows:

The facts of human experience absolutely and undeniably disprove the statement that tuberculosis is a dangerously contagious disease, and the probability of the transmission of the disease from animals to man is yet disputed by eminent scientists; and the present unwise and unwarranted crusade of some representatives of the medical and veterinary professions against our herds, on the grounds of alleged disease, is prejudicing the public against beef and milk, the most wholesome of human foods, and thus working untold damage to agricultural interests.

"IT'S SCIENCE RUN MAD!"

They are having a "San José scale" war over in Canada, and the *Rural New-Yorker*, commenting on the report of a correspondent from that region, says:

From the notes given on page 495 about the treatment of scale-infested trees in the province of Ontario, it would seem that there is about as much of a craze there over the destruction of such trees as there has been in this country over the destruction of alleged tuberculous cattle. It's science run mad. This wholesale destruction of private property is little short of an outrage. There are some fruit trees, probably some orchards, likewise some cattle, that should be destroyed for the benefit of the public. But this wanton destruction when treatment would likely prove effective, is all wrong. Science should devote its energies more strongly to the saving of life and property, and not its destruction.

We wish it were true that the craze for the destruction of alleged tuberculous cattle in this country could be referred to as a "has been". While we may not be able instantly to stay the hand of the destroyer, we advise readers of HOARD'S DAIRYMAN not to lose their heads. Wisconsin is very likely to be called upon to pay full price for a valuable herd of dairy cows that were "condemned" by a state veterinarian. Tuberculin is all right in its proper place and purpose, but it is science run mad to kill every animal that reacts to the tuberculin test.

MILK Inspector Richardson, of Grand Rapids, Michigan, in a recent interview, shows how a great deal of trouble with milk and cream can be traced out, if only a fair, intelligent attempt is made. He says:

A city milk dealer who had paid a good price for a good route, was getting his milk from a farmer out near Cascade. Recently the milk has not been right, and the man found he was losing trade. He complained to the farmer, but the farmer could not find out what was the matter, and wanted to know as much as the dealer did. Consumers also complained. So I went out to Cascade, examined the pasture, the barn, saw the cows milked and got samples. I did not get back until late in the evening, but I told the farmer I suspected the trouble came from the milk of two cows, and suggested that he leave the milk from those cows out of what he furnished the dealer, and he was glad to act on the suggestion, until the tests could be made. This morning, while I was out on another matter, my assistant tested the milk, and established the truth of my suspicions.

Persons who have had any experience, whatever, in managing a creamery or cheese factory, know how often cases like the above arise. The Wisconsin Curd Test, invented by Prof. Farrington, is a great help in ferreting out the exact location of the trouble.

SAMPLE REPORTS BY A WISCONSIN DAIRYMEN'S ASSOCIATION CHEESE INSTRUCTOR.

The Wisconsin Dairymen's Association has, for years, had two or more cheese instructors in the field during the cheese making season. They go from factory to factory as they receive calls, but, as far as possible, endeavor to take them in succession in a district, so as to avoid loss of time and expense in extra traveling.

The instructors send to the secretary of the association, weekly, a full report of each factory visited. The first visit this year was made by Mr. E. L. Aderhold, of Neenah, to the factory of Peter Fassbinder, at Bungert, Outagamie County, April 26th to 29th. He gave this factory a second visit July 3d, and we give below the reports submitted to the secretary:

REPORT OF INSTRUCTOR FOR EACH FACTORY VISITED.

	First Visit.	Second Visit.
Name of Factory	Fassbinder	same
Name of Proprietor	Peter Fassbinder	same
P. O. Address	Bungert	same
Maker's name	H. Fassbinder	same
Has he attended Dairy School?	No	same
Wages (or price per pound)	1⅛ cents	same
No. of patrons	22	33
Pounds milk daily	3280	6905
Pounds cheese	294	686
Style of cheese made	Flats	Flats
Does maker "Guarantee his make"?	No	Yes
Does he stand the loss, if any?	No	No
What brands are used?	None	None
Steam or self-heating vats used	Steam	Steam
Is a curd mill used?	Yes	Yes
Curd sink	Racks	Racks
Is the whey drawn sweet?	Yes	Yes
Is the Babcock Test used?	Yes	Yes
Average per cent fat in milk	3.6	3.7
How are payments made?	Fat basis	Fat basis
How was the milk in the cans?	Good	Good
Was it properly aerated?	Yes	Mostly
How was the curing room?	Poor	Good
Can the temperature be controlled?	No	Yes
Give the temperature at time of visit	69°	68°
Were there screens to keep flies out?	Some	Yes
How far is whey tank from factory?	20 feet	20 feet
Is the whey scalded to 150 degrees?	No	No
How often is the tank cleaned out?	Occasionally	Occasionally
Any patrons watering or skimming?	No	No
Did you call an evening meeting?	Yes	No
How many patrons were present?	19	
Will you visit the factory again?	Yes	Perhaps
Give distance from last factory visited		65 miles
Give date of your arrival	April 26	July 3
And date of your departure	April 29	July 3
How much money did you receive?	$5.00	

Under the head of "Remarks" the instructor reports on his first visit as follows:

"There is much room here for improvement and a willingness by the owner to do so. I have persuaded him to ventilate his curing room from the bottom of a dug well, 90 feet from the factory. Air will be forced into the well with a wind cowl connected with top, and will be conducted from the bottom of the well by large metal pipes into two 10-inch tile ducts laid ten feet below the surface, leading to the curing room."

After the second visit made, as will be remembered, July 3d, he "remarks":

"A sub-earth duct has been built here this year. The air first passes into and through a well, thence nine feet below surface, to the curing room, a distance of ninety feet. It is giving excellent satisfaction. On this day the air entered the curing room at a temperature of 53°."

These reports indicate a most desirable combination of intelligent, appreciative patrons, who came out to attend the evening meeting on the occasion of the first visit, and a proprietor of a factory willing to adopt and make needed improvements in his plant. It is not so stated, but we presume the patrons assisted in putting in the sub-earth duct, at least to the extent of furnishing most of the labor needed in making the excavation.

We shall expect excellent reports from this factory in the future.

In contrast with the above, we give the "remarks," appended by instructor Baer, to reports of factories visited by him the latter part of June:

"Factory was dirty; maker lazy or careless. Cheese were huffed badly, flavor running sweet, cooked dry with no acid to break them down, curdy and of very uninviting appearance."

2. "This factory was very dirty and the goods showing up badly. Cheese was very soft, full of Swiss-holes, and growing off-flavor every day. Maker was slack in every detail of his work."

The Old Methods and the New.

(SYLVESTER BURCHARD in *Holstein-Friesian Register*.)

I have sometimes asked myself the question: Are the new methods, in every respect very much better than the old? In these days of sharp competition and restless strife, we cannot count much on the much-talked-of independence and undisturbed peace of the farmer.

I know a farm that, since my first remembrance, has been occupied successively by a father and his son, and I have had an opportunity, through a long series of years, to observe the methods of both. They were both frugal and industrious, and worked up to the opportunities of their time; but as I look over their career I cannot see that in prosperity or happiness, the son has exceeded the father.

The farm was purchased in 1838, and a heavy debt was incurred. In the month of March of that year, fifty cows were placed on the farm, without any shelter except an old rickety shed and a couple of straw stacks; these cows were all brought safely through to grass, although the months of March and April was the calving time of the season. In June, a barn, 36×80 feet, was erected and placed upon a stone basement, which was fitted up for a stable for the cows the next winter, the first cow stable worthy of the name in the neighborhood, and was thought, by many, to be a bill of useless expense. The next winter the cows had a comfortable stable, which they occupied in the night time, but it was not considered wise in those times to give cattle too much comfort, because it would cause them to become tender. Therefore, the rule was always followed (no matter what was the weather) of turning the cows out at nine in the morning, and putting them up at four in the afternoon. The cows were dried up in the early winter, and during the winter months were supposed to be recuperating, and getting ready for heavy work another season. In the spring-time they were allowed the run of the whole farm, and at times the boys were kept busy looking through the woods after cows that hid away to drop their calves. The tenth of May (a rule that was always strictly adhered to), the cows were always shut off the meadows and confined to the pastures, where they grazed until after haying, when again they had the run of the whole grass land of the farm.

There was no rotation of crops. The grass lands were permanent pastures and meadows, and the grain fields were constantly under the plow.

The haying season commenced about the middle of July, when extra men were employed, the force consisting of about seven men and two or three boys. The mornings were chiefly occupied in cutting down the grass, and the afternoons in getting it in the barns, this work being adjusted according to the weather and condition of the hay. I think many a modern farmer would be surprised, if he could have seen those bountiful crops of hay.

The next year another spacious barn was put up for the accommodation of the young stock and the horses. Those barns were always filled with hay, and many times numerous stacks were scattered over the meadows. The sod of the meadows was very compact, and the grass was a mixture of blue grass, clover and timothy, and when it rolled over from the scythes of the mowers, it had very much the appearance of a fleece of wool just taken from the back of a sheep, it was so fine and thick. It was considered excellent cow hay, but not so well relished by horses. A few acres of roots were grown and fed to the cows at calving time. The manure was wheeled from the stable and placed in a pile in the farther end of the barn. The teams were put at work early in the spring, hauling it on to the fields, so that it was all out before the field work commenced. What was made after that was piled up and hauled on the fields in the fall. The meadow land and the plowed fields received their due proportion of the manure, but much of this product had been wasted while the cows stood out in the winter days.

The milk from these cows was manufactured into cheese, and the product sold at from five to seven cents per pound, the whole make being sold and paid for in the fall, at which time the yearly supplies were purchased. Labor, it is true, was cheap, but on account of the absence of farm machinery and effective implements, twice the number of hands were employed, who had to be boarded as well.

This man occupied this farm fifteen years, until his death. In that time he had cleared a mortgage of four thousand dollars, and when his estate was settled, it was found he had a snug little bank account besides. His children were well educated and well dressed, and he stood in the community where he lived, as the respectable and successful farmer.

At the death of the father the son came into possession of the farm by buying out the heirs, which also brought upon him quite a debt. Very soon the spirit of progress stirred the heart of the young man, and the old farm became subject to many changes. The fertile and compact sodded meadows, that had lain so long undisturbed, were desecrated by the plow. Fields of corn occupied to a certain extent the place of the rich and luxuriant grasses. A system of rotation of crops was established, and in a few years

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the original sod was all turned under. The barns were remodeled and out-buildings were erected. The cows were not allowed to graze upon the meadows, but were confined to the pastures, and a partial system of soiling was established. The stock had the best of care and never was allowed outside the stables in inclement weather. The boys missed the fun of hunting up the young calves, for they were all dropped in the stable. Absorbents were used in the stables, and every particle of the manure was saved; besides, a certain amount of fertilizers were purchased each year.

For a term of years the milk was carried to the cheese factory and the cheese was sold at very satisfactory prices. For about eight years the milk has been shipped to New York. The yield of milk per cow is a large increase over the olden time.

The new methods have been pretty thoroughly adopted by the son, and he is called an up-to-date farmer; but he will tell you to-day, if you will ask him, that the new methods have not given him more prosperity and happiness, nor a better standing in the community than the old methods gave the father. This object lesson does not prove that to get out of the old ruts always gives us a smoother road. I will not undertake to solve this problem because I could not if I would; but I hope some reader will see the efforts and results of these two lives in so clear a light that he will be willing to make it plain to us all.

Hamilton, New York.

HOARD'S DAIRYMAN will venture to express the opinion that the foregoing is in a large measure autobiographical, the writer of the article being the "son" referred to as succeeding to the business upon the decease of the original proprietor.

What is said about the "father" and his success as a dairyman farmer the editors of this paper can verify from personal knowledge, but they can hardly agree with the writer in his seeming disparagement of the new methods introduced by the son. It may be true, in a way, that they have not given him relatively more prosperity or happiness, or a better standing in the community than the old methods gave the father, but is it not equally true that if the old methods had been continued, the son would have fallen far below the standards reached by the father? Instead of being one of the leading citizens in the community where he has resided for more than sixty years as boy and man, the owner of the old homestead, out of debt, and with an income sufficient to meet every demand and surround himself and family with all modern comforts and conveniences, as well as follow the father's footsteps in the paths of benevolence and charity, he might have been, as so many others in that county have become, living in a restricted way, harrassed by debts, and obliged to forego much that he now considers essential to his happiness and independence.

It should not be forgotten that the father had a virgin soil, and that methods which then produced those fleece-like swaths, would give but beggarly returns now. The father was all right in his day both in his farming methods and in the scale of his expenditures for himself, his family and for public, charitable and benevolent purposes, but as times change it becomes us to change with them.

Cedar Hill Dairy Notes by Buff Jersey.

Flies—Feeding—Chickens.

ED. HOARD'S DAIRYMAN:—Thanks for answers for inquiry regarding power for our ensilage cutter. If every dairyman in our country knew the value of a wide circulating journal like the DAIRYMAN how much less complaint would be heard regarding dairy and herd management.

My query was answered at once by men who could speak from actual experience. Their answer enables us to go ahead and do the work that otherwise would have to be done experimentally and in the event of a mistake would cost us many times what our paper costs us annually.

Yesterday the milk agent of one of the leading rail-roads running into Chicago visited us. We called his attention to our herd's being free from flies, and to our daily milk record, showing herd gaining daily. He reported that on his road the milk shipments had shrunk fully 100 cans in 300, or ⅓, and that it was the case every year in fly time.

With us the comfort of milking quiet cows repays us for the expense and trouble of applying Shoo Fly.

How many of the DAIRYMAN readers have suitable instruments, etc., in milk stables. We have in our stable a box that at all times contains several lengths of milk tubes, an instrument for opening obstructed teats, a bottle of liniment for caked udder, a bottle of creolin, or other good antiseptic preparation, (we like creolin the best,) but in no corner or place do you find in our stable any lotion or preparation for milk fever. We never have a case of it. I often wonder at its prevalence, and why we cannot have our share of it. In past fifteen days of hot weather we had seven cows freshen, and not one of them missed a feed and all doing finely at the pail. I never saw but three cases of milk fever in my life, one in Wisconsin, one in Missouri, and one in Colorado.

Our 2-year-old heifer we reported last spring making fifteen pounds of butter in one week, has produced 2 pounds of butter daily since March 2nd, and is to-day yielding finely. Another 2-year-old weighing 470 pounds is giving daily 21 and 22 pounds of milk.

Pastures are good with us, but for all of that our best cows get daily 8 pounds of mill stuff, corn meal, brewers grains (dried) and cotton seed meal. It pays to feed cows every day of the year. We know this from years of actual experience; our daily milk records will prove it to any one.

Our two incubators are to-day turning out chickens of four breeds, namely: S. C. B. Leghorns, White Leghorns, White and Barred Plymouth Rocks. In filling them we had to buy eggs, hence the variety. Some came from Quincy, some from Gurlaw, and some from our own neighborhood. We have chickens now seven weeks old that pull our scales down to thirty-one ounces. We will cut down our number of hogs and feed our skim milk to poultry, it will pay better, we think. We are of the same opinion of our friend, Gurler, of DeKalb, that hogs are a nuisance around a creamery and herd.

"BUFF JERSEY".

Dilution Separator Sharks.

ED. HOARD'S DAIRYMAN:—I saw in your paper of June 30th, an account of a test of the "hydraulic separator" in Iowa. I see by that, all the smart men do not live in our Allegany County. There have been a number of these so-called separators sold in this county, and last week there was a man came, and took the deputy sheriff and went to these parties, and asked royaity for using them. Some of them paid, but did not get so much as a receipt for their money, but he had them sign a paper agreeing not to swear against him in any court. Others would not pay. Do not know what will be done next.

It seems strange that farmers will be so humbugged. There has been more than twenty thousand dollars taken out of two or three towns in Allegany County, and still they come. Farmers complain of hard times, and then buy trash of every shark that comes along. J. C.

Andover, N. Y.

This is by no means the first report which the DAIRYMAN has received, of farmers being victimized in the above manner.

It is the legitimate outcome of some of the methods which have been used in introducing the so-called "dilution separator." There is so little difference in the patents granted on these machines, that no dairyman who buys one is safe from a demand for royalty from competing manufacturers.

It is much easier to go to the farmer and demand five dollars for the use of an alleged infringement on a machine, than it is to bring an expensive suit against a strong competitor. The result is, that the farmer is fleeced on both sides, both in buying the machine, and after it is bought. It is time that this subject was ventilated in a thorough manner, and we should be obliged, if our correspondents would keep us informed of cases like that given in the above letter, where the farmers have been systematically defrauded of their money.

HOARD'S DAIRYMAN hopes that none of its readers have been victimized, for it has done what it could to protect them, by stating over and over again, first, that the process itself was no improvement on other methods of cream raising, and, second, that if anyone wanted to try it, any common, deep setting can or pail was just as good, as any of the high-priced, patented affairs.

More than this, although frequently solicited to accept advertisements for these so-called separators, this paper has persistently refused to give space, at any price, for that purpose. This means, of course, hundreds of dollars of direct loss to us, but we hope it has been made up many fold, to our readers.

A Good Wisconsin Herd Record.

ED. HOARD'S DAIRYMAN:—I will do as I promised some time ago, and tell what I received per cow, each year, counting calves and milk that I sold, not including what was used in the house, nor in any other way. I began selling milk May 1, 1895; year ending April 30.

In 1896, six cows averaged	$45.59
In 1896-97, eight cows averaged	44.42
In 1897-98, ten cows averaged	52.69
In 1898-99, thirteen cows averaged	66.52

In the year 1897-98, the ten cows gave 62,340 pounds of milk, or an average of 6,234 pounds, that is, I sold 62,340 pounds from the ten cows, and I fed ten calves; sold six of them, and raised four. Those six sold at an average of $6.68. They were the poorest calves I have had since I have been dairying, and I count the four I raised at the same price.

This last year I sold eleven calves and raised two. The eleven averaged $10.35. I also count those two at the same as the eleven averaged. It takes more whole milk to raise a calf than it does to veal one.

I feed those I raise whole milk, water and oil meal. I sold 96,121 pounds of milk which gives an average of 7,317 pounds.

Now about their age: One calved at eighteen months, two at two years, two at three years, one at four years, six from six years old to nine years, one at sixteen years.

Their feed was grass in the summer, 5½ months, and I fed them 6½ months. Their dry feed was marsh hay, corn stalks for roughage, bran, corn meal, corn and cob meal, a little oil meal, and a little gluten feed, seventy bushels ground oats. It costs $33 per cow, for board, for the year. I count only what was fed to them; don't count work or stable room, simply the food eaten.

Whole amount of milk taken from the thirteen cows, 103,121 pounds; total amount of money received, $851.81.

Now, I don't think it is all in the cows or in the breed; it is just as much in the care, and they want a good balanced ration. They want plenty of it and want it regular and also want to be milked regularly. There are men taking milk to the same factory that I do that say it don't pay to feed cows. I claim it don't pay them the way they feed. There are thirty-nine patrons at our factory, and I am the only one that has a thorough-bred bull at the head of the herd. I don't think I would have received what I did only for the help I received through the DAIRYMAN. Some people don't like it. You can judge why. A SUBSCRIBER.

Fond du Lac Co., Wisconsin.

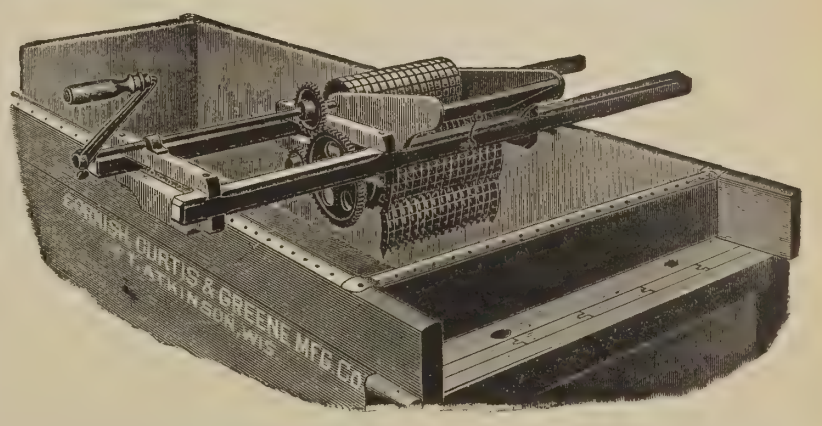
Millet for a Catch Crop.

Many of our readers, no doubt, are looking for some forage crop to sow the present month, and a few words on millet will be in order. For the purpose of forage it is still time to sow a crop of German millet, if the ground can be got in good condition We have had so little rain in Central Indiana that it is almost impossible to put the soil in fit shape for seeding. Millet wants good, mellow soil, with more loam than clay. The seeds are small and it must be well pulverized to make them germinate. With the soil well prepared and the seed properly put in, the plants grow very rapidly in the mid-summer months. A sprinkling of barnyard manure over the surface will help very much in giving it a good start. If the ground is reasonably mellow it may be put in with a disc harrow. The amount of seed varies with the quality of the soil. If rich and in good tilth, half a bushel to the acre is sufficient, but if the soil is thin and cloddy twice the amount will be none too much.

The hay should be cut before the seed begins to harden. Sown as late as this it may have to be cut when first in bloom, or even sooner, to escape frost. To those who have not tried it the yield of hay will be a surprise, in good soil As to the value of hay and the danger from its constant use, we quote from an article on the subject in the Year Book of the U. S. Agricultural Department for 1898: "Millet is fed principally as a hay and soiling crop. As will be seen from the chemical analysis, the forage ranks well with that of other grasses in the nutritive content, and its palatability is about that of the average for the coarser sorts. For digestibility, millet compares favorably with that from other coarse grasses. Already widely grown as a hay crop, millets deserve more general use for soiling. They are particularly valuable for feeding to dairy cattle, young stock and sheep.

"Millet at any stage of its growth acts as a laxative and diuretic. At times the action is more pronounced than at others; thus, hay cut while the plants are quite young seems to be most strongly laxative, while over-ripe hay is most strongly diuretic. However, if the hay is cut at the right stage of growth and properly cured, the action in either case will not be sufficient to lead to serious results if other hay or coarse forage is fed along with the millet. One feed of millet hay per day for work horses and one or two for other stock is sufficient, and when fed in this manner the millet acts as a stimulent and alterative, and tends to produce and maintain a healthy condition of the animals."—*Ex.*

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light-running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

BREAKING THE LAW.

From a circular advertising the merits of a new milk preservative, we find that milkmen, in the following towns, are using the preparation, and do not hesitate to allow the fact to be known. What are the officials in the various towns doing to prevent it? Following is the list:

Dayton, Ohio.
Dean, Ohio.
Defiance, Ohio.
Mummaville, Ohio.
National Military Home, Ohio.
Gibsonburg, Ohio.
Miamisburg, Ohio.
Trotwood, Ohio.
Elkhart, Indiana.
Selin's Grove, Pennsylvania.
Williamson, New York.
Peoria, Illinois.
Chittenango, New York.

The dealer in Trotwood, states that his milk has been tested four times while using ——, and was never detected. This speaks well for the analyst.

Butter-Milk From Skim Milk.—The Average Cow.

ED. HOARD'S DAIRYMAN:—Can you tell me how to make good, palatable buttermilk from skim milk? We can not sell our buttermilk, because it is too rancid to taste good, and, in fact, I never saw the buttermilk any other way when made from ripened cream.

I have been reading the DAIRYMAN for over two years, and I have never seen a profit figured for the creamery patron. The men that publish good profits from the dairy business, have not been creamery patrons. The average cow makes 200 pounds of butter in a year; figuring this at twenty cents gross, or seventeen cents net, is $34. The cost of feed is $30, and the other $4.00 pays the interest on the investment. Taking care of this cow is worth $15 more, while the skim milk is probably worth $8.00, if figured at twenty cents a hundred. Where is the profit? F. Z.

Kirksville, Mo.

Ripen the skim milk with the same care you would your cream, and churn when the skim milk has just loppered.

If you wait till the skim milk has taken on more acid, the casein will form tough lumps instead of a smooth, fine mixture in the churn. Any flavor of rancidity in buttermilk is a sign of improper ripening.

The profits of creamery patrons have been discussed many times in the DAIRYMAN, and our correspondent will find on page 451 of the present issue, an excellent account of a successful creamery patron.

It is true that the average cow gives but 200 pounds of butter per year. But may we ask why keep a cow that only gives that amount? The DAIRYMAN has constantly advocated the necessity of the average dairyman being more than average, and keeping more than average cows. The average cow is the curse of the dairyman; she costs just as much, if not more, for maintenance, as one of better quality. The butter she gives costs more to produce, takes more food, and her calf is of less value. Why then should the dairyman persist in breeding and keeping her?

The three hundred pound cow costs no more to breed and raise, than her two hundred pound sister. She will produce more butter, at a less cost, be of more value herself, and her calves will also be worth more.

A man cannot expect to succeed if his tools are old and poor. Keeping an average cow is like reaping grain with a sickle; in both cases the expenses eat up the profit.

A Lease of Fifty Cows for Six Years—The Owner to Receive Only the Increase and the Manure.

I have leased fifty graded cows for six years and have agreed to give to the owner all the increase in cattle and the manure for the use of cattle, corn, dairy room, one horse and wagon, separator and all necessary fixtures for running a dairy in a town of 12,000 inhabitants. I have agreed to let the increase stay in the herd, with the owner of the herd exchanging bull calves for heifer calves I can get good pasture for 50 cents per month per head, and sell all the milk for 20 cents per gallon and butter at 20 cents per pound.

Who has the best of the trade? I have also agreed to deposit on Saturday of each week, for six years, seven dollars as collateral security that I will carry out my part of contract.

I am to feed calves a sufficient amount of skim milk to keep them in good growing condition. What amount of skim milk would you say would be sufficient for calves, and how long would you say it would be necessary to feed them on skim milk? And what will be the best feed for calves after leaving off the milk?

I read your paper and find many things of interest to a new man in the dairy business.

Greenville, S. C. S. A.

We suspect that neither party to this lease realizes the astounding results of a geometrical ratio. If it is assumed that only one-half of these cows and the increase when the heifers come to two years of age produce living, healthy calves, the herd will number 350 animals at the end of the sixth year, and nearly or quite 190 of them will be giving milk.

This will be a pretty large business to handle, requiring very considerable capital and a small army of help. If it was not for its magnitude, the terms of the lease are favorable enough.

The calves should have new (whole) milk for the first ten days, 10 to 15 pounds, and be gradually weaned from that to skim milk, taking a period of at least 10 days to make the change complete. The skim milk should always be warm and by this we mean between 95° and 100°. The amount should range between 15 and 20 pounds for the first five weeks, and never exceed 25 pounds per day. Bran, whole oats, or barley, or a little ground flax seed, may be fed in connection with the skim milk, but never any cotton seed meal. As soon as the calves will nibble at hay, usually before they are four weeks old, they should have a little first quality hay, and fresh every day. Calves may be weaned from milk at six months of age and thereafter should have the best of forage and grain sufficient to keep them thriving, but not fat.

As to Durham (Short-horn) Cattle.

ED. HOARD'S DAIRYMAN:—I have been watching for something in the DAIRYMAN in regard to Durham cattle, but see nothing. Why is it? Are they not worthy of mention in your valuable paper?

I have a number of cows of no particular breed, which are giving me about one pound of butter per cow per day. I use a separator so I think I get it all; should I be satisfied?

Now, to be brief, I have plenty of rough pasture land, but it is four miles from where I live, and the land where I live is the finest farm land to be had, with every acre tillable, and I think I could raise some good breed of cattle and keep a small pasture here at home for milk cows, and pasture all young stock and dry cows off on the rough land which is good for pasture only, giving me most of my good land to raise feed for winter.

There are quite a number of Durham cattle around here (no Holsteins) and I have been wondering whether they were my cattle or whether Holsteins would be better.

Some people tell me that Durham cows give rich milk, but little of it. What do you think?

Again, others say that Holstein cows give great quantities of milk with very little fat in it. Is this true?

Others say that Jerseys give lots of butter, but the steers and old or poor cows are worth but little to turn off.

Now, you see, with 80 acres good farm land, and 100 of good pasture, (4 miles off) I can feed quite a number of cattle, winter and summer, and if you can give me any information, it would be gratefully received.

I am intending getting a good bull of my own after I have decided what I want.

Baraboo, Wis. A. D. H.

HOARD'S DAIRYMAN makes but little mention of Short-horn cattle, for the reason that it is distinctively a dairy paper, and that breed of cattle, as it exists today, is not a profitable breed for dairymen. There are in the aggregate, a large number of excellent cows among pure bred Short-horns and grades of that breed, but they really constitute but an insignificant minority as compared with those that are not good cows, and these cows have been bred so persistently in beef lines that there is but little probability of their progeny inheriting dairy ability. We have no purpose in this reply of re-opening the question as to the possibility of developing a breed or strain of dual-purpose cattle, by continuous selection and careful breeding. It suffices to say that such a breed or strain does not now exist, at least on this continent.

It should not be forgotten that it does not necessarily follow, because a cow produces a large quantity of milk or butter in twelve months, that she is a good cow. Economy of production, as was pointed out by Prof. Haecker last week, is equally as important as amount of production.

In the Ninety-day Butter Test at the World's Fair in 1893—twenty-five selected cows from each breed competing—the food cost (at the prices then charged for feed) of producing a pound of butter fat was 16.7 cents for the Jerseys, 17.3 cents for the Guernseys and 20.7 cents for the Short-horns, or in the proportion of 100, 103.6 and 123.9 respectively.

In view of all the facts, we do not hesitate to advise A. D. H. to confine himself to dairy bred cattle for his milking herd, and if he wishes to stock that rough pasture land with young steers for beef, buy some of the calves or yearlings from the neighbors who keep "Durhams" (Short-horns).

We cannot decide for him whether he shall choose Jerseys, Guernseys or Holsteins for his dairy. He can buy a good bull of either breed to cross on the cows he now has, and raise a herd of grades that will bring both profit and pleasure in dairying. The better the bull, the more valuable will be his progeny. See to it that his dam and grandams were cows of good breeding and good producers. And in the choice of a breed, follow personal inclination.

Some Danish Dairy Laws.

The *Smor Tidende*, of Denmark, takes up the matter of cleanliness in Danish dairies, and quotes the law on "Measures for the Prevention of Tuberculosis in Cattle," passed something over a year ago, the last provisions of which will go into effect June 1st next. Sections of the bill read as follows:

"Cows suffering form tuberculos is in the udder shall be killed under official control, either in the presence of the veterinary police, or in the public slaughter houses (the government compensating the loss to the owner.) * * * The dairies are prohibited to give off milk or buttermilk for cattle food, unless such milk has been heated to a temperature of at least 68° R. (185° F.)

"When cleaning a separator, the mud on its wall shall be burned. * * * importation of milk and buttermilk to this country is only admitted on condition that it is proved to the satisfaction of the minister of agricultural, that it has been heated to a temperature of at least 68° R." (185° F.)

"These enactments will have the effect of making the pasteurizing of all milk in Denmark compulsory, as otherwise the farmers cannot get back their skim milk from the dairies, to feed to their calves and pigs. In no other country has been done so much to prevent tuberculosis in cattle, or the spread of infectious disease in man, as in Denmark, and, as a consequence, the state of sanitary matters in Denmark is generally very satisfactory."

Instead of a general slaughter of cows that react to the tuberculin test, it would be better to look after the sanitary condition of drains and cow stables. Tuberculous cows are a result not a cause, and will continue to be produced as a consequence of unsanitary surroundings.

Killing the animal after it has taken the disease, will not prevent another generation of tuberculous cows, unless, at the same time, sanitary rules and regulations are made and enforced.

Denmark is following this road, and it will not be long before the results will be seen in the quality of her dairy goods, and health of her live stock. This country will probably move in the same direction, but not till the politicians, veterinarians and doctors have finished their present senseless slaughter of dairy stock and have devoted their energies to a systematic enforcement of sanitary rules and regulations.

Fall Grains

need a good start to stand the winter; therfore feed them well in the beginning. This will produce hardy plants with plump grain. A good fertilizer should contain plenty of

Potash

Potash increases stiffness of stalk and plumpness of grain.

Our books tell the rest—sent free.

GERMAN KALI WORKS,
93 Nassau Street, New York.

Success to the Man Who Reads and Thinks.

HOARD'S DAIRYMAN is not the only advocate of reading and thinking for dairy farmers, and that its advice in this respect is not founded upon selfish motives is sufficiently demonstrated by the following article from Prof. D. H. Otis, in the *Kansas Farmer*:

Among the questions asked of creamery patrons by the Kansas Experiment Station is, "What dairy or farm paper do you read?" Out of 77 patrons who answered this question we obtained the following record: *Kansas Farmer*, 5; *Orange Judd Farmer*, 5; *Live Stock Indicator*, 4; *Philadelphia Farm Journal*, 3; *American Agriculturist*, 2; HOARD'S DAIRYMAN, 1; *Farm and Home*, 1; *Farm and Fireside*, 1; *Agricultural Epitomist*, 1, and *Drover's Telegram*, 1. There were 53, or 69 per cent, of the patrons who reported that they read no dairy or farm paper.

In looking over the details of the above records it is interesting to note that the best records were made by those who kept posted and studied their business. The highest yield was made by a man who keeps special dairy cows and subscribes for a DAIRY paper. This patron realized $9 per cow per annum more than the next best patron who reads no paper, and $36 per cow more than the poorest patron.

Because a man subscribes for a farm paper is no guarantee that his cows will yield large quantities of milk, but it has a strong tendency in that direction. No doctor could expect to succeed without keeping himself posted along the line of his profession. It is true that experience is the best teacher, but the tuition is high, and no man can expect to accumulate even a small fraction of the world's experience through his own unaided efforts. If he is to keep himself posted he must learn by the experience of others, and how can he do this except he reads literature pertaining to his profession? Nowhere is intelligence needed more, and never can it be applied to better advantage, than in dairy farming. In collecting records from various parts of the state we find that where intelligence is applied to the dairy industry the cow is yielding from $60 to $80 in dairy products per annum. Contrast this with $20 to $30 without intelligence, and no one need ask if education pays. At the Kansas Experiment Station we find that intelligence applied to feeding will cause calves to gain from 12 to 23 pounds per week instead of 7 to 10 pounds. The man who never reads a farm paper will know nothing about these facts. He will still continue in the old rut, and say he doesn't believe in book farming; that education will not help the farmer; that

the men who write for papers know nothing about farming. Some day these men will wake up, feel of their pocketbooks and find that they are behind the times. Sixty-nine per cent of the dairy farmers without a farm paper! No. wonder so many Kansas cows produce under 125 pounds of butter per annum; no wonder there are so many complaints about sour milk and about poor calves raised on skim milk! This is an age when intelligence can be turned into cash; when, as Secretary Coburn says, "Muscle, to win, must be lubricated with brains."

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offerings of butter on the Board of Trade amounted to 29,460 pounds to-day. There was little activity in bidding, and but four lots sold, as but 17 cents was offered.

The following sales were made:

Factory.	*Pounds.*	*Price*
Winslow	1,560	17c.
Shannon	960	17c.
Baileyville	1,440	17c.
Cobb	1,800	17c.
Total	5,760	

Former markets:

July 18, '98, 7,620 lbs. at 16½ cts.
July 19, '97, 20,700 lbs. at 14½ cts.
July 20, '96, 40,620 lbs. at 14½@15 cts.

Elgin, Ill., July 17. H. C. B.

Regularity in Milking.

In the management of a dairy, regularity in milking is of the highest importance. The easiest way, says an exchange, to make cows uncertain, in their milk yield, is to milk anywhere from 5 to 8 o'clock in the morning, with a corresponding latitude in regard to evening milking time. Most dairymen understand this, and take measures to have the milking done at the same time each day. Unfortunately, however, in many herds, Sunday comes in as a disturbing element. It is a day of rest, and those who do the milking are less prompt and less regular in their work, than on week days. The result is, that it is often well toward the middle of the week, before the evil effects of Sunday's irregularities disappear, and then they reappear again in the early days of the following week. The effect produced is not only harmful during the days of actual disturbance, but it is believed to exert a bad influence on the work of the cow during the entire period of lactation, the evil becoming gradually and increasingly more prominent, and finally closing the milking period earlier than it would have closed, had the milking been regularly done every day in the week at the same hours. This is one of the points at which dairying is exacting. Things must be done, milking included, on time, and this is one reason why so many people think that dairying is a very troublesome occupation. In some respects, this is true, but one of the compensations for this is, that farmers are more prosperous in the dairying districts than others, wherein other branches of farm work are relied on. It is quite true that the dairy farmer has to get up very early to attend to the milking, and that he has to do it every day in the year, but on the other hand he is in less danger of having to lay awake at night worrying his brain in a struggle with the problem, where the money is going to come from to pay taxes and other necessary expenses.—*The Dairy Reporter.*

Increasing the Profits.

The Meriden Creamery company of Meriden, Kan., find that their patrons, who know how to feed, get from $40 to $55 income per year from each cow, while the patrons who do not know how to feed get from $18 to $25 per cow per year, and that the net profits received from each cow by their best patrons are 11 times those received per cow by their poorest, writes Mr. H. M. Cottrell. They also find that some of their patrons get no profit whatever from the skim milk, while others who know how to feed it get from 25 to 50 cents from each 100 pounds of skim milk fed. As there are 5,000 pounds of skim milk from each good cow yearly the way it is handled makes a great difference in the profits from dairying. The Meriden company believe that if their employees are thoroughly instructed in these lines of feeding they can help the farmers who sell milk to the creamery to largely increase the farmer's profits and at the same time increase the profits of the creamery. For this reason the stockholders of the Meriden company have decided to send all their employees to the Kansas Dairy School at Manhattan and require them while there to make a special study of feeding dairy cows and of feeding skim milk to calves and hogs.

The above contains the essence of what HOARD'S DAIRYMAN has been trying to inculcate for years. It certainly does pay a handsome profit to study and know all we can on this question of dairy feeding.

DAIRY MARKETS.

ELGIN, Ill., July 18—Five hundred tubs butter offered; 96 sold 17c. Quotation committee reported official market steady at 18c.

CHICAGO, Ill., July 17—Eggs fresh, at mark, cases returned, sold at 11c; loss off, cases returned, 12c.

Cheese—Full cream, twins, new, good to choice 8½@8¾c; young America, 8¾@9c; Swiss, 12@13½c; Limburger, 7@8c; Bricks, 7@8½c.

Butter—Creamery, extra, 17@17½c; firsts, creameries, 15½@16c; seconds. 14@ 5c; dairies, selections, 15@15½c; No. 1 14c; No. 2 13c; extra ladles, 12½@13c; packing stock, fresh, 12c.

Bran—In fair demand and prices firm at 11.85 @12 per ton.

Cattle—As the supply of cattle was not excessive to-day, prices were fairly steady for good cattle. Good to fancy steers brought 5.25@5.85; commoner grades 4.85@5.20; stockers and feeders 3.50@4 85; bulls, cows and heifers 2.00@5.10; Texas steers 3.50@5.25; calves, 4.50@6.75.

MILWAUKEE, Wis. July 17—Butter—Fancy prints per lb 17½c; extras per lb, 17½c; firsts per lb, 16½c; seconds per lb, 14@15c; Imitations per lb, 14@15c. Dairy—Selections per lb, 14@15c. Lines per lb, 12½@13; packing stock 11@11½c. Market unchanged; receipts 20,250 lbs; trade fair, chiefly for cheaper qualities.

Cheese—American full cream—New, choice to fancy 8½@9½c. Brick—New per lb, choice 7¾@8c. Limburger—New, choice per lb, 8@8½c. Swiss—Drum, choice, 12½@13c; new block, choice 10@10½c.

Eggs—Fresh per doz. 12c loss off cases returned

SHEBOYGAN, Wis., July 12.—Cheese—Was in good demand on the dairy board at this city to-day. The sales were 1,000 Young Americas at 8⅝c and 500 Twins at 8½c.

MANITOWOC, Wis., July 12.—Offerings of cheese at the dairy board to-day were: 800 boxes Daisies, 100 boxes Twins, 800 boxes Young Americas. All offerings sold at 8¼ cents.

SHEBOYGAN FALLS, Wis., July 12.—Sixteen factories offered 1,290 boxes of cheese on the Call board and all but two lots were sold as follows: 725 cases Young Americas at 8¾ cents; 145 at 8⅝ cents; 156 boxes Twins at 8⅝ cents, and 150 Daisies at 9⅛ cents.

APPLETON, Wis., July 15.—The offerings on the Outagamie County Dairy Board of Trade were Cheddars, 440; Twins, 1,068. The sales were 326 Cheddars at 8⅝c; 226 Twins at 8¾c; 500 Twins at 8⅝c.

BERLIN, Wis., July 15.—The offerings on the Dairy Board to-day were 341 Twins and 22 Cheddars. All sold at 8½c.

BRILLION, Wis., July 14.—Sales of cheese on the Brillion Dairy Board, 379 Young Americas, 8⅝c; 877 Twins. 8¾c; 992 Daisies, 8¾c.

AVOCA, Wis., July 17.—On the Lone Rock and Muscoda Dairy board to-day offerings were 1,375 colored twins, 230 white twins. Market firm and all sold at 8½ cents.

FOND DU LAC, Wis., July 17.—Offerings 678 twins, with active market at 8⅝ cents.

ST. LOUIS, Mo., July 17—Butter—Quiet; creamery, 14@18½c; dairy, 12@15c.

Eggs—Steady at 9½c.

PHILADELPHIA, Pa. July 17—Butter—Solid packed: Separator creamery, extra, 19c; creamery firsts, 18c; seconds, 16@17c; imitation creamery, extra, 16c; firsts, 15c; seconds, 13c. Ladle-packed: Extra, 14@14½c; firsts, 13½c; seconds, 13c. Print butter: Creamery, extra, 21c; firsts, 20c; seconds, 18@19c.

Eggs—Pennsylvania and near by, 13c; Western, 13@13½c; Southwestern, 13c; Southern, 10@11c.

BALTIMORE, Md. July 17—Butter—Market steady. Creamery, separator, extra, 20c; extra, first, 18@19c; creamery, first, 17@18c; creamer, imitation, extra, 15@16c; ladle, extra, 14@15c: Western store packed, 11½@12½c.

CINCINNATI, Ohio, July 17—Butter quiet. Eggs 9@9½. Cheese in good demand; good to prime Ohio flat 8@12.

NEW YORK, July 17—Butter—Receipts 15,578 pkgs; irregular; Western creamery 15@18½c; factory 12@14¼c. Cheese—Receipts 8,799 pkgs; firm; large white 8½c; small white 8½@8⅝c; large colored 8½c; small colored 8½@8¾c. Eggs—Receipts 11,820 pkgs; firm; Western 14½@15c.

BALTIMORE MARKET.

BALTIMORE, July 13.—Butter—Despite the summer heat, and the exodus of people so circumstanced that they can "ex" whenever they are driven or inclined, and the falling off in consumption of fine separator creamery consequent thereupon, the market has generally born a brisk appearance. The receipts of separators have been of liberal volume, and the grading very good, and whatever could not be sold went into the freezers with every promise of safe carriage and reappearance upon the market at some future time to supplement short current supplies. The gathered cream products, however, though in limited receipt, appeared to be unfavorably affected by the weather to a greater degree; and even among the regular and favorite marks, such summer defects as "acidity," and the indescribable flavors usually met with about the dog days, and known by the seasonable term "summery." have made their appearance to such an extent as somewhat to interfere with the course of trading and prices. "What is one man's food is another man's poison," the higher prices hindering sales of extra separators help up the quality of the gathered creams. There has been a further falling off in the receipts of imitation creamery and ladle packs of present makes, which materially curtails the business done with nearby cities and towns as they have been limiting their purchases of late to these varieties. Receipts for storepacked have been very light, with the demand active for all grades

Creamery separator, extras 19c; firsts 18c; seconds 17c; gathered cream, extras 18c; firsts 17c; seconds 16c; Ohio, extras 18c; firsts 17c; seconds 16c; Ohio Storepacked 12½@13c; firsts 12c; W. Va., extras 12½@13c; firsts 12c: Creamery blocks (2 lb.) extras 21c; firsts 20c; seconds 19c; prints (½ lb.), extra 21c; firsts 20c; seconds 19c; Md., Va., & Penna prints, extras 19c; firsts 18c; seconds 16 @17c.

Eggs—Have been in quite liberal supply of the kind. There is some accumulation of heated and other faulty stock. The only kind that is wanted are choice fresh eggs; this kind will always sell at a price. We urge you to be very careful what kind of eggs you ship, and how you pack and ship same. Market steady on all choice to fancy eggs at 11½@12c.

Cheese—The receipts of cheese are ample. Trade fair for season. Market steady, N. Y. State Cheddars fine 8¾@9c; choice 8¼c; fair 8@8¼c; Flats, fine 9@9¼; choice 8½@8¾c; fair 8¼c; Small, fine 9¼c, choice 9c; fair 8¼c; Ohio flats 8½@8¾c; choice 8@8¼c; fair 7¼@8c; Picnic, fine 9@9¼c; choice 8½@8¾c; fair 8¼@8½c; Swiss cheese fine 13½@14c; choice 12@13c; fair 11c.

NEW YORK MARKET.

NEW YORK, July 15—Butter—Receipts for the week, 56,635 packages. Exports for the week, 3,484 packages.

The market is demoralized and prices are decidedly lower to do any business. Receipts continue heavy and receivers have grown tired of putting butter into refrigerators at 1@2c pound more than its real value; the only good thing to report is the appearance of exporters in the market as buyers of good to fine makes. Creamery butter at 16@17c, and sale is reported of 500 tubs fine quality at 17¼@17½c. Finest trade is taking sparingly of extra creamery at 18¼@18½c, but there is so little of this kind of business that it is hardly quotable. At the close there are free offerings of all grades of butter and buyers are having their own way, and sales for export are at 16@17c for creamery and some purchases for eastern and speculative accounts at 17@17½c. We quote:

Creamery, extra, 18c; medium, 16½@17½c; poor, 15@16c. Dairy, extra, 17@17½c; medium, 16@16½c; poor, 14@15c. Ladle, 14@14½c; medium, 13½@13¾c; poor, 12½@13c.

Cheese—Receipts for the week, 38,783 boxes. Exports for the week, 13,841 boxes.

This market is just the opposite of butter. Every one seems to want cheese and there is not enough arriving to go around, prices are higher and firm. Sales of Western N. Y. cheese at Cattaraugus yesterday at 8⅜@8⅞c. We quote:

Full Cream, large, extra, 8½c; medium, 8@8¼c; poor, 6@7½c. Full Cream, small, extra, 8¾c; medium, 8@8½c; poor, 6½@7½c. Part Skimmed, extra, 7¾@8c; medium, 7@7½c; poor, 5@6c. Skimmed, poor, 4@5c.

Eggs—Receipts for the week, 55,866 cases. The demand is only for strictly fine fresh laid stock; other grades are abundant and prices nominal. We quote:

N. Y. & Pennsylvania, finest marks, per dozen, 15@15½c. Northern & Western, finest marks, per dozen, 14½@15c. Other grades, per dozen, 12@14c. DAVID W. LEWIS & Co.

177 Chambers St.

FOREIGN MARKET.

BOSTON, July 15—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as somewhat steadier with a slight advance in prices. Danish is selling at 21@22c, Irish 20@21c. Canadian arriving in increased quantities but its landing condition is so much better than Continental or Irish it is in great favor with buyers and is selling at 19@19½c. There is a little more inquiry for ladles and considerable business could be done at 14@14½c.

Cheese markets are all steady, the very heavy arrivals do not appear to be more than what current consumption can comfortably take care of, the reduced home make assists this. Finest American and Canadian is selling at 9¼@9¾c.

MANCHESTER MARKET, ENGLAND.

Our Copenhagen butter correspondent wires,—Since writing last we have had several showers of rain, and the pastures are now in a better condition. With the higher prices the butter market has calmed down a little, although it is still firm and strong. I don't expect prices to advance any more just now. Exporters are less anxious to pay the high premiums on first rate goods, and supplies seem more equal to demand than of late. The official quotation at Copenhagen has been advanced two kroner, being 13 shillings higher than the corresponding week of last year, but only 5-6 higher than 1897. For next week's North of England markets, 19,137 casks of Danish and Swedish have been shipped, being 1,091 casks less, and 1,543 Finnish or 129 casks less. During the past six weeks, the total supply of Scandinavian butter to Manchester shows a shrinkage of 5,290 casks, hence the higher rates ruling. The recent long spell of dry weather is being largely compensated now, by copious rains. Irish prices have advanced slightly, and remain firm, whilst Canadians and United States have felt the advance. The general impression is that prices have seen the top for some little time to come, and buyers are acting very cautiously and with no desire whatever to speculate. Buying will be purely hand to mouth for weeks to come. Arrivals of margarine via Hull 9,905 packages, via Grimsby 5,093. DOWDALL BROS.

WHY?

Nine out of every ten experienced separator users use "ALPHA" Disc machines only.

Can there be but one reason for it? Is there any room for doubt as to that reason? Most assuredly not.

Could there possibly be any stronger testimonial to the practical superiority of the "ALPHA" disc machines than is afforded by this fact?

If you lack experience in the purchase and use of up-to-date Cream Separators can you not safely follow the practice of nine out of ten of those who have acquired such experience, many of them at large cost to themselves?

A De Laval Catalogue—"Factory" or "Dairy"—will be found to throw a flood of light upon separator differences. It may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Creamery located in good dairy country. Three railroads and express companies. Market convenient. Address "CREAMERY," Lowellville, Ohio. 21-4

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

Wanted—To correspond with married man that can make brick cheese, that would like a job the year around to take charge of 50 cow dairy and manufacture product into cheese. ALLEN BARBER, Havelack, Neb.

Wanted—A factory size Mason power butterworker. Address B. B. BENNETT, Northville, Mich.

For Sale—4 Reg. Guernsey calves, 2 heifers, 1 bull. Tuberculin tested. C. H. REEVES, Salem, N. J. 23 2

Field Glass $10.00, originally cost $30.00. Nearly new, not a cheap affair; of best French make. Will send it for examination by addressing BOX 392, Cincinnati, Ohio.

Good buttermaker and creameryman wanted to take charge of a 20 cow dairy. $25.00 per month, room and board included. W. A. JOHNSON, Osceola, Ark.

Wanted—A 300 pound second-hand separator and a two-horse tread power, both in good repair. M. D. CUNNINGHAM, Kansasville, Racine Co., Wis.

For Sale—A good creamery in Southern Wisconsin, cheap. A good location for store and creamery combined. M. L. G., care Hoard's Dairyman.

LACTOBUTU is the latest. It is added to bad butter to sweeten it and make it pass for fresh creamery. It is warranted to make nice, elegant butter, no matter how bad it smells or nasty it looks, and is stated to be a decided poison. It requires much faith to eat butter where its source is unknown.

A Great Milk Record.

ED. HOARD'S DAIRYMAN:—The Jersey cow Between, 86664, whose cut we send you, has made for us, all things considered, the best milk record for a year of any cow we have ever owned. In one year her total was 12,133 pounds. She was in calf during this time, six and one-half months. This is an important point to bear in mind. If the cow had been kept empty the probability is that she could have been made to give over 16,000 pounds. We are not aware of any other Jersey cow that has piled up so big a total and that at the same time carried a calf for so great a portion of the year. Her best day was 64¾ pounds, the best seven days, 411½ pounds, the best thirty-one days, 1,753¼ pounds. She made a butter test for us by the churn of 18 pounds, 9¼ ozs. in seven days. The cow was six years and three months old at the beginning of the year's record. No cow on our place was ever fed any milk. In addition to good pasturage in summer and good clover hay in winter, our other feeds are ground oats, corn meal, bran and a little oil meal. In winter we feed, also, ensilage and sugar beets. Between's sire is Billy Russell 26384 and her dam Cocoa Butter 64983. Between is descended from Stoke Pogis 3d on three different lines. It is an interesting fact tonote in this connection that the milk records in the Jersey breed for all periods are held either by descendants of Stoke Pogis 3d or his full brother Stoke Pogis 5th. Jimp, a granddaughter of Stoke Pogis 5th, holds the recodr for a week with 471 lbs., 10 ozs.; Adelaide of St. Lambert, for a day with 82¾ pounds and for a month with 2005¼ pounds. Gertie of Glynllyn holds the record for a year with 16,780 pounds, 3 ounces. These two latter are descendantsof Stoke Pogis 3d. The two cows in the Jersey breed that have the next highest yearly milk records, viz., La Petite Mere 2nd and Matilda 4th, with 16,699½ pounds and 16,153¾ pounds respectively, are daughters of Stoke Pogis 1259 Imp., the sire of Stoke Pogis 3d and Stoke Pogis 5th. MILLER & SIBLEY.

Franklin, Pa.



JERSEY COW, BETWEEN, A. J. C. C. 86664.

Property of MILLER & SIBLEY, Franklin, Pa.

Mr. Wheaton's Canadian Dairy Notes.

Cheese Shipments from Canada—Local Markets—English Market—Failing of Summer Milk—Care of Milk.

ED. HOARD'S DAIRYMAN:—Shipments of cheese from Montreal continue to show a large increase over what they were a year ago, though they have been falling off a little of late. From the first of May to July 5th the total shipments from Montreal were 455,950 boxes as compared with 379,704 boxes for the same period last year, an increase of 76,246.

The total shipments from New York up to July 1st were 86,176 as against 93,761 boxes a year ago and from Portland 3,355 boxes as against none last year, making a total from Canada and the United States of 545,481 boxes for 1899 as against 473,465 boxes for the corresponding period of 1898, an increase of 71,916 boxes. Considering the condition of the English market this season this is not a very large increase and should not have any depressing effect upon values.

Last year, at this time, there were large quantities of old stock still unsold on the British market, and in fact some of this old stock was on hand in August. The conditions in this regard this year are quite different. All of 1898 goods were about cleared up at the beginning of this season's make, thus leaving the field clear for the new goods.

This is pretty well shown by the fact that though shipments of cheese have been larger this season, so far there is very little in store in Montreal. Last year at this time large quantities of June cheese were held at Montreal for a higher market which is not the case at the present time, all June goods sold so far, having gone foward to Great Britain.

This feature of the situation gives the market a somewhat healthy outlook. Though prices during the past week or two have dropped a little there are signs to-day (July 8) of a firmer feeling. A few weeks ago it was stated that present prices were being maintained because of short sales of June goods, but as a period of short sales is usually followed by a quick drop in prices, which has not taken place this time, all must conclude that the reason for the market keeping up so well at this season of the year must be found elsewhere.

Prices at the local markets this week have ruled from 8¼ to 8½ for the last half of June make. These, considering everything, are good values and should return the dairyman good profit if he has the right line of cows and cares for their prosperity.

The make this year, especially in the western part of the Province, is not likely to be as large as was expected earlier in the season. Quite a number of the factories report a smaller June make than last year. This is due, perhaps, to the steady increase in the creamery butter business, and also to the dry weather which prevailed in many sections during the latter part of June.

Farther east, conditions have been different, and as large, if not a larger make is the result at most factories. The increase in shipments shows that there must be more cheese being made than last year in same localities.

The shipments of creamery butter from Montreal show a much larger rate of expansion than those of cheese. From the beginning of the season to July 5, the total shipments were 64,870 packages as compared with 40,316 packages for the same period of 1898, an increase of 24,554 packages. But what is surprising is the large falling off in the shipments from New York. For this season so far, the total shipments have only been 11,422 packages, as against 33,056 in 1898, a falling off of 21,634 packages, and thus making the net increase in shipments, from this side, only 2,920 packages.

Prices for Canadian June creamery have been well maintained this season. It is not so very long ago since the best one could expect for our June creamery was 14 cents to 15 cents per pound. Prices during the week (July 8) have ruled at about 17½ to 18 cents for choice creamery, though at the end of the week there was an easier feeling, which brought lower values.

There has been a shortage in the English make this season, owing largely to dry weather, and, perhaps, as we have pointed out before, to the fact that many English dairy farmers are turning their attention more from cheese and butter making to supplying the large cities with milk. The amount of imports into the United Kingdom from France, Norway and Sweden, Russia and Finland have so far not been as large as last year. All this has had considerable effect in keeping up values.

But the shrinkage in the output of these countries, does not account for everything in connection with the improved prices for Canadian creamery. The quality of the goods must get credit for some of it. There are numerous signs to show that Canadian butter is becoming more appreciated every year by Great Britain. It is a good second at any rate to the Danish article, and in many cases sales of Canadian creamery have been made at prices equal to the best Danish.

Everything seems to point to a bright future for the Canadian butter trade, and if the growth of the past few years can be kept up awhile longer our dairymen will be realizing as large a revenue from butter as from cheese. What is required to do this is excellent quality, neat packages, and regular shipments. Our dairymen seem to realize this, and as each season goes by the quality continues to improve, and business is done more on a demand and supply basis.

During July and August many patrons of factories are apt to neglect their cows and the milk, owing to the busy haying and harvesting season. But this is a very unwise policy to pursue. The milk needs more care during these two months than at any other time of the year, and to neglect it is only to very much lessen profits by the inferior quality of the product that is sure to result from lack of care and attention.

This neglect is more common with the man who makes dairying a kind of side issue. With him haying and harvesting are the all important things, and the cows and the milk become very insignificant affairs in his estimation. The result is that the cows are not properly cared for; they are milked at irregular hours, and the milk is left largely to take care of itself. If anything goes wrong with it the maker is often blamed, and the patron often wonders why it is sent back to him.

Caring for the cows and her milk is just as important a part of the farm work as any other, even in harvest time, and under no consideration should her milk be neglected at this season of the year. At present prices, the cow and her milk are of more importance than the wheat or the hay crop, and the man who cares for his cows and the milk at all seasons as it should be cared for, is the one who makes dairying a success,

Toronto, Canada. J. W. WHEATON.

Stay By Your Speciality.

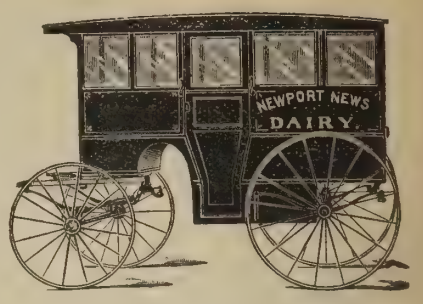
(Press Bulletin.)

A creamery patron, who milks cows when butter fat is high and beef low, but who turns his attention to beef when butter fat is low, sends in his dairy report for a year, and at the close remarks: "Profits scarcely visible to the naked eye. What shall we do to be saved?"

Breeding a herd of cows for milk one year, and beef the next is a suicidal policy that no enterprising breeder would dare practice. By this haphazard method, the above patron realized for butter fat $19.63 per cow, per annum. The Kansas Agricultural College scrub herd, pushed along dairy lines, brought an average of $37.75 per cow, per annum. This difference of $18.12 per cow, is what would have been visible to the naked eye, had his cows been handled as the college cows were handled. "What shall we do to be saved?" Settle upon some defini e line of work, study the business in all the details, find out what others are doing in the same lines, make your business a hobby, and above all, stick to it. D. H. OTIS.

Kansas Experiment Station.

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In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Dairy Work in the Maritime Provinces.

Kerosene for Flies.—Operations of the Prince Edward Island Cheese Board.—New Brunswick and Nova Scotia Dairying and Conditions Obtaining.—Governmental and Industrial Encouragement of Dairy Work in Nova Scotia.

ED. HOARD'S DAIRYMAN:—Crops of all kinds are making wonderful progress. Reports from all over the country, state that the loads of milk drawn to the factories these days are truly remarkable. Flies do not bother the cows as much as in some other years. We have tried kerosene to rid the cows of the fly with good suceess. It has the advantage too of being cheap, and ready at hand. We apply it with a small tin spray pump, which forces it on the animal in a fine mist. A gill of kerosene will answer for eight or ten cows two days. With a sprayer like the Little Aspinwall there is practically no waste.

We apply the spray in the evening when taken home for milking. The flies don't bother often and not very much till next evening. The only objection to kerosene is that it evaporates so quickly, and has, therefore, to be applied often. But with this small spraying pump at hand, it is but the matter of a few minutes to spray the backs and legs of the cows. I strongly urge your readers to use the kerosene treatment for getting rid of the flies.

The first meeting of the Prince Edward Island Cheese and Butter Board was held in Charlottetown on Tuesday. Representitives of a good many factories were present. Vice President Jenkins acted as salesman.

The members of the board are to be congratulated on the success of their first meeting, and all present were greatly interested in the proceedings. The several factories, that had cheese boarded, realized the following prices, except Cornwall and Morell, which did not accept the offer of 8⅛ cents; Hazelbrook, 180 boxes, sold at 8⅛ cents, Mr. Dillon buyer; Red House, 119 boxes, sold at 8⅛ cents, Mr. Dillon buyer; Lokeville, 215 boxes, sold at 8⅛ cents, Mr. Dillon buyer; Gowan Bros., 100 boxes, sold at 8⅛ cents, Mr. Dillon, buyer; Kensington, 110 boxes, July cheese, sold at 8⅛ cents, Mr. Dillon buyer; Winsloe, 125 boxes July cheese, sold at 8⅛ cents, Mr. Dillon, buyer; Hillsboro,

140 boxes, sold at 8 5-16, Mr. Harzard buyer; Mt. Steevart 130 boxes, sold at 8 5-16 cents, Mr. Harzard buyer; Cornwall, 214 boxes, part May cheese, not sold; Morell, 200 boxes, July cheese, not sold; Total amount cheese, 1,533 boxes. Lot 16, Dairy Co had 50 boxes butter, for which there was no offer.

The next meeting of the board took place on July 17th at 11 o'clock.

In New Brunswick, sixty cheese factories and twenty creameries are now in full blast. A good deal of the output is being sold to dealers in Halifax for local and domestic trade. Many of the creameries are sending forward their butter to West India market, and but a few are shipping directly to Britain. Job lots of cheeee were quoted in Halifax at the beginning of the week at 9c. Some Ontario butter is being placed on the Halifax market. The large industrial work in coal, mining and fishing in Nova Scotia easily consume much more than the dairies of the Province produce.

This home market for the product is an incentive to dairy work, and affords an advantage not appreciated as it should be. The government of the Province is doing a good deal to encourage agriculture and dairying —much more than either of the other Provinces, and a splendid exhibition, with prizes amounting to $17,000, takes place at the capital, Sept. 23-30th.

A syndicate of Boston and Montreal capitalists has lately formed a company with a capital stock of $20,000,000 to operate the iron and coal fields of Cape Breton. Already the order for the smelting apparatus has been let to parties in Pittsburg to cost $2,5000,000, and the gigantic works will be in operation next year. This will greatly augment the home market for the dairy products of the Maritime Provinces. J. A. M.

Care of Dairy Cows.

[Paper read at the Missouri State Dairy Association by G. B. Lamm, Sedalia, Mo.]

I have divided my subject into two parts, and will treat each part separately:

First Part—Care of dairy cows for their physical comfort.—The amateur in dairying often lavishes money on expensive barns, beautifully painted, and constructed with magnificent proportions; but I have found that comfort can be secured without grand architecture, and even without costly expenditures.

A cow wants a soft, warm bed in winter, clean and fresh, but she cares but little whether her bed be leaves, straw or saw dust. That is left exclusively to the resources of her owner. Her nervous disposition requires protection from extremes in heat and cold, but the covering may be corn fodder, boards or shingles.

Her great distended udder will not allow of abuses, or of long journeys at rapid motion, but of tender treatment when drawing the milk and taking her to and from the pasture.

She is taxed to her utmost in loading the milk with every element necessary for a perfect human food, and excitement disturbs and often retards the process of the perfect elaboration of the milk. During rumination and when secreting the milk the cow demands quiet and comfort.

Easy going management and tender and almost affectionate treatment from youth to age, are most conducive to the development of that domesticated nature of the cow which is so much in harmony with our country home life.

The great draughts of pure water which her wants demand, disturb less the equipoise of the wonder working processes of her stomach when tempered in winter to about 50°.

Her foods are relished best in the absence of the festive fly, but she loves the sunshine and shadow, and is not disturbed by the summer breezes and gentle showers.

In winter she seeks the southern exposure to bask in the sunshine for awhile as though there were healing and restoring properties in its rays for her intricate and heavily taxed nature. In this climate, luxury should always be allowed her, and the dairyman who appreciates the ability and vitality of this noble animal seeks in every way to protect her from inclement weather, muddy barn yards, and the cruelty of every enemy, and give her especially the luxuries, pure air, water and sunshine, which nature affords in abundance.

SECOND PART—Care of dairy cows for profitable results—While the kind hearted dairyman loves to see the marked features of docility, gentleness and beauty perfected in every individual cow, and while his heart rejoices to know that they are cared for tenderly by night and by day, yet he also studies the properties of foods, grains and grasses, so as to supply the cravings of their appetite with such food as may give him the largest possible returns.

He mixes the food for his cows with a master's hand, often deeming it necessary to sell the dairy food he raises on his farm to buy what he needs, in order to give her variety and a well balanced ration. This sometimes insures the largest returns for the least money expended, and he knows, or should know, when a cow has the proper food and a fair chance to do her best.

He harvests his crops at the time when they will do the cow the most good, and then feeds her with a liberal hand.

He avoids the ruinous effects of cows hooking each other by removing the bud of the horn from the calf. This practice has saved the life of many a valuable cow, and more valuable men, and has solved the question of economy of stable building and protection of the weak from the strong. He has his cows come fresh when dairy products will answer best the demands of his market, and saves the waste of over production.

He feeds and milks and salts his cows at regular intervals, because this brings the largest returns, as well as relieves the cow of anxiety. I have seen cows painfully restless because the milker was an hour late. The cow possesses her own devices to get even with negligence and cruelty, and rewards richly every kindness.

The good milker approaches his cow with a kind word and knows how to press the teat against the palm of his hand with the end of his fingers so as not to injure the cow or make her feel uncomfortable when yielding her milk.

While I would have the best possible environment for my cows, yet I would not feed too high, or give too fine or too rich foods, for my experience has been that it weakens vitality and impairs powers to transmit ability to her offspring. She needs from forty to eighty days' rest every year, and will take her rest as a man takes his—on a vacation and among good things to eat. To care for a dairy cow properly, or to tell others how to care for her properly, one must know her habits, her capacity, her surroundings, the climate she is kept in and what special breed she represents. All these may be known to the owner, and when once known, if she is a good cow, he can make of her a valuable acquisition. To know these things is to study a living subject of vast importance to every home, community or state. GEO. B. LAMM.

Sedalia, Mo.

Effect of Exercise on Cows.

The German farmer is compelled to practise all possible economies, and often works his cows in harness. Consequently, the effect of work on milk production is a vital question, and has been studied somewhat. The results of one experiment are reported in the *Milch Zeitung*. Two cows were used in the experiment.

There were eleven periods of two weeks each, alternating work and idleness. The work was a quiet walk in a sweep power, and the power exerted was calculated to correspond during the first period to half a horse power for one hour, the second to half a horse power for two hours, the third to one horse power one hour, and the last too one horse power for two hours. The result may be summarized as follows:

1. The milk yield was reduced to 1.4 pounds per day; the milk was condensed.

2. The percentage of fat was increased, on an average, 10.7 per cent above that in the milk from the cows when not working.

3. The percentage of solids not fat rose somewhat, but not in the same proportion as the fat.

4. The total quantity of fat produced was somewhat increased.

5. The total quantity of solids, not fat produced was reduced, milk sugar the most, and mineral matter the least.

6. Within tne above limits there was no difference in the effect of more or less work.

7. The effect of work showed only a very small reduction in the live weight of the cows.

8. The training of milch cows for moderate, and especially not too long, work may be considered an advantage.

Ths above suggests the query, whether we must not—at least on high priced land—commence the small economies, which enable European farmers to live, and if this gives a hint worth considering to those who have only ten or twenty acres, and to whom the saving of keep of a horse would be quite an item. For every four cows trained for work, the labor of one horse would be saved.

This experiment leads a correspondent of the *Country Gentleman* to query whether some of the alleged differences in milk, with different feeds, are not due to different exercise.

When the cows have been tied up for two huudred days, having no other exercise than chewing their cud, and getting up to eat or drink, are suddenly let out into fresh air, they bellow and kick up their heels like frisky calves, at the smell of the fresh pastures. If the quality of the milk is changed for a few days, who shall say whether it is exercise or feed? That the percentage of fat, when changed, is soon reduced to the normal, is easily explained by the cow's getting accustomed to the new conditions.—*Country Gentleman.*

Reasons for Patronizing the Creamery.

In the Mankato, Minn., *Review*, Mr. Wm. Lewis states the following reasons why, in his estimation, the farmer who has the opportunity should patronize the creamery:

First—You will improve your land by changing from grain to grass.

Second—You will have twelve pay-days every year.

Third—You will not have to ask for credit.

Fourth—You can pay cash for what you buy, save money and make friends.

Fifth—Your bank account will increase from four sources: first, butter fat; second, calves; third, hogs; and fourth, poultry.

Sixth—You will remove hard labor from your wife and daughters, such as carrying milk up and down stairs, in case you have a cellar; no churning or making poor butter.

Seventh—Your pigs would say thank you, if they only knew how.

Eighth—You will not have the blues when it rains for six weeks at a time.

Ninth—Your home surroundings will be pleasant and prosperous, and your neighbors will say: "Behold, what the creamery has done."



Did you ever notice the man in the switching-tower? Does it ever occur to you that the lives of every living person on a train frequently depend on the promptness and intelligence with which he moves the switch levers under his control?

If men could only realize how small a thing may act at the critical instant to switch them from a dangerous track on to one of perfect safety, the yearly deaths from lung diseases would be less by many thousands.

"I had a regular consumptive cough, of which I was afraid, and everybody cautioned and warned me concerning it," says Mr. A. F. Novotny, P. O. Box 1437, New York, in a significant letter to Dr. R. V. Pierce of Buffalo, N. Y. "When I started to take your medicine I was losing *weight rapidly;* I was very pale and had no appetite whatever. I used three bottles of Dr. Pierce's Golden Medical Discovery and now my condition is changed entirely. I do not cough at all; I have gained eight pounds in weight, have gained my healthy color; and my appetite is *enormous.* I can and will recommend your medicine to everybody who may be in need of it; as it is a sure cure, and no humbug as so many other patent medicines are. It is by far the superior of all."

One chapter of Dr. Pierce's great thousand-page illustrated book, The People's Common Sense Medical Adviser tells of nearly one hundred men and women thus promptly switched from the track of death by this matchless remedy. This book is sent free for the bare cost of mailing, 21 one-cent stamps or cloth-bound for 31 stamps. But only one copy to one family.

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on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.
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Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.
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Any Separator is better than the old way of making butter. But why not have the very best? They cost no more than the other kind.

The Empire Cream Separators

excel all others for close skimming and ease of running.

We guarantee them to fulfill every claim we make and give perfect satisfaction to every purchaser or your money back. Send for catalogue of the largest line of hand Separators in America.

Agents wanted.

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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

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Pounder's **GREAT** Bog Shoe proves a Success on marsh or soft land. Write for my **free catalogue.**
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BE HUMANE,

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The only reliable Lotion positively preventing Flies, Gnats and Insects of every description from annoying Horses and Cattle. Soothing and Healing if applied to sores. Applied to cows it secures gains in Flesh and Milk. Guaranteed Pure, Harmless and Effective. Gallon Can, $1.50; ½ Gallon $1 00; Quarts, 50c. Beware of imitations. Sold by Druggists, Saddlery, Agricultural Implement, Flour and Feed and Seed Houses, or The Crescent Chemical Co., Philadelphia, Pa.

A Source of Waste.

The liquid manure is particularly valuable. It contains nearly all the potash, and a large part of the nitrogen that is found in the entire excrement from the animal. The phosphoric acid, some nitrogen and a little potash is in the solid. A ton of fresh urine from cattle is worth about twice as much as a ton of fresh, solid manure. A ton of urine from horses is worth more than three times as much as a ton of the solid excrement. There is no question whatever, about the truth of these figures on the average, and yet the bulk of the urine goes to waste. Some 13 years ago, after trials and experiments and observation, I made up my mind that the best way to save the liquid manure in the stable, where bedding material was plenty, was to have a cement floor and a gutter of the same, if cows were kept, and use absorbents to take up the liquid, and let both solid and liquid go out together. We have a great abundance of wheat straw for absorbent and bedding. A floor was put under our horses. We kept but one cow, so nothing was done to the cow stable. The plan was advocated at the institutes and in the papers. I am safe in saying that hundreds of such floors have been built by our best farmers, as a result. I personally know of some that have been in constant use 12 or 13 years, and are giving entire satisfaction. At first it was thought necessary to make a foundation of stones and fill among them with thin grouting, and stones were used for the sides of gutters. After a little we learned better.

The first floor we built in our horse stable cost three times what there was any need of. We used Portland cement. Several years ago we put in the cow stable floor, and also floors in more horse stalls. They are absolutely perfect. We have visitors from nearly every part of the country, who would report if this were not true. The idea with me was: "Save the manure we must; now, how is the best way." Throw aside prejudice, friends, and believe me, for I have no possible motive only to help you. We have used common cement, as have hundreds of others, with entire success. Portland cement will make a grand floor. It is the best cement made. But common cement is good enough, is cheap, and easily laid by anyone. It is not true that it will not stand, in a stable that is kept from freezing, as all stables should be.

The cement floor and manure shed are undoubtedly all right after one gets them in working order, if one can stand the labor of caring for the manure in this way. As any one can see, there must be a large amount of absorbents used in this case in order to effectually save the liquid, and it seems to us that the same amount, if not considerably less, will accomplish the object more fully and satisfactorily, with a cellar, and at a good deal less expense. The objection raised to the barn cellar will be entirely overcome when a suitable amount of absorbents are used, and the less expense of building and the comparative ease with which the manure can be cared for, make, as we look at it, a strong argument in favor of the cellar, or basement for manure.

When we talk about building cement floors in our barns, and manure sheds separate and apart from them for manure it means an expense that the ordinary farmer will shrink from incurring, however much he may believe in the method. It means also an amount of labor to be performed every day in the year in the way of getting the manure from the stable to the shed—as it must be done with a wheelbarrow or something of the kind—which most any farmer will seek to avoid, unless he is quite sure of a corresponding pecuniary gain.

What is said in regard to the value of the liquid manure and its waste on the majority of our farms is true, and the necessity of adopting some means by which it may be saved should be urged in the strongest terms, but the cheapest and most practical way of accomplishing the same should be adopted by individual farmers.—T. B. TERRY, in *Practical Farmer*.

Producing a Dairy Cow.

Breeding, fitting and training horses for the speed track requires knowledge, judgment, skill and patience. The young animal must be the get of an ancestry whose distinguishing traits are intelligence, action and endurance. He must be bred for speed. Good judgment and skill, gained from experience, must determine whether the young thing gives promise of possessing the qualities essential in an animal bred for speed. Judgment, skill and patience are required in feeding, fitting and training the young thing for a winning performance in the speed contests. This feeding, fitting and training begins at a very early stage of the colt's existence, and is patiently persisted in until the limit of development is reached. The production of a profitable dairy cow begins with the breeding, fitting and training of the calf. The ancestry must be the best we can get for the purpose and the calf must be fed and cared for with that end constantly in view. The food provided must be of the kind and quantity which will most completely develop a milk-giving animal, and not a flesh and fat-producing animal. Nature has furnished this food in the mother's milk and in grass but as we must rob the milk of its fat we must replace this element with something equally good and much cheaper. One cent's worth of corn and flaxseed meal is worth as much to the calf, in combination with sweet skim milk and grass as one pound of butter fat in the whole milk. The value of oats, fed in connection with skim milk and choice hay for a dairy calf food, should not be underestimated. Vigorous growth, exercise and development is what we must get if we are to have a cow capable of large performance. The oats and hay are bulky and increase the capacity of the stomach and digestive organs, and their exercise develops the capacity of the animal for properly taking and using large quantities of bulky milk-making food. Good sweet hay, preferably early cut, well cured clover, should be supplied from the time the calf is three or four weeks old. A clean, well bedded, well ventilated, sunlit stable is the place for calves in winter and the same with screened windows for summer. Milk cows and calves should be kept in screened stables during the heat of the day in summer. There is no profit for the owner or comfort for the cows and calves in fighting flies in the hot sun. Developing the milk-giving habit, which comes with the office of maternity, is an important feature in the fitting and training of a good cow. Maternity should come neither too early or too late. Growth and physical vigor are often sacrificed in forcing the office of maternity upon the young things. Much depends upon the development of the animal, but it may be safely said that no heifer should drop her first calf before she is two years old, and not later than when thirty months of age. The handling of the calves and heifers is also an important feature of this development and training. They should be trained to the cow habit of dependence upon and regard for their master from infancy to maturity. The heifer or cow that does not repay her owner for gentleness, kindness and intelligent care, has not sense or capacity enough for a dairy cow, and the man who withholds these from the good cow has neither sense nor capacity enough for a good dairyman.—*Dairy and Creamery*.

New Process for Preserving Milk.

A process now being introduced in London for the preservation of milk, depends on the use of oxygen and carbonic acid gas. The milk, preferably, of course, as soon as it comes from the cow, is put into self closing bottles, such as are used for aerated waters, and subjected for a fraction of a minute in a special machine to the action of a mixture of the above-named gases at a pressure of several atmospheres. In the first instance the bottles are completely filled, but on being removed from the machine they are left with a small space containing gas, whose pressure serves to retain the stoppers in place. This treatment appears to have the effect of making the milk keep fresh for a considerable time, some samples being quite sweet when examined 50 or 60 days after being bottled.

Moreover, the contents of the bottles, after they have been opened, seem to remain sweet for a longer time than ordinary untreated milk; thus, in one experiment in which portions of the new milk and the preserved milk were placed side by side, the former went sour in three days, while the latter lasted nine. The milk, (according to the "Cable") does not undergo any visible change. It does not effervesce, and no alteration is apparent in its flavor though whether any more subtle changes are produced in its character or composition under the influence of the oxygen is a point that does not seem as yet to have been definitely determined.

Does It Pay to Feed Grain to Dairy Cows In Summer?

A correspondent of the *Practical Farmer* says that by weighing and testing his milk, and keeping exact accounts with 15 cows, and the milk sold from them, he has learned of one mistake he made last year. Until last spring he had always given his cows grain when on grass, but as many writers and farmers claimed that such food was not necessary, he thought to make a saving by omitting the grain feed. Now his accounts, with the same cows for the two years, shows that at the price he is selling milk, 10 cents a gallon, he lost from $6 to $8 per head through the summer, and reckoning the extra value of manure from grain-fed cows, and the extra grain it will take to put the cows back where they were a year ago, his loss will be more than $150 for the season by trying to save grain feeding. The grass was good through the season, and he did not begin feeding until December.

He instances one Holstein cow, fresh in November, 1896, which he bought Feb. 10, 1897. She was then thin in flesh, but he gave her good care, and in June, 1897, with grass and grain feed she gave 1,091½ pounds of milk. She was dry from Jan. 1 to Feb. 21, 1898, but in March, April and May, while he gave grain, she averaged 1,200 pounds a month, and she should have done better in June, 1898, than the June previous if she had received the same grain feed, but she only gave 886½ pounds without the grain, 205 pounds or 24 gallons less than the year before. This would have been worth $2.40, and the grain could have been bought for $1.40 or less for the month.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio.

Hood Farm Jerseys Show Bull Calf for Fairs, 1899. Just the right age, large, grand individual. Solid color and bred right. Dropped Nov. 2, 1898. Sire, Brown Bessie's Son, sire of 7 tested daughters and 2 producing sons. Dam, Virginia's Oonan, 15 lbs. 3 oz. at 2 years old, full sister of Pearl's Oonan 2d, 16 lbs. 10 oz., by Landseer's Pogis, sire of 33 in the list. Write for price. HOOD FARM, Lowell, Mass.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." **FILSTON FARM, Glencoe, Md.**

St. Lambert Jerseys, all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.
For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. **J. E. TYRRELL, Marysville, O.**

ONE YEARLING BULL
Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. **W. R. THOMAS, Bellmore, Ind.**

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall. **JOS. T. HOOPES, Bynum, Md.**

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

...FOR SALE...
Pedro Blood!
A GRANDSON OF PEDRO 3187,
carrying 43¾ per cent of his blood. A handsome, thrifty fellow, 10 months old. **Solid grey** in color. Dam made over 400 lbs. butter with second calf. Will send pedigree and photos of sire and dam. **R. C. GREEN, Albion, Wis.**

WILL SELL FOR $100
A GRAND-DAUGHTER OF PEDRO 3187, carrying also, Eurotas blood close through dam, besides plenty other butter blood. Five months old, solid color, extra udder; crated, f. o. b. **W. F. McSPARRAN, Furniss, Pa.**

JERSEY AND HOLSTEIN BULLS
Five good, young bulls of the above breeds for sale at reasonable prices. Also a few good Jersey cows and heifers. Good individuals, superior breeding and heavy milking ancestry. Address
Farm Department, Iowa Agr'l College, AMES, IOWA.

J. D. THOMPSON, Superintendent. FRED P. STORY, Herdsman.
HICKORY HERD,
JOLIET, ILL.,
H. N. HIGINBOTHAM, Prop.,
. . BREEDERS OF . .
Fancy Jersey Cattle.
Service Bull,
PEDRO'S HANDSOME PRINCE, NO. 42794.
The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

High-Class JERSEYS
The blood of Combination. (Sire of **25** in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted. **H. C. TAYLOR, Orfordville, Wis.**

We Have Sold
SEVERAL OF The A. J. C. C. COWS advertised March 17th (see page 92), in fact we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think **genuine bargains.** We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

For Sale . . .
BULL CALF,
Grand-son of the great **Exile of St. Lambert 13657,** sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz. in seven days. He will be sold cheap.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. **224** Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

Preserving Butter in Brine.

About the most convenient way of preserving a small quantity of butter for future family use is to wrap each lump of butter by itself in a clean and moistened piece of thin muslin, and then pack in stone jars. Tubs will do if perfectly sweet and not leaky. Keep the butter covered with a clear brine made by bringing to boiling point and holding for some minutes a solution of salt in water. It should be made of good butter salt, free from odor, and pure water, and the solution should be saturated, *i. e.*, there should be as much salt added as will dissolve. After boiling slightly for eight or ten minutes, set in a cool place, and when thoroughly cooled, the brine may be poured over the butter.

Be sure to keep the butter well under the brine by means of a slight weight placed on top of it. If the butter is allowed to float, it will come in contact with air and be injured. The boiling removes the air from the brine and destroys the ferments which may be present in the salt or water. Keep the jars covered, and on the bottom of the cellar or other cool place. If tubs are used put them on a board or a stone to prevent the hoops rotting off. It ought to be understood that butter for long keeping must have the buttermilk very thoroughly removed at the time it is made. Treated in the manner indicated, there should be no difficulty in preserving the summer butter surplus for the following winter and spring consumption.—*Farmers' Advocate.*

How An Attack of Epizootic Abortion was Dealt With.

The story I wish to tell is of somewhat ancient date, but the lesson it teaches is as fresh and perhaps as much needed as ever, as this fell plague of abortion is still the bane of many a dairy farmer. If the following simple tale of how it was conquered in my own herd is of any use to my fellow dairymen, its object will have been amply attained. I have no new discovery to herald, simply to tell how remedies, which are at the service of everyone, were successfully applied. The beginning of the mischief dates back to 1890, and its cause or causes are somewhat obscure, but so far as I could make out it began with the purchase of a certain cow, which I now suspect had cast her calf. Up to the time of her purchase, and for some weeks after, everything was going on satisfactorily, but soon after this cow was served we found that the bull was not stopping his cows and gradually it became evident that something was seriously wrong. It was not so much that cows were casting calf as that they were breaking, and coming in season at very irregular intervals, 4, 5, 7, 8 and more weeks. Another bull was obtained, and still the mischief went on, to such an extent that out of fifty-two services during the first six months of 1891, only eight were effective. At this time I was using three bulls. One was kept for the doubtful breeders, one solely for cows that were supposed to be more regular, and one—a young bull—for heifers on and off farm, and these latter were holding quite as badly as the cows.

This went on somewhere about two years until the question of throwing up the business became a pressing one. Cows were being bought in at prices varying from $100 to $125, newly calved and failing to breed; had to be sold off fat at a reduction of $40 to $50, the net average results being that three fat cows brought in two newly calved ones.

During all this time only a small proportion of cows cast a *fœtus* of any size, the usual symptoms—when anything was seen—being perhaps two or three months after service, when a slight brownish colored slime was noticed coming from the vagina, and then a week or two after that the cow would be in season.

Occasionally a small *fœtus* not larger than a rat was seen, five or six weeks after service; a few cows carried their calves six or seven months, but the most frequent sign was the brown slime. About then I saw an article in the "*Journal*" of the R. A. S. E. giving the description of M. Nocard's treatment, and at once decided to try it. The recommendation was to wash the cows every day about the tail, vagina, and hips with a solution of corrosive sublimate and hydrochloric acid, and the hope of a cure in less than two years was held out. This was a rather deferred hope, but was better than nothing, and so the treatment was begun. Every morning this process was gone through, an old washbasin and whiting brush being the means of application. After some weeks of this work and before any improvement was noticeable I fortunately met a well-known veterinarian, and the subject of abortion was broached. He listened to my story with great interest and then said: "That is all very well as far as it goes; but you must inject." Against doing this I quoted the article in question, but he brushed this aside by saying, "You need have no fear of ill consequences, as I have tried it fully," adding, "If you will go with me to the chemist's I will get you the stuff now." As he was a man at the very top of his profession I did not hesitate, but went at once, when I was supplied with half-a-crown's worth of antiseptic discs. These were tried, first on three heifers that had been running for months, which, after two injections were served; two of them holding to the first service, whilst the third did not breed at all. Seeing the very slight pain the injections gave to the heifers, I at once injected every cow on the place that was not in calf, and being by this time firmly convinced that the bull was often the carrier of the infection, also syringed his sheath out with the same solution. The result was that at once and without any further trouble, regular breeding was resumed; of course, some still cast calf and were hard to treat before service, but with hardly an exception every cow treated held to the first service and carried her calf to its full period. One very suggestive experiment was tried. One of the bulls had become absolutely useless and was being fattened off, when it occurred to me to try the effect of thoroughly washing out his sheath. On looking over his record I saw he had served sixteen cows in four months, *and not one was holding.* Two of these cows were selected and thoroughly disinfected by injection, the bull also being treated.

At the first service both of these cows held, carried their calves full time, and bred regularly afterwards. Since then I have had occasional hints of attacks; but whenever I find a cow coming at irregular intervals I always inject her and wash the bull before allowing him to serve. Of course, along with this treatment thorough cleanliness and disinfection of the byres was practiced, but the internal application is the key to the situation. So long as a cow comes at regular intervals of three weeks or a little under I would not hesitate to serve her, changing the bull it may be if she comes frequently; if, however, she exceeds that time by even a week, I believe there has been an abortion and would not serve her without treatment. I have once or twice injected in-calf cows without ill effects, but consider there is no advantage in doing so, and a certain amount of risk, although perhaps not a great one.—*Journal of the British Dairy Farmers' Association.*

Broom Corn Millet.

In the U. S. the term "Broom-corn millet" is at the present time generally applied to this Old-World grass (*Panicum milliaceum.*) It is the "common millet" of Europe, where it has been cultivated for centuries. A "millet," regarded by most authorities as this species, is mentioned by nearly all the early writers on cultivated plants, such, for example, as Theophrastus, Hippocrates, and others, and seems to have been extensively used as a grain in remote times. According to Heer it was much used by Swiss lake dwellers of the stone age, and DeCandolle, on the authority of Regazzoni, says it has also been found in the remains of the lake dwellings of the Varese in Italy.

The nativity of this millet is very uncertain. Although it grows spontaneously throughout southern Europe and many parts of Asia and Africa, there are apparently no really authentic cases of its having been found in a wild state. All the early records speak of it as being cultivated. Some writers, notably Linnæus, regard India as the original home of this millet; but DeCandolle does not consider the records as at all conclusive, and thinks that "its Egypto-Arabian origin is very probable."

Church, in his "Food Grains of India," says: "it was early introduced and is largely cultivated in many parts of India."

It is also extensively grown in China and Japan as well as throughout southern Europe and elsewhere in the Mediterranean regions and north to central Europe. Although introduced into the United States many years ago, it has never been extensively grown over any large extent of territory, and at the present time is much less generally grown than the foxtail millets. It has not met with favor in the South, but in the Northwest is valued highly because of its ability to mature a crop of seed in the short dry season so often prevailing in that region, thus serving to some extent as a substitute for corn.

VARIETIES.

The different cultivated varieties of Broom-corn millet vary more or less in habit of growth and character of the panicle or "head," but the chief distinction lies in the color assumed by the mature seed. Three rather distinct types may be recognized, white, yellow and red. These may intergrade more or less. The red sometimes becomes a very dark brown or almost black, and the "*millet noir ou gris*" (black or gray millet) sold by Vilmorin, of Paris, France, gets its dark gray appearance through the seed being marked with dark stripes on a lighter ground color.

The general color of the growing plant varies considerably in the different varieties. Plants from the yellow seeded varieties are usually light green in color, while those from the red seeded sorts are more often tinged with red, usually in proportion as the seed is light or dark red. Thus, plants of a very dark red seeded Japanese variety grown the past season, maintained a decided reddish-purple tinge throughout the entire period of growth, the color being most pronounced in the young plants, fading out as they became older, and deepening again in the panicle as the plants approached maturity. However, some of the white seeded varieties may often become more or less tinged, as in the case of the variety sold as White French millet. By far the greater number of the varieties offered in the market by seedsmen in this country, and the varieties most widely grown for forage belong to the group with yellowish seed. Such varieties are the Manitoba, California Beauty, French, Turkish and Broom-corn or hog millets. There seems to be little, if any, diffence between these so-called varieties, either in appearance or value.

Of the white seeded sorts the most frequently grown are "White French," "Chinese," or "Chinese White," and "Japanese White." The white seeded varieties seem to be more robust growers, as a usual thing, than either the yellow or the red seeded ones, the most productive being the Japanese White. There are but two of the darker or red seeded varieties that have come into much prominence in this country. They are the "Red French and "Japanese Red."

The large, coarse-growing varieties are valuable for soiling and may be used advantageously in the silo where corn and the heavier-yielding silage crops cannot be successfully grown, or when for any reason these crops are destroyed. The forage does not appear to have the laxative and diuretic action upon the animals eating it produced by the foxtail millets, and there are no harsh, irritating beards. However, objections have been made to it on account of the abundant growth of stiff hairs on the leaves and stems. The yield of forage is, on the average, less than may be obtained from the other millets, but on account of the relatively short season required for its development Broom-corn millet may often produce a crop when the others would not. The yield of seed is large in proportion to the size of the plant, 50 to 60 bushels per acre being frequently reported from the Northwest.—*Year Book, U. S. Department of Agriculture, 1898.*


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White
Pigs 2 to 3 months old, both sexes, for sale.
W. R. GATES, Ripley, Jefferson Co., Wis.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

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Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

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Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

PARTHENEA.
Butter record 38 lbs. 8½ oz., in seven days, thus the second highest butter producers of the breed, that sold for $2 000 and won many prizes at the leading dairy shows, in milk and butter tests and the show ring. She is the dam of Parthenea's Colanthus 15597, the chief stock sire at head of this herd for many years and that sold for $1,000, and proved to be a greater sire of fine show stock an great butter producers, than his unequalled sire, Colantha's Sir Henry and grand sire, Sir Henry of Maplewood. For prices of this blood address **VALLEY MEAD FARM, Monticello, Wis.**

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

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MECHTHILDE BULLS FOR SALE.
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McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

GUERNSEYS AND POLAND-CHINAS.
Best from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

FAIRVIEW FARM GUERNSEYS.
FOR SALE—Yearling Bull, **BEAUTY'S KING 5301.** Sire, King of Kenosha 3706. Dam, Kenosha Beauty 5293. Grandson of Benjamin and Squire 4th. Also younger bull calves of good breeding. Address C. W. WILCOX, Des Moines, Ia.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America. Breeding Stock for Sale. Inspection invited.
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Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

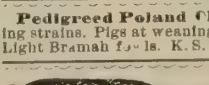
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GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
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"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
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AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
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Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada.

New York Farm and Dairy Notes.

Sowing Crimson Clover in the Corn.—Humus.

ED. HOARD'S DAIRYMAN:—In times of drouth our attention is called to the value of humus in the soil as a means of retaining moisture. A drouth of three weeks in my locality has afforded an opportunity of noting the difference in soils in carrying crops through a drouth.

The soil on some parts of my farm has been filled with humus by plowing under cover crops or heavy dressings of stable manure. On this soil, where an earth mulch is kept around the plants by frequent cultivation, the plants have continued to grow well during the drouth, while plants in soil deficient in humus ceased to grow.

The matter of sowing crimson clover or other cover crops in the corn is now a timely subject for consideration.

I believe if it can be sown as soon as the last of July, and the soil between corn rows can be finely pulverized with the cultivator, so as to make a good seed bed, it will generally pay the farmer to sow crimson clover between the rows of corn, and take his chances on its living through the winter. In good soil it will make considerable growth before winter, and the fertility the roots will add to the soil will pay for the seeding. Late sowing of crimson clover is very uncertain, and I would not care to sow it in corn after August 1st.

I have before me the results of an experiment made at Cornell University. They show that the value of the cover crops of crimson clover grown there, was much more than the cost, in the capacity the added humus gives to the soil for holding water. One sample of soil taken from where crimson clover had grown, showed 15 per cent of moisture. The sample of soil in which no crimson clover had grown, contained 8.75 per cent of moisture, making a difference of 6.25 per cent in favor of the soil where crimson clover had been grown as a cover crop. The soil in the fields, from which the samples were taken, had been cultivated only to a depth of six inches. The average weight of soil per acre for a depth of six inches is about 750 tons, or 1,500,000 pounds; 6.25 per cent was the increase of moisture in the clover field, and my figuring shows this soil to have a capacity to retain 46⅞ tons of water more per acre than the soil where the crimson clover had not been grown.

It follows from this that the cheapest reservoir in which to store water to carry our crops through a drouth is the humus supplied to the soil by growing and plowing under cover crops of crimson clover, cow peas, rye, etc. The function of humus in the soil is not to make moisture, but to conserve the moisture the soil gets from its natural sources so as to provide a more constant and uniform supply to help carry on the processes of plant growth, for this cannot go on without water to make the plant food in the soil soluble and available, and convey it through the structure of the plant.

For this reason we do not get as good results from commercial fertilizers in soils lacking humus. They do not retain the constant supply of moisture necessary to make the plant food in the fertilizer available.

Now, coming to the question of supplying plant food by plowing under cover crops, we find that our experiment stations have proved that from crimson clover plowed under, nine pounds of nitrogen can be supplied to the soil from the atmosphere for each 10,000 pounds of soil, or 450 pounds per acre. If this amount of nitrogen were purchased in the form of nitrate of soda, it would cost $7.

But this is not all that is gained. The mechanical condition of the soil is so improved that it is cultivated much easier. I have soil that a few years ago was so hard and lumpy that it was worked only with difficulty, and at a great disadvantage. So much vegetable matter has been plowed under that the soil has now become mellow and friable, and it is now a pleasure to work it.

Cow peas are a very desirable crop to sow in the corn, as they furnish a large amount of vegetable matter to plow under. This crop is better adapted to localities where the corn can be planted early, so it will make half its growth early in July. The cow peas should be sown at this time, to make a very large growth. I wish it was a more universal custom to sow something for a cover in the corn, at the last cultivation. If you are so far north that you do not wish to sow crimson clover and cow peas, then sow rye. This will surely live through the winter, and make a cover crop, and when it is plowed under in the spring, it will add humus and some plant food to the soil, although it is not so valuable for this purpose, as crimson clover and cow peas.

In this connection, I think manufacturers of cultivators would make some money, and also encourage the sowing of crimson clover, if they would place on the market an attachment for cultivators for sowing the seed between the rows of corn and other crops. I would think that such a device would find a large sale.

A plan I used to practice was, to use the manure taken from the stables in July, for mulching between the rows of corn. This saved cultivation and retained the moisture. I prefer to draw out the manure, and apply it to the land as fast as it is made, and at this time of year, when there is no other place, unless the meadows are mown, this is sometimes a good practice.

It is now time to begin to feed the early soiling crops, for the pastures need to be supplemented with oats and peas, or other early crops. When feeding these, I think it pays to feed them in the stable, if the work is not much greater, and save all the manure possible. I began July 10th, to feed soiling crops, and feed them in the stable, and all the manure which is made is now daily spread on the land, and we save all there is of it, by having tight gutters, and using absorbents. Through the hot weather of July and August, I like to keep the cows in through the heat of the day, after feeding them, and turn them on the pasture at night. W. J.

Delaware Co., N. Y.

A Talk With our Patrons.

[Paper read before the patrons of the Glendale Creamery Co., Mich., by E. D. Hall.]

It is not my intention, in this paper, to confine myself to any particular part of the dairy subject, but to take a general view of it and speak of some things that would help out most at the present time.

As we enter upon another year's work it would be well to look back over the past year and see if we cannot make some improvements, for it is only as we improve upon our own mistakes and the mistakes of others that we make progress in any given line.

If there had not been improvements in the dairy business during the last twenty-five years the dash churn and the ordinary milk pans would still be in general use. Such, however, is not the case and as there have been improvements in other branches of industry, so also has there been great advancement in the business of dairying.

If success is reached in this day and age of the world it must be attained on a scientific as well as a business like basis. So if you wish to make a success of dairying it must be accomplished along these lines.

During my connection with the Glendale Creamery we have had patrons who have realized from one cow thirty-five, forty and even forty-five dollars per year.

The first question that presents itself for our consideration then is, whether there is any profit in keeping a cow at such figures, and I think when it is found that one has sold that amount of produce from one cow, and his farm has not been impoverished the least by so doing, you readily arrive at the conclusion that it is profitable and will pay well for the labor expended.

In the next place we should ask ourselves if our cows pay as well as that. If not, why not?

Are our cows what they ought to be?

Are they properly fed? Are our methods of feeding and caring for our cows the most improved? These are important questions to which your attention should be directed, for without the proper kind and quality of feed, and the necessary care and attention, the value of the animal cannot be arrived at, but having properly fed, cared for, and looked after the cow you have only the

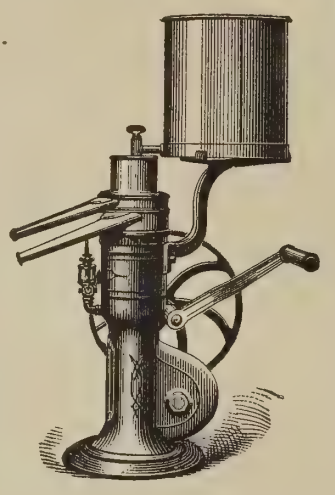
The One Successful Color

IT gives entire satisfaction and is the only color that buttermakers should use. It is the one color found in over ninety per cent of the creameries of the country. Butter containing Wells, Richardson & Co.'s Color has the highest standing in the markets. . . .

Wells, Richardson & Co.'s Improved

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National... Cream Separator.

Ease of Running . . .	The NATIONAL is the Best
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Quality of Cream . . .	The NATIONAL is the Best
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Ease of Cleaning . . .	The NATIONAL is the Best
Simplicity	The NATIONAL is the Best
Design and Finish . . .	The NATIONAL is the Best
Price	The NATIONAL is the Lowest

CAPACITIES 330, 500, 1,300 AND 2,500 LBS. PER HOUR.

There is no Separator on the market as good as ours at any price.

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CANADIAN AGENTS—The Creamery Supply Co., Guelph, Ontario.

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THE AMERICAN Cream Separator

PRICE - - - $65

Still at the Head, Receiving First Premium and Diploma At the ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

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American Separator Co., Box 1023, BAINBRIDGE, N. Y.

THE Wisconsin Curd Test.

It shows the quality of every patron's milk and points unerringly to the milk that causes Bad Flavor and Gass Cheese. For full particulars address

A. J. DECKER, Fond du Lac, Wis.

REDUCE YOUR COAL BILL BY USING The No Scale Company's High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.

quantity and quality of the milk to consider.

To do the subject of proper feed and feeding of cows justice, would require more space than I have at this time, but as it is very important, I will discuss it briefly.

And in the first place, I will say that in order to make a cow profitable, she must have good, wholesome food, and plenty of it. The pig that gets only two-thirds of a ration, does not grow up to make a hog, in time to be profitable to its owner.

So it is with a half fed cow. Then again, what the feed shall be, is, to a great extent, left to the sound judgment of each dairyman, for while one man can grow a profitable crop from his farm, of one kind of product, his neighbor might not be able to do so, and would be obliged to raise a different crop to get the same quantity and quality of feed.

As a basis for a good and cheap feed for cows the year round, there is nothing better than ensilage. No one can reach the highest success possible in the dairy business without a silo, by means of which feed can be preserved in its green state.

Most every patron can easily see that he ought to have some means of supplying green feed for his cows during the dry season of the year, which usually lasts from the middle of July until the middle of September.

If one allows his cow to shrink in her milk from the time she is fresh, until time for her to naturally, dry he is committing an injustice to the cow, as well as losing the use of her milk at a time of the year when the prices are the best.

If one has a silo he can keep his cows in good milking condition, and at the same time realize a handsome profit for his trouble. I would recommend, in the absence of a silo, that you arrange to have green feed handy to use during this time of year; for example, a patch of sowed corn near the cow barn would go far in carrying you through the dry season. Besides, it would be cheaper to raise than to furnish the cow a green pasture at this time of year.

In the up-to-date dairies, which I have visited in Michigan and Indiana, the silo was in common use, and the cow had what ensilage she needed the year round.

To properly care for a cow, may be to give her a warm, dry, light and well ventilated stable in winter, or, it may be to give her a well ventilated stable in summer, to keep her from the flies and other insects. In addition to furnishing a cow proper shelter, care and feed, she should be regularly salted, for without this one cannot get the best results. If a butter maker salted one or two churnings a week or whenever he happened to think about it, his patrons would very soon find fault, and they would be justified in doing so. It is equally as essential that a cow be salted regularly.

Considerable has already been said about the care of milk, but I shall mention it briefly, as few patrons seem to realize the importance of having milk in first-class condition. The milk, however, delivered at our factory is much better than I have had occasion to notice at others, but still there is room for improvement.

Butter, like other dairy products, is sold mainly upon the merits of its flavor and unless all milk is perfect, it is impossible to make butter that is what it might be.

Our butter has always sold for the highest market price, which is something that each patron should feel proud of.

Let us, then, as patrons and butter makers, join hand and hand in holding up the standard of our products. E. D. HALL.

Will the Ten Cent Tax Relieve us of the Fraud.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of July 7, I read with interest the account of the doings of the New Hampshire dairymen, but question the correctness of their position as expressed in their last resolution, which declared in favor of the proposed ten cent per pound tax on oleomargarine.

Mr. Charles Y. Knight is quoted as making the following statement: "It is a question of fraud that must be fought, not one of quality." While we probably all agree with Mr. Knight, as to the bogus butter business being a fraud, some of us do not agree that the ten cent tax will make it any less a fraud, even if we succeed in securing a law compelling makers to pay a tax of ten cents per pound on butter substitutes or adulterations when colored like butter. If it is wrong to impose on consumers, I take the ground that a ten cent tax does not make it right, but simply acts as a bribe, and if we oppose the fraud, does the bribe make it right?

Should the ten cent tax prove to be prohibitive, then the fraud would be destroyed, but if the object be to prohibit the sale of a fraud, why not ask for a law to prohibit the sale of any such fraud and not have the appearance of being bribe takers, as we have been for years, by licensing the sale of intoxicating liquors. While pretending to be prohibiting the sale of intoxicating liquors by taxing it, we have furnished the strongest protection for the liquor business that could be made and the consumption of alcoholic liquors has grown faster, according to the population during the last quarter of a century than during any similar period since the landing of the pilgrims. And the influence exerted in our government by the liquor interests, is the most corrupting of any known to exist. The power necessary to pass a tax law that is supposed to be prohibitive, could also pass a prohibitory law. And it will be less trouble to enforce a prohibitory law than a tax law.

In the *Harpers Monthly* of July 7, in describing the wonderful plant of Swift & Co., the writer said: "And when you are shown how butterine is made, you cease to wonder at its close resemblance to butter, for it is butter, to which has been added two tasteless, odorless oils, neutral lard and oleo oil." This proves butterine to be adulterated butter, and the color would prevent the chance to impose on unsuspecting consumers, were it not artificially colored to look like butter, simply to enable the maker to sell it at or nearer the price of butter. For one, I prefer to not be an interested partner in the sale of bogus butter, even if taxed; but if possible, would like to see our laws made to prevent food adulteration, unless made and sold for what they are, and at a price that will not rob those who are willing to use the substitutes. If butter substitutes are wanted by the poor, as some claim, let the poor have them at their market value, but usually the price of butter substitutes is regulated according to the amount of butter they contain; yet some will say that certain grades of butterine are as good, or better, than butter. Let us be honest with ourselves, and also with the public, if we expect to improve our conditions. F. L. GASTON.

Normal, Ill.

Cream Overrun—Effect of Stabling.

ED. HOARD'S DAIRYMAN:—I am selling separator cream to a creamery by the Babcock test at 15 cents per pound for butter fat. "What per cent of overrun should I expect on 20% cream?"

By stabling our seven cows, in the daytime, our output of cream gained five pounds in four skimmings, without ensilage, and now we are feeding ensilage twice per day and expect to continue increasing, while before we were going lower and lower. A. H.

Burton City, Ohio.

The average overrun will be about eighteen per cent, but may be either higher or lower, according to conditions of churning and working.

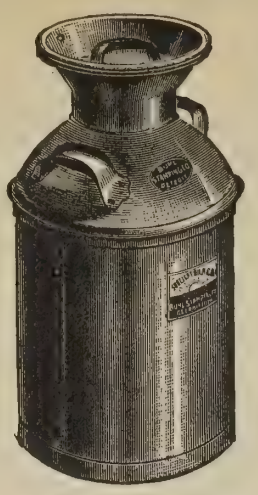
Bad Butter.

Made Over by a New Preparation Containing Poison.

Ohio State Dairy and Food Commissioner Blackburn is sending the following warning to the butter dealers of the state:

"It has come to my knowledge that a preparation called "Lactobutu" is on the market to be used to renovate or rework old butter and increase its bulk. Samples of this preparation have been analysed, and it has been found to contain chromate of lead, a poisonous substance which is injurious to health.

"In following the directions a grocer will render himself liable to prosecution by this department for the violation of the oleomargarine law, as the result, if directions are followed, will not be butter under the law, but will be deficient in butter fats and must be considered and sold as oleomargarine."



Buhl Sunlight Milk Cans.



NOTICE OUR PATENT BREAST and BOTTOM HOOPS.

These cans are properly shaped, well tinned and easy to clean. They will last twice as long as any other low priced cans on the market. If your dealer has not got them, send your order direct to the makers and instant shipment will be made. Capacity 5, 8 and 10 gallons. Write for Handbook No. 32, "A Study in Milk Cans."

BUHL STAMPING CO., Detroit, Mich.

Mention HOARD'S DAIRYMAN.

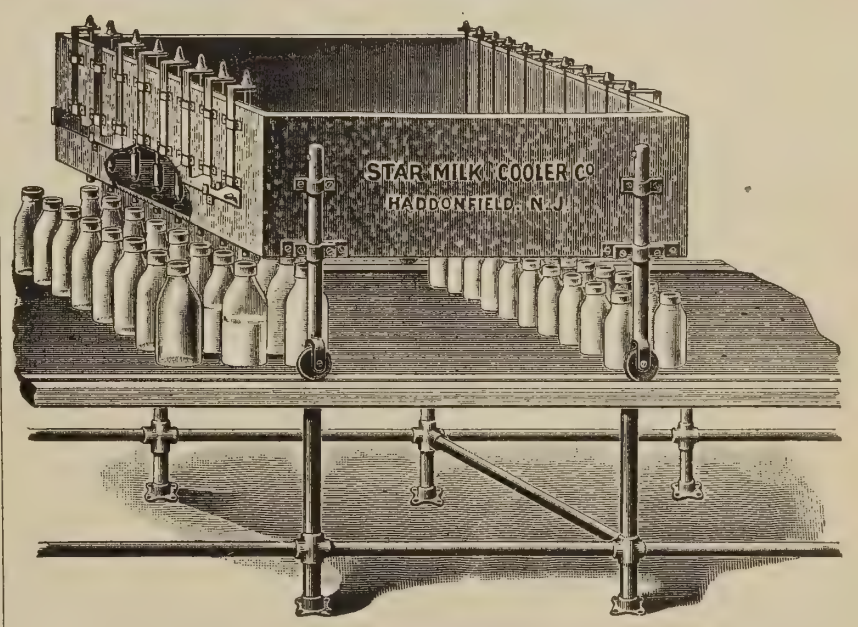
Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

STAR BOTTLE FILLER.



Pints and Quarts. No Rubber. DO YOU CATCH THE IDEA? Write for catalogue of Sanitary Dairy Apparatus and catch more ideas.

STAR MILK COOLER CO., Haddonfield, N. J.

ILLUSTRATION.



The McCormick Vertical Corn Harvester has an adjustable binding attachment by which the band can be raised or lowered twelve inches. This is a peculiar and exclusive feature which commends it to users. This machine is a profit-maker for farmers. Wherever corn waves its tassels to the breeze, the McCormick Corn Binder is a success to-day.

Nature's Ration for the Calf.

Nature has furnished us her ideal ration in the milk of the range cow, or the cow that has been kept, whether on the farm or ranch range for generations for the sole purpose of growing calves. Her milk contains nature's opinion of the proper percentage of albuminoids, carbohydrates, fat and ash which the young calf requires. She provides for it in the colostrum, or what the farmers sometimes call beastings, or first milk, a nutriment exceedingly rich in nitrogen, best adapted to stimulate its unused powers and also the physic needed to cleanse the hitherto dormant intestinal tract and set the machinery in motion. She gradually shades off this highly nutritious and aperient, or loosening, food, and as gradually increases the percentage of butter fat until the young thing is started on a vigorous, lusty life.

She not only determines the chemical composition, but she looks after the temperature as well, and thereby gives a hint to the farmer of the proper temperature at which skim milk should be fed to the calf. She carefully excludes, from the vessel in which this milk is stored, every form of bacteria that can produce acidity or corruption, for milk fresh from the healthy cow, properly milked, is, until it reaches the air, absolutely free from all forms of bacteria, another hint to the farmer as to the sweetness and purity of the skim milk that should be fed to the calf.

Nature goes even further than this, and provides for the manufacture of milk in the udder practically as the calf needs it. It is now a well-established fact that the udder of the cow is not altogether a storage chamber for the milk secreted during the day or night, but that part of it is manufactured at the time of milking, whether by the calf or by the hand. Nature makes the process of milking an unalloyed pleasure both to cow and calf, the affection of the cow responding to the appetite of the calf. So careful, in fact, is nature in looking after the welfare of the youngster, that she provides that the chemical composition of the milk, the proportion of albuminoids, or flesh formers, ash or bone formers, carbohydrates or fuel, and sources of energy, shall not be greatly changed in any season or the life of one cow by any accidental or intentional change in the supply of her food. Were it otherwise, could the proportions of butter fat be greatly changed by accident or design, by scarcity or abundance of food, or change of pastures, the health and even the life of the calf would be in danger, and nature provides at all hazards for the safety of the life. Thus does nature in her way of growing calves, look with the utmost care after every vital point in the art and science of the business, namely, the quality of the milk, the quantity of it, the temperature, and the purity or freedom from germs.

And she succeeds. Where did human eye rest on a more perfect type of robust, vigorous life, filled with the pure joy of living, than on the three-months-old calf, as it follows its dam, either in the rich clover pastures, or the wild grasses of the plains or prairies. In the same proportion that we adopt nature's art and science will we achieve her success.

The exact chemical composition of nature's perfect ration for the calf has not yet, so far as we know, been determined with anything like absolute accuracy. The wild cow does not stand and deliver at the command of the scientist. She has a much higher regard for her calf, to her the handsomest in all the world, and the dearest, than she has for the chemist, no matter how great his reputation among men, nor the number of titles that have been bestowed upon him. These worthy gentlemen who are eagerly searching for nature's secrets, in order to lay them at the feet of the farmer, have not yet interrogated a sufficient number of the mothers of nature's calves to discover the mysterious and magical formula which nature uses in compounding her perfect ration. We know this, however, judging from the experience of farmers in growing calves from cows unsuited to dairy purposes, that nature's ideal ration contains a much smaller amount of butter fat than the milk of the cows kept for butter purposes, and a great deal less than the milk of the special purpose or dairy cow. "That cow gives poor milk, but she raises the best calves on the farm," is a remark farmers frequently make, and an experienced dairyman would never select the type of cow pointed out, for use in his herd. Whenever farmers select cows of this type for dairy purposes, they are obliged to discard a very large per cent of them for the sole reason that they lack in quantity as well as in quality of milk. We often hear farmers say, pointing to a calf that is not doing well, "I think the trouble with that calf is that its mother's milk does not agree with it, it is too rich;" meaning, of course, rich in butter fat. We know further that the Holstein, or special purpose cow giving the largest quantity of milk but carrying the lowest per cent of butter fat, will, if permitted to nurse her calf, produce a heavier calf at six months old than any other breed of cows in the United States. Still further, we know that while food rich in fat does not radically change the chemical composition of milk in the lifetime of a single cow, there is, nevertheless, a gradual change going on where dairying is practiced, and that breeds, gradually under the influence of food, environment and use, become noted for the richness of their milk in butter fat, and that with dairy practice cows gradually give richer and richer milk. (We have noticed also, that in dairies that supply milk to cities, the percentage of butter fat increases quickly when the law requiring inspection goes into effect.) It is, therefore, reasonable to suppose, that the wild or range cow gives a milk with a great deal less butter fat than the average farm cow, certainly not over, but probably a good deal under three per cent, and we would not likely be far from the truth if we were to guess that were half the butter fat taken from the quality of milk greatly desired in special-purpose cows, it would then not be far from the composition of the milk of the range cow, or nature's ideal ration. It is quite likely, however, that the per cent varies with the herbage on which even the range or wild cow is kept from generation to generation; less butter fat where the herbage is coarse and watery, and a large per cent where it is fine and more nutritious.

It is important to note carefully to what extent the demands which advancing civilization have made upon the cow interfere with nature's ideal ration. First, we demand that she shall give more milk, and second, that it shall be richer in butter fat. Instead of eight or ten quarts a day, we demand twenty; instead of milk with less than three per cent of butter fat, we demand six per cent, and will not be well satisfied with less than four per cent. We change the very form of the cow from a rectangular to a wedge, even if it lowers her vitality and destroys much of her value for beef production. This improved dairy blood is constantly infused in various ways, even into herds used for calf raising purposes only, so that some improvement in dairy qualities are carried back through the bulls even to the range, and much more to farm herds, with the result that many of the cows kept for calf raising only on the farms and in breeding herds give more milk than the farmer desires, or too rich for the real thrift of the calf, or perhaps both. On both farm and range, nature sooner or later makes the necessary correction so far as quantity is concerned, by decreasing the milk flow to correspond to the wants of the calf and arresting it at weaning time, while in thoroughbred herds she corrects the tendency to develop the extreme beef form at the expense of the normal dairy qualities which the welfare of the calf demands, by foreordaining that cows that can not support their calves shall be shy breeders. In other words, nature is constantly at work to promote the welfare of the calf by correcting the changes that civilization has made in her ideal ration and forming the milk of the cow to her ideal.

Modern practice, or shall we say advancing civilization, interferes with nature's ideal ration by removing for butter making purposes too much of the butter fat, even when gravity setting or the old-fashioned way of raising cream is still the custom. Under ordinary farm conditions, during the summer season when three-fourths of the calves are grown, from one-fourth to one-third of the cream is left in the milk where no separator is used, and if skim milk of this class could be fed sweet, warm and often, the ration would be out of balance, but not be so greatly out of balance as we might at first suppose. Unfortunately, in order to secure as much cream as possible, it is often allowed to stand until it is clabbered and then fed cold, thus violating three of nature's requirements, namely, a well-balanced ration, fed warm and sweet.

The advent of the separator creamery brought about a still wider departure. The separator, if properly constructed and well managed, leaves a mere trace of butter fat, often less than a tenth of one per cent, thus entirely robbing the natural ration of its fat and of its carbohydrates with the exception of milk sugar. As most creameries are conducted, this separator milk takes on a marked degree of acidity before it can reach the stomach of the calf and is generally fed at the temperature of the atmosphere, whatever that may be, and thus we have a very wide departure from the ration that nature intended for the calf. To increase this departure as far as possible, many farmers forget that most cows that are really reliable in the dairy, will furnish enough skim milk to grow two calves, and the calf not doing well on ten or twelve pints a day is encouraged to take twenty or thirty or even forty with the result that the more it takes the more pot-bellied and ill-shaped it becomes.

It is little wonder, therefore, that there is a violent prejudice among farmers who love good beef cattle, and among nearly all graziers and feeders, against the skim milk calf, against separator milk, and the entire creamery system. I had a letter last summer from a Nebraska farmer, inquiring as to the expediency of subscribing to the construction of a creamery in his neighborhood, and wished particularly to know if it was true, as reported in that community, that separator milk would take the skin off the calf's nose. It is little wonder, under the conditions above mentioned, that almost the entire breeding, grazing and feeding interests are more or less hostile to the extension of dairying, believing, as they do, that it tends to greatly impair the quality of the young stock of the country, and render them unprofitable for beef production. I am fully persuaded that this is an entire mistake, that calves inferior to nothing but the best—the fancy sorts—can be grown successfully on separator milk wherever their owners have the knowledge and skill to imitate closely nature's ideal ration. It can be done, it is being done on thousands of farms, and nowhere can it be done so cheaply as in the corn and grass states. That this ration must be duplicated exactly, I do not maintain nor believe. It is not within the range of human power to duplicate exactly the artistic work of nature when she has in view the perpetuation of the life of the species. We can, however, by substituting cheaper carbohydrates and fat for the dearer, which we remove from the ration, in the form of butter, come so near meeting nature's requirements that the slight lack of thrift in the calf can be compensated by the greatly increased profits growing out of the substitution. How to do this to the best advantage and greatest profit will be discussed in the following articles.—*Wallace's Farmer.*

Tuberculosis and Milk.

Much has been learned at the New Jersey experiment station in contravention of the wide-spread theory that the milk from tuberculous cows is the cause of much of the consumption among human beings. For some years the station officials have had under close observation several tuberculous cows, formerly part of the station's general herd. When the animals reacted under the delicate tuberculin test, they were not slaughtered, as is the general rule prescribed by the cattle commission of several states, but were segregated and studied. The information obtained is valuable and reassuring. An editorial correspondent of the *Rural New-Yorker* says that "the milk from these cows has been tested and analyzed, again and again, and thus far no germs have been found in it. So far as science can determine, these cows have produced clean and healthful milk." Editorially, the journal points out that although no germs have been found in the milk, "it is not safe to say that the milk has never contained any. The germs might be found in one milking and not in another, or in one single quar-

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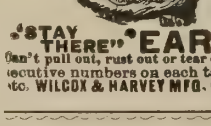
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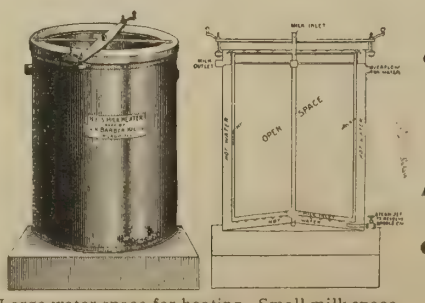
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WRITE FOR INFORMATION.

er of the udder. It is difficult to discover them, for the testing apparatus is not yet perfected. Still, it may be said that the germs in such milk are very scarce—if they exist at all." This conclusion solves the riddle as to how human consumption could be decreasing while tuberculous cows were on the increase. There are probably few dairy herds in which there are not one or more such cows, and, if the theory be accepted that the milk from these animals is always dangerous, the wonder would be not that there is so much consumption, but that there is so little.—*New York Press.*

The Horn Fly.

For the past few years this fly has been a great pest amongst the neat stock of our farms. This is particularly true on the dairy farms, as by the continued annoyance and pain caused by the fly the dairy cow shrinks materially in her milk flow.

The fly derives its name from its peculiar habit of resting at the base of the horns. While there it appears to do no particular harm, but confines its attacks to the backs and loins of the animal, and such other parts as cannot be readily reached by the tail or horns. This fly is about one-half the size of the house fly, but unlike the house fly does not breed in ordinary waste matter, but in the fresh droppings of the animals. The eggs are laid by the fly as soon as the manure is dropped, and if left undisturbed they will hatch in about 48 hours, when they immediately enter the ground and go through the second transformation. After remaining here about two weeks they emerge from the ground, a perfect fly ready for business. It will thus be seen that many generations will appear during the season.

Nearly everything that can be done to prevent their ravages must be of a preventive nature. They may be kept from breeding by scattering the voidings of the animals every two days or by sprinkling land plaster, lime, or dry earth upon them. They may be kept from the animals almost entirely by applying some oily preparation, or Pyrethrum powder. The liquid preparations are cheaper, and some of them are more effective. They may be applied to the sides and limbs of the animal to better advantage than the powder, another advantage in their favor. A gentleman in Knox county reports that he uses a mixture made of one part fish oil, one part tar oil, one part kerosene oil, with a very little carbolic acid. This, he says, is quite cheap and seems to be very effective.

It will be found advisable to apply this mixture with some implement that will put it on in a fine spray, as it will be quite as effective in this way; there will be a saving of material and the animals will not be unnecessarily covered with the oil.—*Maine State Board Bulletin for June.*

CONCERNING OUR ADVERTISERS.

JUST WEIGHT.

We have spoken frequently in these columns about the necessity of having all the farm work conducted after an approved method, so that the farmer can tell just where he is losing and where he is gaining, and regulate his mode of operations accordingly. Everything brought onto or taken from the farm should be weighed, measured or counted, and in this way only can the owner be certain that he is not going on year after year losing in some particular line. If he wishes to buy a scale that will be reliable, and every farmer should own a scale, we feel safe in calling his attention to the Osgood Scale Co., 91 Central Street, Binghamton, N. Y., whose advertisement appears in another column. The firm is thoroughly reliable, and we believe that our patrons will be well treated in dealing with them.

HE BELIEVES IN "SHOO-FLY."

The following letter from a prominent Texas merchant and stockman, explains itself:

HONEY GROVE, Texas, June 3, 1899.

SHOO-FLY MFG. CO, 1005 Fairmount Ave, Philadelphia, Pa.

Gentlemen:—Enclosed please find order for ten gallons Shoo-Fly. We have tried a number of remedies during the past three years, but nothing equals Shoo-Fly for the purpose of keeping flies, ticks, etc., from stock, and to heal up old sores. I use this on my herd of Jerseys and have the best results. Our firm also uses it on our dray and delivery horses with great success. While other teams are stamping and worrying themselves ours are not bothered in the least. We find it an excellent remedy for collar and saddle galls. If our horses and cows could talk we feel sure they would write you a vote of thanks. Kindly send the enclosed order at once. FRED T. HOCKADAY.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

CORRECTION.

Swollen testicle, page 401. Last line reads 7 grains of iodide of potassa. If a full grown bull, should read 70 grains of the iodide of potassium and less according to age and size.

STIFFNESS IN FRONT FEET. LAMINITIS.

We have a fine Jersey bull calf four months old, and of late have noticed quite a stiffness in front feet similar to laminitis. Lays down most of the time, but stays in fairly good condition Is laminitis inherited if the mother was foundered while pregnant?

Valley Mills, Ind. A. J. N.

ANSWER.

There is not any disease which is not, more or less, transmittible to the offspring, depending much upon the temperament of the mother. You give me a poor description to judge by. If the feet are sore between the hoofs, dress with compound tincture of myrrh and aloes daily. If possible, poultice them with carrots and flax seed boiled and put in as hot as can be borne.

OBSCURE SICKNESS.

I have a young cow that has been ailing about three weeks. She seems stiff all over, goes with her back humped, inclined to be down most of the time. She has lost some flesh, and fell off in her milk. She chews her cud as usual. E. CROPLEY.

Richmond, Ill.

ANSWER.

I don't like the symptoms at all. I believe my very best help to you will be, to recommend a personal examination by your state veterinarian, or by any truly qualified veterinarian surgeon. Your cow may be less alarming than I think she is, but a personal examination alone, can determine the true and correct condition.

CATARRH OF VAGINA.

Many thanks for answer in DAIRYMAN of June 16 about disease of cow. She was in calf, but aborted on 26th of May, 1½ month before time. She did not clean, and had to take out afterbirth. She got through all right, but now whites are appearing again as before. I intend to keep her from bull for four to five months, and try again the treatment you should be kind enough to give me to follow. Urine comes very often and little at a time, with some difficulty to expel it.

Guatemala. J. MONT.

ANSWER.

Catarrh of the womb, or vagina, is chiefly the result of retention of the placenta. Introduce a catheter, and draw off any fluid found there, and wash out with tepid water; add one ounce of Tilden's Bromo Chloralum to eight ounces of tepid water. After the washing try the catheter or tube. Inject the following: one dram of sulphate of zinc, dissolved in one pint of water to which add six ounces of pure glycerine. Repeat this injection daily, as long as needed.

MANGE.

We are told our cows have the mange, scabs all over them and a constant (almost) gnawing themselves. Have tried unsuccessfully sulphur and sweet oil, and a preparation from the drug store. R. E. K.

Greenville, Pa.

ANSWER.

Complete and thorough scrubbing, scalding, and burning of all clothing, etc., things which have come in contact with the disease. If this is not attended to, you will be constantly troubled with the disease, even the currycomb, brush, if any, and other things can, and do, spread the disease. Pyroligneous acid, 16 ounces, oil of tar, one ounce, fish oil, 25 ounces. Thoroughly mix and work into the bottom of the scabs twice a day for a while, feed well, give plenty of roots, any kind they will eat.

BLOODY MILK.

I have a young cow, two years old, first calf, that gives bloody milk out of two teats, and has been so for two weeks or more. Her health seems to be good, and is in good condition; is running out in pasture. J. C. C.

Rhinelander, Wis.

ANSWER.

Immediate full dose of physic and repeat in six days, and if needed repeat. Each morning give two teaspoonfuls of nitre for ten days or longer, if needed. Don't forget the physic, it is of paramount importance to your cow's present condition, and cures alone eighty per cent of similar cases. Sometimes change of food is very useful in stopping the discoloration of the milk. If it is not blood, it is caused by acrid plants found in the pasture, also in the mill feed and bran.

TO CHANGE TIME OF COMING IN—STIFFNESS—CASTOR OIL FOR WARTS.

My cows come fresh in the spring, and I wish them to freshen in the fall. Which had I better do, keep the bull away from them until the proper time, or give powders to hurry them up after freshening each time until they come right?

Have a cow that goes about very slowly, acts as if she was sore all over and afraid to move. Eats well and seems all right otherwise, but is getting very thin. What can be her trouble and treatment?

Have tried castor oil for warts on teat, for two months, but see no effect. E. M. L.

Lockeford, Cal.

ANSWER.

I object to interfering with the natural laws of nature. This is always wrong. Let the cows take their proper, natural course.

It is hard for me to say what the cause may be for the stiffness you name, as it may be result of many causes—colds, injuries of any kind, etc. Give a moderate physic once or twice, six days apart.

Try nitric acid, and butter of antimony, alternately; touch only the warts.

TUMOR ON THIGH.

I have a fine Jersey cow that has a growth on the left thigh. It is nearly as large as a person's head, and equally as hard to the touch. Last April I found a spot in the lower part that seemed to be softer. I opened it and it discharged a watery substance, that reduced the size quite a little. At present it is as large as it was before I made the opening. She is not lame.

Valley Falls, N. Y. C. M. G.

ANSWER.

You did wrong to open the tumor. If it had been ripe for opening it would have been proper. Such opening always does harm. There is nothing to do now that I know of, but to try to bring the tumor to a head and then have some one capable, open the tumor to the bottom and keep it running. This is the only way to cure it. Blistering or poulticing, or both, may bring the tumor to a head. But after the opening the tumor has become solidified, that is, it is a mass of gristly substance.

POOR DEVELOPMENT OF UDDER.

I have a nice heifer that I would like to keep for a milch cow, but her front udder is not developed equal to the back and two of her teats, front and back, are so close together (and the skin grows down to within an inch of the end of the teats) that I can not milk her except by stripping between the thumb and finger.

Is there any method to develop the front udder to equal proportion with the hind? Would it be safe to cut the skin of the udder between the two teats, and would it injure the udder proper, aside from the skin, if the udder was slightly cut, the cutting to be done just as the heifer begins to show signs of udder filling before calving?

Both hind teats have a tendency to stick forward and I think could be remedied if the front udder could be well developed, or would it be safe to cut the udder proper inside of the skin and allow the teats to separate in that way? AN OLD SUBSCRIBER.

Agassiz, B. C.

ANSWER.

Thousands, many of them of good cows otherwise, fail in development of the front part of the udder.

No. Such an act is quite out of the question. Sell her. I would not own such a cow for a good milker. Cutting, etc., is simply preposterous and quite against common reasoning.

HARD UDDER.

Have a cow that came in with her second calf on June 30. Was unable to dry her up. Udder seems hard, but not lumpy, hot or painful. Gave her your physic and have rubbed udder with lard and alcohol twice a day, sponging off with hot water just before milking, feeding on pasture only. Milk twelve hours apart but quantity of milk yielded varies. V. E. C.

St. Paul Park, Minn.

I recommend alcohol and lard for attenuated, shrunken udders, but never for garget. Such application would add fuel to the fire. Repeat, and repeat the physic if needed. Rub the udder with strong tincture of camphor six parts and common turpentine two, only, parts; rub tolerably hard, the first day twice, then only once a day for two to four days; after the physic is over give her 60 grains of iodide potassa each day for 10 to 30 days. This will not spoil the milk for domestic uses. Use daily massage, rubbing kneading etc.

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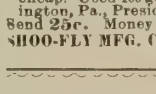
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Hypodermatically administered, is a POSITIVE CURE for abortion in cows. SWORN testimonials furnished on application. Dr. D. ROBERTS, Veterinary Surgeon, Address, Waukesha, Wis.

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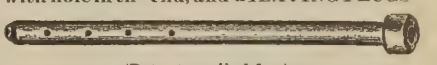
Prevents Abortion and cures Nymphomania-failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

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Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

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SUCCESSFUL DAIRYMEN use 1 cent's worth

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Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' none equal to 'SHOO-FLY.' It is effective and cheap. Used 100 gallons." H.W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected. SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., PA

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For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for 50 CENTS. Will be sent as a premium for

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WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

Short Course In Agriculture at Madison, Wis., To Be Largely Attended the Coming Winter.

ED. HOARD'S DAIRYMAN:—The coming term of the Short Course in Agriculture, which begins December 5th, and closes March 8th, promises to surpass all previous terms in attendance and character of the work outlined.

One hundred and fifty young men have already declared their intentions of taking the course and have been duly enrolled as students. Applications will be received at the office until the opening of the term. All students must register in advance, and it is advisable this year to register early, as the college may be obliged to limit the number, and students will be accepted in the order of their application.

The character of the work is of such a practical nature and so beneficial to those who attend that the short course in agriculture has become one of the most popular courses of the University.

The new illustrated circular describing the course is now ready for distribution and can be obtained by sending request to

Madison, Wis. R. A. MOORE.

Does Education Pay?

[Press Bulletin.]

The college dairy finds that it does. Before the first of April, '99, the herdsman at the Kansas Agricultural College was a man with no special training along agricultural lines. He was a good man to do what he was told and to draw his salary, but there his interest ended. When asked how the recent snow storm or change of feed affected the milk yield of his cows, he didn't know, although he had weighed and recorded each milking. During this time the college was feeding four head of calves on skim milk, and this herdsman made them gain at the rate of thirty-three pounds per month per head, or 1.12 pounds per day.

On the first of April, a graduate of the college and a special student in dairying took up the work of herdsman. He is a man that is constantly on the alert for new developments. When milking a fresh cow he can scarcely wait until the milk is weighed in order to see if there is a gain or a loss from previous milkings. When the calves are weighed he wants to know immediately how much they gained. With the same feeds at his command he made the four calves, mentioned above, gain an average of fifty-three pounds per head per month, or one and eight-tenths pounds per day, an increase of sixty per cent. This was done by carefully watching the calves; the moment one of them began to scour, he saw it, reduced the supply of milk, gave a little castor oil, and in various other ways sought to bring it back to normal condition. This was accomplished in about twenty-four hours, when the calf would keep on gaining at the rate of a pound and a half or two pounds per day.

Yet there are farmers who say that education don't pay, and that book learning is a farce. There is no profession in the universe that allows a greater display of intellect than farming, and nowhere is it needed more in order to increase the profits. The farmer is called upon to solve questions in soil physics, in chemistry, botany, entomology, bacteriology, veterinary science, mechanics—and in fact, can call into play a knowledge of all the sciences and arts. To do this he must be educated. This education not only makes him a better farmer, but makes his work a pleasure. No one who has not experienced it can appreciate the satisfaction that comes from seeing a plant, an insect, a bird, or an animal of any kind, and to be able to name it andtell something of its life history.

Kansas Experiment Station.

More Testimony Against the Hydraulic Separator.

Agents for the hydraulic separator recently canvassed the country about Cherokee, Ia., for the sale of this device for separating cream from the milk. Realizing that few farmers have the facilities or apparatus with which to test their milk and thus the effectiveness of the new separator, Mr. S. J. Fairfield wrote to Prof. Curtiss at the state agricultural college for an opinion on the merits of the device. In reply he received the following letter from the director of the Dairy School at the agricultural college:

AMES, Ia., June 14, 1899.

Mr. S. J. Fairfield, Cherokee, Ia.—Dear Sir—In answer to your letter would say that I consider the hydraulic separator to be one of the biggest frauds that have been placed before the dairymen for some time.

In our experiment here with it, we found it left in the milk nearly one per cent of fat, and in some cases more, or in other words it left one pound of butter to every one-hundred pounds of milk. Experiments were conducted at Cornell, also at the station in Vermont, where same results were obtained.

We have had as good results when using just a common milk can and pouring cold water in with the milk, thus causing a separation of the fat.

This skim milk is not as good for the calves as ordinary skim milk, as they have to drink twice as much as of ordinary skim milk to obtain the same amount of solids.

G. L. MCKAY.

—*Chicago Produce.*

HOARD'S DARYMAN will not even inferentially endorse these so-called separators, by allowing them to be advertised in its columns. Certain manufacturers cannot seem to understand why we should deliberately decline to receive their money for that purpose, but old time readers of the paper well know that the DAIRYMAN is published in the interests of the dairyman and never knowingly leads him astray.

Sub-Earth Duct.

Its Value in Lowering the Temperature of Curing Rooms.

The following letter addressed by instructor Morrison to Mr. George Hately, secretary of the Cheese and Butter Association of Western Ontario, furnishes additional evidence as to the value of the sub-earth duct as an aid in controlling the temperature of the curing room in a cheese factory:

"In reply to your request for information regarding sub-earth ducts which have been recently added to the curing rooms in my district, I submit the following report:

Caistorville—The sub-earth duct is completed and in operation. The duct is eight feet deep and extends 118 feet under ground. It is made of three rows of five inch tile, two rows of six inch tile, and one row of eight-inch tile, all laid close together with the eight-inch tile in the middle; over the tile there is a covering of rye straw.

In digging the trench for the tile a spring was found near the factory. The water from the spring runs in the bottom of the trench for its entire length, which possibly somewhat increases the moisture in the curing room. The in-take pipe is built of galvanized iron, fifteen inches in diameter and thirty feet in height, with cowl on top The outlet from the curing room is simply a hole in the ceiling on the opposite side to that at which the duct enters.

On the day on which I visited Caistorville the temperature on the outside in the shade was 85 degrees. Inside the curing-room a strong breeze was coming in from the duct at a temperature of 60 degrees. The temperature of the curing-room did not exceed during the day 69 degrees. The curing room at this factory is very poor. I am of the opinion that with a reasonably good curing-room the temperature can easily be held at 65 degrees. The moisture in the curing-room was from 80 to 82. There was no mould on the cheese."

As we pointed out some time ago, a distinctly forward movement has been inaugurated in the Province of Quebec in regard to curing rooms and curing cheese, and the dairymen of this province will have to be on the alert if they wish to maintain the position they now hold as producers of the finest quality of Canadian cheese. The sub-earth ducts furnish a very simple and yet effective means of very largely controlling the temperature of curing rooms, as Mr. Morrison's letter very clearly shows, and every cheese factory in the country should have one built. Their construction is not difficult, and a suitable duct could be put into every curing room at comparatively little cost.

In fact, if there were no other means of doing so, a few of the patrons, under the direction and with the assistance of the maker, could put one in in a very short time, and its cost would be more than paid for, in one season, by the improved quality of the cheese, and by preventing any loss in weight, due to the excessive heat of July and August.

Of course a sub-earth duct will not make up for a poorly ventilated, and a poorly constructed curing room. But even the temperature of a poorly constructed curing room can be very much improved and controlled, if it has one of these ducts in connection with it. We would advise every factory to no longer delay this matter. We are just entering upon the two most trying months of the year for curing cheese, and if a factory has not already done so, there should be no further delay in getting in a sub-earth duct. Curing the cheese properly is of the utmost importance in enabling Canadian cheese to retain the position it now holds in the British markets.—*Farming.*

See in this connection, Mr. Aderhold's report on the duct put in the Fassbinder factory at Bungert, in Wisconsin.

Milk Without Dirt.

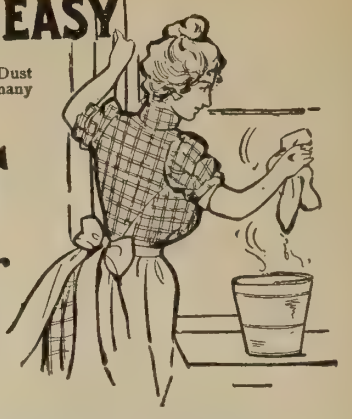
Yesterday, some sixty visitors were entertained at Clover Leaf farm, and under the explanation of the proprietor, H. B. Gurler, and his able assistants, the process of preparing the well known certified milk was made plain. The occasion of the gala day at the farm was the entertainment of twenty-five graduate nurses and physicians from Chicago, and the party swelled by the presence of several physicians from the vicinity, and interested people from De Kalb. Mr. Gurler accompanied the trained nurses and physicians from Chicago on the afternoon train and they were met at the depot by carriages, and conducted to the farm four miles southwest. Arriving there they proceeded to the barn where the 130 cows were being milked by men in clean, white uniforms, the milk weighed, filtered through sterilized cotton batting and through a strainer, and carried to the house. The model stable with its white walls, cement floors and iron stanchions are all conducive to cleanliness, it being Mr. Gurler's underlying idea to keep the milk in the perfectly clean condition in which it comes from the udder. Milking time in the afternoon begins at three o'clock each day.

At the house, the most perfect of dairy arrangements are in practice. The milk, as it comes from the barn, is strained into a vat, and through a faucet in the bottom of it is poured over a ladder like machine filled with ice cold water and cooled. From here it enters the separator, and after the cream is separated from the milk it is mixed again according to perfect proportions, four per cent cream to ninety-six per cent milk. It is immediately bottled, corked with a dated cork and sealed with the Clover Leaf seal, is packed in wooden cases filled with ice and in the morning shipped to the Chicago market or sent to supply the home trade. One thousand seven hundred bottles are sent out daily. The whole process indicated such perfect cleanliness that the nurses and physicians in search of a milk food for invalids were of the opinion that no better could be found than on Clover Leaf farm. As a further entertainment Mr. Gurler treated them to a delicious supper on Clover Leaf farm, and escorted them on a sight seeing tour about the town before they took the evening train for home.—*DeKalb, Ill. Chronicle.*

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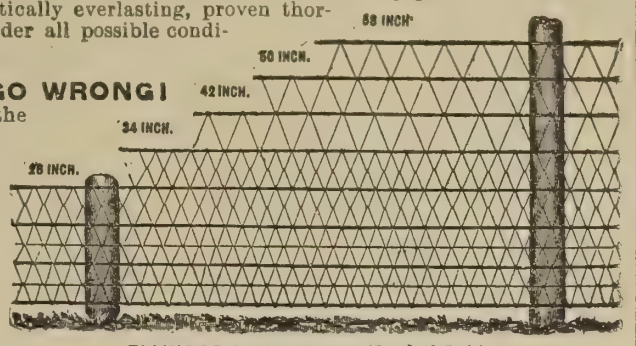
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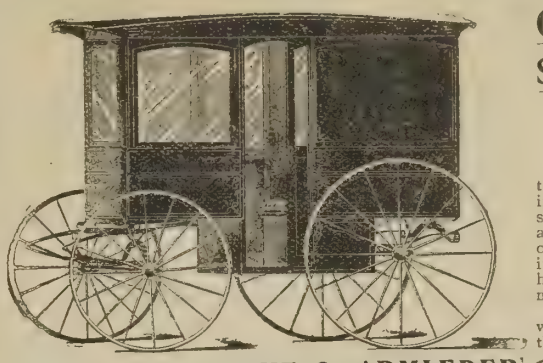
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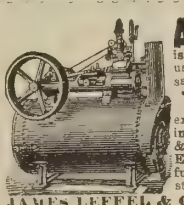
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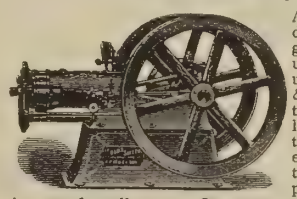


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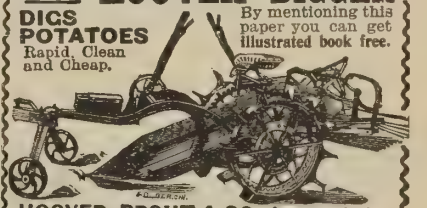


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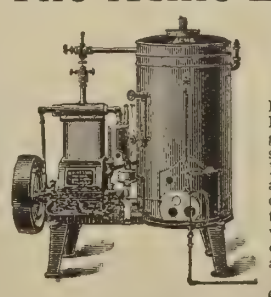
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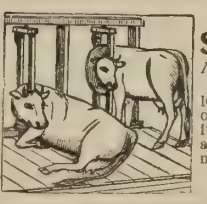
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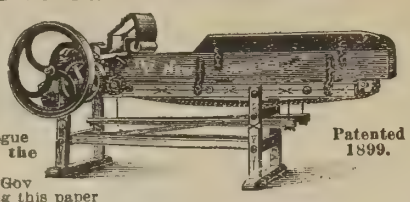
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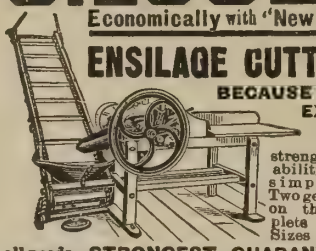
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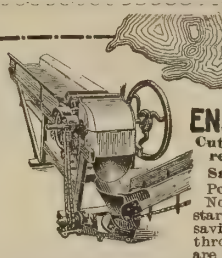
SILOS Are Filled Quickly and Economically with "New Hero" ENSILAGE CUTTERS



BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. **STRONGEST GUARANTEED.**

SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER, runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed **FREE.** Tells all about Hero Ensilage and Fodder Cutters, Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Shellers, Peck's Corn Thresher, etc.

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"OHIO" SELF FEED ENSILAGE CUTTER

Cuts 33⅓ % more than regular machine.

Saves 75% in time.

Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

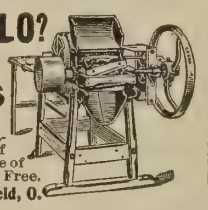
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Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue **FREE. Prof. Well's "A Book on Silage" 10c.**

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HAVE YOU A SILO?

Then you will need ensilage machinery.



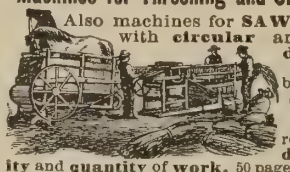
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is unsurpassed in quality, capacity, durability and ease of operation. Doubles the value of a corn crop. Catalog No. 7 Free.

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Machines for Threshing and Cleaning Grain.



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LITTLE GIANT Threshing Machine

Threshes grain, rice, flax, millet and grass seed. Fully warranted. Feed and Ensilage Cutters, Feed Grinders.

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WE SELL DIRECT TO THE FARMER AT ONE-HALF DEALERS' PRICES.



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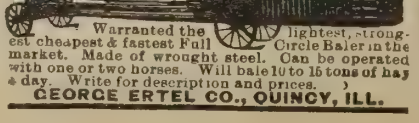
Throwing the earth all one way. Revolutionizes the method of seeding, as the twine binder did the harvest. Discs 6½ in. and 9 in. apart. Send for circular.

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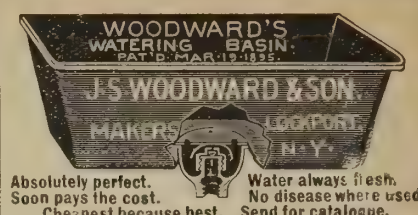
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Warranted the lightest, strongest, cheapest & fastest Full Circle Baler in the market. Made of wrought steel. Can be operated with one or two horses. Will bale 10 to 15 tons of hay a day. Write for description and prices.

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Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. No disease where used. Send for catalogue.

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It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

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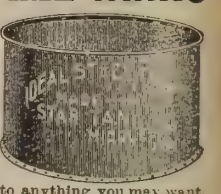
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Any style, size or shape. Farmers can **buy direct** from our Factory at lowest Wholesale Prices. ☞ Catalogue Free.

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IDEAL STEEL TANKS



represent unequaled tank value. They are made of the best galvanized steel,

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with bands of iron top and bottom, and stayed with iron at corners, ends and middle. They are made **ROUND, SQUARE & OBLONG** with round or square ends. Capacity from 2 barrels up to anything you may want.

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LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES

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Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address

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WELLS If you want the best machinery for making wells, to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

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Bailey's Hydraulic Ram.

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40 Years' Experience. **Water FOR House** **Water FOR Stock** **Water FOR Irrigation**



Once started costs one cent per month. As simple as a wheelbarrow and as efficient as a Corliss Engine. Information and instruction in plain terms. Prices on Ram or complete outfit by return mail Address

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JULY 28, 1899. NUMBER 24

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UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for one gallon can. You won't regret it. Manufacturers of **LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc.** Manufactured by

CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**

Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Print Butter Should be wrapped in GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be PRINTED on Every Sheet.

SEND FOR SAMPLES.

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"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
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Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

SEEDS THE ALBERT DICKINSON CO.

DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

LIKE A SNOW FLAKE

Did you ever watch a snowflake dissolve in your hand? Then you know exactly the process by which "the salt that's all salt" permeates the butter so thoroughly, so easily. This soft, flaky nature of

DIAMOND CRYSTAL SALT

is one of its best recommendations—but not the most important. Its purity is its strongest point. You can rely on it absolutely, and all the time. It's the salt butter makers use who want to be sure of success. Book sent free.

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THE DIAMOND CREAMERIES

— AND —

The SHARPLES TUBULAR Separators.

The Facts Are These: Simpson, McIntyre & Co., are owners of the Diamond Creameries. They are the largest handlers of high class butter in America. They operate over half a hundred factories in Iowa and New York. The separators they have in use were made years ago, and they will replace them with the best that are now to be had. With this in view, they have been testing for some months at their principal Massena, N. Y., factory, the different leading separators on the market.

They are conservative business people who have little to say but know how to make money.

Their letter is just a plain business one and not intended especially for a testimonial, so will bear weigh: accordingly.



BOSTON, MASS., April 12, 1899.

P. M. SHARPLES, Esq.,
West Chester, Pa.

Dear Sir:—We have concluded to place an order for your No. 25 Tubular machine, which we consider the most practical separator in use at the present time. It is quite possible that we may decide to order some of the No. 40 Tubulars for our large points, but after a trial of the No. 25, for several months, by the side of some others of leading makes, we have decided in favor of the Tubular, and also think for all purposes the No. 25 machine will come the nearest to meeting our requirements. It is our intention to make the changes as fast as our men become educated to the machine sufficiently to run them in a proper manner.

Trusting you will lose no time in filling our first order, we are, Yours truly,
Dic. G. W. S. SIMPSON, McINTYRE & CO.

If such firms as this, after extended and exhaustive tests find the Sharples Tubular Separators the best, they are safe people to follow.

Small Diameter, Medium Speed,
High Revolutions,
Give Greatest Effectiveness.
Clean, Rapid Skimmers.
Fine, Smooth Cream.

Handles hot milk or cold milk, fresh milk or stale milk.

Send for Catalogue No. 46.

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ALDERNEY BUTTER COLOR

Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.

Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.

BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.;
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THE RUSSIAN BABCOCK TESTER....



is preeminently the machine for the man who wants to read small quantities correctly.

RAPID WORK

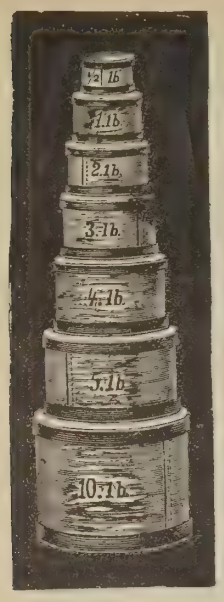
is easily accomplished, for the machine is not stopped when the bottles are filled with hot water. It is a

High Grade Tester,

driven by steam. Ball bearing, automatic speed gauge, and with little care will last a life time.

We are prepared to repair all cream separators, and have the most skilled men for this work. Send for Catalogue, No. 51.

ELGIN MANUFACTURING CO., ELGIN, ILL.

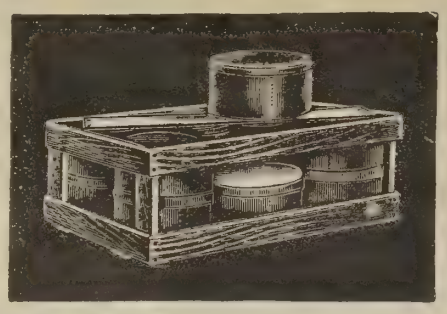


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We carry the Largest Stock and greatest variety of Butter Packages of any house in the country.

Our . . .

ROUND SPRUCE BOXES...



And BRADLEY BOXES are two very popular styles. The Round Spruce are made in the 5 pound size only. The Bradleys can be had from ½ pound up to 10 pounds.

Whatever the demands of your particular trade, we can supply you with the best package for your purposes

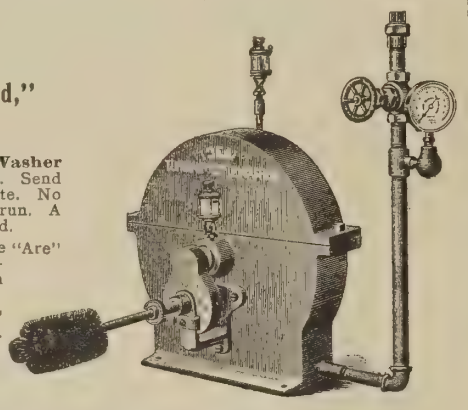
Some New Things are "No Good," some "Are."

The New IDEAL Steam Turbine Bottle Washer belongs emphatically to the "Are" class. Send for cuts of tanks and Turbine, complete. No belts, pulleys, or shafting, nor engine to run. A small boiler or steamer only is required.

The POTTS PASTEURIZER belongs to the "Are" class too. It is the only *perfect* Pasteurizer made. Send for circulars of it, which tell you why.

If you are in need of anything "*whatever*" in the Dairy or Milk Dealers' line, write us. *We are sure* to have it.

Send for our Milk Dealers' Price Current.



Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,

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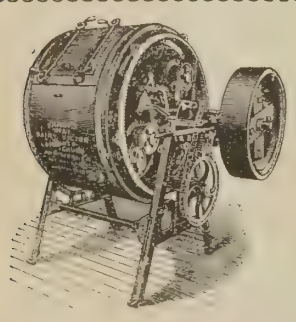
CHICAGO, ILL.

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Star Milk Cooler Co., ARCHITECTS, CONTRACTORS, and SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. **Haddonfield, N. J.**

Send for Catalogue of Sanitary Dairy Apparatus.



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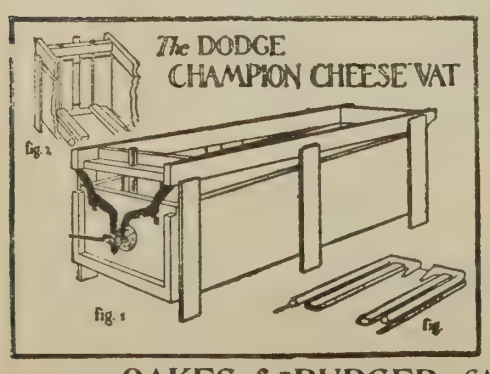
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

THE DODGE TILTER ...FOR CHEESE VATS...



An important improvement Tilts vat tin only, thereby avoiding racking the wood vat when drawing off the whey. Vat tin so supported that no possible injury can come to it. Requires but slight effort to throw the lever. Can be adjusted to any style of vat.

WRITE FOR PRICES.

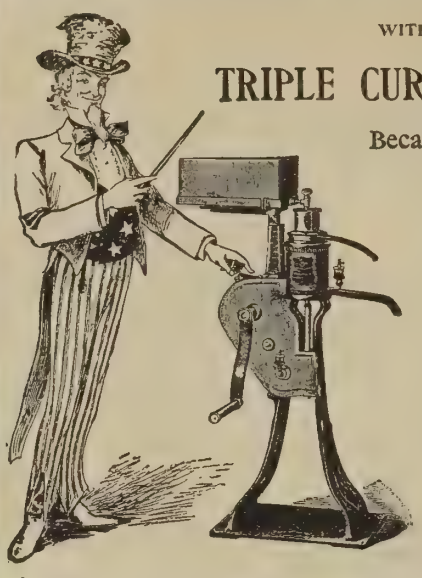
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Uncle Sam Points with Pleasure to

The Improved U. S. Separator

WITH ITS

TRIPLE CURRENT BOWL



Because it

Skims the Cleanest,
Operates the Easiest,
Is the Easiest Cleaned,
Is the Most Durable,
And in other important points Excels all other Separators.

It does equally good work in the Dairy or Creamery as testified to by users the country over.

If interested, send for our large illustrated catalogues giving full particulars and containing hundreds of testimonials from users.

Remember we furnish everything necessary for a first-class Dairy or Creamery.

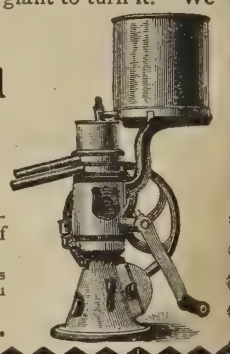
VERMONT FARM MACHINE CO., Bellows Falls, Vt.



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators

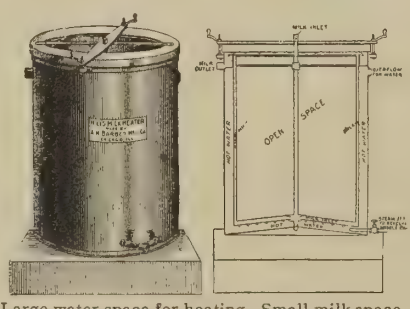


to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

HILL'S MILK AND CREAM ...Pasteurizer



Large water space for heating. Small milk space. Will heat quickly and evenly throughout.

IS BUILT UPON CORRECT PRINCIPLES.

Try it and you will be convinced. Made by

A. H. Barber Mfg. Co.,
CHICAGO, ILL.

Creamery and Cheese Factory Apparatus and Supplies.
REFRIGERATING MACHINERY A Specialty.
WRITE FOR INFORMATION.

Is it **CHANCE**, is it **GOOD LUCK**, or is it **MERIT** that has enabled the patrons of

GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

In 1895.....F. G. OLTROGGE
In 1896.....THOS. MILTON
In 1897.....H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use **GENESEE SALT**, and write to our General Western Salesman, Mr. F. A. TRIPP, 34 Clark Street, Chicago. Or address

Yours truly,

THE GENESEE SALT COMPANY, New York.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

A smooth agent has been operating in the neighborhood of Bloomington, Ill., selling a prescription for $5, for making eight pounds of butter from a gallon of skim milk. A number of sales were made. A gallon of skim milk weighs only eight pounds and 12 ounces, water and all. Is there any swindle that will not find takers among a class of people who cannot afford to read and know better?

New Jersey is the home of other dangerous things besides trusts. Out of seven hundred and fifty samples of food and drugs analyzed by the state chemist, two hundred and eight of them were found to be adulterated.

This is merely a drop in the ocean of mixed, preserved, colored, doped and doctored foods, that we are compelled to buy for want of a better article. But the protest is being heard in the high places, and the probability is, that the adulterator will soon be forced to stop this profitable poisoning, and sell pure food at a reasonable price. In the meantime he is working and pushing his objectionable methods for all the money there is in it.

Concerning the illustrations on this page, there is little or nothing new to be said. The high grade heifer, Browny No. 2, was sired by the bull Gifford, whose picture we printed in 1897. Commenting on it at that time, we said:

"Dividing this picture into three parts, we find the rear third to possess a typical dairy form, and if upon examination, large and well formed rudimentary teats are found, we should be disposed to award this section nearly or quite the maximum of 50 points. We are not so well pleased with the middle third, for the reason that it is lacking somewhat in depth, which indicates a possibility that his progeny may be deficient in digestive capacity. The front third is better, as it shows a high, thin shoulder, (the very opposite of the typical beef form), deep, roomy chest, short legs, and a neck not particularly objectionable, although the falling away behind the horns detracts somewhat from the general symmetry of his appearance—a defect, if it is one, likely to disappear with greater age."

Mr. Long writes us concerning the heifer, that she was 21 months old at time of calving, that the photograph from which the engraving was made was taken four weeks later, and that when the calf was seven weeks old the heifer was giving 22 pounds of milk per day, on a daily ration of 4 pounds wheat bran, 3 pounds corn chop and 1½ pounds cotton seed meal, 6 pounds prairie hay and what green feed she can find in the cotton fields.

How does the picture of the heifer and this record correspond with the comments made on her sire two years ago? It would be pretty near a "fool's errand" to attempt to find a better rear third than this heifer shows and probably inherited from her sire. She has the thin incurving thigh and the arching flank, which are nature's provisions for a capacious udder, and without which she would be working at a disadvantage; she has the rising pelvic arch, which is the proper structural form for supporting the extra burdens which the modern dairy cow must daily carry around—a striking exemplification of nature's generous care in adapting form to function; she has a well shaped udder, especially in its front development, and four widely separated and squarely placed teats.

The defect noted in the middle third of the sire seems also to have reappeared in the daughter, although it is but fair to say that the appearance of these parts four weeks after calving, is possibly misleading. That the heifer is producing as much milk and of as good quality as ought to be expected of any heifer of her age and breeding, is not a full or satisfactory answer to the objection here suggested. With a better middle piece to supply the milk making organs in the rear third, she might do much better, both in total yield and, what is at least equally important, in reduced cost of production. It is somewhat like running a large engine with a small boiler. With such a combination it is impossible to get the maximum of service or the minimum of cost.

The accompanying illustration of the registered Jersey, tells its own story. We have but little information as to her breeding and performance. She shows many excellent "points"—enough to justify the estimate of her owner, that during her first milking period, which lasted 15 months, she yielded nearly or quite 500 pounds of butter, which he sold at 25 cents per pound. Her udder is not as symmetrical as that of Browny 2d, which detracts somewhat from her merit as a show animal and for raising the highest priced stock, but we have frequently observed that unsymmetrical udders make up in labor what they lack in looks.



QUEEN OF MADISON A. J. C. C.

Property of Geo. M. Long, Delta, La.



GRADE JERSEY HEIFER, BROWNY 2nd.

Property of Geo. M. Long, Delta, La.

The Best Known Hogs.

The leading breeds of hogs grown in the United States are the Berkshires, the Poland-China, the Duroc-Jerseys, the Chester-Whites, the Essex, the small Yorkshires, the Suffolks and the Victorias. The Berkshires are of English origin and were first brought to the United States in 1830. They are famous for quick growth. They may be put in good condition for killing at the age of five months and even less, but they go on gaining in weight until they are two years old. They are active pasturers and respond quickly to fattening food. The sows are very prolific and good mothers. The Berkshires lose less in dressing than do most other breeds. At the same time their dressed weight includes a slightly greater proportion of fat than other breeds show.

The Poland-Chinas are a composite stock of recent origin, developed in the great corn region of this country. They originated in Ohio. The stocks that were crossed to produce them are the Big Chinas, the Irish Grazier, the Poland and the Byfield. The name Poland-China was given in 1840 to a large and coarse black and white hog which required two years to mature, growing to an enormous size, and reaching, in many cases, a weight of 600 to 800 pounds. A cross of these giants with Berkshires gave a smaller, finer, smoother, and earlier maturing animal, closely resembling the Berkshire in form and color, but retaining a larger degree of its power of continuous growth, up to the age of three or four years, and dressing out a carcass which is nearly all merchantable meat. They are not so good grazers as the Berkshires, not so well able to care for themselves when turned into the woods, but they have a quiet disposition, are controlled easily, grow rapidly and fatten quickly. They bear close confinement better than the Berkshires, but are not quite so prolific, although some Poland-China strains are extremely prolific.

The Duroc-Jerseys are large, long-bodied, red hogs, which are good feeders, easily fattened, and grow very rapidly when well fed. They have come into prominence during the last fifteen years, being descendants of the Jersey Red and the Duroc breeds, which have long been popular in Pennsylvania, New Jersey and New York. The blending of the two has produced an animal which is easily kept or fattened, is small-boned, vigorous and prolific. Being very long-bodied, the proportion of side meat to ham and shoulders is larger than in most other breeds, but many consider this an advantage, and the breed is growing in favor wherever it has been introduced.

The Chester-Whites are the most popular of the white breeds. They take their name from Chester county, Pa., where they originated by crossing the native white hogs with some large white hogs brought from England about 1825. Selection from the offspring of those crosses has made a great improvement on the form of the earlier animals, and has developed a hog quite similar to the Poland-China in shape, and differing from that breed but little excepting in color. Where any white hog is to be grown this is the best for general purposes.

The Essex is a small black hog of English origin. It is valued more for its quiet disposition, its rapid growth when young, and early maturity, than for its size or its ability to produce a large amount of meat. Where there is a local demand for well-matured hogs of small or medium size, or for pigs of which one or two are to be kept in a small pen and fed principally on slops from the house and the refuse from the garden, the Essex is a valuable animal, but is not generally popular for ordinary farm purposes, or for making large amounts of pork under ordinary conditions.

There are many other breeds of more or less prominence and value for one or another purpose, but in the south about 90 per cent of the pure bred hogs are Berkshires or Poland-Chinas, while in the north, especially in the great corn states, the Poland-Chinas predominate.

To show that there is practically very little difference in the meat-producing capacities of different breeds, Professor Henry, of the Wisconsin Experiment Station, reports a test extending through 224 days with a Berkshire boar and four sows, together with a similar lot of Poland-Chinas. The total gains and the amount of feed required for each 100 pounds of gain were as follows:

	Berkshires.	*Poland-China.*
	lbs.	lbs.
Total gain of lot.....	1,167	1,168
Feed for 100 lbs. gain..	512	524

—*New York Farmer.*

Embalmed Milk in New Jersey.

The Newark, New Jersey, Board of Health has discovered that much "embalmed" milk is sold in that city; milk dosed with formaldehyde to keep it from souring; milk particularly dangerous to infants, for the formaldehyde upsets infantile digestive organs. An immense quantity of New Jersey milk is sent to New York. Another thing, formaldehyde is made from wood alcohol and chemically stands between methyl alcohol and formic acid. If the formaldehyde is not properly made, wood alcohol remains in it. One part of formaldehyde in 50,000 of milk will keep the milk sweet for two days in summer. But Herbert B. Baldwin, chemist to the Newark Board of Health, has found cases where the dairyman who sold the milk, put formaldehyde in it, then wholesale dairymen who dosed it, and the retailer doctored it again.

WHAT MIGHT HAVE BEEN.

In a letter from Mr. Geo. M. Long giving details regarding the animals whose cuts are published on the front page of this issue, the writer finishes his letter as follows:

I just want to add one more word and say that had I been a reader of your paper ten years ago, the price of cotton and high water in the Mississippi River would not worry me as it does just now. I am so situated that the high water gives me seepage and makes my place fit only for grass and dairy cows, and I said to my wife, "If we are damaged as bad this year as last we will have to make Jersey cows out of all our mules, for the mules consume more and pay less than our cows." I wish you and your paper success.

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THE hot nights are here and the milk requires the utmost care, if a butter bringing the highest price is to be made. Every hour or even minute that the milk is allowed to remain without cooling, if it is to stand over night, takes from it part of its money value. The ferments that give butter its flavor, as well as those that taint it, are growing rapidly in the warm milk.

Time and bacteria wait for no man—when the milk is warm. So if you don't wish a flavor in your butter that don't belong there, one that the dealer will not want, nor the consumer pay for, cool and aerate your milk and keep it cool at all times when the thermometer is above 60° F., that is, if you expect to make a profit from your summer milk.

PROTEIN AND MILK PRODUCTION.

DR. KITCHEN, in his Comments and Queries on page 474, settles some important problems, and raises others. He has learned as many others before him have learned, in the same expressive school of experience, that one cannot cross breeds as he would mix corn and oats, and reach definite results. He seems, however, to hold, with Prof. Shaw, that the all-round cow—what make-shifts will not people resort to, in order to flatter themselves that they are not in the mire of general purpose?—is a possibility, but with commendable frankness admits that life is too short for him to expect to realize on an investment in that direction.

He, therefore, turns to the established breeds and questions them as to their adaptedness for the special environment of his neighborhood. We are disposed to think he rejects the Ayrshires a little too summarily especially by putting so much emphasis on the difficulty of obtaining them. It has to be admitted, we think, that too many breeders, as well in Great Britain as in the United States and Canada, have bred with both eyes on the show yard, where it has been too much the custom to award all prizes in accordance with a beef scale of points, and neglect those which indicate dairy ability. But there are individuals, and herds, and families that have not been thus bred and reared. We are not permitted to mention names, because by so doing we should be guilty of injustice to those omitted; and if we knew them all, it could hardly be expected of us to advertise them gratuitously. Ayrshires have been advertised more or less in the DAIRYMAN for years, not as extensively as other dairy breeds, and, hence, not only the locations of herds are unknown, but their merits are largely in eclipse.

We cannot quite agree with the Doctor that the Gilmanton farmer cannot afford to feed a balanced ration. We do not mean that he must follow, to the letter, any of the so-called feeding standards, but the present state of knowledge on the subject, does not allow us to believe that milk can be made in paying amounts, without an adequate supply of protein in the feed. The scientists tell us that it requires a daily allowance of seven-tenths of a pound of protein for the simple maintenance of a 1000-pound animal; in twenty pounds of milk there should be about eight-tenths of a pound of casein, and hence, without allowance for the inevitable loss that must occur in changing the protein of the feed into the casein of the milk, we have a demand for one and one-half pounds of digestible protein. If the cow is expected to give more milk, she must have more protein.

It is largely immaterial to the cow where the protein comes from, provided she has the digestive capacity to eliminate it from the feed. We can find it in 25 pounds of clover hay, but only half of it in the same amount of timothy hay. One hundred and twenty-five pounds of oat straw would furnish 1½ pounds of digestible protein, but it would take a good deal of other feed to enable the cow to digest so much straw.

We do not know any reason why soja beans, field peas and even alfalfa could not be profitably produced in New Hampshire. There is, in our minds, more doubt as to crimson clover. This must be sown in the late summer or early autumn, and it is questionable whether it would survive a New England winter. If it will and is cut early, it will make excellent hay. The danger with crimson clover lies in letting the heads become ripe, or nearly so. Too little is known of vetches, at least by us, to justify the putting forth of suggestions. Things of this sort may, very likely, be tried in an experimental way, for a year or two, and thus their adaptability to the peculiar local conditions determined.

The question as to which is the better cow for the farmer, has attached to it irrelevant conditions. The cow whose milking qualities have been properly developed, if of good constitution and adapted to the conditions for grazing, etc., in the locality, is always the better cow. There is no style of breed ing, bringing up, or care that will give us a cow that can transmute carbohydrates into casein. As well attempt to make sugar from salt. A balanced ration does not necessarily imply the use of concentrated feeds, but they are recommended because it is difficult in any other way to supply the cow with sufficient material to enable her to utilize her milk elaborating organs to their normal and economical capacity.

"WARRENTED NOT TO SOUR."

A sample of milk was lately examined in St. Louis, and the chemist returned it with the endorsement, "Warrented not to Sour." It had been so dosed with preservatives that it was warranted not to spoil; embalmed—in fact poisoned so thoroughly that not even that most resistant form of life, a bacterium, could live in it. What chance has a sickly child, when such poisonous food is given it? or, for that matter, an adult with little power of resistance left after a long sickness? Would it increase the chances of recovery to feed a diseased stomach with combinations of milk and formalin, freezine, preservaline and such like?

There are some things, that neither doctors nor professors, can tell us; things which no amount of scientific argument will convince us of.

One of these is the necessity, harmlesness, or desirability of the use of preservatives in our food. We don't want it for ourselves or families, and we decidedly deny the right of any man, be he a Chicago packer or a small milk dealer, to compel us to swallow a daily dose of preservatives, be they reputed never so harmless. Let us have the bacteria alive, and we will attend to the killing ourselves.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSEL.]

Second Series, No. XXI.

ACCUMULATION OF NITROGEN BY CLOVERS.

If one grows a clover plant in a soil which has been heated, and in which, therefore, the bacteria, including the nodule-forming organisms, have been destroyed, no nodules or swellings will appear on the roots of the plants. The young plantlet may make considerable headway in development, if the soil is a fertile one, but the rootlets will be devoid of these swellings. On a poor soil, however, the growth will generally be scanty, if the soil has been rendered sterile by heat.

Not frequently, it happens that natural soil contains no nodule-producing germs that are characteristic of the clover plant that is used as seed. Perhaps the ground may be so poor "that it won't grow beans," or it may sometimes be much richer, and still not develop various plants of the clover family. The real reason of failure of growth is often not the lack of fertility, but lack of proper nodule bacteria, for with the many species of plants, that belong to this group, there are a number of different specific bacteria that develop best in their own peculiar hosts. Thus, there is a red clover bacterium, that develops best in this plant, and which may not develop, for instance, in the alfalfa. On the other hand, some species of the nodule bacteria are less sensitive. The organism of the hairy vetch will also establish itself in the Canada pea.

This fact accounts for the peculiar property, that soils that may produce a good crop of one kind of legumes, yet may not be available for some other crop.

Take the western prairies. Their natural flora is distinctly leguminous, but in many places, as in the Dakotas, our common red clover could not be successfully cultivated, for many years after the virgin soil was first broken up.

This same fact has been often noted in attempting to introduce relatively new kinds of forage plants belonging to the legume family.

These facts throw a flood of light on many practical questions. If the failure to develop these crops turns on the presence or absence of certain ferments in the soil, why is it not possible to obtain the desired organisms, so that they could be artificially added to the soil in a way that would enable them to establish themselves in the root systems of their proper hosts.

Such a possibility would have been regarded as utterly impracticable a decade or more ago, but having once determined the fundamental laws by which this peculiar property is produced of enriching the soil by growing clovers, it is entirely within the pale of reason, that such an advance step may be made of pratical value.

INOCULATING SOILS.

If continued cultivation, with any species of clover, is apt to enrich the soil as to its fertility, then the soil itself is sure to contain more or less of the specific germs, which find their way into the same from the decay of the plant roots. This being true, it might be possible to introduce the desired germ into any field that experience had shown to be unsuitable for legume culture, by sprinkling or transferring some of the soil from a seeded field to the barren one.

Such a procedure has been attempted and has been attended with very successful results in many cases. At the Alabama station, Duggar succeeded in securing greatly increased yields of hairy vetch and alfalfa by mixing soils from old fields with that of fields on which these plants had never before been grown. At the Kansas station, soy beans had been cultivated for a number of years, but the plants failed to develop nodules. In 1896 Otis secured from Massachusetts a quantity of soil in which this plant had been grown. By adding this to the plat in which the beans were planted, he secured a luxuriant growth and the root systems showed abundant tubercles. In the sandy moorlands of Northern Germany, this method of mixing the soil from an old field, has been successfully employed on a practical scale. According to Salfeld from one to one and a half tons of soil per acre yielded bestresults. Where the inoculated soil was well worked into the ground, thus bringing the contained microbes in direct contact with the developing plantlet, the most marked gain was to be observed.

PURE CULTURES OF LEGUME BACTERIA.

Although the soil method might be successful, it is, nevertheless, cumbersome to transfer so much material when the desired organisms might be isolated and grown in quantities. Naturally this next step was soon suggested, and after many experiments there is now on the market pure cultures of the various legume bacteria that can be utilized much more conveniently. Nobbe and Hiltner have lately succeeded in separating the distinctive forms to be found in a considerable number of different legumes. These can be grown in quantities in pure culture, and so the essence of the soil process of inoculation is carried over into a much more concentrated and convenient form. These cultures are sold under the name "Nitragin," and are used in a manner similar to the "starter" employed in dairy processes. A fairly thorough trial of the different cultures has been made in a number of places. Duggar, in Alabama, found an increase of 89% with hairy vetch, 138% with Canada field pea and 146% with crimson clover.

The value of these cultures has been found to vary considerably where employed under different conditions. In soils that already contain considerable nitrogen the addition of the "nitragin culture" does not increase the crop so much, even though nodule formation on the roots may be aided. Under these conditions the plants seem to take the nitrogen already in the soil, rather than to fix the free nitrogen of the air. Where the soil is deficient in nitrogen, the addition of the bacteria in the "nitragin cultures" stimulates the development of the nodules, which then result in the storing up of quantities of atmospheric nitrogen that later is appropriated by the growing plant.

With our most common legume, red clover, the results have not been as favorable as with other species; doubtless for the reason that the red clover germ is now thoroughly disseminated in much of our arable soil. With the newer varieties of legumes, of which there are a large number that have lately been introduced, the use of "nitragin" has been attended with much better success, for the reason that the necessary organism has not been present naturally in the soil, and it required the initial inoculation to establish the proper conditions for luxuriant development. There can be no question but that the careful way in which these investigations have been carried out, will be sure to yield rich fruit sooner or later. They exemplify, in a striking way, the advantage that agriculture can derive from the teachings of applied science.

A Butter Standard.

The Pennsylvania Department of Agriculture has been advocating the necessity for a butter standard, and has recently made analyses of 100 samples of butter collected in Philadelphia and vicinity. Five grades of butter were tested, including "boiled" or process butter. The average per cent of water was about 11%, of butter fat about 85%; curd between one and two per cent; and salt about 2%. Of the seventy-eight samples of unmelted butter examined, only one contained less than 80% of fat, and only

six did not reach an 83% butter fat standard, to which any dairyman, it is stated, can bring his butter. The percentage of water, according to the results obtained, should not exceed 14% at the very most. The per centage of salt is considered about right when kept below 3%. Two-thirds of the samples contained curd, less than 1.05%. Curd, in all butters, it is stated, should be reduced below 2.05%.

Dehorning Cattle.

ED. HOARD'S DAIRYMAN:—I am a complete, though quite recent, convert to the dehorning of cattle. Since the practice has been so generally advocated by the agricultural press, it has been under consideration, but somehow it seemed a barbarous practice and not worthy anyone short of a butcher or person who is trained to disregard the lives and feelings of animals. The change of sentiment came about accidentally. One of the home herd of Jerseys was afflicted by a horn that turned inward and made an ugly wound where it came in contact with her head. Plainly something must be done with it, so the dehorning problem was brought much closer home than it otherwise could have been.

There had all along been a notion that a "muley cow" was something less than a complete animal. It seemed to us that it had not grown up and that horns would greatly dignify it and give it a standing in the world. I use the word "it" purposely, for horns follow sex so closely in all animals that without them there seemed to be less of that distinction left. But something must be done with the ugly horn, so a sharp, fine toothed saw was bought and the horn was sawed off close to the cow's head. This was a sort of a revelation. There was little bleeding and the cow did not seem to be hurt much. Then a cow with one horn was always a sort of cripple to look at, so the other horn came off. Then it was easy to finish the job and now the herd is innocent of horns and the conversion on the part of the owner is complete.

It has always been held by those who have tried dehorning, that cattle were very much more quiet without their horns and that they could be handled easier, not to mention the less disposition to worry each other in small enclosures. A neighbor mentions an instance where hornless cattle showed a great superiority over the natural animal. The male portion of the family went away one cold winter day and left the cows in the stable. The time for the noon watering came and they did not return, so the housewife turned the cows out and watered them at the pump. It was an odd sight to one who had been used to seeing cows with horns, claiming the right of precedence at meals with all the vim of court ladies. As soon as the water began to run into the long trough every one of the cows came up as though they had been young calves and drank in a row. The watering was a very short matter and the woman did not have to stand out in the cold but a short time. If the cows had not been shorn of their horns they would have had to drink, one or two at a time, and the water would have been much colder that icy day than it was just from the well. Besides, the woman would have had to wait for them. This is one of the many instances where dehorning is valuable to the animal direct as well as to the owner. Now for a breeder who can produce cows without horns! He is wanted.

We are testing the gravity creamer and find it handy, but not without its serious objections. The test was made with no particular desire to adopt the system, but mainly because somebody brought one of the big vats to the farm and asked us to use it. One objection, of course, is the weakening of the skim milk by making it half water. Neither pigs nor calves do well on it. The receipe lately given by Prof. Henry in the DAIRYMAN, for restoring such milk to its normal strength by adding oil meal and middlings, is to be tried, and if it works I will report.

The butter maker complains that she cannot make as good butter from the gravity cream as from the pan-set milk. It is inclined to be sticky and never comes in the granular form that it should. I suppose that this is on account of some difference in the ripening of the cream. Is there not some reader who knows what is the matter and can suggest a remedy? The butter comes reasonably quick. The chances are that the agent will get his "machine" when he comes round next time. It is not worth $9. JOHN CHAMBERLIN.

Buffalo, N. Y.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

WILL SILAGE LESSEN THE NECESSITY FOR GRAIN?

Does it require less bran and ground feed for milk cows, when feeding ensilage, than without? I am very much interested in ensilage, and am thinking of building a silo, but I do not want to do so unless I can save money on my feed bill. I am milking forty-five cows, and my feed bill amounts to about $40 per month. B. F. J.

Yankton, S. D.

This question might be answered both in the affirmative and the negative, depending altogether upon the direction from which it is approached. The same amount of grain fed in connection with silage will give better results than when fed exclusively with dry fodder. Hence, to produce a given flow of milk, less grain will be required with silage. But all the profit there is in dairying comes from the food consumed, and exclusively from that part of it which is in excess of the amount required for maintenance. Therefore, the more one can get a cow to eat, and not turn the surplus into body fat, the greater will be the profit. Therefore, when we feed silage, we should rather increase than decrease the allowance of grain, and thereby make the greater profit.

GRAIN RATION ON PASTURE.

Enclosed find an article in this week's issue of your paper. Will you kindly find what the ration was the correspondent fed his cows in summer, and publish in your next issue? J. F. C.

Cooperstown, N. Y.

The article referred to was copied, as stated, from the *Practical Farmer*, and was written by a correspondent for that paper. We have no means of ascertaining his name or residence, but if, as may possibly happen, this inquiry should come to his attention, we would be gratified to have him answer it.

Meantime we may say, that the choice of a grain feed to supplement pasturage, may take a wide range. Equal parts bran and ground corn made an excellent summer feed; bran and gluten feed, or bran and a little fresh, sweet cotton seed meal would not be amiss. How much to feed cannot be even approximately estimated. When pastures are at the very best, some good hay may well take the place of grain, but later on grain will be necessary, and the amount must be regulated, in every case, by circumstances. It should be enough at all times to prevent any unnatural shrinkage in the milk flow, and also keep the animal in good flesh. Always the heavy milkers should have more than the light milkers.

VENTILATING A WET CELLAR.

We have a cellar under ground; it is built in the shape of a cistern, ten feet diameter; the top is open, and looks like an arched chimney. We have a small window on the stairway, which leads into the kitchen. This cellar is remarkably cool in summer, and we had no frost in it last winter. Bottom and sides are cemented over brick and whitewashed. The only trouble we have is, that by approaching rain and hot weather the walls sweat so that water will run in streams, which gives much work to keep things from moulding. D. J. M. H.

A case like the above can be easily remedied, if suitable provision is made for ventilation. Of course, where the walls of a cellar are cold, a sudden inrush of warm, moist air will deposit its moisture on the cold walls, and thus make matters worse.

But if an opening can be made from the cellar into a chimney, or in place of a chimney, a six-inch flue made from boards, be run from the top of the cellar to above the roof, the natural draft will slowly take out the moisture in the cellar, and keep it dry.

COW FASTENINGS.

We are going to build another dairy barn, and are undecided whether to put in swinging stanchions or ties. We would like your advice on this, and some cuts, showing where the feed is placed, and whether chains or straps around the cow's necks. We have swinging stanchions in our old barn. It holds 120 cows, and we want to build the new one to hold the same number. Thanking you for your past favors, etc.

KEYES FARM AND DAIRY CO.

St. Louis, Mo.

As between the two devices named, we would prefer the swinging stanchion, largely because of the difficulty of keeping cows in place and clean when fastened with neck chains or ties of any kind. Should prefer a chain to strap of any kind.

It is a question whether any modern barn should be equipped with any kind of stanchion or neckties. There are valid objections to any system of fastening cows that does not provide same sort of a partition or barrier between adjoining animals, and thus give to each one a stall by herself. There are numerous patterns for cow stalls, some patented and some not. In the former class are the Bidwell and Drown stalls, both with adjustable managers and swinging partitions and the animals kept in place with a chain or rope reaching from partition to partition. Others have no manager, only abar in front, and the cow eats from the floor as she does in the field, and a chain or rope in the rear keeps her in place .There is also the "Model Stall" which the senior editor is using with great satisfaction.

In this stall, an inclining rack for holding hay, compels the cow, when standing, to keep well back in the stall, and a bar, two to three inches high, nailed to the floor just in front of the position of the hind feet when standing, *encourages* her to move forward when lying down, and this takes her out of the filth. In this stall the cows are fastened with an ordinary halter about the head.

The DAIRYMAN, in recent years, has published illustrations of several stalls and mangers, and whenever any of our readers can offer new and valuable suggestions in this line, we will take pleasure in having drawings and engravings made for publication in these columns.

A FLORIDA FEEDING PROBLEM.

I am feeding my cow wheat bran, corn meal and cotton seed meal, and mixing cotton seed hulls with this. Please give me a ration with these constituents. I feed crab grass hay when I have it, but my last year's crop is exhausted. SUBSCRIBER.

Ormond, Fla.

Of course, it is well established that cows can live and yield some milk if given plenty of grain and all the cotton seed hulls they will eat for roughage; but this is very far from being an ideal ration, or, indeed, a suitable ration. We do not have cotton seed hulls at the North, but we do have their counterpart in the overripe straw from our grain fields, and the dried, weather beaten, woody remnants of the corn crop in the stalk fields. Progressive and prosperous dairymen have learned that it does not pay to limit cows to such forage. They have found that, even with the best of hay, it is expedient to have some succulent feed through the winter and during the summer drouth. Corn silage furnishes this with least expense and greatest satisfaction, but, in its absence, roots serve a good purpose. Just what can be grown in Florida, to best advantage, we cannot say, but should suppose that kafir corn and cow peas or soy beans would be adapted to the soil and climate there. These can be made into excellent silage, or cured for hay.

So much by way of suggestion for the future. From the feeds available for present use, we advise mixing by weight, two parts bran, with one part each corn meal and cotton seed meal, and feeding from four to ten pounds per day, the amount to each cow to be graduated according to her ability to respond at the pail. It is supreme folly to feed a cow that has been milking six, eight, or ten months, as one would feed the same cow soon after freshening. Then there is the difference in cows. One cow may be able to turn ten pounds of grain to useful purposes, where another would grow fat on half that amount, and fattening the milch cow is wasting feed.

In addition to a grain allowance, as above, give all the hulls or other roughage each cow will eat.

AN ILLINOIS FEEDING PROBLEM.

Please give ration for milch cows when desirous of feeding corn fodder and timothy hay. Grain prices as follows: Oats, 25c; corn, 30c; bran, $13; O. P. oil meal, $22; gluten, $16.

Also ration when desirous of feeding small amount of corn ensilage with the timothy hay and corn fodder, grain being same as above prices, taking into consideration that plenty of oats and corn are raised on the farm and wish to make ensilage last as long as possible. SUBSCRIBER.

Batavia, Ill.

Oats at 25c per bushel will cost, when ground, about $18 per ton, and corn at 30c, fully $13. The several grains named, if of average quality, will contain the following percentages of digestible nutrients.

	Dry Matter.	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
Oats	89.0	9.2	47.3	4.2
Corn	89.0	7.9	66.7	4.3
Bran	88.1	12.6	38.6	3.0
O. P. oil meal	90.8	29.3	32.7	7.0
Gluten feed	92.2	20.4	48.4	5.0

With timothy hay, corn stover and silage, the principle nutrient to be sought for in the grain is protein, and hence the feeding value of the above grains will be in proportion to the amount of digestible protein in each. It follows, therefore, that it would be profitable to sell the corn and oats at the prices named and purchase bran, oil meal and gluten feed. It is true that bran is not relatively as cheap as either the oil meal or the gluten feed, but it is essential for best results in digestion that the grain portion of the ration shall not be too concentrated, and bran, in addition to its actual feeding value, is the best diluent for the more concentrated feeds—and the lighter the bran, the better will it serve this purpose.

Taking all the elements of the problem into consideration, we suggest for trial, and as an average for the entire herd, some receiving more and others less, the following daily allowance:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
12 lbs. timothy hay	10.42	.34	5.21	.17
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs. bran	4.40	63	1.93	.15
4 lbs. gluten feed	3.69	.82	1.94	.20
1 lb. O. P. oil meal	.91	.29	.33	.07
Totals	25.37	2.25	12.65	.66

When silage is fed, reduce the hay and corn stover at the rate of about one pound of the dry fodder for each three pounds of silage. The rule in regard to coarse fodder is to give only so much as each cow will eat with good relish. Put before her all she will eat, and no more, be the same more or less.

Give a little salt every day.

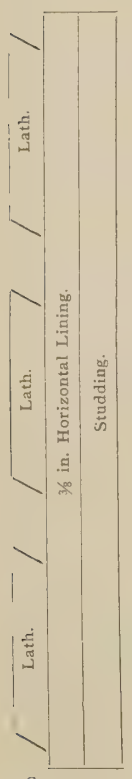
Silo Construction.

Not long since the writer of the subjoined letter, visited Fort Atkinson, for the purpose of conferring with Mr. Goodrich and the Editor of HOARD'S DAIRYMAN, in regard to the best method of constructing a silo, and the general principles to be observed. He is a man of large business experience in many ways and quite accustomed to reach conclusions for himself, when he has the attainable facts at hand. In other words, he thinks for himself, and does not expect others to pronounce as to the particular kind of a structure, machine or implement that will be the "best" for him.

In the matter of the silo, he has reached very definite conclusions, and HOARD'S DAIRYMAN cannot say that he has chosen unwisely. When the structure is complete, we wish he would give, for the benefit of other readers, the full details as to cost, with prices of materials used, and from time to time report on its properties, and the degree of satisfaction given.

The letter was written to Mr. Goodrich, and reads as follows:

I mail you to-day, a specimen of lathing for cement plastering inside a wooden, round silo, as I suggested in our recent conversation. A German mason, who learned his trade in Germany, tells me he is sure it will be all right by using two parts of good sand and one of Portland cement. The lath is very cheaply made, on any saw table, with thin saw, and any inch lumber not too knotty, or very shaky, is good enough, and will handle better in short lengths, necessarily tied in bundles as made. Any damage to plastering of this kind, can be repaired as easily as anything else could. If action of silage on it should be injurious, I see no reason why surface may not be treated with something acid-proof, but do not much fear such difficulty.



SECTIONAL VIEW.

My idea is to build part above ground, on general principles, as advised by Prof. King, except inside finish of this lath and cement plaster over one thickness of three-eighths inch boards, but go six to ten feet below ground also.

I understand you knew of a ground silo with a superstructure, the below ground part plastered directly on the clay surface of hole. Am I correct? If so, how is the superstructure supported? In such a case, seems to me there should be, at least, four columns of stone or brick inside, face flush with face of excavation, from bottom of holes to sills of superstructure, and at least, a foot of something similar all around under sill; in ground at all liable to heave by frost, this also would need guarding against.

Is silage ever salted as put in? Is it desirable, if so? Unless it injures keeping quality, I should think it would be a good way to be sure cows are regularly and sufficiently supplied with salt

When through with it, you may hand this and sample of the lathing to HOARD'S DAIRMAN for any use it may wish to make of them, including criticism.

Warrens, Wis. W. A. BARBER.

REPLY BY C. P. GOODRICH.

In reply to Mr. Barber's questions will say: The particular silo to which I referred is 18 feet in diameter and 30 feet deep in the ground, with a superstruction of wood of 8 feet. It is inside the barn where water and frost will not affect it, and the ground is of such a nature, such as they have on some of the bench lands near the Missouri River, that even if it did freeze it would not "heave." There is no sand or gravel, but it is firm and the earth walls of the silo can be made perfectly smooth and good to plaster cement onto.

Under such conditions all that is necessary to support the light superstructure is to make the earth part just at the top, a few inches wider, so that a thicker coat of cement can be put on. There lay one or two courses of brick around for the sills to rest on.

Where the ground is such as is usually found in Wisconsin, in places where the earth walls can be made smooth enough to admit of being plastered with cement, I think the suggestions of Mr. Barber as to providing support for the superstructure are excellent, especially where the greater part of the silo is above the surface of the ground instead of below it.

I have never known of silage being salted when put in. I am inclined to think it is not desirable to do so, not because it would affect the keeping qualities one way or the other, but because I prefer that cows should have their salt separately every day; then each one could take just as much as she required. Some cows want an ounce a day and some two ounces. If it was salted as put in, it would be pretty fine business to get it so evenly distributed that no cow would not, on some days, be compelled to eat much more salt than was good for her if she ate her full allowance of from thirty to fifty pounds of silage.

The sample of lath which is sent is what is called by some, diamond lath. It is nailed on the inside lining horizontally without any furring. The lower edge of a strip of lath is beveled off on the front side and the upper edge of the strip below it, is beveled on the back so that the cement that goes in the crack between the laths forms a sort of hook to hold it firmly on. This looks as though it might be an improvement over the common square edge lath. But after all I do not see what there could be to make the cement plaster come off even with common lath. There can be no pressure from behind it and in a round silo it is in the form of an arch, which, if the coat of cement is heavy enough, would prevent its coming off. C. P. GOODRICH.

Forage Crops for Cows.

[Paper read at the North Carolina Dairymen's Association at Concord, by MR. C. C. MOORE, of Mecklenburg County.]

"There is a something that draws a man to dairy work; that it is that induces one to stick to a work that is so exacting and that requires 365 days work each twelve months, counting Sundays, Thanksgiving, 30th of May, July 4th, Christmas and New Years. I do not know what holds us, but it is true that once a man gets into the work he is a prisoner for life.

"I, as a boy, spent my days selling goods and book-keeping. During my business life at merchandising, I had the financial management, for five years, of a firm doing a business of $120,000 yearly; at times I thought it impossible to pull through panic years and while doing this work I thought it the hardest to manage to a success, of anything I should ever attempt. That was easy compared to my work for the past nine years. I have found more tight places to pull over in a little dairy business, aggregating $8,000 per year, and harder work to get over them than I found in all my former occupations; because of the multitude of leaks found in dairy work.

"One great cost of this work is feeding. A dairyman must study the feed question and just as long as he makes all food needful there is hope of success. To buy cow food to produce milk or butter will break quite a rich man.

"What shall a man plant to produce food for milk cows? I speak only from experience, so far as feeding for milk is concerned. Butter making may require different feeding. I do not make butter, so cannot speak on that line.

"Corn is my favorite, it is at home and will produce more cow feed on any land than any plant I have tried. We plant every week or ten days from March 1st to August 1st, if land is in condition.

"Our first planting in March is of improved Golden dent and Gentry Early Market. Either variety will grow to good feeding conditions in ninety days. Owing to the wet spring we did not plant this year until April 22d. Gentry planted that day is now ready to tassel out althought the land has not been wet since planted. We spend much time preparing land for crops and think the extra work is good pay.

"Plant with drill in rows 3½ feet; plants in drill six to ten inches. When land will work, the Thomas harrow is dragged over every week until corn is six inches high. If a rain falls the harrow is run over as soon as land dries enough to hold up a horse, afterculture is with Globe's cultivator, unless by reason of rain the grass starts on row; a small plow is then used to cover the grass.

"We try to plant corn every Saturday. This plan gives soiling for cows from July 1st to November 1st; to feed we cut three or four inches from ground with a short handle hoe, at barn we cut to one inch length and feed about two bushels to a cow daily. If weather is favorable the corn harvester is used for half day, cutting enough to feed ten days.

"Sometimes a lot will ripen faster than we feed; we cut and shock for winter feeding.

"Corn for silo is planted very much as for soiling except that we plant nine to ten quarts soy beans per acre in same rows with corn at last working. Peas, of running variety, are sown. The corn harvester clips everything on the row so that we get for the silo, corn, beans, peas, weeds and Means' grass. Where other farmers would strip fodder, we cut for silo, finding silage from corn nearly ripe to be better for milk-making that that cut at roasting ear stage. If we had to give up all forage plants except one, and had to choose that one, corn would be our choice.

"A variety is best, however, and we project with a lot of forage plants. For summer no food we have found is better than sorghum. Cows are fond of it, the milk is sweetest I ever drank, the crop is easy grown, not at all checked by drouth, and if planted in April two feedings are had from one planting.

"Milo maize, kaffir, pop corn and pearl millet are al good and are cultivated as the sorghum crop. The cows enjoy an unexpected change; for their pleasure we grow several of these crops each year—any of which may ripen ahead of consumption is cured for winter use.

"Sorghum and peas grown together is fine feeding. We take an acre on which forty or fifty loads of manure is spread, before plowing, break with Hancock rotary plow, five horses; follow with sub-soiler, two horses, roll down flat, sow three pecks peas, one half bushel sorghum, cut in with disc harrow, four horses, drag twice with Thomas harrow. Just try this one time if you want feed. When sorghum leaves are well spread we begin to feed, and we always see an increase in the milk flow.

"Peas and German millet produce our favorite winter forage to go with silage, on a clean, mellow seed bed. We disc in three pecks, and roll. When peas begin to sprout ¼ bushel of millet is sown and bushed in—the weeder is nice for that. To grow a big crop use manure liberally. Cut for hay when millet blooms—never mind condition of peas. We windrow same day we mow, let lay twenty-four hours if hot weather, then put in barn from windrow.

"If I can have plenty of silage and plenty of pea-millet hay all winter I can make milk and not be dependent on cotton oil mills or flour mills. Both are greedy concerns, ready to grab every dollar the milk man gets.

"I will not mention silo or silage. There are present those who can tell all about this great plan for winter feed. I do wish to speak about the dry corn fodder. Unless a farmer has more forage than he can haul to the barn or stack, by all means the corn should be cut close to the ground at fodder pulling, stack on tripod, leave until cured, husk corn off and feed—it will surprise any farmer to see cattle, horses and sheep pick at the corn stover for hours after having had a full feed in barn.

"We cut corn with the McCormick harvester, husk and cut with husker, feed the cut stover with silage during winter or mix with bran and meal, and feed as mixed feed, or dry—it is good any way.

"I have seen tons upon tons of stalks and fodder left standing in the corn fields after corn was gathered and by December, and all winter, and even as late as June, have seen farmers who discarded such excellent fodder, haul cotton seed hulls six to ten miles and pay $3 to $4 per ton for it. There is a leak through which many dollars from farmers pockets is flowing to the bank account of the American Cotton Oil Co.

"If all the corn growing now in Cabarrus county, could be saved entirely, the new oil mill would find few farmers to buy their hulls.

"Just for the 'big' of the thing I throw away $10 to $15 each year for red clover seed. I read so much about red clover, and in fact, years ago I had such fine crops to grow that I just cannot drop it. However, the crop has failed with us for six years. Valuable as clover is, I am not convinced that it is better or more profitable than pea-millet hay. We have concluded to drop clover and sow peas. Sow at every opportunity and on all available land from May 1st to July 20th. If we do not cut a vine the crop is a paying one.

"At Double Oaks we usually feed pea vines August, September and October. One or two acres are mown and raked when wilted and put in large cocks. As needed we haul to cows. Have had such out in three days rain, but suffered no loss. Cutting a lot at one time is a saving of time, besides the wilting of vines is an advantage, as the milk will not taste so strong of the pea flavor.

"While red clover has failed for us, we have had great success with the crimson. We like it better each year and sow larger fields than we did before. We have learned the value of this plant. We seed crimson clover with oats—sow in August or September—one peck of crimson to one bushel of oats per acre. If land is moist at time of sowing we always get good results. We sow with rye, also with millet, and last August, sorghum was tried—½ bushel sorghum seed to one peck clover. Cut sorghum as hay about the middle of October. When raked up we found a fine stand of clover, which went through winter safe and make a splendid growth in the spring. We shall try same plan this year. Cut clover when coming in bloom—a tender, sweet hay is secured and all stock are fond of such. Lucerne is appreciated for an early cut for spring feeding. The plant suffers in dry summers but we find much value in the crop when we seed with oats in September—

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Without good health we cannot keep situations nor enjoy life. Most troubles originate in impure blood. Hood's Sarsaparilla makes the blood rich and pure, and thus promotes good health, which will help you "keep your place."

Hood's Sarsaparilla
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but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

even if but two cuts are made from one seeding it is good pay. The finest hay can be made by cutting lucerne and oats at time oats is in dough state—the crop cures a green colored hay and is soft and tender. On nicely prepared seed beds, sow one bushel of oats, cover with disc harrow, then sow ten or eleven pounds of lucerne, cover with cedar or stiff brush.

"Lucerne seed is not so high in price as it was some years ago. Any farmer can seed one or two acres at a small cost.

"If we have a corn field not to be sown in wheat or oats, we seed down with a mixture of wheat, oats, barley and rye, sowing in August, if possible. From this we get winter grazing for young cattle and find it a great help to the young cattle.

"All milk men know the value of an early crop in the spring—the cows look for an early bite, and always pay for the same in an increase of milk.

"For the first cutting we find rye and crimson clover the smartest crops—to induce to do their fastest growing, we select a spot of land which warms up early in spring, on this we spread twenty-five two horse loads of cow manure per acre and plow under, sow our seed, then on top put on twenty-five loads horse manure (all manure is put out with Kemp distributor); the horse manure serves to keep young growth warm and when winter breaks, the crop is soon ready for cows. Oats and lucerne come next; then wheat, surely is a fine milk producer. Since we learned the value of green wheat we feed great quantities, sow two bushels of wheat, one peck crimson clover per acre. This combination makes a fine soiling crop.

"About November 15th to 20th we try to sow one bushel Canada field peas, one bushel oats and one bushel barley per acre. The three kind of seed stand our average winter all right, if a very hard winter follows we sometimes lose the pea crop, but success is more frequent than failure. When all go through the winter we get a heavy cut either for green feed or for curing for forage.

"If weather in January is favorable we sow the same combination, but later than February 10th it is not advisable to sow Canada peas. Plow in peas pretty deep, five or six inches is our plan, cover barley and oats with disc harrow, or put in with grain drill.

"For my use and business, I am convinced that land brings more money to me when used for producing forage than is the case when I try any other crop. Buying the rough food for horses or cattle, is an expensive business, both in money paid for it and the hauling. I can excuse a man with 60 or 100 cattle for buying forage, but the farmer who has ten or twenty head to feed, needs to figure a little before he neglects the forage crop to enable him to produce larger money on sale crops."

Silo Experience.

A Michigan Dairyman on Silos and Silage.

ED. HOARD'S DAIRYMAN:—In response to your request for silo experience, I will state that for the last five years I have been filling silos and feeding ensilage.

My silos are four in number, two for winter feeding, which are 8×8 and 9×9, and two for summer feeding, each 6×6, all being 22 feet high; they are all square, and built on the same pattern—they might be called "cheap silos." I used horizontal studding, 2×8 lapped and spiked at the ends, sided up and down with a good quality of well seasoned, white pine flooring, which has previously been painted both sides with one coat of Venetian red and oil.

Only one thickness of siding is used and no paper. These silos cost from $30 to $50 each, to build.

I am going to build two more on another farm next month. They will be of the same construction as those I have built, because these silos have been perfect with me, and I see no reason for putting in any more money in a silo than is necessary to get good results.

My objection to round silos is, that placed in a barn, there is a large amount of waste room around which cannot be used, and they are more expensive to construct.

In each corner of my square silos I nail in 2×6 plank properly beveled; thus rounding the corners, and with five years experience I have not lost ten bushels of ensilage, except that which necessarily spoils on top, I attribute this, in a large degree, to the care I take in filling. I always keep two men in the silo, one constantly throws the ensilage upon the sides of the silo, keeping the sides three feet higher than the center.

The other man's instructions are to keep tramping constantly upon the edges of the silos, giving a little extra tramp in each corner

I never have any spoilt ensilage in the corners. For three mornings after filling, I give the ensilage a thorough tramping, then wet it down thoroughly, using no other covering.

I commenced feeding the silage last November, and have fed it every day since, and am now feeding one-half bushel twice a day to each cow, which they eat greedily; and they have good June grass pasture. I still have one small silo which I have not opened.

I have wintered twenty head of Jerseys, and am now milking twelve cows, and the corn necessary to fill these silos was raised on four acres of creek bottom land. The bottoms of my silos are cemented. Seven similar silos have been built by my neighbors and all are giving perfect satisfaction.

The details of construction and picture of my silos can be obtained in special Silage Bulletin Number 6, issued by the Michigan State Experiment Station, Lansing, Michigan.

The construction of my silos and methods of filling the same, having proved so nearly perfect, I have no desire to try any further experiments.

Ensilage is cut in one-half inch lengths by a steam thresher engine. Last August I filled the four silos mentioned in two days, and drew my corn one mile.

J. W. HELME.

Lenawee County, Mich.

Notes From Sigworth Farm.

Drouth in Pennsylvania.—Packing Summer Butter.—The Gravity Separator.

ED. HOARD'S DAIRYMAN:—Our spring was wet and cold, so our planting was late, and on account of bad weather, a good deal of the corn failed to grow, and when it got more favorable weather, about June 5th, there was a good deal of corn planted in, since when, until to-day, July 17th, we have had but two light showers, neither of which was sufficient to soak to the corn roots. Now it has rained for twenty-four hours, a steady soaking rain. By oft repeated cultivation, we have saved our corn crop, and it will make a fair yield.

Hay is about all made, and was not more than a half of an average yield. New meadows were very weedy; pastures had dried up so that cows, where dependent on pasture alone, had shrunk one-half on their milk; hay is selling in our local market, higher than for years at this time, and butter is retailing at twenty cents per pound against fifteen cents, at same date last year.

Our butter is about all contracted for at twenty-two cents per pound by the year. We aim to make as much in winter as in summer, but when we have an over supply in summer we do not sell way down at low prices, but pack, and find very ready sale in winter, for it.

Our method is (we are always very particular) to be sure the buttermilk is all worked out, salt a little heavier, work moisture out well, pack in two to four gallon jars, well cleaned and thoroughly scalded; cover with a layer of cheese cloth, and put on two inches of salt on top of cloth, and set jars in coolest, airiest place in cellar. Then in winter we churn it through fresh buttermilk, and prefer it for our own use, to winter butter.

The outlook for dairymen has not been better for several years, and, Mr. Editor, keep on hammering at butter frauds, and all frauds in general.

Just now our country is suffering from an attack of the jaw of the gravity separator man, and some of our farmers are investing seven dollars in a three dollar can, with the privilege of feeding milk that is half water; but the agent tells them one gallon of this mixture is as good as one gallon of pure skim milk. Those are the fellows who cannot afford to take a farm or a dairy paper, but invest in all fakes. Truly the farmer is the easiest hoodwinked and bamboozled man in existence. But we have the assurance, in the increased circulation of such papers as the DAIRYMAN, and a host of good farm papers, that this condition will soon change. So mote it be.

Franklin, Venango Co., Pa.

A Dairy Barn.

Mr. L. D. Snow, prominent a dairyman of McLeon, Ill., has just completed a barn for dairy purposes, which contains some interesting features.

The barn is 40 by 80 feet and has room for forty-two head of cows, beside a stall for calves and room for fifty tons of hay, and sufficient storage for other foods. A feature of the structure is a feed trough, which is also used as a water trough. It is V shaped and set into the feed floor in front of the animals' head. The water is let into the trough at the end by means of a pipe, and when all of the animals have been watered, the water is shut off, and the trough used for placing the feed. Another new feature of the structure is a means of ventilation. A cap roof or comb to the roof, allowing an air passage of six inches. Directly beneath this is a passageway to the floor of the barn is a row of loose boards or traps, which can be opened and the air draft goes directly from this trap to the roof and out. The draft in this way does not blow over the animals in the barn chilling them, but passes directly in front of their heads, and upward furnishing fresh air. Mr. Snow now has room for eighty head of cows.

Seeding for Fall Pasture.

To a Holmen, Wis. correspondent of the Wisconsin Experiment Station, who writes inquiring about the best seeding for wheat stubble for fall pasture, Professor Henry says:

"By all odds the best crop for this purpose is barley, sown at the rate of two bushels of seed per acre. The barley plant stands considerable freezing in the fall without showing injury. In this particular it is much superior to oats or wheat. In favorable falls, barley sown after grain harvest will form heads and occasionally ripen the grain. One should not look for a second crop in this way, however, but when the young plants are half knee-high turn in the cattle and graze off the field as though it were a pasture lot. I strongly urge farmers who can do so to try a pasture field of summer-sown barley this fall. Rye is next to barley for fall pasture, and since it lives over the winter is sometimes more satisfactory, since it will again furnish pasture in the spring.

"At the University farm at the present time, we have two fields sown to oats, with grass seeding additional. We have had sheep pasturing on one of these lots and dairy cows on the other. In both cases the pasture has proved a success.

"Farmers should learn the value of wheat, oats, rye and barley, especially the last two for pasture purposes. In every case sow clover and timothy with the grasses in the hope of getting a good stand of these. This may not always be best, but the venture is worth the cost of the seed.—*Wisconsin Agriculturist.*

Did you ever See a Snow Storm in Summer?

We never did; but we have seen the clothing at this time of the year so covered with dandruff that it looked as if it had been out in a regular snow-storm.

No need of this snowstorm.

As the summer sun would melt the falling snow so will

Ayer's Hair Vigor

melt these flakes of dandruff in the scalp. It goes further than this: it prevents their formation.

It has still other properties: it will restore color to gray hair in just ten times out of every ten cases.

And it does even more: it feeds and nourishes the roots of the hair. Thin hair becomes thick hair; and short hair becomes long hair.

We have a book on the Hair and Scalp. It is yours, for the asking.

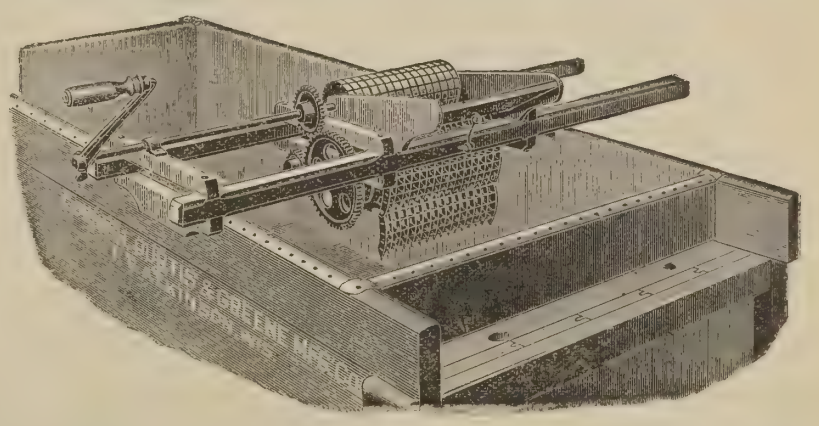
If you do not obtain all the benefits you expected from the use of the Vigor, write the doctor about it. Probably there is some difficulty with your general system which may be easily removed. Address,

DR. J. C. AYER, Lowell, Mass.

Some Elegant Stock Ranches

In the **best blue-grass section of Iowa**, for sale at low prices. Write for list and descriptions to **C. W. WALDECK, Burlington, Ia.**

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

THE creamery men in Southern California have organized themselves into an association for the purpose of promoting their interests in every possible way, but especially in the matter of securing stable and profitable markets for their butter. An effort will be made to thoroughly canvass Arizona and New Mexico in this behalf.

SEPARATOR skim milk is one of the best possible foods for calves *if* it is fed warm, fresh from the separator, and clean.

There is not a worse food for calves on the face of the earth, than separator skim milk *if* it is old, stale, cold and dirty.

The fact that some dairymen feed it in the first condition and others in the second condition, accounts for the varying opinions that we hear expressed concerning the value of separator milk. According to the quality of the skim milk fed, so will your calves be. Which class of milk do you feed?

Roof for a Stave Silo.

ED. HOARD'S DAIRYMAN:—In connection with the description of the stave silo at Purdue Experiment Station, recently reprinted, the following description of the roof, put on at a cost of $10.50, after the filling, may not be amiss.

The past year's evidence and growth in silo experience, suggests that in some cases, a roof may not be a necessity, especially where little snow falls. Still many will want an inexpensive roof on their silo.

In the accompanying sketch the 2×6 A, A. were p'aced on edge and toe nailed to the top of the staves they rested on. The projection is for supporting the carrier at filling time. They are tied together by the short pieces E.

The roof is in three sections G, H and I. G and H are hinged to the frame A, A and may be tipped up when the silo is nearly full, to allow filling to the top. The narrow middle section is light enough to lift off on either side, and leaves the opening for the carrier to deliver into.

On the frame work B, B and C, C cheap sheetingboards are nailed. This is then covered with tin, soldered joints and painted.

The section should be fastened down by means of staples and hooks, or other device; the hooks are used on this one. On the inner edge of G and H, 2×2 inch strips K, are nailed; close to these are placed similar strips J, to which the cross boards are nailed, forming the section I, of the roof.

The tin on the section I should come over the edge on to J. On the other sections it should run up on the side of K, making a water tight joint.

The sections, G and H have a slope of nearly 3 inches, being the difference in height of A and C. C is notched at the outer end one inch.

Lumber	$4.00
Tin put on and painted	$6.00
Hardware	.50
	$10.50

This silo was opened at midwinter. The ensilage had kept in excellent shape; no spoiling whatever about the sides or doors. The last of it is now (June 28) being used to supplement pasture.

H. E. VAN NORMAN.

Indian Experiment Station.

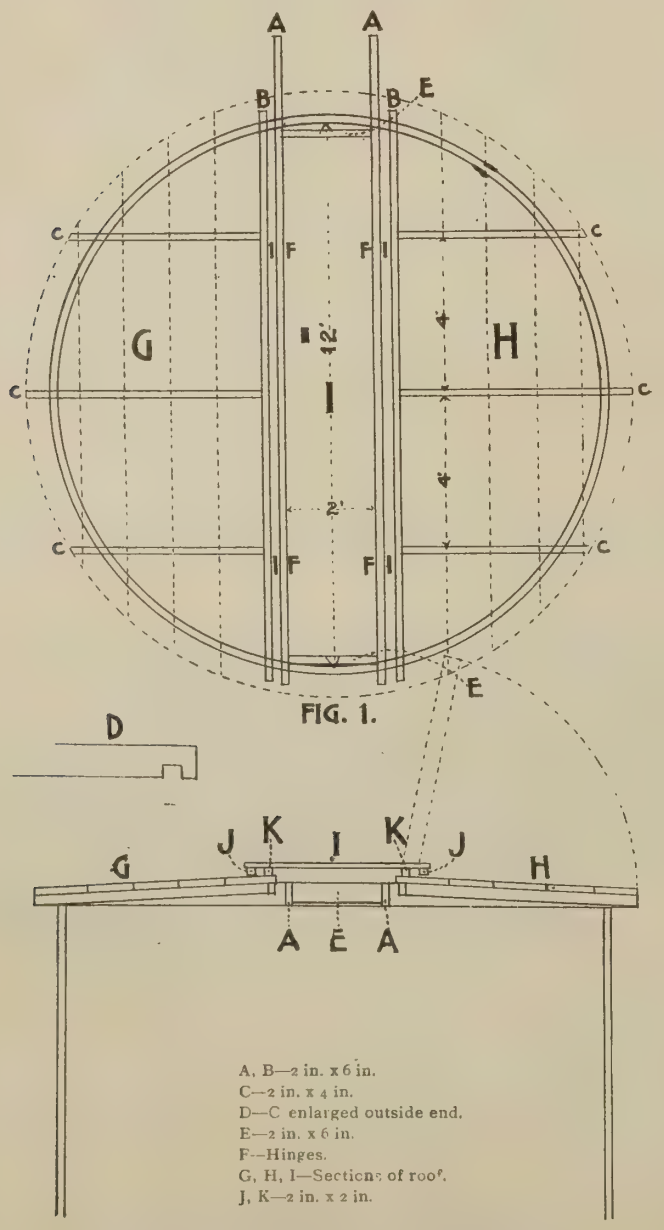


FIG. 1.

A, B—2 in. x 6 in.
C—2 in. x 4 in.
D—C enlarged outside end.
E—2 in. x 6 in.
F—Hinges.
G, H, I—Sections of roof.
J, K—2 in. x 2 in.

A CHEAP ROOF FOR A STAVE SILO.

Handling Machine Cut Corn.

ED. HOARD'S DAIRYMAN:—Last year, John Gould told us how he shocked his corn that was cut and bound by a machine; this was the dry fall of '97. We would like to know if he shocked the same way last fall, and with what success. C. B. C.

North Manchester, Ind.

ANSWERED BY JOHN GOULD.

All of our overplus corn fodder, especially a five acre field of husked corn was put up "this way," the wet fall and winter of 1898-9, and the success was fully as great, even more so, because the shocks could not fall down or get leaned very far out of perpendicular.

The stalks in the field corn lot were sold, as we had no use for them, and the buyer allowed them to stand there until into March before he drew them, and then pronounced them the finest he had fed through the winter. The whole secret in the matter is to reverse the bundles in the X, so that a top covers the butt of the bundle before it, and so on up as far as the cross piling goes, and when filling into the corners or angles, go round and round, so as to intermix the tops, as they are made more rain proof I think by this plan, than where a corner angle is filled at once.

A couple of shocks of silage corn were purposely left in the field, and only removed when plowing, last May, and they looked so nice and bright, that a neighbor begged them



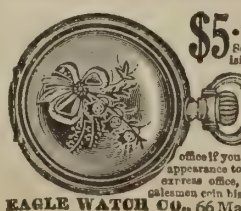
Stock, Dairy, Hay and Hop Ranch.. 1100 acres consisting of 800 acres cleared, alluvial land, and 300 acres in timber and brush. On Yakima River, Yakima Co., Wash.; abundance of water and independent water distributing system. Close to N. P. Railroad, near foot hills and outside Range. Mean temperature, winter (Nov Feb.), 31 degrees, summer 59. Annual rainfall 10 inches. Alfalfa 3 and 4 crops a year. $45,000. 25 per cent cash, balance in annual installments. This property pronounced by independent judges to be unique for a Stock and Dairy farm. Can be sold in 80 acre tracts.
E. SHORROCK, 94 West Columbia St., Seattle, Wash.


BUGGIES, HARNESS, SEWING MACHINES at wholesale prices: No agents, no middlemen, no money in advance, 40 per cent saved. Sent subject to examination. We discount prices of any other company. We also sell Plows, Cultivators, Harrows, Binding Twine, 1000 other things. Send for free catalog. HAPGOOD PLOW CO., Box 427 Alton, Ill.
P. S.—We are the only Plow Factory in the United States selling implements direct to the consumer.




We carry a complete stock of all kinds of RUBBER and LEATHER BELTING. We buy our goods at Sheriffs' and Receivers' Sales. Write for FREE ILLUSTRATED CATALOGUE No. 20 on Hardware, Pipe, Roofing, Plumbing Material, Tire, Rope, Dry Goods, Clothing, etc., etc.
OUR PRICES are ONE-HALF of OTHERS
Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

HAVE YOU SEEN THE
Jack of All Trades?
PUMPS WATER — SHELLS CORN — GRINDS FEED — CHURNS BUTTER —
—and hundreds of other jobs with the strength of 15 men. Most Convenient and useful power ever invented. Costs only TWO cents per hour to run. Especially adapted to farm work.
IT IS A **NEW ENGINE** MADE BY
Fairbanks Morse & Company
Chicago, Cleveland, Cincinnati, Louisville, Indianapolis, St. Louis, Kansas City, St. Paul, Minneapolis, Omaha, Denver, San Francisco, Los Angeles, Portland, Ore


$5.95 DIAMOND STUDDED CASE
Solid 14K Gold Plated Case 3 Parisian Diamonds, and Rubies. American movement Jeweled & accurately regulated stem wind & set. Warranted for 20 years.
Sent C. O. D. $5.95 with privilege of examination. Do not take from the express office if you think this watch is not equal in appearance to a $50 watch. Mention nearest express office, Ladies' or Gent's. Agents and salesmen coin big money. Address
EAGLE WATCH CO., 66 Maiden Lane, New York

for horse feed. The bottom bundle was pretty badly soaked but that was all. The mice and squirrels had husked out the corn grains, but were otherwise thankful for a good protecting roof over their bodies. We made about forty to forty-five bundles of tall silage corn into a shock. With shorter field corn fodder it is not possible to make them so large, though by breaking two bundles across the top, we had good success with the larger ones.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Board of Trade opened with a small offering of butter this week; but 5,700 pounds being put on the board. One buyer offered 18 cents, but the manufacturers refused to sell, and then when the Call Board closed, no orders were reported. The Quotation Committee quoted the market steady at 17½ cents. The total output of the week was reported as 756,000 pounds.

Former markets:

July 17, 1899, 96 tubs sold at 18c.
July 25, 1898, 56 tubs sold at 17½c.
July 26, 1897, 300 tubs sold at 14½c.
July 27, 1896, 915 tubs sold at 14@15c.

New York butter steady at 18 cents.

Elgin, Ill., July 24. H. C. B.

Saving Fertility.

The effect of continual cropping in the exhaustion of soil nitrogen has been made the subject of study in planting peas, buckwheat, oats, etc. The results of the experiments show that only the leguminous plants were able to utilize the nitrogen of the air. An increase was noticeable in the yield of each succeeding crop of peas, while with the non-leguminous crops, each succeeding yield was poorer than the preceding one. The experiments simply show, what every farmer knows, or ought to know, that planting clovers, cow peas, vetches or any legumes, tends to constantly improve the soil, while cropping with non-leguminous plants, such as corn and wheat, unless fertilizer of some kind is used, constantly depletes the soil. Vast amounts of fertility can be saved to the soil, by the liberal planting of leguminous crops—*Wisconsin Agriculturist.*

DAIRY MARKETS.

ELGIN, Ill., July 24—Butter—95 tubs offered; 18c bid; no sales; committee reported steady at 17½c.

CHICAGO, Ill., July 24.—Butter—Creameries, extra, 17c per lb; firsts 16@16½c; seconds 14@15c; dairies, fair to choice 12½@14c; fancy 15c; imitation creameries 12@14c; ladles, extra 13@13½c.

Cheese—Full creams, Young Americas quoted at 8¾@9c per lb.; Twins 8½@8¾c; Eastern makes, Twins 8⅝@9c; Cheddars 8¾@9c. Special Lines—Swiss, new 9@9½c; Brick, choice 8@8¼c; Limburger, new 8@8½c.

Eggs—Strictly fresh stock, loss off, cases returned, 11½c; candled, cases included 12@12½c.

Bran—Sales at $11.75@12.00 per ton.

Cattle—The choicest grades of beef cattle ruled strong to 10c higher, while all other grades were no better than steady. The general market was active, and an early clearance was made. Most grades of beef cattle are 20c higher than a week ago, and about that much higher than a year ago, when the top was $5.65. A load averaging 1,588 lbs. sold to-day at $5.80, with a dozen loads at $5.75. Most of the beef cattle sold at $5@5.60, with comparatively few below $4.75; corn fed Western steers $4.50@5.70; distillery steers 1,076@1,342 lbs. $4.90@5.45; straight Texas steers $4.00@4.80 with thin grassers 524 lbs. $3,25; Texas cows $3@3.40. Texas calves 167 lbs. $3.60. About 1,000 Texas cattle sold at steady prices. Native cows sold principally at $3@4; heifers largely $4.10@4.70; distillery bulls 1,240@1,272 lbs. $4.50; stockers and feeders $3.50@4.65.

MILWAUKEE, Wis., July 24—Butter—Creamery—Fancy prints per pound 18c; extras per pound, 17½@18c; firsts 16@17c; seconds 14@15c; imitations per pound 14@15c. Dairy—Selections per pound 14 cents. Market unchanged and moderately active; receipts 16,230 lbs.

Cheese—American full cream—New, choice to fancy, 9@9½c. Brick—New per pound, choice, 8@8¼c. Limburger—New, choice per pound 8@8½c. Swiss—Drum, choice, 12½@13c; new block, choice, 10@10½c.

Eggs—Fresh per dozen 11½c; loss off, cases returned. Market stronger and more active; receipts 294 cases.

AVOCA, Wis., July 24—Offerings on Lone Rock and Muscoda Dairy board to-day were 1,577 boxes. Market active and all sold at 8¾@8⅞c for Twins, and 9c for Daisies.

FOND DU LAC, Wis., July 24—Offerings 700 Twins, with free sales at 8⅞c.

HORTONVILLE, Wis., July 13.—Cheese—Offering on Board to-day were 440 Cheddars and 1,068 Twins. Sales: 326 Cheddars at 8⅝c; 2 6 Twins at 8¾c; 500 Twins at 8⅝c. Ruling price: Cheddars 8⅝c; Twins ⅝c. Market active.

BRILLION, Wis., July 21—Sales at Brillion Dairy Board to-day 100 Young Americas, 8¾c; 445 Young Americas, 8⅝c; 1,394 Daisies, 8⅝c; 849 Twins, 8⅝c.

PLYMOUTH, Wis., July 18.—Sales today, 1,243 twins at 8¾ c; 840 Americas at 8¾c and 250 Americas at 8⅞c, market firm.

SHEBOYGAN FALLS, Wis., July 19.—There were 1,240 boxes of cheese offered on the Call Board to-day, and all except two lots were sold, as follows: 100 cases Young Americas at 8¾c; 731 at 8⅞c, and 214 boxes Twins at 8¾c.

MANITOWOC, Wis., July 19.—Offerings of cheese at the Dairy Board of Trade to-day were: 800 boxes Daisies, 950 boxes Twins, 900 boxes Young Americas. All offerings sold at 8½c.

BERLIN, Wis, July 15—Cheese—The offerings on the dairy board to-day were 341 Twins and 22 Cheddars. All sold at 8½c.

CHILTON, Wis., July 12—Cheese—The sales reported on the dairy board to-day were 520 boxes Twins at 8¾c and 640 cases Young Americas at 8½c.

APPLETON, Wis., July 13—Cheese—On the Appleton call board to-day the offerings were 135 Cheddars and 396 Twins. Sales 180 Twins at 8¾c. Market brisk. The board will meet hereafter at 4:30 p. m.

NEW YORK, July 24—Butter—Creamery Western extras, 18c; firsts, 17@17½c; state extras 18c, firsts, 17@17½c.

Cheese—State full cream large colored or white choice, 8½c; small, 8¼@8¾c.

Eggs—State, Pennsylvania, and Western, 15@16c.

BOONEVILLE, N. Y., July 16.—Cheese—On Board of Trade here Friday 40 boxes of colored cheese sold for 8⅛c: 525 boxes at 8¼c; 150 boxes at 8⅜c; and 100 boxes at 8½c. There were 200 boxes large white sold at 8½c and 870 boxes of small colored at 8½c.

UTICA, N. Y., July 16.—Cheese—Prices were 8c. 8¼c, and 8⅜c.

LITTLE FALLS, N.Y., July 16—Cheese—Prices ranged generally about 8@8⅛c, with some small at 7¾c.

BALTIMORE, Md., July 24—Butter—Market quiet; creamery separator extra, 20c; extra firsts, 18@19c; creamery first, 17@18c; creamery imitation extra, 15@16c; ladle extra, 14@15c; Western store packed, 11½@12½c.

Eggs—Market quiet; strictly fresh stock, 11@11½c.

PHILADELPHIA, Pa,, July 24—Butter—Solid packed separator creamery extra, 18½@19c; creamery firsts, 18c; seconds, 16@17c; imitation extra, 16c; firsts, 15c; seconds, 13c; ladle packed extra, 14@14½c; firsts, 13½c; seconds, 13c; print butter creamery extra, 21c; firsts, 20c; seconds, 18@19c.

Eggs—Pennsylvania and near-by, 13½@14c; Western, 13½@14c; Southwestern, 13c; Southern, 10@11c; butter firm; eggs firm.

ST. LOUIS, Mo., July 24—Butter—Steady; Creamery, 15@18½c; dairy, 12@15c.

KANSAS CITY, Mo., July 24.—Butter—Creamery 14½@16½c; dairy 14c.

Eggs—Fresh 9c.

DETROIT, Mich., July 24.—Butter—Creamery extra 19c; firsts 18c; fancy dairy 15c.

Eggs—Weak, recandled 13c.

NEW ORLEANS, La., July 24.—Butter—Market dull 18½@19c.

NEWARK, N. J., July 24.—Butter—Market quiet; 18c for fancy creamery. Receipts liberal.

Latest quotation for fancy creamery: Buffalo 19c; St. Paul 17c: Minneapolis 16½@17c.

NEW YORK MARKET.

NEW YORK, July 22.—Butter—Receipts for the week were 54,016 packages; exports for the week 4,591 packages. The position at the close of the week's trading is about the same as reported in our last; receipts continue heavy; quality of many of the best creameries is showing serious hot weather defects, and under inspection grade only as firsts and seconds. Extra creameries are still quoted and sell at 18 cents, while all other grades are freely offered at 16c and 17c. Exporters continue to buy freely, and we note sales of several thousand tubs fine creamery for this account at 17c, and long lines of fair to good ones at 15@16c. Fine June ladle butter is not offering, but sales are reported of several lots current make for export at 13½@14c. We quote—Creamery, extra 18c; medium 16½@17c; poor 15@16c; dairy extra 16½@17c; medium 15@16c; poor 13@14c; ladle, extra 14c; medium 13@13½c.

Cheese—Receipts for the week 33,006 boxes: exports for the week 13,674 boxes. We note a good, active demand from all quarters, and stocks well cleaned up at the close at an advance of fully ¼c per pound over last week's rate. Large and small cheese selling at the same prices. We quote: Full Cream, extra 9c; medium 8@8½c; poor 6@7½c; Part Skimmed, extra 8@8¼c; medium 7@7½c; poor 5@6c.

Eggs.—Receipts for the week 53,628 cases. Market is in the dumps and prices lower and weak at the close. We quote: N. Y. and Penna. strictly fresh laid, per doz, 15@15½c; western and northern, best marks 14@15c; other sections, good to fine 12½@13½c DAVID W. LEWIS & Co.

Nos. 177 & Chambers St., N. Y.

BALTIMORE MARKET.

BALTIMORE, Md., July 20—Butter—There has been quite a bit of seasonable business done this week in separator creameries, of which the receipts have been fairly liberal, particularly from the blue ribbon districts; but it is needless to add that many of the reputable brands have fallen by the wayside, so to speak, in quality, the weather proving too much of a burden for the poor cows to bear. Some of this activity has grown out of the increased demand to supply summer resorts dependent upon this and nearby markets, which latter, in turn, look to Baltimore for a supply, particularly at this time, when the short transits must be made by express to insure carriage in good condition, and Baltimore commands one end of each short transit. With respect to the prices for the under grades it may be said that they have not been altogether encouraging to the shippers; but they cannot be charged against the receivers, because they have done everything possible to get first-rate prices for second-rate goods, with the invariable results. Gathered cream makes have shown a decided decrease in quantity, but have graded relatively better than the separators, and have been sold generally on arrival. This market is very much in need of creameries in thirty pound tins or tubs and the trade that call for this size tub are not so particular as to grade of the contents. Rather an increased demand from out of town and nearby traders for prints and blocks. Store-packed receipts light; demand continues good.

Creamery separator, extras, per pound, 19c; firsts, 18c; seconds, 17c; gathered cream, extras, 17@18c; firsts, 17c; seconds, 16c; Ohio, extras, 17@18c; firsts, 17c; seconds, 16; Ohio store-packed, extras, 12½@13c; firsts, 12c; W. Va., store-packed extras, 12½@13c; firsts, 12c; creamery blocks (2 lbs.), extras, 21; firsts, 20c; seconds, 19c; prints, (½ lb.), extras, 21c; firsts, 20c; seconds, 19c; Md., Va. and Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Cheese—The receipts of cheese are ample. Trade fair for season. Market firm.

N. Y. State Cheddars, fine, 8¾@9c; choice, 8½c; fair, 8@8¼c; Flats, fine, 9@9¼c; choice, 8½@8¾c; fair, 8¼c; small, fine, 9¼c; choice, 9c; fair, 8½c. Ohio Flats, fine, 8½@8¾c; choice, 8@8¼c; fair, 7½@8c; picnic, fine, 9@9¼c; choice, 8½@8¾c; fair, 8¼@8½c. Swiss cheese, fine, 13½@14c; choice, 12@13c; fair, 11c.

Eggs—The market on strictly fresh eggs is some steadier than it has been and for this kind there is a good demand at 10p value, but stock showing the effects of the late hot spell are hard to sell, even at reduced prices. The trade in general want, and will take nothing but first-class eggs at 11½c. There is still some accumulation of off grade stock. Do not ship any eggs of doubtful quality, as they do not improve by age. Oh, no. G. M. LAMB & BRO.

FOKEIGN MARKET.

BOSTON, July 22—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as steady with a further slight increase in values on some grades. Danish remains at 21@22c; Irish 19@20c, but the most active demand is in Canadians, which in consequence of their good landing condition and the weather being extremely warm, they are in great favor with buyers, and some marks have sold this week at 20c, with average lots selling at 19@19½c. There is still a good inquiry for ladles at 14@15c, but values in America prevent free business. Imitations have sold at 16@16½c, and some exceptionally fine parcels have brought 17c. The weather has been excessively hot all over Europe. The pastures however are not injured as yet.

Cheese markets are firm, and the large consumptive demand keeps arrivals well cleared up. Finest American and Canadian are selling at 9¼@9¾c, with white still commanding a slight premium over colored.

MANCHESTER MARKET, ENGLAND.

MANCHESTER, July 8—None of the butter markets this week, evinced any feeling of liveliness, but, in fact, quite the opposite. At Leith the rapid advance curtailed sales; another report says, market at a standstill. Newcastle received less butter, and was dull, with a good proportion left unsold. London was quiet at prices that did not pay shippers, and Manchester operations were conducted cautiously, with buyers endeavoring to evade the last advance. The limited supply of choicest, however, supported prices, and rendered clearance of this class easy. Arrivals were 4,734 Danish and Swedish, 548 Finnish, which, as compared with the same date last year, show the very considerable decrease of 1,774 Danish and 475 Finnish, most of which has been absorbed by the increased f. o. b. trade, importers being obliged, by the short make, to secure their butter in advance of the landed markets. Thus the present high rates f. o. b. have been possible, and the recent Danish official advances justified from their point of view. The official top quotation is unchanged. Top is eleven kroner higher than last year, and stands higher now than any year since 1893, that phenomenal season of weather forecasts upset, great drought, burnt up pastures, water famine, and small butter make. Since our last report, refreshing rains have fallen over most of Scandinavia and fear of drouths has ceased. Markets there are quieter, speculative disposition killed, and a small reaction thought not impossible. Hamburg is firmer and dearer, Irish Centrifugal Creameries are more plentiful and easier. Cork market rates on the week, about 1c lower all around. Quality very fine. Best quality Canadians are now much in evidence. The leading United States markets show no change in values, but all have lost a little of their activity. Speculators are not so sanguine of higher prices, and the make is certainly increasing. Shipments to Great Britain inconsiderable. Scandinavian shipments at sea and Finnish arrivals 20,814 casks, 134 more. Margarines and mixtures in improved demand. Arrivals of margarine, via Hull, 10,517 packages, and via Gimsbym 5,197 packages. DOWDALL BROS.

165,000 Cream Separators.

Follow the crowd and you are usually in safe company. Do as the great majority do and you take few chances. Practical experience may be always depended upon to separate the wheat from the chaff in everything.

This is naturally as true of cream separators as of anything else. The De Laval Machines were first in practical utility. 1899 is the seventeenth year of their commercial use. Throughout this period the De Laval makers have been in the van of every stage of improvement, leading step by step to the perfected "Alpha" disc machine of to-day. The De Laval machines have meanwhile been introduced into every part of the world where dairying is practiced. They have revolutionized the dairying of the world and have been the "keystone" in its modern advancement.

They are as much in the van to-day as in 1883. The "Alpha" disc process of to-day is as much superior in practical utility to other methods of cream separation as was the De Laval machine of 1883 to other creaming methods then in use.

165,000 is the sale record of the De Laval machines. This is probably ten times the number of all the imitating and would-be competing centrifugal cream separators together ever sold. The 1899 sale of De Laval machines has thus far been considerably greater than in any preceding year.

The reasons for De Laval supremacy are known to all those who understand the principles of centrifugal separation. A De Laval catalogue explaining and illustrating separator facts and differences will make it plain to those who do not. Such a catalogue may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Herd of ten high grade Jerseys—made over 300 pounds per cow last year, half being heifers. Also five yearlings sure to make 300 pound cows. Also separator. F. M. SWIFT, Olivet, Mich.

For Sale—Creamery located in good dairy country. Three railroads and express companies. Market convenient. Address "CREAMERY," Lowellville, Ohio. 21-4

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada. 32-52

For Sale—4 Reg. Guernsey calves, 2 heifers, 1 bull. Tuberculin tested. C. H. REEVES, Salem, N. J. 23 2

Wanted—A competent man to operate and manage a 30 cow dairy, selling milk in city. Permanent employment. Jerseys. Address, J. H. BOSARD, Grand Forks, N. D.

For Sale—Fine young Guernsey bull, age 13 months. A Guernsey cow, fresh, gives good mess, but 3 teats, cheap. 4 Cooley cans, new, never used, $1.00 each. H. MOOREHOUSE, Cor. Wentworth Ave. and 19th St., Chicago, Ill.

Wanted—About Dec. 1st, two first-class single men to work on dairy farm. Must be of good habits. Permanent employment to right parties. A. L. FITCH, Westmoreland, N. Y. 24-2

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

Exceptionally Low Rates to Pittsburg, Pa. via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations. July 31 and August 1 (but not for trains arriving Chicago before August 1), limited to August 31, 1899 inclusive, on account of Annual Y. P. C. U., United Presbyterian Church. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Lake Mills, via the North-Western Line, will be sold at reduced rates from certain stations in Wisconsin, August 1, limited to August 2, inclusive, on account of Emancipation Barbecue Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Mayville, Wis., via the North-Western Line, will be sold at reduced rates from stations in Wisconsin, August 4, 5 and 6, limited to August 8, inclusive, on account of Biennial State Turnfest. Apply to agents Chicago & Northwestern Railway.

Reduced Rates to Rock River Assembly, To be held at Dixon, Ill., July 25 to Aug. 8, will be in effect via North-Western Line from stations within 200-mile radius. For rates and dates of sate, etc., on certificate and excursion plans, apply to agents Chicago & North-Western Railway.

Comments and Queries from Robinswood Farm.

Adjustment of Cows to Environment.—Concentrated Foods Unprofitable Under Present Prices.—What to Grow to Balance the Ration.—What Cows to Keep to Consume Unbalanced Rations.

ED. HOARD'S DAIRYMAN:—I am in a position to answer some of the queries I have made in previous issues of the DAIRYMAN as the result of a somewhat expensive experience. I now see that crossing breeds is a very uncertain proceeding as to results. I believe that that much-to-be-desired-all-round-cow can be evolved; but life is too short for me to do anything at it. I would prefer taking one of the established breeds, and work it over into harmony with the conditions of our local environment. That has got to be done before the Gilmanton region becomes the great dairy region for which it is naturally adapted.

No one of the established breeds entirely fills the requirements. If the Devons had been carefully bred and handled for milk and purity in this region, for the last fifty years, they would be the most suitable for our extensive and not luxuriant hill pastures. But Devons are not fashionable now, and it would be too difficult to secure the right blood when needed. Holsteins I rule out; they would use up too much food in creating vitality to move themselves over our pastures. They are too big for the feed of the district, and too used to high feed.

The beef breeds are not for our country of difficult culture and impoverished soils. The middle West can enjoy their impoverishing effect for a time, now. The Ayrshires would do pretty well for us, if we could get them, especially for the milk farmers on the periphery of our hill district. But I don't see but that we have got to take Jerseys or Guernseys and acclimate and evolve them, if we are to continue to make butter making our specialty. The breeder, of course, would want the pure bloods, but the dairyman pure and simple, I judge, should use the pure blood, high pedigree bull, and grade up his herd by degrees, starting with cows that are used to the conditions of the district.

One thing is very evident, and that is, the Gilmanton farmer cannot afford to feed his cows high enough to secure the greatest amount of butter that is capable of being produced by his cows under a thoroughly balanced ration, and a liberal supply of concentrated nutrients. I gave it a fair trial last winter, both as to quality and quantity of food. The product of the herd in milk, both as to quantity and quality, was not excelled by any other herd supplying Gilmanton creamery, yet on every dollar's worth of concentrates bought and fed to the cows, I believe I lost at least fifty cents, even allowing a fair valuation for the feed as fertilizers.

I find on inquiry, that this has been the general experience of all the farmers in our region who have tried the experiment. I imagine that many thousands of butter farmers throughout the country are taking good money out of their own pockets and putting it into the pockets of the grain dealers, the railroad people, the mill men and butter consumers, by buying concentrates for cows at the present price of butter.

So far as I can roughly judge, with butter at present prices, cow feeds now sell at about double what they are worth for butter making purposes. Yet, with labor at present rates we can, in this region, buy digestible nutrients much cheaper than we can afford to grow them. If that is so, how much wages can a man make growing cow feeds and feeding them to cows? At first sight, it appears as if there was not much of a chance for the butter farmer. But with further thoughts we realize that the direct profit from butter is not, or should not be, the main or entire source of profit for the farmer. The main source of profit in the cow is that she is the enricher of the soil and is a means to the securing of many products that can be turned into cash. I imagine that many farmers too often forget that farming is a profession where money is made by savings in numerous channels, not excluding the great saving of being able to supply the family home market.

Farming is by no means the least profitable of professions, because the farmer handles little ready money. There are other profits of life besides the possession of the currency of the land. Nevertheless, the farmer, like everyone else, has got to get up and hustle or he will find himself left way behind in life's procession. The great problem that now faces the Gilmanton butter farmer is, what shall he grow to feed his cows with. He certainly can not afford to buy anything in the way of cow feeds under present prices. Of course the corn crop stands first, and the farmers generally see that, and are increasing their area of corn fodder every year. Then oat hay and clover hay are all right, though clover hay is an uncertain crop with us. Furthermore, the various grasses do better with us than any other cow feed.

A consideration of these facts shows that with these crops alone, there is not only a lack of concentrates, but also a lack of protein in the possible ration that can be compounded from these products. The concentrates are impractical so far as purchase is concerned, and largely so, so far as home production is concerned. Hence we must resign ourselves to a lesser yearly product of butter from each cow, and make it up by feeding more rough foods to a greater number of cows, and furnishing more stable and storage room.

But how about balancing the ration better? Would it not pay us to grow soja beans and field peas for this purpose? Will early cut crimson clover be all right for the cows? How about fall sown sand-vetch for this purpose? Another question kindly answer: Which is the best cow for a butter farmer who cannot afford to feed a perfectly balanced ration, one having a due proportion of concentrates; a cow whose ancestry has been brought up on rations of this defective character, or one whose milking tendencies have been fostered and built up by a perfectly balanced ration and a full supply of concentrates in itself and its ancestors?

Of course we rule out the mature cow thus fed and bred. She would, after years of high feeding, surely do poorly on a decreased nutritive supply. Would it not pay best to take the calf with the all milk tendency, and continually breed from bulls with such inbred tendencies, rather than to take blood whose tendency to bodily fat and growth must necessarily have been fastened by an excess of hydrocarbons in its food in proportion to the proteins. I suppose that all deep milkers would eventually become dual purpose cows if continually fed on a corn and hay diet solely; though careful selection of breeders and persistent milking would prevent the breed from becoming an all beef one.

Will Mr. Fred Zimmerman kindly state the reasons for his belief that he does not want to shrink the tissues by cold application, in local inflammations of the udder? Temperatures both above and below the normal will reduce nervous irritability in inflammations, and prove soothing; but hot applications still further paralyze already distended blood vessels in inflammations and powerfully promote the formation of pus, a desirable thing in extreme cases; but to be avoided, if possible, whenever inflammation can otherwise be practically repressed and brought to an end.

J. M. W. KITCHEN, M. D.

New Hampshire.

Mistakes on the Dairy Farm.

(Read at the Meeting of the Pennsylvania Dairy Association, by FRED LASEUR.)

The first great mistake is want of preparation. Few would embark in any other profession—for farming has become a profession—without some preparatory work. Few farmers have any adequate idea of the capabilities of their farms. The limit of an acre in production is unknown. The limit of the dairy cow seems also to be unknown. We read of a dairy average of 476 pounds of butter per cow per year. Andrew Baker's herd reports about 435 pounds per cow. All dairymen are not liars, and we are compelled to believe some of these statements of yield. It requires skill and perseverance to obtain such results, and they seem far off to me, with my 270 to 300 pounds average per year.

The dairy cow is a conundrum to me. I have never been able to guess her. I have thought at times that I knew something about her, but I have about made up my mind that I don't. It is all very well for learned men to say that "bossy" never makes any mistake, that she is just like a machine and will do for you what you do for her, but if they will take her under all kinds of conditions, they will find that she does some very strange things. I have fed cows under quite varied conditions, and I find that you must have the right kind of cows to start with. They have got to have the capacity. Every cow has her limit, and when you reach it you have got to stop. My cows seem to stop before they reach it. I believe a great many make a mistake in choosing their cows. We must know what we want a cow to do. If we want butter, we must have the dairy cow; if we want beef, we must have the beef cow, and if we want both beef and butter, we have got to have something besides Jerseys. I believe in the special purpose cow for the special purpose farmer, but for the average cow keeper—and most farmers are cow keepers and not dairymen, for real dairymen are scarce—the general purpose cow will do about as well as any.

I have spoken of some large butter yields; now I will mention a small one, and see if you will believe the statement. I have a neighbor who draws milk for a cow-keeper, who keeps an average of about sixteen cows, and gets from the creamery, in eight months, $256. Those cows are not mortgage-lifters, nor the man either. Skill is what counts. Did you ever think that the more skill you sell the more you have to sell?

One great mistake many cow-keepers make (notice I did not say dairymen) is in not building up their soil, for there is where nearly all life is nourished, both animal and vegetable, either directly or indirectly. Robbing the soil of its fertility is a serious thing. It takes too many acres of land to keep a cow in our country—all the way from five to ten acres. I believe we can keep a cow cheaper upon one acre than upon ten. If it took ten acres for me to feed a cow, I could only keep four cows, for I have only about forty acres, and I am only farming twenty-three acres. As soon as I can get so I can farm that I expect to live without work.

We are keeping, this winter, twenty-seven head of stock—sixteen cows, two horses, seven yearlings and two calves. The rough feed they are eating grew upon less than fifteen acres. The grain ration which we feed to our cows costs us at the rate of three and one-half cents per pound of butter, while our cows are not doing anything like what they ought to do. We think we have solved one problem—how to run a dairy and not buy so much grain. We have done it with clover hay and the silo.

The saving of manure is also a very important factor in dairy farming. We are told by scientific men that the nitrogen in the liquid manure nearly all escapes in eight or nine days if it is not drawn to the field. Our manure goes out every day except Sunday. We hope that in a year or two we can cover our farm every year with manure, and with good tillage we think we can commence to produce crops that will pay. We expect our farm to carry twenty-five cows, in two or three years. I do not know how intensive we can farm and make it profitable, but I know I am far from the limit yet. Which is worth the more, twenty-five acres that will keep twenty-five cows, or 100 acres that will keep twenty-five cows? I believe we can produce the feed on twenty-five acres cheaper than we can upon 100, and the cost of production is a very important item in the dairy.

I would like to know what it cost these record breaking herds to produce butter. If they cannot produce it any cheaper than we can with our 300-pound cows, they are not so far ahead of us after all. But I believe, other things being equal, the more butter a herd of cows makes the cheaper it can be produced. What do you suppose it costs to produce a pound of butter from those sixteen dollar cows? I should say about 50 cents per pound. If all farmers knew what it cost them to produce a pound of butter, some of them would change their methods or go out of the butter business. We cannot control the market, but we can, by using skill and intelligence, lessen the cost of production to quite an extent.

We must use the oars we have to row the boat of life; make the best of what we have; take good care of what we have, and improve our methods. We have not all got 400 and 500-pound herds, but let us do the best we can with the ones we have and keep constantly working for improvement and betterment of our dairies. We must test these matters with our own thermometer, measure them all with our own yard stick, and if we find we are not correct, change to correct methods. We must read more, and study more, learn more; read to learn; learn to know; know to act; and when we get that 400 and 500-pound herd we will be in the swim with the rest of the big dairymen.

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Chillicothe, Ohio.

Separators and Their Management.

[A Paper read by MARK SPRAGUE at the Cheese and Butter Makers' Convention.]

One of the common properties of matter, is its indisposition to move. This is manifested in a body by the opposition it offers to any change in its motion. Any such change must be effected by force. In all the older methods, creaming was effected through the influence of gravity, which is, practically, always the same. It is quite different, however, creaming milk with a separator, for in this method the aim is to separate the fat by centrifugal action, which is much more powerful than the force of gravity.

The natural force of gravity, which is universal, and at all times available, and which was exclusively used in cream raising, acts with uniformity, and requires a certain time in which to obtain the best possible results, but even under the most favorable conditions it fails to obtain complete separation of the fat with varied or mixed milk. More perfect separation, and a shortening of the time necessary for creaming milk, can only be effected by the application of a force which will impart to the fat globules a motion far exceeding that given by gravity.

This force is centrifugal force, and it is from this the machines for creaming milk are named centrifugal separators. It can be applied in such a manner that its power exceeds that of gravity more than a thousand times. It is only necessary to subject the milk to a rapid rotary motion in a suitable vessel to produce this force. A machine having suitable arrangements so that when at work, a continuous stream of milk can be admitted, and give out in return separated cream and skim milk, is termed a separator. That portion of a separator which is to hold the milk, and is called the bowl, forms the essential part of every separator, and revolves around a vertical axis, and must always be a rotary body, of necessity made of good material, to withstand the lateral pressue to which it is subjected.

The milk when put into the separator bowl, may be said to undergo much the same conditions and action, as when it stands quietly at rest in a pan or can. Just as milk when it is poured in a steady stream into a can, finds at once, the lowest part of the can, which is the bottom, spreads itself over the bottom in a horizontal layer, and gradually fills the vessel from bottom to top, so does milk allowed to flow into a separator bowl when at speed, find its way with lightning rapidity to the most distant part of the bowl, spreading out into a cylindrical surface until the bowl is gradually filled from the outside to the inside. Just as milk standing in a milk pan at rest, exercises pressure on

the bottom and sides of the pan, due to the force of gravity. So precisely milk, in a separator bowl in motion, exercises a pressure on the sides of the bowl, which is due to centrifugal force, and is in proportion to the speed and diameter of the bowl. As the fat globules move upward in the pan, in a direction opposite to that in which the gravity acts, so the fat gobules in a separator bowl, filled with milk, and in motion, travel in a direction opposite to that of centrifugal force, or inward or from the outside to the inside of the bowl.

Separator bowls are so constructed that the milk flowing in is delivered into them near the circumference, or at a point outside of the perpendicular layer of cream, to avoid the milk passing with force through these layers and displacing them and thus interfering with perfect separation. The outflow of cream and skim milk from a separator bowl takes place with considerable force or energy and is proportionately equal to the speed at which the bowl is driven and the distance from the axis at which it delivers. In order to reduce the force as much as possible to avoid whipping the cream, the exit for the outflow of cream is placed as near the axis as can be. The outflow of cream and milk together equal the amount of milk which flows into the bowl in a given time. The proportion of the weight of cream to skim milk is determined by the rapidity with which the milk flows into the bowl, and in all separators the thickness of cream can be regulated at will by this means when the separator is at speed. For the winter season, in almost all separators, there are arrangements whereby it is possible to regulate the quantity of cream with a uniform inflow of milk and to adjust the separator to skim milk successfully, of different percentages of fat and maintain a normal capacity. The three main points to be observed in operating a separator are—feed, speed, and temperature of the milk.

The greater the feed of milk entering a separator, the shorter the time it can remain in the bowl exposed to the centrifugal force, and if the feeding be carried beyond a certain limit there must be more or less imperfect separation of the fat from the milk. This can be determined by the flow of cream; as has been stated the quantity entering the bowl equals the cream and skim milk from it. And the thickness of cream is regulated by feed, consequently if the cream be too thin, it is an evidence of its not having been retained in the bowl sufficient time to complete the separation. The feed should be even and regular, as nearly as can be.

There is to every separator a safe and proper speed at which the best results are obtained. This is usually stamped on the bowl, and is as high a rate as the manufacturer feels secure in recommending, and this should never be exceeded to any great extent, as it might result in injury to the separator or the operator, or perhaps both. It is essential, however, that the desired speed be maintained regularly and evenly while separating, remembering that any cause that might demand higher speed can be met by reducing the feed.

Temperature of the milk to be separated is important. The mode and time of tempering before it passes into the separator are all important facts in successful and exhaustive skimming. Higher temperatures increase the difference in specific gravity between the fats and other parts of the milk, provided time is allowed for expansion of the fat to take place before it passes into the separator, which is about three to five minutes. It also reduces the viscosity of milk, making it more fluid, when it will flow faster and offer less resistance to the transit of the fat through it toward the centre of the bowl, thereby increasing the capacity and effectiveness of any separator.

Large amounts of milk should not be heated to a temperature suitable for separation in any case, as the formation of lactic acid, and the coagulation of the casein go on so rapidly that the milk is in a condition to leave a residue which adheres to the sides of the bowl, clogging the skim milk outlet and making it necessary to stop oftener than would have been the case, if smaller amounts were heated as required by the best separator.

In my opinion there is no such thing as one separator containing points superior in every respect to all others; and, again, a separator for one may not be suitable for another. It is not in accordance with the eternal fitness of things and the patent laws, that it should. The value of a separator is determined chiefly, though not exclusively, by its capacity for work. This is best measured by the quantity of milk which it can be made to cream in an economical manner, at a fixed cost.

It is also very questionable whether circumstances may not exist in which, where very slight differences in their capacities exist, the less capable of two separators may not be preferable—since it may possess certain advantages which appear to be of little importance, yet have a material value in the circumstances in which they are used.

FERTILITY ELEMENTS IN FARM PRODUCE.

Its Effect on the Productiveness of the Farm.

As the DAIRYMAN has repeatedly stated, one of the very important considerations in dairying is its beneficial effect on the crop producing power of the farm. Mr. C. M. Macfie, of Appin, Ontario, contributes the following, based on his experience, to the Farm Institute Report of that Province:

"In connection with dairying, the by-products are an important factor, as the utilization of them are becoming more and more an important factor in every line of manufacturing.

"The skim milk and buttermilk from one ton of butter has, at 20 cents per cwt., a feeding value for hogs of about $80, if fed in conjuction with meal. The whey from a ton of cheese has a feeding value of about $18, when sweet; when sour, a little less. It must be remembered too, that of the organic matter in foods, there are certain quantities of constituents which do not digest, and these assist in giving manurial value to the foods fed.

"The foods of the successful dairyman are usually corn ensilage, clover hay, oat straw, oat and pea meal, bran, and sometimes oil cake. According to an analysis by one of the American experiment stations, these have a manurial value as follows:

	Per ton.
Corn ensilage	$ 3.00
Clover hay	10.00
Oat straw and chaff	2.00
Oat meal	10.00
Pea meal	12.00
Bran	13.00
Oil cake	24.00

"We will suppose a man feeds ten cows for six months of the year, a daily ration consisting of six pounds of clover hay, 40 pounds ensilage, six pounds of oat straw, two pounds oat meal, two pounds pea meal, five pounds bran. During the six months he would feed:

5 2-5 tons of clover hay, adding fertility to the farm	$ 54.00
36 tons ensilage, adding fertility to the farm	108.00
5 2-5 tons oat straw, adding fertility to the farm	11.00
1 4-5 tons oats, adding fertility to the farm	18.00
1 4-5 tons peas, adding fertility to the farm	21.00
4½ tons bran, adding fertility to the farm	58.00
Total fertility, value added to soil (if manure is saved without loss)	$270.00

"If one ton of oil cake were added to the above quantity, it would improve the value of the food ration, and add to the fertility of the soil still further.

"Dairying also assists in the increase of soil fertility by enabling the farmer to utilize all the crops grown on the farm. The crop of a good, one-hundred acre farm in Eastern Ontario, besides the wheat crop, at present market prices, would be about as follows:

Hay, 15 acres	30	tons
Oats, 15 acres	600	bushels
Barley, 7½ acres	225	"
Corn, 10 acres	400	"
Peas, 7½ acres	150	"

"Suppose he sells one-half his hay crop, and all his grain, he receives for all about $520, at present prices. The value of the fertility of the crop sold is about $325. The manurial value of the fodder fed, after selling the produce, is about $300, while the manurial value of all his crop, if fed on the farm, would be $650.

* * * * *

"The good dairyman, too, is always interested in producing the best article possible. He takes the best care of his milk, and is interested in its manufacture into cheese and butter of the best quality, so that his produce always finds a ready sale."

WISCONSIN'S PURE FOOD LAW.

Dairy and Food Commissioner Adams, of Wisconsin, issued a circular letter last week to dealers in food products, calling attention to the statutes and transmitting various rulings made by him in reference thereto. Those parts of the letter of special interest to dairymen and consumers of dairy products are given below. That they are eminently fair to both producer and consumer, and in the interests of good health and good morals, is so evident that only those trained in the art of not seeing what they do not want to see, can find anything to complain of.

Producers and dealers in milk and cream are specially warned against the use of preservatives.

The preparations for keeping milk and cream sweet, that are widely advertised in this state as being harmless, have been condemned by leading authorities, both in this country and in Europe, as being prejudicial to the public health. Their use is prohibited by a plain statute which fixes the minimum penalty of $25 for its violation. Preservatives are used to avoid the effects of careless and unclean methods.

Milk and cream will remain sweet without the use of poisonous drugs, long enough for sale and consumption, if produced from clean cows, in clean barns, by clean men using clean utensils.

The health of invalids and of children is of more importance to the state than the prosperity of manufacturers and dealers in the makeshifts of uncleanliness.

Oleomargarine can be manufactured and sold under its own name and color when properly labeled. Each tub, package and parcel shall be marked by a placard bearing the word "oleomargarine" printed in plain uncondensed gothic letters not less than one inch long, and such placard shall contain no other words thereon.

All stores and places of business from which oleomargarine shall be sold, must have conspicuously posted a placard, to be approved by the dairy and food commissioner, containing the words, printed in letters not less than four inches in length, "OLEOMARGARINE SOLD HERE."

Oleomargarine colored in imitation of butter cannot be sold.

It is unlawful for hotel, restaurant and boarding house keepers to furnish their guests with butter substitutes without notifying such guests that the substitutes so furnished are not butter.

A bill of fare furnished guests containing a statement that oleomargarine is used will be deemed a sufficient notice.

Renovated butter, which is butter of inferior quality, melted, regranulated, churned with milk and worked over into the appearance of fresh creamery butter, must be branded "renovated butter" upon each tub, package and parcel.

No imitation butter or cheese can be used in any of the charitable or penal institutions of this state.

CHEESE—The Dairy and Food Commissioner is authorized to issue to the owner or manager of each factory making full cream cheese a stencil containing the number of the factory and the state brand, "WISCONSIN FULL CREAM CHEESE." The manufacture and sale of filled cheese is prohibited.

The manufacture and sale of skimmed cheese is prohibited, except when such cheese is made ten inches in diameter and nine inches in height.

MILK—All milk offered for sale or sold must be from healthy cows, of clean and wholesome character, unadulterated, free from preservatives, and must not contain less than three per cent of butter fat.

Feeding Notes from Michigan.

Broom Corn Millet.—Effect of Sorghum on Bull.—Growing Sorghum.

ED. HOARD'S DAIRYMAN:—I have raised broom corn millet and fed it to cows. It is so called because its head is like that of broom corn. It is also called hog millet, and sometimes, incorrectly, German millet. It is shorter and coarser than the other millets, and matures two weeks earlier than common millet. It does not yield as much forage as the other varieties, but yields very heavily of grain. The seeds are much larger than those of the other varieties, being nearly as large as those of broom corn. When ground they form a concentrated grain, somewhat similar to corn meal but richer in protein and fat. The plant will thrive on poorer and drier soil than the other millets. If a sufficient growth is secured just before the seed forms, this is the best time to cut it, but unless the land is rich it is apt to be short at this time and then it is better to cut it just as it begins to turn yellow and thresh and grind the grain.

If fed to cows without threshing the grain is utterly wasted, as the manure will be full of it, and if fed in warm weather, the seed will grow so that the droppings will be covered with the young sprouts.

The threshed straw makes good hay for cows. It threshes very easily and it does not require very much labor to pound it out with a flail as it is used. It would probably make the same quality of silage as the other millets.

I have raised and fed sorghum for the past three years with good results, but have not fed much second growth until several feet high, except after it was cured.

As the ratio of sorghum is wide, it answers well to supplement short pasture with its narrow ratio, but is not suitable for a complete ration.

Last year we fed a young bull upon sorghum and chop feed for some time, and when we came to use him we found him utterly sterile, and I had to sell him for beef.

About that time the effect of silage upon the potency of bulls was discussed in your paper, and I concluded that my bull had had too much molasses.

When sorghum is sowed on well manured land for forage it should be very thick. When thinly sown the sugar content of the large stalks throws it entirely out of balance for cow feed.

I get the best results by using the drill set for sowing fodder corn—one peck to the acre, or set at six pecks with the rows forty-two inches apart. As the sorghum seed is so much smaller than corn, this gives a dense growth of small, but tall, stalks with a large amount of foliage and seed, and there is never any of it wasted. W. H.

Howell, Mich.

Washing Dairy Utensils.

ED. HOARD'S DAIRYAMN:—I want to say a word here in regard to washing milk pails and utensils. I may be running into hornets nests but I can't help it. My impression is that there are too many dish cloths used and not enough *boiling* water. I know from experience that it is hard work to keep a dish cloth sweet and clean in hot weather, and a brush that will take the place of a dish cloth, that can be bought in any place for twenty-five cents is much better for getting into seams and crevices than a cloth, and it is no trouble to keep clean. Keeping milk cans clean and bright is no easy task, but leaving them unclean means gassy and bad flavored milk and I think I can safely say that fifty per cent of the bad milk delivered at factories to-day is caused by neglect on the part of the patrons to keep their cows and dairy utensils clean. Another practice that I have noticed is stopping up leaks in milk cans with a rag. This is positively a filthy practice and should be abandoned at once. J. H. SCOTT.

Harrietsville, Ont.

Preservatives in City Milk.

A report from Fort Wayne, Indiana, states that 36 samples of milk sold by regular dealers were examined, and only one was free from chemicals used for preserving. The authorities promise to publish a list of the dealers whose milk is free from chemicals, and another giving the names of those who use them. These lists ought to be published in the daily papers, so that the public may know just what they are buying. We have always claimed that this publicity is the only way to drive adulteration frauds and humbugs out of business. Their whole trade is a counterfeit one, based on an effort to sell an inferior or poisoned article under the guise of pure and wholesome food. Publish their names in full, and show the people just what they are selling! That is the surest and quickest way to drive them out of business!—*Rural New Yorker.*

POOR pasture, heat and flies have formed a trust to lower the production of the cow that is not protected from their methods of doing business. The firm of soiling crop, dark stable, and kerosene, will do much to prevent the method of the trust from being successful, but how many dairymen are doing business with the last named firm, either singly or with all the partners together?

Many of them, we fear, are allowing the butter production of their herd to slide gradually down to the lowest point without making an earnest endeavor to remedy the evil produced by short pastures or flies.

Reformation of the Milk Trade Through Ice Milk.

ED. HOARD'S DAIRYMAN:—The question as to the supply of the large cities of this country with "ice milk", so called, has hardly yet been touched upon. And yet it is a system which already has proven an absolute success wherever it has been introduced in the proper manner.

Still it is especially in Denmark where this system has made effective headway, as established and patented over three years ago, by mechanical engineer Casse, and it is his method which now is getting the serious attention in other countries by those in different ways interested in the city milk supply, whether from a consumer's, or dealer's, or producer's standpoint.

That the opinions as yet are very much divided, as to the practicability and advisability of such a transformation of the general milk supply of cities, is a matter of course; every one is, generally, first on the lookout for his own advantage, and many producers and dealers look upon such a reform as the ruin of a well paying business, such as has been carried on by them thus far without interference or competition by those located at a farther distance.

With the introduction of "ice milk" and reduced rail road rates for such from a distance, the competition seems unlimited, and nearby producers see the great advantages they so far have enjoyed, disappearing, as whole trains of partly frozen milk of almost unlimited keeping quality, run into the city. And they are right so far, as they will surely have to get out of their old established ruts, and follow—or rather lead—the procession, or be left behind to die.

But right here is where I believe the great advantage to both producers and consumers will appear, in a pretty near future.

First of all I wish to call the attention of all producers, whether of butter, cheese or milk in its natural state, that every producer who wishes to make a real and lasting success, must first consider

THE SATISFACTION OF THE CONSUMER.

Being a producer myself, and writing here principally for producers, I wish, especially, to emphasize the importance of this point.

Too many producers of milk and dairy products consider only their own advantage (or suppose rather falsely to be doing so) and will tell you they don't care a snap as long as they get their fair price, whether the consumer is really pleased or not.

Every butter and cheese maker knows this only too well, having found that a majority of patrons only care for having their milk received at the factory and paid for, no matter how much trouble they may cause the butter maker in turning out a first-class product from inferior milk.

Very few butter and cheese makers care to take any extra trouble or to work extra time to improve their product, as long as the commission man does not kick too bad, and as long as the proprietors of the factory seem satisfied and do not threaten to make a change. It is only when the danger of competition becomes too imminent that these different parties begin to open their eyes and acknowledge the evil of their ways, and start to make inquiries how to improve things. And then it is often too late; it is far easier to keep at the top by constantly having the eyes open for every improvement in your business, as shown by others in other places, and by adapting yourself to the natural progress of things, and keep on improving yourself.

When this writer, some seven or eight years ago, began urging the great benefits which were derived by pasteurizing generally, and showed, by practical work, how much advantage could be gained by it, especially for city milk and cream supply, then most people considered it a fad, which soon would disappear like so much other nonsense.

But how is it now? While at that time very few even understood what pasteurization meant, far less had any idea what it might accomplish for them; to-day we can hardly take any dairy publication in hand without finding several items on that subject, and nobody now will deny that pasteurization even in this country is making steady headway, both for milk supply and for butter making.

Will the readers of this believe me when I now claim that the introduction of Casse's system for ice milk supply to cities from a far distance, is coming as surely as pasteurization and pure cultures for butter making? You will see it in a few years hence, provided some still better invention should not show up very soon. In these days we never know what we may look for next, and the very unexpected is constantly taking place. But after these preliminary remarks I shall return to the main question.

ICE MILK FOR THE CITIES.

It was in Copenhagen, Denmark, where Casse's system was first introduced and with such absolute success, and this is so much more to be emphasized, because no city anywhere was probably before that better supplied with good and pure milk than Copenhagen.

Keep in mind that it is in that city where Mr. Busch, of "Scandinavian Preserved Butter" fame, established his magnificent "Copenhagen Milk Supply," and caused a revolution eight or ten years ago, making it possible for the consumer of limited means to obtain the purest milk at reasonable cost.

And that grand business is in active operation to-day and having a moral effect on the whole milk trade of that city. And yet there was room at the top for something still better, and Casse's system flourishes. And not only does he supply Copenhagen with milk coming from other islands, but large quantities are shipped to England, and in spite of much opposition by local milk producers, has attained a strong foothold in that market.

Now Germany is having its eyes opened and sees the possibility of great improvement in that line of their city supply. A German mechanical engineer, Helm, has studied the system in Denmark and has now taken out patents for Germany and all European countries, and it will only be a question of time how long the local dealers' opposition will be able to detain the introduction of ice milk in Berlin and other cities. Lately Mr. Helm delivered an address before the Agricultural Society of Pommern and Stettin, and from this I shall make such extracts and draw such suggestions as seem to me to be useful and practicable in the different parts of the United States.

FROZEN MILK NOTHING NEW.

Oh, no! We butter makers only know that too well, and have had much inconvenience in that line. Still this "ice milk" question will help to dissipate the false doctrines held by so many practical buttermakers years ago, that "freezing of milk and cream made the butter bitter," etc., which I have good reason to remember, when all came down on me with a vengeance as a "know-nothing," because I contended that just as fine butter could be produced from frozen milk.

Already in 1861 thorough experiments were made in Germany, proving the far superior keeping qualities of well cooled milk. But altogether frozen milk was inconvenient to handle, and nothing really practical was accomplished in that line until Mr. Casse brought out his system by which the bulk of the milk is simply kept ice cold by the partly frozen milk floating in it; and while many now will say that it is such a simple thing to do, that anybody can do it, the fact remains that nobody else had thought of it or tried it before.

THE TASTE OF ICE MILK PERFECT.

Everyone who has had the opportunity to examine the Copenhagen enterprise has been charmed with the perfect flavor of the milk, and this fact has resulted in such an increased demand, that the present facilities for preparing the product for market have been found insufficient, as at the same time the keeping quality of the milk in Copenhagen has proven so excellent, that it could be sold as perfectly fresh milk when four weeks old.

The fact is that on account of sudden extremely cold and wet weather, once 50,000 gallons of ice milk were left on hand, which upon the change to hot weather was sold out in a few days. The ice milk furnished to Berlin (from points in Germany) providing it was properly prepared, gained the fullest confidence of the milk dealers, ice-skim milk also proving a great success; the concern furnishing it not being capable at all to fill the demand during hot weather.

UNSATISFACTORY ICE MILK.

Such has at times appeared in the German market, but the trouble has always been with the milk before being frozen, not having been carefully and properly handled, and of course having contracted the slightest acidity before freezing, even if not perceptible to the taste, would result in very rapid deterioration when reaching the creameries.

CONCLUSIONS DRAWN IN GERMANY.

First.—That the conditions as to milk production and climate are not near as favorable in Germany as in Denmark.

Second.—That larger establishments cannot count upon the supply of such perfect milk as they can in Denmark.

I am sure that these remarks apply almost exactly to most parts of the United States, and especially as to climatic difficulties, in a still higher degree; our weather and temperatures, at least east of the Rocky Moun-

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS
The blood of Combination. (Sire of 25 in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys Rich blood. Inbred Tormentor Bull for sale. Dropped Feb. 6, 1899. Some white markings. Sire, Torono, full brother of Sophie Hudson, 19 lbs. 12½ oz., 11,496 lbs. 2 oz. milk testing 716 lbs. 14 oz., butter in 10 months. Dam, Nannie of Hood Farm, 14 lbs. 5½ oz. with 2d calf, by Fancy's Harry; 2d dam, Nannie Lee Morgan, by Tormentor; 3d dam, Landseer's Fancy, 29 lbs. ½ oz. in 7 days, 936 lbs. 14¾ oz. in 1 year, dam of 5 in the list. Write for price to HOOD FARM, Lowell, Mass.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. W. H. FORBES, Clifton, Ohio.

Diplomas Combination 39962.
For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. J. E. TYRRELL, Marysville, O.

ONE YEARLING BULL
Out of a tested dam and TWO BULL CALVES out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
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ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs. Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

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Pedro Blood!
A GRANDSON OF PEDRO 3187,
carrying 43¾ per cent of his blood. A handsome, thrifty fellow, 10 months old. Solid grey in color. Dam made over 400 lbs. butter with second calf. Will send pedigree and photos of sire and dam.
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WILL SELL FOR $100
A GRAND-DAUGHTER OF PEDRO 3187, carrying also, Eurotas blood close through dam, besides plenty other butter blood. Five months old, solid color, extra udder; crated, f. o. b.
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Five good, young bulls of the above breeds for sale at reasonable prices. Also a few good Jersey cows and heifers. Good individuals, superior breeding and heavy milking ancestry. Address
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J. D. THOMPSON, Superintendent. FRED P. STORY, Herdsman.
HICKORY HERD,
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H. N. HIGINBOTHAM, Prop.,
. . BREEDERS OF . .
Fancy Jersey Cattle.
Service Bull,
PEDRO'S HANDSOME PRINCE, NO. 42794.
The cows in this herd are of the best families of milk and butter producers. We have for sale young bulls by Pedro's Handsome prince and Exile of St. Lambert 55, No. 36073, out of tested cows. Write for prices and pedigrees.

We Have Sold
SEVERAL OF The A. J. C. C. COWS advertised March 17th (see page 92), in fact we quoted prices that made them desirable. There still remain some as well bred as those sold, which we think genuine bargains. We also have a few heifers that will be right to breed at time of turning out to grass. For cows, write for List No. 3, giving short pedigrees; for heifers, List No. 2.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

For Sale . . . BULL CALF,
Grand-son of the great Exile of St. Lambert 13657, sire of 72 tested daughters, "more than any other bull, living or dead." He is thrifty and good size; solid fawn color. His dam has a butter test of 15 lbs. 8½ oz. in seven days. He will be sold cheap.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
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Franklin, Venango Co., Pa.

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THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

tains, being far more changeable than in any part of Europe.

But these very difficulties have compelled American creamerymen to make better headway than the Germans in one line especially, and that is the establishment of refrigerating plants in connection with the creameries. It is just the introduction of such that the German engineer is recommending, as such will be absolutely necessary for the production of ice milk. Here then we are actually a good step in advance, and every creamery supplied with a good refrigerating plant would be able, with very slight expense, to go into the ice milk business also, adapting the amount of production, according to the butter as well as the milk demand.

TUBERCLE-FREE ICE MILK.

Without following into detail the suggestions as especially adapted for Berlin by the German writer, I shall only use such as I think may be applied to our conditions.

There can be no doubt that the demand for guaranteed (that is really and truly so) tubercle-free milk and cream, as well as free from other infectious diseases, will be on a rapid increase in our cities; and any one who has common sense can readily understand that it is easier for the authorities to keep control of the work and proceedings of a limited number of large dairy farms and large manufacturing establishments, than of a larger number of smaller concerns.

And while I most assuredly have no use for "trusts", still I believe in centralization and condensation of work, as it both cheapens cost of production, as well as lessens the work of thorough inspection and examination, and this is the only kind of any use to either producer or consumer.

Now as to milk guaranteed free from tuberculosis, such may only be applied in two ways:

First.—From dairies where the cows are regularly examined and tested by tuberculosis test, only those being absolutely healthy to be kept.

Second.—From such creameries or milk-collecting stations where only good and absolutely sweet milk is received, and where such is either filtered or run through a separator for absolute purification, and then immediately pasteurized in such a manner as to destroy tubercle germs, which might be present.

In both these ways absolutely healthy milk may be secured, but under our present conditions I think that the system of pasteurization will take the lead. It will be a long time yet, I believe, before we shall be able to secure absolutely tubercle-free milk and cream from such a number of farms, that their product would cut much of a figure in the supply of our large cities.

If these soon shall be freed from impure and unhealthy milk and cream, this result must be reached by pasteurization—and pasteurized ice milk if supplied from a far distance, as I expect it soon will be. Some might here ask me, why it is that our

PASTEUR MILK LABORATORY

furnishes about four times as much raw milk as pasteurized? But this is easily explained as the medical society here has appointed their own inspection committee, which sees to it that the cows on our farm, close to the city, are kept free from disease, and by constant and regular examinations of samples from here, at the agriculture laboratory, are posted as to the purity of the milk; these safe guards being well known to the public.

It is natural with a price difference of two cents per quart the pasturized milk is only demanded for babies, and not even always for these. When the milk is collected from a number of farms this care is entirely different and pasturization becomes a necessary safe guard.

DIFFICULTIES IN PRESENT MANNER OF CITY MILK AND CREAM SUPPLY.

One of the greatest of these, both for producer and dealer, lies in the difficulty of adjusting the supply to the demand. The nearby dairymen all want to sell all the milk they can produce, and any surplus is almost a dead loss, as they seldom have proper arrangement to make a good product of the surplus.

So the dealer often is overstocked, and again if he for some occassion should desire an extra supply, it cannot be found. His loss from an unsold surplus makes it necessary for him to make a larger profit on what he sells, than what he would need to make if he was sure never to lose a gallon and always to be able to get just what he needed on the shortest notice.

This result can only be reached by the introduction of the ice milk system, such to be supplied from perfectly arranged creameries along railroad lines to the cities.

THE FIRST ICE MILK FACTORY

in this country is going to make a hit! But lookout, whoever will try to make the first attempt, that you are not too much in a hurry, but at first be sure you are right, and then go ahead.

One failure in this line will not only prove expensive fun to the concern who tried it, but it will prove a serious set back to the introduction of ice milk generally.

Just exactly as improper methods of pasteurization or production of butter from pasteurized milk and cream caused a failure and set back, and as also the introduction of an improper commercial culture for cream ripening almost put a full stop to the use of such cultures here. Therefore, let us fully post ourselves before we begin cream ripening with production of "ice milk" for city supply; it may seem very simple, and yet, as with pasteurization, it is much easier to fail than to succeed. J. H. MOLDENHAWER.

Washington, D. C.

The Tub Silo.

Methods of Constructing and Using.

First inscribe a circle to mark the outside foundation, which should be a few inches larger than the silo; then dig a trench for the foundation sufficiently deep to keep rats from digging under, or the foundation may be built on top of the ground, providing a cement floor is put in, which will prevent the rats from getting through and into the ensilage.

After the tub is erected, the corner formed where the tub rests on the foundation can be rounded out by filling up with mortar or cement, and the crevices on the inside of the foundation should be filled up so that the inside face will present an even surface.

When stone is scarce, one can simply dig an eight or ten inch trench and after the tub is set up in the center of the trench, fill in on each side of the staves with cement a little above the surface, so as to give some slope from the planks to the ground, and this will make a very neat and serviceable foundation.

The staves should be of 2×6 or 2×8 inch plank, not less than 20 feet long and planed on both edges. Some prefer to have them slightly beveled.

Now, the main question is the erection of this tub. It is the most easily done and with the least danger of accident by making two circles of inch lumber; these circles to be the size of the inside of the silo. Lay one on the foundation and raise the other about 15 or 16 feet above. This upper circle, if well secured, can be used for a staging. One man will be required to stand up the planks and occasionally tack the same to the lower circle, and toe-nail each plank to the one preceding it. A second man should work on the upper circle and nail and toe-nail the same as the man at the bottom.

As soon as seven or eight planks are up and securely fastened, the third man can commence work on top and carefully toe-nail the tops of the planks together. In doing this he should lay a few boards across the top to answer as a staging and by driving a few nails through these boards and into the ends of the staves, it will keep the tub secure and obviate the danger of a collapse in case of a hard wind before the hoops are put on.

As soon as the staves are all up the hoops should be put on. They are often made of flat iron, but ⅝ inch round iron is cheaper and stronger according to weight. They should be put on one at the bottom, the second two feet above, and the third and each succeeding hoop may have about one more foot of space between them than its predecessor.

A cheap board roof answers every purpose and can be put on without the use of a staging by waiting until the silo is filled. The boards should be sawed from corner to opposite corner, and by placing the sharp ends up a very nice circular roof can be built.

Place three or four rafters at the desired pitch and then by painting each two or three boards and bats as they are put on, the entire roof can be built and painted without the use of a scaffolding, as the ensilage answers this purpose.

A silo of this description, eighteen feet in diameter and twenty-six feet deep, holds sufficient ensilage to feed twenty eight cows for six months and costs only about $125 for labor and material, and when it gets a good coat of paint on the outside and a flag pole at the peak on which to raise Old Glory, it will be one of the most attractive buildings on the farm.—A. W. TROW, in *The Farmer*.

A Good Business Cow.

Prof. Robertson thus describes what he calls "a good business cow:"

"The cow in all civilized countries is always a boarder upon some person. She should be made to pay for her board at such remunerative rates as will leave a profit for the boarding-house keeper. If she fails in that, she should be made to render a service which she will not willingly contribute. Her carcass should be made into beef, and her hide into leather. She should not be shyly sent to board upon some other unfortunate man. A cow with the business habit of keeping her accounts with the world paid up, through the man who owns and feeds her, is a good business cow. That is the kind of a cow I recommend. Her power of service will be indicated by certain external points. She should have a large, long udder, of elastic, fine quality; a mellow, movable skin, covered with soft, silky hair; a long, large barrel, hooped with flat ribs, broad and wide apart; a broad loin, spreading out into broad, long hind quarters; an open twist, with rather thin hips, and a lean neck of symmetrical length, carrying a clean-cut, fine face, with prominent eyes. A cow with these points has ability to serve a man well, if she gets a fair chance. That her calves may have powers equal to, or rather better than her own, care should be exercised in their breeding. The best blood of the breed adapted to the farmer's purpose should be used to enlarge and not to lessen, the working capacity to be transmitted to her calves."

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

FAIRVIEW FARM GUERNSEYS. FOR SALE—Yearling Bull, BEAUTY'S KING 5301. Sire, King of Kenosha 3706. Dam, Kenosha Beauty 5293. Grandson of Benjamin and Squire 4th. Also younger bull calves of good breeding. Address C. W. WILCOX, Des Moines, Ia.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., I. I. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.



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SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE

Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

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Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN BULL CALVES From advanced registery and officially tested, prize-winning dams, as high as the 21-lb. class, 70 to 76 lbs. milk from cows. Quality as well as quantity. If you want *the* best address MALCOLM H. GARDNER, Darien, Wis.

PARTHENEA.

Butter record 38 lbs. 8½ oz., in seven days, thus the second highest butter producers of the breed, that sold for $2 000 and won many prizes at the leading dairy shows, in milk and butter tests and the show ring. She is the dam of Parthenea's Colanthus 15597, the chief stock sire at head of this herd for many years and that sold for $1,000, and proved to be a greater sire of fine show stock an great butter producers, than his unequalled sire, Colantha's Sir Henry and grand sire, Sir Henry of Maplewood. For prices of this blood address VALLEY MEAD FARM, Monticello, Wis.



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McGEOCH FARM Holstein-Friesians. Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B, the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

GUERNSEYS AND POLAND-CHINAS. Best from the most noted prize-winners. Calves and Pigs at bargain prices. CLAYTON C. TAYLOR, Lawton Station, Erie Co., N. Y.

Riverside Guernseys, CHAMPION Herd AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

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Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys. First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

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Northern New York Pencillings.

Early Cut Hay.—Corn as a Catch Crop.—Cost of Rations.—Kentucky Anti-Color Law for Butter.—Colored Cheese.

ED. HOARD'S DAIRYMAN:—The up-to-date dairyman here about, had his hay all, or nearly all, well secured in his barns before the first fire cracker awoke an echo, July 4th. It was all "just right," and was secured without being injured by rain. The old timer "way back fellow," however, is just now well "started in." He don't believe, he says, in "puttin' in such green stuff;" wants "heart" in his hay. Well, he is getting it, and with it all the rain water he wants; for since the last week in June, we have been surfeited with it, and thousands of tons of hay in cocks, windrows and mower swaths, have been nearly ruined thereby.

This week, however, has been more favorable, as but little rain has fallen so far.

The hay crop in Old Ellesburg is, or was, a good one, especially on last year's clover seeding. Some old meadows, however, are light; but I know one farm, where fifty acres have been cut, that produced fully one hundred tons, largely of clover, and it is all in one barn, too. That clover and the big field of Leaming corn ensilage, which is now growing, and which is to go into a 300-ton silo, doesn't give the proprietors much pause, because of a prospective shortage in next winter's fodder supply for the forty cows, a half dozen horses, and thirty or forty head of young things.

But "there are others" who have no silo, and whose old meadows were so thin that they made haste to secure the crop, then at once plough them and put in corn. But those fellows are not feeling quite so sanguine. An untimely September frost, you know, may nip that corn in the bud, and thus blast the hopes of the planters, unless the stuff is cut before it matures.

Corn, though much of it was planted late, is very promising, the warm weather and frequent showers having given it a Klondike boom.

Winter wheat, which is now ready for the binder, is a good crop, while spring grain and potatoes give good promise of large yields. All in all, this old town has no reason to put up any calamity howl, because of bad crop prospects this year.

I note the J. B. Phelp's article, page 437, of your July 14 issue, in which he supplies the "missing links" in the *Tribune* writer's ration formula, and which I was glad to read. I could not see how, if man "cannot live on bread alone" even if he is so fortunate as to get it, a cow could live on ensilage alone and produce milk in Pennsylvania. Mr. Phelp's explanation, however, solves the problem. But his prices for foods, except those for silage, are too low for this market, this year, even, and far too low for the year in which that cow census was taken.

This year, good, early cut hay is now selling for $10 per ton. Wheat bran is worth $16, and cotton seed meal $22. Quite a difference, you will perceive.

But Mr. Phelps does not tell us what his pasture cost of keep was, how many weeks or months his cows were fed the ration he names, or how long they were in milk. The averages I gave in the census were for a full year. I hope that Mr. Crawford will let in the light, as has Mr. Phelps, as, doubtless, the *Tribune* man is as wide of the mark in the one as the other statement.

According to the *Jersey Bulletin* its uncolored butter millenium is in sight, the Kentucky legislature having worked the first degree in the law. Hereafter, colored butter, including that from the World's Fair Jerseys, will cut no ice in that old Bourbon, blue grass state. The poor devils—and the rich ones too— down there, must, hereafter, eat the pure, transparent "critter," just as it appears when it first sees the light, or else eat lard or oleo, on their biscuit and rolls; and the *Bulletin* is so rejoiced at the prospect that it rubs its hands like another Uriah Heap. The chances are that more oleo will be eaten in Kentucky now than ever before, as the oleo men need have no fears. They can ship their uncolored fraud, and sell it beside uncolored Jersey, Holstein or any other cow's butter, fearing no evil consequences.

If anybody ought to be happy because of this Kentucky anti-color law, surely they must be the Chicago and Kansas City men, as they will now have a walk over in Kentucky. No doubt their money was the lever that moved those legislators to answer the prayers of the *Bulletin* and some of its writers.

When enough such idiots shall have been congregated in the legislatures of the remaining states, and asinine governors enough are elected in sympathy with them to put such legislation on all our statute books, the old cow's occupation, except to produce steer calves, will be gone, and she relegated to the retired, or *tired* list.

Such legislators, however, will wake up, if they try that little game in this state, to find the consumers of butter are going to have a hand in the business. As yet their tastes have not been developed up to the point of being forced to eat uncolored Jersey butter or white oleo on their bread.

But what are the cows to do in June when they must color their butter, whether they will or not, and at what season must the line be drawn between natural colored and artificially colored butter? And what an army of chemists there will have to be employed to separate the wheat from the tares.

But why not enact a law preventing the coloring of cheese? Is not that done to hide dirt and poor quality, and is there not danger of some one being "worked off" from having eaten the stuff? Why not? The same coloring matter is used in one as in the other.

True, there are certain consumers who say: "We want some vegetable coloring matter put into our cheese at all seasons; and, in certain seasons into our butter, not to hide filth, nor bad flavors, nor odors, but to satisfy our whims. We don't like the appearance of white butter or cheese, but prefer a yellow tint. If you cannot, or will not, furnish it for us, we will look elsewhere for it."

Such people will get what they want, if they have to import it; and it will be a chilly day for the New York dairymen—if such an one ever dawns—when it shall become a misdemeanor to tint either butter or cheese with pure vegetable coloring matter. There are a whole lot of them, quite a contingent of whom are Jersey and Jersey grade owners, who will brook no such clap-trap legislation.

They know that butter is never colored to deceive any one as to its quality, nor to imitate any other product. It is the nose and palate that are the judges when butter is put on trial for quality; just so with cheese, the adding of coloring matter will deceive no one. It is done because the consumer demands it, and no one but an idiot, or one who has some selfish or dishonest motive at heart, will assign any other cause for it.

Belleville, N. Y. C. W. JENNINGS.

Notes From Southern Pennsylvania.

Clover and Timothy.—Acres per Cow.—Dairying in Pennsylvania.—The Cow and Her Owner.—Creameries.

ED. HOARD'S DAIRYMAN:—In the main we have had a favorable season, thus far. Our spring was rather late, but when it came it was very warm and all vegetation was pushed forward very rapidly. Considerable of the early planted corn and even some of the late, germinated very poorly and the stand is very uneven, but extra good weather has pushed it forward, so that now the prospects are very favorable for a good crop. The oat crop will be very large and heavy. The wheat crop was almost ruined by the fly.

Owing to the very hard winter, about all the clover was winter killed last winter and spring, and the result is all timothy hay, which will be cut after harvest and will make poor cow feed. The average hay crop will be rather light, though with a good corn crop our farmers will have plenty of roughage. Thus far this summer the pasturage was plentiful and the creameries have a large supply of milk.

The great majority of our farmers depend on pasture the entire summer. Turn the cows out about May 20 to June 1, and expect them to hunt for their feed until frost kills all the grass. If the weather is in their favor, the cows will give milk, but as soon as the rain fails, the milk fails too. Every farmer keeps a certain number of milk cows but by this method the average for quite a large territory of south-eastern Pennsylvania is one cow to fifteen acres of tillable land. Of course, there is a light sprinkling of persons who have received some inspiration from

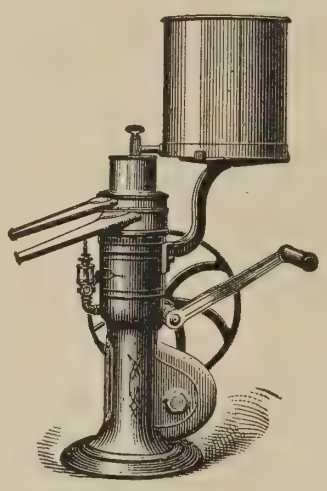
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HOARD'S DAIRYMAN and other good papers, and are trying some modern methods to make dairying pay on the farm. Some few provide spring and summer crops and practice partial soiling and still fewer have silos. The great majority of cows come fresh in the spring and by the time the summer drouths and fly pest are at an end, the cows are very nearly dry. Running over browned pastures and fighting the flies is not very conducive to keeping up the flow of milk.

Co-operative creameries are almost unknown, though we have a few successful ones. All the milk away from the main lines of railroad is worked up into butter by private creameries. The majority of creameries use the Babcock test, though many still pool the milk. Prices are quite low, as there is no competition.

During the months of June and July the pay was 14 to 15c per pound of butter fat, while Philadelphia quotations were 20c for fancy prints.

Along the main lines of railroads, milk stations are being established very rapidly, and that with the creameries furnishes some "life of trade," and the prices are considerably higher to the farmers. Creameries in that territory were paying 18 to 18½c per pound for butter fat, while the others were paying 14c.

We have many mining and manufacturing towns, and all those in reach of these markets, market their own dairy products and find it very profitable to do so. Prices for milk and butter are good almost the year through. In fact, we have all the facilities here in southern Pennsylvania that go to make dairying profitable, except one item, and that is the know how, and, Mr. Editor, it is a big item Eighty-five per cent of our cows are scrubs, Durham or Short-horn grades, general-purpose, all purpose, dual-purpose, nondescript stock, producing milk four to five months in a year, but eating good full rations the whole twelve months.

We have good land, good water and, as a rule, plenty of feed. Please don't put us in the list of feeders quoted by friend Jennings, on page 397, as south-eastern Pennsylvania is populated mostly by Pennsylvania Germans and Quakers, and they are lovers of big, fine, fat stock and are very liberal feeders. You know, Gen. Lee, when he invaded our territory during the "late unpleasantness," said the Pennsylvania Dutchmen had the biggest red barns he ever saw and in them big fat horses, almost as big as the barns, and to prove his assertion to the folks at home, he just took them along.

In years gone by, when eastern beef production was yet profitable, we excelled in the production of fine export beef cattle. But beef making was not profitable of late years and all farmers turned their attention to feeding milk cows, and thus it comes about that we have such a large percentage of meat producing animals fed as the old beef animal was fed,—plenty of timothy hay, corn stover, and corn meal, as much as they will consume. Instead of a four cent per day ration, it costs most of us three times that much or more.

Our people have so long kept the large beefy animals that it is a hard matter for them to part with them, but one or two examples go a great way.

Some patron of a certain creamery looks up dairy matters in our modern dairy press and very soon purchases a good dairy sire and possibly a few heifers or cows and in a year or two, you have no idea how that man's creamery check rankles in the hearts of all his neighbors, who believe in the general purpose cow. Such living object lessons do very much good. Whenever I find one of these missionaries, if I sift the matter down, it in nearly every case turns out that some time back he "run across" a copy of HOARD'S DAIRYMAN and that started him to thinking.

Not only is it the farmer who lacks knowledge, but the majority of our creamerymen also. An occasional creamery turns out a first-class article, but the large majority of our creameries are owned and run by people who know very little or nothing of the production of first-class butter, such as is wanted by the best paying customers and in the end the farmer has to bear the loss of their ignorance.

Oh! It is an awful tax we have to contend with, this paying over and over again to learn and still we persist in the old ruts. There is a little paragraph of about a dozen lines on page 389 of the DAIRYMAN, headed "Got Rich at Dairying" that tells an encouraging and doubtless true story but I have no fears that the columns of the DAIRYMAN will be over burdened by reports of that nature from our section of Pennsylvania. This whole question of making money at dairying or making nothing, resolves itself into a simple problem of the difference between intelligence and ignorance. Where intelligence exceeds ignorance there is a profit; where ignorance exceeds intelligence there is a loss. It often pays us to work a little less with our hands and think a little more with our brains. Any strong man can sell labor and it is a drug in the market; but not everyone has skill and intelligence for sale and it commands a premium.

Adams Co., Pa. L. W. LIGHTY.

The Cow Not Wholly a Machine.

Commenting upon the effect of changing milkers at the Kansas Experiment Station, where, contrary to the general rule, an increase in the yield was observed, Mr. J. A. Conover says:

"We are inclined to think that whether there is an increase or decrease will depend upon the kind of person that the new milker is. If kind and easy with the cows they will increase, and if he is rough, talks sharp and harsh, they will resent such treatment by a decrease in the milk.

The cow, after all, is a machine only so far as the converting of raw material into a more finished product is concerned. In every other sense she is very much alive, and is very much influenced by her surroundings and the treatment she receives.

Harsh treatment and poor surroundings will make the best cow poor, and kind treatment and good care will make a poor cow much better."

All About the Farm.

Forage and Fertility.

We are at the commencement of a great war; not against any foreign foe, yet one equally to be dreaded. It is a relentless war, without quarter, to the knife, and the knife to the hilt, against the fraudulent manufactures which are the curse of the dairyman. During the month of December, 1898, in Chicago alone, 91,000 tubs, 50 pounds each, of oleomargarine were manufactured. During the last six months of the same year, 384,000 tubs of equal weight were turned out upon the world. The dairy industries of the great Empire state must be saved. The task is intrusted to the mighty army of young men. Theirs is the fight and they are armed with the ballot.

Not one-half as much milk is being used in the state or country as would be if the right laws were properly enforced. To fight these frauds is one of the duties of American citizenship. Why tarry? There should be no deterring considerations. Friends, bank account, the desire to make money, should not count; fight. Knowledge is everything; struggle from now on for an equal place with the manufacturing world. Up to the present there has been little struggle. Most dairymen practice "mining agriculture," that is, taking out the value from the soil. There should be no more surface mining. From now on, more money can be made out of agriculture, correctly employed, than ever before. This is a great state; there are no products which cannot be grown within our boundaries at a profit. Think of the demand which will prevail 50 years hence, and be ready to cater to the increase. Fertility is nothing, productiveness everything. The beginning of economical agriculture is the feed of the cow. A 1000-lb. cow wants 35 pounds of clover hay. It costs about $24.50 to feed her in the winter and $6 for summer pasture. Let the dairyman study how to best get this feed.

Much soil is lazy and does little. Potash is generally wanted, yet there are potash mines in the soil. Learn the philosophy of tilling. In the recent analysis of samples of Jefferson Co. soil 5.59 per cent of potash was found. This is six and a half tons to the acre. It is formed by the disintegration of the bluffs. As quickly as one learns to utilize the richness, the soil will produce manifold. Indian corn is the king of the plants. It was growing when Hudson sailed up the river bearing his name. It is king; always was and always will be. Many dairymen, by hard work, secure one ton of dry matter from the old meadows. Grow corn and get four tons. We buy our bran from Minnesota and our gluten from Mississippi and soon use up the value of the land. Raise these things at home. Use correct methods. One might as well sow a peach orchard broadcast, as to sow a corn field broadcast.

Do not be afraid of exhausting the fields; they cannot be exhausted if used properly. Grow something, pig weeds or thistles, if nothing else; don't have bare ground. Study environment; study the refuse question intelligently. Properly saved and properly applied, it is a factor of primary importance. If a farmer should come home and find a hole in the grain bin and the grain running out into the mud, he would not stop to inquire whether he should stop it with a hickory or hemlock plug, yet the majority of farmers will stand by and see the strength of the manure piles running away with the rain. Utilize every home resource first; then if MotherNature will not smile upon your efforts, use fertilizers.—Prof. Roberts, in *Orange Judd Farmer*.

The Guernsey Breeders' year book for 1899, just published, contains the results of the 1898 home butter tests. These are the most complete milk and butter records ever published. Ten Guernsey cows now have records of over 10,000 pounds of milk each year, and 140 cows produce more than 400 pounds of butter per year. About the same number have records better than 14 pounds in one week. The book contains much interesting matter on the percentage of fats and solids in Guernsey milk, and shows that the Guernsey is an economical producer of milk and butter. It is published by Sec. W. M. Caldwell, Peterboro, N. H.

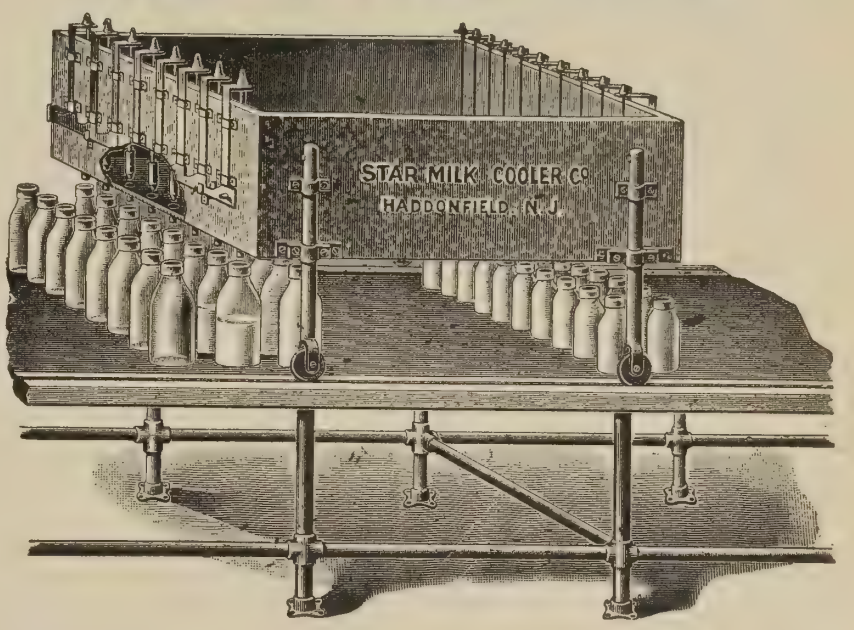
Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

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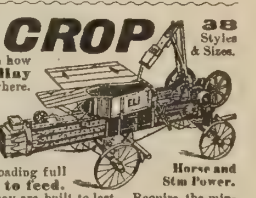
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Seasonable Notes from Michigan.

Churning, Gathering, Salting, and Packing of Butter.

ED. HOARD'S DAIRYMAN:—A question in regard to gathering butter in granular form came to me from a North Carolina lady, who writes as follows:

"We are told to draw off the buttermilk when the granules are the size of wheat kernels. After doing this and sending the buttermilk to town, I find more butter has gathered into lumps in the course of its travels, showing that I have lost butter in my mode of following this practice.

"Then if butter is to be separated from the buttermilk before the former has gathered into one large lump, how is it done? Is the buttermilk strained? If so, through what?

"Will you kindly tell us how you make those movable mangers? Would like an exact description of them."

The movable mangers will be described in a future number; the butter question seeming to need immediate attention.

The fact that butter accumulates upon the surface of the buttermilk during its journey to town may be owing to any one of several causes. One of these, and one which occasions loss in a great many instances, is the practice of adding sweet cream to that which is sour within a few hours of the time it is put into the churn. Such cream does not have time to become thoroughly ripened, consequently is not so readily converted into butter. When the fat in the other cream becomes separated, that from the sweet cream has not yet reached the separation point. If this is the case in the present instance, the shaking up which the buttermilk receives on its way to town finishes the churning, which would account for the additional amount of butter.

We all know that it takes longer to churn sweet or partially ripened cream than that which is sour, and while a portion of the butter from the former might be secured, it is evident that considerable would remain unchurned when the other became visible. Another cause of the second gathering of butter might be found, indeed has been repeatedly found, in the cows being at different periods of lactation.

The new milch cow's cream is much more readily converted into butter than that from the stripper. I have known two distinct batches of butter to be secured from the same churning for this reason alone. Not content with the amount first secured, the buttermilk was churned with good results. In a small dairy, this sometimes gives considerable trouble.

Where there are a goodly number of cows, fresh or nearly so, the difficulty is overcome to quite an extent, since the more viscous milk and cream of the strippers is diluted by that from the others, and rendered more churnable.

This also is an aid in securing all the cream, when the gravity process is employed. It is well in dealing with the milk from farrow cows and strippers to add water to it when setting. The fat globules do not so readily find their way to the top in the milk from such cows, its viscosity retarding their movements, hence the desirability of diluting it, either with the milk of fresh cows or with water.

In making butter by the granular process, the beginner frequently is troubled to get a good separation of the butter from the buttermilk. In our own practice, the buttermilk has always been fed to pigs, aside from that used in the kitchen. For this use it matters not if it is salty. We have found that by adding salt and water to the contents of the churn when the butter begins to break, a much better separation can be obtained than without this. For a forty-pound churning a pint cup of salt in a gallon or so of water acts like a charm in sending the granules to the surface.

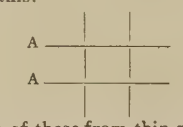
There will be some particles washed out in drawing off the buttermilk, and in the rinse water, and to catch these a strainer of some kind is required, or they may be removed from the surface with a fine skimmer.

A common cream skimmer is as good as anything for the purpose; simply skim them off and put back into the churn. If they are very fine, too small to be caught in this way, the temperature is too low. In winter this sometimes occurs, the particles of butter being as fine as corn meal.

To warm the rinse water to 60° or 62° will do away with the difficulty.

Buttermilk strainers can be bought of any dairy supply house. These are not expensive, and are very satisfactory. Being made of horse hair, butter does not stick to them, so there is no clogging, as is the case with a common milk strainer when used for this purpose.

A home made buttermilk strainer, which answers every purpose, is made of bleached butter cloth. A frame for holding it is, in shape, like this:



Make two of these from thin strips of wood and connect by leather hinges at A, A. Around the center part of one-half, drive small nails, the points of which protrude sufficiently to catch and hold a cloth placed over it. Shut the two pieces together and lay over the top of a pail. The butter will be caught as the liquid passes through. The frame should be just long enough to place across the pail nicely. The cloth which composes the strainer is taken out each time it is used and thoroughly cleaned.

The process of making granular butter is one requiring great care on the part of the operator. Attention to detail is necessary throughout, and a proper temperature maintained. Low temperature results in exhaustive churning, although the time required to bring the butter is greater.

A Babcock test is very useful in disclosing loss of butter fat, both in the skim milk and in the buttermilk.

Granular butter rightfully takes first rank at the present day. In theory, the process of its manufacture is correct for best results, and when carried out it is not found lacking; practically, it maintains its great superiority over butter made in the old way.

I have never found a person who, after practicing this method, was willing to go back to the old way, but I have known a good many who were so deeply imbedded in the rut of habit, and attached so firmly to old-fashioned methods, that they were unwilling to try anything modern, which in any way conflicted with their present practices.

I notice in a recent issue of the DAIRYMAN, something in regard to keeping butter in brine to preserve it for future use. We have tried this method, and think it is the best we know of. Make the butter into rolls, carefully wrap each in butter cloth—don't use old muslin which has done duty in other ways when the other is so cheap—and place in stone crocks. Cover with strong brine which has been boiled and allowed to become cold. Keep entirely under the surface of the brine, by means of a weight.

Owing to the shape of the rolls, these cannot be packed very snugly, and but few will go in a crock of ordinary size. We have two twenty gallon stoneware crocks, which we keep for pork and beef, instead of using wooden stave barrels for this purposes. In summer one of these is usually empty, and we found it an excellent thing to keep the rolls of butter in, on the one occasion when we put it up in this way.

In addition to the salt, it does no harm to add a little sugar and powdered saltpetre to the water, say a tablespoonful of the former and half as much saltpetre to six quarts of water. Butter put up in this manner has been known to keep sweet and good for a year. The main point is to have the brine strong enough,—use all that the water will dissolve.

The especial reason for wrapping each roll with cloth is to preserve the color of the butter; placed in brine without the cloth around it, it turns lighter on the outside.

Speaking of these large stone crocks, I want to say that we would not return to the wooden barrels for meat, after using them. They cost eight cents per gallon here. They are very heavy, it is true, which is some-

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times urged as objectionable. Our women never handle them, and the weight is not great to a man's strength, when they are to be emptied.

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Mich. W. C. ROCKWOOD.

Transfers of Guernsey Cattle From July 1 to 15, 1899.

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Bookkeeper 9th 6088, Mark Hughes to Wm. Weld & Sons, Sugar Grove, Pa.
Business 2999, J. Pierpont Morgan to H. Powell Ramsdell, Salisbury Mills. N. Y.
Deputy's Successor 6083, Geo. La Monte to William L. Tharp, Pittstown, N. Y.
Eulalie's Prince 6078, Louis Cabot to James S. Hayward, Hancock, N H.
Imp. Fayette 4533, W. S. Stevenson to J. M. Rowan, Maharg, Pa.
Gazzaniga's Lad of Lime Valley 6079, S. C. Heisey to Wm. B. Harvery, West Grove, Pa.
Gazzaniga's Lad of Lime Valley 6079, Wm. B. Harvey to E. B. Staggers Jr., Newark, Del.
Haward Duke 6072, Shirley Prince 6073, George Mixter to John Whiteley, Trustee, Shirley, Mass.
Lord Hodgson 4223, Dr. C. F. Quinby to John Sharpless, London Grove, Pa.
Sir K. 5539, Franklin S. Kendall to Geo. B. B. Denney, Montpelier, Vt.
Vestus 5529, Geo. C. Hill & Son to Fred Clausing, Bartel Station, Wis.
Waniston 5905, C. Morton Smith to Carroll Richards, Penllyn, Pa.

COWS.

Alva H. 10412, Cumberland Maid 11812, Wm. B. Harvey to Wm. G. Woodruff, Bridgeton, N. J.
Barby 11772, Constance of Riverside 11771, Imp. of Dora's Jewel's Daughter 11773, Lady Fitzroy 11774, Riverside's Sunflower 11770, James Forsyth to D. S. White, Jr., Atlantic City, N. Y.
Bell of Walnut Hill 11826, Bessie of Walnut Hill 11827, S. J. Du Bois to Henry Harvey, Alloway, N. J.
Countess of Level Green 4198, Elmer J. Abbott to L. V. Axtell, Perry, Ohio.
Carrie Bok 11844, Daisy G. 11845, Early Rose of Raritan 11782, Isabella V. 11842, Jane Janet 11785, Jermina Primrose 11776, Jerusha Primrose 11783, Kitty Cooper 10168, Kitty J. 11843, Louisa M. 11846, Margery J. 11841, Margery Primrose 10160, Minnie Raritan 11781, Modena 11779, Pauline Beaver 10166, Princess Nell 11775, Ruth Garis 11778, Geo. La Monte to A. J. Snyder, Plumsteadville, Pa.
Carlotta H. 5566, Dagna 7602, Sylvan Beauty 6038, John W. Sutphin to J. Lawrence McCormick, Belair, Md.
Dawn of Colliedale 11828, Tableaux of Colliedale 11829, Teddy of Colliedale 11830 and Twilight of Colliedale 11831, E. B. Staggers Jr. to Hodgson Brothers, New London, Pa.
Florence Primrose 11784, Victoria Garis 11777, Geo. La Monte to H. K. Wright, Pittstown, N. J.
Francoise 11456, Iola 5th of Norway, 11446, Mark Hughes to David Pancoast, Newtown, Pa.
Gypsey Belle 10044, John W. Scribner to Hall Roberts. Postville, Ia.
Lalla Boots 4528, Barton Hoopes & Son to Geo. Campbell, Philadelphia, Pa.
Lady Elizabeth 11818, Collen B. Meirs to John E. Wilson. Rockville, Md.
Laura Ilinka 11819 Craige Lippincott to A. J. Snyder, Plumsteadville, Pa.
Malinda H. 11813, Craig Riddle to Wm. B. Harver, West Grove, Pa.
Malinda H. 11813, Wm. B. Harvey to E. R. Morrison. Stock, Pa.
Milk Weed 3rd 11452, Wm. B. Harvey to John C. Moore, Bridgeton, N. Y.
Mildred D. 5036, S. J. Du Bois to Thomas E. Brooks, Daretown, N. J.
Peterboro, N. H. WM. H. CALDWELL, Sec.

CONCERNING OUR ADVERTISERS.

Our readers will be interested to know that the American Well Works, of Aurora, Ill., are now putting a new attachment on their "Elliptical" Well Drilling Machine, with which they use steel wire cable instead of Manila rope for rock work; this also includes the wood drilling pole system. Write them for particulars.

More corn is cut by the simple Steel Corn Cutter, of the Dain Mf'g. Co., Carrollton, Mo., than by any of the other cutters known, however much higher priced the others may be. The reasonable price is a decided and valuable feature of the Dain. Prices and special information free to all who write the makers. See the ad in this issue.

The readers of HOARD'S DAIRYMAN are extensive buyers of milk cans and all kinds of dairy tinware, and we are positive it would be a great saving to them if their purchases in this line were more confined to the best known goods. There are but few that can correctly judge quality by examination, and a very safe course is to buy those goods that have well known reputations for quality. The Buhl Stamping Co., of Detroit, Michigan, have for years been advertising in the DAIRYMAN, and now are, and it is safe to say that there is no better line of dairy tin-ware made than is made by them. The large quantity of their goods that they make, coupled with their years of experience enable them to turn out goods that for same cost are seldom equalled. It is a safe guarantee of quality to buy stock of their make. They study to please their trade and make cans of unusual strength, and free from crevices, black spots and roughness inside, which makes it possible to keep the cans clean and pure. These cans are made of steel, heavily coated with pure tin, so that they will not easily dent up or rust. They have recently placed on the market their new cans styled the Sunset, Sunlight and Jersey, medium priced, claiming for them, and they will stand by their claim, that they are the best cans for the money that can be placed on the market. They have issued a little book, "A Study in Milk Cans," that would be interesting to any reader of the DAIRYMAN, which they will send postpaid on request, mentioning HOARD'S DAIRYMAN.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

LUMP ON FOOT.

Can anything be done to remove bunch on heifer's foot, that has been there a year or more. It is as large as an average sized apple. She hit it with her foot and cut it so it bled, and the inside looks like cut flesh. It is on the top of foot snug to the hoof. It does not make her lame. M. J. S.
New Market, N. H.

ANSWER.

I fear treatment will not remove the tumor, and it might increase the size, instead of reducing it. Seeing it does not affect her at all, I would let it severely alone.

CHRONIC LEUCORRHŒA.

I have a chronic case of leucorrhœa or catarrh of the womb. I wrote you last December, about it; and you prescribed Bromo Chloralum; that did not stop it. I thought then she would come right in time, without any treatment; will they do this, if so, how long are they liable to run? The past month I have been using another of your prescriptions—a wash of cloride of zinc, glycerine and water, also the nux vomica, gentian, ginger, and whisky, taken inwardly, but she still discharges.

She is milking well and looks well, but of course does not "come in heat." W. C.
Wyoming, Wis.

ANSWER.

Neglected leucorrhœa never gets well, but gradually and surely worse. Introduce a cow catheter into the womb and draw off all the fluids, then wash out with tepid water introduced through the tube and then inject one ounce of Bromo Chloralum to eight of water. Do this twice a day until not needed. Alternate this with one dram of sulphate of copper, five ounces of glycerine, and one pint of tepid water. Repeat this daily until the catarrh is stopped.

Be careful to thoroughly wash the vagina at each washing. Do this carefully; by no means scratch or otherwise irritate the skin of the vulva. Use soft, clean hands and well pared fingernails in handling the parts. Let her lie slanting behind for a while, not too much.

LEAKING MILK.

I have a heifer that loses her milk. When she walks the milk runs from her teats.
Lebanon, Ohio. J. F. M.

ANSWER.

Leakage in the manner named, is a bad fault always, as it is always bad to manage. I know no way to do, as good as the use of a rubber elastic band of such a capacity of strength as to just tighten up the end of the channel at the end of the teat. Don't have it too tight; as there is but little circulation at the end of the teat, no discomfort need be felt.

PERHAPS LUMP JAW.

Have a heifer, one and a half years old, whose jaw seems to give signs of lumpy jaw. A swelling at the base of the lower jaw, about the size of a butternut, has aroused my suspicion, especially during the last few days, as the swelling is becoming larger. The animal is a high grade Guernsey.
Wis. A READER.

ANSWER.

Can't say what the real nature of the disease is without examination. All such symptoms are of a grave, suspicious nature and require a genuine expert to make a close and scientific examination. Lumpy jaw, actynomycosis, is incurable and if it was curable in a subject, it would be a crime to breed from such contaminated individuals.

CHRONIC GARGET.

We bought a Holstein cow last winter; one of her hind quarters cannot be milked by hand, always use a tube. It seems to be an old case of garget, a hard piece remains in it after it is emptied, which prevents getting hold with full hand, as her teats are not very long. She gives almost as much milk out of that quarter as with the others.
D. J. De H.

ANSWER.

You have a hard and chronic case and there is little hope of a cure, but you can try the following: Internally, give seven grains of iodide of potassa in a little cold water as a drench each morning for ten to thirty days, as may seem to be needed. Outside, over the hard spot, only, paint with strong tincture of iodine three times a day, for several days. If it gets sore, cover with hog's lard until the scabs are off. Then repeat, etc.

SORE SPOT ON BACK.

My horse has a soft spot on his back about six inches in length. There seems to be some fever. Am inclined to think the spot is spreading. C. A. P.
Spanaway, Wash.

ANSWER.

I can't possibly give you any advice as to a correct diagnosis from your meager statement. I suppose a good, strong liniment would be a good application, but am not positive. Oil of cedar, one ounce; sulphuric ether, one ounce; fish oil, four ounces. Keep well corked and out of the sun. Rub in well twice a day for a while. Shake before using, always.

UMBILICAL HERNIA.

We have a Holstein heifer calf, about three months old. It has a rupture at the navel about the size of a half of a cocoanut.
Muscoda, Wis. A SUBSCRIBER.

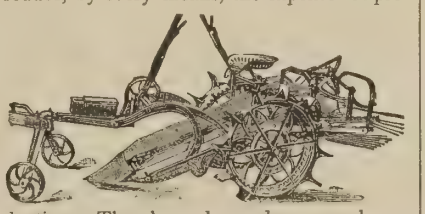
ANSWER.

Umbilical hernia is usually reduceable, but always needs the doctor for the operation. No form of correspondence can avail in any such cases. The younger all such operations are performed, the easier it is to succeed.

ILLUSTRATION.

POTATOES AS A MONEY CROP.

There are but few crops grown in this country that produce more actual money to the grower than the potato. This is so notwithstanding the fact that, taken as a whole, the most primitive methods are still employed in growing and marketing the crop. As against this general condition there stand out here and there with special prominence those cases where potatoe growing is reduced to an exact science and where the best and most improved appliances are used in the labor connected with producing the crop. These people have learned that the way to produce the greatest profit is to reduce, by every means, the expense of pro-



duction. They have learned, or are learning, with the manufacturer, that the expensive element of hand labor must be reduced to the mininum if the resulting product is to leave a margin of profit.

To dig or harvest a crop of potatoes cleanly, easily and rapidly, in the nick of time when the weather is at its best, is a very expensive and laborious job when the work has to be done by hand. Happily for the farmer or special potato grower, there are now machines that will perform this labor in the most perfect and economic manner.

A machine of this kind, possessing special merit, and which has been long and favorably known to the public, is the Hoover digger, manufactured by Hoover, Prout & Co., Avery, Ohio. This machine is built upon honor and sold upon its merits. Write these people for catalogue, prices, etc.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure



The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses** and **Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

WHO IS TO BLAME Women as well as men are made miserable by kidney and bladder trouble. Dr. Kilmer's Swamp-Root, the great remedy, promptly cures. At druggists in fifty cent and dollar sizes. You may have a sample bottle by mail free. also pamphlet telling all about it and its wonderful cures.
Address, Dr. Kilmer & Co., Binghamton, N. Y.

VERMINOLE
Kills lice on poultry. Also parasites, which cause scaly legs, without injury to the fowls. Simply paint the roosts with it. Lice and mange on horses, cattle and hogs as easily removed. We make a full line of remedies and want agents. Send your address and secure printed matter that explains all about it. Good pay to agents. Address
FAIRMONT REMEDY CO.,
Fairmont, Neb.
In answering this add, please mention DAIRYMAN.

CANCER **CURED** at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in th end, and DILATING PLUGS



(Patent applied for.)
My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.

"Engineers' Bargains," our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO., Detroit, Mich.

CASH FOR SHORT ARTICLES.
We will pay $2.55 for the best article, $1.50 for the second best, and for others we can use will send THE PRAIRIE FARMER a full year. Write on either one of the following topics:
"Getting the Most Out of Corn Fodder."
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"Silo Building and Ensilage-Making."
"Corn Fodder as Compared With Hay."
Write for full list of topics. Address
The Prairie Farmer, 166-168 Adams St., **Chicago.**

HARVEY'S ANTI-SUCKING BITS
For Cows and Calves.
A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.
Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for
ONE NEW SUBSCRIBER.

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

Impossible for any **Liquid** that is **Sprayed** on **Cow,** to protect her from **Flies,** in sun of 100 degrees ¼ as long as **"SHOO-FLY"** applied with a brush. See "Shoo-Fly" adv. page 482, this paper.

Dairy Talk in Maryland.

No matter where we go, whether in Maryland or elsewhere, the essential principles of dairy practice are the same. And yet there are thousands who object to the taking of a dairy paper published in another state on the plea that it is not adapted to their locality.

At a recent Farm Institute in Maryland, Mr. Edward Van Alstyne, of Kinderhook, N. Y., a fruit grower, dairyman and cultivator of 400 acres of land on the Hudson River, gave a practical talk on dairy farming. He spoke particularly of the dairy cow and her feeding; of butter making and milk production. Mr. Van Alstyne said in part:

"Many men are keeping cows just for the sake of keeping cows, without knowing what kind of cows they are. The milk trains from New York city, are stretching out for 400 miles, and the buyers of milk are paying more a gallon for it than do the cheese manufacturers or butter makers. The Western people are sending their butter and cheese into our great markets and our people have to compete with them and must sell their products at market prices or they must go out of the business. It is necessary to increase the products of the cows. You must have good cows in order to produce milk profitably. If you are going to produce milk, beef or butter fat, you must have cows suited to such production."

Mr. Charles A. Councilman—In this section we are obliged to sell milk at a gravity test.

PEDIGREE NOT ALL.

Mr. Van Alstyne—The gravity test is the most deceiving thing I know of. I do not care if a cow has a pedigree a mile long, if she does not have individual merit she is no good. There is no objection to a pedigree for then you can get better prices for the offspring. The first requisite in a cow is a good, strong constitution, a cow that has bright, clear eyes and that can digest her food properly. A cow that is too lazy to get up when you lay your hand upon her, is inclined to put on fat rather than to give milk. A good milk producer has an arched rather than a straight back, and the milk veins should be large and crooked. The skin should be soft like a glove, and a cow that has an oily indication is the cow to produce butter fat.

After you have a cow to suit, it is very important that care should be taken in the feeding. Many a good cow is not producing what she ought, because you are not giving her a chance. You are not giving her enough to eat. Feed is more important in summer than in winter. Pasture does not furnish all a cow wants in summer. She should have some supplementary feed. Don't feed too much grain. If you give a cow more grain than she can digest, you are not getting the benefit of it. Shelter is also important. I don't believe it is wise or a good thing to keep a cow in the stable all the time in winter. The air that comes through a window is not like being out in the open air. I don't care for a cow to go dry more than six weeks. I don't believe in cutting up hay for cattle; put it in the rack.

The Cost of Making a Pound of Butter.

The annual report of Dairy Commissioner Norton, of Iowa, proves quite conclusively the point which we have frequently argued, that the cost of the manufacture of a pound of butter in the creamery is almost entirely governed by the quantity of milk handled by that creamery, and that a decrease in the cost, on account of the magnitude of the business, is followed by an increase of the price paid to farmers for butter fat. One creamery in one of the dairy counties in the state manufactured 400,000 pounds of butter at a cost of 1 cent per pound; another 539,000 pounds of butter at a cost of 1.2 cents. In the smaller creameries the cost is reported at from 5 to 7 cents per pound, the average being 3 cents. In creameries handling not more than 2,250,000 pounds of milk, the average cost is 2.42 cents, and when 1,000,000 pounds are added, the cost falls to 2.2 cents, while in creameries receiving more than 3,500,000 pounds of milk, the average cost is 1.79 cents. This explains why it is that dairymen prefer to locate in dairy counties. It means an increased price of from 1 to 2 cents for butter fat or an increase from 8 to 10 per cent. Land, therefore, in these sections, sells higher because there is a home market and the highest price for its principal products.

This explains, also, why creamerymen in sections where dairying is not a specialty, are compelled to give lower prices for butter fat. In many of these places the cost of manufacture is from 4 to 5 cents per pound. This is taken, necessarily, from the producer, and this also explains why skim stations prevail in these districts. It is cheaper to pay the express rate on cream from a station to a central factory than it is to run a creamery at the station. Where a creamery is established, every farmer who patronizes it, or intends to patronize it, should exert himself to the utmost to increase the supply of milk to the creamery. In so doing he will cheapen the cost of manufacture, and thus advance the price of his own cream. The attitude of a few leading farmers is frequently the life or death of a struggling creamery in a new country. If these men throw their active support to the creamery, they can increase the supply of milk and thus enable the creameryman to give an increased price. This increased price renders it comparatively easy to secure still further patronage, and, in time, an industry profitable alike to the farmer and the creameryman will be built up; but if they withdraw their support and discourage their neighbors, they decrease the amount of milk and decrease the price, and frequently compel the creamery to close or become a mere skim station.—*Wallace's Farmer.*

An Experiment in Liming Pastures.

The Effect on the Quality of the Cheese Produced from Such Pastures.

The following, taken from the last issue of the *Dairy*, London, England, shows the effect of lime on the quality of the cheese, where cows were pastured on land on which this material was used:

"It is generally believed that land which has been stocked with sheep is injurious for cheese making, and can be materially improved by liming. Two fields, which had in the past been heavily stocked with sheep, were selected for an experiment on liming. The orchard (in which the cows were milked) was also limed, so that the cattle could be both kept and brought home to milk, on land which had all been limed.

"The method of experimenting was to keep the cattle for a certain length of time on the limed land, Fields 1 and 2, and then for a similar period on the unlimed land, Fields 3, 4 and 5, and subsequently on the limed land.

"The lime was considered to have produced a marked improvement in the herbage. Its effect was also noticeable in the cheese tub, inasmuch as the curd seemed firmer and better than it was when the animals were on the unlimed land. But neither chemical nor bacteriological examination showed much difference in the curd. The quantity of the milk was not appreciably affected, nor was its composition affected to any extent. The acidity of the milk appeared, however, to be affected to some slight extent, the milk, when the cows grazed on the limed land, showing a slightly higher acidity.

"Analyses were made to determine whether there was more lime in the milk or curd from limed land than from unlimed land. The results showed such great variations from both the limed and unlimed land that no definite conclusion could be drawn therefrom. Bacteriological examinations of the milks and curds were equally negative in their results, which was to be expected, as the curd showed no more liability to taints from the limed land than from the unlimed. Hence, the only results actually obtained were a slightly increased acidity of the milk, probably accompanied with a slight increase in casein, and consequently a firmer and better curd.

"Considering how important it is to have a firm curd, and in view of the improvement in the herbage on the limed land, there can be no doubt that the liming was beneficial, and would have an effect lasting much longer than for the period of experiments. Moreover, the exceptionally dry season was not calculated to produce the best results which ordinarily accrue from liming. It also necessitates the removal of the cows from pasture to pasture frequently, so that the experiment came to a close at the end of May."

THE EFFECT OF CREAMERIES ON FARM VALUES.

A correspondent of the St. Paul (Minn.) *Pioneer Press* has been making an investigation of the effect of the establishing of creameries, on the value of farm lands in that state and records the result of his observations, as follows:

"While attending a meeting of the Meeker County Dairy Association at Grove City, the other day, I took occasion to make inquiry regarding the influence of the creamery business on the value of real estate, and learned that since the establishment of the first separator creamery, land has doubled its value. And instead of the bran all being shipped east, as was the case before the creameries were built, all the bran from the local mills is being purchased by the farmers, and in addition, from twenty to thirty carloads are shipped back to the local stations from the Twin Cities and sold to the patrons of the creameries. There has also been a marvelous increase in the amount ot merchandise shipped to the towns along the roads where creameries are located. Farmers contributing milk to creameries soon become well-to-do, and are liberal purchasers of household and farm supplies. They also, as a rule, pay cash for goods, which gives a healthy tone to the business interests of the local towns.

Experiments With Dairy Cows.

Prof. Brandt, of Germany, conducted three experiments with light and heavy dairy cows, each lasting four weeks, the second commencing seventy days after the close of the first, and the third a year after the beginning of the first. Thirty of the heaviest milkers in the herd were separated into lots of fifteen cows each, according to live weight. The cows were kept under similar conditions as to feed and care during the trial, none being bred after the beginning of the experiment. The average weight of the heavy cows was 1,205 pounds, and of light cows 979 pounds. The leading conclusions from the experiments are:

1. The milk of the small cows is richer in fat than that of the large ones.

2. Large cows eat a greater amount of feed than small cows; per thousand pounds live weight they eat less.

3. Small cows produce less milk than large cows, absolutely and relatively.

4. When in thin flesh, small cows may produce more per thousand pounds gross weight than large cows.

5. Large farrow cows are more persistent milkers; on the other hand small cows show a greater tendency to fatten on the same feed, with a decrease in the milk flow.

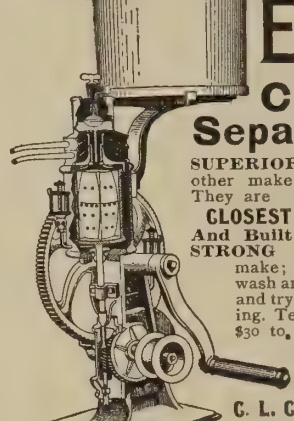
6. The loss in selling ten of the large cows amounted to five guilden per head on the average, after having been kept nearly a year, while the loss for ten small cows, was twelve guilden per head.—*Feeds and Feeding.*

THREE milk dealers in Kansas City, Mo., were recently arrested and fined $500 each; one for putting a preservative in his milk and the others for selling milk below the legal standard in butter fat.

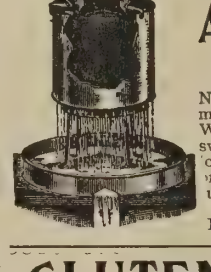
Evidently the Kansas City judges propose there shall be no fooling with their milk supply.



4,000 Pounds
is the guaranteed capacity of this wagon. It is equipped with
ELECTRIC STEEL WHEELS
with stagger oval spokes, broad tires, etc. It has angle steel bounds front and rear. It's low down and easy to load. One man can load it; saves an extra hand in hauling corn fodder, etc. A pair of these wheels will make a new wagon out of your old one. Send for free catalogue and prices.
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Eclipse Cream Separators
SUPERIORITY over any other make Guaranteed. They are
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And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.
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☞ When writing mention HOARD'S DAIRYMAN.



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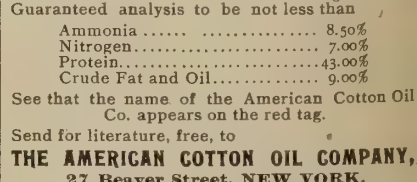
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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for GLUTEN FEED. This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address CHAPIN & CO., Milwaukee.

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SHOO-FLY
Saves 3 quarts milk daily if used in time.
NO FLIES, TICKS, VERMIN OR SORES ON COWS.
Thousands duplicate 10 gallons. *Beware of imitations.*
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But there is no real need of apprehension in either direction. If any woman who is expecting to become a mother will follow the example of Mrs. Orrin Stiles, of Downing, Dunn Co., Wis., the most perfect confidence may be felt in the happy outcome of this critical period, both for the mother and the child.

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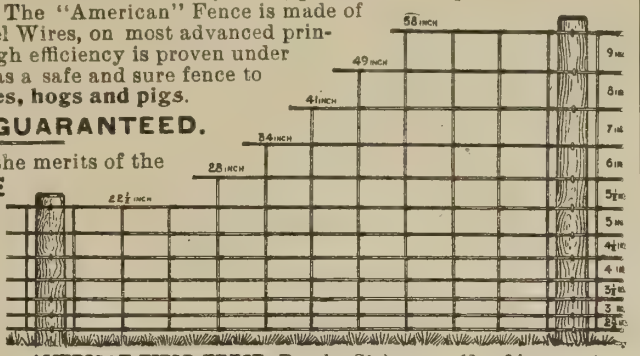
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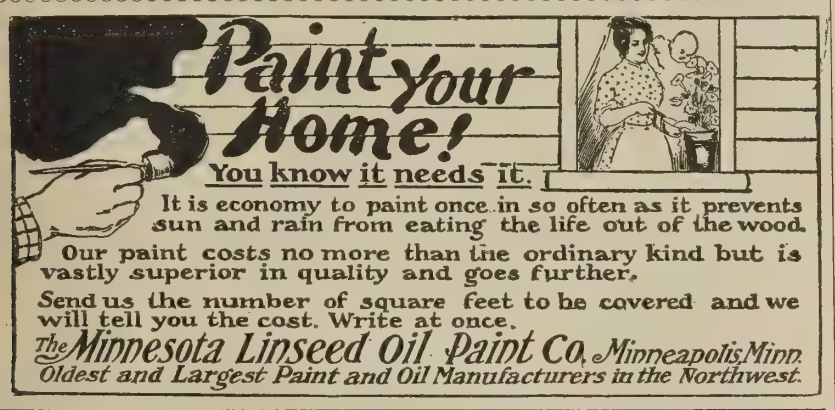


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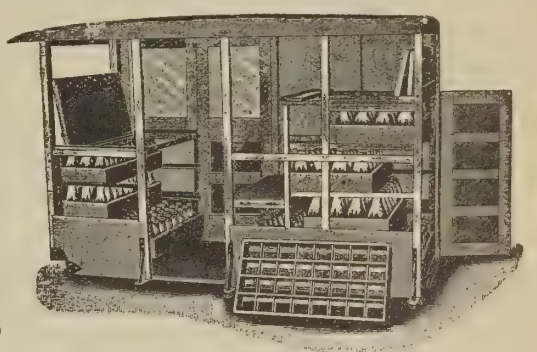
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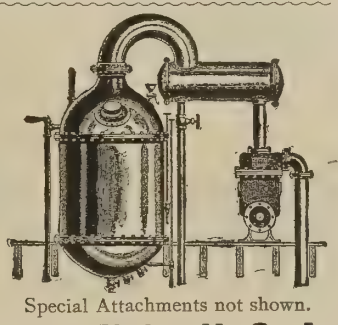
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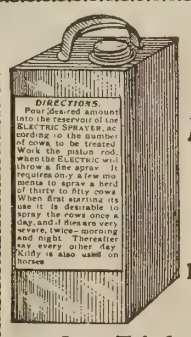


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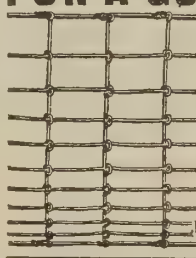
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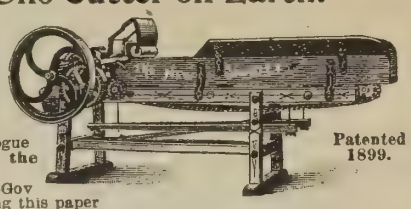


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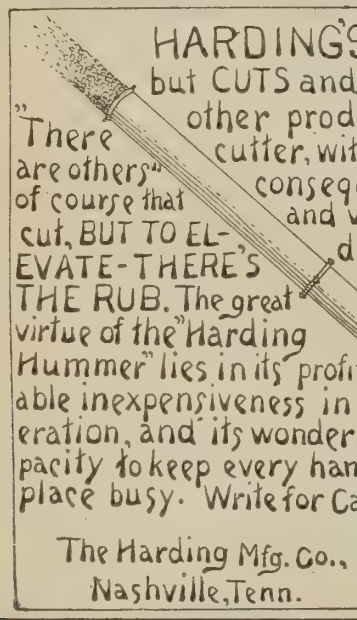
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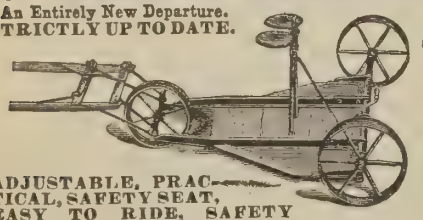
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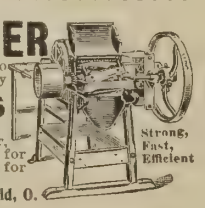


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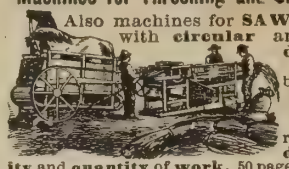
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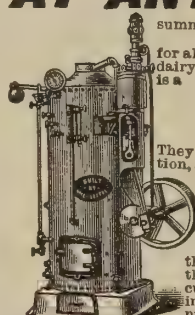
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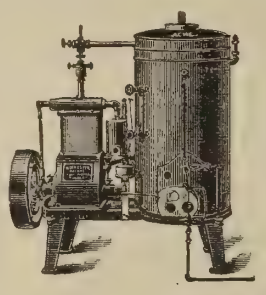
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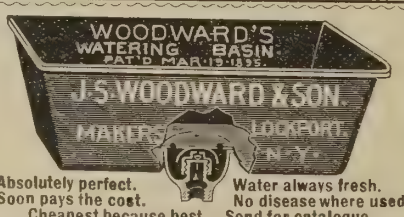
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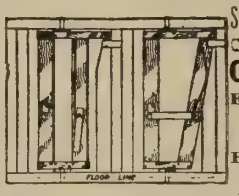
NEVER BUY ANYTHING

Simply because it is cheap. But when the **least** expensive is the **best,** why not use it?

WHAT ALL DAIRYMEN SAY

Must be so. Send for circulars with up-to-date testimonials from up-to-date men.

WILLARD H. KNAPP & CO.,
Box R, - - CORTLAND, N. Y.



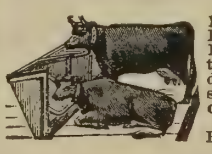
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Cow Stanchion

Each cow shuts herself in place.

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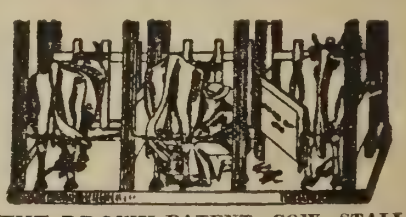
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211 Beach Street,
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Newton's Improved **COW TIE**

Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO.
Batavia, Ill. Catalogue Free



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE OF M. J. DROWN. Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.



Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

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Metal Wheel Co.
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., AUGUST 4, 1899. NUMBER 25

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J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat League of Com Merchants.
Ex-Gov W. D. Hoard, Fort Atkinson, Wis Metropolitan National Bank Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
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DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,
Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**
Medals- Bronze 1878, Silver, 1887, World's Fair, 1893.

Worcester Salt

Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

BUILDING A CREAMERY Is easy work when you have a good set of plans, and good machinery to put in it.

WE LOAN YOU THE PLANS . . . .
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Send for our catalogue or come and see us. We have an immense stock of VATS, COMBINED CHURNS, SHARPLES TUBULAR and FARM SEPARATORS, BUTTER TUBS, BUTTER WORKERS, ENGINES and BOILERS, etc.

HANEY-CAMPBELL CO., Dubuque, Iowa.

OSGOOD SCALES — Write for Special Offer. U.S. STANDARD
Any sized platform

Single, double or combination beam. Wagon, stock, hay and sugar cane scales.
OSGOOD SCALE CO., 91 Central St., Binghamton, N.Y.

WE SELL DIRECT TO THE FARMER.
Hardened Steel Landside Double Board Plow, hard as glass, 14-in., $8.50.
Sulky Plows $25. Riding Gang Plows, $35. Disc Harrow, $16. 1000 other articles. Big catalogue free. Write now and get ready for fall work.


Hard Steel Castor Coulter with Plow, $1.50 extra.
HAPGOOD PLOW CO., Box 870, Alton, Ill.
Only Plow factory in the United States selling direct to farmer.

There Can Be No Question

About the merits of a machine which will elicit such endorsement as that contained in this letter. It will only cost a postage stamp to interview Mr. Evans further. If you need a new separator—and you surely do if you have not a Tubular—it will pay you to know the truth from him. Read it and then write him.

THE SHARPLES CO., Chicago, Illinois.
WHITTEN, IOWA, June 30, 1899.

Gentlemen:—I have your favor of June 28th, in which you ask how the Tubular suits me by this time, and wish to say,—the better I become acquainted with the Tubular, the better I like it, and I am fully convinced that it is far superior to any separator I have ever seen. I used to think the Alpha was a pretty good machine, and do yet for that matter, but the Tubular beats it in every point of the game.



While I was running the Tubular in the contest with the new Alpha, placed in my factory for that purpose, the Tubular beat the Alpha on clean skimming, the temperature running from 62 degrees to 80 degrees. The Tubular skimmed just as good at one temperature as another. At different times I skimmed as high as 2800 pounds of milk per hour, and showed a test of .03% butter fat.

The Alpha man made an awful kick when I told him I was going to take the Tubular. I hated to let him down, but the tests were against his machine, and I could do nothing else under my agreement that I would take the machine that did the best work. He said he would sell me the Alpha "right" if I would throw out the Tubular, but I did not ask him what he meant by "right," and am very well pleased that I did not, as I am even better pleased with the Tubular today than I was when the time came to make a choice between that and the Alpha.

If you have any customers in doubt about the Tubular being a first-class machine, I should be pleased to have you send them here and I will show them a machine doing the finest work ever done by a separator. Very respectfully yours,
B. J. EVANS.

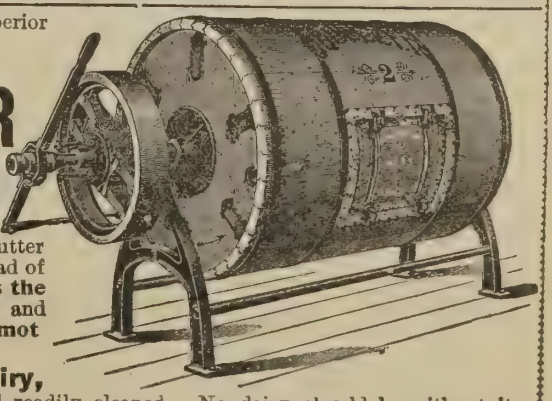
THE SHARPLES TUBULAR SEPARATOR

Represents the latest great advance in separator construction. More revolutions, less speed, more centrifugal force, less power, more perfect cream, less fat in skim milk, more durability and less complication. The bowl alone revolves. It is a hollow steel. It spins on air.

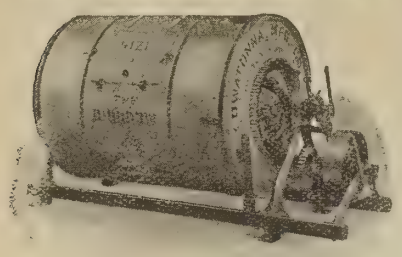
Send for Catalogue No. 46.

The Sharples Co., Canal and Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.
BRANCHES—Toledo, Ohio. Omaha, Neb. Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.


ALDERNEY BUTTER COLOR
Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

The Machine that will Build a Butter Trade.
Because it will make a superior quality of butter.
THE **SQUEEZER** COMBINED **CHURN AND WORKER**

squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is
Made for the Dairy,
and is easily operated and readily cleaned. No dairy should be without it.
Will do Exhaustive Churning at any Temperature.
We are prepared to repair all cream separators and employ highly skilled men for this work.
Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

DISBROW



The Original Combined Churn and Butter Worker

Churns and works the butter on the only true principle. Brings the butter to the working rollers no faster than the rollers can take care of it without rubbing the butter. No solid BALL of butter comes in contact with the rolls to be scraped to pieces by the rolls and made salvy. It is the only combined machine in which butter has been made that scored 100 points.

The manufacturers have never made any claims for it that were not fully proven by actual tests of the machine.

The Disbrow tells its own story and a fair trial is all that is needed to prove its merits.

—OWATONNA MFG. CO.,—
SOLE MANUFACTURERS,
OWATONNA, MINNESOTA.

Creamery Package Mfg. Co.,

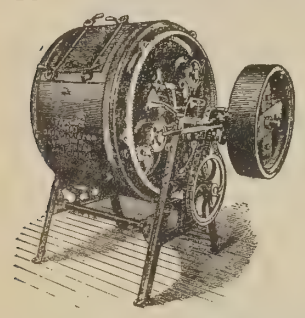
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Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.



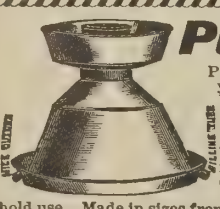
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



Put Your Nose Over It.

Pull the lid off a can of milk at any shipping or delivery station and put your nose over it. Smells badly doesn't it? Do you know why? It is because the milk was not properly treated. If it had passed through a

PERFECTION MILK COOLER AND AERATOR

it would **smell sweet, be sweet** and **remain sweet.** It takes out all animal heat and with it all bad odors of **animal, stable** or **food.** Milk so treated makes perfect butter and is perfect for household use. Made in sizes from 1 to 200 cows. Send for free illustrated catalogue and prices on **Farm and Dairy Supplies.**

L. R. Lewis Mfr., Box 10, Cortland, N. Y.

Put Your Mark



on the butter you sell. The handsomest prints are made on the Rapp Automatic Butter Printer. The very best machine ever made for the purpose. Handiest, most rapid working, easiest adjusted printer ever made. Write for large illustrated catalog, containing full description of the

RAPP AUTOMATIC Butter Printer

and of a hundred and one things needed in every dairy—cream separators, milk strainers and coolers, automatic milk scales and butter tools. Mailed free

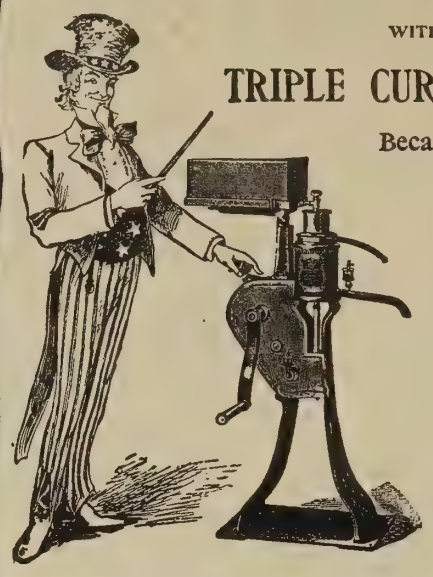
THE DAIRYMEN'S SUPPLY CO., 1957 Market St., Philadelphia.

Uncle Sam Points with Pleasure to

The Improved U. S. Separator

WITH ITS

TRIPLE CURRENT BOWL



Because it

Skims the Cleanest,
Operates the Easiest,
Is the Easiest Cleaned,
Is the Most Durable,
And in other important points Excels all other Separators.

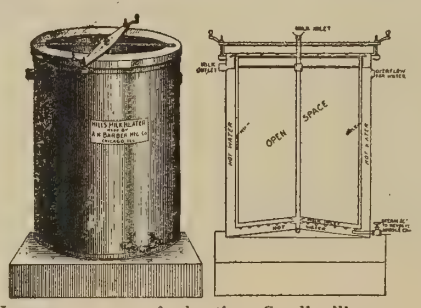
It does equally good work in the Dairy or Creamery as testified to by users the country over.

If interested, send for our large illustrated catalogues giving full particulars and containing hundreds of testimonials from users.

Remember **we furnish everything necessary for a first-class Dairy or Creamery.**

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

HILL'S MILK AND CREAM ...Pasteurizer



Large water space for heating. Small milk space. Will heat quickly and evenly throughout.

IS BUILT UPON CORRECT PRINCIPLES.

Try it and you will be convinced. Made by

A. H. Barber Mfg. Co.,
CHICAGO, ILL.

Creamery and Cheese Factory Apparatus and Supplies.
REFRIGERATING MACHINERY A Specialty.
WRITE FOR INFORMATION.

Print Butter Should be wrapped in GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be PRINTED on Every Sheet.

SEND FOR SAMPLES.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is **ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.**

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Is it **CHANCE,** is it **GOOD LUCK,** or is it **MERIT** that has enabled the patrons of

GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

In 1895.....F. G. OLTROGGE
In 1896.....THOS. MILTON
In 1897.....H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use **GENESEE SALT,** and write to our General Western Salesman, Mr. F. A. TRIPP, 34 Clark Street, Chicago. Or address

Yours truly,

THE GENESEE SALT COMPANY, New York.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

J. CHRISTIAN HAY writes an interesting communication, to the *Creamery Gazette*, on "Rational Methods of Milking," in which he says:

"There are at present 16,000,000 milch cows in the United States, and the average yield from each animal is 4,000 lbs."

It is difficult to conceive of the source from which Mr. Hay derived his judgment as to the average yield per cow. He will find, if he investigates, that it is less than 3,000 lbs. An investigation of 10,000 cows, in one of the best dairy districts of Wisconsin by us, a few years ago, gave only about 3,500 pounds per cow. It would be a good idea if Mr. Hay, or some other enterprising Iowa dairy writer, would take a dozen or so of the average Iowa creameries, and make a careful investigation of each as to the number of cows each patron has milked for the year, and the number of pounds of milk derived per cow. The creamery would furnish the average test of butter fat.

We think the disclosure would emphasize the contention HOARD'S DAIRYMAN is constantly making against the poor cow, and the still poorer ideas concerning cows and cow management, which, unfortunately, are too prevalent everywhere.

HOW NOT TO SEE IT?

It is astonishing how easy it is for people to talk around a question, and not see the real objective or central point. The editor of an Iowa paper is an example. In writing about the creameries of that state, he says:

"While the writer knows but little about the business, he is at a loss to know wherein the creamery is especially beneficial to the dairyman and farmer. From figures at hand he believes the average price realized for milk, when it or the cream is sold to the creamery, is about a half cent per quart, or possibly a trifle over. Now, while his knowledge may not be very broad regarding the lacteal product of the bovine, he believes that a cow which averages a product of twelve quarts of milk per day the year round, is considered an excellent animal. This figured in dollars and cents, is six cents, or a trifle more, per day, for investment, feed and labor connected with one animal, which is far from enough to make the dairy a paying thing when milk is sold to a creamery. Of course there are exceptions, and one is in the instance of a co-operative creamery, where the dairymen own an interest in the business, and get a share of the profits from it. In this way, the creamery may be made to pay the farmer and stockholder handsomely, but it cannot be made to pay him in any other way. It is not meant by this that farmers should stop producing milk, but that they should either own the creameries themselves, or find a way of getting more for their milk than the average price received the year round by them."

The editor did see that the prices obtained left no profit to the patrons. But he has fearfully overdrawn the capacity of the average Iowa cow, in allowing that the milk yield is twelve quarts of milk a day for the season, for, say, 300 days, or a total of 7,227 pounds, when not fifty per cent of the cows of that state yield even four thousand pounds a year. Then again his eye is all on the creamery, as if that is the gauge of success; that it is taking from him money once rightfully earned. So he recommends the co-operative creamery as a remedy.

But still the cause of the low revenue to the farmer is not touched. It is the poor, unfit cow that stands in the way; bred by a man who has false ideas of what shall constitute a profitable dairy cow; handled still from wrong ideas. Can the creamery change the cow, or the low, false estimate the farmer has of cows? No! The place to make profit from cows is at the farm end of the business. The tax the creamery imposes is but a mere trifle compared with the combined tax of ignorance of dairy questions on the part of the patron, and the poverty stricken character of the cows he keeps.

The "demnition grind" of events will soon squeeze a little legitimate thinking into the patrons of these creameries, not only in Iowa, but all over the land. Keeping poor cows, with poorer ideas of dairy management, and then charging it all up to the creamery is simply to reason and act like children. When these patrons come to think that it pays to know something by the head as well as by the hand, and go to work to study their business as all other successful men have to, then they will begin to make a profit.

FEED.—CONDITION OF THE FOOD.—ENVIRONMENT AND THE COW.

There has ever been, and no doubt there ever will be, a proneness on the part of men to theorize and speculate. It is the foundation of all investigation. But it seems to be carried too far very much of the time. For instance, there is a class of theorists, called vegetarians, who declare that man is a herbivorous animal, and therefore should eat no flesh or animal food. But nature seems to have a way of her own that is very disrespectful to this class of theorists. She starts all infant life on animal food. Milk is an animal food. The birds that eat seeds only, feed their young on worms, larvæ, etc. Recent food experiments have shown that vegetable protein has not near as great potentiality in digestion as has animal protein.

Darwin was one of the first investigators who gathered the facts first and theorized as to their meaning afterward. On this great question of feeding for the production of milk we need more Darwins, men who study keenly and closely the effect of various foods, for the love of knowledge, as he did, as well as for the sake of money. Then, besides, we ought to study just as keenly and wisely what are the conditions of food which modify its feeding effect. Then again, what are the modifying effects of environment. Take these two things, the condition of the food and environment. The farmer who cuts overripe hay, corn stalks, millet or any other roughage, has not learned his lesson. He does not produce the stalk or the grain, nature does that, but he is responsible for the right condition of that stalk or kernel, so that it may produce the most milk possible.

Then again, he is responsible for the environment of the cow, which means the comfort, healthfulness, cleanliness, and temperature of her stable, and the character and temperature of the water she drinks.

All these things modify the good or profitable effect of the feed. The cow is in our hands. She cannot help herself. She cannot change her bad, unfavorable conditions or the wrong condition of her food. The owner must do that, or else he wastes his costly food.

Then, lastly, comes the character of the cow to which we feed this food. Was she rightly organized (that is, was she rightly bred) to take *good* food, in the right environment, and turn out the best profit possible? Was she rightly handled from birth, to make the most of her well organized motherhood, or has she been spoiled by ignorance of right handling?

For the breeding and handling of the cow, the farmer is again responsible. All these things modify, help or hinder the effect of the food we give the cow. There is a field here rich in both knowledge and money for every dairy farmer to study. The fearful waste of hard earned food that is going on, tells the story.

The surprising difference in the profit, per cow, as between one man and another, tells the story. The thousands of farmers who have spent a life of hard toil, with but little reward tell the story. Their wives and children know the story only too well.

Is it not full time for every owner of cows to say to himself: "*This thing of keeping cows without giving myself right knowledge and understanding on the subject has gone on long enough. I can see by the profit some other men get that knowledge pays. Henceforth for me and my household, we will make a better study of the cow, her environment, her feed and the right condition of that feed.*"

"Heaven helps those who help themselves." That is the true meaning of "good luck."

SOME GOOD THOUGHTS ON BREEDING.

The more a man studies this question of breeding farm animals for a distinct, *profitable* purpose, the more does he see two things clearly: (1.) That he is entering a domain full of mystery and uncertainty—the domain and mystery of life and reproduction; that, study as hard and long as he can, there is yet a vast deal to be learned beyond him.

(2.) That the great majority of the farm animals that are bred are the result of but little sound, clear physiological thought and reasoning from sound principles to legitimate results.

The following excellent article appeared in the *Maine Farmer* for September 15, of last year.

There is wisdom and sound conclusion in what Mr. Gifford says concerning the "ideal" that should be in every man's mind when he sets out to produce a good cow. It takes thought, study and right observation to have such an ideal.

A recent article in the *Maine Farmer* on the above subject attracted my attention and set me to thinking of the experience we have had at Devonshire Farm. The aim of every farmer should be improvement. God gave man the supremacy over nature, and has taught him some of her fundamental truths, so that he may change, modify and beautify all that is about him. But go contrary to these fundamental laws, and disaster is as certain as it is that night shall follow day. And yet there is hardly an ideal that the heart of man can conceive, but is possible of attaining with a certain measure of success. The thought is but the father of the result. And when Booth and Bates set to thinking of ideals in Short-horn breeding, the results were as certain as though the animals stood before them in flesh and blood.

Let the farmer first form his ideal, and then bend every energy to reach it. In the breeding of animals his first aim should be the sire. We have spent nearly as much money in searching for an animal to head our herd as we were obliged to pay for him. But when the animal was found which came nearest the ideal, nothing could deter us from the purchase. It is breeding up to a standard, never allowing an inferior sire to step into the herd, that is wanted on every farm in our country.

Even if the bull as an individual is almost perfect, he should never be chosen unless back of him are individuals of equally good characteristics. When we chose the last bull, we selected him not only because of his individual qualities, but because we saw in his dam an animal which approached to a remarkable degree the standard we had set. And we traced his pedigree back through remarkable animals on both sides until we had reached one of the best animals in the herd of Queen Victoria.

It is generation after generation of careful breeding, and that alone, that fixes any desired qualities. A bull should always be chosen to improve the herd. When a change is desired to avoid too close inbreeding, never take a backward step, but search until the animal is found which will make more certain the results already attained. The bull is half the herd; and if half of some of the herds of New England were weeded out by careful selection, and the proceeds invested in sires which would improve with certainty, there would be a great deal more profit for the farmers.

I started to tell something of our own experience, so I wish to state the results we have reached. The calves which have been dropped the past year are as fine as we have seen anywhere, and give promise of coming nearer, than anything we have before bred, to the ideals we have before us. But no farmer should have an ideal that he can reach until he steps just beyond the shadow, and so we can see the line for improvement, and when the time comes to change we shall search until we find. If the animal is not found which is desired, the careful breeder may, by judicious selection on both sides, be able to breed for himself the animal which is to improve his herd. The principal thought which I wish to leave with your readers is that if they will only have a standard, an ideal toward which they are working, and will then follow the underlying laws and principles, year after year, they will see the work grow better and better, with the certain hope of the crowning finish.

J. E. GIFFORD.

Devonshire Farm, Sutton, Mass.

Mr. Gifford's ideal may not be that of the breeder of the ideal dairy cow, but whatever it is, he can never achieve success if he does not follow it out clearly and truthfully.

What is Cow Manure Worth?

If all the liquid and solid excrement of a cow is saved, it will make, with enough straw to absorb it, about a two-horse load per month—such as farmers usually draw from stables and barnyards to the fields. This manure is already on the farm, and it ought, therefore, to be worth more than in a city or village stable, where it has to be drawn several miles before it can be applied to the land. On the other hand, the farmer who draws manure from a city, fixes up a wagon box that will hold fully twice as much as any load of produce that he takes from the farm to the market. A dollar a load is the usual price paid for these large loads, when contracted for by the year. In the summer, when manure piles in the city are a nuisance, manure from cow stables will be sold much less than this. We have known it offered at fifty cents a load, and in extreme cases have seen it given, free of cost, to whoever will take it away.

Market gardeners, who buy most of the manure from city stables, say that these large loads are necessary, for the manure is unfermented. By the time it is rotted down and ready to apply to the land, its bulk is reduced fully one-half. They do not like manure from cow stables, so well as that from horses. It is slower to heat, and contains less phosphate and nitrogen, than the average manure from horses. This is partly, perhaps, because oats are the common grain food of horses, but are less frequently fed to cows. Besides, when a cow is giving milk she puts more of the nitrogen into the milk pail than the horses use. But when cows are fed clover hay, while the horse has timothy, and the cow has, besides, a ration of wheat bran daily, her excrement will be nearly, or quite as good as that from a horse. The whole question about the value of different kinds of manure, depends more on the feed than on the stock. A first-rate cow, with a good digestion, able to eat heartily, and fed some linseed meal with wheat bran and clover hay, will make manure that will be worth three times as much per load, as that from a cow that is fed mainly on straw.

We often see statements in farm papers, that the manure from a cow per year is worth nearly or quite as much as her dairy product when made into butter. But it must be a very poor cow, indeed, or one fed extravagantly, of which this can be said. Much of the manure of a cow that is at pasture, is scattered in the fields, and as it ferments, it is wasted in the air, doing very little good to the land whereon it falls. Instead of its being worth $40 to $45 a year, $20 would be a liberal estimate for it. In most cases the addition of five dollars worth of phosphate, and the same of potash, would more than double its effective value. This, however, will not be needed where the cow, in addition to her other feed, has had grain or meal that is rich in both nitrogenous and mineral plant food.—*American Cultivator.*

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OUT of 423 cows, furnishing milk to the Syracuse, N. Y. market, only 4% were found affected with tuberculosis.

THE Co-operative Creamery at West Saem, Wis., is one of the largest in the state. The value of its annual output of butter is over $100,000.

THERE was not space enough on the preceeding page for the illustrations which accompany the review of Bulletin 75 of the Wisconsin Experiment Station, and, as it seemed expedient to place them where they could all be seen at once and thus more conveniently compared one with another, they are given on pages 494 and 495.

THE Dairy and Food Commission of Michigan publishes a monthly report, and thus gives the people of that state early information of all its doings. This is a practice that might be followed in other states with most excellent results.

The June report of that Commission shows 116 dairies inspected and gives the condition in which they were found under the different specifications of condition of cows, stables, yards, water and general surroundings, and whether good, fairly good, poor or bad. It also shows that 161 samples of food products were analyzed, of which ninety-four were found to be pure and sixty-seven adulterated. In the latter class were six samples of what was represented to be butter, taken from hotels in Saginaw and Lansing, that proved to be oleomargarine, and not a bad argument for passing the law to tax colored oleomargarine ten cents per pound.

TUBERCULOSIS AND MILK.

A sample copy of HOARD'S DAIRYMAN fell into the hands of a gentleman in Rhode Island, who forthwith sent us his subscription for a year. The next day, having read a little more in the paper, he remits $2.00 for a copy of Prof. Henry's book, "Feeds and Feeding," and submits the following inquiry:

On page 460 of the sample copy just sent me, there is an article, "Tuberculosis and Milk," with the spirit of which I wonder if you agree? I must say that the argument does not strike me with any force at all. "One swallow does not make a summer."

There was very little "spirit" in the article referred to, as it was merely a report of the facts developed at the New Jersey Agricultural Experiment Station, with a herd of cattle, which had responded to the tuberculin test. It was stated that "the milk from these cows has been tested and analyzed again and again, and thus far no germs had been found in it. So far as science could determine, these cows produced clean and healthful milk." It was said further, and out of abundant caution, that it was not safe to conclude that the milk had never contained any germs, for they might have been present on occasions when the milk was not tested.

It was somewhat reassuring, however, to know that these germs were not numerous or frequent, even if they did sometimes exist.

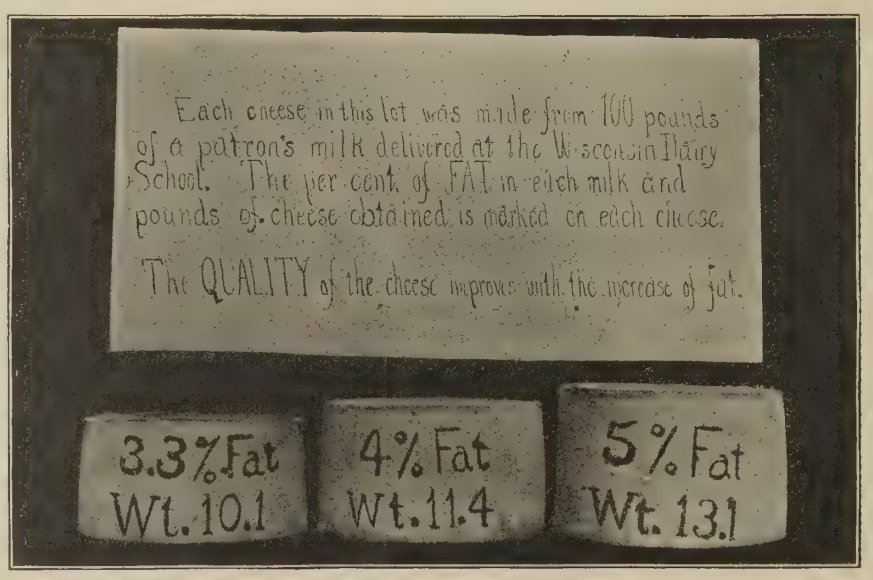
These facts, taken in connection with the further facts, that it never has been proven that any case of tuberculosis in man resulted from the use of milk, that with an increasing consumption of milk, there is a decreasing per cent of human tuberculosis, that there are many families that have unwittingly used milk from cows, that were afterwards known to have been tuberculous, and are none the worse for it—facts like these, we are forced to admit, lead to the conclusion that the danger of tuberculous infection from milk is at least exceedingly remote, and not to be compared with the dangers, from other sources, that are about us on every hand.

There is danger in traveling on boats, in cars or wagons, or even in journeying afoot, and yet people are not deterred from going about on business and for pleasure. The great majority of travelers reach their destination without mishap, but there are occasional accidents, resulting in more or less serous disability and death. Shall we all hereafter stay at home? The man who makes it his special aim in life to collect and preserve the records of disasters, and is always ready with "statistics" to prove that the world and all its people are doomed to early destruction, is anything but a philanthropist. HOARD'S DAIRYMAN does not agree with the "spirit" exhibited by such men, and is not at all in sympathy with the "spirit" of any other man or class of men, who are constantly striving to magnify the possible dangers that many inhere in the milk of one cow in a hundred, and extend them to the milk of all cows. In other words, HOARD'S DAIRYMAN strives to confine itself to the facts in this matter, and cheerfully admits that it takes more pleasure in recording the evidence which tends to show the innocuousness of milk and all other food products, that in repeating the much-worn reports to the contrary.

THE RELATION OF FAT IN THE MILK TO CHEESE IN THE HOOP.

It is no more certain that twice two is four than that four per cent milk will make more cheese than three per cent milk. This is not theory, but fact, demonstrable both by figures and experiment. Prof. Decker shows it in his communication and the accompaning illustration on this page.

One hundred pounds of four per cent milk contains one pound more fat than 100 lbs. of the three per cent milk, and any cheese maker, worthy of holding his job, can put that extra pound of fat into the cheese, and with it a due proportion of water. There is in cheese approximately half as much water as fat and casein combined. The fat will carry its share of this water and it is therefore not unreasonable to expect that the pound of fat will increase the weight of the cheese by nearly one pound and eight ounces, and with cheese at eight cents per pound, four per cent milk should be worth at least twelve cents per hundred more than three per cent milk, even when we ignore the better quality of the cheese and the proportional increase of casein with the increase of fat.



Here are the figures:

100 lbs. 3.3% milk yields	10.1 lbs.	cheese
100 lbs. 4.0% "	11.4	"
Therefore:—		
0.7 lbs. fat yields	1.3	"
Again:		
100 lbs. 4% milk yields	11.4 lbs.	cheese
100 lbs. 5% "	13.1	"
Therefore:—		
1 lb. fat yields	1.7	"

The Babcock Test for Cheese Factories.

The Facts Stated and Illustrated.

ED. HOARD'S DAIRYMAN:— The method of dividing the money for milk at cheese factories, according to butter fat test, is slowly but surely gaining ground in Wisconsin. In the southwestern counties of the state, it is the exception to find a cheddar factory that is not paying by test.

Two or three years ago, in Kewaunee county, the factories were paying according to the old pound-for-ten system. I recently took a trip through there on my bicycle, and when I would stop at a factory and ask if they paid for milk by test, the answer would be, "you bet we do."

There is, however, a district around Hilbert Junction where the pound-for-ten system has its grip on the factories. One factory does it that way because the next one does. When asked why they do not pay by test the reply is, that "someone" has said, that no more cheese can be made from 5% milk than from 3 % milk, and they believe it, and do not try to locate the authority for the statement.

Last winter at the Dairy School, I had students prepare milks with skim milk and cream containing 0%, 1%, 2%, 3%, 4% and 5% fat. The DAIRYMAN in one of its issues, had a photograph of these cheese, and I find that it has set some farmers to thinking. I send you herewith, a photograph of a series of cheese made—not from milks prepared from skim milk and cream, but from patrons' milks selected according to butter fat. Each cheese was made from one hundred pounds of milk, and the weight of green cheese obtained is marked on the cheese. It must be remembered that these weights are for green cheese, just as it came from the press, made for a home trade; that the cheese weighing 10.1 pounds cured out to 9.5 pounds; and that the relation between the different cheeses is the point to be borne in mind.

The five per cent milk did not make fifty per cent more cheese than the 3.3% milk, as some people think it should in order to justify paying by the test. They overlook the factor of quality. The five per cent milk contains more butter fat, both actually and in proportion to the casein, and because of the latter fact, makes a cheese of finer quality.

Secretary Wilson states, that when he wanted to get cheese of exceptional quality for export, he had to pay a higher price, and that this higher price was proportioned to the amount of butter fat in the cheese.

If one will examine the market quotations for cheese, he will find that the price of "full cream" stands first, "light skims" are a little lower, "half skims" lower still, and "full skims" very low. Dr. Babcock has shown, in the Eleventh Annual Report of the Wisconsin Experiment Station, that, if the prices of such qualities of cheese are applied to the yields per one hundred pounds of the several qualities of milk, the results will be the same price per pound for butter fat. It is, therefore, the fat in the milk, that measures or determines its value for cheese.

If we take the fat all out, and make cheese from the skim milk, it will have no real market value. If a fisherman can be found, who wants a "big lot" of fish bait for his money, he may pay one cent a pound for it, but one cent a pound on a yield of five and a half pounds of such cheese from one hundred pounds of skim milk, is but five and a half cents, which will not pay for the labor, fuel, color, rennet, salt, bandage, box, cartage and freight put into it, and it would pay much better to throw the good skim milk away than to charge up damages against it in this way.

Let the patron who thinks that he ought to get extra pay for his other milk solids, take this into consideration. It is the butter fat that counts.

CONCLUSION.

Are you delivering milk to a cheese factory? Do they pay for your milk on the pound-for-ten system, or any other system than by butter fat content? If so, you are either receiving more than rightfully belongs to you, which is not consistent with honor, or less than rightfully belongs to you, which is not consistent with sound business judgment.

JOHN W. DECKER.

THE TUBERCULOSIS SCARE.

It is a pleasure to find that there is here and there, a scientific man competent to write on this question, who does not think it necessary to add to the present tuberculosis scare, by means of exaggerations couched in scientific terms.

Professor Wrightson writes as follows in the English *Agricultural Gazette*:

"The pleasure of dairy farming has been somewhat marred by the idea of unsoundness in so large a proportion of our cows. It is to be hoped that ere long our knowledge will at least be sounder than it appears to be, and probably our cows are sounder than our knowledge. The seeds of disease, alas! are sown broadcast, even in the fairest scenes, but no human measure can eradicate them. There is such a thing as knowing too much, and life would not be worth living if we could see the approach of disease and death. If is well, no doubt, to eliminate, as far as possible, all predisposing causes, but to detect, in a manner which may be termed prophetic, the germs of a disease which has not declared itself, and which may remain latent until death intervenes from totally different causes, is going a step too far. If an animal

is diseased, by all means isolate it or destroy it; but to do so because an animal reacts to a reagent and thereby exhibits a tendency, is, I repeat, going a step too far. All animals have this tendency, for it is evident that although an animal does not react to-day it may react to-morrow, or at least shortly. The test to be effective should be constantly used. A cow free this summer may not be so in the autumn, and hence a system of monthly testing would be necessary.

"Animal food, bacon, cheese, butter, cream and milk have always been regarded as wholesome foods, and they are as wholesome now as ever. Why should we terrify ourselves with wondering whether animals used as foods, or their products used as food, may have the seeds of disease or death in their bodies (which must be the case) when they are apparently healthy, thriving or yielding large quantities of good milk? As well might we question the wholesomeness of hares, rabbits and poultry, and have every chicken subjected to a tuberculin test before we wring its neck. To such preposterous lengths might we be led but for the strong common sense which happily rules. I trust, therefore, that the scare which has lately prevailed will soon be moderated, and that attention will be fixed upon animals which are diseased, and not on those which exhibit tendencies or liabilities to disease. As well might a crusade be set on foot against the salads, raw fruit, oysters, or any other food of like description which must be exposed to the invasion of germs. They are absolutely everywhere. In water, in air, in all crowded assemblages of people, they positively reek. In all railway carriages they abound, and in cabs they are ubiquitous. They are in the cow-house and in the kitchen. They must be in every breath inhaled, and yet we live. Too much has been made of the germ, simply because we have only lately discovered that he is universal."

Variations in the Test of Milk.

The daily tests of the milk show to what extremes the milk of one cow will vary from day to day, a difference of one-half of one per cent, and occasionally even more than one per cent being noticed on some days.

This is shown by these records for August, November, December and June. Such variations, however, tend to equalize each other from day to day, and milk of unusual richness is generally followed by exceptionally thin milk, so that the average richness of the two lots comes near to the normal quality that the cow produces. This daily variation in milk is much more striking in some cows than in others, even in a herd having the same feed and care; it seems to depend largely on the health and more or less excitable temperament of a cow. Nervous cows showing a much greater tendency to unevenness in the quality of their milk than cows of a quiet disposition.—*Wisconsin Bulletin No. 75.*

A Connecticut Silo Experience.

ED. HOAD'S DAIYMAN:—In 1889 we built a square silo 15×15 feet and 20 feet deep on to the gable end of our basement barn, covering it with a tin lean-to roof. The tinning lean-to bill was $19.00 Except framing we did the carpenter work ourselves; the total outlay being about $100. We used six-inch chestnut girts and boarded up and down outside and inside with four inch pine with paper between. Only one thickness of boards on the inside. It has been a success, although the silage has wasted somewhat on the outside. It has been filled every season since with an extra partial filling of oats and peas July 1st for several seasons. After about five years use the lining rotted through in the lower part and we put building paper over and relined with rough through and through hemlock boards which swelled tight in filling. This is as cheap and satisfactory a way of repairing a square silo as I know of. In 1898, rats and decay having ravaged the bottom lining and timbers we cut out the inside lining up to the second girt and filled in with brick and grout backing against the outside boards. This year as the lining shows wear further up will paper-hang the whole inside with tarred paper. Some one may object to a silo that needs so much patching, but it is the ultimate necessity of any of the board lined ones to be patched or torn out. Tarred paper is cheap and I believe will be effective. This silo has bulged and corner irons have been necessary to prevent bursting. The corners had 6×2 tenons into corner posts with two pins, but a stronger corner tie is necessary to stand the strain. Our corners inside have four inch stick split cornerwise and nailed up and down, but it were much better to tie the grits with an eighteen inch or two foot stick and ceil upon it. This would be stronger and fill out the corner better.

CARRIERS.

The thorn in the flesh of our silo outfit is the carrier driven by sprocket at the bottom. It will catch and break and double up, stop all operations, spoil the temper and raise confusion generally. There seems to be some defect in driving from the bottom and pushing the load up the slide. You can push with a stick or a rod, but a chain is made to pull with and if asked to push will buckle sometimes. I wonder if others are troubled in this way. It is a well made carrier. The defect seems to be a defect of principle. E. C. BIRGE.

Southport, Conn.

Ripening Cheese at Different Temperatures.

The results of some valuable experiments on the above subject are reported by Prof. Dean, in the twenty-fourth annual report of the Ontario Agricultural College. Details of how the experiments were conducted need not here be given, but the following are the conclusions which were arrived at by the experimenters:

1. The cheese lost considerably more during one month's curing when kept at a comparatively high temperature. This was true for each month during the experiments, and also for the season. The average per cent of shrinkage during the season for one month in cheese weighing about thirty pounds, cured at 60° F., was 3.40%; cheese cured at 66° F. lost 3.85% in weight, and cheese cured at 69° F. lost 4.31%.

2. The quality of the cheese was very much better by curing at 60° F. The average score for the season for cheese made in the College dairy was nearly three points in favor of cheese cured at 60° F., as compared with similar cheese (from the same vat) cured at 66° F., and five points higher compared with those cured at 69° F. The difference was more marked still, in September and October cheese. The flavor was very much better in the cheese cured at 60° F. and the texture was a marked improvement. Cheese cured at a high temperature go off in flavor quickly, and have a sandy or mealy texture. The cheese made in October, and cured at 60° F., were considered to be worth from ½c to 1c per pound more than similar cheese cured at 70 to 75° F. Cheese cured at the lower temperature have a very much better keeping quality.

THE use of formalin, as reported by Mr. Wheaton on page 491 for preventing mold in the curing room, appears to us to be fraught with more or less danger—not immediate perhaps in very great degree, but certainly is a letting down of the bars, for pernicious practices to come in. It is but a short step from using formalin as a spray to using it or some other germicide in the curd or milk. Dairy products, we insist, should be—the simile is as apt as it is old—like Caesar's wife, above suspicion.

Cheese will not mold in a proper curing room. If the cheese molds, the evidence is conclusive that the curing room is defective and needs remodeling. Remove the cause and the disease will abate.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

TWO STORY STABLES.

I am going to build my cow barn over this fall and would like to put my horse stable over the cows, (cows being in basement, built of wood), if it would be satisfactory. L. G. R.

Saratoga Co., N. Y.

We have seen arrangements of this kind that were very satisfactory, but in general, too little care and expense are given to making the upper floor water proof. It can be done, and must be done. Otherwise the whole business becomes a nuisance.

CLOVER SILAGE FOR SUMMER FEEDING.

I am thinking strongly of building a stave silo for summer feeding to be filled with clover. Should the clover be cut into the silo same as corn, and what amount would it be safe to figure for twenty cows for the summer with what pasture they could get. I know this is a very indefinite question, but would like some idea; would rather put up too much than too little. L. G. R.

Saratoga Co., N. Y.

The clover should be cut, as this will let it pack closer and be more convenient for feeding. This is not to say that it cannot be put in whole, for in fact we have seen excellent silage made from whole clover.

You may need from twenty to sixty pounds of silage per day for each animal for a period not likely to be less than six weeks.

At forty pounds per day, the total would be eighteen tons, but, as you say, it would be advisable to put up much more than this. Build the silo not less than twelve feet in diameter and twenty feet high, and when the corn is ready, fill it in over the unexpended clover.

WHITE BUTTER JARS.

There has a question arisen here in regard to white butter jars. I asked my grocer to-day to get me some, and he asked a potteryman, one, by the way, that makes brown jars, and he made the statement that the State Board of Health had forbidden the making of white jars in the state, and was going to prohibit their sale and use on the grounds of using sugar of lead in the glazing, which the salt in the butter dissolved. Is there any basis for this claim? I greatly prefer, and my customers also prefer, the white jar.

Fortsville, N. Y. L. G. R.

We cannot say as to whether any such law has been passed in New York, but should consider it very unlikely, as there is no reason why white butter jars should be any more dangerous than any other color. Lead glaze can be, and is used on different kinds of earthen ware, colored as well as white.

There may be a law forbidding the use of a lead glaze on all earthenware, which would be an excellent regulation, but this would not prevent our correspondent from buying all the white butter jars he needs, and have them free from any lead glaze.

ELEVATING SILAGE.

I want to know if there is any way to elevate ensilage into twenty-four foot silo without buying a carrier? I do not need an angle or swivel carrier, necessarily, as the ensilage would go straight up and in silo. Please advise and ask your readers to advise me. Can I get ten-inch-cut shredder and two horse tread-power and fill silo successfully? Readers who know, please advise.

Osceola, Ark. W. A. J.

See the advertisements on page 504 and write to the manufacturers and dealers. Of course, silage could be hauled up in buckets or immense sacks with hay fork tackle, but it would be more expensive in the end.

TIGHTENING THE HOOPS ON A STAVE SILO.

I would like to know what has been the observation or experience in tightening up a stave silo. My silo is 14 feet in diameter, 24 feet high, and built out of pine pieces, 2×6×24, dressed all sides, not beveled. There are ten hoops made out of ⅝ iron rods divided into two sections, each one-half the circumference of the silo, the ends fastened in a 4×4×24 piece which acts as a stave also. When I built the silo last fall, I had the hoops drawn around the silo as tight as one man could with a fifteen-inch-long wrench, then filled it with corn ensilage, which kept almost perfect.

Since my silo has been emptied, the staves have shrunk so that the hoops drop down 9 to 12 inches in the center of each section. The question with me is, how much slack must I take up? W. S. B.

Cha-tanooga, Tenn.

We doubt whether any one can give explicit directions in a case like the above. We should say, make the hoops fairly "taut" at first, and then loosen them from time to time as may be necessary to accommodate the swelling of the staves.

VOLUNTEER RYE IN OATS.

I have a piece of land that was in rye last winter, grazed down this spring and summer, but some of the rye was not eaten and ripened seed. I wish to plant this in winter grazing oats to thresh when ripe and grind for Jersey cow feed. Will the rye that may grow and come in the oats do any harm to the cows or affect their milk? W.

Nashville, Tenn.

The rye will do no particular harm except as it may interfere with a full crop of oats. Rye is the most vigorous of the small grains, and it may happen that next season's crop will contain more rye than oats. In that event we would advise cutting quite early so as to save the rye, which will ripen some time before the oats are ready to harvest. The rye will not injure the cows or their milk.

EASY CHURNING MILK.

Will you inform me why is it that milk that has been run through an aerator (Champion) will churn when on the delivery wagon.

Boston, Mass. D. L. R.

It is not probable that running the milk over an aerator will have any effect on the churning quality of the milk. The ease with which milk or cream will churn is dependent on several conditions, as the size of the fat globule, per cent of albumen, condition of the casein, etc. None of these would be changed by the process of aeration. The fact that butter forms in the cans only indicates that the fat churns very easy and it would do so regardless of the aeration.

BREEDING HEIFERS BACK TO SIRE.

Will you advise me as to serving my heifers to their sire? W. C. C.

Comet, Ont.

The primary question is not one of kinship, but of merit, individual and inherited. If the sire has special qualities that it is desirable to perpetuate and intensify, or, wanting these in any considerable degree, is the best bull you can conveniently have for service, there is no reason why he should not be used as suggested. A great majority of the best animals of all kinds are more or less inbred, —but are best not because of the inbreeding, *per se*, but because sire or dam, or both, were superior. But remember that inbreeding will just as certainly intensify defects as excellencies, and possibly somewhat more certainly. It is because of this fact, that inbreeding should not be carried too far.

SEEDING TO ALFALFA.

I would very much like to know if it is practicable to grow alfalfa in wheat as we do clover and timothy. If so, is it best to sow in the fall as we do timothy, or in the spring as we do clover? F. B.

Middletown, Del.

Alfalfa has not been much grown in this immediate vicinity, and we are therefore unable to answer very definitely, from personal experience or observation.

The "directions" usually given by those who have had experience, is to sow in the spring, and without any so-called "nurse-crop", which might be more appropriately termed in most instances, a robber-crop

The editors of this paper each tried seeding small fields to alfalfa last spring, one sowing the seed with oats, which were cut early for hay, and the other sowing the alfalfa alone. That sown with the oats came up nicely and seemed to do first-rate. For one thing, the season here has been very favorable, with plenty of rain, but had the oats been allowed to mature and thus put an extra burden upon the moisture in the soil, it is possible that less satisfactory results would have been obtained.

We have frequently noticed with new seeding of common clover, that the most trying time for the young plants is when the grain is ripening. It would not do to sow alfalfa in the fall.

Thoughts About The Silo.

ED. HOARD'S DAIRYMAN:—I am glad to see the dairy press pushing the silo to the front more earnestly than ever. It shows that our leaders are convinced that the silo is an indispensable factor in economical stock feeding, and that as many stock feeders as possible should know this for their own benefit.

With severe competition and consequent low prices, we can no longer afford to be wasteful and careless. Time was when farmers made money with their stock, if they wasted from one-third to one-half the feeding value of their corn crop, but that is no more. The editor says, "give us practical experience." Yes, that counts with the practical farmer every time.

Not long ago, at one of our farmers' institutes, a well educated and scientific lecturer gave a lecture on soil culture, in which he asserted that the usual method of plowing a hillside was all wrong. By throwing the furrow slice down hill it covers the hillside like a shingled roof, and sheds the water that should be caught and held for future crops. The furrow slice should always be thrown up hill, thus turn the shingles so as to capture the water and carry it where it is of benefit to the coming crop.

After he was through with his very nice and complete talk, an old farmer, without rising or addressing the chair, asked, "Did you ever try that?" The speaker admitted he had not, *his land was level.* The old farmer said: "Well, young man, whenever you are ready to put your theory into practice come to my place. I have the hills, the plows and the horses, that can walk pretty rapidly where the land is very stony, and if you show me how to make a decent job turning the furrow slice up hill, I will make you a very nice present. The young man would not volunteer to do the instructing.

Theories are very good to have around, but it is not always best to let them loose in a miscellaneous audience. So I think it well for the editor to qualify the writers on the silo to four or more years experience.

First trial experiences are sometimes clouded with too much enthusiasm, or possibly, prejudice. But after a man has fed his cows steadily for 300 to 365 days in a year, for four to six years, and has carefully kept an account with each cow and with the entire herd, and then compares the last five years with five former years when he had no silo. And then carefully lays over in his mind the *work* it *then* took to get the corn and stover before the cows, in a shape so most of it could be utilized, and the work he had to do day after day to cut and draw in the soiling crop, and how the drouth cut them down so he did not know where to get feed for his stock, and often had to sacrifice some for want of feed then, after the cows were compelled to roam over acres and acres of dry, brown, bare pasture in the boiling hot sunshine to search for a living,—only with such experience can he truly, emphatically and positively tell the other fellow the *real* value of the silo.

Now he stores his cattle feed in a few days for the whole year, in the finest, best, most digestible and most succulent condition imaginable. Instead of working hard to raise a big crop of corn, and then wasting a third or more, and feeding the rest in a very unpalatable state, he now saves it practically all, and it is all so palatable that it does his heart good to see the cows eat it.

He keeps twice as many cows as he did before, and much more than doubles his former profits, and really does not work as hard as he did under the old methods.

Under these conditions and with these experiences, he can earnestly and forcefully tell his fellow farmers that the silo is an absolute necessity, a great profit maker and labor saver. Indeed about every one that I interviewed has had just this experience.

The longer they use it the more they see the value of it, and the more they wonder how it can be that their fellow farmers are so bound and rooted in the old rut that they will not try to come out.

It is all very instructive and interesting to learn the facts and figures from our experiment station, that curing in the silo means a loss of 5 to 10%; while curing in the field means a loss of 25 to 35%, and that silage makes from 5 to 10% more milk per pound of dry matter than dried corn fodder, and that there is a corresponding increase in the yield of butter; the better condition of the cows in health and appearance, and a number of other deductions and results of experiments.

I say, all this is very good; but when the *actual, practical* farmer—the man who depends directly on the soil and its products for his entire living, and that of his family, the man who can and does hold the plow and milk the cow—takes his pen (and that man can always write plainly enough for the editor to decipher it) and tells his brother farmers that he had tried the silo for five years, and is now fully convinced that he can harvest the corn crop much easier and quicker than in the old way, and that as a feed it is worth nearly again as much as it is in the old way of curing, such testimony is effective.

By just such tactics, our patent medicine friends (I was going to say fiends) carry convictions to the unbeliever. Why should not we try to induce the farmer to come out of the rut and make use of a discovery that is one of the greatest blessings of the age? *Lessens labor, increases happiness, and lengthens life*; so much I can testify for the silo, after using it five years.

After a man has dropped some of his ultra-conservatism, and turned out of the rut so far as to conclude to build a silo, he can generally very easily decide just what he wants, and how he wants it.

He may have plenty of room in his barn, and he will cut off a corner, of, say 12×12 or 16×16 and 25 or more feet high, and if he has some timber to put in the extra studding, he can construct a silo there for 35 or 40 cents per ton capacity. Just such a box I have in my barn, and it is very satisfactory in every way, and were I to do it over again, I would have it right there. It is convenient to fill and feed.

Some farmers do not have the machinery, nor care to purchase, for cutting the silage, and therefore hire an engine and outfit, and fill the silo with a rush, while I have a cutter and tread power, and can nicely place 100 tons of silage into the silo in seven days, with my own horses and my regular help. I save money and have no general "hullabaloo" around the place, as is always the case when the threshing or cutting gang comes. I can also give my silage time to settle, and then fill up again, thus putting more corn into less space.

I have visited and investigated the workings of many different kinds of silos, and find them practically all satisfactory, if they are deep enough and the corn is put in at the proper stage of maturity.

To make a success with a silo is as easy as falling off a log, and ten times pleasanter.

Adams Co., Pa. L. W. LIGHTY.

Letter From Northern Vermont.

Remarks on the Season and Crops, With Some Lessons Gleaned from the Haying Field.

ED. HOARD'S DAIRYMAN:—The drouth which had been more or less severe over New England up to the first of July, was succeeded by plentiful rains. These were indeed most acceptable and of great benefit to the crops and the failing water supply.

Some of the meadows, particularly the older seeded ones, were past redemption, but much of the other portion was appreciatively benefited.

The yield of the crop, at least in Northern Vermont, has been considerably better than was anticipated a few weeks ago, while the quality, where not injured by the frequent rains—for this has been a "catching season"—will be good. This with the considerable amount of old hay on hand, must be sufficient for the purposes of the farm.

Corn and other grain crops promise an average yield, so there will be little necessity for Vermont farmers disposing of more than the usual amount of stock for lack of fodder.

The season is more favorable for pastures and meadows, so that with proper care the milk yield, which had been materially decreased, should be kept from further shrinkage.

Prices for milk and butter continue good and there now seems to be no reason why they should not continue so during the remainder of the season.

Considerable less butter is being received at the trade centers than a year ago; local consumption is on the increase, and with a fair export demand, prices to producers should remain satisfactory.

The wide-awake farmer should take advantage of this state of things to do his level best in producing just as much and just as good a quality of product as the means at his command will permit. This will pay, as every observing reader of HOARD'S DAIRYMAN has gathered from the successful experience of others, as given from week to week.

And now as to some of the lessons that should be learned during the season of haying.

First, and a very important one, is that of cutting the crop as nearly as possible when in its best condition. This requires some calculation and good management, a determination to commence early enough, so there will not be an appreciable loss at the end from the grass standing too long.

Too many wait until all of the grass is ready for the scythe before commencing, and then there is unavoidably more or less of loss in quality in the end. Many farmers observing this at the close of haying, resolve to commence earlier another year. This is well if the resolution is put into effect.

As a usual thing, the older seeded fields gave the lightest yield and often of the poorest quality, while a season like the present, reduces the yield still more sensibly. Here is where a shorter rotation, that is meadows a less number of years in grass, will give better returns. For instance, in raising more corn and oats for fodder, our fields are only in grass for three years and the present season, as a consequence I calculate, the field was as good as last year, when there was an unusual large crop. This is a result not to be overlooked.

Again if a farmer has manure for the purpose, it should be applied as a top-dressing for grass, at any time after haying, and on those places where it would be likely to produce the best results. This will usually be where there is a good set of grass, for it is quite largely run out. The method of recuperation will be of little use; the land should be plowed, devoted to other crops and seeded again to grass.

There are some pieces difficul to plow that can be kept in grass by frequent topdres ings of manure. A "little and often" will be found better than a single large application.

Many of the farms, at least in the Eastern states, are more or less stony. Where this is the case there is usually some work to be done every time the land is plowed in removing these obstructions, and with carefulness in removing these on seeding to grass, there will be some left, and where this is the case they are pretty sure to be found when getting the hay. After haying is a good time to remove these before they are forgotten. Clean, smooth fields are very desirable for cultivation and harvesting, and it will pay to bestow considerable labor and expense on them in fitting them properly for the production and gathering of the best amount and quality of crop possible. These I find are some of the lessons that can be learned while gathering the hay crop, and if they are only made the best use of, in the most practical mann r, the results cannot fail of being eminently satisfactory.

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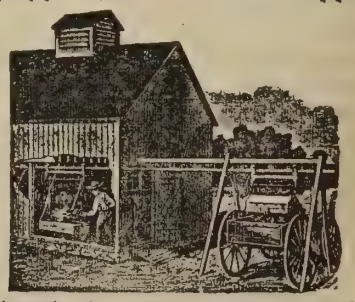
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Mr. Wheaton's Canadian Dairy Notes.

Preventing Mold on Cheese.—The Use of Formalin. —Gravity Separators. — Dairy Markets.—Canadian Exports.

ED. HOARD'S DAIRYMAN:—Formalin has been used very successfully at the Black Creek factory this season for the prevention of mold on cheese. The curing room of this factory, which is owned by Messrs. T. Ballantyne & Sons, Sheatford, Ont., is built of brick and is considered one of the best in the province. Still the cheese when in the curing room for a short while became covered with mold, and to use the maker's words: "Got as black as your hat, during the months of June, July and August."

The cheese maker at the factory, Mr. Geo. Barr, who is one of our most enterprising dairymen, in writing of his experience with formalin, says:

"Last year we used formalin. At first I used a small atomizer to spray it on the cheese, but found it did very little good. I bought a tin sprayer, which was being sold for spraying potatoes, etc., and commenced using it to spray the formalin on the cheese, and found that the greater quantity of formalin I used the less mold there was on the cheese.

This season I commenced using the formalin as soon as we stopped using a fire in the curing room, spraying all the cheese every morning after the room was closed up for the day. We put as much on as a man can before he has to get out of the room, closing all the doors, and it is so strong in our curing room every morning for an hour or two that a person cannot stay in the room two minutes. The result of using it in this way is that our cheese are as clean almost as when they came out of the hoops. We used in June half a gallon of formalin, which cost $2.50. I consider it worth twice that amount to have cheese as clean and the curing room smelling as nice and sweet as ours does.

A great many cheese makers say formalin is no good. It seems to me they have not used enough of it. It will certainly destroy mold and I am satisfied that no curing room could be any worse for molding cheese than ours was. To have cheese as nice and clean as they are this year, makes me think a great deal of formalin, and I would advise any cheese maker to get a good sprayer—they can be bought at almost every hardware store, tin shop, or dairy supply house—and go to work and thoroughly saturate the curing room with formalin and then use it every day afterwards. We also use it in our curd sinks after washing them and find it sweetens them."

Mr. Barr's experience is certainly a very valuable one and if a liberal application of this substance to the cheese will destroy and prevent mold, every maker should use it. Mold on cheese is an unsightly thing to behold and if it can be cured so effectually by the above treatment and the cheese kept clean, a difficulty that many makers have to contend with, can be easily overcome.

Another important point in Mr. Barr's statement is the wholesome effect that the spraying of formalin has upon the air in the curing room and in keeping the curd sinks sweet and pure. This is just as valuable a property of formalin as that of preventing mold in the curing room. To have a substance at hand that will purify the sinks and the make room after the day's work is done, should be of very great value to every maker, who should get in a supply, if for no other purpose.

Hydro-lactic, gravity and dilution cream separators are receiving some attention on this side, in the way of a discussion in the agricultural press. In a recent issue of *Farming*, Mr. W. J. Kennedy, of the Iowa Agricultural College, and who, by the way, is a Canadian and a graduate of the Ontario Agricultural College, contributes a rather exhaustive article on this subject, dealing chiefly with experiments that have been carried on to test the claims of these separators. He points out that during the past few months they have tested a number of samples of skim milk from these "separators" sent to the College, and the results showed that the per cent of fat in the skim milk varied from .8 to 1.4 of one per cent. One of those "separators" was on trial at the Iowa College and after being operated according to the instructions of the manufacturers for some time, the average per cent of fat in the skim milk was found to be .85 of one per cent.

This experience in itself would be enough o condemn such a system as not being economical and causing a large loss of butter fat in the skim milk, but Mr. Kennedy advances further proof and cites an experiment conducted at the Ontario Agricultural College, as follows:

"At the Ontario Agricultural College, the Hydro-Lactic Cream Separator was given thirteen trials, and the diluted milk was allowed to stand from six to twelve hours before skimming. The average per cent of butter fat found in the skim milk was .6 of one per cent, while the average of five years' work done with the centrifugal separator, the deep setting and the shallow pans was as follows:

No. of tests.	*Pounds of milk skimmed.*	*Method of skimming.*	*Average per cent Butter fat in skim milk.*
150	7,600	Separator.	.10
150	7,600	Deep setting	.31
150	7,600	Shallow pan	.38

At the Vermont Station, Prof. Hills used the "Wheeler Gravity Separator," and obtained the following results:

Character of milk.	*Average per cent of fat.*	*Dilution.*	*Number of trials.*	*Per cent of fat in undiluted skim milk.*
Herd milk, mostly Jersey grades	5.00	2-5 milk, 3-5 water	39	0.63
Herd milk, mostly Jersey grades	5.00	" "	3	1.05
Stripper (Jersey) milk.....	5.50	" "	28	0.78
Stripper (Jersey) milk.....	5.50	" "	27	1.13
Ayrshire milk.....	3.75	½ milk, ½ water	23	1.50

These tables show pretty conclusively that these so-called separators do not compare at all favorably with the centrifugal method; and while they may be supplied to dairymen at much less cost than the regular cream separator, in the end they really cost more, as the loss of butter fat in the skim milk will soon more than make up for the extra amount paid for a good centrifugal machine.

Then there is the dilution of the skim milk to be considered, which renders it less valuable for feeding purposes, not to say anything of the injurious effect that might result from the addition of impure water. Taking all these things into consideration there is nothing to be gained, and much to be lost to the private dairyman in investing in one of these "pseudo" separators.

In dairy market circles things are looking bright. Both the cheese and butter markets have ruled firm during the week (July 22d), and everything seems to point to good prices for the balance of the season.

The bulk of the June cheese is out of the factorymen's hands, and what is better still, has gone forward to the British market, there not being so much held on this side as last year at this time. Shipments so far this season from Montreal show an increase of 80,000 boxes over the same period a year ago. But while this is the case, it must be remembered that at the beginning of the season there was a shortage of 250,000 boxes in last season's output. With a good consumptive demand in Great Britain and no accumulation of stock, the outlook for cheese is bright and Julys are likely to bring a good figure.

Finest Western is quoted at Montreal at 8⅞ to 9c, and finest Eastern at 8⅝ to 8¾c. At the local markets, during the week, prices have ranged from 8½ to 8⅞c, with 8⅜ to 8¾c per lb. the ruling bids. To-day (July 25) July cheese sold at 9 1-16 to 9 3-16c, on the local markets.

The exports of Canadian creamery butter so far this season show an increase of fully 82 per cent over those for the same period a year ago, and there does not appear to be any lessening of the demand for Canadian goods in Great Britain. Our creamery butter seems to be gradually growing in favor over there, and some sales made this season on the open market in England have brought as high prices as were paid for the best Danish on the same day. While our exports have increased 40,000 packages this season, those from New York have decreased nearly 22,000 packages.

Holders of fancy brands of creamery are asking 18½ to 18¾c for it, and sales are reported at Montreal at 18⅝ to 18¾c, per pound, which is nearly a cent above the best prices a week ago. At these prices the dairyman should have nothing to complain of in regard to his summer output. It is only a few years ago since he was compelled to accept about 16c for the same quality of goods.

Toronto, Canada. J. W. WHEATON.

Hydraulic Separator Science.

"Milk consists of butter fat, kasine(?) and water. *The butter fat, when it comes from the cow, is in the form of an oily substance; this will form into butter globules when cold*, and a portion will in time raise to the surface, while a large amount will remain in the milk unless removed by artificial means. By our operation, we take the warm milk and by means of our automatic separator we force numerous small streams of cold water into the milk which chills and hardens the butter globules (cream), and in their upward course force them to the surface."—*Extract from a Hydraulic Separator Circular.*

The above is exceedingly valuable information. It must be so or it would not persuade a dairyman into paying $10.00 to $15 for a $2.00 tin can and the privilege of adding water to his milk.

Both the tin can and the process are exceedingly valuable—from the agents standpoint. There is no doubt that he is correct. He makes a profit of several hundred per cent on the can, and the process is all profit. And the dairyman's profit(?)—well he doesn't get any, except experience, which we all know is valuable.

In the trials of dairymen accused of poluting milk, by the addition of formaldehyde, as a preservative, in Indianapolis police court last last week, evidence of a scientific character was introduced, that the substance retards digestion. Dr. Frank Morrison, president of the city board of health, presented the results of a most thorough and extensive series of experiments, in which "milk containing the greatest quantity of formaldehyde was not digested at all, while that containing the smallest quantity was just beginning to be converted. Pure milk which underwent the same process for twenty-four hours, showed that it had been quickly digested." It is said that Dr. Morrison proved that formaldehyde in milk was not only injurious to health of adults, but was the cause of inanition in children.—*Jersey Bulletin.*

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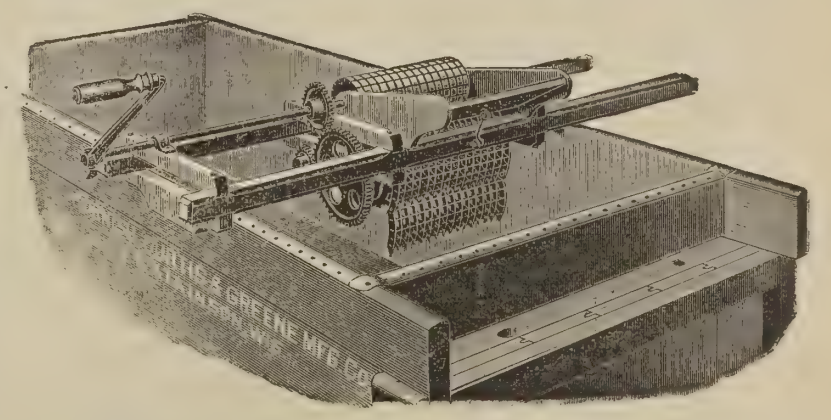
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The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00**

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Silo Experience and Advice.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN of the 21st, "Silo Experience" and "Advice Wanted" is called for. I have had eighteen years' experience with a silo 12×24 in one corner of a barn 40×50, extending into the earth nine feet below the feeding floor and twenty-one feet above it. The balance of this story of the barn stables thirty-four cows. The manure and waste are dropped through the floor into the story below, which is emptied about three times in the season, particularly in the winter. It never freezes to a serious extent, being occupied mostly by hogs, sufficiently warm and cool so they don't pile up and smother. If objection is made to this arrangement or further information is wanted, I am ready to explain.

The upper story is twelve feet high and accessible by a grade driveway. It is used for storage of forage, a two-horse Smalley tread power, fodder cutter, etc.

I mention these facts as a sort of preface or certificate of introduction to the readers of the DAIRYMAN, not as a copy for others to follow, but to show that I have had experience, and ought to know what I am talking about.

My remarks will be mainly directed to Mr. Kerr, of Jamaica, who, I suppose, resides in the West Indies, and J. B., of Greenville, N. C., although two Southern Professors who have interested themselves in this direction, may do well to look it over.

Mr. K. says he cannot extend his cistern lower for silo purposes without great expense. He does not state whether the cistern is rectangular or oval. An oval shaped wall can usually be held in place with a plastering of good cement on the earth, if not subjected to freezing. Some cellars in this latitude of 43° are cemented on straight lines, but I would not recommend them. I have known several square cisterns (straight lines) made to hold water, but I never knew one to hold water in or to hold water out. The best cistern I ever saw was sunk about two feet, ten feet in diameter, and walled up with stone and cement and then excavated about twelve feet more and well cemented on the earth wall, which was a sort of hard clay gravel. It was protected with a house over it that prevented freezing.

From my observation in this line I claim that a circular structure can be made in the earth as much as twenty-four feet in diameter and say twelve feet deep, if well cemented, and the top is protected from abrasion with stone, brick or even lumber. If said rim of protection was one or more feet wide I would risk extending it upwards twelve or even more feet higher with a tank silo, but I should prefer to make the upward extension studded with 2×4, and clapboarded on the outside with something that would bend to the circle—basswood siding would bend to a sixteen foot circle. If the silo was twenty or more feet in diameter good ship lap lumber would bend to the circle and would be better and stronger. I would set the studded frame back of the edge of the circle at least eight inches. Now here comes the objection of a shoulder which we should not have in a silo. To overcome this I would cut 2×4 into pieces about two feet long and spike them to the lower end of the studs with a slant to the edge of the wall below. This two feet I would lath with tobacco lath and plaster well with cement. Above, I would cover the studs with half-inch lumber, then with building paper, then over that another covering of half inch lumber and I believe we would have a good, complete silo if the cemented walls were kept from freezing.

But the objection will be raised "that cement wall will cave." Then make it of solid masonry, which in many places can be done cheaply. Mind you, this advice is for Mr. Kerr, J. B and Prof. Hart of S. C., also others in Southern latitudes. I resided in Columbia, S. C., from 1839 to 1847, and have a knowlege of their red clay, and I say with great confidence that I would not hesitate to build a silo on the plan proposed. But I should not stop there; I should like to have this silo at the edge of a bank if possible eight feet high. Around the silo I would make a lean-to say fourteen feet wide for a basement stable, the building being say forty feet in diameter more or less, according to size of silo. This would give room for thirty or more cattle, stalls heading to the center—plenty of room to get to their heads to feed the heavy ensilage, or more bulky feeds—plenty of room to drive a horse and cart around and out, to clean the stable, perfect protection from inclement weather and flies and other pestiferous insects in the heat of summer.

If the silo was in the earth ten feet, more or less, then eight feet more above to top of basement, where there could be a floor approached from a grade driveway—the ensilage cutter could stand on a strong table, five feet high, which would make a silo twenty-three feet deep, that could be filled without an elevator or carrier, and easily weighted, which if done, such a silo would hold as much ensilage as the ordinary, unweighted silo, thirty feet high.

If the basement lean-to should be carried up twelve feet more, and finished for a barn, it would give ample storage room for hay, straw, etc., for the season's use.

If I resided in South Carolina, and had stock to provide for, I would have a silo in the earth, a round hole in the red clay without cement or protection even, if I could not do better. But I could do better. I could protect the top with a lumber circle, say a foot wide, and above this, I could add on that a circle of stove pipe iron, which would make it two and one-half feet higher, then another width making four more or fifteen feet, all filled without a carrier; filled and refilled as it settles, and then covered with a good coat of earth. Top it, when you get ready.

To all, both north and south, I would say, have a silo, put it in the earth ten feet, and then on up; that ten feet below, and the first eight feet above will be the best and handiest part of the silo, however high you may go. And you will find that a wall cemented on the earth in a circular form will prove stronger and more durable than you supposed.

The silo requires strong, air tight, smooth walls; the silage weighted if conveniently possible. F. C. CURTIS.

Columbia Co., Wis.

Thirty Years Silo Experience.

ED. HOARD'S DAIRYMAN:—As my experience extends back for thirty years, I will tell it for the benefit of those that contemplate building a silo, and, if possible, prevent them from making the expensive blunders in building that has been my lot to experience.

I built the first silo made in Sullivan County, N. Y., over thirty years since. At that time the agriculture papers advocated that they must be made mostly under ground, to prevent them from freezing, and as I did not know of any near me that had any experience, I made the first one to be frost proof at a large expense.

I built it at one end of my basement barn, excavating out of red slate rock 18×30×14 feet deep, using large quantities of cement to smooth up the rock on the sides and on the bottom.

We filled it with good state corn with tolerable success the first season, and was very much pleased with my new departure, that the neighbors were watching with all sorts of prophecies in regard to the sour, unpalatable material, as they all called it, that was taken from the pit.

But was myself very much pleased with the proceeds had from milk that was made from that pit of corn and was satisfied that I had made a good strike.

The second season I was not so fortunate. The fall and winter months being very wet, the water got in the pit, and spoiled three or four feet in the bottom. The third and fourth seasons the same and I abandoned the use of silage for three or four years, but was not satisfied in doing without what I had had experience enough with to know was the cheapest and most profitable manner of disposing of a crop of corn.

At the same time being convinced that silage was the cheapest and most desirable product that was at hand for the production of milk, I resolved to build another silo on the following plan and dimensions:

We dug in the earth five feet, stoned it up, put sills on foundation, so that they projected four inches, used 2×10 studs on sills, twenty-one feet long and 2×4 under the sills to the ground. Double boarded, with rough lumber, with paper between, making a silo 17×18, twenty-six feet high.

It answered a good purpose, only the corners were badly decayed. We have remedied the corners of wasting by using a breadth of tarred paper every season in each corner, putting it on the old every season.

The variety of corn makes a vast difference in the keeping qualities. Our state corn is very liable to get too ripe to keep perfect without watering it finely. In late years I counteract the ripeness by mixing western corn, about one to five, which makes sufficient moisture to save in good condition.

Late years there have been several parties to look me over and get advice in regard to the building of a silo and other things in regard to silage, and have advised the building of stave silos and to build them above ground, without there was perfect drainage.

I am sure it is the most economical manner of building, that the silage settles more perfect and can exclude the air so as to prevent decay.

"Life is too short to learn it all by our own experience," and if the above, that you called for, will be of any service to you or your patrons, you are welcome to it. If not, the waste basket is generally in the editor's office, handy by. B. W. G.

Liberty, N. Y.

Butter Tests from the St. Omer Herd.

ED. HOARD'S DAIRYMAN:—We take great pleasure in forwarding to you two St. Omer butter tests, which simply shows what they (our Jerseys) are doing every day. Hazel Fan 3rd, 143352, without any preparation whatever beforehand, gave for the seven days, ending February 1st, 1899, 216 pounds of milk, showing by the Babcock 5.6% butter fat, and churning according to the A. J. C. C. rules, 14 pounds and 4 ounces of prime butter. She calved December 28, 1898, and at time of test was about 5 years and 5 months old, and weighs about 850 pounds.

She was fed daily a mixture of thirty pounds of good corn ensilage, five pounds crimson clover hay (cut) seven pounds of wheat middlings and two pounds gluten meal, besides one peck of roots daily.

She was sired by George M. 46197, he, by Geranium's Rajah 18605 and out of Signal Queen 30689 (one of the high standing Columbian cows) while her dam was Hazel Fan 16814, a good cow of old lines of breeding

Aunt Mary 4th 95134, calved April 26, 1899, and finished her week's test July 23, 1899, at six years and four months old. She was running on burnt up pasture, and received a small quantity of green corn silage, with twenty pounds of mixed (equal bulk) of bran and hominy chops.

She gave 270 pounds of milk, testing by Babcock, 4.8% butter fat, from which we made 16 pounds, 4 ounces of unsalted butter, salted one ounce to the pound and the butter ready for the market weighed 15 pounds 4 ounces.

She was bred by Mr. Dinsmore, of New York, and sired by Exile of St. Lambert 23rd, and out of Aunt Mary 30495, a descendent of old Emperor. J. T. HOOPES.

Bynum, Md.

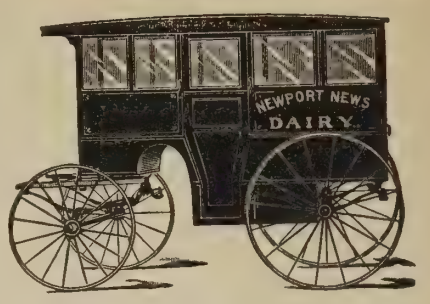
Spongy Curd and the Effect of Sewage.

The following paragraphs from Professor Lloyd's Observations on Cheddar Cheese Making, contain some valuable information for cheese makers, who are, during the present month especially, often troubled with tainted milk and gassy curds:

Spongy curd was present only to a slight extent (during last season), and when present the cheeses always contained one or other of those organisms which have been described in former reports as giving rise to spongy curd. As then pointed out, the chief source of these organisms is cow dung, which has been allowed to get into the milk either by accident or carelessness. A striking illustration of how this trouble may arise happened at Long Ashton in 1898. One day the curd was terribly spongy. Inquiries were at once made to ascertain what had happened out of the ordinary course. It was found that some of the cows had been allowed to get into a paddock, adjoining the yard, where there was a pool of stagnant dirty water, from which some of them drank and into which, of course, they went, more or less. The cows managed to get into this paddock twice, and each time a spongy curd was produced. To make sure that the water was to blame, I had it examined bacteriologically, and found in it one of the most typical spongy organisms, and this was also found in the curd when it was spongy.

If even the least trace of cows' dung gets into the milk, it will give trouble in cheese making. Far worse, however, is the effect of sewage. It not only produces taints similar to those produced by cows' dung, but others also. When, therefore, some time later such taints arose in the curd, and it was found that the cows had not been into the paddock adjoining the yard, a new source had to be looked for, and was at last discovered. The field Hop and Mead is on a slope of a hill, on the top of which are some cottages. The sewage from some of these cottages is allowed to pass into a receptacle in the rock, which, when it is full, overflows on to the Hop and Mead. This appears to have happened early in July, and when the cows were next turned out into this field, the curd became both spongy and tainted with a peculiar taint that had not been previously noticed.—*The Dairy*, (*England.*)

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company. Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Company.. Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

Wisconsin State Fair,

MILWAUKEE, Sept. 11, 12, 13, 14 and 15, 1899.

INCREASED PREMIUMS IN DAIRY DEPARTMENT

No effort spared to make this years' Dairy Show THE BEST ever held in State.

For general Information regarding Department, address

Or for Premium Lists write to . . . Supt., JOHN W. THOMAS,
JOHN M. TRUE, Sec'y, Madison, Wis. ANSON, WIS.

Cows and Cows.

When we were buying cows occassionally it was not much satisfaction to us to have the one who wanted to sell one tell us she gave so many quarts a day "in the best of the season." We had handled cows and milk for years, and in selling milk would have been willing to have obtained considerable less in the flush time if we could have got more in the worst of the season.

We had owned two cows standing side by side in the barn and running in the same pasture, one of which gave eighteen to twenty quarts at her best, while the other never excelled fourteen quarts a day. The eighteen-quart cow received the most grain, but shrank to twelve quarts as soon as the other, and to six quarts before the other did to eight, while she went dry nearly a month earlier, and did not keep in as good flesh. We think if the milk had been weighed every day, the fourteen quart cow would have had the best record for the year.

A test made three or four months after calving, and another two months later, gives a much better idea of the quality of the cow, than one made when she is fresh; but the weighing of the milk for the year tells the whole story; 6,000 pounds of milk, or nearly 3,000 quarts, is a good record. It is an average of about nine quarts a day for eleven months, and a cow which gives twenty quarts or more, when fresh, ought to reach very near that.

Many times, when they do not, it is not the fault of the cow. The drying up of pastures, and no green food ready to give her; an unwillingness to feed any grain in summer in the idea that it is not needed, and but little in winter, because she does not give enough to pay for it; no shade in summer to protect from the heat, and a too well ventilated barn, which does not protect from the cold in winter; irregular hours of feeding and milking, and a lack of proper care generally, may reduce a 6,000-pound-a-year cow to two-thirds of that amount.

The man who exchanged cows with the old quaker to get one which would give more milk, decided at last that he should have swapped pastures instead of cows, and perhaps there were some other points in their treatment which he could have changed to his advantage and that of the cow.—*American Cultivator.*

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade was unusually small, but 4,800 pounds being placed. No bids were made, and consequently there were no sales. The Quotation Committee announced the market steady at 17½ cents.

The sales for the corresponding week of the three preceding years were as follows:

Aug. 1, '98, 7,260 lbs. of butter sold at 18½c.
Aug. 2, '97, 15,000 lbs. of butter sold at 14½c.
Aug. 3, '96, 24,480 lbs. of butter sold at 14¼@14½c.

The New York market, Monday, was reported steady at 18 cents. H. C. B.

Elgin, Ill., July 31, 1899.

DAIRY MARKETS.

ELGIN, Ill., July 31—Eighty tubs offered; no sales. Committee reported steady, 17½c.

CHICAGO, Ill., July 31—Butter—Creamery, extra, 17@17¼c; firsts, creameries, 16@16½c; seconds, 14@15c; dairies, selections, 15@15½c; No. 1, 14c; No. 2, 12½c; extra ladles, 13@13½c.

Cheese—Full cream Twins, new, good to choice 8¾@9c; Young America. 8¾@9c; Swiss, 9@10¾c; Limburger, 7@8½c; Bricks, 7@8¾c.

Eggs—Fresh, at mark, cases returned, sold at 10@10½c; loss off, cases returned, 12c.

Bran—Scarce and in demand at $11.75@12 per ton.

Cattle—Receipts were comparatively small and the demand active. Prices ruled steady to 10c higher. The good to choice beef cattle showed most of the advance. Exporters bought 1,500 steers, averaging 1,230@1,410 pounds, at 5.40@5.75. Three loads of 1,377-pound steers sold at 5.85, with very few beef steers below 4.75. Some fed western steers reached 5.75; Missouri and Iowa fed Texas steers, 960@1,166 pounds, 4.65@5.40; distillery fed steers, 1,358 pound steers, 5.45; straight Texas steers, 1,148@1,201 pounds, 4.95@5.20. Most of the feeding cattle sold at 4.10@4.60. Distillery fed bulls, averaging 1,206 pounds, sold at 4.50. Several carloads of good cows sold at 3.85@4.45. Heifers sold principally at 3.90@4.60.

MILWAUKEE, Wis., July 31—Butter—Creamery, fancy prints, per pound, 17½c; extras, 17@17½c; firsts, 15@16½c; seconds, 14@15c; imitations, 14@15c. Dairy, selections, per pound, 14c. Market unchanged; trade and supply fair; receipts, 15,110 pounds.

Cheese—American full cream, new, choice to fancy, 9@9½c; Brick, new, per pound, choice, 8@8¾c; Limburger, new, choice, per pound, 8@8½c; Swiss, drum, choice, 12½@13c; new block, choice, 10@10½c. Market steady; receipts, 10,297 pounds. Trade fair.

Eggs—Fresh, per dozen, 11@11½c, loss off cases returned. Markets unchanged, with receipts of 311 cases. Trade quiet.

PLYMOUTH, Wis., July 24—The sales reported on the Plymouth dairy board to-day were 1,375 Twins at 9c and 900 cases Young Americas at 9c.

HILBERT, Wis., July 22—At the meeting of the new call board the following sales were made: 100 cases Young Americas at 8⅝c; 25 at 8¾c and 20 Twins at 8¾c.

BRILLION, Wis., July 21—The sales reported on the Brillion dairy board were 445 cases Young Americas at 8⅝c, 100 at 8¾c, 784 Twins at 8⅝c, 65 at 8¾c, 1,394 Daisies at 8⅝c.

APPLETON, Wis., July 31—The offerings at the Outagamie County Board of Trade were: Cheddars, 365; Twins, 1,153. The sales were: 445 Twins at 9c, 427 Twins at 8⅞c, 159 Twins at 8¾c, 286 Cheddars at 8¾c. The offerings at the Appleton Dairy Board were 129 Cheddars and 401 Twins. The sales were 238 Cheddars and 50 Twins at 9c.

AVOCA, Wis., July 31—On the Lone Rock and Muscoda Dairy Boards today the offerings were 1,007 boxes Twins at 9c; Daisies at 9¼c; market firm and all sold.

FOND DU LAC, Wis., July 31—Offerings, 687 Twins and 532 Daisies; market firm; Twins, 9⅛c; Daisies, 9½c.

SHEBOYGAN FALLS, Wis., July 26—There were 1,045 boxes of cheese offered on the Call Board to-day, and was all sold as follows: 580 cases Young Americas, at 9¼c; 115 at 9⅛c; 115 at 9¼c; 182 Twins, at 8¾c, and 168 Daisies at 9⅜c.

MANITOWOC, Wis., July 26—Offerings of cheese at Dairy Board of Trade to-day were 800 boxes Daisies, 135 boxes Twins, 900 boxes Young Americas. All Daisies and Young Americas sold at 8¾c; 35 Twins, at 8⅝c and 100 at 8¾c.

HORTONVILLE, Wis., July 27—Offerings on the board to-day were 396 boxes Cheddars and 1,053 boxes Twins. All sold at 9c and 8⅞c.

PHILADELPHIA, Pa., July 31—Butter—Solid packed separator creamery, extra, 18½c; creamery, firsts, 18c; seconds, 16@17c; imitation creamery, extra, 16c; firsts, 15c; seconds 13c; ladle packed, extra, 14@14½c; firsts, 13½c; seconds, 13c; print butter, creamery, extra, 21c; firsts, 20c; seconds, 18@19c.

Eggs—Pennsylvania and nearby, 13½c; Western, 13¾@14c; Southwestern, 13c; Southern, 10@11c.

ST. LOUIS, Mo., July 31—Butter—Steady; creamery, 15@18c; dairy, 12@15c.

Eggs—Slow; 9c.

KANSAS CITY, Mo., July 31—Butter—Creamery, 14½@16½c; dairy, 14c.

Eggs—Fresh, 8½c.

CINCINNATI, O., July 31—Butter—Quiet, 18½@19c.

Eggs—Dull; 9c.

Cheese—Firmer; good to prime Ohio flat, 8¾c.

NEWARK, N. J., July 31—Market quiet; 18c for fancy creameries. Receipts liberal.

WASHINGTON, D. C., July 31—Market steady; extras, 18½c; firsts, 17c.

NEW ORLEANS, La., July 31—Market steadier, 18½@19c.

BOONEVILLE, N. Y., July 23—There were no sales on the regular board. The curb sales were: Large colored, 645 boxes, 8⅜@8½c; large white, 260 boxes, 8¾@8½c; large white, 120 boxes, 8½c. The salesman of the Spring Brook factory of Booneville received 8¼c.

LITTLE FALLS, N. Y., July 24—This market shows a good improvement since last week, prices being ¼c advance on small cheese, but large remain about the same. The sales were 6,252 boxes at 8¼c for all styles.

WATERTOWN, N. Y., July 24—The official sales aggregated 600 boxes, which went at 8⅜@8½c. On the curb the sales were: Large white, 6,045 boxes at 8¼@8⅞c; Twins, 400 at 8¾@9c. On the curb there were about 2,360 boxes sold at 8¾c and 3,400 boxes sold at 8⅝c, the latter price ruling.

UTICA, N. Y., July 24—Responding to a higher cable, advanced figures at the primary markets during the past week, a firm tone at distributing centres, business on the Utica board to-day was active, and the ruling price for large sizes was ½c higher than last week, while that for small was ¾c higher. The range for the entire market was from 8¼@8⅞c, as against 8@8¾c last week. Following is the list of sales: 119 lots, 9,624 boxes at 8¼@8⅞c.

The transactions on July 26, 1897, were 10,575 boxes with the ruling price 7c. The transactions on July 25, 1898, were 8,746 boxes with the ruling price 7c.

Although the tone of the butter market is not as strong as it has been of late there were 152 packages of creamery sold to-day at 18c.

CANTON, N. Y., July 24—On the market Saturday 2,000 boxes of cheese were sold at 8¾c.

There were 1,300 tubs of butter sold at 17⅝c.

OGDENSBURG, N. Y., July, 24—1,651 boxes of cheese were offered. A bid of 8¾c resulted in no sales, but on the street afterward all were sold at 8⅞c.

FULTON, N. Y., July 24—On the board to-day 19 factories were represented with 1,625 boxes of cheese. Large sold at 8½c and small at 8¾c.

NEW YORK, July 31—Butter—Creamery, western extras, 18c; western firsts, 17@17½c; state extras, 17½@18c; state firsts, 17½@18c.

Cheese—State, full cream, large or small, colored or white, choice, 9c.

Eggs—State, Pennsylvania and western, 15@16c.

LIVERPOOL, July 31—Butter—Finest United States, 86s; good, 63s.

Cheese—American finest white, 44s; American finest colored, 44s 6d.

NEW YORK MARKET.

NEW YORK, July 29.—Butter—Receipts for the week were 49,140 packages; exports for the week were 10,007 packages. Exporters started early and were free buyers up to the close of the week's business; the bulk of their purchases were good to fine creameries at prices ranging from 16 to 17½c; this, together with liberal sales to Eastern and Southern buyers at about the same prices, have caused a better feeling, and the market is closing with less offerings of these grades butter. Local trade bought more liberally of extra creameries at 18c and finest N. Y. State dairy makes at 17 to 17½c. Ladle butter is quiet, but holders of fine June goods are firm. We quote:—Creamery, extra 18c; medium 17@17½c; poor 15@16c; dairy, extra 17@17½c; medium 15@16c; poor 12@14c; ladle, extra 14@15c; medium 13@13½c; poor 12@12½c.

Cheese—Receipts for the week were 44,741 boxes; exports for the week were 22,580 boxes. The market is strong and buoyant. Arrivals are well cleaned, and with full prices in the interior of the State our market closes firm with quotations easily obtainable. Sales for export are reported at 9c for large sizes, while small cheese have sold readily at 9@9¼c. We quote—Full Cream small, extra 9@9¼c; medium 8½@8¾; poor 7@7½c. Full Cream, large, extra 9c; medium 8@8½c; poor 7@7½.

Eggs—Receipts for the week were 49,176 cases. Strictly fresh eggs sell on arrival at top quotations; all other grades are abundant, hard to sell and prices nominal. We quote—New York and Pennsylvania, per doz. 15@15½c; Western and Northern, best marks 14½@15c; other sections, 12@14c. DAVID W. LEWIS & Co.

177 Chambers St., N. Y.

BALTIMORE, Md., July 31—Butter—Market steady; creamery separator, extra, 20c; extra first, 18@19c; creamery first, 17@18c; creamery imitation extra, 15@16c; ladle extra, 14@15c; Western Store-packed, 11½@12½c.

Eggs—Market easy; strictly fresh stock, 11@11½c.

BALTIMORE MARKET.

BALTIMORE, Md., July 27—Butter—If the committee which rules over the prices of butter and has its seat of government on the Board at Elgin, would realize their power, being great men, we believe they would hesitate to use it just for the purpose, apparently, of keeping the butter world guessing, and increasing the mental misery of all of the dealers in creamery outputs, now in the time of their physical discomfort, when reeking of a humidity that collars cannot stand, and under which the sweetest tempers sour. Last week all offerings were sold at 17 cents, yet the market was declared by the committee "steady at 18 cents," well, that would only provoke a smile on the lips of the esoteric; but this week the order was the reverse; 18 cents was bid for all, but the market was declared to be 17½, and straightway every cutter of every degree of importance, from the puny peddler of picayune proportion, to the pompous purveyor of lots and lines, wanted a half cent reduction in price of goods in stock, because, as they put it, Elgin had declined that much, and they invariably want a decline to work ex-post-facto, but are not willing that an advance should. And so the smooth surface of a nice summer business is agitated and ruffled by the antics of the disturbing west, and the brisk currents of a returning trade are turned away and into competing markets. Gathered cream makes were more or less affected in prices by the marking down at Elgin, and as the weather continued to get in its work on the quality, to some extent the salesman's lot is not a happy one. Ladles and imitation creamery are growing scarcer and scarcer, but the quality grows poorer, of current make, and that makes it difficult to maintain prices for all receipts. Store-packed continues in light receipt with good demand, although the grading of much of it is very low.

Creamery separator, extras, per pound, 19c; firsts, 18c; seconds, 17c; gathered cream, extras, 17@18c; firsts, 17c; seconds, 16c; Ohio, extras, 17@18c; firsts, 17c; seconds, 16c; imitation, extras, 16c; firsts, 15c; seconds, 14c; Iowa & N. W. ladle, extras, 14c; firsts, 13c; seconds, 12c; Ohio & Indiana ladle, extras, 14c; firsts, 13c; seconds, 12c; Ohio store-packed, 12½@13c; firsts, 12c; W. Va., extras, 12½@13c; firsts, 12c; creamery blocks, (2 lbs.) extras, 21c; firsts, 20c; seconds, 19c; prints, (½ lb.) extras, 21c; firsts, 20c: seconds, 19c; Md. Va. & Penn. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Eggs—There is a fair demand for all choice fresh eggs at 11 to 11½ cents; the receipts of this kind are ample for the demand; the stock must be A No. 1 to meet the requirements of the trade. Heated and other tender stock are not only dull sale, but prices irregular, and when a sale is made it is generally in the buyer's favor.

Cheese—The receipts of cheese are light, the demand fair; market firm.

N. Y. State Cheddars, fine, 9¼c; choice, 8¾@9c; fair, 8¼@8½; Flats, fine, 9½@9¾; choice, 9@9¼c; fair, 8½@8¾; Small, fine, 9¾@10c; choice 9¼@9½c; fair, 8¾@9; Ohio Flats, fine, 9@9¼c; choice, 8½@8¾c; fair, 8@8½c; Picnic, fine 9@9½c: choice, 8½@8¾c; fair, 8¼c; Swiss, 13½@14, choice, 12@13; fair, 11c.

G. M. LAMB, & BRO.

301 Exchange Place.

Latest quotations for fancy creamery, Buffalo, 18½c; St. Paul, 16½@17c: Minneapolis, 16½@17c; Detroit, 19c.

FOREIGN MARKET.

BOSTON, July 29,—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane give butter markets as somewhat better with prices a shade higher. Danish selling at 22@22½c, finest Irish creamery 20@21c, and in Canadian, in boxes, at 20c@20½ The exceptionally fine quality of Canadian now landing and its splendid condition makes it the most favorite butter on the market. Ladles are doing slightly better, the light arrivals have enabled receivers to make 15@15½c. Imitations have sold in a small way at 16½@17c. Some American creameries just landing, but not enough business has been done to establish values this week.

Cheese markets show additional strength in consequence of the large consumptive demand, which prevents any accumulations in stock. Finest American and Canadian selling freely at 9½@10c.

Cleaning Separators.

Those who buy other makes of separators in the mistaken belief that they are getting something cheaper than an "Alpha-De-Laval" machine, are frequently helped to do so through understanding that an Alpha disc bowl is intricate and difficult to clean.

There could be no greater mistake. The "Alpha" is the most easily, simply and completely cleanable of all separators. The bowl is easily and quickly taken apart, and the discs are easily and simply handled, and completely cleanable. Every point of the whole bowl is easily accessible, both to eye and reach. All other bowls possess inner cylinders, cones, wings, flanges, tubes, cavities, and various stationery fixtures of one kind or another which are not removable, or only partly so, and cannot be reached nor seen, nor thoroughly cleaned, regardless of the time that may be devoted to it.

Not only may an Alpha disc bowl be thoroughly cleaned, more quickly than any other make, but when an Alpha bowl has been cleaned the user *knows* it is clean, which is not true of any other bowl.

If those who listen to the representations of competitive agents, who can't say a word against the superior efficiency of the Alpha machines, but necessarily have to talk about *something*, would only take the trouble to try an Alpha machine themselves, or to go through the illustrations shown in a De Laval catalogue, they would frequently save themselves from making a bad investment in a poor separator through misunderstanding of the actual facts.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts., CHICAGO.	74 Cortlandt Street, NEW YORK.	1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—About Dec. 1st, two first-class single men to work on dairy farm. Must be of good habits. Permanent employment to right parties. A. L. FITCH, Westmoreland, N. Y. 24-1

For Sale—Bull calf, Combination blood, $20.00. Send for pedigree. JOHNSON STOCK FARM, Osceola, Ark.

Wanted—Two-horse tread power, second hand, and second hand shredder, good repair. Address JOHNSON STOCK FARM, Osceola, Ark.

Wanted—Jersey bull, eight to ten months old. Must be good, and cheap. W. H. MANN, Mannville, Fla.

Scotch Collie Puppies—Bred from the very finest stock. Every dairyman should have one. Address IVY COTTAGE DAIRY, Lancaster, O.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Exceptionally Low Rates to Denver, Colorado Springs and Pueblo, via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations August 5, 6 and 7, limited to August 31, 1899, inclusive, account of Pilgrimage of Cryptic Masons. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y.

The Manure Cellar.

ED. HOARD'S DAIRYMAN:—I notice T. B. Terry, in the DAIRYMAN of July 21st, recommends liquid manure cellars under the dairy barn, for storing the liquid till it can be removed to the field. Many others have advised similar practice. It would seem to one who has not tried the plan, that it would be very objectionable to have a storage of that kind, especially in winter when the barns are tightly enclosed, and the weather conditions make it impracticable to remove it to the fields for quite a length of time. Our great difficulty is to keep up the purity of the barn atmosphere at that season. The importance of saving the liquid manure is no longer a question.

A different plan has worked well with us. The cows stand on cement floors with water tight gutters behind them, about a foot deep. The horse stables are well bedded, and the manure tramped into the cow gutters about three times a week. This absorbs the surplus liquids. The horse and cow manure, by this means, are mixed together, and the liquids as well, and all wheeled to the covered shed. Not only is all the manure thus saved from waste, but the horse manure is prevented from fire fanging, which causes not a little loss by the ordinary method.

Chester Co., Pa. W. G. EMBREE.

Nuisance in City Milk Supply.

ED. HOARD'S DAIRYMAN:—I have read Bro. C. J. Moldenhawer, under the above heading, all that he has written in your paper this year, and felt like punching him when I saw his first communication, and telling him it would be more profitable to him if he would keep his mouth shut, along that line.

And for fear that he may feel called on at some other time, to repeat or write something similar, I want him to know what a brother dairyman thinks of airing such subjects.

I think it fortunate for Bro. M. that his patrons have not read what he has had to say on the subject, or he would find that even his extremely nicely handled milk was not so much in demand as it had been.

To my notions, a dairyman that knows his business will not make public the shortcomings of others in the same business. If he does, his patrons look for the same in his business.

He may say, let them look, they will not find it so. They may not, but if they imagine they do, it had just as well be, so they will not use it. There is more imagination about milk than anything I know of.

They think if Bro. A. puts water in his milk, they all do, and if Bro. A. is not clean with his milk, Bro. M. is not with his.

A lawyer in our city said to me not long since that he used to be very fond of milk, but that he had not been able to stomach it for the last five years, that at that time he saw a cow killed for tuberculosis and saw her udder cut open, and the mixture of blood and milk made him sick. If I were to visit Washington I do not think I would drink any milk, although I might be assured that the milk came from Bro. M.'s extremely nice dairy.

While it is true that all milk is not as nicely handled as it might be, milk is not the only article of food that man eats, that is carelessly handled, not by thousands, and I think that there is fully as much filth drank and eaten by the very best people in the land, in various articles of food and drink, as there is in the worst kept dairy, even around Washington.

I will mention a few of the places that I happen to know, that are not always kept free of filth:—Bakeries, candy shops, cook shops, ice-cream makers, soda fountains, grocery stores, whiskey shops, and even the best of hotels, and then when it comes to city water, —why, I am sure that our extremely nice people of the city often drink water that they would not wash their feet in if they knew just what it was. I will not mention what and how it is contaminated, but every one knows, if they will stop to think.

So, Mr. Editor, do not let them strain so often, at the mote that may be in milk, and leave the dead mule in the reservoir.

Norfolk, Va. F. A. MILLER.

A Study in Milk Production on the Dairy Farm.

Testing Cows at the Farm.

The Wisconsin Agricultural Experiment Station has issued a bulletin (No. 75, June 1899) under the second of the above titles, but it seems to us it might most appropriately have borne the more comprehensive title we give it in this review. While it does, in fact, treat of Testing Cows at the Farm, and proves that this can be done with satisfactory exactness and with, practically, inconsiderable expense, whether of time or money, and thus does away with the excuse that many farmers give for not testing their cows, its more important lessons are that it is optional with the individual farmer to produce milk with profit or at a loss, and in case of profit,



Cow No. 1—(Farm A.) 345 lbs. Butter.

that it may vary from a few cents per cow for the year, to $23.00 or more; even under the conditions now existing on the average farm, without blooded stock or special feeding.

For nearly five years now, the Dairy School Creamery, which is a department of the Wisconsin Agricultural Experiment Station and the College of Agriculture, has been supplied with milk from about 400 cows, on nearly fifty farms located within eight miles of the creamery. For the year ending July 31, 1898, a series of tests were made with the herds of six patrons, who never before kept



Cow No. 24—(Farm B.) 309 lbs. Butter.

any record of the yield or quality of the milk of their cows. In the language of the bulletin, which is written by Prof. Farrington, and under whose supervision the tests were made: "There is nothing abnormally above or below the average creamery or cheese factory patron's outfit on these farms, and the fifty cows which have been tested are undoubtedly a fair sample of those that supply milk to a majority of the factories in Wisconsin."



Cow No. 34—(Farm C.) 360 lbs. Butter.

For reasons stated in the bulletin, the records of these tests, for two of the herds, were incomplete, and they are not included in the published report. Full details of the methods pursued in making the test, are given, but although important and interesting, cannot be reviewed here for want of space. The farmers were paid for the milk on the basis of one-half cent less per pound of butter fat, than the average monthly Elgin market price of butter. At this rate, milk, testing 4 per cent fat would be paid for at the rate of 70 cents per hundred pounds, when the Elgin price of butter was 18 cents. The average price for such milk for the twelve months reported is a fraction over 75 cents per hundred pounds, the average monthly price of butter having been 19.32 cents.

There are several tables in the bulletin, giving a great deal of interesting and valuable information, but the following is the most pertinent for our present purpose:

FARM A.

Cow No.	Age Yrs.	Milked days	TOTAL PRODUCTION LBS. Milk.	TOTAL PRODUCTION LBS. *Butter.	Factory Value of Milk	Value of Fat Per Lb.
						Cts.
1	7	303	6,182	345	$ 53.35	18
8	5	273	5,506	262	43.40	19.3
5	6	282	6,205	285	42.74	17.5
13	4	303	4,912	238	39.36	19
4	5	310	5,290	237	37.24	18
12	9	301	4,483	208	33.39	19
6	6	304	4,248	205	33.78	19.2
3	8	304	4,528	216	33.26	18
10	9	209	4,061	187	32.13	20
2	10	262	4,546	191	29.04	17.7
7	7	256	4,063	202	28.90	16.9
9	7	273	3,792	171	28.72	19.5
Total..	.....	.....	57,814	2,747	$435.31	
Average	7	282	4,820	229	36.30	
Cr'm'y paid ..	.....	.....	.....	.....	421.36	
Average	.....	.....	.....	.....	35.11	

FARM B.

25	6	365	7,887	364	$ 58.21	18.6
23	4	274	6,718	325	49.55	17.7
24	4	304	5,583	309	49.53	18.7
22	4	316	5,193	311	47.89	17.9
21	6	322	6,534	286	44.83	18.2
Total..	.....	.....	31,915	1,595	$250.01	
Average	5	316	6,383	319	50.00	

FARM C.

37	10	344	6,779	392	$60.72	18
32	11	304	8,132	378	59.81	18.1
34	8	350	7,654	360	57.56	18.6
42	4	334	6,200	367	55.45	17.5
31	6	344	5,161	329	50.00	17.7
41	12	311	5,870	308	49.76	18.8
40	7	278	6,109	298	44.71	17.4
33	7	304	5,018	264	43.52	19.1
39	10	291	6,561	289	42.52	17.1
36	9	312	5,340	280	42.45	17.6
35	10	302	4,411	259	41.96	18.9
38	8	249	5,440	260	37.96	17
Total..	.....	.....	72,675	3,784	$586.42	
Average	8½	310	6,056	315	$48.83	
Cr'm'y paid	.....	.....	.....	.....	$572.64	
Average	.....	.....	.....	.....	47.70	

FARM D.

55	9	318	6,570	350	$55.49	18.5
51	9	295	5,462	274	41.04	17.4
52	7	334	6,274	286	40.37	16.5
56	8	321	4,847	260	39.60	17.7
Total..	.....	.....	23,153	1,170	$176.50	
Average.	8	317	5,788	292	44.12	

*Calculated by adding one-sixth to the weight of butter fat.

Following is the comment on this table in the bulletin:

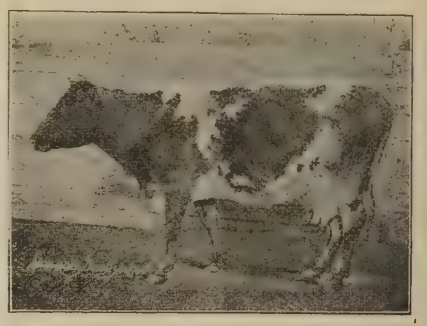
"These figures furnish evidence for discussing many questions on which the great majority of creamery and cheese-factory patrons have more or less positive opinions. Probably very few farmers realize that there is so great a difference in the production of the different cows in one herd, as is shown by these records, but they are, undoubtedly, a fair representation of the 840,000 cows that produce the butter and cheese of this state. As already explained, these cows were all measured by the same standard, the weight and test of their milk for a year. About $10 should be added to the factory value of the milk of each cow, as given in the table. This represents about the average value of the skim milk, 5,000 pounds at ten cents per 100 pounds, and a veal calf three weeks old.

The extreme variation in the butter value of the cows on the different farms, is shown in the following table:

RANGE IN VALUE OF ANNUAL PRODUCTS.

REC'D FOR MILK OF	Farm A.	Farm B.	Farm C.	Farm D.
Best cow	$53.35	$58.20	$60.72	$55.49
Poorest cow	28.72	44.83	37.96	39.60
Average cow	36.30	50.00	48.83	44.12
No. of cows in the herd	12	5	12	4

Since each farmer fed all his cows in the same way there is no evidence to show that it cost farmer A any more to feed the cow that paid $53.35 than the one that paid $28.72. But these figures do not mean that cow No 1 is worth $53.00 and No. 9 $28.00; because if the feed of a cow for a year costs $30.00, as shown on page 14, cow No. 1 earned an annual profit of $23.00, but the



Cow No. 8—(Farm A.) 262 lbs. Butter.

farmer lost $2.00 by keeping No. 9. In five years No. 1 would pay $115.00 into the owner's pocket, but if he kept No. 9 during this time a loss of $10.00 must be made up from some other source.

An inspection of the receipts from the twelve cows on each of the two farms, A and C, shows that at farm A there were three cows which did not produce milk enough to pay for their feed. The entire herd only paid a profit of $75.00, and three of the twelve cows paid $50.00 of this amount,



Cow No. 31—(Farm C.) 329 lbs. Butter.

while the combined profit of the other nine cows was only $25.00. In this case three cows earned 100 per cent more money in a year than was earned by nine other cows on the same farm.

On farm C, the twelve cows earned a total profit of $228.00, instead of $75.00, as on farm A, but even at farm C there is considerable difference in the cows. No. 38 earned only about $8.00 profit, No. 37 earned nearly $31.00, a difference of about 400 per cent in the annual butter yield.



Cow No. 37—(Farm C.) 392 lbs. Butter.

LENGTH OF MILKING PERIOD.

A few of the cows tested were such persistent milkers that their owners had some difficulty in drying them off. This was especially true of Nos. 6, 31, 34 and 37. These cows were all among the greatest producers. The cows that were dry the longest time were generally the smallest producers. This is shown by the records at farm A, where several of the cows were dry for three or four months in the year. No. 23 is a notable exception, however, as she was dry about three months, and the value of her milk was nearly $50 for the year."

Prof. Farrington was kind enough to send us some time ago photographs of several of the cows whose records are given in the fore-

going table, and we have selected a dozen representative animals for the illustrations on this page. There are some surprises when we compare the pictures with the records. For example, we can see no sufficient reason why, on Farm A, cow No. 9, should fall so much in the rear and No. 1 come out so far ahead. Our choice in this herd fell on No. 8. It will be observed that this herd made a poor showing, both in the aggregate and the average. The photographs, more than the engravings, indicate that it was not well fed or well cared for. Perhaps No. 1 was the "boss" cow and thereby managed to fare somewhat better than the other.



Cow No. 9—(Farm A.) 171 lbs. Butter.

Farm B shows a much better record, but this is due, in our judgment, to better care and feed, rather than to better cows. No. 23 has the best record, but 22 and 24 did well and we selected them for illustration as average types of the herd. Judging from appearance one would not be likely to have picked 23 for the winner.

Farm C did extra well, on the whole, but the bulletin very properly calls attention to the fact, that six cows in this herd paid 60 per cent of the total profit for the year. On this farm the owner kept a careful record of all grain fed to his cows, and his expenses and receipts are given as follows:



Cow No. 32—(Farm C.) 378 lbs. Butter.

EXPENSES.		
*Grain bought during year		$180.00
30 acres corn stalks, $2.00 per acre		60.00
10 tons clover hay, $5.00		50.00
10 acres good pasture and 15 acres woodland		65.00
Total cost of feed		$355.00
RECEIPTS.		
Received for milk at creamery	$572.00	
Sold 12 calves at $5.50	66.00	
	$638.00	
60,000 lbs. skim milk, 10c per 100 lbs	60.00	
Receipts exceed feed cost		343.00
	$698.00	$698.00

*The grain feed consists of corn and oats, ground together, corn meal and bran, or about 15 tons of grain at $12.00 per ton.

Presumably, all the cows in this herd were fed alike and it is instructive to compare Nos. 32 and 33. Each was in milk the same number of days, and yet, notwithstanding 33's milk tested higher, she fell off $16.29 in gross income, because of deficient quantity. We account No. 32 the best cow in this herd, although her yield of butter is 14 pounds less than that of 37.



Cow No. 55—(Farm D). 350 lbs. Butter.

For so small a herd, Farm D presents a wide contrast in the yields of its best and poorest cow. This difference is so great as to suggest that cow No. 56 was not at her best.

Evidence heretofore collected has convinced most dairymen that a cow coming fresh in the fall will yield more milk than if fresh in the spring. The figures given in this bulletin show that the time of freshening has a decided effect upon the average price of her butter fat for the year. This price for cows fresh in September was 19.2 cents per pound; for those fresh in December, 17.3 cents; March, 17.6 cents; June, 18.6 cents.

We have by no means exhausted, or even so much as mentioned, the different veins of pertinent information in this bulletin. To do so would require reprinting practically the whole of it. It differs from other bulletins on somewhat similar lines, in that it treats of herds not under expert management and not made up of selected animals, though we can scarcely agree with Prof. Farrington that these cows constitute "a fair representation of the 840,000 cows that produce the butter and cheese of Wisconsin." The influence of the Wisconsin Dairy School and Agricultural Experiment Station, located in the center of the section where these farms are situated, has not been without effect in raising the average standard of the cows on these farms. The average yield of butter per cow on these four farms was 281.7 lbs., whereas, in the state at large, it will fall far below this—perhaps not exceed 200 pounds.

Hence the necessity that this bulletin should have the widest possible circulation in Wisconsin and that the surplus of the edition go to inquiring dairy farmers in other states. Prof. Henry writes us that a copy will be sent on application. Address, Wisconsin Agricultural Experiment Station, Madison, Wisconsin.

Silos and Ensilage.

ED. HOARD'S DAIRYMAN:—I have used ensilage for ten years, and have fed it to all kinds of stock. Last year a tornado swept over my farm on the last day of July and practically ruined my corn crop. I have two neighbors that are stock raisers, and neither of them got a dollar an acre in value from their corn of about a hundred acres each. My crop was not injured quite as severely as the one, but about the same as the other. On looking the gronnd over, I decided that mine was far enough advanced to make ensilage, and I immediately put up a new silo, eighteen feet in diameter and twenty-six feet high, and filled it together with two others that stood along side of it, one sixteen and one seventeen feet in diameter.

The result was that I carried my cattle through with comparatively little outside feed, while they had to buy hay from early winter until grass came again, and neither one had as large a herd of cattle as I did.

I have used three kinds of silos, one fourteen by twenty-eight and twenty feet deep, one twelve feet wide and forty-five feet long and twenty-two feet deep. These I have discarded because of the difficulties in getting the ensilage out, and the loss at the corners and sides.

I now build a low wall, if of stone, not over eight inches high, if of brick three thickness of brick, using cement to fasten it together. On this, what seems to be a fragile wall, I put staves, using two by sixes, twelve and fourteen feet long. I make the bottom on the inside in shape of a saucer out of clay, letting the earth reach up about two or three inches at the lower end of the staves.

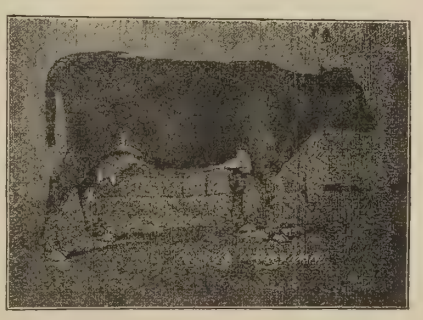
I find that clay is better than cement for the bottom, because it will accommodate itself to the surface, against which it rests, and fill all the openings and interstices, which a hard substance like dried cement will not do. I put on hoops and fasten the ends with pieces of galvanized iron and put in the doors, like a plan sent out by the DAIRYMAN, and for the last two years I have not lost an appreciable amount by decay or in any other way. The silos seem to be practically airtight. Two of my silos have jointed edges, the other two are grooved, and a thin strip



Cow No. 22—(Farm B.) 311 lbs. Butter.

put in the respective grooves in the adjoining staves. The planing mill man where I had my staves dressed, said that he would as soon cut the groove in as to merely joint them.

I can see but little more value in those that have tongues than in those that are jointed; although because of splinters that fly, when lumber, not of the best quality, is jointed, I imagine that those that have the tongues in the grooves are a little superior to



Cow No. 33—(Farm C.) 264 lbs. Butter.

the others. I think a silo about twenty-six feet high is about the right height, although if my conditions were such that if I could have a deeper one without elevating the ensilage more than twenty-six feet, I would prefer it. I shall build another silo this fall, eighteen feet in diameter and I shall build after these last models, as I think these are the best, after seeing a great many that my friends have built.

I find that my cows did better on ensilage than any soiling crop that I could give them, and it is much cheaper than any other feed that I can raise. I plant three different



Cow No. 56—(Farm D.) 260 lbs. Butter.

kinds of corn, so that I can put it in the silo in the same degree of ripeness. I prefer my corn almost ready to cut and shock, just as the ear comes out of the milk state. I have raised corn on the farm that I am running, nine years, and in five of those years I have measured off from ten to twenty-five acres of land to see what the yield was, and in each of those five instances these measured tracts of land yielded over 100 bushels of shelled corn to the acre, one year 110. While most farmers would think that there would be a good deal of grain going to waste by putting it into a silo, I find that in no other way can I get the same value out of my corn field, as I can by putting it in a silo. T. E. E.

Fort Wayne, Ind.

Cultivation of Corn for Conservation of Moisture.

(Press Bulletin.)

A test of relative values of deep and shallow cultivation of corn on the Station Farm, demonstrated, beyond doubt, the superiority of the latter method. Four acres of land were divided into tracts of one acre each, and each tract was cultivated by a different cultivator, the same one being used on each throughout the summer. The same number of cultivations were given in each case.

The cultivators used were the Moline corn plow (Brigadier) to represent the deep style of cultivation, and the Moline spring tooth cultivator and the Superior cultivator to represent the shallow cultivators. In the fall the corn was picked from each acre and weighed. The yield was as follows:

Method of Cultivation.	*Yield per Acre.*
Deep cultivation	59 bushels
Shallow cultivation	68 "
" "	69 "
" "	69 "

The land receiving shallow cultivation was stirred to a depth of three inches, that receiving deep cultivation to a depth of six inches.

Shallow cultivation for corn possesses two advantages over the other method. In the first place by stirring the soil to a depth of only three inches the air does not penetrate so deeply, and it does not dry out to such a depth. A study of the roots of the corn plant show that many of them would naturally grow within three or four inches of the surface, but when the upper layer of soil is dry they cannot obtain any nourishment from this portion of the ground.

Another injury to the corn crop from deep cultivation is the tearing out of the corn roots by the cultivator shovels. By pruning these roots the ability of the plant to secure nourishment is greatly hindered, and the crop injured thereby.

It is very important that the cultivations should be sufficiently frequent to prevent a hard crust from remaining on the ground for any length of time.—Nebraska Experiment Station.

Cow Peas in the Silo.

As I see so much in the papers lately about cow peas, I thought maybe my experience with them as silage might be of some interest. I have been using a silo for eight years—do not believe a man can afford to run a dairy of any size without one—and for the last four years I have used more or less peas in the filling of it; believe it makes a better silage than all corn.

The first year I drilled the peas in with the corn. The corn was tall and heavy, but in some places the peas grew almost to the top of it, making such a heavy, tangled mass that it was a difficult matter to handle it. I next drilled the peas in rows about twenty-two inches apart, and cut them with my mower and put them through the cutter separately, cutting a load of corn and then one of peas, and by the time it was fed out of the silo it was pretty well mixed.

One very great advantage in growing the pea, I think, is that it will enable you to use the same piece of land for growing your silage crop almost indefinitely, which is a very great advantage, as it is important to have the crop near at hand to make rapid work in filling. By growing one-half of the land in corn and the other half in peas, and after cutting it off I run my disc harrow over it and sowed it in rye, which gave me a fine pasture in open weather in the winter for my calves, and several days earlier a bite for my cows; in fact the fourteen acres that I had in this spring grew so fast in April that fifty head of cattle could not keep it down. Then plowing it under and planting back to corn and peas, reversing them (planting one where the other grew the year before), I found my last year's crop the best I had grown without using any manure and only about 100 lbs. of bone dust to the acre on the rye.

Of course in planting equal parts of land there will be more bulk of corn, and it will take a few acres more of land to fill a large silo by using the peas, but I think the other advantages will outweigh this. I find the whip-poor-will pea is the best, as it does not run to vine so much and will bear an immense crop of peas, which makes very rich feed. They should be planted about ten days or two weeks later than the corn unless it is a very large and late growing variety. It takes a large cutter and is heavy work to handle them, but I think it pays.—N. FRAZIER *in Jersey Bulletin.*

Wheat Versus Mixed Farming.

ED. HOARD'S DAIRYMAN:—I hand you, herewith, a copy of a letter written to an inquirer for young bulls, in Western Minnesota, which is self-explanatory, and may be of interest to others in like situation:

"I received your letter in reply to mine offering young Holstein-Friesian bulls, some time since; but the tone of it, and some things you said, caused me to lay it aside for a few words in reply.

"You remark that you are just changing from wheat to mixed farming, and it carries me back in mind to the condition of affairs in Southern Wisconsin, twenty-five years ago, when I began farming on my own score. Then, our reliance was on wheat and hogs; though, of course, we had some considerable stocks of cattle and sheep, and raised other grains than wheat and corn. But we had no creameries, and cheese factories were just being established here and there, where they thought the farmers could furnish enough milk to keep the life in them. Now, the creameries are close together, so that it is an easy matter to get all the milk in, in good condition for the separators, and, although there are three large creameries within four miles of Darien, the creamery of which I am secretary, took in nearly 7,000,000 pounds of milk in June, and set afloat nearly $5,200 in cash, last Saturday, which was pay day.

"I have not seen a wheat field in years; but our sales of other things, such as hogs, hay, barley, cattle, veals, oats, clover seed, and timothy seed come to very much more in the aggregate than our wheat sales ever did in their best days, while we have all the money which the creameries set afloat as entirely extra; and, instead of our lands becoming more and more unproductive, we are bringing them back to their original state of fertility. Our people so value their skim milk for pigs in summer and calves in winter, that they will not support cheese factories, because of its loss, and the general valuation put upon it is fifteen cents per one hundred pounds. The monthly pay day does away with the necessity of long credits in business, making all dealings very largely cash. On a cash basis, or very short credits, our merchants can afford to sell on smaller margins, and do so;while our hired men are more contented, though I think not so well off, when paid monthly.

"The sooner you take up mixed farming, with the dairy prominent, the better; and if you can get ahead of your neighbors by a little time, it will be hundreds of dollars in your pocket later on. At first,you cannot get what we do here out of the dairy department, any more than we could get it twenty-five years ago, but you have all got to go through the transition state, with low prices for your milk, till you get the dairy sentiment properly worked up. Meanwhile, you can be getting together a good herd of cows, so as to be ready to take advantage of the coming change; and to get a good herd, you must start right. It is hardly likely that the average of the cows in your section is equal to the average in the dairy sections, though they might be, and yet be nothing extra, but you must have some good cows, and you may know of neighbors with some good ones, who would let you have the use of them, if you would furnish the bull service, and pay them a couple of dollars or so each for the heifer calves, more than their values as veals, or for raising.

"Then, if you will either kill or veal the calves from your poorer cows, and substitute those you buy from neighbors, you will have a herd of dairy cows in the cheapest way and shortest time, that it is possible to accomplish such a thing. Of course, you will do as you think best as to the steer calves, but dairy form and beef form are hardly found in the same animal, though a Holstein-Friesian grade from a beefy cow comes nearest to the so-called "dual-purpose" animal. I raised a dozen such steers myself some fifteen years ago, weighing an average of 1,450 pounds, at 2½ years old, and selling for something over $50 each, and, considering that they had only the ordinary care of farmers' calves and young cattle, I thought it a profitable transaction.

"In the selection of a bull, the old adage that the bull is half the herd, should ever be borne in mind, for in starting right here you will save yourself much of disappointment and regret in the future. After satisfying yourself that the bull is good individually, you will wish to know all about his breeding, close up. Do not allow yourself to be misled by advertisements so worded that old breeders, after carefully studying them, can not make out the pedigree; for, although you want to know the ancestry of your bull, and will consider it the more desirable in proportion to the great cows in it if well placed, you will wish to know what proportion of the blood of those great cows the bull carries, and whether his immediate ancestors rank with them. You will wish to know what his sisters and half-sisters have done; next, what his sire's sisters and his own dam have accomplished; then, the grandam on each side, and so on back. In order to guage your judgment correctly, you will need to know what a great cow is. Formerly, only such cows as yielded—or were said to yield, for the say-so was the principle part of it—from thirty to forty pounds of butter in seven days were considered great, and they were, of course, quite scarce, since no honest breeder ever had any, but, since the World's Fair and the introduction by the Holstein-Friesian Association of the official test, conducted by the various State Experiment Stations, we have had quite another standard. We now know that those full aged cows giving fifteen pounds, are excellent; those giving seventeen and one-half pounds, very excellent; those giving twenty pounds, great; and those giving above twenty-two and one-half pounds, very great indeed. There are but a few of these latter, and the world's official record stands at about twenty-six and and three-fourths pounds, and is of couse held by a Holstein-Friesian cow. All records published by the Holstein-Friesian Association are of the official kind and absolutely trustworthy; the Jersey breeders are still harping on their victory at the World's Fair, where the Holstein-Friesians were unrepresented, and making private tests of the thirty-odd pound kind."

MALCOLM H. GARDNER.

Darien, Wis.

Canadian Experience With Stave Silos.

ED. HOARD'S DAIRYMAN:—I have had nine years experience with silos; two years with a square silo (not satisfactory) and seven years with the stave silo, a description of which appeared seven years ago in the DAIRYMAN and for which Prof. Henry fell foul of me and threw cold water on that kind of a silo. I am glad to know that they seem to be taking the lead owing principally to their cheapness.

Seven years ago I built the first round silo, twenty two feet in diameter and twenty feet high. Four years ago I built a summer silo, ten feet in diameter and twenty feet high, for summer feeding. Unfortunately last season on the tenth day of July we had a severe frost that reduced my corn crop to such an extent that instead of gathering 180 tons of silage we only had about 125 tons, which was all consumed before pasture came, and although we have had good pasture this year the loss of silage for the summer has entailed a decrease of yield of milk at least 15%.

I have built a modern dairy barn this year, (a description of which I will send you when I have more time), and have taken down the two silos and am using the material to build two others. The only changes I intend making is to increase the height from twenty to thirty feet, and, as to the large one, reducing the diameter. Each silo will be fourteen feet by thirty and will hold about 100 tons each.

In taking down the large silo, the ends of which set on a cedar rim, I was surprised to find the lumber as sound as when it was put in seven years ago. The new silo will be set on a concrete foundation, and will be three feet in the ground, and will be backed up on the outside with cement two inches thick, as high as the surface; the bottom will not have any other covering than what nature furnished. With the aid of silage I am able to keep from fourteen to seventeen cows, milking, and young stock and registered Jersey bull, the total amounting to thirty-four to thirty-six head, on one hundred and twenty acres.

The farm is increasing so rapidily in fertility, that I now do not require to purchase any supplementary feed, changing oats or peas for bran, as required.

How any dairyman can get along without silage is past my comprehension. If he can make a profit without, he should make a competency in a few years with it. I think, (and I know) the summer silo is of more value now than the winter one, and no dairyman should be without one. Better use less silage in the winter, and keep a reserve for the summer. J. E. G.

Ontario, Canada.

St. Lambert Jerseys, all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. **W. H. FORBES, Clifton, Ohio.**

Diplomas Combination 39962.
For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. **J. E. TYRRELL, Marysville, O.**

ONE YEARLING BULL
Out of a tested dam and **TWO BULL CALVES** out of large milking dams, for sale. Write for price. **W. R. THOMAS, Bellmore, Ind.**

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

...FOR SALE...
Pedro Blood!
A GRANDSON OF PEDRO 3187,
carrying 43¾ per cent of his blood. A handsome, thrifty fellow, 10 months old. **Solid grey** in color. Dam made over 400 lbs. butter with second calf. Will send pedigree and photos of sire and dam.
R. C. GREEN, Albion, Wis.

JERSEY AND HOLSTEIN BULLS
Five good, young bulls of the above breeds for sale at reasonable prices. Also a few good Jersey cows and heifers. Good individuals, superior breeding and heavy milking ancestry. Address
Farm Department, Iowa Agr'l College,
AMES, IOWA.

Hood Farm Jerseys 50 per cent Sophie's Tormentor, sire of 16 tested daughters, including Sophona, 9060 lbs. 7 oz. milk testing 659 lbs. 12 oz. butter, in 9 months 13½ days. Bull dropped Aug. 30, 1898. Nearly solid color. Sire, Tonono, brother of Sophie Hudson, 11,496 lbs. 2 oz. milk testing 716 lbs. 14 oz. butter in 10 mos.; by Sophie's Tormentor. Dam, Tutuey, in first prize herds at the New England and Massachusetts State Grange fairs, 1897. Write for price to HOOD FARM, Lowell, Mass.

There's plenty of Jersey blood NOT AS GOOD as that of
Old PEDRO 3187.
There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794,
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.



A Good Wagon
begins with good wheels. **Unless the wheels are good the wagon is a failure. IF YOU BUY THE ELECTRIC STEEL WHEEL** made to fit any wagon—your wagon will always have good wheels. Can't dry out or rot. No loose tires. Any height, any width tire. Catalog free.
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Introduce Milking Jersey Stock
INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS
The blood of Combination. (Sire of **25** in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Dry Weather
here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
WINTERGREEN HILL FARM CO., Scottsville, N. Y.

...FOR SALE...
DOUBLE GRANDSON OF
Exile of St. Lambert 13657,
Now the sire of **75 Tested Daughters,** "more than any other bull, living or dead." Will be sold cheap on account of broken color. Nearly one year old.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind**

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** **J. P. BRADBURY Pomeroy, Ohio.**

New York Farm and Dairy Notes.

The Farmer's Vacation,

ED. HOARD'S DAIRYMAN:—At this time of the year, when business and professional men are taking a vacation, it may be well for the farmer to think about it, and if possible, plan to take a few days for rest and recreation. I think there can be no doubt but what the farmer needs a vacation that will afford him a change from the usual routine of life, and a rest from his work, but it is a question with many farmers whether it is possible for them to take such a vacation.

I think that most farmers can plan to take a week or two of rest after their haying is done, and it will pay them to do so, instead of continuing to work all through the hot weather we usually have in August. I think their vigor would be so renewed by the rest that more work would be accomplished. How shall a farmer take his vacation is not an easy question to answer, but it must depend on his circumstances.

Some farmers can afford an expensive summer outing, but the great majority cannot, and writing from my own experience, I wish to tell the latter how a vacation can be taken at home with but little expense. I really think the vacations which are taken at home are the most profitable. I do not say that a journey to some place which one desires to visit is not sometimes desirable, in that it breaks up the old routine of life, and affords new objects to look upon, and to think about, but for many, the expenditure of energy such a journey calls for is too great after the hard work on the farm, and their income is not sufficient to justify the expense.

I will suppose that a farmer has been making his plans, and has his work in a condition, so for a week or two he need not do anything but care for the live stock, and even this work he can sometimes leave for others to do. Just how to spend one's time will depend on one's tastes. Some will wish to take the most of the time for reading, playing croquet, tennis, etc. Others will wish to spend a part of their time driving, visiting friends or some points of interest that can be reached in a day or two from home. One may spend a day in going on some of the cheap excursions that the railroads provide at this time of the year. In whatever way the vacation is spent, it should be spent in a way that the farmer will be in a better condition to resume his work when it is over.

REPAIRING MANURE GUTTERS.

During the early fall, when the cows can be kept on the pastures, is a good time to make the manure gutters in the stable so tight there can be no waste of the urine. I have just repaired a gutter in my stable, that was not perfectly tight. I have a lined plank floor, and I supposed I could make the gutters tight by lining them with matched, pine lumber, but I was mistaken. They were made by a good carpenter who made all joints as tight as possible, but some of the liquid would soak through the joints. I was not satisfied until they were perfectly tight, and I have had them plastered with cement. The whole gutter, bottom and sides were plastered, but boards were fitted on the sides of the gutter, after plastering them, to hold the cement in place. These may be removed when the cement has become perfectly set, or they may be left, as one chooses. The cement lining in my gutter has so hardened that it could not be better if it was cut from solid stone. The expense of fixing it was small, it is perfectly tight, and I think it will last many years without repairs, but if the cement should wear so thin as to leak, it can be cheaply repaired.

My observation of stable floors has shown me that there are but few gutters made of wood but leak more or less, and the leaks are mostly in the joints at the bottom of the gutter. If the gutter is not wide enough to admit of plastering the sides, a layer of cement on the bottom of the gutter, two inches thick, will usually make them tight.

We are told that the urine represents sixty per cent of the value of the manure, and we certainly cannot afford to let it run through the stable floor, as many farmers do and then buy commercial fertilizers. For those who wish to work towards a plan of more intensive farming, the great need is manure, and no one can afford to buy fertilizers, until he has saved all that is made on the farm.

If you have manure gutters which leak, there is no question but what it will pay to fix them, when the cows can be kept on the pastures until the cement gets hard, even if you must hire the work all done. If you can afford to, put in a cement floor, and plank it where the cows are kept, but if you can do no better, plaster the old wooden gutters with cement.

COWS THAT WILL NOT BREED.

Occasionally there is a cow in the dairy that will not breed. If the cow has been a good one, or is a pure bred, and for that reason valuable, one is sometimes tempted to keep the cow a year or two, hoping she will get with calf. I have a Jersey heifer from pure bred registered stock that dropped her last calf one year ago last spring. Since then she has been served with the bull at different times, but she does not become pregnant.

I would like the opinion of our veterinary scientists on this problem, and I think the opinion would be of use to others, what they would do with such a heifer. The one referred to is three years old, and seems to be perfectly healthy. Should such a heifer be fatted for beef, or kept a year or two longer to see whether or not she will breed?

Delaware Co., N. Y. W. J.

How the French Teach Agriculture.

France spends nearly a million dollars a year for the advancement of agriculture. No doubt this large expenditure of money has much to do with the wonderful improvement that has been made of recent years in French farming. Not only have farm methods been improved, but the position of the farmer socially and politically as well. Agricultural teaching is now given in France in seven different stages or degrees. First, there is the superior instruction of the national agricultural college; second, the national schools of agriculture; third, the practical schools of agriculture; fourth, apprenticeship schools, where boys and girls are taught all the mysteries of general farm work, fruit growing, dairying, silk culture, epicul. ture, and fish culture. Then there are five mixed schools, with professors of agriculture and agricultural chemistry; and, sixth, instruction in the fields, for all of these schools have lands attached. Seventh, France has carried to great perfection her experiment stations, which are doing a work similar to what our own stations are doing.

Thus the farmers of all degrees can find a school where their children will get the knowledge they require to fit them for any kind of farm work. By this means those engaged on the soil are kept abreast with the best and latest practice in agriculture, and are enabled to see and learn such things as tend to the improvement of their condition and industry.—*Northwest Farmer.*

CONCERNING OUR ADVERTISERS.

Mr. J. D. Thompson, superintendent, writes us under recent date, that the name of the Hickory Herd Jerseys has been changed to Arden Herd. Mr. H. N. Higinbothom, proprietor of this herd, is sparing nothing to make it one of the best in the country. We hope soon, to illustrate one or two animals from this herd, and expect to show our readers something unusually fine.

The fundamental principle of good farming is the maintenance of the soil's fertility; and it is shown by years of experiment, that with no fertilizer can such good results be produced, and at so slight an expense, as with stable and barn yard manure, rich in the very elements that the crops fed to the stock have drawn from the soil during the preceding summer.

It is a lamentable fact, however, that the vas-bulk of farm manure does not effect more than fifty per cent of the good it is capable of doing. The value of manure depends entirely upon its care and distribution. If it is thrown into an open yard from whence its valuable elements are washed away in the rains and burned away by the sun, or if it is dumped in the fields in piles, it is doubtful if even twenty-five per cent of its most valuable elements are ever available for plant food. Every year demonstrates that barn yard manure spread by hand utterly fails to give the results that the good farmer should expect from so valuable material; the reason is, that all plant food is taken up only in liquid form, and the coarse manure cannot be dissolved in time to be taken up by the plant when the food is most needed. It stands to reason, as it has been proven by experience, that the finer the condition, the more thoroughly pulverized the manure is when applied, the better it is for both the crop and the soil. The more unevenly the manure is applied, the more certain is some of it to waste.

This fine condition and even distribution can only be attained by mechanical means. The Kemp Manure Spreader is the only machine which fully answers this purpose. Every farmer should have the book on "The Problem of Fertility," published by the manufacturers of this spreader, the Kemp & Burpee Mfg. Co., Syracuse, New York. It is one of the best treatise on the care of manure, that we know of, and is offered free by the manufacturers, to the readers of this paper.

Everyone knows the expense and annoyance of lamp-chimneys breaking.

Macbeth's don't break; and they make more light.

Write Macbeth Pittsburgh Pa

The Farmers HANDY WAGON Company, SAGINAW, Mich. are makers of Low-Down Wide-Tire FARM TRUCKS. Also METAL WHEELS for Old Farm Wagons, and All-Steel Trucks. Circulars Free.



You need a "Handy" every day in the year, but especially for Hauling Corn Stalks.



IOWA FARMS $2 PER ACRE CASH BALANCE & CROP TIL PAID J. MULHALL SIOUX CITY, IA.

A Tenessee Opportunity

I have 35 High Grade Jersey Cows, the cream from which brings me from $110.00 to $140.00 per month from the creamery, 1¾ miles distant. Will have one silo filled with corn silage, and other feed. All of which I will sell on liberal terms to a dairyman who will lease my FARM OF 166 ACRES also. For particulars apply to P. J. CLARKE, Postmaster, Pulaski, Tenn.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE

Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

PARTHENEA.

Butter record 38 lbs. 8⅓ oz., in seven days, thus the second highest butter producers of the breed, that sold for $2 000 and won many prizes at the leading dairy shows, in milk and butter tests and the show ring. She is the dam of Parthenea's Colantius 15597, the chief stock sire at head of this herd for many years and that sold for $1,000, and proved to be a greater sire of fine show stock an great butter producers, than his unequalled sire, Colantha's Sir Henry and grand sire, Sir Henry of Maplewood. For prices of this blood address VALLEY MEAD FARM, Monticello, Wis.

Preserves

—fruits, jellies, pickles or catsup are more easily, more quickly, more healthfully sealed with Refined Paraffine Wax than by any other method. Dozens of other uses will be found for

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In every household. It is clean, tasteless and odorless—air, water and acid proof. Get a pound cake of it with a list of its many uses from your druggist or grocer. Sold everywhere. Made by STANDARD OIL CO.



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Makers of high grade Milk Cans and Milk Can Materials.

Write for our Book, "A STUDY IN MILK CANS."

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale. C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

Riverside Guernseys, CHAMPION Herd AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.

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Producing, Retaining, and Controlling Flavor in Butter.

[Paper read before the Kansas State Dairy Association by PROF. G. L. MCKAY.]

I am always pleased to meet the Kansas dairymen. Your up-to-date dairy meetings and your western rush and energy, give us that live east of you, new impetus to go back home and do a little better work. In this great western butter belt, the making of fine butter is not confined to any one factory, township, county or state. Your chances are as good in Kansas as anywhere in the west. It is true that your climate is a little warmer in the summer months than some of the other states, but with your refrigerator machines and a little more education of your patrons in the care of milk, this need not give you any trouble. I have great hopes of Kansas becoming one of our greatest dairy states.

The most important single quality of butter is its flavor. This is not to be wondered at, as flavor counts from 45 to 50% of the total in scoring. Everything that affects flavor is of great importance to the butter maker. It is only within a few years that the theory of butter flavor has become partly understood. The effect of food on flavor is a question not yet settled. We do know that when cows have access to leeks, turnips, onions, cabbage, potatoes, etc., that the milk has very offensive odors, which are transmitted to the butter, unless the milk or cream has been pasteurized. The obnoxious odors seem to evaporate during pasteurization. Some maintain that the germs of bacteria, that produce the disagreeable flavor, get into the milk from external sources. I am not prepared to substantiate either of the theories that I have just mentioned, that the food affects flavor or that it does not.

It is true that we have conducted a series of experiments at the Iowa Station during the winter of 1895 on the effects of food on the flavor of butter without finding any marked difference, except where turnips or cabbages were fed and the butter was made from raw cream. From these and other experiments, I have come to the conclusion that the food consumed by the cow does not affect the product as much as is generally supposed, and that the fine flavor of the butter is argely a product of fermentation. Another quite common theory is that the milk, from strippers, or from cows well along in the period of lactation, is responsible for the low flavor of butter during the winter months. It is true that as the cows advance in the period of lactation, the fat globules become smaller and the milk becomes more viscous, thus rendering it difficult to churn. Frequently the food consumed by the cow is of such a nature as to produce hard butter. At this period, we not only experience great difficulty in the separation of the milk, but also in the ripening and churning.

As the cow approaches parturition, she is inclined to be more excitable, which in some cases affects the quality of her milk. We succeeded in making butter at our school, from the milk of cows that would average near seven months in the period of lactation, that scored ninety-seven by some of the best experts in the country. These cows were carefully looked after, and the cream was ripened with a good starter. This would also indicate that flavor was a product of fermentation.

If any one has a theory and can demonstrate to the public that it has merit, the public will usually accept it for what it is worth. Some theories have fallen flat, as they would not stand a practical test.

I believe that a high flavor of butter or quick aroma, is due to the breaking up of the milk sugar in the process of ripening, and is possibly the product of a series of germs.

If we churn cream sweet, no matter how well the cows are fed, the butter will lack flavor and our losses of fat will be great in the buttermilk. If cream is allowed to ripen too much, we get what experts term sour butter, or what I would term almost a rotten egg flavor. From these facts we must consider that cream ripening is a very important point in butter making. The common theory used to be that when cream assumed a smooth, granular appearance, it was fit to churn, but this is not always correct. I will say, however, that when cream is ready to churn, it will always have that smooth, granular appearance. I presume that some of our prominent buttermakers in the past have observed the condition of their cream when they have made some extra fine butter, and have found it to have a nice, smooth, granular appearance, so this has been handed down to us as a test, when cream was ready to churn. I have seen cream have this same appearance when it was not near ripe enough to churn. In natural ripening the fermentation is due to the growth of a variety of organisms that gain entrance to the milk and cream from the time the milk is drawn until the cream is churned. When cream is ripened by a starter, we attempt to control the fermentation by adding a large number of bacteria, of a kind that we expect will give the desired flavor. The majority of the lactic acid species are evidently flavor producing germs. Prof. Eckles, of our school, has made many bacterial analyses of cream when ready to churn, and he found the percentage of acid bacteria was estimated to be between ninety and ninety-five in the best cream. He found one case where the per cent went down to 81. This was very poor, tainted cream.

The butter that scored the highest on flavor at Topeka, at the National Convention last year, was made at our school, and the cream showed 92% of acid bacteria.

Many of you have observed, no doubt, that a great many butter makers make good butter in the summer months, but are not successful in the winter months. Now there must be some reason for this. Most of th milking is done in the open air during the summer months, and the germs that get in the milk are not as injurious to flavor as those that come from the stables.

Possibly the reason that pasteurization has become so general in Denmark, is that their cows are stable fed most of the year.

Prof. Eckles has made a number of tests of milk coming in from different patrons, at different times of the year. The results he will publish later on in a bulletin article. Of 100 samples taken March 5th, only 12.5 per cent showed pure acid flavor, 48 per cent impure acid flavor, 39.5 rapid decomposition of curd. April 8th, he found pure flavor 50 per cent, impure acid 26.7, rapid decomposit on of curd 23.3. On May 10th, 90 per cent of pure acid flavor and 10 per cent impure. On July 13th, 90 per cent of pure acid flavor and 10 per cent impure. Thus it will be seen that during those months that milking is done outdoors the cream as well as the butter is better.

We found that a great portion of our milk last winter seemed to contain bacteria that had the power to coagulate the milk without souring it.

I think that possibly a lot of the low scoring at the National Convention was due to this condition. During the time our boys were making butter for that convention, one of them, in his great desire to get an extra good starter, bought the milk from a friend of his who had a number of cows, and had nice clover hay for them to eat. This young man went to the place and did the milking himself, after carefully washing the udders. The milk was thoroughly aired as soon as drawn. Every precaution had been taken to keep the milk in good condition, yet when it soured it had about as disagreeable a flavor as I ever ca ne across. Not being satisfied with the first lot, he repeated the whole experiment for another starter, but obtained the same results. The only reason I can give for this is that the sta le where the cows were kept was a poor, badly ventilated building with low ceiling, and the bacteria that got into th milk from the barn were undoubtedly of the putrefactive kind. In selecting milk for a starter, the fermentation test would come in very useful. A good starter should sour with a pleasant acid taste. It should coagulate solid without any pin holes. The amount of starter that should be used will depend somewhat on the condition of the milk received. If you have a good starter, do not be afraid to use a good per cent in winter months. I would advise from 15 to 20 per cent.

The temperature at which cream is ripened is not a very important factor in making good butter. From 60 to 90 degrees F. will give very good results. If I were going to specify any set rule, I would say 65 degrees for summer and 75 degrees for winter months. It is not the temperature at which you ripen, but the degree of

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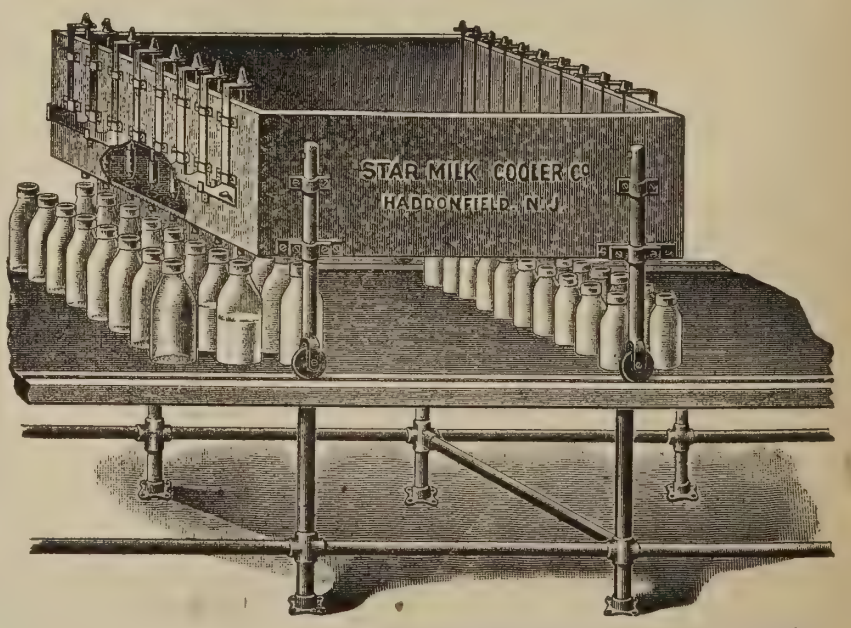
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acidity to which you ripen, that is the most important point to observe.

I think it is possible for any butter maker who thoroughly understands his business to score from 95 up, and do it every time. In fact, I think I could raise that one point and be within the limit. To demonstrate this more thoroughly I will mention the Genesee salt contest, which has been going on for six months in Chicago, and has just closed. Many of the butter-makers in the United States have been competing. The sweepstakes went to M. W. Ashby of Hazelton, Iowa, with an average of 97.79⅙. He was one of our students in the class of 1894. The second place went to Mr. C. L. Passmore, of Iola, Wis., with an average score of 97.62½. He is a nephew of Gov. Hoard, so comes of dairy stock. He was a student of our school in the class of 1898. Another one of our boys from the class of 1895, Louis Schack, made an average score of 97.41⅔. Still another from class of 1894, August Johnson, of Bancroft, Iowa, had an average score of 97.18¾.

To this I might add the record of three of our boys at the National Association last winter, who were in the final eleven that were picked out from which to select the sweepstakes. These facts show what trained butter-makers can do.

We endeavor at our school to ripen cream so as to contain about .64 of one per cent of acid. This I mean for 30 per cent cream. If you are using the alkali solution, this would mean that it would take 36 c. c. of the solution to neutralize the acid in the 50 c. c. of cream used. When you go to .70 of one per cent you are approaching the danger line. If good starters are judiciously used, I do not think that you will have any complaint about winter conditions. If you have a patron that always brings you good milk, and you find that it will sour with a pleasant flavor, you may be sure that you have the right kind of bacteria present. Milk of this kind you can put in your cream vat without separating, that is, you can use a few cans of such milk and then separate your cream heavy enough so that you will have the desired per cent of fat. We used this method in the winter months and found it to be a great benefit in helping the flavor of butter.

One prominent bacteriologist has said that after natural starters have been used a few times, they become pure cultures. We have found the Douglas culture to make an excellent starter. Our Mr. Eckles has a culture that has given fine results. In fact one lot of butter that was made from pasteurized cream, and ripened with this culture, scored perfect in England. The culture is of the acid species.

I do not wish to convey the idea that feed has no influence on the composition of milk. I believe that the utmost care should be given by the patrons to provide good, succulent food and clean water during the summer (and winter when it is possible) months. The patron should try to get his milk to the creamery in the best condition possible. Then it is the duty of the buttermaker to make the finished product. It is impossible for a workman to produce fine goods in any line of work, where the raw material is faulty.

Boys, keep your creamery in such a condition that you will not insult the intelligence of your patrons by asking them to bring good, clean milk to a dirty creamery. I have been in the dairy business twenty years and have conversed with hundred of patrons, both in the east and west, and have never met one who did not admire cleanliness around the dairy building. It is always easier to lead patrons than to drive them.

One more important point in which a buttermaker should be posted, is scoring. I can not understand why a buttermaker, that will score ninety-eight or ninety-nine in one contest, will allow butter to go from his creamery to another contest, that will score down to ninety or near that point. A buttermaker should know good butter when he sees it, if he expects to make a success of buttermaking.

Possibly some of us at the dairy schools have been a little careless in not requiring more scoring to be done by the students.

Curing Cowpea Hay.

I find many farmers, while they recognize the great value of cowpeas for hay, do not raise them because they have found them so hard to cure without the loss of nearly, if not quite all the leaves, which are certainly the best part of the hay, except the pea itself. Now I find the pea hay the easiest cured of anything in the hay line I have tried, and that too without the loss of a single leaf or pea.

Take some little poles about three inches in diameter and twelve feet long; set them at convenient distances apart in the field, and about two feet in the ground. Take two bits of board, two feet long, and two or three inches wide, nail them across the pole about two feet from the ground, crossing each other at right angles to hold the peas off the ground and allow the air to circulate freely under them. Cut your peas when dry, no matter whether the sky is clear or cloudy, and without waiting for them to wilt stack them around the pole on the boards, making the stack small in diameter—not more than three feet—and as high as you can reach with the fork. Place some crab grass or anything that will shed rain on top, and your peas, rain or shine, will cure out as bright and sweet as can be.

In two or three weeks, lift pole, peas and all, place them on the wagon, take them to the barn, slip the pole out and mow them away.

By stacking the peas before wilting they retain all the leaves and peas, and by lifting pole and all to cart them to the barn, you do not disturb them, and do not rattle them off.

The vines being coarse, and the leaves thin, if the stack is kept small in diameter, no matter how wet the season is, the air circulates through them enough to cure the peas perfectly.

Where barn room is scarce, I have left them in the stack all winter, and though somewhat weather stained, horses eat them with relish.

I think anyone, who tries this method, will find it so simple and effective that they will raise pea hay because it is the easiest hay made, if not because it is the best.

If the weather is rainy when you commence your stack, have a fork full of crab grass handy, then cut peas and stack till a minute before the rain actually falls, then cover your partly built stack till the rain is over. As soon as the peas are dry enough to cut again lay off your fork full of crab grass and complete your stack. It never gets so rainy here in Florida that we can't cut peas and cure them beautifully.—F. A. BUCK, in *Southern Ruralist*.

The cut is after an old painting of a man gambling with Death with his life as a stake. Behind the man stands his good angel striving to save him.



This game with life as the stake is the every-day game of men and women. Behind the player stands the good angel Nature, striving to preserve the life. Even when the game is almost in Death's hands, the man who turns to Nature and lets her help him may yet save himself. Medical science knows this, and its highest authorities affirm that the utmost medical skill can do is to help Nature.

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If your dealer offers something "just as good," it is probably better *for him;* it pays better. But you are thinking of the cure not the profit, so there's nothing "just as good" for you. Say so.

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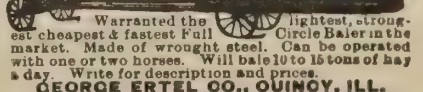


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The style and size of package depend upon the market. Where one is obliged to take their butter to a grocer, the gallon and half-gallon crocks are usually preferred. If one has private customers, it depends wholly upon the quantity used. The gem paper packages are light, substantial, and reasonable in price, ranging in size from 1 to 20-pound packages. Where you ship to large grocers or commission houses, the 60-pound white ash tub is desirable. A very good packer for putting the butter in small packages can be made by taking a common wooden potato masher, sandpapering until it is smooth, scalding and cooling. For the tubs one needs a packer such as those used by creamery butter makers.

Before putting butter in crocks, be sure that they have been thoroughly scalded and cooled. Never use crocks which have held anything but good, pure, sweet butter; as lard, yeast, pickles, or, in fact, almost anything will affect the glazing of the jar enough to taint the finest of butter, if it is left in a jar any length of time. In packing, only put in small quantities at a time, and press down firmly, so there will be no pools of brine; continue in this manner until the butter is rounded over the top of jar. Even the top by taking the ends of a piece of twine (which has been wet) in both hands, holding it close against top of jar. With a sawing motion draw across, then holding jar slanting over bowl or churn, carefully lifting the upper edge of butter from jar with ladle, the air will get under the layer, which will drop off, leaving an even surface, which looks much nicer than when smoothed off with a ladle, which is apt to give a salvy appearance.

Place on the top a circle or cap of butter cloth. (These circles may be procured of any dealer in dairy supplies for a few cents per thousand in sizes to fit any package.) On top of cloth put an even layer of nice, clean butter salt, over which sprinkle a little water, and you will have an air tight crust. Cover this with fresh, clean, manilla paper; fasten on by passing twine below rim of jar two or three times and tying with single bow-knot. Trim paper evenly from one-half to three-fourths of an inch below twine, and you will have a package which will find ready sale.

Mark your package with name or private mark, always the same, and in a manner which is not easily imitated, as I have known grocers to go so far as to write the name of some good butter maker on a jar of any butter they happened to have in order to make a sale.

It does not take long for a good butter maker to gain a reputation in the circle where the goods are consumed, and after a few trials the goods are called for by name or mark, and the customer does not find it necessary to have the butter opened for inspection.

If, by accident, you happen to have a poor lot of butter, tell your dealer and let him sell it for its value. Don't run the risk of losing your hard earned reputation of a good butter maker, for the few paltry cents gained by palming off a lot of poor butter under your regular mark. If one has not been fortunate enough to secure regular customers, at a good fair price, and is making a sufficient quantity to ship, it is much less labor, and more satisfactory to send it to some good, reliable commission firm. Use the best white ash sixty-pound tub, thoroughly washed, scalded and soaked in brine, to prevent mould. Always line with good parchment, which it is also advisable to scald and brine. After the tub is neatly lined, pack and even off same as the jars, turning the parchment (which should be left above top of tub about three-fourths of an inch) over the butter, laying in small pleats, putting the cloth circle over the parchment, and covering with salt. Fasten the cover of tub down with three tins placed at an equal distance apart on the cover.

In fact, do not neglect any little thing, no matter how trifling, which will add to the neatness of the package, as neatness in this respect is just as essential as in the manufacture of the butter, and there we know it is one of the important factors. Remember that it is the outside of the package which the consumer sees first. I never realized until a short time ago how many good butter makers there were who were careless in this one respect. Perhaps by mentioning one or two cases, the reader will not think that I am a crank on this subject, or as I have been told that there was too much red tape about my butter making. While in a grocery store not long ago, an old gentleman came in with fifteen pounds of very nice butter in prints, wrapped in hand towels. The dealer offered him 2½ cents per pound less than they were giving for butter in crocks. The old gentleman was quite indignant, but was told that they had no place where they could keep print butter free from taint. After the old gentleman went out, being a little curious over the butter, I watched to see what was done with it. The dealer took it from the towel, placed it on a platter, covered it with clean, fresh-looking paper, called an errand boy, and sent it to a hotel near by, remarking to me at the time that Mrs. So and So had left an order for good butter, and was willing to pay a little extra. I knew that he had refused to pay within 2½ cents as much as crock butter was bringing only a few minutes before. As it takes so little for an excuse to drop on the price, it stands us in hand not to leave any show for the excuse. Never use any cloth about butter, which has the suspicious look of coming from some worn-out garment.

While waiting at the depot, my attention was called to a lot of jars piled on the platform. On inquiry I found they contained butter, which surprised me very much, as out of fifteen or twenty jars not one of them was tied up neatly, and they were to be shipped twenty-five miles. I don't think any of them having paper over the top had anything but newspapers, and on one there was just a thin cloth between the printer's ink and butter. The taste of the ink would, in a short time, permeate the whole jar of butter. Many of them had large, coarse cloths. some even faded-out calicos over the top, and not one of them trimmed off, but corners and ravelings flying as the wind blew them. Please don't think that carelessness is confined to the dairy butter makers. Far from it.

While at the dairy convention last December, judge of our surprise upon lifting the covers of some of the creamery butter tubs to find the salt fairly black, where a dusty cover had been put on. Others hadn't any salt on the cloth cap, while on many the parchment side lining was left from two or three inches above the edge of tub, on some the covers were put on so that the lining was below the edge of cover; on others it was crowded down in rolls on top of salt. While many of them were left about three-fourths inch above tub, folded neatly over the edge of the butter, being laid in tiny pleats so that it would set smoothly. Then the cloth cap with an even layer of salt on top. Any butter maker, who has any interest in his work, could see at a glance the difference. Some say we don't know how. Then ask. If you cannot find out at home, ask *The Farmer* and you will surely get an answer. If still in doubt, read Gossip in the Butter Stores, by Man on the street, in New York Produce Review. If your butter is not selling at the highest price, you know there is something the matter.

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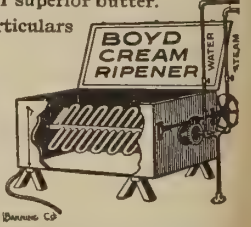
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And much prefer to send them out as such; however to those readers who are unable to secure subscribers, they will be sent post-paid upon receipt of price indicated.

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If you are shipping to a commission house write the firm for particulars; most of them are only too glad to give such help, if one asks for suggestions and they see that you are in earnest.

If you have a firm which gives you good prices and prompt payments, don't, for the sake of experimenting, or for some trivial expense, make a change. Exercise a little patience, as it takes some time for a firm to determine whether you make a uniform article or not, and you cannot always get a premium in a few weeks, but after your reputation is once established your goods are always in demand.—*The Farmer.*

To Produce Three Hundred Pounds of Butter.

How much milk, of what quality, would you expect a heifer to give the first year in order to promise to be a three hundred pound cow? J. F. P.

Barnston, Que.

A heifer that gives, with her first calf, milk in sufficient quantity and of a quality to make two hundred pounds of butter within twelve months, will be very likely, with proper care and feed, to reach the three hundred pound limit at maturity.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

LUMPY MILK.

I have a cow that calved about three months ago, whose milk from one teat has chunks in it. They stop the milk fo a second and then come out. It began two or three days ago and at one milking since, it was all right. J. F. P.

Barnston, Que.

ANSWER.

Immediate full dose of physic and repeat in five days or so. Give two teaspoonfuls of nitre each morning for ten to twenty days. If needed, use gentle massage daily upon the head of the teats. You state what the matter is yourself. The causes are many and widely different in many respects; quite often it is the result of acrid matter in the pasture or other food; quite often the result of hard milking; jerky milking, etc.

STOMACH TROUBLE.

We have a two-year-old heifer that calved this spring, and did well for about ten days. She then commenced to cough and refused to eat much of anything, and did not chew her cud only now and then, and everything she did eat seemed to physic her, and she run down, and is very poor. I consulted a veterinarian, and he gave me a tonic; said it was indigestion. Well she got some better, so she goes to pasture and eats grass and oats and peas very well, but refuses her grain altogether, and milk is nearly dried up, and is very dull most of the time, but cough has ceased. O. S. F.

Mayville, N. Y.

ANSWER.

I think the veterinarian was correct. I believe she is afflicted with some form of stomach trouble, not ordinary indigestion. Give her one scruple of nux vomica, three drams of golden seal in 1½ ozs. of *old* whiskey and 3 ozs. of cold water each morning for three mornings, then wait three mornings, then repeat as before, then wait seven days, then repeat twice, again wait one week, then give one last dose. If this does not seem sufficient, repeat the dose for a few times, *intelligently.*

NOSE BLEED.

One of our cows came in from pasture the other morning, stopped at spring for a drink and when she reached the barn, blood was running from both nostrils. In a short time large clots of blood and what appeared to be part of lining of the nose came out; the cow (usually very quiet) rushed about, butting at the other cows, and rearing high in air, also kicked at stomach and threw the head from side to side. The bleeding subsided after a day or two, but a quantity of mucous came from the nose for quite awhile. The animal is probably in good health now. Was it probably due to some mechanical injury, or is it some disease that will return? A. J. U.

Valley Mills, Ind.

ANSWER.

By your description I judge the cow did receive some severe concussion about the head, I think in the frontal bones. This would seriously interfere with the nasal sinuous passages of the nose and develop, as you state. I don't fear reocurrence. Apply again if any fresh attack occurs. Don't wait.

MANGE—ESCUTCHEON.

My cows have dry, bare places around eyes, on head and body in places, looks like mange or seed warts, but in some places the hair is off three inches square.

Would like also to know whether the escutcheon on bulls is of any importance? Some run up part way and some not at all. How would it be on their heifers?

Eureka, Cal. H. E. A.

ANSWER.

Scabies, itch, mange, etc., all one. Thoroughly wash in hottish water and tar soap. Then when dry, sponge over with the Tilden's bromo chloralum, one to eight of water. Use liberally twice in an hour. Then thoroughly rub in pyroligneous acid, ten ounces, oil of tar, half an ounce, fish oil, 20 ounces, thoroughly shake before using. Rub in twice a day for a few days.

I would not refuse, otherwise, a good bull because he had, or had not a good escutcheon.

BLINDNESS—ESCUTCHEONS.

My neighbor had a horse die about a month ago. She was affected with a blindness, though she had good eyes. She would go into a gully and not see it; you could turn her one way and she wouldn't turn to the other side at all. He cut her open and thought she had some water about the brain that ought not to have been there. He had a hog pen in about four or five steps of her stall, that was very muddy and offensive. His hogs were fed on skim milk. Could the manure from the pen have diseased the horse, or what do you think was the matter with her?

On page 237, May 5, J. J., of South Hamilton, N. Y., says he places the most reliance on the escutcheon theory in judging cows. I wish he would tell us if he can tell a rich milker by the escutcheon, and whether all breeds of cows have the same shaped escutcheon. D. E. L.

Roper, S. C.

ANSWER.

Hog pens, especially in a filthy condition, have no place near horses or cows. Yes, such a condition of filth can and does affect eyesight and many, almost every condition of health.

The escutcheon is a fad, and the part has nothing to do with the value of a cow, as a good one. I have seen good cows with good and well developed escutcheons, and some of the poorest cows I have ever seen had a fine, distinct escutcheon.

EYE DISEASE.

My cows and heifers commence running water at the eyes, then a white speck commences to grow over the sight of the eye, continuing to grow until they cannot see at all out of the eye affected. A. B.

Pingree Grove, Ill.

ANSWER.

Read the above similar case, and act accordingly. These two seem identical in all the symptoms.

ABORTION.

In this week's issue I see an article copied from an English paper, that I thought from the headlines was going to tell us how to take care of a herd of cows when they were affected with epidemic abortion, but after reading it through, I knew no more than I did when I began, except that one man had been successful by using injections. If you could let us know what he used and how he used it, I have no doubt many of us would be glad to know the particulars. I have a herd of nearly a hundred cows, and within the last six weeks four of them have aborted when about seven months pregnant. As they stand near together, I am a little bit uneasy about the matter. I have sprayed the inside of the barn thoroughly, with a wash of lime, containing about three per cent of crude carbolic acid.

A CONSTANT READER.

Fort Wayne, Ind.

ANSWER.

Enzootic abortion is quite often the result of carelessness in not disinfecting and burning or deeply burying all aborted matter. The vagina and all the hind parts ought to be thoroughly washed and then disinfected with Tilden's bromo chloralum, one to eight of water, used liberally; there is no better or safer deoderizer and disinfectant. So-called carbolic acid *has caused* many abortions within my own knowlege; cows abhor it. I don't know about your injections—do know all such sure remedies are suspicious at least, and far from trustworthy.

IMPERFECT QUARTER.

A fine Jersey cow, ten years old, now dry and due to calve in about two weeks, has one teat from which no milk or very little was obtained last year. Cause of losing use of same unknown to me, as have lately come into possession of her, but I suspect a case of milk fever at last calving. That quarter of bag is now developing as perfectly as the other three, from which milk can now be drawn freely. It is impossible, however, to start any milk from that teat. A. B. M.

Buffalo, N. Y.

ANSWER.

Milk fever was not at all likely to be the cause of the blind quarter alluded to. No doubt, garget was. I don't believe the quarter can be restored, if it is the quarter. If it is in the teat, you may be able to draw out the milk with a safe, easy milk tube. I know of no other method. You may have blind quarter and blind teat also. An expert alone is the one to ascertain this. Such an aged cow is not an easy subject when the milk process is in question.

PINK EYE.

We have a disease among the cattle here which some think is pink eye. The eye begins to water and is of a pinkish cast, then a heavy, white scum covers the eyeball and a good many of them burst. Some get well. It affects young calves as well as cows. The stock otherwise seem to be healthy. Would you consider the milk fit for use?

Clearfield, Iowa. G. N. McN.

ANSWER.

I never fancy milk from a cow suffering from any form of disease. Never use such. Pink eye is bosh. You are passing through an enzootic attack of ophthalmia. The causes for this inflammatory condition are many; colds, injuries of any kind, general feverish condition of the system, etc. Your safest plan is to have an expert examine into the cause and remove it. Immediate full dose of physic is surely good and quite safe, and will be likely to do much good. Tincture of arnica and watery extract of opium, equal parts, water, half a part. Squeeze a little of this into the eye when in the film stage of the disease. Hold up the upper lid and then squeeze a little into the lower lid. Do this in a shady place always. Don't forget the physic. Still, you need a good, practical professional expert upon the premises to investigate fully all the symptoms and the environment generally.

SUDDEN DEATH.

One of my patrons had a 200-pound hog die suddenly and without apparent cause. A few days later a calf died in the same way, both bloating after death. He was feeding pasteurized skim milk. He seems to think the milk had something to do with it.

Berlamont, Mich. C. L.

ANSWER.

Might be, and perhaps was, apoplexy. Most animals bloat—in fact, all do—soon after death, especially in warm weather, if not prevented by some antiseptic, etc. I know little about the pasteurized milk. The milk might be at fault and cause the death. How, I am unable to say.

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DR. WM. HORNE, Janesville, Wis.



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Patents on Hydraulic Separators.

Cornell University has issued a bulletin, giving a description of the patents issued on gravity separators. The bulletin contains cuts and descriptions of all the dilution or gravity separators thus far patented.

In regard to a patent on the process of diluting milk for separation, the bulletin makes the following statement:

A striking similarity is observable in all these patents. In none of them except Philips' is dilution mentioned in the claim, and there it covers not the dilution itself, but the manner of it. In all of them, however, dilution is mentioned in the description as an essential part of the process. It would seem, therefore, that in patenting some minute or unessential feature of the can, these people have sought to convey to the uniformed, the idea that the whole can, process and all, was subject to the patent. This is further borne out by the attempt in some cases to collect royalty from people using the dilution process in Cooley or other cans. Since some manufacturers have stated that an application has been made for a patent covering the process of diluting milk with water to facilitate the raising of the cream, it may be well to look into the matter of the possibility of such a patent being granted.

In the language of the patent office an invention, in order to receive a patent, must present "novel, useful, and patentable subject matter." Waiving altogether or granting entirely the usefulness and patentability of this process let us look only into its novelty. The process was certainly well known as early as 1890, for in that year it was the subject of investigation and report by at least three Agricultural Experiment Stations in widely separated parts of the country. It has been argued that these reports, since they did not recommend the practice, should not be considered as evidence that the process was "well known and in common use." But one, at least, of the publications cited did strongly recommend the process, and if recommendation necessary to constitute publicity it would be easy to find it in the agricultural and dairy press of that period.

The late Col. F. D. Curtis, to the personal knowledge of the writer, strongly recommended the dilution process at numerous farmers' institutes in the state during the winters of 1889-90 and 1890-91, and frequently also recommend it in the press.

Prof. E. F. Ladd, then of the State Agricultural Experiment Station, at Geneva, now of the North Dakota Agricultural Experiment Station, also recommended it under certain conditions, and it was frequently mentioned by other writers. It is also recommended for use in connection with the Cooley creamer in circular No. 214 of the Vermont Farm Machine Co., page 10. Under date of May 31, 1899, Mr. N. G. Williams, the manager of the company, informs me concerning the above: "These particulars were in April, 1890, and have been published in our circulars ever since. We had recommended it (dilution) before this." The process was then well known over large portions of the country at least nine years ago, but had almost completely disappeared from public view until revived by these boomers of patent cans about two years ago.

CONCLUSIONS.

Several patents have been granted covering unimportant details of the construction of cans in which the dilution of milk with water is recommended to facilitate the separation of the cream.

Anyone desiring to use this process of doubtful utility is perfectly free to do so without let or hindrance from the holder of any patent right whatever.

The Cornell University Agricultural Experiment Station will esteem it a favor to be put in communication with anyone who is demanding a royalty from persons who are diluting their milk in order to facilitate the raising of the cream.

To Check Hog Cholera.

Prof. Henry Says Isolation or Quarantine is the Hope of Farmers.

An East Troy, Wis., correspondent, of the Wisconsin Experiment Station, writes concerning hog cholera and asks if there is any method of inoculation or vaccination which is practical and efficacious, and Prof. Henry offers the following suggestions:

"On more than one occasion notices have appeared in the public press stating that the Department of Agriculture, Washington, had a method of inoculation or vaccination, to prevent hog cholera. In reply to a letter addressed to the department by the writer, we were informed that such statements were premature, though hopeful experiments were in progress. Wisconsin farmers may rest assured that as soon as anything positive is accomplished in this much needed direction, the public will be promptly and fully informed of such help.

"For the present the hope of farmers in staying the dread disease must rest in isolation or quarantine. In all veterinary matters the state of Minnesota is a dozen years ahead of Wisconsin. There they have a powerful board of health which is working vigorously in this matter. As soon as hog cholera breaks out, the premises where it appears, are put under the strictest quarantine according to modern ideas of what is proper. As a result, hog cholera is surely being driven out of the state. The Minnesota state board of health saves its cost to the people many times each year.

"In Wisconsin we have a state veterinarian, who is doing the best he can to check the plague, but he is cramped for means and for assistance. Until our farmers wake up in this matter, affairs will drag along as they are now doing, with enough money lost every year to pay for a dozen state veterinarians."

"If hog cholera breaks out in any locality in Wisconsin, I urge our farmers to write or telegraph immediately to Dr. H. P. Clute, State Veterinarian, Marinette, Wis., urging his immediate presence. Dr. Clute will come to the premises as soon as possible and no doubt place a quarantine thereon. Farmers are urged to carry out the orders of the veterinarian in regard to the quarantine in all particulars.

"The disease is often spread by sympathizing neighbors who come to look over the sick animals and give their opinion as to whether it is hog cholera or not, and to offer some of the many cure-alls which everybody has to recommend. Those visiting the premises carry away the disease on boots and clothing. Wagons passing over the affected districts may carry the disease on the wheels. Rats are also conveyors of the disease germs, as are streams of water. Prevention is better than cure, and no matter how good a preventive we may hope to have, we should at once educate ourselves in the untold value of strict quarantine systems. In Europe, the great cities have now reached a stage where they no longer dread Asiatic cholera. It is not because they found a remedy for Asiatic cholera, but because they have learned how to quarantine against it and prevent its spread.

"The writer of this reply believes that if Wisconsin was to spend a few thousand dollars each year, for a few years, on hog cholera quarantines, the state would soon be rid of the disease, and once free from it, we could, by the same system, carried out relative to stock brought into the state, keep the losses down to an insignificant sum. When once our farmers are thoroughly educated as to the great values of quarantine, the knowledge so gained will be helpful in many ways. Such knowledge would aid in suppressing diphtheria, scarlet fever and other plagues among human beings. We would also be prepared to act quickly and intelligently when new contagious diseases attacked our farm animals."



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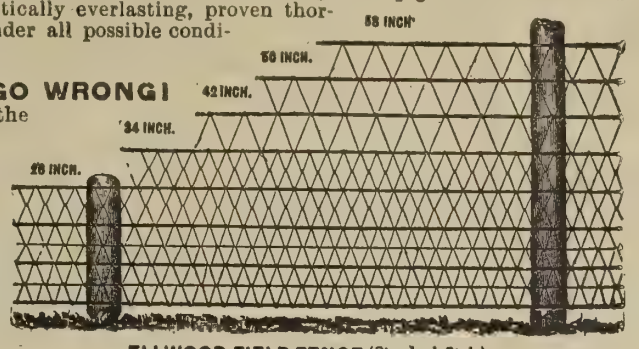
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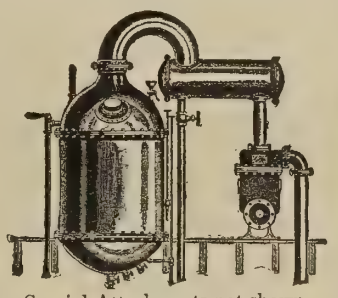
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The Minnesota Linseed Oil Paint Co.

Oldest and Largest Paint and Oil Manufacturers in the Northwest.

Condensed... Milk Factories



Special Attachments not shown.

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We are the only firm that builds factories complete, put them in operation and guarantee results.

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By Prof. W. A. HENRY,

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This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00

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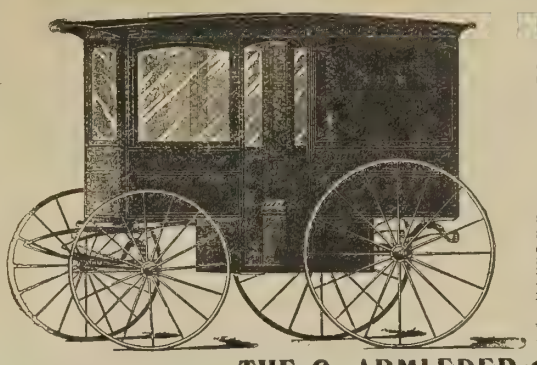
Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

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On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

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THE ONLY

LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. ☞ Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO., Sole Manufacturers, DE KALB. ILL.



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and they will be fair with you..... Listen a moment.



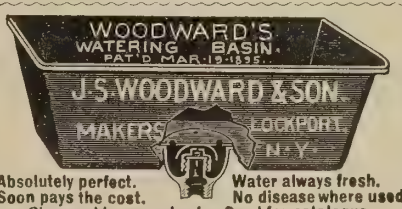
Every time you take a crop off a field you relieve it of just so much fertility. You should do something to restore that fertility. Barn yard manure is the best fertility restorative known if properly handled and properly applied. Even a small amount can be made to go a long way and accomplish great good if finely and evenly spread. This cannot be successfully done by hand—it is work for a perfected machine. The only machine known which accomplishes this is

The KEMP MANURE SPREADER.

It will Double and Treble the Value of the Manure Heap.

It spreads all kinds of **fine and coarse manure evenly;** it makes no "skips;" does not dump a great load in one spot, but covers the entire ground evenly. Tears up coarse and lumpy manure and makes it fine. Better than anybody can do it by hand. **Spreads lime, wood ashes, salt, etc.,** equally well. With the drill attachment **it puts the manure direct into the open drill.** Made in three convenient sizes. Ask the opinion of anybody that uses one. **Write for illustrated catalogue.**

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Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. No disease where used. Send for catalogue.

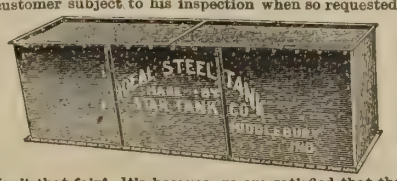
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It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

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We will ship this tank or any tank we make to any customer subject to his inspection when so requested.



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Established 1867.

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If you want the best machinery for making wells, to any depth, write us, for we make it. Send for our new catalogue "H," We will mail it to you free.

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THE AMERICAN WELL WORKS

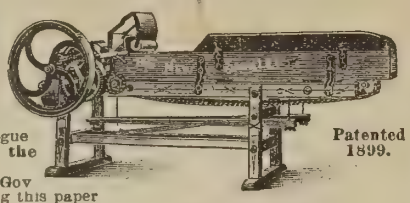
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The Most Up-to-date Silo Cutter on Earth.

SMALLEY CUTTERS For 1899

are more complete than ever before. They will be furnished, if desired, with Patent Automatic Self-Feed, **increasing capacity greatly and diminishing labor of feeding nearly ONE HALF. Four sizes, Nos. 16, 18, 20 and 26.**



Patented 1899.

If your dealer don t handle them, write for 99 Catalogue and get **SPECIAL Introduction PRICES on the SMALLEY LINE COMPLETE.**

YANKEE SILO SENSE —our latest Silo booklet ex Gov Hoard s Latest Views—mailed free to any one naming this paper

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MAKE ONLY SWEET ENSILAGE



Ever since the ensilage system has been introduced in this country it has been the ambition and effort of siloists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste,

The best way to Shred Ensilage is with the

St. Albans Ensilage and Fodder Shredder.

It is the Original Shredding Machine and all other so-called shredders are merely imitations of this one. ***It will certainly pay you*** to look into the merits of this proposition and machine before buying. We mail free a pamphlet on the subject.

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DAIN THE BEST, THE CHEAPEST, THE STRONGEST, THE MOST DURABLE STEEL CORN CUTTER.

A PRONOUNCED SUCCESS---THE VERDICT IS UNANIMOUS.

An Entirely New Departure. STRICTLY UP TO DATE.



"I think it by far the best corn cutter I ever saw." H. G. WILLIAMS, Shenandoah, Ia.

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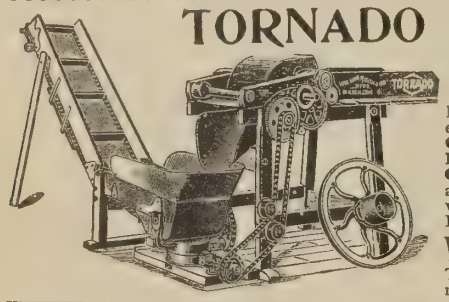
"Works perfectly. Can cut from five to seven acres per day." ABRAM GILBERT & SON, Franklin Grove, Ill.

ADJUSTABLE, PRACTICAL, SAFETY SEAT, EASY TO RIDE, SAFETY SHAFT, SAFETY GUARDS, REASONABLE IN PRICE.

It will cut more corn than any device ever invented and at less expense (machines costing $100 to $150 not excepted). For special information, prices, etc., address

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TORNADO Ensilage Cutter



IMPROVED FOR 1899.

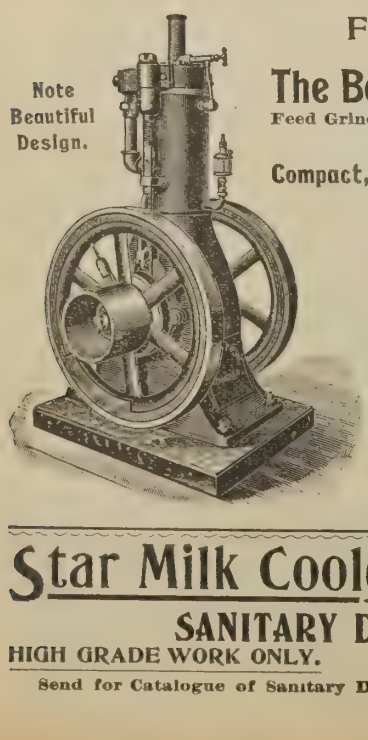
Do you expect to put up Ensilage this Fall? If so, the **TORNADO** will do it better and faster than any other. With our Improved 1899 **Carriers** or **Conveyers** they make the best Ensilage outfits known. **Unequalled for dry Cornfodder and Hay.** Send for catalogue and **Free Sample of the TORNADO'S work on Cornfodder and Hay.** Also **LAND ROLLERS and Sweep HORSE POWERS.**

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Treatise on Cheap and Practical Silo Building mailed FREE. Mention HOARD'S DAIRYMAN.

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FOR GAS OR GASOLINE.



Note Beautiful Design.

The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

3 Actual H. P., On Time	$140.00
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Price includes Gasoline Tanks and full set of Tools and fittings. Engine boxed and delivered, f. o. b. cars Chicago.

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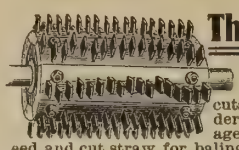
SOLE MAKERS, 239-241 So. Jefferson St., **Chicago, Ill.**

Horizontal Engines made in larger sizes.

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HIGH GRADE WORK ONLY. **Haddonfield, N. J.**

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The ROSS ENSILAGE MACHINERY

cuts ensilage, corn fodder, hay and other roughage and shred fodder for feed and cut straw for baling and bedding. They have a reputation for high quality in material, construction, capacity and working ability. Send for Catalogue No. 7 **The E. W. Ross Co., Springfield, O.**

HUSKS, CUTS AND SHREDS,



and will work well with either **green or dry corn.** Is easy to feed. It has a capacity of about 30 bushels per hour.

THE CYCLONE CORN HUSKER

is the easiest running machine on the market. Runs with 3-horse tread or any power that will equal or give more. Write for circulars, &c., free.

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$30.00 OUR PIASA BIRD SULKY

Old Reliable Gang $35. Disc Harrow $16.



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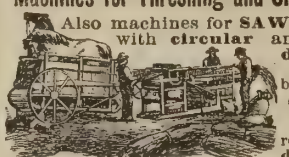
We challenge any plow for good work, light draft, easy handling, we have thousands of testimonials from farmers. Sent on trial, satisfaction guaranteed. Send for big free catalog and prices on buggies, harness, sewing machines & 1000 other things, delivered. Address, **Happgood Plow Co.,** Box 369, Alton, Ill.

The only plow factory in the United States selling direct to the consumer.

LATEST IMPROVED

HORSE POWER

Machines for Threshing and Cleaning Grain.



Also machines for **SAWING WOOD,** with **circular** and **cross-cut drag saws.** Acknowledged by all to be

The Best regarding **easy draft, durability and quantity of work.** 50 page pamphlet **free.**

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SILOS Are Filled Quickly and Economically with "New Hero" ENSILAGE CUTTERS

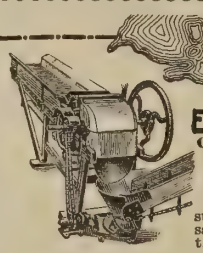


BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. **STRONGEST GUARANTEED.**

SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER, runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed **FREE.** Tells all about Hero Ensilage and Fodder Cutters, Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Sheliers, Peck's Corn Thresher, etc.

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"OHIO" SELF FEED ENSILAGE CUTTER



Cuts 33⅓ % more than regular machine.

Saves 75% in time.

Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

NEW METAL STRIP SWIVEL CARRIER.

Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue **FREE. Prof. Woll's "A Book on Silage" 10c.**

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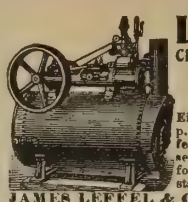
We carry a complete stock of all kinds of **RUBBER and LEATHER BELTING.** We buy our goods at Sheriffs' and Receivers' Sales. Write for **FREE ILLUSTRATED CATALOGUE No. 20** on Hardware, Pipe, Roofing, Plumbing Material, Wire, Rope, Dry Goods, Clothing, etc., etc.

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Cheap Power and Effective Power can be best secured in one of these

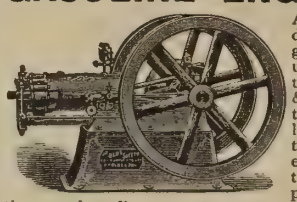


LEFFEL ENGINES,

Either horizontal or upright from 3 h. p. up. Ideal for **cutting and grinding feed, pumping water, sawing wood, separating milk, churning, &c.** Best for farms, dairies, creameries, &c. Send stamp for **Book on Power.**

JAMES LEFFEL & CO., Box 50, Springfield, O.

The OLDS GASOLINE ENGINES! SIMPLE and ECONOMICAL

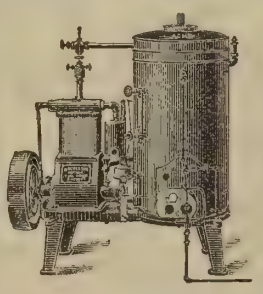


Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**

ON THE MARKET TEN YEARS.

The Acme Engine Still LEADS

1 TO 6 Horse Power.



For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

No. 9 Center St., Rochester, New York.

HAVE YOU SEEN THE

Jack of All Trades?

PUMPS WATER — SHELLS CORN— GRINDS FEED— CHURNS BUTTER—

—and hundreds of other jobs with the strength of 15 men. Most Convenient and useful power ever invented. Costs only TWO cents per hour to run. Especially adapted to farm work.

IT IS A **NEW ENGINE** MADE BY

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DIGS POTATOES Rapid, Clean and Cheap.

By mentioning this paper you can get illustrated book free.



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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., AUGUST 11, 1899. NUMBER 26

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REFERENCES:— Members of the Nat. League of Com. Merchants.
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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
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Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

...IN... MAKING **Butter for Storage** Our CULTURES are of the Greatest Value.
SEND FOR SAMPLE AND INSTRUCTIONS.
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CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Print Butter Should be wrapped in GOOD Parchment
(NOT THE CHEAP KIND.)
YOUR NAME or CREAMERY should be PRINTED on Every Sheet.
SEND FOR SAMPLES.
Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS.
A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
FITCH CHEMICAL COMPANY, Bay City, Michigan.

$22.40 for 15 cts.
The additional cost of using Diamond Crystal Salt in the making of a ton of butter is 15 cts. Wiggin & Upham, the produce commission merchants of Boston, says: "Tests prove that butter made with
DIAMOND CRYSTAL SALT
is found to be worth a cent a pound more than butter salted with any other salt." It's not can you afford to use Diamond Crystal Salt, but can you afford not to use it? Send for our book "*The Salt that's all Salt.*"
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Write It in The Contract.
What Shall I Write?
Just this:—"Please ship to me a SHARPLES TUBULAR SEPARATOR. I will immediately put it into my factory and will give it a fair and careful trial. If I like it in every respect and it does all claimed for it, I will keep and pay for it. If it fails to suit me for any reason, I will notify you to that effect, and on receipt of instructions from you, will reship to you order as you may direct."



We know 'tis a wide open proposition on our part, and invites trouble from the unscrupulous creameryman and the unprincipled separator agents who swarm around every Tubular that is placed, trying by fair or foul means to displace it. But our faith in humanity is large. Out of hundreds of Tubulars placed on such liberal terms, not a dozen creamerymen disposed to listen to the unholy propositions of competitors, or to take an unfair advantage of our liberality, have been found. A few betray our trust for reasons best known to themselves, but we try to steer clear of that kind.

THE SHARPLES TUBULAR SEPARATOR
Has merit that will win. It is a hollow bowl separator. It has no metal bearings except the ball bearing on which it spins. The bowl alone revolves.
It is a clean, rapid, superb skimmer of large capacity. The best creamerymen everywhere are using it or about adopting it.
Send for Catalogue No. 46.

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BRANCHES—Toledo, Ohio; Omaha, Neb. Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.



ALDERNEY BUTTER COLOR
Gives Natural June Tint. Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.



Do You Know What a Good Tester Is?
It is one that makes little noise; that has small vibration; that runs easily; that will do accurate work.
THE STANDARD BABCOCK TESTER
will last for years. It is built for the creameryman who believes that it pays to have **high grade machinery at a reasonable price.** The Standard Tester has a solid cast iron frame and is supplied with the famous Glass Eye Speed Indicator.
IT USES THE ORDINARY BABCOCK BOTTLE.
Farrington and Woll's new book on Milk Testing with each machine. We are prepared to repair all separators, and have the most experienced men for this work. You will be interested in our free catalogue No. 61.
Address, ELGIN MANUFACTURING CO., ELGIN, ILL.



AT THIS season of the year the preservation of milk demands that it be cooled in some manner.

With the

Champion Milk Cooler

May be Cooled and Aerated in one Process,

The Aeration removes all unpleasant oders from the milk. The cooling reduces the temperature quickly so that the keeping quality of the milk will be much improved.

The **Champion Cooler** can be used with ice, cold well water or running water. There is no other Cooler so convenient and so effectual.

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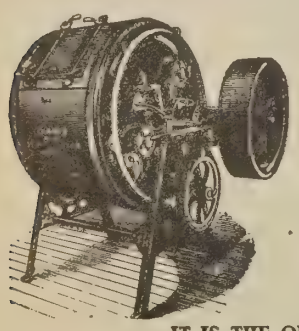
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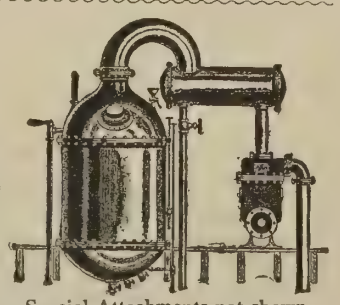
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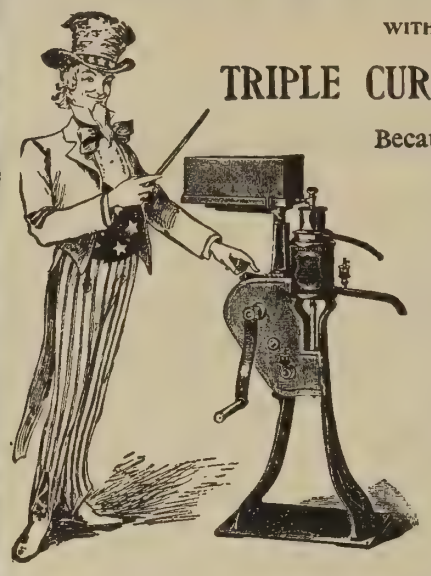
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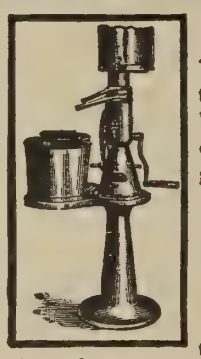
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to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Is it **CHANCE**, is it **GOOD LUCK**, or is it **MERIT** that has enabled the patrons of

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The LEAST EXPENSIVE, the MOST DURABLE, and the BEST DEVICE for Fastening Cows.

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Mention HOARD'S DAIRYMAN when writing.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean

E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

THE Iowa Experiment Station has added to its herd the two high-class bulls, cuts of which are given on this page.

After considerable search Prof. Curtiss selected a fine animal of Combination blood, Spree 31698 from the herd of H. C. Taylor, of Orfordville, Wisconsin.

This is an animal whose pedigree stands high on the list of the butter producing families, as well as in dairy form and constitution.

As a worthy companion to the above, the Holstein bull Sir Abbekerk Mechtchilde whose dam has a record of seventy-seven pounds of milk testing 4.4% fat in one day, was also purchased.

The Iowa Agricultural College is to be congratulated on obtaining such fine examples of the two great dairy breeds.

IMPROVE THE COWS.

Ex-President Burchard said, in his address to the Wisconsin Dairymen's Association, last winter, that every farmer ought to sell his hay and grain to a cow just as he would to any other buyer. Practical men do not keep on selling hay and grain to men who do not pay. Why should they not exhibit as good financial sense, when they sell the same food to a cow, and he added:

"I know whereof I speak, that it is just as easy to have a herd of cows that will average more than 275 pounds of butter per cow, or 600 pounds of cheese every 12 months, as it is to have one that will average less than that."

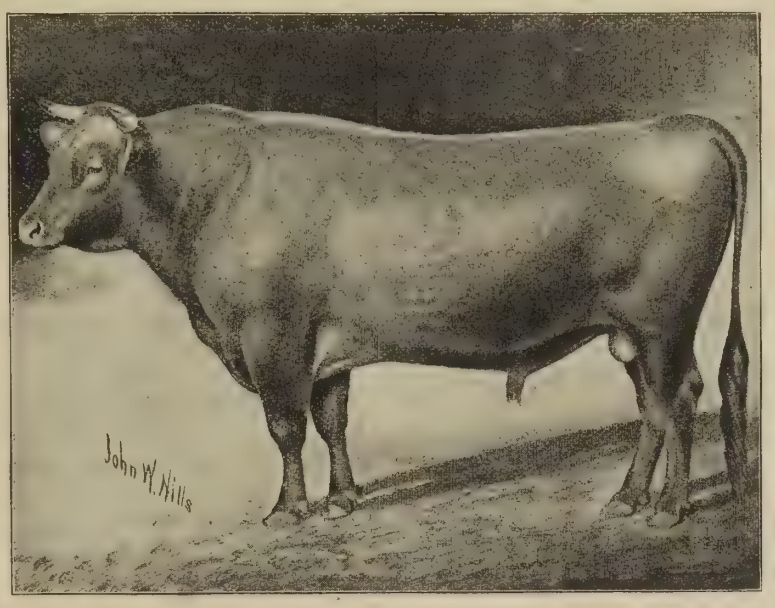
Every farmer, who is trying to keep cows for profit, can start on this road, if he only thinks so. The first step is to get a good dairy sire. We know of hundreds of farmers who have commenced in this way, and in a few years they had a herd of cows that averaged easily a hundred pounds of butter per cow, more than the original herd. If you cannot afford a full grown bull, get a registered calf and raise him. Don't breed from a grade sire, no matter if he does look like a thoroughbred.

SOME DAIRY FAKES.

A few days ago, a correspondent sent us a copy of a so-called produce paper, and with it were three recipes supposed to be given as a premium (?) to the subscribers of the paper.

It would seem that at least one of these receipts is being extensively circulated, as butter made according to the so-called process is beginning to appear in the market. The *National Produce Review*, of Chicago, prints the following:

"Another dealer, who is an extensive buyer of butter, has purchased quite a bit of this stuff, and when asked what he did with it, he said he simply put it through a process and got all the oil out of it, and threw the rest away, and even in this way it is hard to get his five cents a pound out of it. He said that there was not over thirty to forty per cent of butter in it. Others seem to think that it will hold up to fifty per cent of butter. It is very evident there is no money in this stuff, and the sooner the makers stop shipping, the better off they will be, as well as the market."



JERSEY BULL, SPREE, A. J. C. C. 31698.

Property of the IOWA AGRICULTURAL COLLEGE, Ames, Iowa.

This butter is made by the "Holland process," and by the use of "Butter Rennet." What this last compound does is shown by the following selection from the circular:

It commences with the following statement:

"Science has demonstrated the fact that butter is composed of microbes, the development of which add to the quantity as well as the quality and flavor of the butter."

And then continues as follows:

"Take as many pounds of water as you have pounds of butter, then get a package of Richard's Butter Rennet, which costs $2.50 per package. Add three teaspoonfuls of dissolved Butter Rennet to each ten lbs. of water, pour the water into your churn with your butter, and churn it for about two or three minutes, and you will have a perfect combination of the water and butter, by which all the solids contained in the butter are developed, and after working and salting as you do ordinary butter, you will have one-half more butter than you started with."

We don't know what the composition of the "Butter Rennet" is, nor is it necessary to know, although we could make a good guess as to its composition. But we do know that butter made according to the above method is a fraud as to its flavor, keeping qualities, composition, and market value; and the dairyman who allows himself to be persuaded into manufacturing such stuff will not only lose his market for butter, but also render himself liable to prosecution for food adulteration. No market or customer is going to purchase butter with forty to fifty per cent of water content.

The following selection from the circular will prove interesting; especially the statement as to the cost of the article:

"The heating of the butter, and the adding of the warm water and Butter Rennet, matures and developes the microbes, just on the principle that the incubator developes the chicken in the egg, and this development not only adds to the weight of the butter, but also greatly improves the quality. It will only take a few trials to become perfectly familiar with this method, and it will be worth thousands of dollars to any person dealing in butter. Richard's Butter Rennet is worth $2.50 a box, and it is claimed each box used as directed will make 500 pounds of actual increase in weight."

Along with the above is a process for the preservation of eggs, calling for the use of "hyper-samphire" at $2.50 per box of four ounces. It is a good name, but hardly worth the price.

Eggs can be perfectly preserved by the use of lime and salt or silicate of soda. There is no chemical used for the preservation of eggs that is worth over ten cents per pound. It may be seen, therefore, that $10 per pound charged for "hyper-samphire" comes nearer stealing than profit.

Compound extract of salyx at $10 per pound is also advertised for preserving fruit. This is salicylic acid, which can be bought wholesale for forty cents per pound.

It is said that there is a new crop of fools born every year. However this may be, we see no reason for the readers of the DAIRYMAN being included in the above list for want of a little warning.



HOLSTEIN BULL, SIR ABBEKERK MECHTCHILDE, H. F. H. B. 20124.

Property of the Iowa Agricultural College, Ames, Iowa.

ANOTHER ARGUMENT FOR THE TEN CENT TAX ON COLORED OLEOMARGARINE.

The Massachusetts dairy bureau recently had three oleomargarine cases in Brockton, two for serving it in restaurants and one against a dealer. The restaurant cases were tried first, and the proprietors swore positively that they supposed they were serving butter. The substance, which they were serving, was bought as butter and they had every reason to suppose that it was butter. On being questioned as to the party of whom they purchased, the reply was "Mr. Chase," the same party whom the next case was against. When that was reached, after the regular evidence of the bureau had been put in, Mr. Whitaker called the defendants in the two previous cases as witnesses against Mr. Chase. It is needless to say that convictions were secured in all of these cases.

Here you have it—two honest retailers victimized by the man who is working in the interests (?) of the poor, laboring man, by selling as butter and at the price of butter a compound of hog fat, gut tallow and cotton-seed oil, colored to resemble butter. If he, or the millionaire manufacturers whom he represents, had been compelled to pay a revenue tax of ten cents a pound on this vile compound, his zeal for selling it in this fraudulent way would have been proportionally decreased, because the profits would have been reduced, and the retailers would have escaped conviction and fine and the final consumer's stomach been relieved of the extra labor of digesting the noxious stuff.

New York Silo Experience.

ED. HOARD'S DAIRYMAN:—I have a silo which has been filled seven times. It is octagon in shape, and the inside has never been painted with anything. The lining is two thicknesses of six-inch, matched lumber with tar paper between. It seems to be tight and all right, but for two or three years the ensilage has molded considerably, increasing each year. The mold is more often found opposite girts, but is found, sometimes, in other places, and sometimes patches will be found that will not run to the side of the silo. Last year the corn was in prime condition; the year before it was rather dry.

It looks to me as though the moldy spots might be caused, somewhat, by the moldy patches on the boards infecting the ensilage, and growing out into it. When the silo was new, there would be small patches of mold on the boards, and they seem to increase from year to year. They began along the girts first.

The wall under the silo comes above the bottom about six inches, and extends inside about the same, and for two years the ensilage has rotted for a foot or more next to it, with no good reason as I can see.

What is the best thing I can do to prevent the ensilage spoiling? Would whitewash kill the germs of mold so that it would not infect the ensilage, or would some kind of coal tar paint be better? G. W. SHAW.

St. Lawrence Co., N. Y.

Whitewash would unquestionably answer the one purpose of preventing the spread of the infection, but for all purposes, a coating of coal tar would be better.

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A spring scale, a Babcock test and a good churn are the three things needful for an accurate testing of the milk and butter capacity of a cow. Other things may facilitate the work of butter making, but these three are essential to knowing the quantity of milk, the quality of milk and its butter making capacity.—*Jersey Bulletin.*

We had supposed that the laws of the Medes and Persians were no more change less than the rooted objection of the *Jersey Bulletin* to the Babcock test. It has taken some nine years to make the change and during that time the *Bulletin* has passed through the various stages of negation and objection, until now we are told that the test is essential. Verily, the way has been long and tedious, but none the less we welcome the conversion of our contemporary.

STUPID AS WELL AS STALE.

The *Jersey Bulletin* of the 2nd instant, in one of its periodical and abortive attempts to be smart, says:

"We have the escutcheon from France, the pelvic arch from Ft. Atkinson, and curly hair on the shanks from some other "seaport" —all to tell the milking qualities of a cow—but the latest comes from Sweden."

And then it proceeds to quote the some-years-old report about determining the quality of the mature cow from an examination of the "palps" on the inside of the cheeks near the corner of the mouth.

"The pelvic arch from Ft. Atkinson" is as witty as anything that has appeared in the *Bulletin* for many months. It is almost as innocently cute as the city maiden's inquiry for the cow that gave the buttermilk.

THE FODDER CROP.

There is much wisdom given in the article, "How Best to Utilize Corn Fodder," on page 514 of this issue. There can be no doubt that there will be a scarcity of good hay next winter, in many states, owing to the severity of the past winter; and very much of the hay gathered is of inferior quality, for milk food, because it is too ripe. Besides, the wet weather has injured much of the hay in many localities.

Every farmer will need to keep a provident eye out this season to save all good fodder he can, and in the best possible condition.

Good, bright corn fodder (by this we mean corn grown for fodder) well cured is the equal, ton for ton, in our experience, with timothy hay for milk making purposes.

Good corn stalks come next to it. If pains are taken to cut the corn a little early, and thus let the ear ripen in the stook, the fodder will be very much better.

Then it should be well cured and bound, and if run through a cutter, sprinkled with water and allowed to stand in a heap on the floor until it heats and softens, it will prove a splendid milk food.

Those farmers, who have laid their fodder cutters aside for two or three years past, will need to get them out again to cut up the corn stalks. It will pay every time to put stalks in the best possible condition for the cow to eat. The labor required for this is cheaper in a hired man than when the cow is forced to do it.

Fortunate is the farmer this year, who has a good silo, into which he can store an abundance of rich, succulent food for his cows next fall and winter. In view of the great profit the silo brings, it is amazing that so many farmers are so hard to convince concerning it.

JUDGING DAIRY CATTLE.

HOARD'S DAIRYMAN is always pleased when it can quote approvingly from its contemporaries. In view of some radical differences of opinion with the *Breeder's Gazette* a few months ago, especially in regard to the awarding of premiums to animals in the dairy classes at the fairs, and the subsequent discussions as to the dairy form and its indications, we are particularly gratified in being able to reproduce the following article from its issue of the 26th ultimo:

The judging of dairy cattle is attended with the gravest perplexities. It is comparatively simple and easy to allot positions among beef cattle. Form, quality, and bloom are the points on which to hang a decision. If the model beef form is approximated, if breed type is present, if quality is marked and bloom apparent, the judge confidently approaches a decision. That the form is adapted to function is proved by the condition of the animal; that is, the outward manifestations fix the animal's value for beef purposes. However difficult it may be to balance the contending claims of animals of this class the judge is much more certain of his ground than when attempting to estimate the respective merits of dairy animals. Of course, we have made a close study of form as related to function; we have deduced therefrom a distinct type which we call dairy form. We have even reduced this type to a scale of measurements in the hope of getting aid from mathematics—but what man among us is there who will venture to say how much milk or butter a cow will make simply by looking at her? What man is there who will pretend accurately to estimate performance by form? Can you tell how far a frog will jump by looking at him? Can you estimate the speed and stamina of a horse in the show ring?

With all our standards, in very truth we work much in the dark when we come to estimate the ability to render a certain performance, such as milk-giving or running or trotting, merely by an examination of the form of the animal. We can but guess at best. Of course there are those cocksure individuals to whom a much vaster wisdom (in their own estimation) has been revealed than to the common herd, and some of them have no difficulty in persuading themselves that they possess well-nigh infallible powers of discernment; but the man who milks and uses the tester knows that he cannot know, without the testimony of the scales and the test-tube.

But our lack of positive knowledge, derived from a physical examination of a dairy cow, is no reason why the exhibition of such cattle should be abandoned, nor does the fact that the decisions of the judges, frequently, vary widely from the evidence of the churn, warrant us in abandoning show-ring judging and resorting solely to tests. Type, as related to food consumption, is pretty well defined, and our show-yard awards have been valuable as tending to weed out types that are unprofitable at the feed trough, and produce uniformity of physical charactistics; moreover, enough is known of form as related to function to remove our show-yard adjudications from the plane of a farce. But every possible aid in arriving at a correct decision in a ring of milk cows should be invoked by the judge. One of the chief aids in this direction is an examination of the cows with empty udders. This of course involves milking the cows in the ring, as they should first be inspected with full udders—not painfully tense and hard, but in a state of full distension. It is remarkable therefore that the Council of the Royal Agricultural Society should have adopted the following rule: "That no animal in any cow class be milked in connection with the judging."

The Rev. A. Baillie-Hamilton, judge of Jerseys at the recent Royal Show, ordered the cows milked and was taken to task for it. He then directed the men to cease milking and milked the cattle himself. Afterward he suggested to the Council that they allow the judges of dairy breeds the privilege of having cows milked in the ring. To this request for bread the Council gave the stone of the resolution quoted. We are wholly at a loss to account for such action, especially as it appears that Mr. Baillie-Hamilton was the spokesman of the exhibitors of dairy cattle, in proffering this request. We regret that the published accounts of this incident do not indicate in any way the ground on which the Council rested its denial of this most reasonable and necessary request. From our point of view its refusal to permit a judge such opportunity for reaching a decision is nothing less than amazing. Certain it is that fair managers on this side are always ready to aid their judges in this way, and the practice of milking out the leading candidates for honors is rapidly growing. It should be the rule rather than the exception.

It is barely possible, though hardly probable, that the *Gazette* has misinterpreted the meaning of the rule adopted by the Council of the Royal Agricultural Society. If the intent of the rule is simply to exclude from consideration by the judges, the amount of milk that may be obtained, whether unnaturally increased by delayed milking, or decreased by fright or otherwise, it seems to us a move in the right direction. If a milk test for two or three days may be misleading, how much more unreliable must be the result of a single milking, even under normal conditions?

On the other hand, if the operation of the rule, whether so intended or not, shall be to give greater importance to the size of the udder and thus encourage exhibitors to omit milking at regular hours and intervals, the *Gazette's* criticism is, if anything, only too mild.

To Make Butter or Sell Milk.

ED. HOARD'S DAIRYMAN:—Which would pay better, to make butter at an average price of 18c net per pound the year round, or to sell milk at an average price of $1 per hundred pounds, on a basis of four per cent butter fat, with two cents per hundred pounds of milk added for each one-tenth above four per cent? Will selling milk at above price pay better than mixed farming at present prices for grain and stock? W. C.

Cedarville, O.

There are several considerations, not mentioned above, which enter into the problem,—such as, does the price for butter exclude the cost of making, or must there be a further one cent or two cents deducted from the net price given? Eighteen cents for the year is not a very strong price and one might reasonably expect to do better, especially with an established trade. Then there is the skim milk and buttermilk. Under certain conditions, these can be made to pay handsomely. Then there is the expense of delivering the milk, if it is sold.

One hundred pounds of four per cent milk will yield from 4½ to 4⅔ pounds of butter, and 95 pounds skim milk and buttermilk. At 18 cents per pound the butter will return from 80 to 85 cents, and the buttermilk and skim milk, judiciously fed to chickens, pigs or calves, would easily bring the total to one dollar.

We don't know of any market that will pay as much for farm grown crops (or the feeds which may be had in exchange for them) as a good dairy cow, even at present low prices for dairy products. We seldom treat the cow fairly in the matter of debits and credits. In the first place, we charge her full retail prices for every pound of hay and grain she eats, with no allowance for the saving in hauling, and after that refuse her credit for the various by-products,—manure, calf, skim milk, etc. Then we ask where is the profit? When the cow pays the farmer for his hay and grain, as much as he could realize for it in market, she makes him a better profit for the extra capital and labor employed that can be realized in any other line of legitimate business. We are both amused and indignant sometimes, at the "figures" submitted in the attempt to prove that "dairying" is not profitable. Not long since we had a letter from a man who had been in active business in a city for some years, that brought him a very satisfactory income, but tiring somewhat of the city as a place of residence for his family he bought a farm, an hour's ride away, spent some $15,000 or more for improvements to house and barns, bought some thirty or forty cows, and put expensive help in charge, and was disappointed to learn that the income from the cows did not pay running expenses, keep up the establishment, support his family and their hosts of visitors and in addition return him good interest on his investment.

Cow Comfort in Summer.

Heat, Flies and Fodder.

ED. HOARD'S DAIRYMAN:—July and August are trying months for the dairymen. Anyone, with a little snap and get up, can make his cows comfortable in winter, but to make them comfortable during the hot months and fly time is much more difficult. The pastures are brown and hard, the brook has stopped flowing and the water is stagnant.

The flies are a terrible torment the whole day long. There is no shade in the pasture lot and the hot sun beats down on the cows to make the heat almost unbearable. There is no provision in the stable for ventilation, and if the cows are kept in the stable during the day, to keep them out of the hot sun and the flies, they must be in a dungeon and matters are not much improved.

If we have a properly constructed, ventilated stable we can not do better than keep them in during the day, and pasture at night. Unless we make every effort possible to keep up the flow of milk there is sure to be a shrinkage, and no matter how good you feed later you will not re-establish the former normal flow, and the loss is much more than a little attention and feed at the proper time would have cost. I speak from sorrowful experience.

It pays well to make an effort to reduce the fly torment. I find by spraying my cows and stable every morning and evening with coal oil I can materially reduce the flies. I use a little hand vaporizer that costs fifty cents.

I have a fine shady pasture ground with nice spring water and before I turn out the cows I find it pays to apply Shoo Fly. Good pure water is a very large item and in the hot weather the cow must have plenty of it at all times. It pays well to see about this.

It also pays well to have a supplemental feed of some kind to feed morning and evening in the stable. I have and prefer silage, but if you have no silo you still can have an acre or two of some medium early sweet corn (Crosby's Early is splendid) to come in

just when all early crops are mature and cut, and the field corn is not yet fit.

Cow peas and kafir corn, sowed as early as the weather will permit, also made me a splendid feed for just this trying time. Don't be afraid it will not pay to feed grain, even though the price of butter be low; it will help to make more later when the price is up again. In short, if we would have our dairy profitable, we must keep our cows well fed and comfortable during the hot months.

Adams Co., Pa. L. W. LIGHTY.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

PARTITION AND DRAIN IN A SILO.

Our silo, built five years since, has not been very satisfactory and we wish to make some changes that will make it better. In size, it is 36 feet long, 18 feet wide and 20 feet deep. This leaves most too large a feeding surface to feed from top. We have thought of putting a partition through the middle. This partition of two inch plank with a couple of rods in partition to keep it from spreading. This would practically make two silos. We have had more or less trouble with rats and mice working in at the bottom. In cementing ground is it necessary to have a drain? Can you suggest any other way of fixing this building that would make it better than our plan? Do you think that after ensilage was fed out of one side partition would be apt to spring?

Hampton, Ia. W. B. BARNEY & CO.

There would be no objection to putting in the partition in the manner you suggest, but it would be better if of double thickness with paper between to make it air tight. If the silo is filled so that the pressure is the same on all sides of the partition while the silage is settling, there will be no springing of the partition, and as there is little pressure on the sides of the silo after the contents have thoroughly settled, the partition will not spring. It should, however, be air tight to prevent the silage from spoiling next to the partition, and the corners should be filled out.

No drain is necessary when the bottom of the silo is cemented. It should be remembered that the tighter the silo, the better will the silage keep, and also that if the corn is siloed at the right condition there will be no liquid formed from the crushing of the corn, and consequently no need of a drain in the silo.

CHEESE STORING TEMPERATURES.

At what temperature should cheese be kept to obtain the best results? Should cheese that is intended to be taken from storage during the warm weather be kept at the same temperature as that which is intended to be taken from cold storage in the fall and winter months? Should cheese in storage be turned at regular intervals, and if so, how often? H. L. S. M. Co.

Salina, Kan.

To make assurance doubly sure in this case, the inquiry was referred to a friend in Sheboygan County, where large quantities of cheese are gathered annually, both for present and delayed shipment, and he writes in reply as follows:

"There is some diversity of opinion. If cheese are pretty well cured, I think 40° about right, whether cheese are taken out before winter or not. It would be a good plan to turn the cheese, but I do not know of any storage company that does this. In fact, it would be almost impossible to do this in the majority of cases, as the cheese are piled in so close."

COOLING MILK.

I want to run water through my ice house to cool milk down to 55° in summer time.

If you can give me any advice as to the best and most economical arrangements of the pipes, I shall be deeply grateful.

Somers, N. Y. T. C.

We do not know of any economical method for using cold water and piping, for cooling milk in bulk. The only economical and practical way for using water for this purpose is to have a stream of cold water running into and out of a covered tank, and set the cans of milk in the cold water. Of course, this does not mean that it is not practical to cool milk by running it in a thin film, over pipes, through which cold water is run. This is an economical and simple method, but we do not understand that our correspondent wishes to use this last method.

WHIPPING CREAM.

I understand that there is a method of thickening cream which is raised in a creamery, so that it will whip readily.

I write to you in hopes that you can give me the necessary information through the columns of your valuable paper.

I am at present selling cream, which is rich and good color, first-class in all respects, except the difficulty of whipping.

Groton, Conn. E. S. T.

Whipping cream depends on its richness and the temperature at which the whipping is done. For this purpose cream should contain over twenty per cent of fat, and as high as forty per cent is used. See that your cream is cooled to below 60° F., and you will not have any trouble.

The method you refer to is the addition of sucrate of lime to pasteurized cream, for the purpose of thickening it. You can obtain a description of the method by writing to the Wisconsin Experiment Station, Madison, for their bulletin on the method.

CATCH CROP FOR COLORADO.

What can I sow on a sod patch of eight acres, at this time of the year, and in this part of the country, with plenty of water to irrigate, up to the middle of August? F. A.

Mouldair, Colo.

We are hardly competent to advise in a case like this. We incline to the opinion that we would try some kind of root crop, unless local experience should pronounce to the contrary. In that event, possibly nothing would be more certain to repay for the labor expended than common millet, or, what is practically the same, Hungarian grass.

DOORS IN THE SILO.

You will find enclosed a check for two dollars, payment for copy of "Feeds and Feeding," by Prof. W. A. Henry. Does this book give full instructions as to the construction of silos. I judge by reading your paper that the ensilage is taken out of the silo by a series of doors, which seems to me to be an inconvenient way of getting it out. Would the ensilage spoil if a door was made air tight on a level with the floor and the ensilage taken out of this door only. If Prof. Henry's book does not give full information on the construction of silos, I would like the name of some work that does.

Prescott, Arizona. J. W. D.

Ensilage does not keep well after the silo is opened, and air is allowed access to the warm, wet ensilage. Consequently, taking the silage out at the bottom would allow the air to permeate the mass and cause molding.

Woll's Book of the Silo is up to date on everything connected with the silo. It can be obtained of this office for one dollar, postpaid.

PREPARING A COW FOR TEST.

Have a cow that will calve in one month. She is in good pasture at present; looks well, wish to enter her in test in October, what treatment should I give her? Have clover hay, bran, ground wheat, oats and flax seed.

Liberty, Idaho. C. H. B.

The above inquiry bears date of July 27th We may say, therefore, that the cow will be fresh about Sept. 1st, or, say, six weeks before she is tested. Presuming that she will come through calving in good condition, let her be fed sparingly for about five days and then increase feed gradually from week to week, being careful not to over feed at any time, and yet keep her well up to her limit of digestion. The principal reliance must be in the oats, bran and clover hay. Give flax seed quite sparingly, barely enough to keep the bowels in first-class condition.

About the 10th day after calving, she will probably be eating about twenty pounds clover hay, four pounds bran, and four pounds oats. The third week should find the allowance of grain increased to ten pounds, preserving the same proportions. From this time on, the increase should consist mainly of oats, and the allowance of flax seed be about to its limit of, say, one pound per day. Let there be gentle exercise daily, if possible, and a heaping teaspoonful of salt twice a day.

ENAMEL FOR WET WALLS.

Can you recommend us any kind of "enamel" paint, or whatever called, which applied to brick walls inside, will be hard as Dutch tiles, impenetrable to mould, and thus not liable to show black spots in room with damp, warm and changeable atmosphere? J. M.

Washington, D. C.

We much doubt the possibility of our correspondent's finding such an enamel as he asks for, although it would depend partly on the source of the moisture in the brick walls.

If it is from the outside, a paint of silicate of soda would fill up the pores of the bricks and prevent water from entering, or, if color is no object, a coating of asphaltum dissolved in gasoline might serve the same purpose.

If the moisture comes from the steam in the room condensing on the cold brick walls, nothing but improving the ventilation or another lining to the room will prevent the accumulation of moisture on the walls.

PROCESS BUTTER.

Will you please tell me what is "process butter", how is it made, and what is done with it? I see your journal, last week, speaks again of boiling process butter.

West Liberty, Iowa. H. H. H.

"Process butter" or "boiled butter" is a poor quality of butter which has been melted to separate the casein and water, and then the melted fat put through a process of washing, and rechurning with milk, by which a fair imitation of new, fresh butter is made. It is only an imitation at best, as it rapidly goes off in flavor unless heavily dosed with antiseptics; another is that, also like oleo, much of it was filthy to the last degree, and no amount of boiling or washing can make such stuff appetizing. People will forego the use of butter unless they can be reasonably certain that what is offered to them is clean and wholesome, and always has been. One great objection is that, like oleo, it is sold for what it is not, viz., fine creamery butter.

CUT OR SHREDDED SILAGE.

We have a silo on our farm and would like to know the comparative merits of cut corn ensilage and shredded ensilage. Which is the best for the silo? You may have had the same question up before, but I am a new reader of the DAIRYMAN. E. S. P.

Ripon, Wis.

We have never tried the shredded silage. Those who have, speak very highly of it, and some seem to think it decidedly superior. We incline to the opinion that there may be some basis for this preference where the corn is very large and a little overmature, as it sometimes happens with such that some of the larger pieces from the bottom of the stalks is not eaten. However, we have never been able to convince ourselves that it would pay to discard the cutter and put a shredder in its place.

A COLORADO FEEDING INQUIRY.

Would you kindly advise me how to feed my milk cows in order to get the best results, with feed at the following prices: Alfalfa hay, $6 per ton; corn chops, $16 per ton; bran, $16 per ton; gluten feed, $22 per ton. Please give me two formulas, one with and one without the gluten feed. We are milking thirty cows, nearly all are graded Holstein.

Montclair, Col. F. A.

First of all, buy a feed cutter and power to operate it, for the purpose of "chaffing" a part of that alfalfa hay to mix with the "corn chop." The daily allowance for each cow graduated to her capacity for digestion, assimilation and converting the feed into milk, should be from twenty to thirty pounds of hay and six to ten pounds of the corn chop. We should aim to feed approximately half of this hay "chaffed" and mixed with the grain, and would try chaffing it twelve to thirty-six hours before feeding, adding enough water to the mass to cause it to heat and soften. We cannot say how long this heating mass would keep without injury. This will vary somewhat with the weather and surroundings, and can only be determined by experience.

In the absence of arrangements for chaffing some of the hay, bran must be mixed with the corn chop to "extend" it, so that it can be better digested. Use equal parts by weight.

Gluten feed is not adapted for use with alfalfa hay.

THE VALUE OF MANURE.

We presume you have articles contributed to your paper from time to time, by agriculturists, as to the good that manure has done for their lands. We desire to get as much information as possible, in the way of statistics, on this point; how much more yield per acre there has been of different crops, where manure was used as a fertilizer, above the yield where it was not used.

If you could give us any advice in this matter, or tell us where to seek for same, we should esteem it a favor.

Indiana. L. R. & SON.

The best authority on manures that has come under our observations is The Fertility of the Land, by Professor I. P. Roberts, of Cornell University, Director of the College of Agriculture. It is a cloth bound book of 415 pages, published by the McMillan Company, of New York, and sells at $1.25, and may be had at that price from this office, postage prepaid.

"Statistics" in regard to the benefits resulting from the use of fertilizers of any kind, are liable to be misleading, and we have not been in the habit of gathering or preserving them. Common observation suffices to teach that continuous cropping of land, without making any return, results in an impoverishment of the available plant food in the soil. It is the province of manure not only to reimburse the soil in part with the elements thus removed, but also to set forces at work to disintegrate and render available the general reserve of latent potash and phosphoric acid, with which nature has so richly endowed, practically every part of the earth.

AN EIGHT-YEAR-OLD BULL.

A Florida reader had the misfortune, a few weeks' since, to have a fine, young, Ohio-bred Jersey bull killed by lightning. He was intending him for use on his herd the coming winter, and not feeling able to bear the expense of getting a grown animal from the north, asks whether it will be safe to depend upon his old bull, now past eight years old. So far as mere age is concerned, it may be said that while many bulls have not passed their prime at eight years of age, yet it is also true that from over use and neglect, others are practically worthless at that age. If the old bull has been fairly satisfactory the past year, we should not consider it imprudent to keep him another season.

If some of the dairymen in the south, who have first-class Jerseys, Guernseys or Holsteins, would spend a few dollars during the year for a small card in HOARD'S DAIRYMAN, we feel very confident they would receive a good many inquiries from our southern readers for that class of stock.

THE NEW YORK MERCANTILE EXCHANGE FOR THE TEN CENT TAX.

At a recent meeting of the New York Mercantile Exchange, the subject of the ten cent tax came up for consideration. Mr. W. K. Boardman, of Iowa, Vice-President of the National Dairy Union, addressed the Exchange, and presented in a terse way the argument in favor of the effort the National Union is putting forth to secure the passage through Congress of the law taxing colored oleomargarine ten cents a pound. Mr. Boardman said, in part:

"This is a commercial matter, and we ask the commercial centers, as well as the farmers and butter makers, to support the movement.

Over 10,000 farmers have contributed to the fund being raised by the National Dairy Union, which has already reached $8,000. The proposed tax has been indorsed by the National Butter Makers' Association, the Elgin Board of Trade, the Boston Chamber of Commerce and by different dairy associations throughout the country."

After Mr. Boardman's remarks, the following resolution was unanimously adopted:

WHEREAS, Despite the existence of laws in thirty-three leading States forbidding the manufacture and sale of oleomargarine colored in semblance of butter, the product of this almost totally outlawed article has almost doubled in this country the past year, and conditions at present are very menacing to the future of pure butter and dairying; and

WHEREAS, The National Dairy Union, an organization whose membership comprises some 10,000 dairy farmers, and whose officers are well known to us by reputation as workers in the interest of the butter trade, is preparing to prosecute a vigorous campaign in Congress at its next regular session for the purpose of securing an increase in the tax on all oleomargarine colored in semblance of butter, and prohibited by the laws of thirty-three leading States, therefore, be it

Resolved, That the Mercantile Exchange of the city of New York, representing the distributers of butter of this market, do hereby heartily indorse the objects of the National Dairy Union in this movement and recommend to the Representatives in Congress from this state that they use every honorable means to secure an increase in the internal revenue tax from two to ten cents per pound on all oleomargarine manufactured in semblance of any shade of yellow butter.

The above action is convincing proof of what the men who handle butter in New York City think of the objects the National Dairy Union is trying to accomplish.

It is also proof positive of what these men think of the course pursued by the New York Department of Agriculture, the *Country Gentleman*, and all others who are trying to pull down and destroy all organized effort against the greatest fraud of the age. No more triumphant answer to the slanders of the *Country Gentleman* and the *Dairy World* against the officers of the National Dairy Union could be given.

AN OPINION FROM A STRONG MAN.

In the July number of the *Munsey* Magazine will be found two articles on "Modern Industrial Combinations" from the late Governor Flower and Senator Chauncey M. Depew, of New York. That of Governor Flower contains two allusions to the farmer, which are of interest, and which we copy as follows:

"At my own little farm in Jefferson county, I raise ducks. There is a season when the market is glutted, when it is not possible to get their market value. If I had on my farm the facility for cold storage, I could save those ducks, as is done by dealers in the city, until such a time as they were worth a fair price. The dairy farmer will learn to use cold storage in time. He will enter into competition with his neighbors to establish a primitive cold storage plant, and save his product until he can sell it at a profit. If the grape farmer, for example, would put his crops in cold storage, at a time when he is selling them at a half a cent a pound—that is, at a loss—he could get five cents a pound for them later in the year".

Again he says:

"I often hear from the farmers of this state, that they feel they are impoverished by reason of the trusts. The trouble with the farmer of the east is, that he does not realize the new conditions which grew out of the opening of the west, by the extension of great railroad systems. The farming land of the east has fallen in value, but it has merely sought the level of the farming land of the west.

The eastern farmer keeps right on trying to compete with the western farmer in the growing of grain. He can not do it, and the sooner he learns that the better. If he will diversify his crops, and cultivate the home market, he will become prosperous again.

The young people on a farm now, go to the cities because they cannot make a living in the country. If the farmer would only learn to make small cheese, instead of great big ones, and to put them up in attractive packages; to put his butter into attractive shapes, so that it would command a market in the near-by towns, he would get more for his product, and find a nearer market for it."

What Gov. Flower says is of interest, because it comes from a man who was a strong, deep thinker on all lines of industrial development. But his statement is superficial. It does not go to the root of the evil. Eastern farms have declined in value, and the farms of the great Middle west have increased in value, not because of an effort in values to establish an equilibrium, but because of the fact that the farmer himself, in the east, has declined in spirit, pride, enterprise and a true understanding of his true situation. The American born farmer, east and west, has turned his back on his business at too great an extent. In the west the well trained farm peasantry of Europe have taken his place. They have a farm pride and ambition. Consequently, the prices of land go up where they are. In the east, there has been an exodus of farmers to the towns and cities, and no appreciable importation of better farmers to take their places. Because of a lack of farm pride and ambition, they have allowed their lands to depreciate in fertility, as well as in value. It requires real farm education and ambition to handle land under such conditions.

The governments of Europe educate the children of the farmers in the elements of agriculture, in the primary and common schools. As a consequence, they come here fitted and trained to be farmers. Let them take hold of the depleted and depreciated farms of the east, and a change for the better in value and fertility will soon be seen.

There is a hint in all this, for farmers of this country to consider. They should commence at once to demand that their children receive some education in the science of agriculture, as they do in the science of arithmetic in the common schools. This done, and we will soon see a new order of farmers come into possession of the agriculture of the country.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By PROF. H. L. RUSSELL.]

Second Series, No. XXII.

BACTERIA IN THE SOIL.—THE EARTH ALIVE.

Until recently, it has been customary to look upon the soil as an inert mass, made up of lifeless molecules of inorganic and organic matter. In the light of this notion, the ground is considered a great storehouse of fertility, which is drawn upon from year to year, to satisfy the needs of growing crops. In these latter days, this old idea has given way to a more modern conception, one that is more in harmony with the rest of the processes, that are going on in nature. No longer is the soil regarded as dead, as made up of inert particles that are in a stable state. A closer examination shows it to be teeming with myriads of organisms that are engaged in working over particle after particle, extracting from the same, sufficient nutriment for their own sustenance, and casting off the remainder to be acted on by still other organisms. So the soil, instead of being a dead and inanimate clod, is a beehive of industry.

To understand it aright, to know how to get the most from it, it is necessary to know some of these processes that are going on beneath the surface. In a great many of these, bacteria flourish, and it is our purpose here to consider some of the more important of these, as related to farm conditions.

While it is recognized that the earth is alive with various kinds of micro-organisms, still it must be said that these germs are not universally and uniformly distributed throughout the whole soil. In fact, they, like all of the higher forms of plants and animals, live in close proximity to the surface of the ground.

DISTRIBUTION OF BACTERIA IN THE SOIL.

In the upper layer of the ground, they exist in myriads. In the soil or dust of the street they are particularly abundant, but in all fields, cultivated or not, they are present in immense numbers. The organic matter that accumulates on, or near, the surface of the ground, furnishes abundant food for them. Moisture and a proper temperature are also present, so that the conditions are such as to encourage luxuriant germ growth. While myriads of microbes are to be found in these upper layers, the deeper strata are relatively free from them. Even at the comparatively shallow depth of a few feet (8 to 12) the soil masses are practically sterile, unless cracks and rifts exist, through which bacteria may find their way below.

This surprising diminution in numbers is occasioned as a result of several factors. In the first place, a great many of the bacteria of the upper soil layers are filtered out as the rain percolates downward. Then again, when you pass from the soil proper, to the sub-soil, the amount of organic matter, on which these organisms feed, is greatly diminished. This, one can readily see by the change in color and texture of the soil and subsoil. Lower temperature, diminished oxygen supply, also aid in reducing the development of this type of life. The result is, therefore, that while the surface and the superficial two to four feet are very rich in bacteria, possessing often hundreds of millions in every gram of soil; this number falls greatly as you increase the depth, until at even a comparatively shallow stratum, no life exists in a developing state.

The practical significance of this to human activities is very considerable. The sterility of these deeper layers is what makes the quality of well waters as good as it is. That immense subterranean reservoir of water, known as the ground water supply, is thus rendered practically free from all microbes. If care were taken in sinking wells into the water bearing stratum to have everything sterile, our drinkiug water supply would be practically free from all organisms, but in the piping that communicates with the outside, they find lodgment and conditions that permit of growth.

As the bacterial activity of the soil is confined to the upper soil layers, so are the changes that affect the fertility of the soil. The processes of nitrification, by which the plant is supplied with a store of nitrogen in an available form, cannot go on at the depth of more than a few feet. Lay bare the soil to a point where the organic matter is not present, and you destroy in large part the ability to secure abundant crops.

IMPORTANCE OF BACTERIA IN SOIL PROCESSES.

The importance of bacteria in this universe of ours is nowhere more apparent than when we consider some of the soil processes that are continuously in operation on the surface, and in the upper layers, they are always at work, tearing down organic matter into its elements or simple combinations, and so restoring to the soil those substances that go to make another crop of green plants thrive and grow. In this process, not only are they engaged in that most necessary process, by which the soil is made to yield continuously, without being exhausted in fertility, but they also perform a function that is very necessary to the comfort of mankind. In this removal process, they fill the lowly office of scavengers, rendering the dead, effete matter of a world into harmless and innocuous substances.

Imagine the condition that would exist, if all the processes of decay were stopped.

"To Err is Human."

But to err all the time is criminal or idiotic. Don't continue the mistake of neglecting your blood. When impurities manifest themselves in eruptions or when disordered conditions of stomach, kidneys, liver or bowels appear, take Hood's Sarsaparilla. It will make pure, live blood, and put you in good health.

Hood's Sarsaparilla
Never Disappoints

Life cannot exist forever; the very processes that are concerned in the development and increase of organic tissue are self-limiting. Growing bulk soon reaches a point, where adequate nutrition can no longer go on, and then growth and nourishment must soon cease, and death finally occur. The process is the same for man, beast or plant. The period of existence, only, may vary some.

Sooner or later, therefore, all living things must die. When dead, no longer do they subserve any special function among living things, unless it is to nourish them for a brief season. The inevitable result that would soon occur then, if the processes of organic decay were stopped, would be the clogging of the wheels of the universe in its own debris. The dead and dying plant or animal that was unused by other forms, would remain a specter of its former being. The leaves of the forest and the grass of the plains would be beaten back to earth, there to accumulate as dried organic matter. Such a state of affairs would soon bury all remaining forms of life beneath a constantly accumulating mass.

Not only this, but life itself would soon be starved out of actual existence. Stop the machinery of decay, stop the formation of available nitrogenous salts in the soil, and soon the continued growth of vegetable matter will begin to weaken, and finally cease, for the lack of proper plant food.

When this occurs, when the green plant can no longer build up organic matter out of the inorganic elements of soil and sky, then animal life is soon doomed. The granaries of the world cannot supply even man for only a year or so at most. Cut off this supply and the animate world is doomed.

Thus we see how important is the office these unseen friends fill, that are toiling away for the good, of not only themselves, but all the rest of the living forces on our planet. Theirs is a humble office, but in their place, they are doing a work that in the economy of this universe has no equal, that can best be done by them. Does not this thought dignify their labor? Does it not invest these "infinitely little," but infinitely powerful agencies with more than passing interest?

Raise Good Hogs.

(Press Bulletin.)

If a person who knows anything at all about hog feeding was given a chance between a hog that would gain twenty-three pounds in six weeks and one that would gain ninety pounds in the same time on the same feed, he would not be long in choosing. During the past ten months the Kansas Experiment Station has fed 190 hogs that were bought of the farmers in the vicinity of Manhattan, without regard to breed or breeding, just as they were, thrifty and weighing in the neighborhood of 100 to 125 pounds. This class of hogs is used because these ex-



Not a Preservative

but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

periments are for the highest benefit of the farmers, and by taking the stock they raise we stay within their conditions. A few conclusions may be drawn from the following facts, taken from observations of feeding eighty head of hogs, which were just finished. These hogs were nearer the same age than size, and ranged from the long, big-boned bacon hog to the short, fine-boned chunk, according to the care or carelessness of the farmer who raised them.

First, as to point of gain: The comparisons are between hogs fed the same in every respect. The best and poorest five out of twenty have the following showing:

Best five, weight at beginning of test, 596 pounds, gain 416 pounds.....	70%
Poorest five, weight at beginning of test, 579 pounds, gain, 235 pounds.....	40%

This was for a period of forty-two days, and from observations made from week to week, this difference of gain from a little over one pound to practically two pounds a day was largely due to the breeding. A short, small-boned chunk will make good gains for a few weeks and then stop. It will be fat and ready for market, while a well-bred, rangy hog will fatten and continue to grow and make good gains for a much longer period. Then as to the demand of the market; the three-rib shoulder is now one of the most profitable cuts that is made for export trade. Hogs from which these cuts are made must be large and muscular, long and rangy. The short, small-boned chunk will not answer the purpose. The bacon hog is also of the latter description and brings the best price on the markets. Well-bred, rangy hogs make the most profitable gains, are the most ready sale and bring the best price on the market.

J. G. HANEY.

Kansas Experiment Station.

Florida Beggar Weed.

Florida beggar weed is an erect annual, a native of the West Indies, and perhaps also of Southern Florida. It is a leguminous plant with rather woody stalks from three to eight or ten feet high, bearing an abundant leafage above and when in flower tipped with much branched erect panicles, the ascending lateral branches often eight to twelve inches long. The seeds are borne in many jointed prickly pods, which break apart at maturity, and are carried about by sticking to the bodies of animals or the clothing of persons. The plant is hairy throughout, and has trifoliate leaves, the obliquely rhomboid leaflets being from two to four inches long. Florida beggar weed is closely related to the beggar weeds or beggar lice of northern woodlands and prairies. Being a subtropical species, it is adapted to cultivation, either as forage or for soil renovation in subtropical regions. It now ranks in the estimation of the planter with velvet bean, though perhaps its sphere of usefulness is not so extended as the latter.

HOW TO SOW THE SEED.

For a crop of seed, beggar weed should be sown at the rate of five or six pounds of clean seed per acre. If grown for hay, from eight to ten pounds should be used. It should not be sown until the ground is warm and moist, and the clean seed is preferable to the pods because of the more uniform germination and better stand which may be obtained. The seed is about the size shape and color of red clover and weighs about as much to the bushel. It is now on the market at a price low enough to place it within the reach of any farmer. If sown at the beginning of the summer rains the seed need not be covered. It must not be buried too deeply else the young plants will not be able to reach the surface. By sowing at the beginning of summer two crops may be secured. If cut for hay at the time the first flowers appear, the roots will send up a second crop, which may be saved for seed, and enough seed will scatter to insure a crop the next season. The seed may also be scattered in the corn rows at the time of the last cultivation or at the beginning of the rains in June. Then, after the corn has been stripped or cut for fodder, the beggar weed may be mown for hay or harvested for seed. The crop should be cut for hay when it is about three or four feet high, or at the beginning of the blooming period. If cut after full bloom many of the lower leaves will have fallen and much of the best part of the crop will be lost.

ITS VALUE AS A HAY CROP.

Beggar weed makes a very fine quality of hay, which is relished by all classes of farm stock.

According to analyses made at the Florida Experiment Station, of the upper parts of plants not yet in seed, 100 pounds of hay contained 19.4 pounds of crude protein. When cut after the seed had ripened the crude protein had decreased to 15.75 pounds, the fat and non-nitrogenous extracts from 45.4 pounds to 42.7 pounds, and the crude fiber or indigestible portion had increased from 19.6 to 26.5 pounds. An average of two analyses of the entire plant, including the woody stems, the one made from plants in green seed, the other from those not yet seeding, indicated 11.85 pounds of crude protein in 100 pounds of hay. This may be taken as representing more nearly the crude protein value of average beggar weed hay, than the larger quantity shown to be present in the upper, more leafy, and more tender portion of the plant. If in cutting this crop only the upper leafy parts were saved then the higher percentage of protein might be taken as representing the value.

BEGGAR WEED AS A FEED.

Beggar weed hay may be fed to best advantage by adding to the ration some coarse forage which contains a smaller amount of crude protein and more carbohydrates. In this way all of the digestible portion of the crude protein in the beggar weed may be utilized. If more is fed than can be utilized, that is to say, if the nutritive ratio of the ration is too narrow, the surplus of crude protein will be wasted.

After the seed crop has been harvested, the beggar weed comes up again, the rowen supplying fine pasturage until killed by frosts. It never becomes a bad weed. The seeds do not sprout until the ground is warm, and it may be used as a rotation crop, following early spring vegetables or corn, the seeds remaining in the ground and making their appearance after these crops are out of the way. As a hay plant it is superior to velvet bean on account of the ease with which it may be cut with an ordinary mower. It is also a better crop to sow in orchards for green manure because it is not, like the velvet bean, a climber, and does not have to be kept out of the trees.

This plant is one of the hosts of the root knot (*Heterodora radicola.*) Prof. Rolfs states that the "cow pea is frequently attacked, the velvet bean occasionally, and the beggar weed rarely." The nodules formed by this worm resemble the tubercles formed by the nitrogen gathering bacteria but may be distinguished by microscopical examination.— J.G. Smith in *Southern Farm Gazette.*

Lath and Cement for Lining a Silo.

ED. HOARD'S DAIRYMAN:—In building silo as contemplated by W. A. Barber, on page 470, I think he can greatly improve it by using 5/8 inch lining instead of 3/8. If he uses the former and common plaster lath, nailed diagonally on horizontal lining, being careful to give each lath at least four nails, I will guarantee the plaster to hold. To insure the laths not to bulge after the cement has set, they ought to be well soaked in water before they are put on.

If he has a first-class hydraulic cement, two parts sand to one of cement will do. Still, if I were to build it, I would use a little less sand, it makes a harder job. I don't think the beveled lath will improve it any. Have had experience in use of both and find the common lath better, because cheaper. Let him get a good plasterer to put it on and I am sure he will be well pleased with it.

A. C. SCHANT.

Elk Co., Pa.

Weeds and Milk.

An article in the *Farmer and Stock Breeder* of London, says: "The plants which may be considered good for feeding cows will give us no trouble; but these are commonly associated with others which are mischievous. The true grasses and leguminous plants may cause changes in milk quality by their many mixtures, proportions, and growth, but they will not interfere with the dairy processes, or give to the product ill qualities. The miscellaneous plants, which may be considered weeds, include some which are dangerous to the health of the cow; others, more numerous, which flavor milk undesirably; and a few which color milk, or produce irregularities. To these causes of mischief must be added those arising from the plant diseases of a fungoid nature. Do cows eat any appreciable proportion of such plants? The occasions known may be few in which the mischief is recognized and traced to some particular plants, but such do not occur often enough to make the matter one of great importance; and we believe that a very considerable amount of harm is done daily by such weeds as are incapable of giving a distinctly bad flavor to the milk, but in their many kinds combine to give one generally inferior. What is the cure? Clean pastures. If a weed is a pest in a cornfield, it is a much greater one in the case before us, where it not only takes the place of a better plant, and hinders the superior growths around it, but actually does direct damage to the dairyman's goods. Weeds are the natural and almost inevitable consequence of neglect. There are few pastures which can be kept sweet and free from such trouble by the mere force of natural conditions. Draining and manuring can do much in reducing the miscellaneous plants to small numbers and the more innocent kinds, and a constant war against them should be maintained.

ICE AND FLAVOR.

A butter expert writes the following to a creamery man regarding the result of using ice in the cream tank and churn:

"We are finding a great many tubs of butter that have an indication that ice was used in the cream vat or in the churn. I do not know whether you did this or not. If I should make a guess at it, I should say you did, and that you injured the flavor by doing this. If you did not do either of these things then I am at a loss to understand why the flavor is not better."

The DAIRYMAN has frequently been asked regarding the advisability of the use of ice in the cream. It has replied that as ice invariably contained dirt, it should not be added to cream, but that it probably would be used where no other means of cooling cream was at hand.

This use of ice was not advocated from a purely theoretical standpoint, but from the danger which which might come from the addition of the dirt in ice. Now we find that the expert states that it injures the flavor. This should be enough to settle the question as to the use of ice in cream.

TUBERCULOSIS WORK IN NEW YORK.

At the late Annual Meeting, of the New York Medical Association, Dr. Florince O. Donohue, of New York city, read a paper on "State Examination of Milk for Tuberculosis:"

"Examinations made in certain sections of this state," he said, "revealed so extensive a prevalence of tuberculosis among cattle, as to create a very material alarm in the minds of dairy farmers. It is doubtless owing to this hostility, in a large measure, that appropriations were withheld by the present administration for the continuance of the work. The law is still in force, and the commissioners are drawing their salaries, but for the past two years the work has been at a standstill. It must and will be taken up again, for civilization will demand that the product of the dairy shall be free from the germs of a lingering and infectious disease, the most destructive that afflicts humanity."

If Dr. Donohue is right in the above assumptions, which the DAIRYMAN is not yet prepared to admit, there follows another conclusion, equally as strong and convincing as any that he gives; that is, that it is to the vital interest to dairy farmers, to weed out all tuberculous animals from their herds, in order to stop infection and save the capital invested in their cows.

Ayer's Hair Vigor

What does it do?

It causes the oil glands in the skin to become more active, making the hair soft and glossy, precisely as nature intended.

It cleanses the scalp from dandruff and thus removes one of the great causes of baldness.

It makes a better circulation in the scalp and stops the hair from coming out.

It Prevents and It Cures Baldness

Ayer's Hair Vigor will surely make hair grow on bald heads, provided only there is any life remaining in the hair bulbs.

It restores color to gray or white hair. It does not do this in a moment, as will a hair dye; but in a short time the gray color of age gradually disappears and the darker color of youth takes its place.

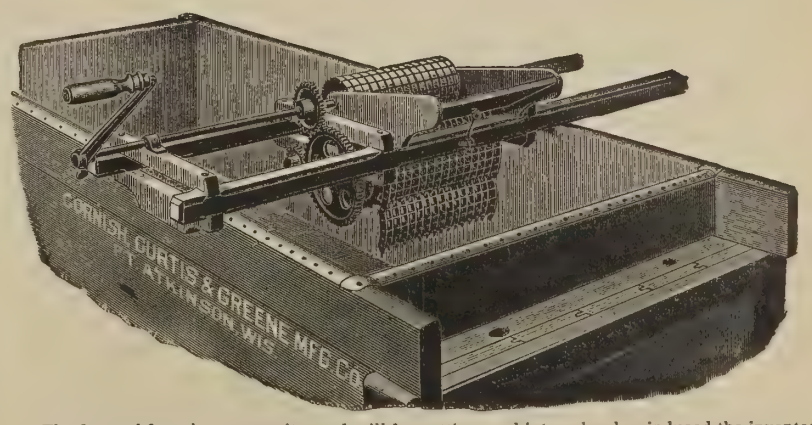
Would you like a copy of our book on the Hair and Scalp? It is free.

If you do not obtain all the benefits you expected from the use of the Vigor write the Doctor about it.

Address, DR. J. C. AYER, Lowell, Mass.

SHORTHAND Book-keeping, Penmanship, 64-page Illustrated catalog free. Board and tuition reasonable. Situations for Graduates. Address, D. L. MUSSELMAN, President, Gem City Business College, Quincy, Illinois.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

Silo Questions by the Score.

ED. HOARD'S DAIRYMAN:—In your issue of May 19th last, you give details for building silo, from Cornell University Bulletins. I am about to build a silo and the above referred to description has attracted my attention on account of its cheapness. Now, I want to say I am a novice at the silo business in every particular, as I never saw one or fed from one. Therefore, I will be pleased for any suggestions you will make. Do you endorse the kind, and if so, do you also favor the manner of building above referred to? Would you favor a thicker concrete foundation, or thicker staves, or larger iron for hoops, or thicker put on? Also, what kind of ensilage cutter, and where to be got, and what size and price? Also, what kind of lumber, and is there a company where we can get stuff all ready fitted to set up, also the best way to buy the hoops and lugs? If you are not prepared to answer all above questions, or haven't the time, please refer me to proper parties, or send this letter to them. Please give this your early attention and oblige. H. A. B.

Marengo, Ia.

P. S. Silo for about fifty head, cows mostly.

The stave silo is undoubtedly here to stay, and if we were to build one this year, we should follow the directions and plans referred to very closely. Further experience may suggest modifications for next year or other future time, but if one waits for the time when no further improvements are possible, he will never have a silo, and that will not pay. The writer built a silo ten years ago, according to the best light then obtainable. Compared with modern structures it never was a good silo, but all the same it has served a good purpose and is still too good to be torn down or abandoned.

There are several styles of cutters,—none better than those advertised on page 524. The man using any one of these, will be pretty sure to conclude that the one he has is the best. Do not make the mistake of buying too small a machine. The one we use has a 12-inch cut and we have always regretted it was not two inches larger. We are not advised as to present prices. If your local dealers do not handle this kind of machinery, write to these advertisers.

For Iowa, we suppose the only kinds of lumber available will be pine and hemlock. Either can be had from local dealers or the manufacturers of lumber along the Mississippi River, and should be bought, dressed on both sides and jointed on both edges. They may also be had, with beveled edges and grooved, if so preferred.

Get hoops and lugs through local hardware merchants, or dispense with lugs altogether by using two or more pieces of 4×6 in place of the same number of common staves and let the ends of the hoops run through these in place of lugs.

Poor Churning Cream.

ED. HOARD'S DAIRYMAN:—Will you please tell me what ails my cream? Since early spring it has taken from one to two hours to do the churning. Use a bent wood churn, except when a small churning happens, then the small stone churn and its dash is used, and the last three churnings were so hard to gather.

We have four cows which were fresh in February and March and one fresh the first of June, which I had hoped would hurry the churning, but did not. Cows have good pasture, plenty of water and salt, and now a feed of sowed corn fodder, night and morning. Milk is set in crocks in cellar, skimmed night and morning; seldom more than three milkings on the shelves at once. Churn every other and sometimes every day. Temperature in cellar ranges from 60° to 65°. Of course, some of the hottest days it gets a little higher. Never had such trouble before and have made butter for the last nine years in the same cellar, giving milk and cream the same care. A. B. A.

Owasso, Mich.

The trouble with your cream may be due to the cow, food or species of ferment present in the cream, but the chances are that it is due to the ferment in the cream and its action on the casein and milk sugar. If your cream showed but little or no acid when it was ripe for churning, it would be a good proof that the trouble was in the cream and not in the animals or feed.

The proper ferment when ripening cream should at the same time form several tenths of a per cent of lactic acid.

The presence of the acid coagulates the casein and causes the cream to become less viscous, thus making the churning easier and more thorough.

If the acid ferment is not present and its place is taken by neutral or alkali forming ferments, the cream will become more viscous and the churning harder, as may be the conditions of your case. Except when the cows are far advanced in lactation the cause of poor churning is almost always due to the action of bacteria of the neutral or alkali forming species.

The remedy is to introduce the normal lactic acid species by a thorough cleaning of all dairy utensils, scalding with hot water and soda, and after everything has been given a good cleaning, pasteurize the first lot of cream, and add a good clean starter from some dairy in the neighborhood, or by means of one of the artificial starters. If the proper ferment is introduced there should be no trouble with the churning. In cases like the above the determination of the amount of acid in the cream by means of Farrington's Alkaline Tablets would quickly show where the trouble is and save their cost many times over by locating the source of the loss of butter fat.

Going to Texas.

ED. HOARD'S DAIRYMAN:—I began taking your paper last January, and am well pleased with it.

We commenced selling milk to the Hamilton creamery, a year ago last November, and have continued to do so, regularly, ever since. Prices paid have ranged from 50 cents to $1.00 per hundred. Everything considered, I am well satisfied with results. I have sold out here and intend to move to South Texas the coming fall, seventy-seven miles west from Houston, and sixty miles from the coast.

I intend to start in the cattle business in a small way and, as I am inexperienced, I would kindly ask for a little information. Which would be more profitable, raising cattle for beef or dairy? It is my purpose to start with about twelve or fifteen cows. As there is no creamery yet at the place to which we are going, (Rock Island) we will have to manage the milk at home.

What is the feeding value of prairie grass and of prairie hay? Cow peas, oats, millet, sorghum, etc., do well down there, but I don't think clover and timothy will succeed well. Alfalfa is also grown. Any information you can give me will be thankfully received. My means are small, and I will not, perhaps, be able on the start, to purchase a hand separator, or build a silo. W. C.

Hamilton, Mo.

From the best information we can obtain, we believe that in anything like favorable localities, there is no industry in Texas that pays better than up-to-date dairying. But there, as elsewhere, one must adapt himself to the markets and the means of reaching them. Neither milk nor butter will stand a long haul by wagon, but one can drive hogs or steers almost any distance. A Texas town of 1,000 or more inhabitants, of a class accustomed to use milk and butter freely, and a farm within six miles of it, would seem to justify a venture in dairying with a herd of twelve to twenty cows—provided they are good ones. But do not make the mistake of trying to have a general-purpose herd, if it is expected to make any money out of milk. Get and keep only high-class dairy cows, and then, if it is desired to do something along beef lines, buy beef bred calves. This will be much cheaper and more profitable than any other course that can be pursued.

The Holstein-Friesian Association's Proposition to Other Dairy Cattle Associations.

The Holstein-Friesian Association of America hereby extends greetings to all associations of breeders of pure-bred dairy cows, and invites them to participate in a competitive prize contest for the production of pure butter fat; such contest to be conducted upon the following general plan:

1. All tests and awards to be under the direction and control of a committee to consist of officers or representatives of Agricultural Colleges or Experiment Stations.

2. Each breed competing shall select one member of the committee.

3. All tests shall be conducted at the homes of the animals by a representative of an Agricultural College or Experiment Station, and shall be made by employing the Babcock test.

4. Awards shall be for the highest production of pure butter fat per cow, and for periods of not less than seven consecutive days.

5. Each association competing to contribute a like sum of money, not less than $500.00 each, and from the aggregate sum so contributed the prizes are to be awarded

6. Cows shall be divided into classes according to age.

7. It is recommended that four prizes be offered in each class, with not less than four cows in each class.

8. All tests to be made within a year from a date to be agreed upon; and all entries shall be made, prizes awarded within three months after the expiration of the test year.

9. The entries made from each breed shall be subject to the approval of a representative selected by each association.

10. All further details as to the division of the prize money, and necessary to carry this plan into effect, to be agreed upon by a committee consisting of three representatives from each association competing.

11. This proposition to be accepted by each association intending to compete, on or before the first day of December, 1899.

Holstein-Friesian Association of America.
F. L. HOUGHTON,
Secretary.

Running Separator by Water Power.

ED. HOARD'S DAIRYMAN:—Would like to hear from those having experience in running cream separators by water power. Can supply 100 gallons per minute. Will have to run it 1,000 feet through pipe and can give it twenty foot fall. Anything that will enlighten me will be thankfully received.

Fairfield, Utah. C. J.

Ensilage Carriers.

EDITOR HOARD'S DAIRYMAN:—I notice in this week's issue of the DAIRYMAN some inquiry in regard to a better way to run an ensilage carrier. I have run mine for several years from the top end by the use of a rope belt, and am satisfied it does not require more than one-half as much power as to run from the bottom end with sprocket chain. My carrier is thirty feet long with one chain in center. Slats are bolted on with tire bolts to sprocket links made for the purpose; they can be bought or ordered at any machine shop. The chain is common binder chain No. 45. Use sprocket wheel to pull carrier chain at top of carrier and smooth roller at bottom. Have slide under carrier for chain to return on. My pulleys for rope belt are home made of inch boards nailed together. Use nothing smaller than ¾ inch rope. A. F. G.

Harrison, Ill.

Making Good Butter Without Ice.

It is true that there is considerable difficulty experienced in attempting the manufacture of really fine butter in summer without the aid of ice.

Temperature is an all important factor in determining the quality of the product during the hot weather, and ice is almost indispensable in order to secure the proper degree of cold for the successful termination of one's efforts. Yet, with due care and labor, a very good article may be made without using ice.

It is hoped that the majority of farmers throughout the Northern states put up a supply of ice for summer use, yet not all do, and the wife is often handicapped in her dairy work thereby.

The first thing necessary in order to secure good butter, without the aid of ice, is a good cellar. This should be perfectly clean and free from everything which might in any way contaminate the air. All decaying boards, vegetables, no matter in what state of preservation, should be removed and the walls whitewashed, or washed over with a solution of copperas and water. Thoroughly disinfecting every portion of the cellar is a necessity.

Provide racks for the milk pans and have the latter of bright new tin, which is the best material. Discard any which are old and rusty.

Skim when just turning sour and keep the cream in the very coolest portion of the cellar. Churn every other day.

To cool the cream sufficiently, set the vessel containing it in a tub of cold water in the cellar over night. Have a woolen blanket wet in cold water to lay over the top. This keeps out the warm air and tends to keep the cream cold.

The churn should be well cooled with water also. Churn the first thing in the morning.

When the butter shows signs of coming add a handful of salt and several quarts of cold water, according to amount of cream, to reduce temperature. Take out the butter, or draw off the buttermilk as the case may be, and wash thoroughly in water as cold as can be obtained. Do not churn too long but stop when the butter is in grains, before it is gathered into a lump.

After washing until free from buttermilk, salt according to taste. Work the salt in thoroughly and evenly, pressing with the ladle to exclude moisture, then set away to harden again before reworking very lightly, so as not to injure the grain.

A person determined to succeed in making fine butter will manage in some way to accomplish it, if she has to hang the cream in the well to get it cool enough to churn.

Utmost cleanliness must be observed in every detail. The milk things must be kept perfectly sweet, everything free from the taint of odor.

The nose should play a most important part in detecting anything wrong about the dairy work. It is a valuable agent in doing detective work, and an observing eye should always be kept over each particular point from start to finish.

The great bulk of butter still comes from the farm, and good or bad, the farm butter makers must stand responsible for it. If each would try her best to improve the quality of her own, what a difference might be noted in the next year.

Advice in this letter to set milk in pans in the cellar is given on the assumption that the person advised has no portable creamery, and is still using the common round pan. But to a person who has a creamery and is out of ice, my advice is to use as cold water as can be had, changing it fully as often as it equalizes temperature with the milk. However, to those farmers who are without ice and improved apparatus for cream raising, I would repeat advice, to set milk in cellar.—*Nebraska Farmer.*

MICA AXLE GREASE lightens the load—shortens the road.
helps the team. Saves wear and expense. Sold everywhere.
MADE BY STANDARD OIL CO.

There's No Waste
either in knocked off ears or from sour, musty and mouldy corn fodder when using this
SCIENTIFIC CORN..... HARVESTER


Being strong and well made of good material it will last. Every farmer can afford one. Send for catalogue. I.
THE FOOS MFG. CO., Springfield, Ohio.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—But two lots of butter were offered for sale on Monday's Elgin Board of Trade, and both were sold at 18½ cents. More was in demand but was not forthcoming. The Quotation Committee declare the market firm and fixed the marker price at 18 cents. The sales of the week were 11,200 pounds.

The call sales of Monday were:

Factory.	*Pounds.*	*Price.*
Spring Prairie	2,100	18½c.
Dundee	1,200	18½c.
Total	3,300	

The sales for the corresponding week of the three preceding years were as follows:

Aug. 8, 1889, 9,840 lbs. of butter sold at 18½c.
Aug. 9, 1897, 21,000 lbs. of butter sold at 15c.
Aug. 10, 1896, 24,300 lbs. of butter sold at 15@15 1-5c.

Elgin, Ill., Aug. 7, 1899. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Aug. 7.—Fifty-five tubs offered; all sold 18½ cents; official price, firm, 18 cents.

CHICAGO, Ill., Aug. 7.—Butter—Creamery, extra, 17¼@17½c; firsts, creameries, 16@16½c; seconds, 14@15c; dairies, selections, 15@15½c; No. 1, 14c; No. 2, 12½c; extra ladles, 13@13½c.

Eggs—Fresh, at mark, cases returned, sold at 10½@11c loss off, cases returned, 12½c.

Cheese—Full cream, twins, new, good to choice, 9@9¼c; Limburger, 7@8½c; bricks, 8@9c. Young America, 9½@10c; Swiss, 8@10¼c.

Bran—In moderate demand, and sold at $10.-50 per ton f. o. b., and $10.25 billed through.

Middlings—Quiet and sold at $11.50 per ton on track.

Cattle—The market was generally steady, with good to choice cattle at the high point of the year. Native beeves sold at $4.50@6.05. Ten cars of Western range cattle sold at $4.90, with one load at $5.25. Texas-fed steers sold at $4.50 @4.80, with Texas grassers at $4.05@4.50. The market for inferior heifers and butcher stock was weak. Other grades ruled steady.

Today's receipts are estimated at 2,500.

MILWAUKEE, Wis., Aug. 7.—Butter—Creamery—Fancy prints, per lb. 17½c; extras 17½c; firsts 16@17c; seconds 14@15c; imitations 14@15c. Dairy—selections per lb. 14@15c; lines 12@13c.

Market strong and well cleared, trade being brisk; receipts 8,990 lbs.

Cheese—American Full Cream—New choice to fancy 9@9½c. Brick—New, per lb. choice 8@8½c. Limburger choice, per lb. 8@8½c. Swiss—Drum, choice 12½@13c; new block, choice 10@10½c. Market firm; receipts 44,800 lbs. Trade fair.

Eggs—Fresh, per doz. 11@11½c; loss-off cases returned. Market unchanged, with receipts of 289 cases; trade moderate.

MUSCODA, Wis., Aug. 7.—Offerings to-day on the dairy board were 1,700 boxes cheese; market quiet at 8⅞@9c. One car Twins, 9⅛c; ninety daisies at 9⅜c.

FOND DU LAC, Wis., Aug. 7.—Offerings, 618 twins, 425 Daisies; market strong; Twins, 9¼c; daisies, 9¾c.

PLYMOUTH, Wis., July 31—Cheese—Sales today 1,200 Twins at 9¼c; 75 Twins at 9½c; 825 Americas at 9⅜c.

HILBERT, Wis., July 29—Cheese—The sales on the call board today were 50 Twins at 9c, and 117 cases Young Americas at 9c.

BRILLION, Wis., July 28—Cheese—Sales cheese, Brillion Dairy Board, 1,230 Daisies, 1,057 Twins, 435 Young Americas; market 9c, one lot sold at 9⅛c, one at 9¼c.

SHEBOYGAN FALLS, Wis., Aug. 2.—There were 966 boxes of cheese offered on the call board to-day and all were sold as follows: 695 cases of Young Americas at 9⅞c; 136 twins at 9¼c; 35 at 9⅜c; 35 daisies at 9⅞c and 140 at 10c; market active.

MANITOWOC, Wis., Aug. 2.—Offerings of cheese at the Dairy Board to-day were 900 boxes daisies, 120 boxes twins, 900 boxes Young Americas. All offerings sold at 9c.

NEW YORK, Aug. 7.—Butter—Market firm and 18½c was paid for best Western creamery.

Cheese—Market firm but quiet; in some cases 9½c was asked for large, fancy, white cheese, but 9¼c was generally quoted; state full cream large white fancy, 9¼c, and small white, 9¼c; large colored fancy, 9½c; small colored fancy, 9½c; state light skims small choice, 7¾@8c, and large choice, 7½@7¾c; state part skims small and large choice, 7@7¼c; full skims, 3@3½c.

Eggs—Prices were ½c higher today on fresh eggs, with buyers very discriminating and not much strictly desirable stock offered; Northern Indiana, Ohio and Michigan, 15½c, loss off; average Western, 10@12c, case count; Southwestern best, loss off, 9@10c, case count; dirties, 30 dozen case, $2@3 as to quality; checks, per case, $2.@ 2.40.

WATERTOWN, N. Y., July 30—Cheese—The cheese market here yesterday, was very active. There were 500 boxes offered and sold. The prices ranged from 9⅛@9¼c. The Canadians took the bulk as usual.

CANTON, N. Y., July 29—Cheese—2,200 boxes cheese sold at 9¼c.

Butter—1,300 pkgs. butter at 18¾c.

LITTLE FALLS, N. Y., July 31—Cheese—418 boxes large cheese sold at 8⅞@9c; 208 boxes on private terms; 5,263 boxes small at 9c.

UTICA, N. Y., July 31—Cheese—5,072 boxes large, colored cheese sold at 9@9¼c; 453 boxes large, white at 9@9½c; 720 small colored at 9¼c; 1,335 small white at 9@9⅜c.

BOONEVILLE, N. Y., July 30—Cheese—All the sales of cheese on the market, Friday, were curb transactions. There were 1,042 boxes sold at a range of from 9@9½c.

WASHINGTON, D. C., Aug. 7—Butter—Market steady, extras 19c; firsts 18c; seconds 16@17c.

BOSTON, Mass., Aug. 7—Butter—Very firm, 18@19c.

Cheese—Market firm, 10½c.

Eggs—Unsettled, 14@15c.

NEWARK, N. J., Aug. 7—Butter—Market firm; 18½@19c for fancy Elgin creamery. Receipts liberal.

SAN FRANCISCO, Cal., Aug. 7—Butter—Firm, creamery 15@18c; dairy 12@15c.

BALTIMORE, Md., Aug. 7—Butter—Market firm. Creamery, separater, extra 20c; extra firsts 18@19c; creamery, firsts 17@18c; creamery, imitation, extra, 16@17c; ladle, extra, 16c; Western, store-packed, 12½c.

Eggs—Market firm; strictly fresh stock, 12c.

PHILADELPHIA, Pa., Aug. 7—Butter—Solid packed separator creamery, extra, 18½@19c; creamery, firsts, 18c; seconds, 16@17c; imitation creamery, extra 16c; firsts 15c; seconds 13c; ladle packed, extra 14@14½c; firsts 13½c; seconds 13c. Print butter, creamery, extra, 21c; firsts 20c; seconds, 18@19c.

Eggs—Pennsylvania and near-by, 14c; Western, 14@14½c; Southwestern 13c; Southern 10@11c.

ST. LOUIS, Mo., Aug. 7—Butter—Firm: creamery, 15@18c; dairy 12@15c.

Eggs—Quiet, 9c.

KANSAS CITY, Mo., Aug. 7—Butter—Creamery, 14@16½c; dairy, 14c.

Eggs—Fresh, 9c.

CINCINNATI, O., Aug. 7—Butter—Quiet; 19c.

Eggs—Dull; 9c.

Cheese—Good demand; good to prime Ohio flat, 8¾c.

Latest quotations for fancy creamery: Buffalo 18½c; St. Paul, 17½c; Minneapolis, 18c; Detroit, 19c; New Orleans 18½@19c.

LIVERPOOL, Aug. 7—Butter—Finest United States 88s; good 65s.

Cheese—American finest colored, 45s, American finest white 45s.

BALTIMORE MARKET.

BALTIMORE, Md., Aug. 3—Butter—As far as reported, the past week was devoid of interesting features; there was not as much exporting done as during the previous week, and out of town buyers, with a few notable exceptions, remained out of town. The receipts of separator creamery are as full as usual at this time with the grading equal to the past; it is quite likely that some lines will not find immediate sale and largely for two reasons, the one being that the quality is not phenomenal, and the other that some gathered cream makes will answer many purposes reserved for separators at other times. The latter variety of butter is in lighter receipt and the majority of the regular marks have evidenced the advance of the season; for, although it is the general verdict that such a pleasant summer has not been vouchsafed to beast and man, lo! these many years, nevertheless, the August peculiarities that impress themselves so objectionably upon the product of the churn during dog days, are again to be met with in most parcels, and this is said to be true of the past by actual observation, covering a period of years beyond which the memory of man runneth not to the contrary, and whether the dog days are very much so or otherwise. Imitation creamery receipts are at the lowest ebb and high grade ladles are no more; the best of the latter are far from fine, but the quantity arriving is so small that receivers are encouraged to continue the same selling prices, and somehow or other there are none left over at the end of each week. Prints and blocks are in fair receipt and equal demand; there is some fair business doing in factory makes. Storepacked is in light receipt and has a quick demand; quality is poor.

Creamery separator, extras, per pound, 19c; firsts, 18c; seconds, 17c; gathered cream, extras, 17@18c; firsts, 17c; seconds, 16c; Ohio, extras, 17@18c; firsts, 17c; seconds, 16c. Iowa and N. W. ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio and Indiana ladle, extras, 14c; firsts, 13c; seconds, 12c. Ohio storepacked, extras, 12½@13c; firsts, 12c. W. Va. storepacked, extras, 12½@13c; firsts, 12c. Creamery blocks (2 lb.), extras, 21c; firsts, 20c; seconds, 19c; prints (½ lb.), extras, 21c; firsts, 20c; seconds, 19c. Md., Va. and Penna. prints, extras, 19c; firsts, 18c; seconds, 16@17c.

Cheese—Receipts of cheese continue light; the demand is fair; market firm.

N. Y. State Cheddars, fine, 9¾c; choice, 9¼@9½c; fair, 8½@8¾c; Flats, fine, 9¾@10c; choice, 9¼@9½c; fair, 8½@9c; Small, fine, 10¼@10½c; choice, 9¾@10c; fair, 9@9½c. Ohio Flats, fine, 9⅝@9¾c; choice, 9@9¼c; fair, 8½@8¾c; picnic, fine, 9½@10c. Swiss cheese, fine, 11@12c; choice, 10½@10¾c.

Eggs—The receipts of choice fresh eggs are light; the supply of this kind is not sufficient to supply the demand, consequently our market is kept bare of all choice to fancy eggs, while all doubtful and tender stock is hard to sell and the supply is accumulating. First quality brings 11@12c. G. M. LAMB & BRO.

391 Exchange Place.

NEW YORK MARKET.

NEW YORK, August 5—Butter—Receipts for the week, 43,504 packages. Exports for the week, 11,819 packages.

The market has ruled steady all the week under fair trading from all quarters and at the close there is less extra creamery offering and a disposition to ask trifle more price. Our local trade buy only the tip top quality; receipts this week have shown little of this style of butter, and some of the best marks were bid up ¼@½c per pound. Exporters have bought steadily of good to fine creameries at 17@17⅛@18c, paying the last price for strictly fancy goods. We note sales for Eastern account of several hundred tubs fancy creamery at 18c. Very little fine dairy arriving, hardly enough to supply the demand or establish a quotation. Ladles quiet but firm. We quote: Creamery, extra, 18c; medium, 17@17½c; poor, 14@16c. Dairy, extra, 17@17½c; medium, 16@16½c; poor, 14@15.

Cheese—Receipts for the week, 38,783 boxes. Exports for the week, 10,632 boxes.

Market was active and strong through the early part of the week, both exporters and home trade buying liberally at full prices. At the close there is less motion with exporters out of the market and a general feeling among the trade that prices are high enough for the present. Sales in the interior of the state were about same prices as here. We note sales at Catteraugus yesterday of Cheddars at 9½c and small cheese at 9¾c. We quote:

Full Cream, large, extra 9½c; medium 9@9¼c; poor 7@8c. Full Cream, small, extra 9¾c: medium 9@9½c; poor 7@8c. Part Skimmed, extra 8@8½c; medium 7@7½c; poor 5@6c.

Eggs—Receipts for the week, 50,642 cases.

Strictly fresh eggs have good demand at full prices. Other grades are extremely hard to sell, and prices are irregular and nominal. We quote: N. Y. & Penn., finest, per dozen, 15½@16c; Northern & Western, 15@15½c; Other sections, fair to good, 12@13c. DAVID W. LEWIS & CO.

177 Chambers St.

FOREIGN MARKET.

BOSTON, Mass., Aug. 5—Cable advices of this date, from the principal markets of Great Britain to Geo. A. Cochrane, gives butter markets as firm, more active and higher on finest description of well conditioned parcels. The great activity has been in Canadians, which have been increasing weekly in favor with buyers. The landing condition of it is in strong contrast with all home and Continental butters. The quality being very superior, and with its freshness has made it the most popular butter offering. The weather has been hot, and the landing condition of all Continental and Irish butters has been dreadful, in a large number of cases, the butter being badly injured. Good conditioned parcels of Danish have sold as high as 22@23c, but a great deal is offering at 18@20c on account of its condition. The same may be said of Irish; hardly any is good enough to bring 20@21c, but a great deal offering at 16½@17c. Some American creameries, in tubs, have sold at 18@19½c, very little of it being fine enough to command the latter price. So much out of conditioned Continental, Irish and home made butter interferes with its sale greatly. Ladles have ruled inactive and dull as so much heated stuff is being pressed for sale, has caused a temporary lull in the demand for ladles. What little is selling brings from 14½@15½c. Imitations are a very dull sale.

Cheese markets have again advanced and are in a very healthy condition. The large consumptive demand continues to absorb receipts as fast as landed, and there are no accumulations. Finest American and Canadian have sold at 10@10½c, with occasional sales of some very fine Canadian at 10¾c. Anything that can be sold from 9@9½c is in active request.

MANCHESTER MARKET ENGLAND.

There are no signs of animation in butter business. The great heat has conduced to present inactivity, but at time of writing, rain has begun to fall in Manchester. Newcastle opened the week with larger arrivals, and quiet but steady consumptive demand, which would likely clear arrivals. Manchester was steady at improved rates, and all choicest cleared, the shortage to this market being still remarkable, nearly 1000 casks less than same date last year. Liverpool cleared well at good prices, but London operations in butter were cautiously conducted, higher prices and the heat causing retailers to buy sparingly. The Scotch markets were slow. Leith is described as having been very dull, demand limited, and a disappointing week. At Glasgow, the fair holidays interfered with business. Spot markets all round have generally similar experience, any firmness that exists being in free on board business. Choicest quality is scarce, and prices are therefore maintained. The Danish official top quotation is unaltered, so also is that of Hamburg, which is very firm at 105 marks. Irish Centrifugal creameries of best sorts are in excellent demand, but there is much soft and even "flowing" butter. Copenhagen says supplies are only equal to demands, production decreasing, several thunderstorms have refreshed pastures, but farmers nevertheless complaining of drought. Cork market rates have been steady on the week, 1sts, 2nds, and 3ds are advanced today 1s, being 80s, 79s and 76s in market respectively. Superfine rose 2s, and are now 85s. Fine milds 73s. Canadian creameries are in very fair request in most markets, as they are very useful at present rates, but best sorts are rather scarce. Our latest American advices received this morning describe their principal markets as closing for the week ending 14th inst. decidedly tame, while no drop in value of "extra" creameries there is an undercurrent of weakness noticeable in first and second qualities which are accumulating on receivers hands. Small experimental shipments will shortly arrive on the English markets, and further business depends on results obtained. Scandinavian shipments at sea and Finish arrivals are 21,979 casks, or about 1,000 more than last week. An improvement is noticed in bulk of sales of margarine mixtures and margarines. No change in prices as yet. DOWDELL BROS.

WHY?

Nine out of every ten experienced separator users use "ALPHA" Disc machines only.

Can there be but one reason for it? Is there any room for doubt as to that reason?

Could there possibly be any stronger testimonial to the practical superiority of the "ALPHA" disc machines than is afforded by this fact.

If you lack experience in the purchase and use of up-to-date Cream Separators can you not safely follow the practice of nine out of ten of those who have acquired such experience, many of them at large cost to themselves?

A De Laval Catalogue—"Factory" or "Dairy"—will be found to throw a flood of light upon separator differences. It may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts., CHICAGO.	74 Cortlandt Street, NEW YORK.	1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Wanted—An all round dairyman. Must be a good buttermaker and understand feeding cows and calves. Single man, steady employment. Address LEE WARREN, Bozeman, Mont.

For Sale—Bull calf, Combination blood, $20.00. Send for pedigree. JOHNSON STOCK FARM, Osceola, Ark.

Wanted—Two-horse tread power, second hand, and second hand shredder, good repair. Address JOHNSON STOCK FARM, Osceola, Ark.

Wanted—A location for a creamery in N. Y. or Northern Pa. 300 or 500 cows. C. E. ANGELL, Speedsville, N. Y.

Wanted—An expert Northern dairyman, graduate of Wisconsin Agricultural College, and of life-long experience, wants position in charge of southern dairy farm. Will work for salary or on shares, and furnish A No. 1 references. Address E. O. THORSGAARD, Streator, Ill. 26-3

Wanted—A first-class butter maker and milker. Address, giving references and stating wages, OLIVER GATES GRIDLEY, Mycenae, N. Y.

Wanted—A good all round farm hand and dairyman. Must be a first-class milker. State references, ability and wages. BOX 120, Mt. Pleasant, Ohio.

Wanted—Prices, pedigree and records on registered young stock, both sexes, Holsteins, Guernseys and Jerseys. AUG. SPOENEMANN, Oakdale, Ill.

Wanted—Man and wife to milk forty cows. Must be speedy and clean milkers. Man to care for cows in winter and in summer to work on farm between milkings. References as to character and ability required. State wages and references. LEWIS E. MURRELL, Lynchburg, Va. 26-2

Excursion Tickets to Annual Regatta, at Oshkosh, Via the North-Western Line, will be sold at reduced rates from stations in Wisconsin, August 13, 14, and 15, limited to include August 21. Apply agents Chicago & North-Western R'y.

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

Dairy Notes from Washington.

ED. HOARD'S DAIRYMAN:—While I am absolutely in favor of every honest method and measure by which the fraudulent sale of oleomargarine as butter may be stopped, or at least checked, still I cannot help wondering somewhat at these tremendous efforts to pass laws by which the object may be reached. It certainly cannot be denied that if such laws, as exist in this line in a large number of states, were introduced also in those states where no restrictions as yet have been passed, then indeed there would be no need of any ten-cent tax,especially for colored oleo, because colored oleo simply could not be sold.

How is it in other countries? Denmark, for instance, has excellent laws in this line, which makes it simply impossible to sell oleo except under its true colors; the chance to escape detection is too small and the risk in trying to go against the law too big to make it worth while. At the same time it cannot be denied that enormous quantities of oleomargarine are sold in Denmark and other countries, and over here we love to ridicule the practice that the Danes export all their fine butter, and then, even on the dairy farms, substitute oleo.

But please consider for a moment, that the manufacture of that article also is under such absolute and perfect control, as to only pure and healthy stuff being used in its manufacture, and while I suppose it is true that it is harder to digest than good butter, still I am confident that is as digestible as lots of other stuff we eat without hesitation.

It is of no use to tell a poor man that he must buy fine butter for his family because oleo is hard to digest; he simply can't do it. It is just like advising poor city people to buy pure milk at eight cents a quart (or more) instead of drinking stale beer, bad tea and coffee, etc. The ten-cent tax on colored oleo is O. K., provided it can be enforced if it becomes a law.

But when we claim, that it will in reality stop the manufacture and sale of oleo as such, simply because the people will not buy it knowingly when it looks white as tallow — then I believe we deceive ourselves and make false calculations. I admit that the white appearance of the article temporarily will put a big check to the sales over here; but mark it, such a check will only be temporary.

If the oleo manufacturers will do the wise and straight thing, they will not only comply with the law, but use only pure and honest raw products in the manufacture and insist upon strict government inspection, so that it may be in a position to guarantee pure goods and a cheap price, and white oleo.

If this is done it will only be a question of time for the classes of small means, as to when they shall become accustomed to eat white oleo.

I believe we hardly doubt that the quality of our creamery butter will improve gradually year by year, and at the same time the demand for pure, fancy butter will grow. And, therefore, I believe that oleo sold as such, even of comparatively good quality, will rather advance than hinder the progress of the dairy industry.

It will here, as in Denmark, make the production of inferior butter an impossible business, and necessitate the result here as there, that only fine butter will be made. It will simply compel our buttermakers to work towards the top or get out.

PRESERVATIVES, ETC.

If it is not for the gain that may be had out of a big advertisement, I should like to know why Chicago Produce is so anxious to induce its readers to use preservatives of any kind in their butter? I also would like to know how many and which creameries use the stuff?

It seems to me that any first-class butter maker would feel ashamed to admit that he needs such help to give his butter the necessary keeping quality. I would like to see some creamerymen come forward and openly announce themselves as using such suspicious helps, and who are willing that their buyers should know it.

I think we have yet to find the first case of that kind. And, if neither butter makers nor commission men are willing to have their names published, as using and advocating the use of preservatives, just so long it is plain that these frauds are looked upon as deceptions.

By the way, which manufacturer openly admits that he produces coal-tar butter color? If all right, why then say so, and don't hide.

MISTAKES AS TO BUTTER ADULTERATIONS.

It will be remembered that a few years ago it was claimed by English chemists that Danish butter imported to England had been adulterated by admixtures with foreign fats; it was then proven, by a careful examination of these suspected butters, at the place of production, that certain conditions of the milk, caused from period of lactation, certain feeds, etc., could cause butter to appear to be adulterated.

Lately,in Germany, the wife and daughter of a well-known farmer had been condemned to one week in jail for such adulteration, their butter having been proven to contain from 30 to 40 per cent foreign fat. Prof. D. Dietrich,at Marburg, has now examined said butter at the place of production, and found it to be natural, the irregularity in its character simply being caused from certain feeds; which proves the need of great carefulness.

BUTTER FROM PASTEURIZED SURPLUS CREAM.

While I always have had implicit confidence in the general superiority of butter made from pasteurized cream over that made from raw, yet I have never thought much about the advantages of pasteurization, when the question was of small farm dairies, where the farmer's wife makes the butter of whatever milk or cream can be spared, and where most of this butter is used in the family.

But what happened to me lately, set me to thinking on this point. For the first time since our Sanitary Milk Laboratory has been in operation, I found myself over stocked with cream; as a number of our customers had left rather sudddenly for cooler climes,and a new shipment of cream had arrived, while I yet had about four gallons on hand. If I had returned the older cream by rail road, to our shipper for churning, it would mean throwing railroad freight away.

So I decided to churn it here, though I had neither churn nor butter worker; no, not even a bowl or a paddle. But I will first tell about the cream. It was all five days old, and a small amount several days older had soured, having been exposed to heat; but all of this cream had originally been shipped here by railroad, being separated from evening's milk at a creamery located between Philadelphia and Baltimore. It arrived here, at our laboratory, about noon the following day, being shipped that morning at a temperature of below 40° F., on arrival here being about 56° F. Of course, the can is jacketed, but it is shipped in the hot express car, and twice transferred on the trip.

Upon arrival here the cream is at once pasteurized at 158 or 160° F., as I as yet have not the means to heat higher, without causing cooked flavor. The cream is then, for about an hour, cooled by running hydrant water, then placed in ice-water and cooled below 50° or even to 45°F.

Then it is bottled in sterilized pint and half pint Common Sense bottles, the caps paraffined, and the bottles with cream are then placed in a refrigerator and kept below 50°.

It was a lot of such treated cream I had on hand. I was going to make this into butter, and I made up my mind to make fine butter, too. I emptied all bottles, in one of our Common Sense coolers, and left it till next day in a warm room; next morning it was about 65°. I added about one half gallon freshly clabbered milk, which I had ripened for a starter, and left it for ripening till next morning; then cooled it down to 50°F. by setting in ice-water in a tub, and left the cooler standing in the cold water, as the room was warm.

The churning was done with the dasher I use for stirring cream when heating and cooling, and it was, sure enough, old-fashioned, dash churning. It took me forty-five minutes hard work to make about eleven pounds of butter. How did I finish the job? Well, I stopped in good, up-to-date style when the butter had formed in nice granules, then added a little cold skim milk, took the butter out with a tin sieve, (I like a hair sieve best,) put it in a tub with water of 50° temperature, stirred with my hands, having prepared these well in good, old-time butter makers' fashion, by washing in hot, and rinsing in ice-water, pressed it together in two balls and worked it by hand in a wooden tub, which had previously been well scalded, and then cooled with ice-water; last floaty grains of butter were taken out of the water with the sieve, and no butter was wasted either in the buttermilk or water; the amount made shows that not very much fat was lost even by this curious way of churning, as we were to use all in our family.

I was too lazy to work it twice, as it would have been a good deal more trouble; so the finished butter showed some mottles, as I knew it would. One more light working after an hour or so would have remedied that. But as to *flavor* and general character, the opinion was unanimous, that we never had as fine butter in Washington. But the main point to which I wish to call the "small" butter maker's attention, is the fact, that while this butter lasted us two weeks, still it tasted as fine flavored the last day as the first. I have never bought any butter in the city which would do that, and there is only one explanation.

PASTEURIZATION DID IT.

When in Baltimore I several times churned some small amounts of surplus cream, but it was raw cream, and while never half as old as this, not once did I succeed in making a real, fine flavored butter.

I have here again churned about two gallons pasteurized cream in similar manner, and had the same excellent result. This seems to prove to me, that it would pay, in a small dairy, to pasteurize the cream until enough is on hand for churning; then ripen all, and churn at a low temperature. The result, certainly, would be a great improvement in the butter, and especially in its keeping quality. I should like to see anybody make a fine flavored butter from cream over a week old, if such had not been pasteurized. At least, I should like some progressive dairy women, readers of HOARD'S DAIRYMAN, to try it, and then report the results. It may be a little trouble to pasteurize, but then you may choose any time that suits your convenience for churning, which will be a great point for many.

A COMBINATION OF MARYLAND DAIRIES

for the supply of sanitary and pasteurized milk and cream for Baltimore is contemplated. Some of the most prominent dairies have already entered upon an agreement, among these the well known Filston Farm, and about forty more are expected to join. I consider these combinations of dairies the most sensible step, both to improve the quality, and lessen expense in distribution. When I have more details will report.

J. H. MOLDENHAWER.

Washington, D. C.

An Examination of the Foreign Butter Exhibited at the Green Bay Meeting.

ED. HOARD'S DAIRYMAN:—At the suggestion of Commissioner Adams, I send you herewith the results of my examination of fifteen samples of butter, bought upon the English market, by an agent of the U. S. department of Agriculture, and which were exhibited at the last meeting of the Wisconsin Dairymen's Association.

Tag No. 2.—Danish Creamery, salted. Made Dec. 30th, 1898. Preservatives absent.

Tag No. 3.—Swedish Creamery, salted. Made Dec. 24th, 1898. Borax, moderate amount.

Tag No. 7.—Danish Dairy, salted. Made Dec. 23d, 1898. Preservatives absent.

Tag No. 10.—Irish Dairy, salted. Made in Co. Kerry, Nov. 20th, 1898. Borax, doubtful, heavily salted.

Tag No. 25.—Irish, or Estates Butter. Blended in Cork Dec. 28th, 1898. Boracic acid and Borax, large amount.

Tag No. 27.—English, fresh rolls. Made Dec. 29th, 1898. Preservatives absent.

Tag No. 5.—Friesland Creamery, salted. Made Dec. 23d, 1898. Preservatives, absent.

Tag No. 15.—Australian Creamery, salted. Made Oct. 1898. Borax, moderate amount.

Tag No. 18.—Australian Creamery, salted. Made in N. So. Wales, Oct. 1898. Borax, large amount.

Tag No. 22.—Australian Creamery, salted. Made in Victoria, Sept. 1898. Borax, very large amount.

Tag No. 21.—Canadian Creamery, salted. Made Dec. 6th, 1898. Preservatives, none.

Tag No. 23.—"States" Creamery, salted. Made in Wis. Dec. 14, 1898. Preservatives, absent.

Tag No. 23a.—"States" Creamery, salted. Made in Wis. Dec. 22nd, 1898. Borax, small amount.

Tag. No. 24.—"States" Creamery, salted. Made in Minn. Dec. 13th, 1898. Borax, moderate amount.

Tag No. 24a.—"States" Creamery, salted. Made in Minn. Dec. 21st, 1898. Preservatives, none.

From these results it would appear that it is not a hard matter to sell Canadian and American butter upon the English market without resorting to the use of questionable preservatives, that will some time or other bring our product into disrepute. That the Australians use it freely is, to my mind, no excuse. If English consumers could feel sure that American butter was free from preservatives, that were freely used by the Australian butter makers, it would certainly tend to produce a sentiment in favor of our product.

A. S. MITCHELL.

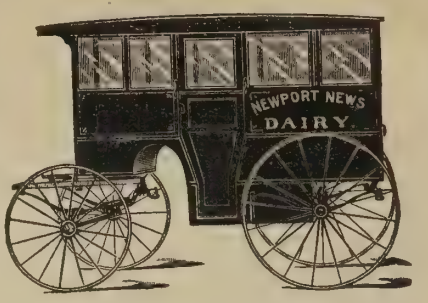
Madison, Wis.

How Best To Utilize Corn Fodder.

It is quite clear at this date that the hay crop of the West will be a short one, due to the unfavorable weather conditions last winter. There is no perceptible decrease on the whole in the number of cattle or sheep, but there appears to be a quite perceptible increase in the corn and grass states, and therefore there will be more than ordinary need for the forage of the corn fields during the coming winter. Every acre of good corn has standing on it the equivalent of the feeding value of from three-fourths to a ton of hay, and the public welfare as well as that of the owner, requires that it should be made use of. How to do it at the minimum expense in cash and labor is one of the serious problems on the Western farm.

No rule of universal application can be laid down on account of the extreme diversity

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG,
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of conditions on different farms. The problem of putting the corn in shock has been settled at last by the improved corn binders. There is but a few cents an acre difference between the cost of putting corn in shock and husking it out of the shock. The introduction of the corn binder has cheapened the cost of putting in shock, while the scarcity and the higher price of labor on the farm, has increased the cost of husking so that now it is an open question with some farmers, who have large numbers of hogs, whether they had better fence off part of the field and hog it down, instead of either husking or cutting it up. Where a man has forty acres of corn to cut up or where two or three neighbors have forty or over, we have not the slightest hesitation in saying that they had better purchase a corn binder. The difficulty comes in as to how to handle the corn after it is cut up. Husking corn out of the shock is entirely out of the question, for two reasons: One, the increased price of labor, and the other the damage done to the fodder by exposing the inside of the shock to the weather, to say nothing about the trouble of handling it afterwards. Where a man had to feed his corn and fodder separate, the shredder will soon be indispensable, if not now.

We do not advise every farmer to get one. He may not have enough corn to justify, or he may be feeding cattle and growing corn not for the grain, but for the cattle feed, and where he has fat cattle, stock cattle and sheep, to have a chance in turn at the fodder, we do not believe the savings would be sufficient to pay for the shredding. Few farmers, however, are thus situated, and the shrewd ones that are thus situated plant corn thick with the idea of feeding it, and aim to secure the greatest total value both of corn and fodder. The majority of farmers do not feed cattle, and hence are compelled when their corn is cut up to thrash and, shred it, so as to secure corn for the market, or for other feeding purposes, and the fodder for forage. This is particularly valuable where dairying is a specialty on the farm and where silos have not yet come into use. We believe for the small farmer who is a special dairyman, the silo is the best solution of the problem, but for the farm where dairying is but incidental, and the farmer needs a large amount of roughage to carry through stock cattle or sheep; then the shredder furnishes the best solution that has been offered up to date. Our immediate object is not to discuss the merits of either binders or shredders, but to set the farmer to thinking as to how he can get more than half as much feeding value in addition to the corn, as he usually gets off the meadow. This would be essential as the country becomes old. Our farmers are not growing nearly as much stock as they should, and by utilizing the corn fodder we can keep about one-third more cattle and other stock per quarter section than we can by wasting almost one-half of the feeding value furnished by the corn field.

Farmers have shrunk from this because of the great and unwelcome labor attached to handling corn fodder, and only utilize it in case of necessity. The binder and shredder have practically done away with the drudgery in handling corn fodder, and it is time for farmers to wake up and see that it is no longer necessary for them to have their shirt sleeves torn to pieces and their arms and faces scratched with corn blades in order to get that other half of the value of the corn fields. We speak of this from our own experience. We had seventy acres of corn fodder on our farms last year and almost as much the year before, and the hay crop with us has become a minor consideration. If you are feeding cattle and have stock cattle and sheep to follow, as we had, we believe the binder with thick planting is the solution. Where stock cattle or dairy cattle are kept, where the farmer is not feeding, but keeping stock cattle, sheep and dairy cattle, then the binder and shredder will go a good way toward making him right and happy. It is not necessary for every man to have a shredder. One shredder will do for a neighborhood and will do very much to rob farm life of its drudgery, when properly used.—*Wallace's Farmer.*

Separated Milk For Calves.

It has been estimated that every pound of butter, which is made, implies the production of about three pounds of buttermilk and from fifteen to twenty pounds of skimmed or separated milk. It may be also mentioned that every pound of cheese produces about nine pounds of whey. As regards skimmed milk, which alone will be considered, it is of course well known that its contents of butter fat vary according to the method by which the cream has been extracted. Theoretically, the liquid should contain no butter fat at all, but it is needless to say that the most completely skimmed milk, which is obtained in ordinary practice, does not reach this absolute degree of purity. Nevertheless, the butter fat content may be as small as one-hundredth of 1 per cent. Many interesting and authoritative tests have been made on this subject. In Germany, 171 trials, gave some years ago, an average of one-quarter of 1 per cent., but the improvement in the manufacture of separators has been so great that, according to Professor Wing, a centrifugal machine is not considered to be doing perfect work when it leaves more than a tenth of 1 per cent of fat in the separated milk, which contains from 8.75 to 9.5 per cent of non-fatty solids; or, in other words, 100 lbs. of the liquid contain from 9 lbs. to 10 lbs. of food material, and 90 lbs. to 91 lbs. of water. This material, which is available in such enormous quantities, is generally regarded in an unfavorable light as human food, but that is because it is commonly compared with whole milk. If it be regarded as a partial substitute for animal food, it is found to be much cheaper and to have several other advantages. Skimmed milk is often substituted for water in the preparation of various dishes, and when used in making bread it is found that the saving of flour is more than sufficient to pay for the cost of the milk; and the loaf which is produced has, moreover, a greater food value.

The profitable use of skimmed milk fed to domestic animals is well known. The results of numerous experiments, which have been made in this connection, tend to show that the liquid gives the best returns when fed to very young subjects. With this exception it is most profitable when, instead of being used alone, it is fed in combination with other foods to animals making rapid growth, in as much as it is highly nitrogenous, and when it is combined with carbonaceous material the nutritive ratio is broadened and a less "narrow" or less concentrated ration is made. It has, for instance, been recorded by the Ontario Experiment Station, after twenty years' careful work, that a young beast fed on skimmed milk, with adjuncts, may be made to weigh almost as much when one year old as a similar animal fed on whole milk with adjuncts of a similar character. The substances which are thus used in combination with the liquid are various and numerous. Skimmed milk and linseed meal, for instance, have been reported by reliable authorities to be a good substitute for whole milk in feeding calves; whereas oil-meal is found to be too nitrogenous, except for very young calves; oatmeal and maize meal giving a better-balanced ration for animals above a month old. In some parts of Germany the milk is mixed with meal or bran, and fed to milch cows in the form of a paste. The Swedish method of this character has already been referred to in these columns. The milk is heated to 160° F., and then cooled to 100° F., and rennet is subsequently added, chaff or finely-cut straw being thoroughly mixed with the liquid as it thickens. The mass is allowed to stand for three hours, and the liquid portion is drawn off and poured over the mixture in order to be absorbed to the greatest possible extent. The mass is then left to ferment for about forty-eight hours, and when fed at the rate of a gallon a day, which is said to be equivalent to four lbs. of concentrated grain food, it is reported to give satisfactory results.

The addition of starch to skimmed milk has been tried in Holland, with satisfactory results, for feeding calves. The starch was cooked to a paste in the skimmed milk, and 94 per cent of the starch was digested. A French investigator, M. André Gouin, has also, for a number of years, watched the effect of this food, which should, in his opinion, be prepared by cooking potato starch, over a slow fire, to a smooth paste with half the milk to be used; the mass being stirred to prevent the formation of "lumps." The mixture is then added to the remainder of the milk, which sufficiently cools the food so that it can be fed at once. The quantity of starch employed is one and three-fourth ounces to every quart of milk, and calves are reported to take to the ration as naturally as if it were whole milk. The young animals keep up their appetite and their condition, and the meat does not appear to be affected in any way. The rearing of calves on this food-stuff is regarded as a much more profitable way of using skimmed milk than by feeding it to pigs, and it is, in any case, of importance as an additional outlet for this dairy by-product.

The object of the addition to the skimmed milk of the various substances mentioned above is to supply to the animal, in the form of carbohydrates, the source of energy which is removed with the fat from the whole milk; the protein which the body requires for its growth and maintenance remaining available in the skimmed milk.—*Dairy World*, England.

Pure Bloods and Crosses.

Discussing pure blood and crosses in Farmers' Bulletin No. 100, issued by the United States Department of Agriculture, S. M. Tracy, M. S., says:

"In general, good pure-blood animals of any preferred breed will be found more profitable than either crosses or grades, though a poor specimen of a pure-blood animal is no better than any other poor animal. The fact that an animal has a long pedigree and is registered in a herd-book does not in itself make the animal desirable as a breeder or profitable as a feeder. A desirable breeding animal must not only have the prepotency developed by generations of breeding to a certain definite standard, but must also have the form and characters of that standard in a sufficient degree so that it is itself a good specimen of the breed. Hogs are used for nothing except for the making of pork. The pure bloods have been bred for many generations for that sole purpose The best animals, those which had the ability to make a pound of meat from the least food in the shortest time, in each generation have been selected as breeders, while inferior ones have been rejected. In this way the natural tendency of the pure-blood animals of to-day has become so fixed by generations of selections that they make a rapid growth from a small amount of food. The "scrub," on the other hand, has been bred for the development of an animal which would, to a large extent, care for itself, while quick growth, good form and fattening have been neglected, and the animal is to-day but little different from his wild ancestor. It has been literally "root hog or die," and the rooting form has been developed at the expense of the hams and side meat. When fed with an equal amount of food, the pure-blood will weigh fully twice as much as the native hog at six months or more, and when slaughtered will lose only 20 to 25 per cent of its live weight, while the native will not ordinarily dress more than two-thirds of its live weight. As the pure blood will make more meat from the same amount of food and in less time than the scrub, it is the better animal.

It is a very prevalent idea that crosses make better animals than pure-blood. It is argued that, as Berkshires and Poland-Chinas are each good, a cross will possess the special good quality of both, and so will be better than either. The crossing of two pure-blood animals of different breeds often gives pigs which are fine animals, have good forms and will mature quickly and satisfactorily. When a litter of pigs is to be raised exclusively for slaughter, such crossing is not objectionable, and many careful hog raisers think it the better practice; but the pigs from such crosses, however good they may be, are of little value as breeders. The pure-blood ancestors on both sides have been developed toward definite ideals. In the first cross there seems to be a blending of the types, and the results are often very satisfactory, but the offspring of these crosses are almost sure to show all the weakness and defects of both lines or ancestors as well as many of their own. Breeding from crosses, even though the individual animals may be of good quality, is rarely satisfactory or profitable.

Results from Alfalfa.

The chemical department of the Kansas experiment station has just completed the analyses upon one of a series of digestion experiments with alfalfa. In this experiment hay was used which was cut when in full bloom, and was fed to a 3-year-old grade Hereford steer. The results of the analyses show that the air-dry hay contained digestible nutrients as follows:

Crude protein, 10.43 per cent (consisting of albuminoids, 7.86 per cent, amids, 2.57 per cent;) fat 69 per cent; crude fiber, 15.99 per cent; carbohydrates, 28.18 per cent. The total digestible nutrients, 55.29 per cent. Let us compare the last figures with those representing these total digestible nutrients contained in some of our most common feeds used for dry roughage.

Millet contains 57.6 per cent; oat hay, 52.2 per cent; orchard grass hay, 48.2 per cent; timothy hay, 48 per cent; prairie hay, 46.7 per cent; sorghum hay, 44.2 per cent; red clover hay, 43.9 per cent; oat straw, 43.9 per cent; wheat straw, 39.2 per cent, and corn fodder, 35.8 per cent.

We find that only one of the ten feeds named is equal to, or exceeds, alfalfa in its total content of digestible nutrients, while the larger part of them are far below it. This is not a fair measure of its feeding value, however, unless we also take into account the composition of these nutrients. As a rule, it costs much more to produce feeds rich in protein than it does those rich in carbohydrates, and consequently, of the two feeds containing an equal amount of digestible nutrients, the one containing the most protein is the most valuable. Comparing alfalfa in this respect with the above named feeds, we find that it ranks far ahead of the richest of them. One hundred pounds of alfalfa hay contains 11.3 pounds more digestible matter than the same amount of red clover hay and 1½ times as much protein. It contains only 2.3 pounds less of total digestible nutrients than the same amount of millet hay, and almost 2½ times as much digestible protein. It contains 2½ times as much digestible protein as oat hay; 3 times as much as prairie hay; 4 times as much as sorghum hay; 5 times as much as corn fodder; 6½ times as much as oat straw, and 13 times as much as wheat straw.

In feeding value, alfalfa hay not only ranks high above all other feeds used for roughage, but it is well up among the more concentrated feeds. One hundred pounds of it contains 3.3 pounds more of total digestible nutrients than wheat bran, and almost as much protein. It is richer in digestible protein than wheat, corn, oats, rye, barley, kafir corn or sorghum seed.

Its digestible nutrients have a nutritive ratio of 1 to 4.4. There are only a few feeds, such as wheat bran, linseed meal, cottonseed meal and soy beans that furnish as narrow a nutritive ratio as this.

Alfalfa hay, therefore, is an ideal feed to use in balanced rations, and is especially valuable to combine with corn as a ration for fattening steers, since it furnishes all the roughage necessary and is also a cheap source of protein. It is an ideal dairy feed, furnishing almost the exact nutritive ratio required for the highest yields of milk. Its value as a feed for hogs has been shown in results previously published by this station. —*California Rural Spirit.*

Tainted Milk.

After a dry season, such as we had this spring, we always expect to hear complaints about bitter flavor in milk and butter. These troubles are not so frequent as they were twenty-five years ago, because the causes that produce them are better known, and more generally avoided, but there are some yet who do not understand them, and allow the cause to go uncorrected until the butter is so bad that no one can eat it.

When the pastures are as dry as now, the grass dries up while the weeds remain green, especially that very bitter weed known as the Roman wormwood, common in nearly all old fields. That weed seems to flourish best when all other vegetation is at a standstill from lack of moisture. The cows usually avoid it, or eat but small quantities of it when mixed with grass, but when hunger drives them to it, they will eat it and it will give its flavor to the milk and cream, and we do not doubt but if the animal was killed, after a week or two of such diet, the same flavor would be found in the flesh.

There are other weeds, not quite as bitter which are sometimes eaten, and we have seen the leaves of birches and other trees or shrubs eaten by cows in scanty pastures, any of which would be likely to flavor the milk unpleasantly. We need not seek far for a remedy. Remove the cows from the pastures where weeds are more abundant than grass, and give them fodder, either in a better field or at the barn, even cutting clover and corn fodder for them until they are not tempted to eat weeds.

This taint from weeds will usually be noticed as quickly in milk as in cream or butter, but there is another bitter flavor which is often not detected until the butter has become a few days or a week old, but develops rapidly after that time. This also is most frequent in a dry season, though we have been asked to account for it nearly all seasons of the year. In most cases we have traced it directly to the use of impure or stagnant water.

When brooks, ponds or wells grow low, impurities existing in it become much more powerful than when they are diluted, or when the swift running streams carry them away. Carefully watch the drinking places of the cows, and see that they do not have to drink out of stagnant puddles, nor to wade in and stir up decayed and decaying vegetable matter, and other deposits that accumulate at the bottom of slow running water.

We have in some cases been obliged to think the trouble arose from the ill health of the animal, and probably a diseased liver, but in one case at least, after deciding that the water supply was pure, being from a good well, we found that one cow did not drink with the rest when there was a dirty puddle in the barnyard, filled with liquid manure. It was a case of depraved appetite, possibly the result of some disease. When her milk was not used with that of the other cows the butter had a good flavor again, and kept it. And after she was prevented from drinking at the puddle, and had been well physicked out with Epsom salts, and then given salt to make her relish good pure water, she soon became all right again.—*American Cultivator.*

Improvement of the Soil the First Element of Successful Dairying.

[Paper read before the New Hampshire Dairymen's Association by GEO. T. POWELL.]

Never in the history of our country has land in New England, with its improvements, reached so low a point in value as at the present. Never has it been more difficult for a farmer to change his business, or to sell his farm than now. Many that once considered investment in land so desirable and safe, now draw away from it. The highest rates of interest are exacted from farmers, because of the greater risk incurred, hence needed improvements are not made and steady depreciation goes on.

Now what determines the value of land, or of any other property? It is its earning power, its ability to return a profit upon the investment made in it. There are certain causes that have been operating to lower the value of agricultural products. Our public lands have been too rapidly turned into production; many acres a century, at least, before they were needed. Transportation has been most wonderfully developed to meet this greatly increased production, and from these causes the farms of New England, with their improvements, have been reduced in value to the level of the cheap and unimproved lands of our public domain.

But the important question that is before this association to-day is the condition of the soil upon the farms here represented. How, as dairymen, can you increase the earning power of your farms? The older farmers of this audience have been successful in their day; they have been the great force that has built up this New England thrift and enterprise. They have contributed to the upbuilding of the great manufacturing industries of our country by their industrious and educated sons, and while the best brains have gone out from these New England farms, we want some of the best to remain on these farms to give them the better development they so much need.

Farmers, your discouraged sons can never repeat your earlier successes in the same manner. You were successful, not so much from superior management and judgment, as from the fact that your efforts were blessed by a highly productive soil. You have taken out the cream of the wealth that was in the soil, and for your sons to continue to abstract wealth from this same soil, involves them in entirely different problems. They cannot go on in the same methods and succeed; they cannot even afford to inherit your farms and pursue your methods, for it would only be a question of time when they would be practically disinherited by the soil itself, which now refuses to be longer mismanaged.

The general impression prevails that the farms of New England are exhausted of fertility and are worn out, hence unprofitable for agricultural purposes. Such is neither the truth nor the fact. There is not an acre of exhausted soil in New Hampshire, and when much of the rich alluvial soil of the great West has undergone the same abuse, an experience that is going on more rapidly than in the East, and much of this western land is abandoned, New England farms will be found still feeding millions of dependent consumers. [Applause]. I have faith in a greater development and improvement in the land of the East, than we have ever yet known. Every other great industry has been leading in an unusual development. From this time on agriculture is to be a new field, and in this there is great promise and hopefulness. Now let us go to the direct consideration of this new development, and the promises it holds out.

The improvement of the soil is the first factor; from it all of our hopes and results must come, and let us now consider its most practical accomplishment. The foundation for soil improvement must begin with tillage. So abundantly is our soil supplied with plant food that the Creator has made it impossible for many generations of men to exhaust it. After upwards of two centuries of great production, the character of our soil has been changed, and we have now to put far more labor upon it. If I were to ask you what is the object of tillage, probably a large majority would answer, to keep down the weeds. While that is one of the purposes of tillage, it is by no means the first. We must return thanks to the Lord for the persistence of weeds, for without them to force many farmers to their fields with cultivation, many crops would prove total failures for want of working the soil, so that weeds are among our real blessings.

We do not give sufficient consideration to our plows, to their construction with reference to the more thorough manipulation of the soil. We must not buy plows on the recommendation alone that they are easy of draught. In a trial of two new plows on my farm, one was claimed to be very much lighter draught than the other. They were both put to work, and my men chose the easier running plow. On examination of the soil a decided difference was observed; one plow would cut and turn its slice smoothly, and with the least possible resistance. The other turned its furrow well, but in doing so its action on the soil was entirely different. It twisted and broke and fairly ground the soil, leaving it apparently in a rougher condition. This was by far the most valuable plow, for while it was harder work for the team and the man, it accomplished what we want of a plow, the more thorough breaking of the soil, for in so doing it is liberating more of the plant food that is still so abundant in the soil. We need to study the construction of mold-boards and land sides to know if they will handle the soil as it must be done to-day. The jointer should always be used. It helps in the more thorough reduction of the soil, which is the real object in plowing. The next process of tillage is the use of harrows and cultivators. These are of different kinds, but the object of their use is the same, the greater refining of the soil, that its plant food may be made more easily available.

One reason why it is necessary to give more attention to the thorough tillage, is the mechanical condition of the soil. In the many years of production of cereals, we have very largely worn out and used up the vegetable, organic or humus matter in the soil, and this has changed its texture. It seems much of the time to be in a too hard, compact condition, not holding or retaining moisture, failing quickly to carry crops in times of drouth. Tillage, then, has a further object in putting the soil in a much finer tilth, that it may hold or retain longer the moisture so necessary to growing crops. We cannot depend upon the rain fall to carry our crops through during their period of growth. We have to depend on that more largely that is stored in the earth, and now we must apply tillage to the proper control of the water supply that is generally abundant in the soil.

On all cultivated crops, then, we must plow the land early in the spring, or if already plowed, begin to till it early, for as the warm days of spring and summer come along, the water movement toward the surface of the soil becomes more active, and the loss by evaporation grows rapidly, daily. Every day the soil lies undisturbed in the spring, the greater will be the loss of the water supply for the season, hence early tillage becomes very important. Till deep early in the season, and lighter as the hot weather approaches, and by this system we cut off the loss largely by evaporation, in sealing the surface by this fine cov ering which comes from frequent light surface tillage, and the moisture is held for the use of growing plants. This system of tillage will improve the soil, and increase the yield of crops without the aid of extra fertilizers, and it is better business practice to obtain and make use of the fertility that is under our feet first before we expend money for artificial plant food.

In this important problem of improving soil we must use other agencies that will assist tillage. For a number of years I have been working with crimson clover, and with some very marked results. I speak of crimson clover because of its peculiar fitness for the purpose I desire to accomplish. I lay down the principle that we can continue taking out crops from the soil, and after doing so leave the soil in better condition than before their production. This seems like a very strong statement to make, but I will try to give you a demonstration of the fact.

When I began farming, I started on a farm that for several generations had been producing wheat, and other cereals, hay and potatoes. The system was changed, and the farm was covered with orchards and vineyards. I soon discovered the soil was not equal to producing regular annual crops of fruit of fine quality, and a much more extensive plan of tillage was begun. This was followed by plowing in buckwheat and rye, and while these gave favorable results in changing the mechanical condition of the soil, they did not enrich it materially, and

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THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.

Very handsome . . . Send For Pedigree. $50. J. P. BRADBURY Pomeroy, Ohio.

crimson clover was tried, and has now been used for five years. Crimson clover was chosen for the reason that it is an annual plant, and grows more rapidly in a given time; also for the reason that it grows better in the cool autumn months, and can be sown on all cultivated crops after the cultivation ceases. On a dairy farm it can be sown in corn at the last cultivation in July, using ten to twelve pounds of seed per acre, covering the seed very lightly the last time the corn is cultivated. It can be sown in potatoes in the same manner; it can be sown in buckwheat; and I have also sown it in early spring in oats successfully, and plowed it in for rye in the autumn. There have been many failures with this plant and it has been condemned; there have also, for several years, been many failures with red clover. We want to understand clearly the object for which we use crimson clover, which is only for the improvement of the soil. It is not for pasturage, neither for hay. We want to obtain the largest possible growth of this plant from July to December, and during this time it is capable of doing us great good.

I discovered after two or three years use of this clover a marked improvement going on in my soil, also noticed that in seasons of long drouths large crops of fruit and of corn were carried through much more successfully. The clover grew well during the autumn, and was plowed in early the following spring.

While conducting schools of agriculture in my state for farmers, under the auspices of "The Committee for the Promotion of Agriculture," and later for Cornell University, a chemist from Cornell assisting, desired to determine the actual extent of improvement that had been made in the soil by this clover treatment. It has long been claimed that clover can add fertility to the soil in the form of nitrogen taken from the atmosphere, and while it has been proven in the laboratory of the chemist, no one has attempted to prove what could be done on a large scale with an entire farm. Samples of soil were taken from an orchard where the clover had been plowed in for three years, and sent to the chemist at Cornell to be analyzed. A sample was also sent from the orchard where no clover had been used. The conditions were entirely the same, and had been for several years previous. The figures on the chart here shown give some very interesting results·

CRIMSON CLOVER AS A GREEN MANURE.

ANALYSIS OF SOILS.

	Three crops clover.	*No clover.*
Water	15.00 per cent	8.75 per cent.
Nitrogen	.21 " "	.12 " "
Humus	2.94 " "	1.91 " "
Phos. acid (available)	.015 " "	.008 " "
Water	6.25 " "	equals 46.875 tons.
Nitrogen	.09 " "	" 1,350 lbs,
Phos. acid	.007 " "	" 105 lbs.

Here the work of the scientific man, which is positive and accurate (for there is no guess work in scientific investigations), corroborates the practical results that have been obtained over a large acreage. We have been successful in growing this clover in many ways. This sample of the plant was taken out of corn ground only a week ago, and its stalks will measure five to seven inches in length. We have it of equally good growth in potato ground, in orchards, vineyards, small fruit plantations, also a good stand where oats and buckwheat have been grown, covering eighty acres. The past season, while potatoes have been a general failure, we have succeeded in growing an excellent crop where a heavy growth of clover was plowed in, on corn ground.

The figures in this analysis show some very valuable and interesting facts. The difference in moisture in these two soils makes nearly forty-seven tons more of water in the clover field per acre, and this is made possible by the greater amount of humus which the plant has added in three years, nearly double that found in the soil where no clover has been used. This readily explains why we have carried some large crops through long drouths without serious injury to them. The figures on nitrogen are the most significant. The difference in nitrogen found in favor of the clover treated soil for three years makes 1,350 pounds per acre, and figuring its cost at the lowest price it can be bought for in a wholesale way, at fifteen cents per pound, it has added $202.50 in value of this costly plant food per acre. It was also found that there was a larger amount of available phosphoric acid in the clover treated soil. The potash results have not yet been determined.

The conditions in New Hampshire may be somewhat different from New York, yet if you can get a fairly good growth during the autumn, it will be of value to your dairy interests. I believe there are far greater possibilities in a higher development of New England farms than anything we have known. The drift of population has been to the West, but the alluvial soils of the West will stand no such long period of production as yours. Already, the wheat and corn fields have gone down over fifty per cent in many sections in less than thirty years, and when some of this apparently inexhaustible western land shall have been abandoned, you will see the tide setting back to the East. Your New Hampshire farms will again be sought after, and New England will continue to feed millions for time to come as she always has. [Applause.]

It is for the dairymen of your state to intelligently study this question of the improvement of your soil, which means improvement along the entire line of your agriculture, of your grasses, of your cereals, of your herds and of their products, and by no means least in importance, farmers.

Separator Questions.

ED. HOARD'S DAIRYMAN;—In your issue of July 28, I have been very much interested in an article on separators, by Mark Sprague. I am the owner of a separator, and although the mechanical running of the machine seems to be all that one could wish, I must confess that the scientific features that present themselves at different times are calculated to stimulate thought and investigation.

We wish to submit to Mr. Sprague, or some one else of your choosing, a few questions that we should like to have explained.

1st. Is it generally understood that a morning's milking will produce more cream per gallon, than that of a night's milking? It is almost universally so with us, with cream of the same quality. Cows run in quite a large pasture during the day, and are confined in a small yard at night. Would this make any difference?

2nd. We had supposed that a separator once adjusted as to the quality of the cream, would always produce the same article; whether more or less per gallon, the quality would be the same. This is usually the case with us, but not always. On a few occasions we have been startled by the appearance of a large flow of cream from the machine, much thiner than usual, without having changed the adjustment of the parts in any way. Is this caused by any difference in the speed of running, the flow of milk into the bowl, or what? The flow of milk into the bowl is regulated by a float, as we suppose all are, and I do not see how it could be changed by the flow from the tank.

How is it possible to change the flow of milk into a bowl, where a float is used, and the capacity of the float cover already established?

We believe that separator builders have their business down to a very nice point, mechanically, but we are of the opinion, that there are many scientific results yet to be established, that we do not see mentioned in their catalogues.

We did not know until recently that a cow would give richer milk in the morning than she would at night, but it would be hard to make us think otherwise now.

A few explanations in regard to the above will be greatly appreciated.

Annapolis, Md. H. L. COMBS.

This is a case where experience is worth more than theory. Will some of our readers, who have had experience in the above line, help us out?

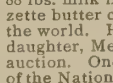
"The Man With the Hoe."

Edwin Markham's unfortunate poem, "The Man With the Hoe," has brought more or less misplaced odium on that useful implement. Newspapers are referring to the hoe as though it were a type of degradation, rather than a fitting emblem of the dignity of labor. And some of the preachers have fallen into the same error. The Rev. A. B. Wilson, of San Francisco, the other day, said in the course of a sermon, that "drink puts a hoe in a man's hand." He meant that the tendency of drink is to make or keep a man a laborer—a toiler for hire; to destroy thrift and industry. But his expression was not well chosen, save as an apt reference to Markham's poem. The fact is, that there are thousands of fellows writing foolish verses, who would be much better employed if they were hoeing potatoes or corn. The great trouble with this country is, that there is not enough hoeing. If drink would put a hoe into the hands of the thousands of genteel loafers and bilks who crowd the large towns and cities, it would be a good thing to leave plenty of free whiskey on tap.

So far as any application to labor in this country is concerned, Markham's poem is mere sentimental rubbish. It is true, that he uses the word hoe simply as a symbol of peasant labor, as pictured in the famous painting of Millais. But, unhappily, his verses are having the effect of increasing in this country the evil tendency to crowd the cities at the expense of rural pursuits. In America the young man with the hoe, and with the will, and muscle, and horse sense to use it properly, has a better prospect in life, than the average young cigarette smoker in the cities, who undertakes to eke out a living with the pen. We have too many poor poets and bad writers, and not enough good farmers. Let us honor the hoe and those who wield it in the hope and prospect, that all Americans may have, of thereby securing a good home in the country.—*Pacific Bee.*

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.



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SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

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Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

TIRANNIA

The third highest butter cow in Holstein history is owned with three of her daughters at **Valley Mead Farm.** Tirannia's butter record is 36 lbs. 11 oz. in seven days, 91 lbs. milk in one day. She is the winner of the Great butter prize of 1889, of a Gold Medal and $100 for making the largest fair ground test in the world, viz: 3 lbs. 2 oz. in one day. Also was sweepstakes public tested cow of the breed of 1891. H. F. Register says: "Few if any better or more beautiful cows ever lived than Tirannia, and her performance as a butter cow is in keeping with her beauty almost unapproachable." She once sold for $1500. **Valley Mead Farm,** Monticello, Wis.

A MILK and BUTTER Holstein.

Pietertje Sir Tirannia Royal.

Dropped Aug. 4, 1898. A grand individual now ready for service. In his veins flows the blood of the greatest cows of the breed: Pietertje 2nd, 112 lbs. milk in 1 day, 30,318 lbs. in 1 year. Oude Empress, 114 lbs. milk in 1 day. Mechtchilde, 112 lbs. 1 day; sold for $2,500.00. Empress, 109 lbs. milk in 1 day. Mink, 96 lbs. milk in 1 day. Pietertje, 93 lbs. milk in 1 day. De Gonde, 91½ lbs. milk in 1 day; a prize cow at the Paris Exposition. Tirannia, 91 lbs. milk in 1 day; winner of the National Butter Test, in a ring of 73 cows from 12 states. Castine, winner of the $1,000 butter prize at the Inter-State Butter Test, at Buffalo; also winner of the Ohio state butter test. Mercedes 88 lbs. milk in 1 day; winner of the Breeder's Gazette butter challenge cup, open to all herds in the world. Her son, Jacob, sold for $5,000. Her daughter, Mercedes 3d, sold for $4,200 at public auction. Ondine, 90½ lbs. milk in 1 day; winner of the National Butter Test at Rotterdam, Holland. Also a large list of other noted animals. **Price, $75.00.** If you want him, write at once.

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Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

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Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

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CHAMPION Herd

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE

GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.

GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE, Farm Supt., Madison, N. J.**

GUERNSEYS!

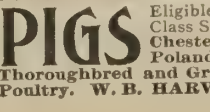
84 Cows averaged 399 lbs. of Butter each in 1898. . .

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Northern New York Pencillings.

Quality of Hay.—A Dairy Lesson.—Hydraulic Separators.—Raising Horses.

ED. HOARD'S DAIRYMAN:—Some farmers have twenty acres of grass uncut; others have a good crop of clover aftermath just beginning to blossom. Their first crop was in the barns before July 4th, with all its feeding value in it. The grass now uncut is comparatively worthless, its starch and sugar is gone, having been replaced with wood fiber and gum, while the nitrogen and phosphoric acid have found a convenient hiding place in the dry seed.

Yesterday, I saw a field of twenty acres—possibly more—of "river flat" that, July 1st, would have produced not less than two tons of fairly good timothy per acre, but was so dry that there appeared only a bottom growth of, say, six inches of green matter, while the original crop was disputing with a fine growth of wild carrots—gone to seed, too—for supremacy. It was not worth the cost of cutting and curing, for feeding purposes.

Another small farmer has six scrub cows, part of them Jersey grades, which give 4.5% milk, together with a half dozen sheep, busily tramping over six acres of dry daisy pasture, fighting flies and searching for rations. Their owner had about a dozen acres of timothy, good for one ton each, July 1st, some of which is yet in windrows, and beside it, three acres of corn not yet tasseled, that has not been visited by either hoe or cultivator.

Those cows ran in the same pasture last year, in company with the same sheep, and luxuriated on the same diet of daisies.

The owner peddled their milk at four cents a quart, but did not realize $30 each from it, while every pound of hay, corn stalks and oat straw grown on twenty acres—minus that fed to a pair of horses and the six sheep—went the way of all dry timothy which is not burned. How much spot cash is there in such farming?

Last winter one could see the seat of his mowing machine, the wheels of his horse rake and the handles of his cultivator sunning themselves above the snow in the field, where they were last used. He had left them in convenient places to hitch to this summer, which he did, the cultivator excepted.

Coax that man to subscribe for HOARD'S DAIRYMAN? Guess not, nor for any other high-class agricultural paper. He knows too much now, being of the class mentioned by Dr. Jordan, at Gouverneur last winter, as "too cussed smart."

A near neighbor of this man has a high grade — seven-eighths — Jersey cow, eight years old, that has been kept on the product of less than two acres of land, the last three years, during which time she has not been dry.

During the year beginning July 7th, 1898, and ending June 25th last, 400 pounds of butter were made, besides supplying a family of three with milk and cream, and during six weeks, while her owner was ill, from one to two quarts of milk per day to a neighbor for milking her night and morning. The butter sold averaged 19 cents per pound, all going to regular customers, who, like Oliver Twist, clamored for more. The calf sold, at three days of age, for $5, thus giving a total yield of $90.50 for the year.

The milk was creamed in small open pans, without ice, and no pains taken to properly mix and ripen the cream, which was churned in a dash churn.

I frequently saw the buttermilk, which was rich in unchurned cream, and called the attention of the lady to it, but she said she could not do differently, situated as she was. Had that milk been passed through a separator and the cream properly ripened and churned, that cow would have produced more than 500 pounds of butter of the very best quality during the year, and with proper, judicious feeding, her revenue could easily have been brought up to the $100 notch, and at but little extra expense.

Her milk was allowed to sour and was then given to a pig, from June 20th to July 20th, during which time she was milked three times some days. She is now making about 14 pounds of butter in seven days and has nothing but pasture—about an acre—and a quart of bran twice a day. Which of the two dairies would you invest in?

Not long since I noticed a statement going the rounds of the agricultural press—the DAIRYMAN included—in which it was stated that 300 farmers near Carthage, this state, had been threatened with prosecution in the supreme court for using a certain make of aquatic cream separator—so-called—unless they put up a royalty fee.

No doubt but there are a few of these frauds in use in the vicinity of Carthage, but to say they number 300, is putting it altogether too strong, because, in the first place, there are not one-fourth that number of dairymen near Carthage, and in the second place, there are milk stations all along the railroad between there and Utica, the first one being at Deer River, six miles from Carthage, and nearly every farmer thereabout, who does not draw his milk to one of these stations, patronizes one of the several cheese factories thereabout, one of which is the celebrated "Crown Brand" factory of the Cook Bros., at Denmark, eight miles from Carthage, so that there is no place for these separators "near Carthage," the farmers having no use for them.

But they are manufactured in Watertown, as well as elsewhere, and hundreds of them are being sold to the fool farmer who never attends an institute nor reads a dairy or agricultural paper of value.

I saw one of the Watertown make, at a depot, recently, billed to a farmer in a Jefferson County, Wisconsin town. Of course, they are advertised extensively in the country weeklies and Cheap-John farm papers, the only ones the victims read, and for which they are usually owing for two to six years' subscription.

But "their eyes is sot," you can't reach them; so there is no need of wasting space and cold type on them. Let them pursue "the even tenor of their ways" and give them the opportunity to buy "green goods," aquatic cream separators, lightning rods or "gold bricks;" or to invest the few surplus shekels they may chance to have accumulated, in the funds of a Chicago or other "creamery promoter" deal. Paul may plant, Apollos may water, and you may write and print reams of editorial warnings, but these men will not profit thereby, as they neither listen nor read.

Three or four years since, when the average farm horse had dropped to the lowest level in price, and when "ten shillin a dozen," was a fair average for them, the speakers at our institute urged the farmers to begin the raising of horses.

The advice was to select their best mares—those that were of good size and action, perfectly sound, and of good age—then breed them to thoroughbred sires of certain types—French coach, Cleveland bays, Hackneys, and draught stallions were recommended as best. The speakers said that the near future would bring a market for good horses, with prices that would yield a nice profit.

The prophecy was true; the time has come and with it the demand and the prices; but there are no horses, such as were recommended, which are the types wanted. Of late, buyers from the east have been in the country, searching for such horses, but have found but very few. When found, however, prices varying from $150 to $500 have been paid, and, when a pair of matched drivers has been found, that just filled the bill, still higher figures have been paid.

The average farmer, however, he with the scrub cows and scrub horses, has none to sell, but is just begining to talk about "raisin a colt or two;" and one may occasionally see an old-fashioned, county dual-purpose, no purpose stallion and driver passing along the road.

The driver, mounted on an old sulky, wearing a cap—the driver, not the sulky, with a long visor, and the stallion squealing at everything in sight. One of those drivers said to me, recently, in answer to a few questions, "Yes, my biznis is just beginnin to boom agin. Seems kinder old-fashioned, after so long a dull time. The farmers hes got to go ter rasin colts; first, because there ain't no horses scarcely in the country, and them that is, is gettin old, and must soon be replaced; then, too, prices are goin up to the profit notch."

"Yes," I said, "but the markets don't want the type of horse you are driving. They

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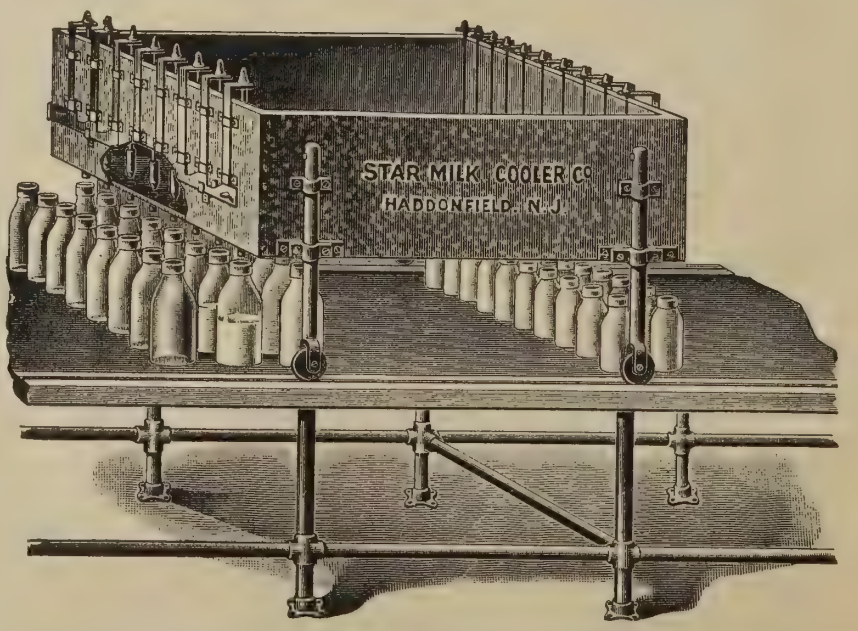
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want thoroughbreds or high grades of certain form and style. For instance, draught or roadsters or saddle horses."

"Oh, well, I know there's a call now an then for a hoss or two of that kind, but they ain't many of em; and its only casionally som city dude wants em. What the farmer wants is good, hardy, good sized hosses that can plow two acres of sod a day and then do an eight mile clip, hitched to a road wagon with the wimmin folks on it, to church Sundays, or to the post office Saturday evenins."

"He don't want any of your draught nor French coach nor saddle hosses. Who rides a hoss now-a-days. See any body doin it. Guess not; casionally one sees a girl or dude or some boy ridin a pony; that's all. Everybody's got a bike. No, my friend, you don't want to talk any such nonsense. The farmers is never goin to believe you if you do, cause they know better."

"Don't know of any one bout here havin a good likely old mare or two that they want to breed, do you? If you do, tell 'em I am just opening the season, and have a hoss that will suit 'em every time." Then he drove along, whistling, "Just tell em that you saw me." C. W. JENNINGS.

Bellville, N. Y.

Summer Butter Making.

[Paper read before the Ontario Cheese and Butter Makers' Association by FRED DEAN.]

A butter maker cannot have any fixed rules for manufacturing first-class butter. Each day brings him new experiences and trials, which can only be overcome by using that which is most essential, yet too often lacking in a butter maker—common sense. We are so often irritated by the little things and mistakes in our business, that if a little of the aforesaid substance had been used, we would have fewer troubles. The main object is securing a first-class article of butter in the summer time, and the key note is "cleanliness," from the food and water given to the cow, until the butter is placed in the hands of the consumer. So much has been said and written on this point, that you really would think there was nothing more to say, but it is only by nagging away, from time to time, that perhaps, at last, our object will be accomplished, and that is by educating the farmer to co-operate in this industry, feeding his cow such food that will not taint the milk, and keep her healthy, letting her have abundance of good pure water, and not drink out of any mud hole in some corner of the pasture field, or along the side of the road.

We must show him how he can best aerate his milk, by running it over an aerator, or using a solid handled dipper to stir it thoroughly, letting the animal odors off, and have it purified by coming in contact with the atmosphere out doors; then cooling it down so that fermentation will not take place, taking into consideration that it has been strained and put into vessels that have been thoroughly washed, scalded, and steamed. If you have educated the farmer up to this point, your butter is half made, for it is this fighting filth and carelessness, on the part of the patron, that keeps summer makers continually in hot water.

The best of butter makers fail now and again to make an even quality of butter, even when they have educated the patron, and receive a first-class lot of milk. This, no doubt, is owing to the different changes and conditions of the milk and weather, and cannot be placed to the discredit of either; but we are in an age now when nothing seems too great for man or machinery to overcome, and to overcome this point we must pasteurize our milk or cream every day to get this even quality, and be able to compete with foreign countries in obtaining a high price in the Old Country market. This is what we are making preparations for during the coming season. At each of the stations a pasteurizer will be placed to pasteurize the cream only. The cream drawer will then bring it to the central station, where it will be run over the cooler to a temperature of sixty degrees. A skim milk starter is used, being made of a half can of good, pure skim milk. Pasteurize all this by heating to one hundred and sixty degrees, and let it stand for twenty minutes. Then add as much good spring water as milk, which cools it down to ninety-eight; stir it well and add one dipper full of the old starter, changed once in two weeks, by letting the skim milk stand two days without adding the ferment. Use buttermilk that day, or if your buttermilk is of an even flavor and good, use it right along.

The starter is put in the vat before the cream, so that fermentation takes place immediately. When about twenty-eight or thirty-hundredths per cent of acid is shown by the acid test, cool down quickly as possibly to forty-eight or fifty degrees, stirring it every half hour or so with a common hay rake, which has given me the best of satisfaction.

After the cream is all pumped up and strained, the pipes are thoroughly flushed with luke warm water, then steamed, followed with boiling water, pumped through them each day. The cream should be kept at churning temperature from ten to twelve hours before churning, and be well stirred before putting it into the churn, and should not show any more than six-tenths per cent of acid, or less than five-tenths per cent. If too much acid has developed, the casein coagulates firmly during the churning and breaks up into small white specks, which are incorporated in the butter, giving it a bad appearance, and when a few weeks old a very disagreeable flavor. When the cream has not sufficient acid, it lacks in flavor, will not keep so long, and a larger per cent of fat will be found in the buttermilk.

When the churn has been scalded and cooled, strain the cream through a zinc strainer, filling the churn one-half full, or a little over, revolving from fifty-five to sixty revolutions per minute, taking from thirty-five to forty-five minutes to churn at a temperature of fifty degrees.

When the cream begins to swish in the churn, it is a sign that it has broken, showing minute specks of butter. Stop the churn and add a pail of water the temperature of cream, with a handful of salt, which gives the butter a better chance to separate from the buttermilk and hardens the globules. Let the churn revolve again, until the butter shows about the size of wheat grains, when the buttermilk is drawn off, and after draining for five minutes, let the water at forty-eight degrees run through until it is clear; close the tap and fill the churn two-thirds full, revolve for half minute, and draw off water, rinsing down with same. After the butter has drained for fifteen or twenty minutes, it is shoveled into eighty-pound tubs and weighed, putting two into the worker, then sprinkling on five pounds of salt, and again adding two more tubs, finishing salting at one-half to five-eighths of an ounce to one pound of butter.

We use the National worker with an indicator, letting it work for about four minutes; then drain five minutes, and finish working it in from six to seven minutes, according to the texture, which is shown by breaking over the roller reluctantly, and when pressed by the finger gives a velvety and waxy feel. The butter is only worked once, and during the summer we never had a mottle or greasy package.

When ready for packing, the butter is put on a long table, with scales at one end, and another smaller table used for boxes, which are twelve and a quarter inches square, made of spruce, paraffined on the inside and lined with very heavy parchment paper, fifty-two inches long, and twelve and a half inches wide, two strips in each box, soaked in strong brine from twelve to fifteen hours before using.

Butter that is to be packed for future consumption should be a great deal drier than that intended for immediate use. It should also be packed solidly, so that when turned out of the box, it will not show any crevices for brine to lodge, giving it an unsightly appearance. When the box is filled put it on the scales and scrape off butter with a stick of wood, twenty inches long, having four inches grooved off each end, with a movable strip fastened with a screw, letting it raise or lower according to the amount you wish to take off, allowing one and one-half pounds for shrinkage, A weak brine is now poured over the butter to prevent molding, and the butter from sticking to the paper; fold the four ends over and put on a heavy paste of water and salt about one-quarter of an inch thick, fastening on the lid with screw nails. Put the butter in a room, the first day, with a temperature between forty-five and fifty degrees, so that it will have a chance to cool gradually before putting it into the refrigerating room, which should be at a temperature of thirty to thirty-five, and if kept for any length of time, below thirty. After the day's make is over wash all woodenware in boiling water, steam thoroughly, and give a light sprinkling of salt over everything. Scrub the floors, which should be of cement, with boiling water, and then pour a dozen or so pails of the same down each waste pipe and gutter, accompanied every two or three weeks with a solution of copperas.

Hairy or Winter Vetches.

ED. HOARD'S DAIRYMAN:—In reply to inquiry of J. P. D., on page 390-91, will say: These vetches thrive upon all kinds of soil in this locality, in fact, are so hardy that stray plants exist in old sod and at the sides of roads. For soiling, sow about one and one-half bushels per acre, of a mixture of equal parts by weight of vetches and rye, using a grain drill.

We plant about Sept. 1st, having the ground well prepared. If soil is strong two crops can be cut off in time to allow growing a considerable crop of fodder corn.

J. H. NELLIS.

Montgomery Co., N. Y.

Beware of Cheapness.

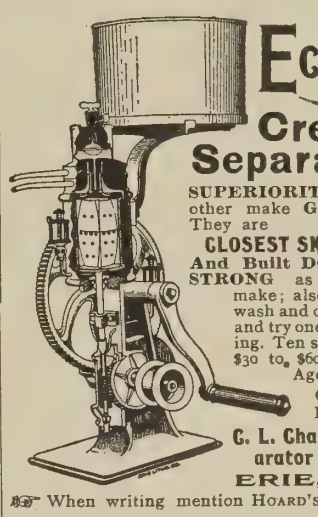
BEWARE of the butter color that an agent claims to be *"just as good"* as W. R. & Co.'s Improved, but which he offers at a cheaper price.

There is not and never has been a color *"just as good."*

Why should any one be obliged to offer a color at less price if it is *"just as good."*

While cheap colors may be cheap in price, they are expensive to use.

"THE KIND THAT HAS NO MUD"
Is Always Reliable.



Eclipse Cream Separators

SUPERIORITY over any other make Guaranteed. They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

Catalogue FREE.

C. L. Chapman Separator Works, ERIE, - PA.

☞ When writing mention HOARD'S DAIRYMAN.

STOP WOMEN

from exercising common sense? You can't do it. As the old rhyme runs:

"The man's a fool who tries by force or skill
To turn the current of a woman's will
For if she will, she will, you may depend on't
And if she won't she won't, so there's an end on't."

Common sense tells a woman that when she's sick she needs a doctor.

Common sense tells a woman that in disease the first question is not of man or woman, but of recognized medical ability.

Common sense applied to advertisements which invite women to "write to a woman because she is a woman and understands women," will show the women so appealed to, that it's no use to write to any woman about disease unless that woman is a physician.

Common sense used in the reading of advertisements will discover that no claim is made in them to a physician's knowledge or diploma. And that is not because the claim would be morally culpable as a lie, but because it would be legally punishable as a fraud. The law permits you to masquerade as a doctor in an advertisement, just so long as you don't actually claim to be a doctor, or put M. D. after your name. That's why the advertisement is worded "write to a woman" instead of write to a doctor.

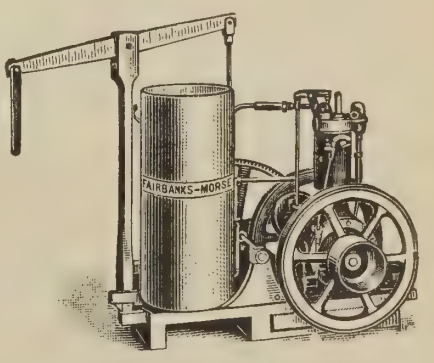
Common sense has brought more than half-a-million women, afflicted with some form of female disease, to Dr. R. V. Pierce as one of the most expert physicians in the United States in the treatment of female diseases. Dr. Pierce is a specialist. He has given more than thirty years of active practice to the treatment of female diseases. Dr. Pierce is not a "physician" by courtesy. He is a physician regularly graduated, legally empowered to practice and with thirty years of experience in the treatment of diseases of women, which he has made his specialty.

The offer of free consultation by letter made by Dr. Pierce i a real offer, an honest offer. It is an offer backed by a medical institution, with a world-wide reputation, a staff of nearly a score of regularly graduated physicians, a practice which reaches every state in the Union and a record of more than half-a-million women treated and ninety-eight out of every hundred perfectly cured.

Write to a doctor. That's the first thing. Write to *the* doctor. That's the next thing. *The* woman's doctor, is Dr. R. V. Pierce, of the Invalids' Hotel, Buffalo, N. Y.

ILLUSTRATION.

Fairbanks, Morse & Co., of Chicago, the well-known scale, gasoline engine and wind mill manufacturers, have recently placed upon the market a remarkable little machine which will be of much interest to all farmers, stock raisers and dairymen. This machine has been very appropriately named a "Jack of all Trades" as it is capable of doing such a variety of work in and about the farm. It consists of a one and one-half horse power gasoline engine, all connnected up ready for work. The following cut



shows the machine with pumping attachment. When water is put in the cooling tank, gasoline in the gasoline tank, and lubricating oil in the oil cups, the engine is ready for work. The gearing can be thrown out of mesh and the engine will then drive machines by belt from pulleys. The machine is particularly valuable on account of being so light that it is easily transported from place to place to perform work wherever it is most convenient to the owner. Among purposes for which this machine may be used are the following: Pumping water, sawing wood, shelling corn, running feed cutters, sewing machines, churns, butter workers, coffee mills, washing machines, cream separators, ventilating fans, dynamos, air pumps, sheep shearing machines, ice choppers, ice-cream freezers, horse clippers, and in fact it is adapted to furnish power for a hundred different purposes. Upon application the manufacturers will be glad to furnish further information in detail and send circulars fully describing the machine.

The Babcock Test in the Factory.

It seems useless to write of the use of the milk test when Farrington and Woll have issued such a splendid book, complete and up-to-date, embodying the principles of the test and the manipulations of it. But perhaps a little experience, coupled with some observation, may be permissible.

Any constant reader of leading agricultural journals, that carry on a question department, will have observed the great number of questions repeatedly asked and especially one that queries, why the variation between test and product is often so great.

It has been repeatedly demonstrated that fat, as shown by the test bottle, will in its commercial form as butter or cheese assimilate about 1-7 of its own weight of moisture. We readily see therefore why all tables add approximately 15 per cent to the fat, in giving the net pounds of butter to be found in the milk. A small amount of foreign matter is also found in the butter, chiefly casesin, which just about balances the loss in separation and churning.

In cheese manufacture, the same rule holds good, only we are dealing with two ingredients of milk instead of one. To find the cheese content of milk with the normal amount of moisture assimilated, as found in good stock, increase the fat by 1-7 and the casein by 2½ and the total will give the amount of cheese in one hundred pounds of milk, when the milk is sound and sweet and free from putrefactive fermentation; that is, in milk ranging from 3.2 to 4.3, which is approximately the range found in the cheese sections.

When this result is not found, when the butter is far removed in excess of the fat, from 15 per cent, or when the cheese falls much below 2.6 or much above 2.75 pounds to each pound of fat, something is wrong, either in manipulation of the test or handling the product.

In gassy milk the yield will often fall much below the figures given on account of great waste in manufacture. I know of no other way to right this in justice than to reject the milk.

Imperfect skimming and faulty churning for butter, or careless working of the curd in cheese, are often causes of great variation of yield in excess of fat. Particularly is this true where milk is of low fat content. For instance: If milk containing 3.3 per cent fat is skimmed leaving .1 and sometimes more in the skim milk, the loss would be at least .03 per cent, while in 4.5 per cent milk it would be only .02 per cent of the total fat.

In cheese the same results are noticeable; when dealing with a low grade milk the per cent of loss is greater than with a high grade. Although the maker is careful and the milk of the best, the actual loss of fat in the whey is about the same in the low as in the high grade.

Another cause for variation of yield, and from observation a fruitful one, is found in imperfect samples. My attention was called recently to a butter yield in excess of the test by over 25 per cent and the manager seemed to think it a remarkable thing to do—almost equaling the famous "Black Pepsin" fraud. An opportunity of examining the samples and the place they were kept was sufficient proof to me of the cause of so much excess. The creamery and churning had been good, but the tests were only made semi-monthly and the samples kept on the shelf near the receiving can night and day for the entire period; much of the cream had risen and firmly adhered to the inside of the bottles and no agency could thoroughly incorporate the fat with the milk to insure an accurate sample. Each sample as tested, would therefore fall short of the true per cent of fat; while the commercial yield was correct, the fat test was short. Samples have also been kept, as the writer knows, in open jars or bottles, for the period of seven or fifteen days, when a constant evaporation was taking place. An experiment with the same milk taken once a day, one sample kept in a tight bottle and another in an open jar, showed a variation at the expiration of fifteen days of .3 of one per cent in favor of the open jar.

Samples may be easily kept fifteen days in perfect condition with a little care.

After each testing, the bottle should be thoroughly cleansed, turned bottom up and dried; the covers whatever they may be, should also be washed and scalded, and each bottle named, or still better, numbered to correspond with the slate number of each patron. I have tried several systems of sampling, but find nothing so easy, simple and accurate as a tin tube about the size of a lead pencil and the length of the can; this is introduced slowly through the milk, the finger placed over the upper end and the contents allowed to run into the sample bottle. Another method of allowing a drip in the conductor, and another of taking out a sample with a small cup or dipper, gives substantially the same results and may be open to less criticism from patrons who are so inclined. It is therefore policy to use such methods as may be found to offer the least possible objection.

After the fresh sample is introduced, sufficient agitation should be given the bottle to clean off the sides any cream adhering. This will not churn the samples providing they are kept in a cool place each day. Our samples are kept in a small refrigerator in the warm months, which need not be expensive, adding a small piece of ice each morning. The box in which they are kept while in use can be placed in the ice box, so that the bottles will not have to be handled.

I am sorry to say that we have not experimented with the different preservatives; corrosive sublimate is the base of many of them. We have always used bi-chromate of potash with excellent results, using enough to give the milk a light yellow color; of course, the amount to be used will depend upon the size of the sample.

With the samples in good condition the only secret that I have found in making a clear test and to do it every time, is to cool the samples before adding the acid down to 50 deg. to 55 deg. and in very warm weather to cool the acid as well. The fat will then show clear, the result will be accurate and no wide variation of excess will occur from one test to another.

The modern turbine with the motor separate from the pan is a good machine; a small steam connection, however, should be made into the pan to maintain a temperature sufficiently high that the fat will remain stationary in the neck.

In conclusion, the one great factor in doing work with the Babcock test is Care, *Care*, CARE. It does not require great skill nor great genius, but to carefully follow a few well defined rules; never try to hurry, keep a cool head, do not have other business on hand during the test, do not allow any one standing by to witness the operation to "help;" politely ask every patron to witness the operation as often as he wishes, but as politely tell him that you can do the work better and more satisfactorily than he can.

Do not attempt to do teaching when making the semi-monthly test, but have a

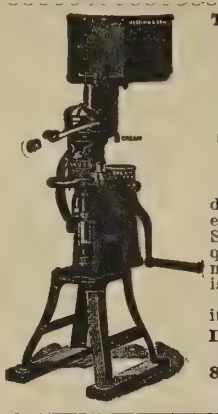


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MAKE A GOOD WAGON.

Unless a wagon has good wheels it is useless. **ELECTRIC STEEL THE ELECTRIC WHEELS** are good wheels and they make a wagon last indefinitely. They are made high or low, any width of tire, to fit any skein. They can't get loose, rot or break down. They last always. Catalog free.

Electric Wheel Co., Box 130 Quincy, Ills.



The Simplicity, Durability, Perfect Separation, and Convenience of Operation of the

DAVIS

Cream Separator

Are Perfect.

Creameries as well as dairy farmers are interested in the Davis Cream Separator, as the gain in quantity and improvement in quality of butter is wonderful.

Correspondence solicited. Agents wanted.

DAVIS CREAM SEPARATOR CO.

88-92 W. Jackson St., CHICAGO, ILL.

Make More Butter.



Increase each cow's profits at least $10 a year. Others are doing it who use

The Kneeland Omega Cream Separator.

Easiest running, least cost to buy and for repairs, simple, durable, perfect. Sold under a positive guarantee to be as claimed or your money back. That's fair enough. **Agents wanted** where we have none. Free book, "Good Butter, and How to Make It," to everyone who writes for it. Address,

The Kneeland Crystal Creamery Co., Concord St., Lansing, Mich.

DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

We Keep the Following . . . .

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And much prefer to send them out as such; however to those readers who are unable to secure subscribers, they will be sent post-paid upon receipt of price indicated.

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By MILES, (cloth.) Two Subscribers or $ 0.50

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By J. H. MONRAD. (Cheddar, Gouda, Brie, Etc.), Paper. Two Subscribers or .50

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Cheesemaking in Switzerland,
By J. H. MONRAD. (Emmenthaler, Etc., Brick and Limberger.) Paper, Two Subscribers or .50

Pasteurization and Milk Preservation,
By J. H. MONRAD, (paper—75 pages). Two Subscribers or .50

Hand Book on Cheese Making,
By NEWELL, (paper). Two Subscribers or .50

The Dairy Calf—Breeding and Raising,
By L. S. HARDIN. One Subscriber or .25

Dairying for Profit,
By Mrs. E M. JONES, (paper). One Subscriber or .50

Outlines of Dairy Bacteriology,
By Prof. H. L. RUSSELL, (cloth). Three Subscribers or 1.00

Acme Shipping Book,
For Creamerymen and Cheese Factorymen Four Subscribers or 1.25

Schoenman's Butter Fat and Dividend Calculator
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MILKING TUBES AS PREMIUMS.

Pilling's Silver Milking Tube, One New Subscriber or $ 0.40 | **Moore Bros'. Safety Milking Instrument,** Three Subscribers or $ 1.00

time for it. Do as Dr. Babcock has told us, and with care, coupled with reasonable education and experience, results will be correct.—H. E. COOK, in *Produce Review.*

The Effect of Oleo on Butter.

The assistant dairy commissioner of Iowa gives it as his opinion that the oleo sold in that state reduces the average price of butter at least three cents per pound. As Iowa makes two hundred million pounds of butter per year, it can readily be figured out that oleo causes the farmers a net loss of six million dollars per annum. The production of oleomargarine in the United States has nearly doubled within a year.

Bacterial Origin of Flavor.

Probably in no department of research is a greater amount of investigation going forward, and valuable data and actual discovery being made than in dairy science; and while some of the discoveries have been of little or no value, a wonderful amount of useful and practical material has been placed in the hands of the dairymen. Among the new things announced, since it has been shown how nearly ferments and flavors in butter are associated, is that if certain acids are added to sweet cream, it is not necessary to wait for the development of lactic acid bacteria in the cream, but that it could be churned at once, and churned quite readily, and the true flavor secured. Investigators have been at work on this problem, and an announcement of the results has been made. The most satisfactory result came from using hydrochloric acid diluted in twice its bulk of water, and adding this in small quantities to the sweet cream. Everything was satisfactory, except that the butter had no aroma, though it was pronounced fair and good by the judges. The butter kept well, and had a water content of 12½%; but the low flavor was against it, though not a trace of acid was to be detected, or found by analysis. About the most important thing brought out was that butter seems to be fully dependent upon bacteria for true flavor, rather than the food, provided that the latter is wholesome, and not of a character to impart obnoxious flavors to the milk, which, after all could not be called butter flavor in any sense of the word.—*Mark Lane Express.*

High Pressure in Milk Preserving.

We have given a brief account of the experiments conducted at the West Virginia Experiment Station, in putting milk under a high pressure to aid in preserving it. The pressure seemed to weaken the action of the bacteria which sour milk. We have been interviewing a number of scientific men to try to learn something more about the matter, but few of them are prepared to speak definitely.

Prof. S. M. Babcock says:

"I think Prof Hite has made a valuable contribution to what has been known concerning the conditions which affect the growth of bacteria in milk. I do not see, just now, how those high pressures can be applied in practice but have no doubt a way will be found, if further investigations show that they will be effective in keeping milk in its natural condition. It has been shown before that high pressure retards the development of some kinds of bacteria, but such high pressures as were used in this have, I think, never been tried before. I do not know why pressure should affect the growth of bacteria."

Dr. H. A. Hardy, bacteriologist, says:

"From a practical standpoint, the value of these results is not so clear. From the published account, it appears that the high pressures used did not result in the death of the bacteria, but only in checking their action for a few days. Pressure alone cannot be depended upon to free the milk from disease-producing germs. A combination of pressure with pasteurization gave good results, but in this case, the pressure simply takes the place of the cooling which usually follows the heating. Milk pasteurized at 152 to 160 degrees for from one to three hours and properly cooled and kept cool, can be shipped from New York to San Francisco in good condition. If the extra cost of providing containers capable of withstanding a pressure of ten tons, of applying this pressure and of transporting the container to its destination and back will be less than the cost of properly cooling pasteurized milk and keeping it cool, then some practical results are to be expected from the process. In the subtropical portions of the country, where cooling is more expensive, there may be a balance in favor of pressure; but even here the present outlook is not promising. As the research goes on, something may be found to modify this view."—*Rural New Yorker.*

CONCERNING OUR ADVERTISERS.

The newer counties of Minnesota are receiving a great deal of attention by dairymen and stock raisers on account of their fine meadows and unusual opportunities for stock raising and dairy farming. Illinois, Iowa, Indiana and Michigan are furnishing many new farmers for these localities of which Atkin County, Minnesota, is fast taking the lead. This county is becoming renowned for its fine timothy and clover, and has long been well-known by the stock raising public for its natural meadows of red top and blue joint. This year these meadows are cutting as high as three tons per acre and the crops of timothy and clover are stupendous. Messrs. R. R. Cable and W. G. Purdy, Trustees for the well-known Chicago Rock Island & Pacific Railway Company, are advertising their lands in this county through their land agent, at Minneapolis, Mr. L. B. Arnold. These lands, we understand, can be bought at from $2 to $5 per acre and on unusually easy terms. Mr. L. B. Arnold can be reached at 901 Guaranty Building, Minneapolis, Minn., and we would call the attention of our readers to his advertisement on another page.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

PAPULOUS ECZEMA.

I have a heifer about three years old and has been milking about a year. She is very healthy every way only she has little lumps coming out all around each teat; they are something like grapes, in clusters about each teat. They are not sore in any way; they are soft to the touch and the skin on them is to all appearance like the rest of the udder. There was one little lump came out on one teat like a pea in a little bag; I cut it off with a thread and now it is growing out again the same as the rest of the lumps. This was the first start of it. D. A. P.

Bluevale, Ont.

ANSWER.

You have a definite, clear case of papulous eczema. This is not common to cows teats, but does occur once in a while. Don't allow anything to touch them and then any of the other cows, as you will thus spread the disease. Wash your hands *thoroughly* after *each* touch. Tie a piece of sponge to pencil sized little stick: touch each pustule *only* with butter of antimony; do this for three days once a day, then, instead, use *strong* tincture of iodine three times a day for a week or more.

LAMB DISEASE.

We are having trouble with our lambs and sheep, mostly with our lambs. They are dumpish and lie down a good deal; when they walk it is with head hanging down; after a few days they die. We have opened several, and the inner coating of the stomach seems to be rotten, but is the natural color. The food in their stomach seems to be natural; the intestines of one of the lambs was bloodshot, with no excrement in them. Some of them scour and some seem to be costive. We have just taken the lambs away from the ewes, and put them in a clover pasture. H. E. F. & SONS.

Pine River, Wis.

ANSWER.

You have some of the prominent symptoms of staggers, or sturdy—called also gid—turn sick—waterbrain, etc., etc., caused by a parasite known as *Cœnurus cerebralis*, etc. This affliction often leaves quite suddenly, leaving all O. K.

You have done wisely in removing the youngsters. I hope and believe you have not the above parasitic disease. I incline to believe you have a much less formidable disease. Rub a little of the following between the ears: Common turpentine, one ounce; oil cedar, one ounce; fish oil, three ounces; to be well shaken and rubbed in hard twice a day for a while.

WINTER COAT NOT SHED.

I have a Jersey cow, seemingly in fine health, but has not shed off this spring. What is the trouble? What can I give her to make her shed off? She is fed well, and has green feed twice a day, gives good flow of milk, and is very hearty. J. L. H.

Rockingham, N. C.

ANSWER.

Patience first; daily, long grooming with curry comb and good brush. Flax seed cake and mucilage. If she can stand the depletion, give systematic physicking, at least, one pound of salts and ginger, as per head of this column, six or eight days apart. Then give five grains of arsenic in a little honey and water daily, for three to five days; then rest three to five days; then repeat just once; then give a final dose of physic.

UDDER TROUBLE.—LAME COLT.

A cow on good pasture, in good condition, calved last week. Cow seems healthy and eats well; does not give much milk. Bag is not swollen, but running through udder near skin between the teats, and extending from fore part to back udder is a hard cord formation, about three-fourth inches in size.

Have a two-year-old colt, taken up out of pasture, and seems lame in left hind leg. By a careful examination can find nothing wrong with hoof, and is not swollen or sore in any place that we can find. H. VAN L.

Effingham, Kans.

ANSWER.

No. 1. Paint the cord named with strong tincture of iodine, three or four times a day for a number of days. Internally, give, first, full dose of the physic named at the head of this column. After the physic is through, give sixty grains of iodide of potassa in a little cold water each morning for ten to thirty days.

No. 2. Can form no possible or approximate idea of the lameness or cause. I think the lameness will disappear with moderate rest. Bathe with vinegar and water, half and half, or use strong oak bark tea three quarts, acetic acid, half a pint. Rub in three times a day.

LOSING THE CUD.

I have a cow that is peculiarly affected. Two years ago she was first taken, but it soon disappeared. This spring after calving it returned, but as before did not last long. About three weeks ago it commenced again, and although she eats well, she is losing flesh. She seems to feel well, eats well and looks well, but when chewing her cud it seems to separate and scatters over everything. It looks like a thin, watery paste. We gave her a mild physic (Epsom salts), but it did not seem to make much difference in her condition. C. P. R.

Ridgeway, Ore.

ANSWER.

There are just three things known to me which may be the cause of the condition you name, viz: a carious tooth or teeth, some derangement of the esophagus, or an intermittent inflammation, or other irritation of the larynx, i. e., the top of the esophagus. It might also result, possibly, from some derangement of the pharynx. To find out which, requires a professional, personal examination. You can try a strong liniment around and under the throat, or better, use Gombault's Caustic Balsam; cut off the hair close, raise a blister.

GRUNTS IN COWS.

Have had some trouble with cows from a disease that we call "grunts." Cows simply quit eating for a few days and stand and grunt. Have been having the same treatment as the rest of the herd and no unusual feed. Disease lasts three to five days and they lose their milk almost entirely for this period, and it takes a week or so to get them back to it.

Last fall was when I had the trouble with it. The sick cows were on pasture and fed hay (lucern). W. M.

Vineyard, Utah.

ANSWER.

Give each cow, full grown, four drams of podophyllum and half a dram of nux vomica in three ounces of old whiskey and four of cold water; one dose each day for two days, rest five days, then repeat over again. Two days after the last dose, give full dose of physic to each cow.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

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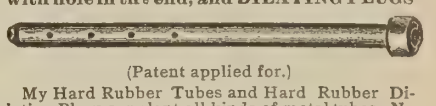
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

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Same price and same quantity as above.

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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

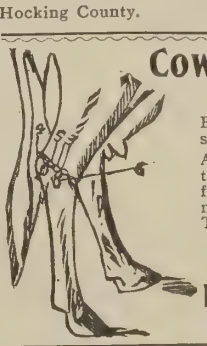
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Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for

ONE NEW SUBSCRIBER.

Variations in Test of Cream.

An intelligent manager of one of our Maine creameries writes that in testing cream twice a month, one test is 17 per cent and the other 17.3 per cent. The patrons cannot see any reason why the test should vary any in the same month.

The manager who writes the above to us well says "the patrons cannot see any reason why the test should vary," etc. The fact is, no one has yet been able to *see* in all cases why tests vary, and yet they vary. Or to put it a little more clearly, no one has yet in all cases been able to see why milk or cream should vary from day to day or from week to week in content of butter fat. Yet it is beyond question that there is a variation in this regard, and the Babcock test will correctly show it. In the case of the milk this is one of the obscure problems over which we may speculate, yet perhaps never be able to clearly see the cause. In making milk with a cow, we are dealing with a living organism, and it is absolutely impossible to know at all times what is interfering with the normal condition of the intricate machinery, so to speak, that is at work from day to day in making up and bringing forth the product of milk. We only know there are variations but cannot know in all cases the cause.

With cream the problem is different and less complicated. The process of taking the cream from the milk is mechanical and largely under the control of the operator. In case of a herd of cows the cream taken from the milk will not widely vary in per cent of butter fat from day to day, week to week, or even from month to month, *when the work of separation has been done precisely the same in each case.* As a matter of fact, however, our work is not strictly uniform, hence slight variations in the contents of butter fat, as shown by the Babcock test, appear. In the case referred to in the opening of this article, the variation of three-tenths of one per cent is small indeed. That much and even more is easily accounted for in the variations due to the person who handles the milk and cream. We cannot in a single article refer to what all these causes of variations may be. Temperature of the tank of water varies the quality of the cream. Time remaining in the water, temperature of milk when immersed, each has its effect. But a still greater cause of a difference in test is the amount of skim milk taken out with the cream. A full can of milk contains twice the cream of course, of a can only half full. Yet in drawing out the skim milk there is as much milk taken out with the cream of the half can as with that of the full can. This is a constantly changing factor as the amount of milk creamed varies from week to week, and of itself alone is far more than enough to account for the discrepancy in the figures given. If all those who use the Cooley tank will carefully study up this one point, they will find many variations of test, now charged to incompetency or dishonesty, fully accounted for.

But there is a variation in the quality of cream that will rise on a Cooley can. The cream from the milk of a fresh cow is richer in butter fat than the cream from the same cow at a late period of her lactation. Hence the cream of a cow will not show the same per cent in September that it showed in April, and may not be exactly the same at the close of a month that it was at the opening. Hence, it would be rare indeed, that a correct test would show exactly the same figures one month that it did the previous, and if so, it would not be common that a test of the last half of the month would be the same as that for the first half.

This matter of the variations in the test of milk and cream has been the cause of much complaint among those who furnish the cream, and also of a wide lack of confidence in the business of associated dairying. That there has been cause for suspicions of injustice in some cases we do not doubt, but a better knowledge of the work involved and longer experience in conducting it, have eliminated the probabilities of error so that when these variations are now encountered, a careful study of possible causes should be made before charging them up to error.—*Maine Farmer.*

Growing Cow Peas.

The following suggestions are intended to apply to Central Missouri and Northern latitudes: Experience has taught us that the methods of handling this crop pursued in the south must be modified somewhat for northern conditions. The varieties best suited for hay purposes here are the Clay and the Black. The Clay produces very little seed, but has a fine leafy vine that is easier cured into hay than any other of the productive sorts. The Black is a rather coarse variety, and usually produces some seed and therefore a slightly richer but coarser hay. The Whippoorwill, so generally used for hay in the south, is a bunch pea this far north (except in very favorable seasons when it vines somewhat) and on this account is not satisfactory for hay. It produces a good crop of grain, however, and is the best sort to grow for hog pasture. The New Era is another excellent variety to grow for hogs, and matures a week or ten days earlier than the Whippoorwill. For green manure, when the crop is to be plowed under, the Wonderful or Unknown is the most productive variety, and is generally used for this purpose. The seed is more expensive, however, and under ordinary circumstances, the Clay will answer quite as well, and at less cost. In buying cow pea seed in the south—the natural home of this plant—all the dealers and farmers will advise the Whippoorwill variety and many inexperienced growers have followed their suggestions, greatly to their detriment. It does not yield a good hay crop in the north.

Avoid sowing too early. This is the most common mistake of the inexperienced, and frequently those who have had years of experience get the crop in before the ground is warm enough to insure prompt germination and rapid growth. If these conditions are not secured, weedy hay will be the result. Cow peas must have high temperature, to outgrow the weeds that spring up.

No date for sowing can be fixed. The best rule is to wait until all the corn is planted and the soil has gotten thoroughly warm. If corn planting is delayed on account of the backward season, delay cow pea sowings. We have very seldom had good results from sowing earlier than June 1, and this year our best prospects are from sowings after June 15. We have had splendid results from sowing as late as July 15, although this is usually too late for a full crop. We aim to sow as near June 10 as possible in the average season.

The land should be prepared about as for corn, and the best results will be obtained by either allowing the weeds to get a good start before breaking the land or break about corn planting time and cultivate occasionally afterward to destroy the weeds. Have the land clean and freshly cultivated on the surface at the time of seeding. Sow at a rate of at least a bushel and a half per acre, either broadcast and cover deep with a walking cultivator or spring-tooth harrow, or, what is much better, sow with a wheat drill set from two to three inches deep, all hoes running. With an abundance of moisture in the soil two to three inches deep will answer, but if dry they should be covered three inches or more.

After seeding, the crop must be left to its own resources, as it is very difficult to do any effective tilling, especially after the plants are up. In favorable weather they will germinate very quickly. If, however, germination should be delayed by cool, wet weather and a crust forms on the surface and the weeds and grass begin to grow before the cow peas are up, a smoothing harrow, light drag or other shallow-tilling implement should be run over the surface promptly to break the crust and kill the young weeds. This is very important and should never be neglected; otherwise a reduced yield of weedy hay will be the result.—J. A. WATERS, in *Breeder's Gazette.*



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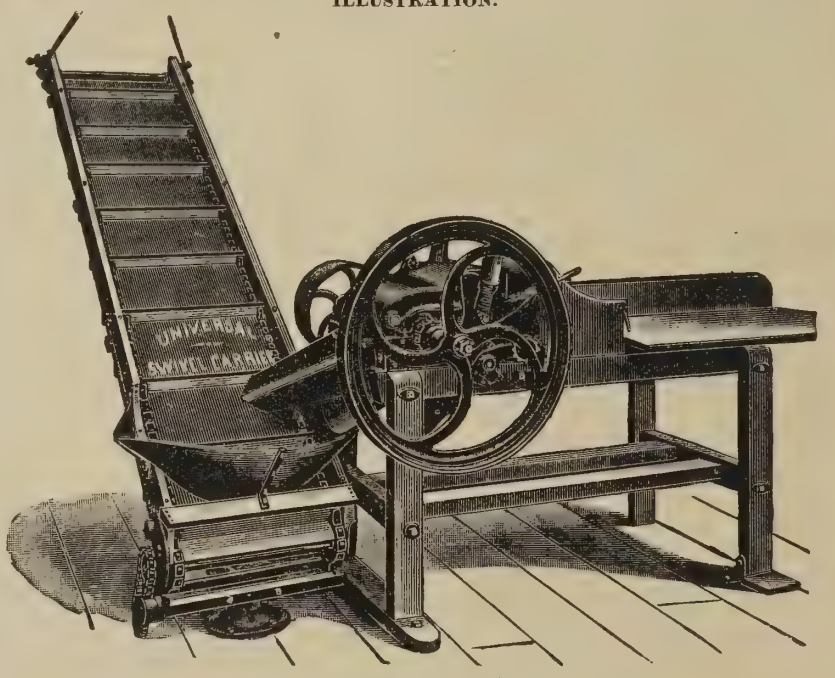
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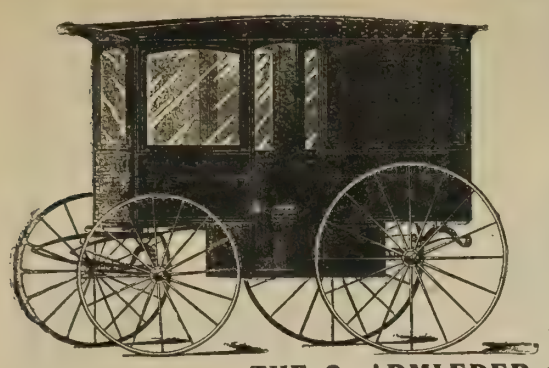
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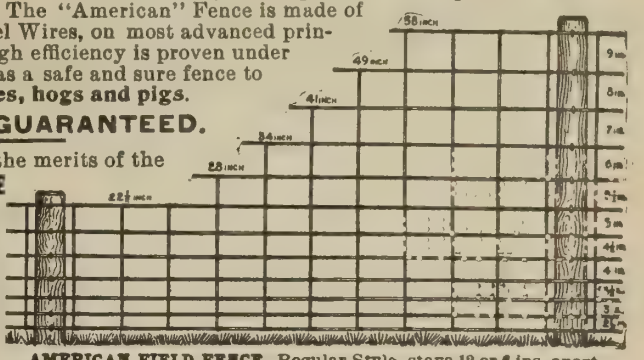
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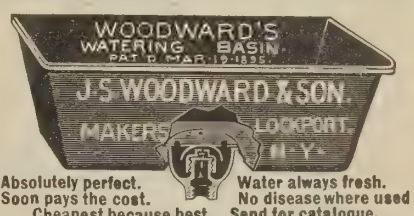
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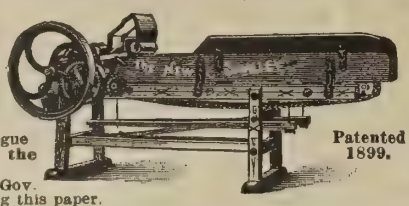
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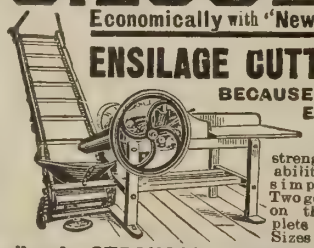
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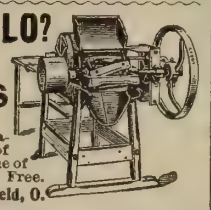
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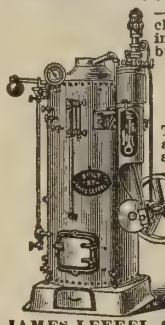
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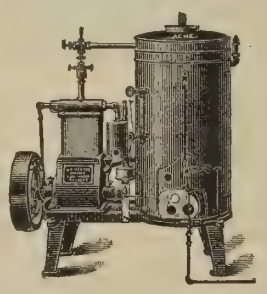
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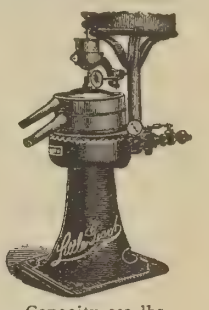
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IT DOES NOT Create an Oder to Destroy One.
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This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
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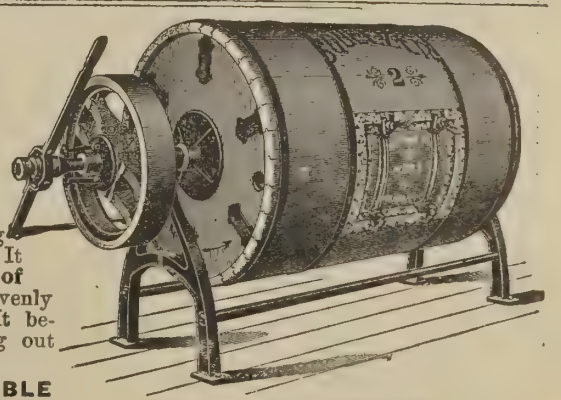
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IT IS SIMPLE, DURABLE AND EASILY WASHED.


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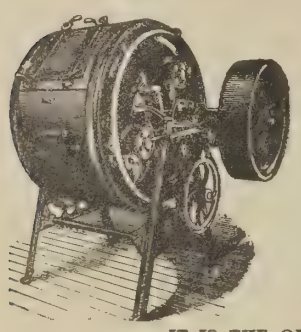
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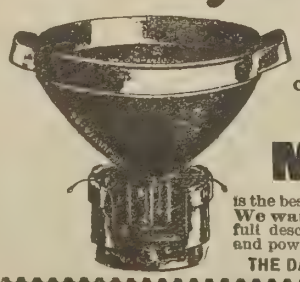
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

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It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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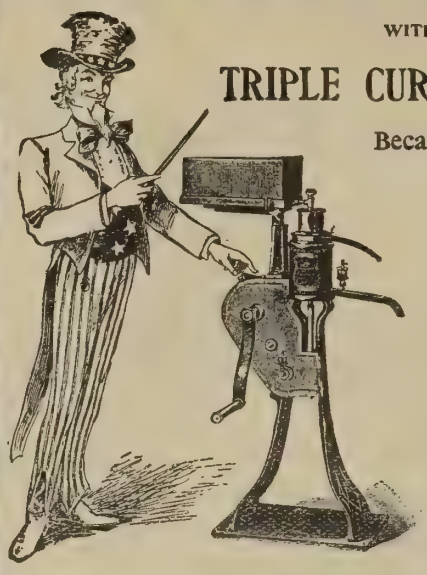
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And in other important points Excels all other Separators.

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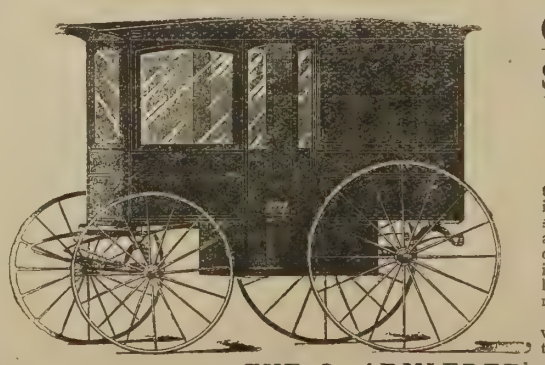
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A Perfect Milk Wagon



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Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

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THE O. ARMLEDER CO., Cincinnati, Ohio.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

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"Cemelain," a new coating for butter tubs, has been given a somewhat extensive trial by a Minnesota butter maker, with discouraging results. The tubs stripped well and there was no mold, but it is stated that it gave a most vile flavor to the butter where it was in contact with the cemelain. This may be remedied by improvements in the methods of manufacture of the article, but the outlook is not promising at present.

According to a letter in the *Country Gentleman*, the Wheeler Separator Company, of Syracuse, N. Y., is demanding a royalty from dairymen of New York who are using the dilution method of separating cream, claiming that they have a patent on the process. Seeing that every experiment station and dairy authority in the country have condemned the process and cans as useless and wasteful, it is strange that so many dairymen still bite at this fake and submit to be buncoed into paying a royalty for using a process that is not and cannot be patented. Verily, a fool and his money are soon parted.

A correspondent of the *National Stockman* is evidently somewhat uncertain as to what a starter is. He quotes from the Dairyman an article on sweet curdling of milk, where the use of a starter is advocated, in connection with a thorough scalding and washing of dairy utensils, as a remedy. The correspondent declares this is all wrong and then describes his method of cooling the milk and using sour milk, for ripening the cream as a cure for the same trouble.

We should advise the writer to investigate a little as to the definition of terms, before he makes another jump in the dark. He reminds us of the man who talked prose all his life; without knowing it.

A PRIZE MEDAL DAIRYMAN.

Every year Hoard's Dairyman offers a silver medal to the Short Course student in the Wisconsin Agricultural College who makes the best score in the annual contest of judging dairy cattle. In every instance the young man winning the medal has made a subsequent good showing of himself, and this fact has encouraged us greatly in maintaining the offer. The winner of the medal the present year is Mr. J. W. Wagner, of Hillsboro, Wis., who on receipt of the medal, writes us the following pleasant letter:

W. D. Hoard:

Dear Sir:—Please accept my sincere thanks for the Hoard's Dairyman medal, which I received today. We have a small dairy of grade Holstein cows, having now our third pure bred sire, and as I am more interested in the dairy cow than any other farm stock, this medal has been especially coveted by me.

I attribute my success in securing this medal, in no small part, to information secured through the columns of the Dairyman, of which I have been a subscriber for a number of years, and have always considered it the leading dairy paper published.

I think the Short Course is a grand thing for the young farmer, and had wanted to take the course myself before I did, and am glad to know that so many of our citizens take enough interest in the Short Course to offer the medals that they do.

Wishing the Dairyman unbounded success,
I am, yours very truly,
J. M. Wagner.

The Dairyman wishes that there were a thousand young, brainy, ambitious farmers in Wisconsin every year, who would contend manfully for this medal. The growth of the state, and every other state as well, in true agricultural prosperity, depends on the amount of pride the young farmers take in their own intellectual development and growth, in knowledge of this business we call farming.

It is a sad state of things when the sons of farmers despise the farm, and come up with the idea, that the only place for them to show how smart they are, and what ability they possess, is in some other business than farming.

If we can keep up the pride and ambition of the young farmers, the farms will grow in fertility and value, and the state will increase gradually in the strength of its manhood and civilization.

All of our educational, professional, and political forces should feel a lively sense of responsibility, in promoting the agricultural ambition and mental equipment of the young farmers of the state.



A GROUP OF DAIRY COWS.

Property of C. C. Smith, Lima, Ind.

A Lesson In Hog Feeding.

Ed. Hoard's Dairyman:—I was much interested in the article on "Hog Feeding," by J. G. Haney, on pages 432 and 433, of your issue of July 14th, and I fully agree with, and endorse *every* word he says, and only wish that said article *could be read by every hog raiser in the United States.* When will the average farmer learn, that, to treat a hog *humanely* will put *dollars* into his pockets, that now only "rattle" with the chink of *pennies*; or are so empty there isn't a single rattle except, mayhap, of "tobacco tags," in them. The time, I am happy to say, is rapidly passing, on many of our farms, when, "any thing is good enough for a hog."

Stagnant, foul water, moldy corn, rotten potatoes and all other refuse of the cellar and kitchen, with the vilest sleeping quarters imaginable, reeking in filth, or infested with vermin, were often his only share of the proceeds from the abundance of broad acres, well tilled fields and overflowing granaries.

And why? O! simply because he was "nothing but a hog," subject to his owner's caprices and neglect and had no voice in the matter of expressing his likes and dislikes.

He was *par excellence* the "farm scavenger" and as such relegated to a place with the "buzzards" and other carrion destroyers.

Then there came a time when corn was such a drug in the markets that in some sections of our country it was used as fuel, at seven cents per bushel, (cheaper than either wood or coal.) Then it was shovled out to the hogs in unstinted quantities, and in the mud and filth of circumscribed feeding lots in fall and winter, or in shadeless fields when the mercury was "cavorting" around "nineties". With what results?

Examine the census reports of the Agricultural Bureau for your answer. "Hogs dying by the wholesale," from hog cholera? *No!* From the ignorance, the shiftlessness or the neglect of their careless owners. (I put it strongly, but I know whereof I speak.) "Experience is a dear, as well as stern, schoolmaster." I well remember some twelve years ago, my husband was feeding for the September markets, (we did not sell every month in the year as we can now) an *unusually fine* "bunch" of hogs, all Poland-Chinas, bred on our own farms, black, shiny and uniform in size.

The first week in August, the tenant on the "feeding farm" came up to town early one morning, breathless, with the startling anouncement—"Mr. Busick! The cholera has broken out among your fattening hogs?" "There's six of the finest dead and nearly all the rest are sick!" Post haste, the offices of the druggist were called into requisition and the man departed with all speed, laden with cholera remedies sufficient to kill the balance, Mr. Busick following after as soon as possible, accompanied by myself.

On the way down I gave my husband my ideas as to what ailed his hogs, and when we reached the feed lot, a sorry sight met our view. The poor, sick panting creatures, confined in that treeless, shadeless lot, had greedily devoured the nauseous mess prepared for them, and were lying around in the boiling sun, sicker than ever, awaiting in their dumb agony "the kindly touch" that would end their misery.

I exclaimed, "they have no disease! They are simply starved for proper food, and roasted alive! Between the hot corn inside and the hot sun outside, they are absolutely cooked, and with broad acres of clover, knee high, all around them! It is nothing less than sinful," and woman-like I burst into tears.

Turning to me my husband said, "What would *you* do?" I answered, "bury the dead and turn out all the living that can walk." In less time than I can write it, two panels of that feed lot fence were smashed and the living hogs turned into the clover and how they went for it! With what result? Seventy-five, out of 200, were marketed inside of two months, as fine healthy porkers as ever traveled to Chicago.

Of course, among the neighbors, the "*dope*" as all hog medicine hereabout is usually called, got the credit for the recovery of the seventy-five, but I knew and my husband finally admitted, that those hogs with oceans of feed and shade all around them died from heat and starvation.

A post-mortem, held on several, revealed the fact that the intense heat had melted the interior fat, as it ran out in streams when the animals were opened. Needless to say that "hog feeding," on our farms, thereafter, underwent a radical change. All the animals are provided with shade and a variety of foods, the year around, and never a sick or ailing hog has been known. "The merciful man is merciful to his beast," be it covered with wool, hair or feathers, and as a reward his bank account will increase.

Kate M. Busick.

Wabash, Ind.

To Breed Healthy Hogs.

The most feasble plan to my mind would be to advance by going backward until we reach a conservative point between the lank, active hog of the pioneer age, which possessed a vigorous constitution and an immunity from disease unknown among the swine of today and the present condition of his overburdened descendants. If we choose as breeders only those of sufficient bone, sound feet and legs and good muscular action, and give all hogs a sufficient range; breed out all excess of coarseness, with just enough shoulder to give symmetry to the animal, also avoid inbreeding and over-feeding in close confinement; give all hogs a free grass range during the growing season, and all the changes of food at your command, especially during fall, winter and spring, we will, in time, bring about the desired result. It is absolutely impossible to produce a large proportion of lean meat without the animal has ample bone, sound feet and legs, with organs of digestion and respiration unimpaired, thus insuring constitutional vigor and muscular action. Muscle is lean meat and is developed by exercise, and the vigorous, active hog during the fattening season, is taking on flesh of that streaked kind, firm and fine in texture, with equal facility that his helpless, weak-legged brother takes on his bunches of flabby fat.—*Ex.*

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THE California State Fair had as one of its features a model silo, which was fully explained in all the details of its construction and operation. A good many men would welcome a demonstration like that.

AFTER a dairyman has allowed his milk to taint by letting his cows stand in a rotten, fermenting pool of water and mud; his cream to spoil by dirty utensils and surroundings, he should not exhibit any surprise that his butter does not bring the highest price and rank as "extras".

TWENTY-FOUR out of 104 samples of milk in Indianapolis were found to be poisoned with formaldehyde, put in as a preservative. The venders of these twenty-four samples have all been arrested, and every case of like character will be vigorously prosecuted. This is as it should be in every city and town in the country. Any man who will sell poisoned food should be made to feel the full penalty of the law.

THE Woodstock, Illinois, *Sentinel* mentions the fact that a veterinarian of that state recently declared seventy-nine cows to be affected with tuberculosis and upon being slaughtered only forty-nine were condemned. The Agricultural editor of the Whitewater, (Wis.,) *Register* very pertinently suggests that in all such cases the veterinarian be made to pay for all cattle found to be in a healthy state. The suggestion is a good one. Such a course would make some of these veterinary flash lights a little more careful of their verdicts.

SOME OF THE VALUABLE ARTICLES IN THIS NUMBER.

We wish to call the attention of our readers to some of the especially valuable articles to be found in this issue. Not but that each issue is valuable to him who hath the teachable heart and mind, but every star has its points, even though they do not afford all the light it gives. We wish to call attention to the article, "A Lesson In Hog Feeding," on page 527, by that splendid dairy woman, Mrs. Kate M. Busick. There is a world of valuable suggestion in it to the farmer whose heart and pocket are in human accord. We know it will meet the hearty endorsement of one of the wisest men that ever handled hogs, Theo. Louis.

Then there is the advice of the Purdue Experiment Station, against being humbugged by the "Milk Dilution Separators." It is to be hoped that none of the readers of HOARD'S DAIRYMAN will be taken in on this thing. Solomon said: "The wise man foreseeth the evil and hideth himself, but the foolish pass on and are punished." We sometimes think that there is a large class of farmers who had rather be humbugged out of $50 than to spend $1 for information that will enable them to "hide themselves." Then there is the short but pithy experience of A. E. Helmer, of Jefferson Co., N. Y., on page 534. He tells a significant story to the man who cannot see that it pays wonderfully well to spend a little money on a better dairy education. That grand old agricultural saint and teacher, Prof. I. P. Roberts, sends out a flood of good wholesome light on "Feeds and Productivity," page 534. We sincerely pity the man that can read what he says without appreciation and benefit.

Prof. Henry lets in a ray of real light on the cause of so much loss of cattle in the feeding of ripe corn stalks. Has any one ever found saltpeter in corn ensilage? Besides, there is a plain, meaty bit of farm experience from our correspondent, W. J., of N. Y., page 530. W. J. is a believer in the doctrine that it is wiser and more profitable from the cash standpoint to cultivate one acre well than ten acres poorly. Such farmers are always larger than their farm. It is better to have "expansion" come that way. There is more money, honor and brains in it. Then "Our John," John Gould, fills his "Note and Comment" full of good thought, experience and quaint conceit. It is well worth the time of any dairy farmer who, as the old Hosier said, "fills his socks with sound feet" to think over what Mason Parmalee said to John about the fly and soiling problem. When the DAIRYMAN started the talk some years ago about the economy and profit of using the silo to soil cows in summer, a great many dairy farmers shook their heads that are nodding them with approval now. "'Twas ever thus from childhood's hour." We all must "live and learn."

What a mint of solid valuable conclusion is the patient figuring upon the cost of certain grain crops, page 531, by the Wisconsin Labor Commissioner, Halford Erickson. For less than two cents a farmer can see here what would cost him many dollars if he figured it out of his own experience. But it is with acres of grain as it is with cows. It is the fertile acre and cow that produces at the least cost. Produce a good cow and make the land rich, and keep no shirks in either, if you want to make money out of them.

THE RELATION OF MILK TO HEALTH.

HOARD'S DAIRYMAN has received a letter from one of its Southern readers, which reports an unusual amount of sickness at Meridian, in Mississippi, with a request that we would furnish such information as could be had concerning the possible danger from using milk from cows kept near or in that city and feeding upon such grass and offal as they could find in running at large. It was stated that the water in the streams was very low and more or less defiled by sewage from above, as well as by local customs. Inquiry was also made concerning the preparation known as "Liquid Milk Sweet" and other preservatives to prevent milk from souring.

Apart from the introduction our reply was as follows:

Answering your specific questions we have to say that it very seldom happens that the feed or drink of a cow so directly or seriously contaminates her milk as to make it particularly unhealthful. Nature, ever bounteous, provides that the milk secreted by the mother shall not be so much at the mercy of her environment as to jeopardize the life of her offspring. It is true that the modern milch cow, as well as the modern human mother, are subjected to demands and conditions, not altogether in accordance with nature's plans, and we accordingly find that fright, exposure, ill treatment, or other matters which affect nerve conditions, sometimes so seriously affect the milk as to produce quite marked results in those who depend exclusively or largely on milk for sustenance.

In other words, the character of the food furnished the milk-producing mother—other conditions being unobjectionable—does not ordinarily affect the milk primarily, but may in time so affect her physical condition as to do so. If, therefore, the sickness which prevails in Meridian is in any degree attributable to the character or condition of the milk served to your people, we should expect to find the cause in some contaminating influences operating at the time of milking the cows or subsequent thereto.

If the prevailing diseases are of bacterial origin, this contamination might occur from the cows wading in the filthy streams or low, wet places, or gathering up bacteria on their udders and flanks in other places, and having these dislodged at the time of milking. Or, it might come from the use of impure water in washing the milk utensils, or diluting the milk; or from the filthy hands or clothing of the milkers.

On the other hand, if the sickness seems more attributable to defective digestion and nutrition, and is especially prevalent among milk-fed children, we should incline to the opinion that preservatives used were largely responsible. We have no special knowledge as to the composition of this "Liquid Milk Sweet," but if it will do what its promoters claim for it, there can be no question, as it seems to us, of its injurious properties. Whatever will "preserve" milk must necessarily lower its degree of digestibility, and the continued ingestion of any chemical of sufficient potency to destroy bacterial life or prevent its growth cannot be otherwise than fraught with ultimate, if not immediate, danger, and this more particularly to those whose habits of life and occupation do not tend to the excretion of such matters, as one of the results of active exercise.

PARAFFIN OLEO.

Numerous references have been made in the DAIRYMAN as to the use of paraffin in oleo. On another page of this issue will be found a more detailed report as to the amount which has been found, together with its use and probable effect on the system. It is an excellent example of the manner in which the makers of oleo are constantly on the look out for methods to improve the appearance of their product (which the paraffin undoubtedly does) even at the expense of the health of the consumer. As paraffin costs about six cents per pound, there is also a chance to cheapen the cost of oleo. On the amount of oleo made last year, ten per cent of paraffin would amount to 8,780,000 pounds and the above amount bought at six cents and sold at twelve cents per pound, would amount to the nice little profit of $526,800, in addition to the regular profit of manufacture—a nice little sum and well worth trying for. But every pound of paraffin used means a pound of butter the less, a powerful factor in lowering prices of creamery butter and a consequent general demoralization of the dairy business—to say nothing of the unhealthfulness of the paraffin. If the dairymen of the country do not put up a good strong fight against this paraffin oleo, they may as well sell their cows and stop making butter, for there is enough raw material in the country to make a substitute for every pound of butter now made.

A Bad, B-a-d Break.

The cloven hoof of the oleomargarine manufacturers has been uncovered at last.

These innocent and much imposed upon benefactors of humanity have always maintained that they did not approve of the sale of oleomargarine for butter. "Oleomargarine," they said, "is perfectly able to sell upon its own merits." This is what they said when they were fighting the anti-color laws.

But they knew all the time, that if ever the sale of oleomargarine, as butter, was stopped, their business would be gone. They know that they instruct their agents to advise retailers to sell oleomargarine for pure butter. But heretofore they have done it in an underhand manner, while still maintaining an outward show of honesty of purpose. But when they saw the effects of a letter of warning, sent out to retailers by the Illinois Dairy Union, in which they were cautioned against selling oleomargarine for butter, under penalty of prosecution under state laws, their frenzy knew no bounds. Visions of an immense fraudulent traffic the coming winter, began to fade from view, and one, less wise than his associates in the Oleomargarine Trust, in a moment of uncontrollable passion, let the cat out of the bag through a letter which contained the following:

"The internal revenue department looks after its own business and the state after its, and should this so-called Dairy Union interfere with your business, in way of prosecution as to the state laws, we hereby guarantee you protection to the extent of paying all fines, costs, etc., until the color law is decided constitutional, by the supreme court of the state of Illinois, and will, further, upon receiving complaint, take such action for damages, as will make it unpleasant for some of those who are attempting to interfere with your and our own legitimate business."

In the letter sent out no threat was made to prosecute under the anti-color law, now tied up in the courts. The law this manufacturer promises to protect his customers from, is a branding law, simply forbidding the sale of oleomargarine for butter, and the kind of laws the oleomargarine men have always maintained they approved of. While they have, in an underhand manner, always fought these laws, this is the first instance in which they have ever openly acknowledged they are a party to the fraud being practiced by retailers, which has brought the business into such disrepute.

This letter is a valuable addition to the National Dairy Union's collection of evidence of the connection of the manufacturers with the disreputable practices of the retailers.—*Chicago Produce.*

Foaming Milk.

ED. HOARD'S DAIRYMAN:—My neighbor has two Jersey cows, one fresh with calf; their milk for nearly a year, both night and morning, gets very frothy when the cream begins to rise, and in taking off cream it is lumpy. Both cows milk froths, as they have tried keeping it separate to see if it came from one, but both acts the same way. They asked me what caused it and I told them that it was probably caused by the cows eating straw from manure pile. But they fenced it off from lot to keep them out, but the trouble continues. The milk is rich, tastes all right, and looks all right, but still it will get frothy. They keep the cows all day on grass and at night they are in stable lot. Cows are healthy, eat well, and give a quantity of milk. The milk is not

frothy when milked, but gets frothy just as soon as it begins to cool and the cream commences to rise. M B. L.

Paris, Ky.

It is hard for dairymen to rid themselves of the idea that feed is responsible for the various troubles they find in the milk pail and churn. Unless an animal has been fed on abnormal foods such as fermenting brewers grains or distillery slop, until disease has been produced; or unless there is a local disease of the udder, the quality of the milk as regards the ferments which are to act on it, is not changed by the food given. The various abnormal changes which take place in milk or cream during the process of manufacture into butter, are not due to any quality of the food or water, but entirely to the conditions under which the milk is kept. The various abnormal diseases of milk, whether ropy, sweet curdling, blue or red colors, or in fact, any of the changes which dairymen complain of so frequently, are caused by bacteria of various species, and these can be removed and their action prevented by a liberal use of hot water, soda, light and air, in and around the stables and milk utensils.

In the above case it is more than probable that some kind of yeast has got into the milk and caused the foaming, from fermentation and formation of gas. A thorough cleaning and scalding of the milk utensils together with a thorough brushing of the cow, and wiping of the udder with a damp cloth, before milking, will get rid of the difficulty.

A GOOD IDEA.

To obviate the danger of infection from the use of old milk tickets, the milkmen of Winona, Minn., have adopted the following system:

A card is furnished for one dollar, on which there are twenty tickets printed. For each quart of milk one of these tickets is torn out and the tickets are never used a second time. The idea is that in the use of the old tickets, the tickets may go into a family where there is some contagious disease and then after being collected be given out to some home where they will start the disease. This, of course, cannot be the case where tickets are used but once.

Cow Peas for Wisconsin.

F. G. Burlington, Wis., writes: "The dairy papers recommend the cow pea for cows and I bought a bushel of seed from an agricultural dealer, planting the same on a half acre of ground. The vines are now in blossom. I do not think I received the kind of seed ordered and write you for information. I inclose leaves, blossoms and some of the original seed. I ordered cow peas, but the plants have only grown from six to twelve inches high, and look more like a bean than a pea. Please inform me if these are cow peas, and whether a mistake has been made or not."

The samples received show that our correspondent has received just what he ordered. The seeds of the cow pea plant resemble a bean more than they do a pea, and the plants also look considerably like beans. The writer of this reply regards the cow pea vine as a plant of some promise for Wisconsin, but only in a secondary way. In the southern states where clover cannot be grown, the cow pea vine is quite useful, as it gathers up much nitrogen in the air, and fixes it in roots, stems and leaves. These, when turned under by the plow, enrich the soil. The cow pea vine will furnish from three or four to eight or ten tons of green forage per acre, making from three-fourths of a ton to a ton and a half of hay of fair quality.

For Wisconsin purposes in general, the cow pea vine is far less useful than red clover. Our farmers have had a good deal of trouble in getting red clover seed to catch during late dry years and for this reason they have turned to other plants as a partial substitute. If we would go to the expense and give the same attention to red clover as we do to such plants as cow peas, ect., which we often attempt to use as substitutes for the clover plant, we would be far ahead. It is recommended that our correspondent cut the crop when the seeds are partially formed and note how much hay he secures from the crop. It will probably be considerably less than the returns of clover hay would have been under the same conditions.—W. A. HENRY, in *Wisconsin Agriculturist*.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

SUMMER FEEDING.—AN APPEAL TO J. E. G. OF ONTARIO.

I see that "J. E. G.," on page 496, last issue, says he is keeping thirty-four to thirty-six head of cattle on a 120-acre farm. He is getting there. I believe he will soon increase that to nearer fifty. Would like to know if he has adopted soiling for cows in summer, and his results; what he feeds and how he keeps up the supply of green feed; and what grain, if any, he feeds. W. K. M.

Perth Co., Ontario.

We hope J. E. G. may find the time to give this inquirer and other readers the information sought. Meantime we may say that the article on page 496 indicates that the summer silo has been of marked advantage. It is perhaps as much of an improvement over former methods of soiling as the winter silo is an improvement on all dry fodder for winter.

The same inquirer asks whether it would not be well to keep cows in the stable during the day in summer and let them out at night. This will depend somewhat on the character of the stable, and the condition of the weather. Cows need to be bathed in sunshine. It is always economical to feed them in the stable, but when it is not cold or stormy, or scorching hot, and flies troublesome, cows should have a daily sun bath.

FEEDING SKIM MILK TO COWS.

I should like to know your opinion on feeding skim milk to cows, when to feed and how. Could it be made to take the place of any of the concentrates, such as wheat bran? I am pretty nearly convinced that a hog is a nuisance on a dairy farm. I should also like to hear through the columns of your paper from any subscriber who has had experience in this line. WM. T. S.

Lincoln, Va.

Skim milk is an excellent feed for milch cows, and may be fed at any time. Ordinarily cows have to acquire a liking for it. We have had success in inducing this liking by putting a small quantity in a pail and covering it pretty deeply with bran or meal, and before long cows will get to drink the skim milk clear, and as ravenously as any calf. Ordinary skim milk usually contains not less than three per cent of digestible protein. Eight pounds of skim milk would therefore easily take the place of two pounds of bran.

But a few years ago we had full reports of experience with feeding skim milk to cows. One of the most successful dairymen in New York, Mr. Menzo Wilcox, makes no other use of this product.

WHEN TO CUT KAFIR CORN FOR SILAGE. AMOUNT REQUIRED FOR FORTY COWS.

In what stage does this kafir corn want to be cut to make silage? I have eight acres of kafir corn. I have one round stave silo, ten feet in diameter, thirteen feet deep, and one square one 9×13 and 13 feet high. Is that large enough for forty cows, and how many tons will these two hold? I want to fill one with the corn, and the other with stock peas. I have twelve acres of peas and corn mixed, with which I want to fill one of them.

Princeton, Ind. G. W. K.

Kafir corn is at its best for silage just as the grain is preparing to ripen. Under ordinary conditions this will be about the time the lower leaves on the stalk become dry.

The silos mentioned are not deep enough for best results. Twenty feet in depth is the least that should be accepted, unless the top is pretty heavily weighted at time of filling. Silage to keep well, must be well compressed. This is necessary, as well to force out the air, as to keep it out. Thorough tramping helps to do this, just as it helps to settle hay in a mow or stack. This is especially necessary at the outside and corners.

If these silos could be refilled after the first settling, they would hold, respectively, about fifteen and twenty-two tons, or thirty-eight tons in all, and not enough, by any means, for forty cows, except as a relish. Of course, ten pounds of silage per day is much better than to have no succulent feed, but twenty pounds per day would be better, and thirty pounds per day none too much.

NEBRASKA QUERIES.

I want you to send me a feed ration, for a cow that will weigh twelve hundred, of wild hay and good oat straw, (is it good to cut up straw,) and plenty of timothy and clover hay and alfalfa, and plenty of millet and sugar cane with wheat bran. I want two rations made, regardless of cost. Is shorts good for a milk cow, and how much at a feed? I have plenty of oats and corn meal and rye; how many pounds for a cow, to make her give milk, and the quantity and quality.

I have a cow seven years old, that was fresh the third of this month. She gives six gallons of milk a day, and is subject to garget, and I want to know if there is any way to prevent it, and what to do for it.

I also have a cow that will be fresh the 7th of December, and one of her hind teats does not milk good. Now do you think that it will be all right when she is fresh again as it has not been hurt. She is three years old.

Humboldt, Neb. M. C. D.

Where one has plenty of good clover and timothy hay and alfalfa he does not want to be feeding wild hay and oat straw to cows in milk. Where nothing better than wild hay and oat straw is available, they can be made serviceable, but only at greater expense for the grain feeds which are rich in protein. We submit the following as a fairly good daily allowance, to be given in two equal feeds, one at night and the other in the morning:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 pounds clover, and timothy	8.58	.48	3.96	.16
10 lbs. alfalfa	9.16	1.10	3.96	.12
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. oats (ground)	3.56	.37	1.89	.17
4 lbs corn (ground)	3.56	.31	2.67	.17
Totals	28.38	2.76	14.02	.74

This is a liberal allowance for a large cow, but if she is an extraordinary milker, she can easily dispose of even more than is above suggested. In such a case we would increase the bran and oats, rather than the corn.

For the cow disposed to recurring attacks of garget, there must be extra care not to overfeed, and to milk and handle the udder with extreme gentleness. This is all that can be done by way of prevention. If despite this, garget makes its appearance, reduce the feed, and if this does not suffice (as it usually will) give a dose of cow physic, and follow that with a few doses of salt peter—an ounce at a time, two or three times a day, and for three or four days if necessary.

The case of the young cow that does not milk right is not sufficiently described to justify the expression of any opinion. Personally we are very much averse to meddling with teats or udder in a mechanical or surgical way. When anything of this kind is necessary an expert should attend to it.

A MEXICAN RATION.

Please give me a ration from the following feeds: Cotton seed meal, $40 per 1000 kilograms; bran, $45 per 1000 kilograms; corn, $35 per 1000 kilograms with sorghum and Guinea grass grown on the place. Milk retails from 60 cents to $1.00 per gallon.

Tampico, Mexico. J. C. R.

Prices given above for both feed and milk indicate that dairying has not been a popular industry in the vicinity of Tampico and hence we are led to believe that the cows are not of the class specially adapted to dairying. If this should happen to be the fact they should be fed accordingly, for it would be quite foolish to feed a cow, incapable of producing twenty pounds of milk in one day, as we would one that can yield forty pounds.

The best advice we can give in the premises is to suggest mixing two parts each, by weight, of the bran and corn (ground) with one part cotton seed meal and give each cow a daily allowance of from five to ten pounds (or, say, 2½ to 5 kilograms) of the mixture, with what sorghum and Guinea grass they will eat. If both kinds of forage are available at the same time, give them in about equal amounts. It is desirable also that a portion of the forage should be cured as for hay, although we can give no better reason for this than that the cow confined to green forage altogether, seems to have a special craving for something dry. Prof. Sanborn, of New Hampshire, writing to the DAIRYMAN a year or more ago, reported that he had found a little hay equal, pound for pound, to grain for cows on good pasture, and we all know with what avidity cows will follow a load of hay or straw in the pasture.

As we have said above, the daily allowance of grain to these Tampico cows—or, for that matter, to cows anywhere—should be governed by circumstances. If the cow is diverting too much feed to flesh and body fat, the evidence is complete that she is receiving more grain than she can profitably use, more raw material than she can manufacture into milk, provided, always, that the ration contains the proper proportion of digestible protein. There are very few cows that can be brought to their maximum flow of milk on timothy hay and corn meal, because twenty pounds of such hay and ten pounds of corn contain only about 1⅓ pounds digestible protein. It is possible that the maximum grain allowance suggested above may not suffice for some of these Mexican cows. In that event we would take out a pound of the corn and add a pound of cotton seed meal, but not make such a change in one day. Rations should always be increased or changed gradually. We all understand and practice this rule with horses, hogs and steers, but with inexplicable perversity seem to think the milch cow can go from light to heavy feed almost instanter.

FALL PASTURE FOR DAIRY COWS.

I am thinking of sowing a fall pasture for my dairy cows, so as to have something for them to graze upon until late in the season. Was thinking of sowing rye, but hear that it is not good for breeding cattle, that it sometimes causes abortion. J. K.

Enterprise, Miss.

We do not think the specific objection above urged against rye tenable. It is very doubtful if cows ever find sufficient ergot in their feed to induce abortion, unless it may be in certain kinds of mill-feed which contain the sweepings and other foul matter which accumulates about a mill.

It does not follow, however, that rye makes the best fall feed. We think barley or oats better, but in this latitude we can sow winter rye in the fall, pasture it down pretty freely, and harvest a good crop the next spring or early summer.

WEIGHT OF MILK.

Please answer through your paper the legal or generally understood weight of a gallon of milk. W. C. H.

Buffalo, N. Y.

The average weight of a gallon of milk is 8.6 pounds, with small variations above or below according to the quality of milk.

TESTING MILK.

What book would show how to figure out the number of pounds of butter in a certain number of pounds of milk when tested by the Babcock test? H. E. B.

Antwerp, Ohio.

Should advise you to obtain the book on "Testing Milk" by Farrington & Woll. It can be obtained from this office for one dollar, postpaid.

Note and Comment.

Wire Hoops for Silos—Shooking Corn—Fly Repellents—Hydraulic Separators—City Cream Trade.

ED. HOARD'S DAIRYMAN:—On this 7th day of August the silage corn gives signs in this locality of being the smallest crop ever harvested, and on the other hand preparations to build new silos, and inquiries about them and their construction, were never so numerous as this year. It is not only interviews, letters, and lectures, but 'phone calls about them, by the combined scores. Driving into a little village the other day, not far away, three men began their inquiries before our horse was hitched, each planning a silo. The round silo has the "call" in this section, again. Last year it was the square one with rounded corners that led. Evidently this is not a corn year. It was so wet and cold that little corn was planted until after June 15th, and a neighbor is plowing today for corn. Says, "if the September frosts hold off, I can beat the hay crop yet." Corn is spotted, and very uneven, varies all the way from knee high, to as high as the head, a spot a rod square looking very discouraged, and close by is a spot as lusty as a sun flower.

That item about hooping silos with breadths of Page fence, keeps bringing in the inquiries yet, and here is a man who says he is afraid the bottom breadth will give out,—wires pull apart. How can he insure it against this? Well he can simply double a breadth and put the top and bottom of the two together, so to get a big wire on each edge, or he can fold a length over in the middle, making the hoop twenty-six inches wide instead of fifty-two inches, and put on more of them. Not more than two doubled hoops will be needed at the bottom fixed this way, and then use the full width breadths above them. By the way, what is the textile strength of a section of II wire Page fence?

A letter came today, saying they had read in HOARD'S DAIRYMAN about how I shooked up corn in the field, but did not see how, if I only crossed two bundles that I made the other three dozen or so stay in the corners, and to explain. We lay more than two bundles cross wise of each other. We keep crossing them until we have the X as high as our shoulders if we can; reversing tops and butts with both layers of cross bundles, then fill in the corners round and round so to keep the center plumb. That's all there is about it. Bundles that are not tied, lay up pretty well, but you cannot make the X as high, before the corners are built in. We shooked our field of rye that way, and it was a great success, we thought. We have been trying fly repellents, patent, counterfeit, and home made this summer, but in some way the flies do not seem to repel at any of them for any great time, fifteen minutes or so, and we are trying the blanket cure now and it certainly gives a picturesque effect to dairying, to see the cows go afield in their brown tailor made suits, cut Princess pattern, and notice with what unconcern they graze in the pastures, and when they have eaten their fill, lay down in the sun, utilizing their blankets as parasols. Where Burlington burlap blankets are bought in lots, the cost is much below a dollar. Possibly they may not repay their cost in a season, but there is a lot of comfort in them for the cow. The blankets are not proving non-destructible when coming in contact with a wire fence, but the injuries are small, i. e., the holes, and I am in hopes that there will be enough of them left in the fall, to relight the window sash of the barn.

I was greatly pleased the other day to receive a visit from Mason Parmalee, of Michigan, the prize writer of dairy literature, and by the way, one of the high up-to-date dairymen of this country. He has solved the fly and soiling problem, by doubling his silo capacity, and for three years has fed silage the year round and pastured very little, and he thinks it the solution of the dairy problem, as to cow keep. It was of great interest to me to hear him narrate his processes of dairying. This season his store of silage failed him August 1st, and he has to resort to soiling crops, but despite all his skill as a feeder, there was a great shrinkage of milk, with the suspension of silage feeding. It passes his comprehension why the general dairymen will hold onto the summer production of milk, and then feed dry cows through the winter. This is illustrated nicely at our creamery here, which last winter, from November to April 15th, paid $1.10 for milk, and summer milk is a six cent "fluid" through the summer of 1899. Oberlin, O., for years before the war, had the reputation of being a great center for diffusing emancipation ideas, and now a diffusion firm there is proclaiming emancipation from pans, crocks, and high priced whirligigs for separating cream from milk, and by the way they are selling their "aqueduct" separators over the state, there will soon be a great call for water throughout the dairy sections, so much so that the city milk buyer may be enabled to get normal milk again. It is wonderful to hear the happy hydraulic can buyers narrate their experiences, and while none of them think that they are making any more butter than before, it is the great saving of labor in butter making, that compensates for paying rather high prices for big tin pails. The greatest surprise is manifested by the pigs and calves that drink the milk. The sudden generosity of their owners surpasses their comprehension. The half pail of milk is now a generous pail full, and 16 to 1 they can't *feel* the difference, if their eyes do behold the dilution. That farmers have ready money with which to buy these high priced tin pails is evidence that prosperity has reached the dairyman. While they are selling dilution separators, we have a rest on air, lightning, and dynamite cyclone churns; black pepsin butter increasers, steam cheese vats and feed cookers combined, etc. What bug, now that the *hum*bug has been paralyzed and disfigured for life by the kissing bug, will be the next one to sail over the dairyman's "can't fool me" barricade.

The supplying of cream to the cities has so greatly increased, and so many factories are changing from butter and cheese, to supply this cream demand, that it may be said that we have now a distinct dairy industry in northern Ohio. It is so distinct, that prices at cheese and cream factories are not the same. Last winter the cream factories paid thirty cents a hundred more for milk than the cheese factories, and since July 15th, the cream concerns have paid seventy cents, to the others sixty cents, with a wider margin in the not distant future,—so hinted. The amount of cream sent from about here to Pittsburgh and Cleveland is wonderful as compared with three years ago. The small cities are even larger proportionate buyers of cream, and this is having a telling effect upon many a creamery, the shipping of cream, instead of butter making, and the advent of cheaper separators has promoted private cream shipping, and some of the finest creameries in the state have been forced to close doors and sell out, and "for sale—good and sufficient reasons for selling,"—are all too numerous all over the state. The city milk trade is growing all the time, and still there is so much milk offered that it is difficult to see wherein the shipper is any better off than the man who supplies the cream shipping man with milk. In the last case bad debts are unknown, while it is a continual series of losses of all magnitudes, to those who ship to city peddlars.

Ohio. JOHN GOULD.

New York Farm and Dairy Notes.

Renovating Old Pastures.—A Fine Field of Ensilage Corn—The Best Rotation for the Dairy Farm.

ED. HOARD'S DAIRYMAN:—I have recently visited an enterprising dairyman, and on his farm saw a very fine field of ensilage corn. It was then (Aug. 9) about eight feet high. The corn had been planted in rows three feet apart, and the stalks were from six to eight inches apart in the rows. The variety was Early Mastodon, and there was an almost perfect stand of corn over the whole field. It was just beginning to ear, and the dark green color showed that there was plenty of food for it in the soil. As the corn has yet about six weeks in which to grow, I think it will grow to a height of twelve feet or more and mature all the ears and make the very best ensilage.

Your readers will be the most interested in an experiment made in growing this field of corn. A part of the field, the previous year, had grown a crop of grain. The ground was plowed in the fall, and during the winter the manure was applied to it. The remainder of the field had been sod ground which produced a crop of grass the previous year. The manure was drawn during the winter, and spread on the sod. In the spring the ground was plowed, and the corn planted. The part of the field where the corn was planted on the sod turned over in the spring, was producing the better crop of corn. The stalks were larger, and were of a darker green.

The whole field was very promising, but the prospect was there would be a considerable larger growth of corn planted on the sod ground. In my own farming it has been my practice to plow under a clover sod for planting the corn, and in this connection I wish to speak on the value of clover in a rotation of crops.

We have found, on our farm, that the best rotation is corn, oats or spring wheat, and clover. The corn is followed by the oats or wheat, and with these crops the ground is seeded to clover. The clover is mowed for hay one or two years, according to its condition, and the most of the manure is applied as a top dressing to the clover seeding. When the last crop of clover hay has been cut, then we commence to spread the manure, which is drawn from the stable, on the clover sod, and thus prepare the ground for the corn crop which is to follow the next year.

I believe that a crop of corn can be grown on a clover sod in this way, with less than one-half the manure required for growing the same crop in the same kind of soil, which does not contain the clover stubble and roots. Less grain is required with the ensilage to make a balanced ration when good clover hay is fed. I do not think, on land adapted to this kind of farming, that there is anything else that will help to solve the problem of providing a cheaper food for the cows, so a margin of profit can be realized, than this combination of ensilage and clover.

The grain crops mentioned provide food for the teams and for the families, and the straw needed for bedding the cows, — for we must have this to keep the cows clean in the stable, and for an absorbent if we save all the urine. Of course I would grow some oats and peas for the early soiling crop, but the rotation mentioned would be for the main crops which I would grow to feed the cows.

I think I have before written about my plan of ensilage and clover farming, but the results have been so satisfactory on our farm that it is one of the things I like to write about, and there are some things which I believe many farmers need yet to learn, and good things bear frequent repetition. I have supposed that the farmer's soil is adapted to growing corn and clover, and can be easily tilled, and that the general conditions of dairying are similar to those in the locality in which I live. Any plan of farming one can give must be so modified that it can be adapted to the circumstances of the individual.

I have a neighbor who spends a few days early in the fall, in mowing weeds in his pasture, and in reseeding places where it is needed. He has so improved his pasture that it keeps about double the stock that some of his neighbors keep on the same area. The places where but little grass grows are top-dressed with manure, harrowed and grass seed sown on them. I believe the better way for most farmers is to have just sufficient pasture for the cattle, so they will eat it close, and that it should be depended on to furnish feed for the cows only about two months through the best of the season, then it should be supplemented with the early soiling crops. In the pasture there should be as little waste land as possible. I know of pastures where two-thirds of the land is occupied with ferns and weeds. In our plan of intensive farming, we must make the most of the pastures, as well as the cultivated land. W. J.

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Corn Stalk Diseases.

(Read before the Nebraska Veterinary Medical Association, February 21, 1899, by A. BOSTROM, D. V. S., Minden, Nebraska.)

I will make an attempt to call your attention to a few facts concerning that inexhaustible subject, corn stalk disease.

The corn stalk is looked upon with suspicion as an agent which sometimes seems to be incompatible with animal life; yet thousands of horses and cattle are turned out to feed upon it every year, and if anything happens to interfere with the natural laws which govern health and life of the animals the corn stalk is held responsible for it; and the question is, What is the matter with the stalks?

Before trying to answer this question, let us consider the corn plant in detail. I believe that the corn plant is subject to the natural laws which govern the vegetable kingdom. We plant the seed, it germinates and grows; we cultivate it, and it gets ripe; we take care of the seeds, and the stalk is left in the field to take care of itself. It is subject to diseases like other members of the vegetable kingdom. Both animal and vegetable parasites may affect its growth; of which the vegetable parasites are the most important group, including such pests as smut, caused by the fungus *Ustilago carbo* and the *Ustilago maydis*; rust, of which the most important is *Puccinia maydis*; and ergot, a fungoid disease not only affecting the rye plant, but many other species of graminae, such as corn, wheat, etc.

About the time of maturity the most tender leaves of the plant begin to fall off upon the ground, and there they become covered with small fungi of the genus *Penicellium*, *Aspergillus*, *Mucor*, *Ascophora*, etc. Small sideshoots, developing only rudimentary ears, die early, and in going through the process of decay contain innumerable numbers of the above named fungi. Now, this is the actual condition of the corn plant, as near as I can describe it.

Burrill, Billings, and other, say that they have discovered a germ that is the cause of the corn stalk disease. Others say the corn stalk contains so much saltpetre when grown in certain places, that the animals eating it die of saltpetre poisoning.

Now, after considering the various conditions of the corn plant, let us turn our attention to some of the other plants for comparison.

Clover is subject to the attacks of several fungi, of which the most important is the *Peronosdora tribolium*, which exerts its irritating action directly upon the gastro-intestinal mucous membrane, or the formation of a toxic substance which, acting particularly upon the liver and the brain, causes what is



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known as clover-disease. Straw of wheat and oats, when damp and going through a mouldy change, is affected by various fungi, such as *Tilletia, Caries, Puccinia, Graminis*, etc., causing derangement of the intestinal and urinary organs, followed by paralysis and death.

We have already seen that the corn stalks are sometimes affected by various fungi, and I am inclined to believe that if the fungi on clover, produce clover- disease, the fungi on corn stalks are the cause of the so-called corn stalk disease. I have seen both horses and cattle die from eating straw covered with fungi. I have seen hogs die from the effect of mouldy flour. I have had considerable experience with the so-called cerebritis or encephalitis, described in our veterinary publications as being caused by wormy and mouldy corn, and I believe that all these conditions, the corn stalk disease included, are cases of fungus poisoning.

Corn stalks may be the cause of other conditions which frequently result in death. Sometimes corn stalks are cut up and fed to cattle and horses in July and August, when grass in the pasture is in sufficient, and when fed fresh and in limited amounts I have never seen or heard of any bad results therefrom; but when the stalks have been cut at this time of the year and allowed to remain in the field for a week or ten days—long enough to allow the development of an active process of fermentation—and then fed, I have seen the most serious disease, with death following in one-half to two hours of *acute tympanitis or meteorism*. If seen in time the animal can be relieved by tapping. After the escape of the gas the animal gets well in a very short time. I do not believe that any other germ, except the bacteria of fermentation, could be the cause of the production of gas.

THE COST OF CERTAIN GRAIN CROPS IN WISCONSIN.

The forthcoming annual report of the Wisconsin Labor Commissioner, Halford Erickson, will lay before the public some very valuable data. On the question of agriculture and the cost of production of crops, Mr. Erickson has taken especial pains to get as near the actual truth as he possibly could.

He has obtained full returns from 410 of the most intelligent and successful farmers in the state, covering a period of six years, and from them has deduced the following figures relating to the cost of producing the crops named:

"The expense of seed, taxes, depreciation of land, labor, machinery and horses used, feed and incidental outlays, amounted to $6.12 per acre for one crop of wheat, and $7.91 per acre for one crop of corn.

To the average yield the past six years this is equivalent to about thirty-five cents per bushel for wheat and sixteen cents per bushel for corn. If to this is added interest at six per cent on the value per acre of the machinery and horses used, the annual investment and the value of the land as estimated or given by the farmers, the expenses for wheat would be increased from $6.12 to $9.45 per acre, or from thirty-five to fifty-four cents per bushel and for corn from $7.91 to $11.36 per acre, or from sixteen to twenty-seven cents per bushel.

During the six year period, the average price per bushel for these crops in the local markets or elevators, was sixty-one cents per bushel for wheat and thirty-four cents per bushel for corn. When to this is added, in each case, the value of the by-products at the amount placed upon them by the farmers themselves, the value per bushel is increased to sixty-eight cents for wheat and forty-one cents for corn. The cost and value, respectively, was thus fifty-four and sixty-eight cents per bushel, in the case of wheat and twenty-seven and forty cents per bushel, in the case of corn. This is equivalent to a surplus, or profit, of fourteen cents per bushel in the former and thirteen cents per bushel in the latter case. As said above, these are the results of 400 selected returns. But as the yield in these cases was considerably larger than the average yield for the state, it also follows that the surpluses here shown are higher than the average profit of these products. This is also shown by the final results as obtained from over 1,500 returns. These returns were picked out from the total number received, nearly 4,000, because they were found to fairly represent all classes of farmers int he grain growing portions of the state and show a smaller yield per acre, and hence a higher cost and lower surplus per bushel than that given above. The average profit or surplus, as computed from the results of all returns, ranged from five to twelve per cent on the capital invested or used.

PROPORTION OF EXPENSE ELEMENTS.

As to the proportion of the various elements of expense, to the total expense, the following results were arrived at: The expense of labor was 22.28% of the total for wheat and 44.45% of the total expense for corn; of seed, 12.27% for wheat and only a fraction of 1% for corn; of depreciation of land, machinery, horses and incidental outlays 27.63% for wheat and 22.95% for corn; of taxes, 2.72% for wheat and 2.26% for corn; of interest on the value of machinery and horses used, and on the amount of the annual investment, 7.26% for wheat and 7.05% for corn; of interest of the value of land, or rent, 27.84% for wheat and 23.24% for corn. The proportions given here for wheat apply also, with but small variations, to oats, rye and barley, raised on the same land and under the same conditions.

This investigation was made on a basis sufficiently broad to cover the ground fully. The inquiries were carefully prepared and returns edited in every case. The results at every stage were submitted to leading farmers and experts and their suggestions adopted. Every precaution was taken to avoid errors throughout the whole work and therefore the results were reliable and may be safely used. As to the conditions on the farm the result is that during the six years, or the period covered, the farmers have on the average done as well financially in proportion to the amount of their investment, as those engaged in most other industries."

PATRON'S WORK OUTLINED.

Things a Butter Maker May Expect.

In this short paper read before the Indiana dairymen by Herbert Newby, the writer shows how the patron must co-operate with the butter maker if good butter is to result:

In writing this paper, I know I have taken up one of the greatest subjects which confront the creamery men of to-day. It is one of the problems which comes up for discussion among both the factory men and also the patrons. As all the creameries are co-operative, in fact whether in form or not, then success must depend upon the thoroughness of the co-operation of all parties concerned, and how to secure this to the greatest extent is the question. Co-operation means all parties concerned working together to accomplish some definite result.

In the first place, the butter maker must be a man who can gain and hold the respect of his patrons, and to do this his very word must be as good as his bond. He must work, and make his patrons feel that he is working for their good, and that he is watching after their interests in every way.

The best butter can only be made from the best milk, so the butter maker has the right and must expect his patron to furnish him with the very best raw material (i. e., milk). By this I mean milk from good, healthy cows, which have had proper care, fed with good, wholesome feed, milked in a clean place, free from filth and foul odors. After the milk has been carefully drawn from the cow in a clean, sweet pail, it should at once be thoroughly strained and cooled, or better still, also aerated.

Then comes the question how to deliver the milk at the factory in the very best condition, with all the fine flavor produced by nature retained, and with no artificial flavor added. One good way to do this is to have a good clean cover of some kind to place over the cans, and in winter it should be sufficient to keep the milk from freezing; then be sure your milk is at the factory on time. The butter maker need not expect any thing of his patrons which he himself is not willing to do, so if he leaves things dirty and greasy, he may expect them to do the same way, and also to furnish him with poor milk; but if he is careful in every detail regarding cleanliness in his work, then he may expect his patrons to keep all their cans and other milk utensils sweet and clean, and to do this the utmost care and vigilance must be exercised. The cans are especially liable to become dirty and in bad shape unless they are carefully washed and scalded each time after using them, and plenty of good, bright sunshine will not hurt milk vessels in the least.

Too many persons seem to think a butter maker should be able to take any and all kinds of milk and work it up into the finest product. He cannot do this. But furnish him with good milk, then hold him responsible.

We sometimes hear of a man being prosecuted for adulterating his milk with a little pure water, or taking out some of the butter fat, but I would rather (as the Babcock test would catch him) see a man prosecuted for adulterating his milk with filth, which no doubt his farm needs, for filth and dirt are the causes of more bad butter than anything else.

Some one may ask why the need of each patron being urged to take such good care of his milk? We would answer, milk from an unhealthy cow is not fit food for a human being. If impregnated with filth, it is liable to have in it the germs of disease; if it comes in contact with foul odors or is allowed to sour, it gives the undesirable bacteria a big start, which cannot be overcome.

Every patron should constantly keep in mind the fact that the price he receives for his milk depends on the price the butter maker gets for his butter, and this in a large measure depends on the condition the milk is in when it reaches the hands of the butter maker.—*Dairy Reporter.*

Oleo Notes.

Some capitalists are said to be building a large oleo factory in Pennsylvania, with the expectation that a profitable crevice can be found in the new law that will let them sell the stuff colored like butter. The scheme seems to be to secure the coloring in some occult and unnamed way that shall elude the analysis of the chemists, and thus quibble past the law. But they will be apt to run against snags, especially if the hoped-for enactment at Washington is secured.

The Chicago oleomargarine output for the month of June, 1899, exceeded that for the same month in 1898 by about 20,000 50-pound tubs, the number of tubs sent out this year being 45,706. The output for the year ending June 30, 1899, exceeded that of any other year since 1894 by about 130,000 50-pound tubs. It is to be hoped that when the new commissioner in that state gets fully into harness that this sort of thing will be checked. If the production is not directly affected, the sale in that state ought to be.—*Dairy Reporter.*

The Belle Meade, Tennessee, Dairy Farm.

The Nashville, Tennessee, *American* gives the following readable description of the famous Belle Meade dairy building and herd of Jersey cattle. It says:

The Belle Meade dairy, with its hundred or more cows, with its splendidly arranged barn, and with its modern equipment of dairy machinery for the manufacture of its products, ranks easily the finest and most complete in the south.

The average of the herd, from a dairy standpoint, is high, and many of the cows are representives of the finest of those strains, for which this section of Tennessee has long been famous. The barn is built around four sides of a hollow square, inclosing an open court, to which the cows are admitted by a passage way, and from which they enter through convenient doors and pass to their proper places. The work of feeding has been reduced to the simplest and most economical system. The large silos and bran rooms are situated in one corner of the barn, and a feed car passes on a tramway in front of every stall. The floor of the aisles is made of solid stone, and is kept most remarkably clean.

The skimming room is situated in one corner of the court, and its equipment, which has just been installed, is most complete and elegant, having been built especially for the Belle Meade farm, by P. M. Sharples, of Westchester, Pennsylvania. The vats are handsomely finished in natural wood, and the separator is of the most improved Sharples tubular pattern, having a capacity of 2,500 pounds of milk per hour, and producing the finest quality of cream. By using this centrifugal system of separating the cream from the warm, fresh milk, not only is butter produced in much larger quantities, but is of a greatly superior quality.

It is quite a pleasant sight to the visitor to see this large herd of Jerseys, as it comes in from the pasture for the afternoon milking. With an accuracy that is astonishing, each cow finds her proper place in the long lines of stalls, and when all are in, and are quietly eating their evening meal, the milkers begin their work. Perfect silence reigns, except for the quaint old southern melodies that the darkies sing to their cows, just as the milkmaids of Switzerland are said to do.

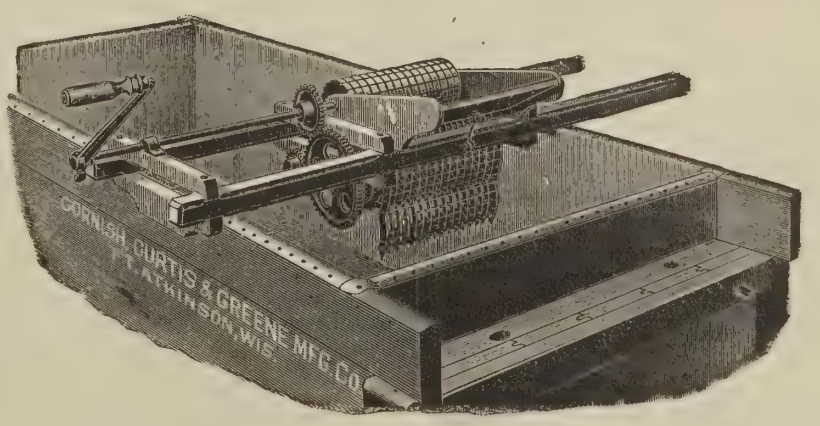
As is well known to every good dairyman, music hath charms not only to soothe the savage breast, but also to keep a dairy cow in good humor, and, passing down the long lines at Belle Meade, the patter of the streams in the buckets may be heard, keeping time to the plaintive chanting of the old darkey as he hums his soothing southern songs.

Great economy of labor and time is exercised in handling the milk. From the buckets of the milkers it is poured into a conductor, which projects through the wall from the cow sheds into the skimming room and empties into the receiving vat, thus rendering it unnecessary for the milkers to enter the skimming room. Passing from this vat into the separator, the cream is extracted and flows into large cans, while the skim milk flows from the separator to the skim milk vat. Another conductor leads the skim milk back into the cow shed, where it is drawn out through a "perfection" gate and fed to the calves.

The cream is then placed on a little cart and removed to the dairy house, which is a separate department, complete in itself, and is in charge of an experienced butter maker. The building is a very handsome stone structure, and is most admirably adapted to its purpose. In one end of the cream room is an oblong stone basin, through which a stream of cold water is constantly flowing, by means of a siphon, from a well near by. Into this room the cream is taken direct from the separator, and after being thoroughly cooled and aerated on a "Star" aerator, is set away in cooling cans to ripen for churning.

Under such conditions, it is not to be wondered at that the product from this dairy should take the very first rank in general excellence. Old methods will not do for these new times, and the day is not far distant when the Southern dairyman will realize more fully than he has yet done that in order to get the best results and the largest profits from his work, he must adopt the modern methods and improved appliances and machinery.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, **$25.00**

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making,

Agents for DE LAVAL ALPHA SEPARATORS.

Silo Experience.

ED. HOARD'S DAIRYMAN:—I built and fitted my first stave silo four years ago. It has been filled and fed out four times and given satisfaction every winter. I have three just alike and I would not build any other kind, for the stave silo is cheaper than any other, easier and quicker built and the loss from spoilt silage is less than any other kind, and I believe will outlast any other kind made of wood.

I will give my plan for building, and have found it cheap and convenient and certainly effici ent. First, lay off a circle on the level ground the diameter wanted, dig a pit eight feet deep. If the ground is clay it need not be walled up, but lay two courses of brick around the top to protect the edge of the earth wall from crumbling and to make a foundation on which to set the staves; lay the brick in cement mortar, having the foundation eight inches wide and two brick thick, to keep the lower end of the staves dry; use 2×4 pine or hemlock, twelve, fourteen or sixteen feet long, making the total depth twenty, twenty-two or twenty-four feet, and walls two inches thick. I think it much better to use 2×4 just as it comes from the saw and the circumference is broken so often that the inside edges coming together make a much better joint than if wider lumber were used, and if there are any of the pieces of timber sprung, it can be drawn together much better by the hoops. Before beginning to set up the staves I put four posts in the ground a little higher than the staves, on which to build my roof, and use these posts as scaffolding. When posts are up and fastened with the plates at the top—out just a little, larger than the outside circumference of the tub would be—stand up the first stave and after plumbing, so as to get it perpendicular both ways, the lower end resting on the brick foundation, back an inch or two from the inner edge of the brick and the top end nailed to the plate.

On this first stave nail with small nails, on the inside at both top and bottom, an old barrel stave, set up the next pieces of timber to the right or left and nail through the barrel stave, and so on, using the old staves as needed, until at last the shell or tub is set up and held in place by the two rows of old staves at top and bottom, making complete hoops on inside.

The top of tub can be stayed temporarily to the scaffolding at the top to secure from wind. After all is closed together, put on the iron hoops and draw together, knocking off the inside hoop of staves as soon as the iron hoops are sufficiently tight.

The iron hoops are made of two or three sections of five-eighths round iron, with screws and taps on each end, put through 4×4 pieces of hard wood, so as to pull from opposite directions. Cut the blocks of wood long enough to use for two sets of hoops, so each one will stay the other. The hoop can be in two or three sections, to suit circumference of silo.

Any one handy with tools can put it up quickly and with but little trouble, and when empty the walls quickly dry out and that makes it the most lasting silo. By having part in ground and part above ground, not so much elevating power is needed in filling, and if built outside of cow house, but close enough to place the cutter on the floor over head, the corn can be unloaded from wagons to platform on level with floor to feed the cutting machine, and by this save ten or twelve feet of elevator and necessary power to run it.

In finishing up the silo, after the hoops are drawn as tight as possible, saw out the doors between the hoops; two doors cut in the side, one near the ground and the other five or six feet above, are sufficient for feeding out the silage.

Saw the doors out twenty-four inches wide and twenty-eight inches high; saw with a bevel to fit from inside, so that when in place and filled the pressure of silage holds in place. I cover over each door on inside when ready to fill, with a square piece of tarred paper to exclude the air, and also in finishing up on the inside, fill up any openings there are where the staves join the brick foundation, with cement mortar, and also cement down on the clay wall about eighteen inches to exclude the surface water and rats.

It is not at all necessary to wall or cement the earth wall if it is clay. The silage keeps well against the clay, both sides and bottom. This is the poor man's silo because of its cheapness and will do for the rich man also as there are none other that will show better silage or less waste or rotten silage.

A silo built this way, twelve feet in diameter and twenty-four feet deep, will hold a little over fifty tons and can be put up ready for use here with good pine lumber, for less than fifty dollars. A safe estimate with lumber $1.50 per hundred feet and rod iron at $2.00 per hundred pounds, would be one dollar per ton of silage.

I feel now after four years' experience that if I had to tear down the silo every year to get out the contents like opening an oyster can and throwing it away, that each year it would pay me to build anew, but on the contrary after four years' use, I see no sign of decay of timber.

I see no reason to think a silo of this kind will not give good service for twenty years. My silos are painted outside with cheap mineral paint and have a plain clapboard roof.

I have used corn, sorghum, cow peas, soja beans in the silo. My first choice is well eared field corn put into silo, cut up to half inch lengths when well dented, when some of the outside shucks begin to turn yellow. Next choice is sorghum allowed to ripen the seed well. Do not like the cow pea or soja bean unless mixed in throughout with the corn or sorghum. I have three stave silos in use, and do not see how I could run a dairy without them. J. N. MERONEY.

Maury Co, Tenn.

Shredded Silage.

ED. HOARD'S DAIRYMAN:—Judging from statements which appear from time to time in print, there seems to be some diversity of opinion in regard to the advantages of shredding ensilage as compared with its preparation in the old fashioned way with a square cut machine.

In my own case, however, the results of the experience of the past three years, during which I have used the shredder exclusively in filling my silo, have been such as to thoroughly remove from my mind all doubt as to the superiority of this method of preparation. Before deciding to experiment with the new method, I investigated the subject with considerable care, and found that chief among the points of advantage claimed by those who had used the shredder for this work, were (1) Closer packing in silo, whereby the air was more effectually excluded; (2) A more fibrous texture enabling the product to be conveniently handled with a pitchfork; (3) The removal of the liability of producing sore mouths in the cattle fed from the contents of the silo, caused by the sharp edges of the chopped pieces; and in my own experience all these results have been fully realized. The closer packing of the ensilage produced in this manner amounts to a saving of at least 20% in the space occupied in the silo.

I filled my first silo in August, 1896, with a shredder which I purchased of the St. Albans Foundry Co., and operated it with one of their Internal-Double-Geared Three-Horse Tread Powers. The shredder was fitted with interchageable rolls; that is, it is so constructed that the upper roll can be readily removed at will, and one of large or small diameter inserted, according to the nature of the work to be done. With the large roll, the entire plant, ears and all, passes through and is shredded up, while with the small roll, the ears are pinched off and only the stalks and leaves are shredded.

My silo is 15×18 feet and 40 feet deep. This we filled full and besides ran several tons onto the bay, which made excellent fodder.

Part of the time that year I used the snapping rolls and part of the time the big feed rolls. The following year, however, I used the big feed rolls exclusively and put all of the corn into the silo and have since adhered to this plan, as I believe this is the most economical way to treat it.

The contents of my silo have been frequently inspected by good judges of ensilage and invariably pronounced to be the best that they have ever seen. Every particle of it keeps perfectly. We filled the silo with my regular farm help. The year before I bought the shredder, I paid for husking corn $80, and for grinding $75, which I now believe is saved by the silo and shredder, as I make more butter, buy less grain and my cows look better than ever before.

It was claimed by some that my shredder would be rather slow in comparison with a square cut machine, but we run through twenty-three two horse loads in one day (one load in nine minutes) snapping and husking the ears, which was much quicker than we could husk the corn by hand, to say nothing of the shredding.

This record was made with the snapping rolls in the machine. After we substituted the larger roll, we did still more rapid work, though I have not at hand the exact figures to show the exact amount of this work.

I have been feeding all of the past year from my silo and the ensilage is sweet and good throughout. I certainly intend to stick to the shredder for filling my silo until some still better method is discovered, and would not think of going back to the old plan of cutting the ensilage. H. W. STRONG.

Washington Co., Vt.

Feeding the Brood Sow.

(From a paper on the "Bacon Hog Industry," prepared for the Nova Scotia Pork Packing Co., by J. J. FERGUSON, B. S. A., Smith's Falls, Ont.

After the sow is separated from her spring litter, she will be able to find a living upon good grass or clover pasture, with little or no additional grain ration. Two or three weeks before she is due to farrow her fall litter, her ration of meal should be increased. We have found a mixture of bran and shorts, equal parts, about the best at this time. The sow should not be made over fat by heavy feeding, but a thin condition often results in weak, puny pigs at farrowing time. After the fall litter is weaned, the sow can be very cheaply carried through the winter upon a ration of mangels or sugar beets. Of these we feed about thirty pounds per head per day, in two feeds, morning and night, with two or three pounds of whole oats fed at noon. Turnips can be used, but to get the best results they should be sliced or pulped; our mangolds are fed whole, which is quite a saving in time and labor. Not only is this ration cheap and convenient to feed, but it carries the sows along in first-class breeding condition. This, combined with exercise taken at will in roomy yards, results in a much smaller loss of young pigs, when farrowing time comes, than is usually found where sows are kept closely confined during the winter and fed entirely upon a grain ration.

A month or so before farrowing, the sow should receive a lighter ration of roots and more meal. Large quantities of cold, watery roots, fed shortly before the birth of the pigs may give them such a chill as to result in their death. Roots do not contain sufficient mineral matter to build up a proper bony framework in the litter. The sow should farrow in a warm, dry pen, to which she has become accustomed for some time. A fender should be placed around the base of the walls, projecting out at the foot, and ten inches from the floor, to prevent her over-lying any of the young pigs. For the first week after farrowing she should be fed but a light meal ration of bran and shorts, or bran and finely ground oats mixed to a thin slop with warm milk or skim milk.

Over-feeding of the sow at this period, or feeding her heavily on barley, or pea-meal, is very likely to cause a milk fever, often resulting in the loss of dam and litter. Her ration during the time she is suckling her litter should consist largely of bran, since this is one of the very best milk-producing foods obtainable. When the young pigs are two weeks old, they should be provided with a supply of new milk in a shallow trough or pan, protected from the old sow. After a time, skim milk may be substituted, with the addition of a small quantity of ground oil-cake, shorts, or oat-meal. When treated in this way they become well able to do for themselves at seven or eight weeks old, and will suffer no set back when taken from the mother.

It is a serious mistake to wean pigs at four or five weeks, as is so often done, resulting in their making slow growth during the second month. Every day of lost time on the pig's part means money lost for the owner; they must be kept moving right along steadily from start to finish. The sow and litter should have access to a roomy yard, or, if she farrow in late spring, to a small clover or grass patch. When the pigs are ten or twelve weeks old they will make good use of pasture of this kind; in many sections of Ontario the farmers carry their hogs, during the summer months almost entirely on clover.

Light, movable fences or hurdles are made use of to confine the hogs to a portion of the field. When this is pastured off, the hurdles and hogs are moved to a fresh piece. This seems to give better results than allowing the hogs to roam over a large area. In every case, the hogs should have two or three copper rings inserted in their snouts to prevent their changing the face of nature; these will do it effectually. A hundred of them and a pair of pincers for inserting them, can be bought for twenty cents. It is well to provide a light shelter of boards to protect the pigs from sun and rain.

While pigs will grow and gain on clover alone, it is always advisable to give them a light grain ration in addition, one-half or one-third of the amount they would receive if fed on grain alone. Hogs finished on clover alone seem to yield a larger number of soft bacon sides than those properly finished on a grain ration, so that care must be exercised not to run to an extreme in this matter. Hogs on clover pasture should have a plentiful supply of clean water available at all times. If skim milk can be supplied them, at the rate of six or eight pounds per head per day, it will be found of great advantage. About a month before the hogs are to be marketed the finishing feeding should commence. This is not to be taken to mean fattening, but rather a firming up or ripening. Much has been said as to the injurious effects of certain feeds in the production of soft bacon. Of this we are satisfied, with the right hogs good bacon can be produced with greatest certainty by feeding a mixture of the different grains commonly grown upon our farms. No hard and fast rule can be laid down as to what grains to feed, as this matter will be regulated largely by current market prices, and also by the quantities of each which can be grown in each locality. A mixture of oats, peas and barley, seeded at the rate of one bushel of each per acre, will not only give a larger yield than any of these sown separately, but will be found to furnish a first-class grain ration for finishing hogs. An exclusive diet of any one grain will not give as good results. We now know that corn can be fed to finishing hogs without injury, if they have been fed on a good bone and muscle forming ration earlier in life, and do not at any time receive more than, at most, one-half of their meal ration of it. In all cases it is better to keep the hogs' appetite sharp; he should not have meal food lying almost constantly in his trough.—*Farming.*

MR. R. G. WELFORD, in an address before the Illinois Dairymen's Association, made the following observation upon the beneficial effects of dairying on any community in which it exists. He said:

"In my experience of thirty years in Illinois, Wisconsin, Iowa and Missouri, I have noticed that wherever the dairy cow is there is prosperity, whether the climate be good or bad. Dairying has also greatly increased the sociability and contact of farmers with one another, for they meet when they come to the creamery or factory. While they are waiting they discuss how to get and keep good cows. This has done wonders for such farmers. It has also called out more intelligent farming and we find that the papers that cater to their ideals are sought for and eagerly read."



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SOUTH DAKOTA STATE FAIR MILKING TEST.

At the South Dakota State Fair, the management have provided for a trial of milch cows under the following provisions:

CLASS NO. 34—MILKING BREEDS.

83 Cow producing milk from which most butter is made.....$25 $15 $10

Parties making entries in the milk test shall notify the Superintendent ten days before the opening of the Fair, that arrangements may be made for each cow entered. Box stalls will be furnished each cow entered. Cows to be under the direct supervision of officers of the Agricultural Society or their agent. Name, age, breed, date of last calving, kind and quantity of feed used, must be furnished the committee. Owners will be permitted to feed, water and milk their own cows. The test shall be made in public with the Babcock test.

It naturally follows that the man who is making one hundred per cent net profit selling milk preservatives, is absolutely sure that they are harmless, but that is no reason why we, who have to be dosed with the stuff, should allow him to be the judge of the matter. The compounds he puts up may act in different ways on our stomachs and his pocket book, and we are much afraid that the stomach will get the worst of the transaction.

Our Special Elgin Letter.

Ed. Hoard's Dairyman:—On the Elgin Board of Trade, Monday, three lots of butter were offered, and 20¾ cents was bid on all. Union and Garden Prairie declined to sell, but Dundee sold its offering of 2,400 pounds at this figure. The Quotation Committee declared the market firm at 20 cents. The sales of the past week aggregated 660,000 pounds. The markets for the corresponding week of the three preceding years were as follows:

Aug. 15, '98, 9,900 lbs. of butter sold at 18⅛c,
Aug. 16, '97, 5,160 lbs. of butter sold at 16⅛@16¼c.
Aug. 17, '96, 21,660 lbs. of butter sold at 17c.

The New York market on Monday, was reported firm at 20 cents.

The dairymen of Elgin, Dundee and Algonquin townships, or those who are patrons of the three condensing factories, at these respective places, have held meetings during the past week, and perfected plans for an organization, the object of which is to secure better prices for their milk.

They consider that the dairyman receives too little for his product and pays too much for feed and stock to make the business a paying one, and it is in the hope of bringing about a satisfactory adjustment that these meetings have been held. The farmers all seem to favor a permanent organization of all those residing in the territory from which the milk supply comes.

An association was formed here on Friday, at a meeting called for that purpose. S. N. Wright was chairman, and D. W. Wilson, secretary.

Mr. Wright explained that the object was to arrange to act in unison with the dairymen who had held meetings in other towns, in an effort to get a better price for milk.

Judge S. Wilcox made an address giving the cost of producing milk during the last few years and the price which had been obtained for it. He showed that the returns were not what they should have been all the time. In order to have a better understanding and to arrange matters so that a systematic effort be made, he moved that an organization to be known as the Fox River Dairymen's Association be formed, which should be permanent and have for its object the promotion of the interests of the dairy farmer. It would be in fact a renewal of an organization which was in existence several years ago. S. N. Wright, President; George Busche, Vice-President; D. W. Wilson, Secretary; Clarence Bishop, Treasurer; S. Wilcox, F. L. Shepherd and J. Mason, Directors.

The Dundee and Algonquin dairymen held a joint meeting on Monday and decided to unite with the organization formed here.

Elgin, Ill., August 14th. H. C. B.

DAIRY MARKETS.

ELGIN, Ill., Aug. 14—Ninety tubs were offered, 40 sold at 23¼c; committee reported firm at 20c.

CHICAGO, Ill., Aug. 14—Butter—Creamery extra, 19½c firsts, 17½@18c; seconds 15@16c; dairies, selections, 17c; No. 1, 14c; No. 2, 18c; extra ladles, 13½@14c.

Eggs—Fresh, at mark, cases returned, sold at 10½@11c; loss off, cases returned, 12½c.

Cheese—Full cream, Twins, new, good to choice 9¼@9½c; Young Americas, 9¾@10c; Swiss, 8@10¼c; Limburger, 7@8½c; bricks, 8@9c.

Bran—Firm at $10.75@11 per ton.

Shorts—Quiet and sold at $12 per ton.

Cattle—All desirable grades of beef cattle met with a good demand, and prices ruled steady to 10c higher, with a load of 1,490-lb beeves at $6.45 or 25c above last week's top, 15c above the previous highest price this year, and the highest since 1896. A load averaging 1,448 lbs. sold at $6.35, with 1,210-lb steers at $6.10, and 1,326-lb Westerns at $6.10. Most of the native steers sold at $5.50@6.10; some 1,278-lb stillers sold at $5.80. Very few native steers sold below $5. About 900 grass Westerns were received and prices ruled strong with some 1,352-lb grassers at $5.40, the highest grass rangers in many years. A lot of 460 Western heifers averaging 1,073 lbs sold at $4.75. Texas cattle nominally unchanged, Native butcher stock ruled steady, and canning stock was reported firm.

MILWAUKEE, Wis., Aug. 14—Butter—Creamery—Fancy prints, 19½c; extras, 19@19½c; firsts, 17@18c; seconds 16@17c; imitations, 16@17c. Dairy—Selections 15@17c; lines, 13@15c. Market strong and 1c higher, all kinds being scarce and wanted; receipts 8,400 lbs.

Cheese—American full cream—New, choice to fancy, 9@9⅝c. Brick—New, choice 8½@9c. Limburger—New, choice, 8@8½c. Swiss—Drum, choice 12½@13c; new block, choice 10@10½c.

Eggs—Fresh, per doz 11½@12c, loss off, cases returned.

MUSCODA, Wis., Aug. 14—Offerings to-day, 1,100 boxes Twins, 9@9½c; 90 boxes Daisies, 9⅜c.

FOND DU LAC, Wis., Aug. 14—Offerings 618 Twins; market easy at 9 cents.

PLYMOUTH, Wis., Aug. 8—Sales to-day 1,025 Twins at 9¼c, 975 Young Americas at 9¾c.

SHEBOYGAN FALLS, Wis., Aug. 9—Sixteen factories offered 1,188 boxes of cheese on the Call Board to-day, and though the market was quiet and bidding slow, all were sold as follows: 636 cases Young Americas, at 9½c; 212 Twins, at 9⅝c and 340 Daisies at 9½c.

MANITOWOC, Wis., Aug. 9—Offerings at Dairy Board of Trade to-day were 800 boxes Daisies, 135 boxes Twins, 850 boxes Young Americas. Sales, 500 boxes Daisies at 9¾c, 200 at 9⅝c. All offerings Twins at 9¼c, and Young Americas at 9½c.

PHILADELPHIA, Pa., Aug. 14—Butter—Separator creamery extra, 19½@20c; creamery firsts, 18½@19c; seconds, 16@17c; imitation creamery, extra, 16c; firsts, 15c; seconds, 13c; ladle packed extra, 14@14½c: firsts, 13½c; seconds, 13c. Print butter, creamery extra, 22c; firsts, 21c; seconds, 18@19c.

Eggs—Pennsylvania and nearby, 15c; western, 15c; southwestern, 14c; southern, 12@13c.

BALTIMORE, Md., Aug. 14—Butter—Market strong; creamery separator extras, 20@21c; extra firsts, 19@20c; creamery first, 18@19c; creamery, imitation extra, 16@17c; ladle extra, 16c; western store-packed, 12½@15c.

Eggs—Market firm; strictly fresh stock, 13@13½c.

KANSAS CITY, Mo., Aug. 14—Butter—Creamery, 17½c; dairy, 14c.

Eggs—Fresh, 10c.

ST. LOUIS, Mo., Aug. 14—Butter—Steady; creamery, 16@19c; dairy, 13@16c.

Eggs—Firm, 10½c.

CINCINNATI, O., Aug. 14—Butter—Firm.

Cheese—Firm; good to prime Ohio Flat, 9c.

Eggs—Firmer; 9½c.

NEW YORK, Aug. 14—Butter—Creamery, extras, 19½c; firsts, 18½@19c; state extras, 19½c; firsts, 18½c.

Cheese—State full cream, large or small colored or white, choice, 9¼@9½c.

Eggs—State, Pennsylvania and western, 16@17c.

NEW YORK MARKET.

NEW YORK, Aug. 12—Butter—Receipts for the week, 37,180 packages. Exports for the week, 13,026 packages.

Exports continue to go forward freely and the market is ready and cheerful under the stimulus of foreign buying.

There has been better all around trading the past week, with much lighter receipts and market closes steady on all grades and shows increasing firmness on fancy goods. Local and out of town buyers bought liberally of extra fresh creameries at 19@19½c and we note sales to exporters of lines good to fine ones at 18@19c, and lines of fair to good ladle goods at 13@14c.

Creamery, extra, 19½c; medium, 18@19c; poor, 14@16c. Dairy, extra, 18@18½c; medium, 16@17c; poor, 13@15c.

Cheese—Receipts for the week, 34,135 boxes. Exports for the week, 11,363 boxes.

The market is steady with a firm undertone to prices; trade this week, however, was light at last week's rates. Sales are reported from the interior of the state at 9¾@10c. We quote:

Full cream, small, extra, 9¾c; medium, 9@9½c; poor, 7@8c; large, extra, 9½c; medium, 9@9¼c; poor, 7@8c.

Eggs—Rec ipts for the week, 41,095 cases.

Strictly fresh gathered eggs are in light supply and sell readily at full prices. Other qualities are plentiful and irregular in prices. We quote:

N. Y. State & Pennsylvania, per dozen, 15½@16½c; western and northern, best marks, 15@15½c; other sections, 12½@14½c.

David W. Lewis & Co.
177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, Aug. 10.—Butter—The past week has been about as uneventful in this line of business as any of its predecessors this season. Ordinarily, we would not note the incident, because every summer is presumed to develope a tired spot; but just now, with exceptionally cool weather, which has continued an unusually long time, to wit: several days, one would suppose that there would be a sallying forth of local buyers to replenish their holdings that had yielded to the demands made upon them during the excessive heat of the early dog days, also an influx of traders from nearby cities and towns, with the same laudable purpose in view; but the fact is, that the local talent remain in hiding, or have not dared to venture back in active resumption of business along the old lines, and the flood of strangers, sweeping along our streets, are here for their recreation, and with one accord and great unanimity, have refrained from visiting the wholesale districts, confining their efforts to the purchase of twenty cent articles marked up to twenty-nine, of which they seem never to tire until they arrive home and display their purchases to the merciless criticism of those unfortunates who could not accompany them on their raid. And yet the receipts of separator creamery and gathered cream ditto, which have been of the usual quantity, respectively, have by a large majority, gone their several ways, and have been absorbed with as little effort as effect; no one seems anxious for anything, and when they get it, not a ripple appears on the calm surface to mark when or how it was done. The *entente cordiale* of buyer and seller lies down with *laissez faire* of the market, and they need no leader—it is just a condition of "is." Receipts of other varieties, including store-packed, are light, and though grading low, are nearly all sold on arrival.

Creamery Separator, extras 19c; firsts 18c; seconds 17c; gathered Cream extras 17@18c; firsts 17c; seconds 16c; Ohio, extras 17@18; firsts 17c; seconds 16c; Iowa & N W. Ladle, extras 14c; firsts 13c; seconds 12c; Ohio & Indiana Ladle, extrrs 14c; firsts 13c; seconds 12c; Ohio Storepacked, extras 12½@13c; firsts 12c; W. Va. extras 12½@13c; firsts 12c; Creamery blocks (2lb), extras 21c; firsts 20c; seconds 19c; prints, (½lb), extras 21c; firsts 20c; seconds 19c; Md., Va. & Penna. prints, extras 19c; firsts 18c; seconds 16@17c.

Eggs—Under continued light receipts of all choice fresh eggs, and active demand, we write our market firm at thirteen cents. Note—Please bear in mind that our quotations are for choice fresh eggs; all faulty stock has to be sold on their merits.

Cheese—Receipts of cheese continue light; the demand is fair; market firm.

New York state, Cheddars, fine 9¾c; choice 9¼@9½c; fair 8½@8¾c; flats, fine 9¾@10c; choice 9¼@9½c; fair 8½@9; small, fine 10¼@10½; choice 9¾@10c; fair 9@9½c; Ohio flats, fine 9½@9¾c; choice 9@9¼c; fair 8½@8¾c; Picnic, fine 9½@10c; Swiss Cheese, fine 11@12c; choice 10½@10¾c.

FOREIGN MARKET.

BOSTON, Aug. 12—Cable advices of this date from the principal markets of Great Britain to Geo. A. Cochrane, give butter markets as active and higher on the finest descriptions of table butter. Finest Danish is in light supply, which throws the demand largely on to Canadian, the fine quality of which gives it a strong hold on buyers. 21@22c is being made for the best description in boxes, and 20@21c in tubs. Irish butter is running very poor with prices most irregular. American creameries continue to be neglected, quality hardly good enough to meet the demand, and prices take a range all the way from 18½@20c. Imitations continue a very dull sale. Ladles show more improvement and fine June goods have sold at 15½@16c, but sales cannot be made at all freely over 15@15½c for the best of the current make.

Cheese markets are all again higher, and the demand very active, clearing arrivals promptly each week. Finest American and Canadian bringing 10½@11c, with some holders asking more money for fresh landed parcels.

MANCHESTER MARKET, ENGLAND.

Copenhagen wires:—The intense heat has ceased here, and colder, rainy weather has set in. Meantime the pastures look quite bare, and some of the farmers have to give their cows additional fodder in the house. Butter market, as I foretold you, is decidedly firm, and prices have an advancing tendency, but I don't think values will be raised this week yet. Arrivals seem short for the week, but cannot yet be ascertained. Orders large, all selling quickly. The official quotation has since been wired two kroner higher. Cooler weather with occasional rains prevail over the United Kingdom, and will help the make of butter and improve quality immensely, especially in transit. The Irish markets have been very firm during the week, with advanced prices for the higher qualities. Irish creameries and factories in good demand. Manchester market was rapidly cleared, last Tuesday, at three to four per cent over the previous week's prices for Danish. Consumption is large and growing, and though imports generally have increased, they are cleared at continually higher rates. Cork market reports an increase equivalent to 10,841 firkins to July compared with the same period of last year. Dairying throughout Ireland is receiving a great impetus, and the leading public markets are undoubtedly reviving as the most convenient center of exchange. The arrivals of Danish and Swedish advised for next week's North of England markets are 19,375 casks, 644 less than last week, and 1,916 Finnish, 44 less. Arrivals of Margarine via Hull 9,884 packages, and via Grimsby 6,256 packages. Dowdall Bros.

ANOTHER "ALPHA" TRIUMPH.

ROYAL AGRICULTURAL SOCIETY FIRST PRIZES.

The "Alpha" De Laval machines have just won another great victory over would-be competitive cream separators, in the practical working contest at the 1899 Annual Show, at Maidstone, Kent, of the Royal Agricultural Society of England.

This Society is probably the most important agricultural body in the world, and its Annual Shows are the largest and most important of agricultural exhibitions and contests held anywhere. The Society has conducted no cream separator contest since 1891, at which time the "Alpha" disc machines first demonstrated their great superiority over the "hollow-bowl" type of separator construction, so that the contest to be held this year has attracted a great deal of attention everywhere with those interested in dairying matters, and especially among separator manufacturers. Different manufacturers, from various countries, sent not only their own special engineers to superintend the running of their respective machines, but in some instances the inventors or chief constructors themselves.

The Royal Agricultural Show test of separators is by all odds the most thorough and complete attempt by any society or institution anywhere, the work differing in some respects from that of the Experiment Stations in that it is devised and conducted along the lines of practical operation, without regard to mere experimental possibilities. The test covered five days continuous running, every feature entering into the economical cost and practical efficiency of a separator being carefully analyzed, the Association's consulting engineer acting in conjunction with the official judges. The "points" taken into consideration were: Price, efficiency of separation, power taken per gallon, time taken per gallon, means of regulating thickness of cream, facility for dismantling and cleaning, mechanical construction, and freedom from froth, both from skim-milk and cream.

The contest was devided into two classes of machines—Hand and Power. There were six entries of Power and nine of Hand machines. The First Prize was 20£ or $100—in each class.

THE "ALPHA" DE LAVAL MACHINES EASILY WON FIRST PRIZE IN EACH CLASS, which while no more than anyone familiar with separators would naturally have expected, is nevertheless the highest endorsement any agricultural implement could possibly receive, and an endorsement of such character that its weight must be recognized in every part of the world.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	NEW YORK.	PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Agents make big money selling Universal Tinware Mender. Sells at sight. No soldering iron, acid, or resin needed. Cash commission or valuable articles given to agents. Send 10 cents for sample. S. S. AGENCY, Caton, O.

For Sale—Dairy and milk route in town of 10,000. Selling 45 gallons per day. Will lease 132 acre farm reasonable. JOE CRON, 726 W. 6th St. Bloomington Ind.

For Sale—Creamery and skim station doing good business, Has 160 patrons. Both plants equipped with best machinery. Full particulars on addressing WM. ROWSE, Norway, Iowa.

Farm For Sale—165 acres, 3 miles from county seat of one of the best counties in Western N. Y. Farm well located; good producing land in first-class farming section. Will be sold very cheap. If desired would take part pay in cattle. Would be pleased to correspond with real estate agents. BOX 386. Geneva, N. Y.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Wanted—An expert Northern dairyman, graduate of Wisconsin Agricultural College, and of life-long experience, wants position in charge of southern dairy farm. Will work for salary or on shares, and furnish A No. 1 references. Address E. O. THORSGAARD, Streator, Ill. 26-3

Wanted—Man and wife to milk forty cows. Must be speedy and clean milkers. Man to care for cows in winter and in summer to work on farm between milkings. References as to character and ability required. State wages and references. LEWIS E. MURRELL, Lynchburg, Va. 26-2

For County Fair, Waukesha, the North-Western Line will sell excursion tickets at reduced rates from Ft. Atkinson, August 22 to 25, inclusive, limited to include August 26. Apply to Agents Chicago & North-western Railway.

For Fair and Fall Festival, Clinton Junction, Wis., the North-Western Line will sell excursion tickets at reduced rates from Fort Atkinson, August 21 to 22, inclusive, limited to include August 23. Apply to agents Chicago & North-Western Railway.

He Applied His Knowledge.

ED. HOARD'S DAIRYMAN:—For a number of years I have been a reader of your most excellent and valuable paper. As to whether I have profited or not by its teachings, the following figures best answer the question:

Twenty-eight head of full bred and grade Holstein cows and heifers on my Sunnyside Farm, managed by George P. Ashbocker, produced from Nov. 1st, 1898, to May 1st, 1899, 115,103 pounds of milk, for which I received $1,095.08 from the factory.

The milk fed to calves, that were raised during the period as above, is not credited the dairy in the above figures. Eight of the cows dropped calves in September and October, eight were farrow and twelve freshened during the six months from Nov. 1st, 1898. Five cows of this number gave 36,667 pounds of milk in six months. One of the number gave 8,947 pounds in the same time.

A full bred, two-year-old heifer, Aaggie Albans Queen Clothilde, gave 5,233 pounds milk in six months, while her mother, Aaggie Albans Queen, gave over 12,000 pounds milk in eleven months. The milk from the entire dairy was tested at the factory by a state milk inspector and tested 3.6%.

The dairy was not forced for a record, but was fed and cared for intelligently, without which no man can expect to succeed as a dairyman. They were fed the ration you formulated for me, which was published in the DAIRYMAN under d ate of Nov. 25, 1898, on page 830

My experience was that I got the best results at the milk pail by feeding the grain in three feeds per day instead of two. I think you will agree that there are not many non-paying boarders in this herd.

At the same time, I consider that there is still room for improvement, and with the help of a tried and true friend, the DAIRYMAN, I am going to prove to my brother dairymen that the above is not an extravagant statement. May you long live to spread the gospel of dairy truths to the farmers of this country, is the wish of

Jefferson Co., N. Y. A. E. HELMER.

Feeds and Productivity.

From fifty to seventy-five per cent of the total expense of maintaining the dairy herd is expended directly or indirectly for forage or food. If greater profits are to be secured they must be largely reached by cheapening the cost of the food. If we undertake to maintain in milk a cow of 1,000 pounds live weight, on clover hay alone, she would have to eat thirty-five pounds of clover hay per day. This would furnish of digestible material 2.38 pounds of protein and 13.86 pounds of carbohydrates (including fat multiplied by 2.25), which is very nearly a standard ration. If fed during the winter stabling period of 200 days, the cow will consume three and one-half tons of hay, which, at the ordinary price of clover hay in the Eastern states ($7 per ton), would amount to $24.50, which nearly equals the value of the products of many cows. Then, too, it would be difficult for the cow to eat thirty-five pounds of hay daily. In addition to the winter forage, the cow would require pasture for 165 days, which at twenty-five cents per week, would add nearly $6 more to the expense of the cow's food. It is evident that there can be no profit in keeping the ordinary cow at a yearly cost of $30.50. It may be said that the income from each cow should be more than the estimated cost of her food as given, but with a really good cow the difficulty is not removed, only slightly alleviated.

With present pastures and meadows it would require more than three acres of land to produce the hay, and two more to furnish the pasturage. If mixed hay or timothy is fed, the results would be still more unsatisfactory, since the ration would be too wide and the hay higher priced. Something might be gained by selling some of the hay and by purchasing some by-product rich in protein. It is evident that little profit can be secured if ordinary hay forms the larger part of the ration. If we turn to alfalfa, the millets, prickly comfrey, kafir corn or sorghum, they give no indication of furnishing a cheaper or more satisfactory forage supply than does clover hay. True, the clovers may be made to materially assist other species of plants to secure a food supply and to keep the land in good physical condition, but why add fertility to the land by means of clover raised and fed at a loss, when the moist soil already contains thousands of pounds of potential plant food which awaits a more intelligent husbandman? What useful purpose has the 36,000 pounds of the three leading elements of plant food in the first sixteen inches of each acre of average soil ever served? Most of it might as well never have been created, so far as the welfare of man has been concerned.

Sixteen analyses of beet soils made at Cornell University show 4,587 pounds of nitrogen, 4,267 pounds of phosphoric acid and 41,600 pounds of potash in the first eight inches of soil per acre. Allowing that an acre of soil eight inches deep weighs 1,200 tons, the total average potential plant food of the three elements was 50,453 pounds per acre, and probably more than half as much more in the second eight inches. Some rotten rock from a farm in Jefferson County gave 5.59 per cent of potash and .56 per cent of phosphoric acid, or sixty-seven tons (134,000 pounds) of potash and 13,440 pounds or more than 6½ tons of phosphoric acid in an acre of of rotten rock, eight inches deep. What an opportunity for hot plow shares and brains!

It would appear from many analyses of soil made in this and other States that most of the arable land contains vast quantities of potential plant food which can easily be made available for plants by a more rational system of tillage and cropping. But most of this plant food is lazy, and when a lazy or unskilled farmer owns this lazy food, there is so much loafing on the farm and in the soil that results are unsatisfactory. Is there a remedy for such conditious? I think there is at least a partial one. On a dairy farm the products of the cow form the staple, and the products of the corn field should form the staple food of dairy cattle. It is a little humiliating at this late date to urge upon farmers the necessity of raising corn and of building silos for preserving it. The ensilage question has passed the experimental stage; there is a cloud of witnesses to testify in its favor, and why a majority of dairymen still continue to feed hay almost exclusively as roughage passes comprehension. True, there are many imperfect silos still in existence; these were built before we had fully tested different kinds of construction, but for the last three or four years the best form and kind of silo has been definitely settled. As we know that best form of a dwelling house is a parallelogram from one-eighth to one-fourth longer than wide, so we know the best form of a silo is circular.

I can well understand why the dairyman does not make corn the leading forage crop if he has no silo. The acres of unhusked corn and stover, which remain into winter in the fields, in western New York, bear witness to the dreaded task of husking corn and storing feeble and bloodless corn stalks;corn stalks which, had they been harvested by machinery and properly stored, would have formed large quantities of succulent, acceptable, forage cheaply. The twelve to fifteen tons of green material, or four to five of dry matter, which may be secured from an acre of corn, may serve to reduce the cost of food maintenance one-half. But it is said that such large crops serve to deplete the soil of its fertility. Twelve tons of corn per acre would remove, in round numbers, sixty-seven pounds of nitrogen, twenty- six of phosphoric acid and eighty-nine of potash; in all 182 pounds of these elements of plant growth. Compare this with the amount of potential plant food found, as an average, in the sixteen soils analyzed, referred to above, and it is seen that there is enough plant food in the first eight inches of the soils tested to produce more than 300 crops of corn.

It may be said that plants cannot recover all this plant food. True, but no account has been taken of those vast stores of plant food which lie below the first eight inches of surface soil, much of which is available, or can be made so by intelligent tillage. Then, again, nothing has been said of the vast stores of plant food which the soil may receive from nitrogen-fixing plants and barn manures. "Never cross a bridge until you come to it," some one has said, but in this case it might be said, "Don't worry about the bridge of soil exhaustion, which will never have to be crossed if just a little intelligence is used in agriculture." Here, again, for the thousanth time let me reiterate the true principle of agriculture, so far as furnishing available plant food for the crops: Make available the lazy plant food already in the soil by tillage, drainage, cover crops, liming, or by any other means which will arouse the sluggish elements in the land.

Carefully preserve and judiciously apply the barn manures, and then if the most profitable results are not reached, purchase nitrogen, phosporic acid and potash in concentrated forms, and by careful tests find out what kinds and quantities of extra plant food are required in any given case.

Indian corn follows Indian corn most kindly. It is not even necessary to rotate it with other crops for a period of from six to ten years. Then, too, a cover crop can be maintained in the corn every fall and winter. Indian corn has few enemies, and is easily grown from inexpensive seed. If it were possible for one to originate an ideal forage plant—one which should possess the greatest possible desirable qualities and the fewest undesirable ones—he could not materially improve Indian corn, and yet comparatively little of it is raised and used in the dairy districts of New York. Hay still forms the staple roughage of the dairy.

Formerly there was a good reason for neglecting the cultivation of corn. In some localities the season is not long enough to ripen the larger and most desirable varieties. In all localities, the labor of cutting, husking, shocking and housing, when it could be housed without endangering its palatability, was so great, and the work so disagreeable to the farm lad, that it is no wonder the dairyman planted the minimum of corn and cut the maximum of hay,although the yield of the former might exceed by four-fold the yield of the latter. But now all is changed. No more cold fingers and cracked hands, no more tired, squatty corn stalks in the windy fields, no binding corn stover with weeds or a belated corn stalk.

If another view of the subject is taken, corn far outranks hay. It has been shown what vast quantities of lazy, unused plant food an average arable soil contains, and often the meadow makes this food lazier than it was when the meadow was first seeded. The soil becomes more and more compact as the meadow is retained; nitrifying organisms perish for want of air, warmth and moisture. Old plants are grown in the meadow, young plants always in the corn field. While some plant food is being liberated, on the other hand as much is being constantly locked up and made more and more unavailable in the meadow, where no tillage takes place. In the corn field, under good tillage, plant food is being constantly changed from the inert to the available stage. Long maintained meadows tend to produce undesirable physical conditions of the soil, while the cultivation of corn and other intertilled crops tends to improve the friability of the land and to make the soil more comfortable for the plants. Corn tillage tends to increase productivity, to unlock plant food and fit it and the soil for other exacting plants, as sugar beets and potatoes. Then the corn crop does not diminish productivity, but tends to increase it.

We should have discovered long ere this the wonderful value of Indian corn as a cattle food. As soon as a more general use of Indian corn in the dairy is recommended, we are met with the fact that to feed alone it forms too wide a ration. But this difficulty is easily met, for wherever maize is at its best, oats and peas thrive also, and these, in conjunction with a small amount of purchased by-products, (such as linseed or cottonseed meal), will serve to narrow the ration down to the accepted standard. Then, in addition to the large amount of acceptable roughage, there may be from fifty to seventy-five bushels of grain per acre.

The same general rules which apply to feeding cows hold in maintaining the productivity of the land. The cows should be maintained by home-raised food, and not by a bank account or on borrowed money. The assertion that cattle foods can be purchased cheaper than they can be raised is only applicable in rare cases, or when the farmer lacks skill in his business. The way to reduce the price of by-products is to diminish the purchase of them. While commercial fertilizers and by-products are valuable adjuncts to agriculture, they should never be purchased until the best possible use has been made of native fertility in the soil, barn manures and cover-crops, and every means exhausted to discover the best varieties of plants for a given purpose, and how to double the yield of them.

We have been studying the dairy question from the wrong end. We began at the rear or teat end of the cow; let the order be reversed and let us begin our studies at the front end, with what goes in at the mouth and the cost of it. Having started right, progression in our studies will be natural; and qualities inherited or acquired, milk mirrors, length of rail and teats, and their setting on, may be investigated with some hope that the mammary organs, being nourished and sustained by a full and rational ration, will adjust themselves in time to the supply of nourishment furnished, when we may view them as the result of intelligently applied energy at the front end of the animal. —I. P. ROBERTS, in *Country Gentleman.*

Milk Dilution Separators.

[Press Bulletin.]

Within the past few months there has been introduced to the farmers of Indiana, what is termed a dilution cream separator. This is not a separator as commonly understood by dairymen, where cream is separated from milk by centrifugal force, but is a specially constructed can,usually of large size, in which cream separates from milk by rising to the surface, by the common gravity process. The principal of creaming in this can, however, differs from that usually performed in the dairy through the mixing of water with the milk to assist the cream to rise. These specially made cans have certain peculiarities of construction and are advertised by the makers as "cream separators." The cans of different manufacturers differ in form and style, but the principal feature with all is to fill the can partly full of new warm milk and then at once add a large quantity of cold water. This of course dilutes the milk, perhaps one hundred per cent. In this diluted condition, the claim of the manufacturer is, that the cream will rise more completely and rapidly than if not diluted; that in twenty to thirty minutes it will all rest on the surface of the skimmed milk, which can be drawn off from below.

In 1893 the Indiana Experiment Station, for two weeks, carried on an experiment on the influence of dilution of milk on efficiency of creaming. The results of this work, as published in Bulletin 44 of the Station were, that a greater loss of fat occurs in skim milk when dilution is practiced, than with undiluted milk; that the loss is greater with cold than with warm water, and that by diluting the milk a poorer quality of skim milk for feeding is thereby produced. These results were in accordance with conclusions arrived at through similar experiments at the Vermont, Cornell, Illinois and Ontario College stations. The process of dilution was not to be recommended as a general practice.

These so-called separators are patented, and the Cornell Experiment Station,at Ithaca, N. Y., has recently published a bulletin describing and illustrating eight forms of them, as described in the Patent Office *Gazette.* Persons interested may perhaps secure a copy of this bulletin on application.

The farmers and dairymen of Indiana are advised not to purchase these cans. The price, as a rule, is exhorbitant and the practice of dilution is undesirable. But if the farmer wishes to secure the same results advertised by the makers of these cans, he may obtain them by diluting his milk in a comparatively inexpensive, round can, such as may be secured of any reputable dairy supply house,or can be made by any good tinsmith. Such a can, however, should have a faucet in the bottom, through which the skimmed milk may be drawn. In fact, if our farmers will set their milk undiluted in deep cans—say 18 to 20 inches deep and eight in diameter—set in cold water or cold room, they will get more satisfactory returns, than when set in shallow pans or crocks.—*Purdue Experiment Station.*

The Vicious Bull.

For a really vicious bull that is out with the cows in pasture any contrivance put on his head, when he has no horns, I do not believe, would be much of a success. It would be difficult to keep in place and he would be sure to break or pull it off. The owner should keep him in a box-stall opening into a small paddock with a bull-proof fence. Turn him loose in this, feed and water him from the outside and let him severely alone. This is generally the way such bulls are handled. The cows would have to be brought up to him and turned into a small enclosure where the bull or cow could be forced out again without the attendant going inside the fence. If I owned a herd of good cows and this was my bull, instead of a helmet on his forehead, I would put a good big bullet-hole there and send him to the shambles. I have two reasons for such a drastic remedy for a bad-tempered bull. In the first place that is the only treatment that will ever make him safe to handle. An experienced and nervy herdsman can often control and handle such bulls, but eternal vigilance is the price of his life, and depend on it, if you are afraid of the bull he will know it just as soon as you do. The second reason is based on the law of heredity that like begets like. The bull will just as surely transmit his disposition to his offspring as he will his color or any other of his individual characteristics. Further, a bull with a nervous and pugnacious disposition is nearly always noisy, restless and fretful, and practical and observing breeders know that such an animal is a bad breeder.

In my opinion a great many breeders fail

to see the importance of a kind and docile disposition, especially in a male animal, for if a bull is half the herd they have his temper in the same degree. The difference in the get of a bull with a vicious disposition and one that is kind, can be most readily noticed when they are being tied up for the first time or halter broken, and the bulls among them, when they get about two years old, will nearly always commence to show that they are a chip of the old block. There are bad tempered bulls in all breeds and the sooner they are sent to the butcher, it will, as a general rule, be the wisest way to cure them.—*Breeder's Gazette.*

The Pig and Its Possibilities.

During the first three weeks of the pig's life the milk of the sow is food and drink, therefore it must be the aim to furnish the sow with food that will produce the largest supply of milk. As sow's milk is naturally richer than the milk of any other animal, the aim should be to use food that will increase the milk flow, but not its richness, and this region is blessed with the cheapest material to produce this result. Recent extensive observations among thousands of farmers in Minnesota impress us that there is an indifference about availing themselves of the economic conditions at hand. We found, for instance, that oats ranged in price, during parts of May and June, from 25 to 35 cents a bushel and shorts from $10 to $14 per ton. A little use of the pencil will show that a ton of oats at the lowest figures given would cost $15.75, and one-fifth of them are in digestible hulls, and if ground the cost of it must be added. And yet shorts are more valuable, pound for pound, than oats.

In other cases rye, barley or corn was resorted to; an extremely rich food and very liable to cause fever, constipation, cough and thumps in pigs. The too frequent absence of pasture is lamentable. Grass cannot be omitted, if pig rearing and feeding are to be successful. Clover, of course, is king; but blue grass will be relished in the fore part of the season. Oats and barley, sown thickly will answer for a period, and it can be resown with rape. And fight as hard as they will, sooner or later, the farmer will accept the inevitable and adopt fencing, and will consider it a blessing. By the time their pigs are three weeks old, sows should be turned on pasture, after first receiving a liberal feed of thick slop of shorts, two parts, to one of corn or barley, and temporary shelter from sun and storm will be a great advantage, if they have not liberty to return to pens at will. But no more should be fed than sow and pigs will eat with a relish; and no pasture should be without water.

It will ever be found a great advantage to so prepare the food that pigs will learn to eat it with the sow, for then there will be no perceptible check of growth at the time of weaning. If sows are not to be bred for a second litter, it is best to let pigs nurse for three months, but liberal and judicious feeding should be practiced. If they are on clover pasture and receive shorts, as slop, soaked shelled corn can be fed as a part of their rations, on floors, with good advantage. If skim milk is abundant it is best to mix the shorts with it shortly before feeding. For young pigs of from four to six weeks of age, one pound to the gallon of milk will be sufficient and increase this with size to three pounds of shorts. It will be found that greater and more healthy growth will be the result, and many ailments will be avoided.—*Farm, Stock and Home.*

Cause of Soft Butter.

Some butter that is made in summer is often soft or mushy, though, of course, most of it is solid and of good grain. The reason why the soft butter is not of the same quality as the hard is that it is not made in the same manner—which, of course includes the handling of both the milk and cream. The softness of the butter is generally due to the temperature being too high, and this is why soft butter is the rule in most dairies during the hot months of July aud August. Perhaps the reasons why the difficulty is not overcome is lack of conveniences, pressure of other duties, and in some cases, ignorance. To over come all this keep things cool. Have the cream at the proper temperature, and if you cannot secure the means of making it so, it would be better to give up the idea of making butter during the summer, for it would be a great deal better not to make poor butter, even if you are interested in the smallest kind of a way, for it will ruin your reputation, and this once done it will be next to impossible to build up any kind of a business in either butter or cheese. Churn the cream—during the morning would no doubt be best—at a temperature of about 56 or 58 degrees, for this will prevent its becoming mushy. As soon as the butter comes in little granules about the size of grains of wheat, it is time to stop the churn. Should it look milky and not float well, pour in sufficient cold water to make it float. Having done this draw off the combined water and buttermilk, and pour in more cold water, almost filling the churn, and then revolve the churn rapidly about fifty times. I had this illustrated to me a few weeks ago at an institute, and the result was a lot of butter with each little grain standing out separately, extremely firm in texture and ready for salting.—*New York Witness.*

Misrepresenting the Case.

We must expect the opposition of a large majority of the daily press when the demand for increasing the tax upon colored oleomargarine is finally made upon the Federal Congress. General news editors, by reason of the multitude of subjects which they are compelled to treat editorally, write hundreds of comments upon passing events with only a very superficial knowledge of the subjects. Most of them tackle anything like "class legislation" with great gusto, and the news editor's effusions under this head are as likely as not to be the merest sophistry.

This is the way most of them are treating the oleomargarine question and they will doubtless continue to look at the matter with such perspicacity as might be expected from those who are half informed.

Most of the unfavorable editorial comments upon the proposed increase of federal tax on colored oleomargarine have been based upon the false statement that it was proposed to "put a prohibitory tax on oleomargarine." Then naturally the ground is taken that it is "class legislation"; "an effort to destroy a legitimate business for the benefit of competitors," etc., etc.

But these misrepresentations, while extremely annoying, are not likely to do any very serious harm to the cause of honest dealings. The fight will have to be made in congress and it will be easy to put the proposition before the people's representatives clearly; and with them outside influences are likely to be much more strongly in favor of than against the proposed legislation, which is not intended to prohibit the legitimate manufacture of a substitute for butter but simply to prevent its fraudulent sale as such. —*New York Produce.*

Hogs Want Water.

Hogs frequently suffer from lack of water, because farmers do not remember that whatever comes in liquid form is not a substitute for the clear and fresh water which all animals need. Put a little rennet in skim milk or heat it, and it soon turns into a curd which no one would think of taking as a drink. Yet both the rennet and enough of warmth to make it effective, are present in the stomach of a pig or hog. The rennet from pigs is by some preferred to that from calves. Always the first process in digestion of milk is to turn it into curd. Milk is regarded as constipating, especially after it has been heated, which brings it more nearly to curd condition, and thus absorbs the water in the stomach. A man needs a drink of water after he has eaten a bowl of bread and milk.

Most of the water that pigs get is as bad for drinking as skim milk. It is largely the water used for the washing of dishes or the freshening of salted pork. In this way the hogs get more salt into their stomachs than they require, and this also makes the hogs feverish and injures the quality of the pork. This sometimes makes the western pork, which is fattened in large droves and get little salt, better than the pork made by farmers who keep but two or three pigs and feed them from the swill barrel filled with a mixture of skim milk and salt water. If fed as it should be, with only enough corn at the close of the fattening and without an excess of salt, the eastern pork is much the best. The water in which salt pork and beef are freshened is highly nutritious, as a good deal of its strength goes out with the salt when it is freshened for cooking. But the great majority of hogs would be healthier if they had enough fresh water, fruits and vegetables to offset the excess of salt that most of their drink contains.—*Boston Cultivator.*

Hogs Killed by Soap Suds.

A recent bulletin from the Cornell Experiment Station, shows that wastes from hotels caused deaths in swine herds, and that the cause of death was the soap powder used in dish washing. This powder contained fifty per cent carbonate of soda. When fed to pigs in quantities ranging from one-half of one ounce o five ounces daily, sickness and death followed with some of the symptoms which are sometimes seen in hog cholera.

Transfers of Guernsey Cattle from July 15 to 31, 1899.

BULLS.

Bookkeeper 8th 6087, Mark Hughes to A. B. Armstrong, Smithport, Pa.
Imp. Britisher 6006, H. McK. Twombly to H. C. Bughman, Pittsburg, Pa.
Brookdale Faucette 6096, James L. Branson to I. R. Scott, Ward, Pa.
Count Avelon 6090, M. M. & E. J. Hollingsworth to Charles B. Wilkinson, Avondale, Pa.
Champion of Prospect 5798, C. O. Potter to J. G. Grant, Stamford, N. Y.
Colly Faucette 6097, James L. Branson to Wm. B. Harvey, West Grove, Pa.
Duke of Mt. Lookout 6102, Currier Bros. to Robert T. Gould, Contoocook, N. H.
Don of Hampshire 5044, Walter Cutting to Mrs. E. L. Colby, Tilton, N. H.
Dewey Taylor 6120, Collen B. Meirs to Thomas Platt, Wrightstown, N. J.
Editha's Faucette 6108, James L. Branson to Harrison Smith, M. D., Buckmanville, Pa.
Genoa 5638, N. K. Fairbank to R. J. & L. D. Williams, East Delavan, Wis.
Glendon 4774, Wm. Conley to McCormick & Edgerly, Pataskala, O.
Hampton Oscar 6110, E. J. Toel to F. R. Bain, Poughkeepsie, N. Y.
J. L. 6101, Francis Edward Bond to Henry Mc Kean Ingersoll, Spring House, Pa.
Lord Makefield 6103, John W. Sutphin to J. Lawrence McCormick, Belair, Md.
Lord Dufferin 4449, Walter Cutting to J. Arthur Jones, West Hopkinton, N. H.
Mr. Billy Boy 2nd 6104, P. B. Black to S. Neiderriter, Marble, Pa.
Nydreus 6022, Sydney Fisher to James Walsham, Portage la Prairie, Man.
Nonpareil 2nd 5503, Case & Cain to Charles B. Case, Trenton, N. J.
Prince Lalla Boots Rocmont 6118, Geo. Campbell to William T. Gillespie, Principio, Md.
Imp. Squire of Lilyvale 4181, Allen S. Apgar to John Hopewell, Natick, Mass.
Sibel's Knight 5949, Louis Cabot to J. Arthur Jones, West Hopkinton N. H.
Sir John Apricot 2nd 6121, L. C. Albee, to Levi Burt, Westhampton, Mass.
Victor of Stonecrest 6100, Allen S. Apgar to J. B. Bosworth, Easthampton, Mass.
Wyoming Faucette 6095, James L. Branson to J. J. Bush, Elmira, N. Y.
Zaacheus 6021, D. L. Stevens to A. E. Hollister, Montrose, Pa.

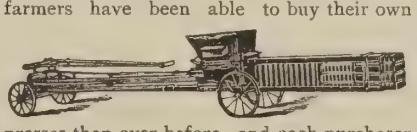
COWS.

Amy Faucette 11856, Fernwood's Faucette 11865, Hadley Faucette 11864, Tostevin's Perfection 11867, James L. Branson to Charles B. Case, Trenton, N. J.
Arola 11436, James Logan Fisher to Dr. Joseph Price, Whitford, Pa.
Betty Plumer 11859, Cleto of Riverside 11860, Miss Mewlstone 11861, Queen Phillis 11858, James Forsyth to D. S. White, Jr., Atlantic City, N. J.
Beauty of Langhane 6142, Ellen of Haddon 7734, Lady Avenal Faucette 11858, Miss Pencil of Laughorne 10987, Mona Chiquita 10986, James L. Branson to J. J. Bush, Elmira, N. Y.
Benzetta 8325, Harrietta Rose 7553, Jane Janet 11785, Jemima Primrose 11776, Jerusha Primrose 11783, Kitty Cooper 10168, Margery Primrose 10160, Minnie Raritan 11781, Primrose Nell 11775, Ruth Garis 11778, Violette Rose 9347, A. J. Snyder to Edward R. Strawbridge, Moorestown, N. J.
Celeste of Farley 7608, Charity 4th 5449, February Maid 8012, Imp. Lady Lara 7155, Serena 7598, F. A. Graeff to James Forsyth, Owego, N. Y.
Chiquita 2nd 8534, James L. Branson to I. R. Scott, Ward, Pa.
Colleen 3rd 2805, James L. Branson to Zephania Force, Woodbourne, Pa.
Duchess May 10247, J. Arthur Jones to Col. Walter Cutting, Pittsfield. Mass.
Editha 4th 5085, James L. Branson to Henry W. Comfort, Fallsington, Pa.
Fernwood Pearl 7267, James L. Branson to Joseph Snyder, Philadelphia, Pa.
Happy Lady 11869, Ezra Michener to Mrs. Laura L. Pancoast, Bassett, N. J.
Lady Makefield 11972, Rookwood's Rutila 11871, Sweet Alice King 11873, John W. Sutphin to J. Lawrence McCormick, Belair, Md.
Lady Cooper 2nd 2757, Geo. LaMonte to John H. Perlee, Raritan, N. J.
Miss Penryn 10988, James L. Branson to J. P. Welsh, Bloomsburg, Pa.
Petite Tostevin's Daughter 3347, James L. Branson to A. H. Rogers, Hamilton Squire, N. Y.
Pamartha 10218, Case & Cain to Charles B. Case, Trenton, N. J.
Rosalie of Pinehurst 11874, Viola Dudley 11533, Chas. H. Dudley to Edward R. Strawbridge. Moorestown, N. J.
Peterboro, N. H. WM. H. CALDWELL, Sec.

ILLUSTRATION.

PROSPERITY AND ERTEL BALING PRESSES.

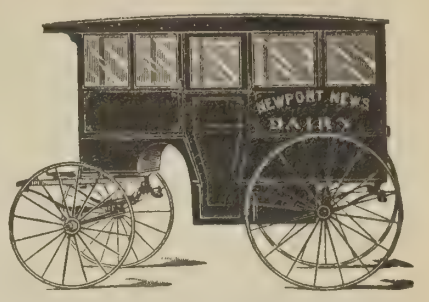
That prosperity makes prosperity is being demonstrated again in the experience of thousands of farmers this year, with the Ertel Victor Hay and Straw Press, and the "Gem" Full Circle Hay and Straw Press. More farmers have been able to buy their own



presses than ever before, and each purchaser has enjoyed greater prosperity through possessing it. The "Gem" press is the most durable one ever mounted on wheels. It is built wholly of wrought steel, excepting a few gray iron castings, and its lightness and strength are strong points in its favor. Three men with two horses and a boy to drive can bale from ten to fifteen tons of hay a day, of which full weight will load into railroad cars. Because of the convenience of the methods of packing, "Gem" bales are preferred by purchasers of baled hay. The "Gem" is so easy of operaton that it can be operated by one horse.

Full particulars of the Ertel presses can be obtained by writing to the patentees and makers, George Ertel Co., Quincy, Ill.

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In STYLE, CONVENIENCE and DURABILITY.

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Chillicothe, Ohio.

Mortgage Lifters.

That's what dairymen call our light running hand separators, because they increase the yield of butter about 25 per cent. and improve the quality, which means higher prices. We **guarantee** each and every

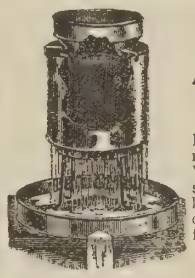


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to fulfill every claim we make for them, and give perfect satisfaction to every purchaser, or your money back.

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Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG,
Box 135, Aurora, Ill.

THE Wisconsin Curd Test.

It shows the quality of every patron's milk and points unerringly to the milk that causes Bad Flavor and Gass Cheese. For full particulars address

A. J. DECKER, Fond du Lac, Wis.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

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Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

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THE AMERICAN COTTON OIL COMPANY,
27 Beaver Street, NEW YORK.

The "Ice-Milk" Question.

ED. HOARD'S DAIRYMAN:—My letter in HOARD'S DAIRYMAN of July 28th has caused some parties to write me on the subject, inquiring as to some details, etc. The first was from a prominent creamery proprietor of Wisconsin, who seems to be one of those who catch on quickly. He actually wrote me that he at once had tried to make "Ice-Milk" and what surprised me more—"succeeded!" He had pasteurized (temperature not given) milk, such as received at his creamery, then frozen it, sold some in that city and people claimed it "delicious and out of sight."

Now I believed all this, but when he wrote me he was going to ship me a sample, I doubted the result for many reasons. The sample arrived in a sealed jar, packed in a box with some ice around it, but as it had been shipped by express it very likely has been without sufficient ice on the way here.

I put it in ice-box here, kept it two days there, opened it and found it slightly acid. After leaving it till next day it was clabbered and of pleasant acid taste.

Now this experimenter need not be discouraged at all, because he could never expect success in that manner. While I do not know all he did, still I can give some causes for failure.

Average milk, as generally supplied to creameries, in hot weather especially, will never answer for perfect pasteurization; *the better* (or more free from germs and impurities) *the source, the more perfect will the pasteurized product be.*

This has been plainly shown by the bacteriological examinations of our milk which are made here regularly at the biochemical laboratory of the Agricultural Department, as whenever from some cause the number of germs to the cubic centimeter was larger in our natural "sanitary" milk, then also the number was larger in our pasteurized milk; for instance, when 50,000 germs in "sanitary" would leave 200 or 300 in the "pasteurized", then 2,000 or 3,000 in "sanitary" might leave only from twenty to forty germs, and repeatedly be entirely free.

This was also proven by Professor Russell's statement to me, on examination of our report for last year, that he was surprised that our results from pasteurized milk here, at the "Pasteur Milk Laboratory," were so far superior to theirs at the dairy school; which he could only explain as being caused from a better source of milk supply.

His results with milk from their private dairy farm at the school, were as good as ours. But I especially wish to call attention to the fact, that the milk selected from their milk patrons at the school and used for pasteurization had contained from 500,000 to several millions of germs.

Now here is my point, that such milk will not answer for ice-milk for city supply.

But if pasteurization has the proper effect on milk, and the acid germs are thoroughly killed, I have found that such milk by and by will clabber, but yet be perfectly sweet to the taste. Such has been my repeated experience, whenever pasteurized milk had been kept too long and unduly exposed.

Therefore we must first make sure of a comparatively pure milk and secondly of a very carefully conducted pasteurization and cooling. A drop of cold water getting into the pasteurized milk would cause failure. Another inquiry as to ice-milk came from a

NEW YORK FIRM, OPERATING TWELVE CREAMERIES

in that state. They also desire details as to freezing milk and cream for shipment, which just now I can not give. But as their main object seems to be to secure large quantities of cream for butter making purposes, they certainly would not require any freezing of such, but merely the pasteurization and rapid and thorough cooling (or shipping hot in summer.) Either way would guarantee a perfect condition of cream when received at their factories. The difficulty will be in the shipping expense.

INQUIRY AS TO EFFECT OF FREEZING OF CREAM OR MILK FOR BUTTER MAKING.

The same party asks for light on the above point, and thereby seems to me to show that they do not read HOARD'S DAIRYMAN carefully enough. Several years ago I started the discussion of said question, and my fixed opinion and knowledge that

FREEZING NEVER INJURES EITHER MILK OR CREAM FOR BUTTER MAKING PURPOSES,

provided it is properly treated, has since been confirmed over and over again in HOARD'S DAIRYMAN and especially so by Prof. Robertson, of Canada, who goes so far as to say, that *freezing actually improves the milk for butter making;* in which view I really think him to be correct, as he generally is. To make a perfect butter of such, simply depends on application of somewhat higher temperature and a perfect and sufficient starter for ripening and somewhat longer time. Try it next winter and you will soon be able to make as firm butter from frozen milk as you ever made. J. MOLDENHAWER.

Washington, D. C.

Another Butter Fake.

HOARD'S DAIRYMAN has received the following letter, by reference from the persons to whom it was addressed:

HENDERSON CREAMERY CO.,
Henderson, Ky.

GENTLEMEN:—After experimenting for some time, I succeeded in producing butter without the use of any chemical of any nature, and for the past two years have made and sold it, (on a very small scale) and those who have used it declare it to be first-class. Buying milk here at twenty cents per gallon, the butter costs me twelve cents per pound to make, and sells for twenty-five cents per pound.

In your section where milk costs so little there should be a market for my process of butter making. This butter has the keeping quality of any ever sold in this market. I would be pleased to hear from you before proceeding further. Yours truly,

— —

We suppress the name of the writer because we do not want to give him any advertising and place temptation before any weak brother who might think it a good scheme just "to try" the wonderful discovery (?).

One gallon of milk weighs, approximately, 8.6 pounds, and if it should test 10%—which is more than twice as much as ordinary milk tests—would contain 86-100 of a pound of fat, which is not more than enough to make one pound of butter. Hence where milk costs twenty cents per gallon, and does not test over 5% fat, the amount necessary to make one pound of merchantable butter would cost at least forty cents, instead of twelve cents. As there is no way by which a man can draw twenty gallons of liquid from a ten gallon cask, or make eight ounces equal to sixteen ounces, so there is no process whereby a man can make a pound of good, merchantable butter without he has .80 to .85 of a pound of pure butter fat.

There are processes by which butter and lard can be stuffed with water, and the resulting compound weigh more and look bigger, but in either case the product is adulterated, and only resembles genuine butter and lard,

"—— as mist resembles the rain."

Animal Matter a Necessity For Poultry.

It is well known that poultry, when allowed to range at will, eat considerable quantities of animal matter in the form of insects, worms, etc.

How necessary this animal matter is to the health of fowls, and especially ducks, was strikingly brought out by recent experiments at the New York State Experiment Station. Two lots, each of chickens and ducks, as nearly alike as possible, were used in these experiments. One lot in each case was fed a ration of mixed grains and skim milk, or curd, containing no animal matter, the other a ration of mixed grains, with animal meal and fresh bones or dried blood. The two rations were about equally well balanced, although the "animal-matter" ration contained a little less protein than the "vegetable-matter" ration. The distinctive difference between the two rations was that in the one case two-fifths to one-half of the protein came from animal sources, while in the other it all came from vegetable sources.

Two trials were made with chickens.

In each trial more food was eaten by the lot receiving animal protein, the gain in weight was more rapid, maturity was reached earlier, less food was required for each pound of gain, and the cost of gain was less.

During the first twelve weeks of the first trial (starting with chickens one-half week old) the chicks on animal meal gained fifty-six per cent more than those on the vegetable diet, although they ate only thirty-six per cent more; they required half a pound less of dry matter to gain one pound and each pound of gain cost only four and one-fourth cents, as compared with five and one-fifth cents for the grain-fed birds.

During the next eight weeks the cost of

Did anybody anywhere ever object to a Macbeth lamp-chimney?

But get the Number made for your lamp. Get the Index.

Write Macbeth Pittsburgh Pa

For Sale. JERSEYS. COWS soon to freshen. BULLS ready for service. CALVES of both sexes. All registered or eligible to same. Write or apply to WM. M. UNDERHILL, Underhill, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Diplomas Combination 39962.

For Sale—Bulls and Heifers by him out of Fancy's Harry. Signal cows, some of them tested. Write us. J. E. TYRRELL, Marysville, O.

ONE YEARLING BULL

Out of a tested dam and TWO BULL CALVES out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

...FOR SALE...
Pedro Blood!
A GRANDSON OF PEDRO 3187,
carrying 43¾ per cent of his blood. A handsome, thrifty fellow, 10 months old. Solid grey in color. Dam made over 400 lbs. butter with second calf. Will send pedigree and photos of sire and dam.
R. C. GREEN, Albion, Wis.

Hood Farm Jerseys World's Fair Blood on both sides. Combination, Tennessee and Island blood close up. Solid colored bull dropped May 6, 1899. Sire, Chromo, the bull used on a majority of the Jerseys in the World's Fair Dairy tests. Dam, Helen Barry, 18 lbs. 7 oz. when 3 years and 2 months old, by little Harry, sire of the World's Fair cows, Little Goldie and Alteration. Correspondence solicited. Address, HOOD FARM, Lowell, Mass.

There's plenty of Jersey blood NOT AS GOOD as that of
Old PEDRO 3187.
There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

GREEN PLAIN HERD
POLLED JERSEY CATTLE
Recorded stock FOR SALE. Inquiries promptly answered. W. H. FORBES, Clifton, Ohio.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

High-Class JERSEYS
The blood of Combination. (Sire of 25 in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Dry Weather
here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our BEST COWS and HEIFERS. Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting Jerseys to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

...FOR SALE...
DOUBLE GRANDSON OF
Exile of St. Lambert 13657,
Now the sire of 75 Tested Daughters, "more than any other bull, living or dead." Will be sold cheap on account of broken color. Nearly one year old.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio.

gain was seven and one-half and eleven and one-fifth cents, respectively. The animal-meal chicks reached two pounds in weight more than five weeks before the others; they reached three pounds more than eight weeks sooner, and three pullets of the lot began laying four weeks earlier than any among the grain-fed birds.

With the second lot of chicks, starting at six weeks of age, the differences were in the same direction, though not quite so striking; thus showing that the great advantage of the animal nitrogen is in promoting quick, healthy growth and early maturity, rather than increasing the tendency to fatten. * * *

The results were most convincing, almost startling, in the case of ducklings fed the contrasted ration.* * * Before the experiment had been long under way it was noticed that the animal-meal birds were developing rapidly and evenly, but the grain-fed ducklings were becoming thin and uneven in size. It was sometimes almost pitiful to see the long-necked, scrawny, grain-fed birds, with troughs full of good, apparently wholesome food before them, standing on the alert and scrambling in hot haste after the unlucky grasshopper or fly which ventured into their pen, while the contented-looking meat-fed ducks lay lazily in the sun and paid no attention to buzzing bee or crawling beetle. The thirty-two meat-fed birds lived and thrived, but the vegetable-food birds dropped off one by one, starved to death through lack of animal food, so that only twenty of the thirty-three were alive at the close of the fifteenth week of contrasted feeding. They were then fed for four weeks on the meat-meal ration and made nearly as rapid gains as the other lot at the same size two months before, but they never quite overcame the disadvantage of their bad start on grains alone. * * *

In conclusion, then, it may be said that rations in which from forty to fifty per cent of the protein was supplied by animal food, gave more economical results than rations drawing most of their protein from vegetable sources. The chief advantage was in the production of rapid growth, although the cost of production is also in its favor. While inferior palatability may have had something to do with the marked results, especially with the ducks, the whole bearing of these experiments and others not yet reported seems to indicate that the superiority of the one ration is due to the presence in it of animal food.—*Farmers' Bulletin No.* 10.

A Believer in the Escutcheon Theory.

ED. HOARD'S DAIRYMAN:—In answer to D. E. L's., Roper, South Carolina, question in your paper of August 4th, in regard to the escutcheon theory, would say that I can tell a rich milker by the escutcheon, tell how much milk they will give daily; also how long they will continue to give milk, and it applies to all breeds alike. All breeds have the same shaped escutcheon.

My advice would be to get a "Treatise on Milch Cows" by M. Francis Guenon, published by Orange Judd Co., 245 Broadway, New York, and study it as I have, and see whether the escutcheon is a fad or not.

I have a full blood Holstein cow with a first-class, Order 1st, Flandrine escutcheon, which I consider one of the best cows in the world. She gave one hundred and two pounds of milk at two milkings. This cow is only milked twice a day, and averaged ninety-five pounds a day for a week. She is also a persistent milker. I tested her when four years old, with the Babcock test on winter feed, and from seventy pounds of milk tested four per cent butter fat, which was one day's milk. She is now eight years old. When she made this record of one hundred two pounds this season, she was fed four pounds bran, two pounds gluten and two pounds corn meal, besides grass.

As you are aware, all the big record cows are milked three or four times a day, and given all the grain they can eat, so you can see what this cow might have done had she been treated the same.

I have from this cow, eleven daughters and grand daughters, besides a number of sisters.

I would invite all lovers of good stock to call on me at any time, and I think that I can convince them that the escutcheon theory is all right. J. JAQUAY.

Madison Co., N. Y.

State Control of Feeding Stuffs.

In several European countries the sale of concentrated feeding-stuffs is regulated by the government. A few eastern states are following this lead by inaugurating laws regulating the sale of certain feeding-stuffs, which laws are quite similar to those controlling the sale of commercial fertilizers. In Maine, for example, each package of concentrated feeding-stuffs offered for sale must bear a tag on which is stated the net pounds of feed contained and the address of the manufacture, together with the percentage of protein and fat guaranteed. A statement of the brand of feeds sold must be filed with the director of the state experiment station and a tax of ten cents per ton paid. Upon receipt of this sum the station issues the tags which are affixed to the packages. The feeding-stuffs coming under such control are linseed meal, cotton seed meal, pea meal, cocoanut meal, gluten meal, gluten feed, malt prouts, dried brewers grains, hominy feed, rice meal, oat feed, fish scrap, etc. Corn, buckwheat and other cereal grains are not included. The Massachusetts law differs somewhat from that in Maine, but requires analyses of feeding-stuffs to be published by the station, together with the names of the manufacturers.

The effects of these laws are very wholesome and they are welcomed by reputable dealers, who find it difficult to compete with those who practice fraud. Referring to the cotton seed meals analyzed before and after the passage of the law, Director Lindsay of the Massachusetts station writes:

"While fully one-third of all samples of cotton seed meal received at the station during 1897 proved to be seriously adulterated, thus far, in 1898, not a single adulterated article has been discovered."

A constant source of fraud is the illegitimate use of oat hulls. Oat hulls are worth about the same as wheat chaff for feeding purposes. They are turned out by the oat-meal factories in enormous quantities. Unscrupulous dealers buy these hulls by the car load, and mix them with corn meal, milling products, etc., and sell them to the unsuspecting for a mixture of ground corn and oats.

Every state east of the Mississippi now has a law regulating the sale of commercial fertilizers. These laws were made necessary by unscrupulous dealers who can easily deceive buyers. It is probable that laws controlling the sale of concentrated feeding stuffs will be adopted by one state after another until there is quite a general system of regulation. The expenses of such a system are small and insignificant compared with the advantages which naturally follow.—W. A. HENRY, in *Breeder's Gazette*.

Summer Milking Place.—Some Evils Which Threaten the Quality of Milk.

I would like to ask your dairy readers where they milk their cows this summer? I mean is it in the long regulation stable under the hay barn which has sheltered the cattle all winter, in the barnyard, or in an open shed outside?

If past example counts for anything, I think that in the majority of cases the milking will be done in the winter stable, and I would like to point out a few of the evils that threaten milk quality thereby.

Usually the winter stable and its surroundings undergo a semblance of cleaning every spring. That is, the accumulated manure of the frozen months is removed and spread on the fields. This is good as far as it goes, under the "never-too-late-to-mend" principle, but if it stops there it does not go far enough. While the mass of the compost has been carted away the odor remains behind, its retention favored by the absorbing nature of the ground, stable floor and walls, which perhaps have not been free from smell for years. The facility with which fresh-drawn milk absorbs foreign odors is well known, and to subject the lacteal fluid to such a severe and unequal test as to draw it from cows surrounded by impure air, and yet expect it to retain its natural flavor and quality, is foolhardy. The advice is often given to carry the pails of milk from the stable as soon as drawn from the cow, presumably to get it out of a polluted atmosphere, but is it not more rational to get at the cause, and remove the pollution?

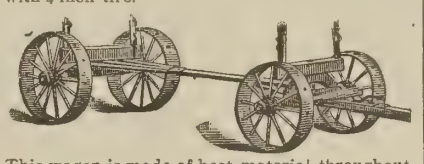
Thorough airing, by throwing wide open both doors at the ends of the long stable, is all right as an auxiliary measure, and should never be neglected, but it does not get at the root of the evil. Dairymen, either do one or two things:—either do not milk cows in your winter stable this summer, or if you decide so to do, first thoroughly renovate and purify that stable. This can be done by scrubbing the stanchions and whitewashing the walls with two heavy coats of lime. Then use land plaster liberally in all the corners and on the floor, particularly where there are depressions and moist places. This is a great absorbent and deodorant, and will add to the value of the resulting compost.

Also pry up a few planks at intervals across the stable, and underneath, scatter plaster with a liberal hand. Then clean the stable regularly every day, not once a week or a month, as is too often done during the summer months. By the above plan you can keep the atmosphere of an old stable sweet and pure, insuring milk quality, while to continue in the foul rut is dangerous and almost criminal. I speak thus plainly because I know how pervalent the custom is of milking cows through the summer in these old winter stables, with at most only a superficial spring renovation. Of course those with more modern stables can the more easily deodorize them, but thorough daily ventilation is necessary to all.

The old-fashioned way of milking in the barnyard is good enough, providing the cows become accustomed to it. To make it successful it means that the animals must be so docile that they will not start off and walk over the legs of the milker before he is through, or gore one another promiscuously about the enclosure. The open milking shed furnished with stanchions is not in such universal use as its advantages would warrant. Its natural location away from the stable insures cleanliness of surroundings and purity of air, while the cows standing in stanchions have all the restraint secured by a stable. I much prefer it for summer milking, unless the winter stable has been renovated thoroughly as above.—*Boston Cultivator.*

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Company, Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was Champion at O., Ill. and In.. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. ☞Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

TIRANNIA

The third highest butter cow in Holstein history is owned with three of her daughters at **Valley Mead Farm.** Tirannia's butter record is 36 lbs. 11 oz. in seven days, 91 lbs. milk in one day. She is the winner of the Great butter prize of 1889, of a Gold Medal and $100 for making the largest fair ground test in the world, viz: 31 lbs. 2 oz in one day. Also was sweepstakes public tested cow of the breed of 1891. H. F. Register says: "Few if any better or more beautiful cows ever lived than Tirannia, and her performance as a butter cow is in keeping with her beauty almost unapproachable." She once sold for $1500. **Valley Mead Farm,** Monticello, Wis.



The Tinned Steel Milk Cans

Made by the . . .

BUHL STAMPING CO.,

are the easiest to clean and last the longest. Write for our hand-book.

"A STUDY IN MILK CANS."

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Markham Manor Farms. **Simonsville P. O., Andover, Vt.**

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

REGISTERED

GUERNSEY BULLS

We offer several well-bred young Guernsey Bulls, dropped in April and May, '99, at **$25.00 Each,** registered and transferred. They are handsome and well grown and grandsons of Gold Bound No. 2726, bred by Mr. Levi P. Morton and sired by Imported Midas 2003. Dam, Imported Lady Antornelle 2d, 3680. **M. B. ROWE & CO., Fredericksburg, Va.**

Riverside Guernseys,

CHAMPION Herd

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE

GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. **GEO. C. HILL & SON, Rosendale, Wis.**

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE, Farm Supt., Madison, N. J.**

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES **Finely Bred** and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Exports and Canadian Butter and Cheese.

ED. HOARD'S DAIRYMAN:—The one thing more than all others, perhaps, that is interesting in Canadian dairy circles just now, is the very much increased demand in Great Britain for our creamery butter. In some respects the demand is almost phenominal. It began early in the season and has continued without abatement till the present time, and even now there are no signs of its falling off. Exporters at Montreal report a regular stream of orders coming in and during the past few weeks a gradual advance in values has taken place.

One of the chief reasons for this very satisfactory condition of affairs is undoubtedly that the English consumer has suddenly evinced a decided preference for Canadian brands. Of course he has not become convinced of the good qualities of our butter in a moment.

The good quality of our creamery butter and the marked improvement that has taken place, during recent years, have been important factors in inducing him to seek butter for his bread on this side the Atlantic. Then in addition to all this, very effective work has been done by our dairy commissioners' department in recent years in letting the people of the old lands know that we have good butter and are able to send it forward by means of our complete chain of cold storage facilities, in good condition.

Another fact that has served to develop the market and create a demand for the article, is that our butter manufacturers and shippers have adopted the plan of shipping the butter regularly every week or two, in a fresh and palatable condition. Generally speaking, there is comparatively little butter stored on this side to what was the case a year or two ago. Many creameries now ship direct to some reliable British commission house regularly every fortnight, and get what the butter sells for, less commission, freight, etc.

The activity in the export butter trade is shown by the fact that no less than 20,000 packages left Montreal last week for the British markets. The total shipments from Montreal, from May 1st to August 2nd, this season were 126,174 packages, as compared with 71,184 packages for the same period in 1898, an increase of nearly 56,000 packages. Shipments from New York have been much more liberal of late, though not yet equal to last year. For the same period as above, the total shipments from New York were 30,216 packages as compared with 35,593 packages for the corresponding time in 1898, a decrease of about 5,400 packages, leaving the net increase in shipments from Canada and the United States, so far, 50,613 packages.

One would imagine that such a large increase in supplies, from this side, would have some effect in reducing values. But such is not the case this year. Cable orders received from the very beginning of the season, have shown a gradual advance in prices without a break, a condition of affairs never before experienced in the history of this trade in Canada. And still there is no abatement, and last week's cables called for more butter at one shilling to two shilling better limit.

With this condition of affairs existing in the export trade, things could not help but be brisk on the local markets here. Last week (August 5) Montreal figures for choice creamery were 19½ to 20 cents per pound. Some creameries in the eastern townships are reported sold at 20¼ cents per pound. There is also an active demand this year for dairy butter for export prices going as high as 15½ cents for select lots.

At these prices for creamery butter, dairymen have no great cause for complaint. They will certainly pay the man, who has good cows and looks after them well, a good profit, and may leave a balance on the right side for the poor dairyman, but we are doubtful of it. The make, so far as the exports show, has been much larger than last year. Many farmers, because of the increased demand and the scarcity of good feeding cattle and stockers, have this season patronized the creamery in preference to the cheese factory, as it enables them to raise more calves. Whether these calves, raised from dairy cows, will make good beef animals, remains to be seen.

The butter industry is not alone in the matter of advancing prices, and an active demand for goods. The cheese trade is also active, with values very much in favor of the producer. There is certainly a better consumptive demand in Great Britain for Canadian cheese, than was the case a year ago. This is reported to be due to greater industrial activity in the Old Land, and a consequently greater consumptive demand from the working man. Then it is also reported that the English make is a little short, and in addition to this, it must not be overlooked that we started this season with practically no old cheese on hand, so the way has been clear all along for shipping our cheese regularly, and getting them into consumption early.

There has not been a season for many years in the cheese trade in which there has been so little storing of cheese as has been the case this year. There is no great accumulation of stocks, either here or in England, and with our dry August weather upon us and a consequent falling off in the milk supply, there is not much fear of any great buying of stocks for future markets. Though our exports so far show an increase of 91,000 boxes over those of last year for the same period, there does not yet appear to be any more than what will supply the current demand. Prices are now at a point where it may be a little risky for speculators to load up with heavy stocks.

There are reports to the effect that several factories that have been making butter till now, have begun to make cheese, as they considered there is more money in it at present prices. We hardly think, however, that many will do this so long as the butter market continues as it is as present. Several districts in Ontario show a large falling off in the make lately, which may materially affect our exports later on.

Cheese last week (August 5th) touched the ten cent limit at Montreal, and the ruling prices at the local markets were nine and one-half to nine and three-fourths cents per pound, which is pretty high for the last half of July make. Factorymen were not very anxious to sell, especially at western factories, many of them holding for the even ten cents. It, however, is not wise to refuse a good thing, more particularly when the goods are nearly ready for shipping. This week will likely see most of the July make out of the factorymen's hands, when the local markets will be clear for August goods.

Reports, as regards the quality of this year's make, so far, show quite an improvement over last year. This is no doubt due, in a large measure, to the better conditions for making, and the fact that better prices furnish an inducement to patrons to take better care of the milk. It is also due, in no small degree, to the fact that many factories have this year greatly improved their curing facilities by putting sub-earth ducts and ice boxes in the curing rooms. By being able to control the temperature better, the makers have been able to make a little softer cheese that meets the wishes of the British consumer better than the stiff kind, which it is sometimes necessary to turn out in order to overcome the very hot and unsatisfactory conditions of many curing rooms.

Makers are now getting their dairy exhibits ready for the fall fairs. The dairy exhibit is always an interesting one at a Canadian fair, and exhibition authorities are always ready to do all they can to make this feature a success. No pains are spared in the way of refrigerators and accommodation for butter and cheese. Liberal prizes are offered and every inducement thrown out to get makers to exhibit.

There is one feature of it, however, in which we think an improvement can be made, and that is the entering of more new competitors into the contest. With a few exceptions, the same makers exhibit year after year and the prizes go largely to the same parties. This, of course, is all right so long as they deserve the prize, but we must confess to a desire to see more new exhibitors than there usually are, both in the cheese and butter classes.

The leading feature of the dairy department this year of the Toronto Industrial Exhibition, which takes place from August 28th

GOLD DUST
THE BEST
Washing Powder

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.

Is it CHANCE, is it GOOD LUCK, or is it MERIT that has enabled the patrons of

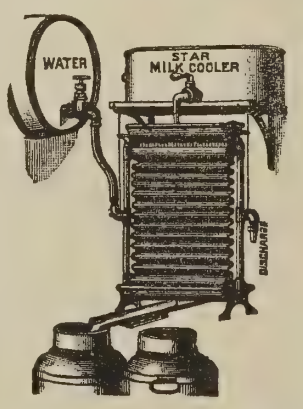
GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

In 1895.....F. G. OLTROGGE
In 1896.....THOS. MILTON
In 1897.....H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use GENESEE SALT, and write to our General Western Salesman, Mr. F. A. TRIPP. 34 Clark Street, Chicago. Or address

Yours truly,
THE GENESEE SALT COMPANY, New York.



Star Milk Aerator
AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also AERATES.

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to sell it? Send to us for the material for making the test and we will mail it to you free of charge.

Thatcher's Orange Butter Color

Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.

to September 9th, will likely be the international butter making competition. We are not aware that any applications are in from American makers, but the competition is open to them if they wish to enter it. For our part we would like to see several makers from your side take a hand in this competition, as it would be mutually helpful to all concerned. Considerable interest has been shown in this contest by Canadian makers and we are likely to see a large number enter for the prizes. The more the better, however, as the contest should be more of an educational feature, than a means of disposing of a few hundred dollars in prize money.

Toronto, Canada. J. W. WHEATON.

Paraffin as an Adulterant of Oleomargarine.

By GEORGE F. GEISLE. Reprinted from the Journal of the American Chemical Society.

One often hears of adulterated food, but rarely are such sophistications of a nature that they may be deemed injurious to health. The recent finding of paraffin as an adulterant in a number of samples of commercial oleomargarine may therefore prove of interest.

Though paraffin has been mentioned as an adulterant of chocolates and candies, the use of such an indigestible substance as an adulterant of oleomargarine seemed so improbable that the actual separation of the paraffin was required to convince some skeptical minds.

Its use in oleomargarine is by no means new, for I first observed it in a commercial sample in September, 1893, and reported the fact to the New York State Department of Agriculture. The general properties of the fat of the sample, its behavior during saponification, and the abnormally low specific gravity indicated an irregularity and the probable presence of paraffin. Although the sample under examination amounted to only a few grams, sufficient of the unsaponifiable matter was obtained from the same to show that it was paraffine It was impossible at the time to get more of this particular sample, or duplicates of several others in which paraffin was found, between that date and March, 1894, when I was enabled to prepare an exhibit of the paraffin extracted from one of the samples.

About this time experts of the Department of Agriculture, in the course of their inspections in New York and Brooklyn, found quite a number of samples of oleomargarine which, upon analysis, were found to contain paraffin. Some of these were analyzed by Drs. Love, Waller, Stillwell and myself, and the amounts of paraffin in the various samples were found to range from 9.72% to 11.25%.

The publicity given the matter at that time, possibly caused a discontinuance of the use of paraffin in excessive quantities. At least, I did not again observe any positive indications of paraffin in the customary analyses of any of the numerous samples examined, until about six months ago, and subsequently, when I found paraffin in five different samples which had been taken by the experts of the department in their regular inspection of grocery stores, restaurants, etc., in New New York and Brooklyn. One of the samples, a one-pound print, and which had been sold for butter at twenty-two cents per pound, enabled me to make three exhibits of the extracted paraffin. The amounts of paraffin found in these samples ranged from 5 to 11.76%; in other words, from three to a little over six pounds per sixty-pound tub. The strip of paraffin extracted from commercial oleomargarine, which I exhibit herewith, amounting to forty-three grains, is a little short of the amount actually coutained in one ounce of one of these samples.

The extent of the character of the adulteration, it is almost impossible to determine, since much of the goods are sold secretly, and in many instances palmed off for butter to unsuspecting purchasers and customers. That much of the "oleo," in this market, is sold under the guise of butter, is evidenced by the testimony of witnesses under oath in hundreds of cases prosecuted in the courts of this city, during the past few years. The samples, which the inspectors take, represent only a small percentage of what goes into consumption.

It is pertinent to say that the object of the use of paraffin in oleomargarine is not to cheapen the article, but to make a more homogeneous fat mixture, by preventing the separation of the fats and oils, and also to affect the general consistency and appearance of the mass, and its behavior under the trier in sampling. One of these samples was with difficulty distinguished from butter by physical tests.

The use of paraffin, under these conditions, naturally gives rise to the query, What affect has it upon the system? I have been unable to find any records of researches as to the physiological effects of paraffins, which throw much light on the subject. Paraffin is generally regarded as an indigestible substance. This is undoubtedly true of paraffin taken into the system by itself. An interesting physiological question, however, presents itself in connection with the use of this substance in oleomargarine for the following reasons:

1. The paraffin is dissolved in the vegetable and animal fats, constituting the oleaginous part of the compound.

2. The fat mixture in most cases melts at the normal temperature of the body.

3. The fat mixture is in a highly emulsified condition.

Although paraffin is an unsaponifiable substance, it is a question whether, under the above conditions, some of the paraffin is not absorbed in the system along with the other fats, and whether more serious disturbances may not arise, than could be expected from the ordinary digestive disturbances attributable to the indigestibility of the greater part of the adulterant.

Communicability of Tuberculosis.

"In an elaborate paper, read before the Albany, New York County Medical Society, Dr. Edward Moore characterizes, as very weak and inconclusive, all the evidence that has ever been presented to show that tuberculosis can be communicated in any possible way from man to cattle, or vice versa. If the germ was originally identical, he believes that it has been so modified in each case, that it can live only in cattle, as the case may be, and must die harmlessly when transferred from one to the other. Everybody must earnestly hope that this view will ultimately prevail. If it does, Dr. Moore will rank as the pioneer in correcting a wide-spread and most injurious error."

There should be an exhaustive investigation of this subject by scientific men, and the truth definitely established.—*Country Gentleman.*

Saltpeter in Cornstalks.

In "Bulletin 49" of the Kansas Experiment Station, issued May, 1895, is a report by Prof. Mayo of some interesting and important investigations concerning the poisoning of cattle from eating corn stalks unnaturally loaded with potassium nitrate, commonly known as saltpeter. Not having ever seen these observations given to the general public, through the agricultural press, it has occurred to the writer that possibly a summary of them might not be without interest to stockmen, as it may throw light on some possibly otherwise obscure cases of cattle poisoning, says Prof. W. A. Henry in the *Breeder's Gazette.*

In this bulletin it is detailed how a Kansas farmer grew corn on a piece of land previously used as a hog-lot. Some stalks of corn so grown were thrown in the manger of a bull confined in the stable. After the bull had picked over the stalks (without ill results) about four large armfuls of them were taken out of the manger and thrown into the barnyard, where they were readily eaten by a drove of cattle coming from the pasture. The next morning seven dead cattle were found in the yard, lying in positions which indicated little or no struggle before death. In another instance forty cattle out of a bunch of 120 died, after being fed on cornstalks cut and cured for fodder corn in August. In these cases, and a third one, which is reported, an examination of the dried cornstalks showed them to be loaded with saltpeter. On this Prof. Mayo writes:

"A casual examination of the samples of cornstalks received, revealed the presence of large quantities of nitrate of potash (saltpeter). Beneath the leaf sheath, which surrounds the stalk just above the joints, the nitrate had crystallized in fine white crystals which resembled a white mold, but was easily recognized by tasting with the tongue. Around and in the cut ends of the stalks were solid masses of almost pure potassium nitrate. If a stalk were cut in two and tapped lightly upon a table, the crystals of potassium nitrate would be jarred loose and fall as a fine powder upon the table. Upon splitting a cornstalk the crystals in the pith of the stalk could easily be seen with the unaided eye. The bitter cooling taste, so characteristic of potassium nitrate, could be obtained by placing a small bit of the stalk in the mouth. On lighting a bit of stalk with a match it would deflagrate, burning rapidly like the fuse of a firecracker. A chemical examination of a quantity of stalks gave 18.8 per cent of the dry weight of the stalk nitrate of potash."

In another instance, the saltpeter in the dry stalks amounted to 25 per cent of their weight. It is certainly very unusual for the corn plant to take up any such amount of this chemical as is here reported, but facts are stubborn things, and it is well for the stockman to be posted in this matter in order to avert what might prove to be a similar disaster. Corn which is grown on old hog-lots or in corrals or other places where much manure has accumulated is apparently most liable to reach this dangerous condition, but one case is reported by the professor where there seemed no apparent cause for such a heavy loading up with the chemical.

Tests made by Prof. Mayo of feeding potassium nitrate directly to cattle showed that doses of from half a pound to a little over a pound were capable of producing death with animals weighing from 500 to 1,200 pounds each. From the chemical examination of the cornstalks made, the professor considers it entirely possible for them to have contained enough of the chemical to have caused the death of the animals as reported.

It is certainly most anomalous for the cornstalk to load itself with this usually not too abundant fertilizing constituent of the soil. Such cases seem almost beyond belief, but for the present it is well to accept the statements as they stand and keep a close watch. The bulletin names no antidote for poisoning in cases like these. Potassium nitrate is so rapidly soluble and so quickly absorbed by the system that probably nothing can be done after the chemical is once in the animal's stomach.

Beware of Cheapness.

BEWARE of the butter color that an agent claims to be *"just as good"* as W. R. & Co.'s Improved, but which he offers at a cheaper price.

There is not and never has been a color *"just as good."*

Why should any one be obliged to offer a color at less price if it is *"just as good."*

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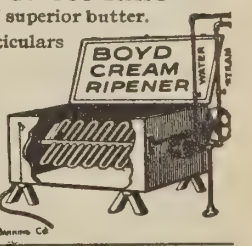
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THE FOOS MFG. CO., Springfield, Ohio.

THE FARMER AND THE ADVERTISEMENT.

"I paid a shilling for my binder twine this year," said a northern Illinois farmer, "while my brother-in-law, a mile or so down the road, got his for nine cents. He read the advertisement in a farm paper he takes. I didn't read the paper. He laughed at me yesterday and said he saved enough on that one deal to pay for the paper for years. And I guess he did."

Oleo Make for Year 1898-9, 87,800,000 Pounds.

The government year, beginning July 1st, opened up with a boom in the oleomargarine trade in Chicago, the same as the year closing June 30th, went out as a record breaker.

For the year ended June 30th, 1899, the fourteen factories of the United States made a total of 87,800,000 pounds of oleomargarine, compared with 57,516,136 pounds the year previous, and 45,531,207 pounds the year ending June 30th, 1897.

The internal revenue office records show that the new year promises, if nothing occurs to check it, to eclipse the year just closed, as greatly as the output of the past year exceed the make of 1897-8. At such rate the butter businesss of the country will be demoralized as it never was demoralized before.

During July just passed, the Chicago oleomargarine factories turned out 50,158 fifty-pound tubs of oleomargarine, against 29,057 tubs in July of 1898, and 13,000 tubs the corresponding month of 1897.

Last month there were issued from the Chicago Internal Revenue Office, 847 retail licenses to sell oleomargarine. A year ago there were 479 licenses issued in July, and two years ago 123.

The make of oleomargarine for this country as far back as the government has records expressed in pounds, is as follows:

Year.	*Pounds.*
1888	21,513,537
1889	34,325,527
1890	35,664,026
1891	44,392,409
1892	48,364,155
1893	67,224,298
1894	69,632,246
1895	56,958,105
1896	50,853,234
1897	45,531,207
1898	57,516,136
1899	87,800,000

The local oleomargarine makers have dozens of agents out, inducing retailers, to take out licenses. One agent was heard to remark a few days ago, that there would be fully 2,000 licenses in this district this year, compared with a few over 1,700 last year.

The food commissioner has made no move yet to appoint his assistants and get to work. Governor Tanner is out of the state, a fact which is a boon to the oleomargarine makers, as this failure to get the food commission at work, gives them just the opportunity they desire to get all the retailers in line with $48 each invested in licenses, which will be an incentive all through the year, for them to violate the laws, and risk prosecutions which they would not otherwise risk.—*Chicago Produce.*

Harvesting Soy Beans and Cow Peas.

We are in receipt of many letters asking how to harvest and thresh soy beans and cow peas, and how to prepare to sell them in 1900 for seed. Three out of five who try to enter the seed trade will be disappointed. The cost of selling a few bushels will eat up the profits. Seed will be so abundant and cheap next year it will not pay. We advise that the crops be harvested at that stage that will make the best hay or fodder. If wanted for hay, cut soy beans when in full bloom; when cut at that stage there will be no hard, woody parts to waste. The plant is, at that time, in a state of maturity, having most of the qualities that we desire in what we call hay—the protein stage.

Cow peas may stand until the first pods get full grown but not ripe. This is especially necessary if they are to be fed to young stock of any kind. At this stage they have the bone, muscle, hair and wool elements in them, and not too much fat. We wish we could impress feeders that fatty foods are positively hurtful to growing stock. A little corn or fat making feed, is needed in cold weather to keep up animal heat. Hundreds of thousands of pigs, colts and young cattle are annually stunted and dwarfed by a food where the fat is out of all proportion to the bone and muscle making part of the feed.

The margin is so small now we must look into these details; the observance or neglect which may turn the scale to a failure instead of a success. To express it another way, growing animals must have a protein feed, and fattening animals, food rich in fats. To those who want to feed fattening stock, milk cows, brood sows and breeding ewes, let peas and beans get to that stage we call fodder. Let the seeds get into a hard dough. At this stage pea pods will begin to turn yellow and dead leaves at the base of the stem turn yellow. The beans must be thoroughly field cured and the seeds get hard and dry, for the reason that in a hnndred pounds of soy bean seed there is only a small fraction less than seventeen pounds of oil or fatty matter. If they are bulked damp, they will heat and mould. Peas are not so rich in fat and will stand bulking sooner.

Cut with mowing machine for hay. Peas are hard to pitch off the wagon. We take a hay knife and cut the load the long way, and cross cut it two or three times, when they are as easily handled as common hay.

This hint will save much backache and sweat. When you can't put them under cover, and must stack outdoors, cut swamp grass, crab grass or any green growth, put it on as soon as cut, and it will mould and turn water like a tin roof. Brother farmers, you have in these plants that which will build up your soil, fatten your manure pile, and with it fatten your soil; and increasing crops will come to you each year with fat stock to sell every month in the year; also the granaries and pocket book will be full, and best of all, the "jewel of contentment will be entrusted to your keeping."

But to him who will use them to still further impoverish his soil, we give a word of warning. The plants are rich feeders, and when fed on the farm will add immensely to the enrichment of the soil; when sold off they will as rapidly deplete it. Their deep tap roots bring to the plants and store in the seeds the phosphates and potash; and the roots fill the soil with costly nitrogen, taken from the air. Ninety-five per cent of all this will be left on your farm if you feed it at home, and carefully save the waste. Make up your mind how you will use this gift and act accordingly. Will you be a builder or a destroyer? We have a number of very promising experiments to report later. We wish the readers of the *Rural World* could see what a great crop is growing today, where ten years ago almost nothing could grow.--ROBT. C. MORRIS, in *Rural World.*

Poultry For Profit.

There are very few farmers who realize how much money they get from the poultry that are produced on the farm. If they study the matter up they will find that the hens in the barnyard pay more for the food they consume than almost anything else, in fact except the indispensable horse, whose value is hard to compute, being so much depended upon, so says a writer in the *Poultry Tribune.* The farmer can keep a hen for less than fifty cents a year. This has been proved time and time again. It is a poor sort of a hen that will not produce ten dozen eggs a year. The average price is about ten cents a dozen. Allowing the cost of keeping is fifty cents and that eggs average but ten cents a dozen the year through, it will be seen the income is 100 per cent on the investment of keep. If he keeps his poultry as he should, the average price will be nearer twenty cents a dozen than ten cents, for he will get eggs in the winter when prices are high. With all the increase in the products of the poultry yards of the country there has never been a year that we did not import eggs, and this importation has not fallen off, except as the tariff affected it, and the tariff of five cents did not cut off importation entirely. The United States is fast becoming a nation of poultry and egg eaters, because the wholesomeness of poultry and relative cheapness of eggs, as compared with meats, is becoming better understood all the time, and the result is that the demand for poultry and eggs grows nearly as fast as the supply is increased, and the average rises slowly year by year. No one need hesitate about going into the business of raising poultry from any fear that there will be an oversupply. A low price always meets an increased demand, and this fosters an appetite for eggs and poultry, which is satisfied when eggs go up again, and the business keeps on growing. It will keep on indefinitely, for poultry can and will be kept with good profit when the country is much more thickly populated than it is at present.

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CONCERNING OUR ADVERTISERS.

On another page of this issue, appears the advertisement of the Foos Mfg. Co., of Springfield, Ohio. These people have long been patrons of our columns, and our readers will remember them as the manufacturers of the famous Scientific Grinding Mills and the Scientific Corn Harvester. Consult the advertisement,—it may contain just what you are seeking.

THE Genesee Salt Co. have arranged for a cheese contest among the users of this well known salt and the manner of conducting same will be of value to all who enter, as well as profitable to the winners. Their proposition is as follows:

The Genesee Salt Company will hold a Cheese Contest for regular users of the Genesee Factory Filled Salt for cheese in October, 1899, at Chicago, Ill.

Competent Judges will be selected and the result of their judgment sent to each contestant.

$150.00 will be distributed as follows:

SWEEPSTAKES.

The cheese scoring highest, irrespective of class, will receive $30.00 and will not be eligible for any other prize.

Only one cheese from the same factory may be entered in any one class.

Class 1—American Cheddars and Flats, 1st, $20.00; 2nd, $10.00.

Class 2—Twins and Young Americas, 1st, $20.00; 2nd, $10.00.

Class 3—Edam, Pineapple and all special shapes, 1st. $15.00; 2nd, $5.00.

Class 4—Brick and Block (Domestic), 1st, $10.00; 2nd, $5.00.

Class 5—Swiss (Domestic), 1st, $10.00; 2nd, $5.00.

Class 6—Best Box of Limburger, Brie, Club or other fancy cheese, $10.00.

All cheese will be sold at the market price and proceeds remitted to the maker.

An Entry Blank will be mailed to each maker applying to F. A. Tripp, 34 Clark St., Chicago, Ill.

A competent instructor will accompany the judges, and after the cheese is scored will write each maker his faults, if any; and suggest improvements.

With this contest the Creamery Package Mfg. Co., of Chicago, Ill., have joined, making additional prizes to those using Hansen's Rennet Extract and Cheese Color, scoring to be at same time and place. They offer the following prizes:

Class 1—American Cheddars and Flats, 1st, $20.00: 2nd, $7.50.

Class 2—Twins, Young Americas and Daisies, 1st, $20.00; 2nd, $7.50.

Class 3—Brick and Block (Domestic), $10.00.

Class 4—Best Box Swiss (Domestic), $7.50.

Class 5—Best Box of Limburger, Brie, Club or other fancy cheese, $7.50.

Those who wish to enter this contest, should send immediately to both of these firms for entry blanks, giving particulars of their respective offerings and securing such other information as might be wanted.

Grain Ration On Pasture.

ED. HOARD'S DAIRYMAN:—In your issue of July 28th, '99, page 469, Grain Ration on Pasture, you wish an answer from the party that wrote that article for *Practical Farmer*. Will say in answer to J. F. C., that you have answered the question as well, if not better, than I could myself. But if I used corn meal would prefer to use it when I first turn to pasture in spring, when grass is more or less washy. Later on would prefer the bran and gluten feed or the gluten feed alone. Our habit is to feed as much of such grain as the cow will consume and return a profit for the same by weighing milk and noticing the record sheet and feed accordingly. Hoping this will prove satisfactorily to J. F. C.

Columbus, Ohio. F. G. JOHNSTON.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FAILURE TO GET WITH CALF.

We are having a lot of trouble in getting our cows with calf this year. The first one was an old Durham taken to the bull on November, and took her two or three times and then as she was no good we sold her. The second one was a good one, and slipped her last calf owing to some flax seed oil which was given her for the bloat, and we are now dosing her with Dr. Horne's powders. Do you think because she slipped her calf has anything to do with it? The third cow calved Jan. 23d, and did not come in heat until some time ago, and comes in heat regularly about every twenty-seven or twenty-eight days, and was served tonight on the twenty-seventh day. Is nymphomania contagious and could the two and three cows have caught it from the first.

San Luis Rey, Cal. J. H. Y.

ANSWER.

Your trouble is well nigh universal; constant bulling is ruinous always, and makes bad much worse. Don't understand just what you mean by asking, if the slipping of the calf had anything to do with it. It is all there is to it. Abortions and nymphomania are both infectious, and contagious, and if you read my printed direction, you will see I call the two twin sisters, etc.

GARGET IN HERD.

I am milking a herd of cows, that are afflicted with something like garget. Some of them when fresh will have a spoiled quarter. It will give bloody matter for a few weeks and then dry up. Some of them will give milk for a number of months and then, without any apparent cause, one quarter will swell and begin to give bloody matter, and it *usually* dries up and *never* gives as much milk afterward.

Albany, Ore. A SUBSCRIBER.

ANSWER.

In all such and similar cases, when a whole or a part of a herd is troubled as stated, there is one general cause, quite often hard milking, quite often poor careless milking, leaving the udder only partially milked. The best I can do for you is to find the cause and remove it. All the drugs in the materia medica will not be as good as a *thorough* physicking, mind I say thorough. Rub all the hard portions of the udder, only, with strong camphorated spirits, six parts, and common turpentine, two parts only. Rub tolerably hard, twice the first day, morning and evening, then only once a day for two or three days. When free from physic, give each full grown and sized cow, sixty grains of iodide of potassa in a little water, cold, as a small drench.

ANTISEPTICS FOR ABORTION.

An article in July 21st number of HOARD'S DAIRYMAN, "How an Attack of Epizootic Abortion was Dealt With," signed at end of article, Journal of the British Dairy Farmer's Association. This article speaks of antiseptic discs used for injections. Please write me the name of these discs and where to get them. C. B. D.

Ayer, Mass.

ANSWER.

I read the article alluded to and thought but little of it as a remedy for abortion. The antiseptics are all good, as far as they go, but don't go far enough. My best and proven antiseptic, and by far the safest, is Tilden's Bromo Chloralum, one to eight of water, cold. It is a positive deodorizer, disinfectant and antiseptic. Have used it for thirty years. Don't remember the English formula. We in this country can beat the old country as medicos in veterinary remedies.

INDIGESTION.

I have a cow that about one month ago, was swollen for two weeks. She would take spells grunting. She put corruption looking stuff through her. I sawed off her horns, thinking she might have the hollow horn. I noticed one of her horn's was running stuff, looked like the white of an egg.

Cordova, Ala. B. D. AKINS.

ANSWER.

Neglected hoven is the disease; at least, the direct cause. The first cause was, no doubt, indigestion, caused by some ill timed food. If in fair condition, immediately give full dose of physic, as per head of this column. After the physic, give her two drams of blue flag in two ounces of old whiskey, and four of cold water. Give one dose each day up to three doses only; rest three days, and then, instead, give her six drams of golden seal in the same quantity of whiskey and water. Give one dose of this each day, up to three doses. Wait two days, then repeat two doses; wait four days, then give one dose.

RETENTION OF PLACENTA.

About two weeks ago had a valuable cow take milk fever. She got well from it, but since that time she is unable to stand on her feet. She eats and drinks and chews her cud, but has no ambition to get on her feet. She gives but little milk; obliged to milk her lying down. She has not cleaned well and the odor from her is terrible. I have had a veterinary, but he is at a loss to know what to do for her. Can any of your patrons tell me what to do for her? The cow is a full blood Holstein cow. She never goes dry. Last year when she calved she gave thirty quarts of milk per day for a long time and just before she calved this year she gave about eight quarts per day. G. W. B.

Duluth, Minn.

ANSWER.

Your cow is in a bad condition. Rub hard all the legs three times a day with strong camphorated spirits, eight ounces; oil of cedar, four ounces; sul. ether, four ounces, and fish oil, cod liver is the best, twenty-four ounces. This is to be kept tightly corked and from the sun, and to be well shaken before applying. The cow must be raised and put in some form of a sling; first day, half an hour, morning and evening; next day, three-fourths of an hour, and so increase a quarter of an hour daily until she can do without it. Above all things don't let her get wet in any form. Let her have abundant, dry, soft bedding. If the bowels are not free, give her a moderate dose of physic each day for a few days, or until the stools are loose. Your veterinary is behind the ordinary, if he did not know just what to do. First, he should have removed all the placenta, by all means. This must be done at once. The milk is poisonous, and not fit for any use. Rub hard and long daily all the legs and well up to the body.

SUDDEN DEATH OF CALF.

We had a Guernsey bull calf, eleven days old, which died yesterday after four hours of severe pains in the stomach. Was weaned on the fifth day and put on skim milk and wheat middlings, as we always do, and it was apparently in perfect healthy condition. Bowel passage was dark green in the final.

Madison, N. J. SUBSCRIBER.

ANSWER.

The food no doubt was the cause, consequent upon fermentation in the stomach and bowels. Like all animals, a calf is subject to fatal attacks from many different causes, just as we ourselves are, and you may feed as you state for a long time and not have a recurrence. I don't like wheat middlings as food for calves, only in small quantities. So-called middlings are now-a-days a conglomerate mixture, not as we used to have them.

ILLUSTRATION.

We wish to say a word commendatory of our advertising patrons, the Crawfordsville Carriage and Harness Co., of Crawfordsville, Ind. Our readers will have noticed by the tone of their advertisements that they sell all goods direct from the factory to the consumer at wholesale prices. This means just what it says, too, as a single case in point will show. Take, for instance, the No. 116 "Hoosier Pride" end spring top buggy. This is a vehicle with which these people have taken special pains, with the result that it is a most remarkable case of



value for the money. It is constructed of good, honest material throughout, is well and handsomely painted and is trimmed in the latest and most tasty style.

The purchaser has the choice of several varieties of coloring in paint and in color and material for trimming. It is equipped with all the perquisites, such as boot, storm apron, etc., and sold under a positive guarantee of quality. The price, therefore, seems extremely reasonable at $40.50.

More remarkable still is the fact that they supply exactly the same buggy with the more expensive Brewster spring at the same price. If you contemplate the purchase of a buggy, carriage, light wagon or harness, it will certainly pay you to correspond with these people before buying. Ask them for their complete catalogue L. Kindly say that you saw this notice in our paper.

Horse Owners! Use
GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure



The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses** and **Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*
Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

MEN AND WOMEN
Kidney trouble preys upon the mind, discourages and lessens ambition: beauty, vigor and cheerfulness soon disappear when the kidneys are out of order or diseased. For pleasing results use Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists. Sample bottle by mail free, also pamphlet. Address, Dr. Kilmer & Co., Binghamton, N. Y.

ROBERTS' ANTI-ABORTION SERUM



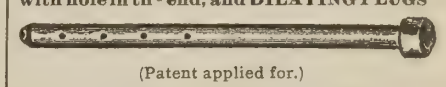
Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)
My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.

Trade Mark



LUMP JAW
Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. **FREE.** A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.



MARK YOU
your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read....
ALUMINUM
'STAY THERE" EAR MARKERS
Can't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog, etc. WILCOX & HARVEY MFG CO. 196 Lake St. CHICAGO, ILL.

Farm for Sale. 163 Acres—1½ miles from prosperous County seat, with population of 4000. Good four roomed house—large roomy barns and other out buildings. 2000 bearing Peach trees; 1000 young Peach trees—500 thrifty Apple, Pear, Plum, Cherry and Quince trees—good fences and plenty of water. Now stocked with **Registered Jersey Cattle.** For price, terms, etc., address,
MAPLE GROVE FARM,
Hocking County. Logan, Ohio.

HARVEY'S ANTI-SUCKING BITS
For Cows and Calves.
A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.
Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for
ONE NEW SUBSCRIBER.

Canada Field Peas.

Peas are one of the foremost and most valuable crops that can be grown on the farm, and I must say the most neglected by the farmer. Perhaps no other grain crop except corn can be appropriated to so great a variety of profitable uses.

The grain is a healthful food, and rich in protein, and has a high feeding value. The straw contains valuable nutrimental material when properly cured, and is more relished by live stock than the straw of wheat, barley, rye or oats.

Peas can be successfully grown north of Latitude 42°. Ohio, Indiana, Illinois and southward the temperatures are too warm to insure a full crop of grain, but generally produces abundance of straw, which can be put to a profitable use for pasture and soiling. As a fertilizing crop, peas are excelled only by clover.

As a pasture for dairy cows, sheep and swine it is invaluable, especially when grown in conjunction with oats or barley, forming a combination of food and advantages, a summer pasture, rich in nutritious food, ready soon as the spring grasses begin to wither and fail. The pasture may be eaten down three or four times successfully during the summer, with a proper interval between the seasons of pasturing. In growing peas for fodder, a large yield of grain and straw can be obtained by a mixture of other grains sown in conjunction, resulting in greater advantages than when grown singly; the fodder can be fed directly to the live stock, avoiding the labor and expense of threshing and grinding the grain. In harvesting the crop great care should be exercised in the curing process.

Pea fodder is very easily injured by rain falling upon it while it is curing, it becomes bleached and loses much of its nourishment and palatable taste. Pea straw, properly cured, will be relished readily, but when allowed to get dead ripe, stock will eat sparingly of it, unless forced to do so by starvation. Hence it should be harvested just before reaching maturity.

The agriculturist in the Province of Ontario places great reliance in peas for a most important crop. From 15,000,000 to 20,000,000 bushels are raised annually; the greater portion of the crop is fed to live stock. Much of the success which Canadian farmers have obtained in preparing cattle and hogs for the market has arisen from the liberal use of peas in the food rations.

Peas are perhaps unexcelled for fattening cattle during the first half of the finishing period, but toward the close corn could be fed with greater advantage. Peas fed along with wheat bran or ground with oats or barley, equal parts by weight, furnish a healthful food for milch cows. Peas are beneficial for building up dairy cows for milk production, sustaining them in fine condition. Peas are superior when fed to swine as a sole grain food during the fattening process. Peas ground with oats or mixed with wheat bran or shorts, make an excellent food for brood sows during the nursing period; also a superior food for young swine, promoting growth very rapidly. Peas mixed with oats of equal parts, form a good food for ewes in milk, for the same reasons that have been given for their use to cows and brood sows. They are especially valuable for developing lambs for early market. Peas supply an excellent food for poultry, and will greatly increase the egg production.

Public attention has been rudely awakened to the necessity of doing something to prevent the rapid exhaustion of the soil. That so valuable a soiling crop as peas should not have received more attention is indeed surprising. Like all leguminous crops, peas have the faculty of extracting nitrogen from the air and depositing it in the soil for the benefit of other crops which follow. There are many practical points connected with this matter which must be of great interest to the farmer.

As a rule, farming operations are carried on for profit and not for pleasure. The rich man who farms for pleasure can easily afford expenses in the way of fertilizers which the practical farmer must necessarily avoid.

Winter wheat or rye should follow immediately after peas. By occupying the land with a growing crop, the losses of fertility are reduced to a minimum. Peas should be extensively grown for the value of the grain and for soiling purposes.

Vast areas of land in our favored country are well adapted to the growing of peas; as a consequence this source would add millions of dollars to the farmers' profit.

The value of this crop is too little known by the average farmer. Each year develops more intelligent interest and inquiry in its production. The difficulty in procuring pea seed, and the means to render easy the harvesting of the crop, have been the greatest obstacles in pea culture.

Pea harvesters have now superseded the scythe, and the seed problem can be easily overcome; one bushel of good seed procured and sown with care will produce about ten bushels of seed. With this amount of seed the farmer can commence operations at once. Soils containing 12 to 15 per cent of clay are best adapted to the growing of peas, but successful crops can be raised on a variety of soils. Since the pea is a hardy and vigorous grower, the land can be plowed in the autumn to great advantage and the peas sown early in the spring soon as the land is in suitable condition to be harrowed.

In sowing peas, a grain drill is preferable; peas should be buried to a depth from two inches on stiff clay to four inches on lighter soils.

When peas are sown broadcast and covered with the harrow only, and rain following, much of the seed will be exposed, hence use the grain drill.

The quantity of the seed to be sown depends largely on the character of the soil, and size of the pea. Rich and moist soils do not require as much seed as where the opposite condition prevails. The quantities to sow per acre will vary from two to three and a half bushels. The amount of seed should increase with size of the pea.

The term Canada field peas, as spoken of by the average farmer, signifies a lack of knowledge of the many varieties raised. The most suitable varieties of peas to sow will depend somewhat on the soil and climate, also for what purpose they are intended. White Wonder, Prussian Blue, Canadian Beauty and Lace White Marrowfat are great yielders. The best way to determine which kinds are the best suited to the varied conditions would be to sow a small plat of each of the several varieties. The Fall White Marrowfat is a good pea for soiling or for grain, and succeeds well under most all conditions.

Peas as a green manure are valuable; the most impoverished soil can be quickly renovated by plowing under a pea crop, preceded by winter rye. The rye should be sown in the autumn and plowed under in the spring when the heads begin to appear; peas should follow immediately, and in turn be plowed under. Ground thus treated would be fertilized in one season, and the mechanical texture would be improved.—*Practical Farmer.*

"Farm-for-Sale-Journal" Swindle.

A Michigan exchange says that preparations are on foot to introduce into that state a scheme that has been very profitable to those who have been engaged in it in Canada for some three years past, but very disastrous to the farmers there. It consists of the publication of a so-called "Farm for Sale Journal," which is to be devoted to descriptions of farms for sale, as its title indicates. The state is to be canvassed by agents, who first use arguments to induce the farmer to offer his farm for sale, and next, by glowing representations about the pictures and descriptions that are to be used in the journal, and of the vast circulation it is to have among farm buyers, they lead the farmer to sign a very shrewdly worded contract to pay to the order of these parties a sum of from $100 to $500, depending on the price put on the farm. Ostensilby the payment is to be made only when the farm is sold, but the supposed contract eventually turns up in the form of a promissory note for the amount, and it is said to be so worded that it can be filed in the recorder's office of the county where the land lies, in such a way as to make it a lien on the farm. The promoters of the scheme are not interested in making a sale at all, and don't care whether one is made or not. The payment that is to be made to them does not depend upon a sale being made, although the farmer is induced to believe that it does. It is a very cunning scheme, designed to get something for nothing, and it is said that a state like Michigan, well worked, will net the promoters of it at least $200,000. When one of these agents comes around will be a good time to whistle for the dog.—*Farmer's Review.*



THE JONES UMBRELLA "ROOF."

A NEW UNION TWILLED SILK "ROOF" $1.00

RE-COVER YOUR OWN UMBRELLA.

The Adjustable "Roof" fits any frame, requires no sewing, and can be put on in a minute. You can re-cover your own umbrella without the slightest trouble or moments delay.

Take the measure (to the fraction of an inch) of your old umbrella; count the number of outside ribs; state if the center rod is steel or wood; send to us with $1.00 and we will mail postpaid, a Union Twilled Silk 25 or 26 inch Adjustable "Roof" (27 or 28 inch, $1.25; 29 or 30 inch, $1.50). Umbrella "Roofs" all sizes and prices from 50 cents to $8.00 each, according to quality. If you are not absolutely satisfied in every particular, send the "roof" back, and we will refund the money *at once*, including stamps you have used for postage. Over a quarter of a million "Roofs" sold.

Booklet, "Umbrella Economy" with simple instructions necessary with your order.

All first-class dealers sell Jones Umbrella "Roofs."

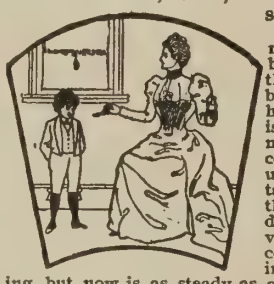
The Jones-Mullen Co., 396-398 Broadway, New York.

Manufacturers of the highest grades of Umbrellas to the largest stores in the world.

OTIS H. KEAN N.Y.

For more than four years Mrs. Bender has been using Dr. Pierce's Golden Medical Discovery as a family medicine.

Mrs. E. A. Bender lives in Keene, Coshocton Co., Ohio, and from there she writes:



"As a cough remedy and blood purifier there is nothing better, and after having the grip is just the right medicine for a complete bracing up. Our boy has taken three bottles for St. Vitus's dance. He was very nervous and constantly jerking and twitching, but now is as steady as any one; in fact seems entirely cured."

The "Golden Medical Discovery" is a medicine that will help you no matter what ails you. This is true because it works directly at the roots of all disease—the digestive system, the blood, the nerves. Keep these in healthy condition and you cannot be sick.

Many of the cures of the "Golden Medical Discovery" seem almost miraculous. Its effect is almost immediate. It takes hold at once. It tones up the stomach, invigorates the liver, regulates the bowels.

It gets right into the blood and carries strength and comfort to every fiber of the body. It nourishes and invigorates the weakened, irritated nerves and puts the entire system in perfect tune.

It is a safe medicine. Safe for adults—safe for children. It contains no sugar, syrup, whisky, alcohol or dangerous opiates. Therefore, it does not create a craving for stimulants. It is distinctly a temperance medicine.

If a medicine dealer tries to substitute some other preparation when you ask for "Golden Medical Discovery"—look out for him. He is either ignorant or dishonest and you can't trust him.

If You Know

the value of a good separator, it is then only a question of which one you should buy.



The Kneeland Omega Cream Separator

costs less than any other, is simple, durable, perfect in results, guaranteed right, or money back. What more do you want? It's a money maker for every farmer. **Agents wanted.** Everybody, send for our free book on "Good Butter, and How to Make It." Address,

The Kneeland Crystal Creamery Co.,
42 Concord St., Lansing, Mich.



The Simplicity, Durability, Perfect Separation, and Convenience of Operation of the

DAVIS

Cream Separator

Are Perfect.

Creameries as well as dairy farmers are interested in the Davis Cream Separator, as the gain in quantity and improvement in quality of butter is wonderful.

Correspondence solicited. Agents wanted.

DAVIS CREAM SEPARATOR CO.
88-92 W. Jackson St.,
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SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time.
NO FLIES, TICKS, VERMIN OR SORES ON COWS.
Thousands duplicate 10 gallons. *Beware of imitations.*
"I have used several so-called 'Cattle Comforts,' *none* equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H.W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union.
Send 25c. Money refunded if cow is not protected.
SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., Pa



Cow Hopple

For Sucking Cows.

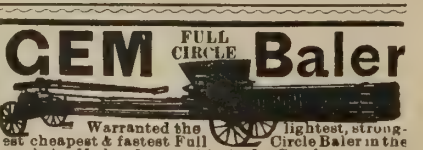
Either from habit or from sore teats. **Price 50 c.**

Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted.

Sent Postage Paid.
Agents Wanted,...

Henry Bassett,
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GEM FULL CIRCLE Baler



Warranted the lightest, strongest cheapest & fastest Full Circle Baler in the market. Made of wrought steel. Can be operated with one or two horses. Will bale 10 to 15 tons of hay a day. Write for description and prices.

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GALVANIZED STEEL TANKS — MADE BY C.E. BANTA MFG CO CHICAGO — GUARANTEED NOT TO BURST

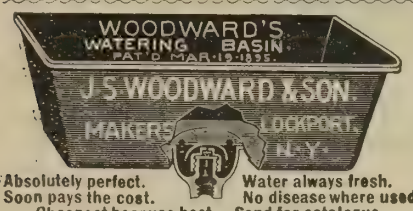
Stock Tanks

Any style, size or shape. Farmers can **buy direct** from our Factory at lowest Wholesale Prices. ☞ Catalogue Free.
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Box 274 E, Chicago, Ill.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.
Water always fresh. No disease where used. Send for catalogue.

WELL DRILLING MACHINERY Established 1867.



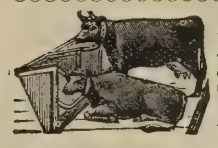
Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address
KELLY & TANEYHILL, Waterloo, Iowa.

A WATER SUPPLY

is of first and greatest importance where live stock is kept. Animals suffer more from thirst than hunger, particularly cows and hogs.



BUY AN **IDEAL STEEL TANK** and make sure of a good supply. Made of best galvanized steel, reenforced by bands top and botton; braces at corners, ends & middle. Sizes from 2 bbls. up. Many styles. **SHIPPED FOR INSPECTION.** Prices, &c. free.
STAR TANK CO., Box 102, Middlebury, Ind.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free



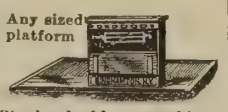
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Improvement over Smith's.
Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials.
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THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.

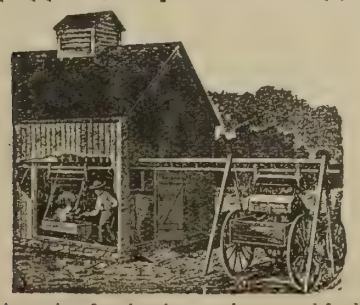
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Any sized platform



Single, double or combination beam. Wagon, stock, hay and sugar cane scales.
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CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

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FARMERS should know its value and its importance in a fertilizer to be applied to their grain crops.

Our illustrated books which tell what Potash is, how it should be used, and how much Potash a well-balanced fertilizer should contain, are sent *free* to all applicants. Send your address.

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find exactly the fence you want, write us. We think we make it, and if we don't, we can try.
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THE FENCE MAN
Makes Woven Wire Fence that "Stands Up." Cannot Sag.
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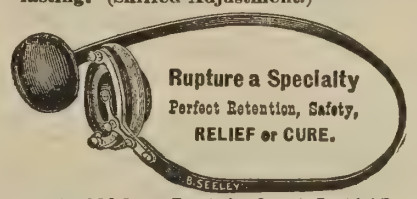
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Hard Steel Castor Coulter with Plow, $1 50 extra.
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Only Plow factory in the United States selling direct to farmer.

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To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

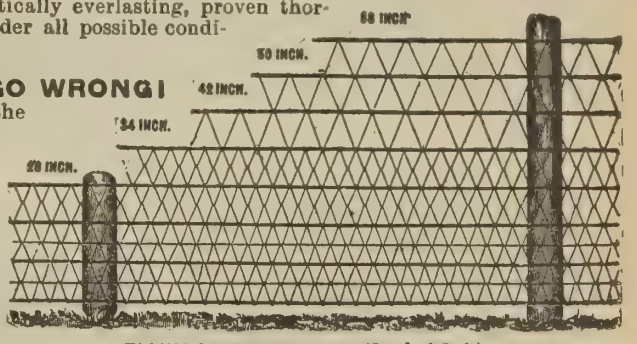
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you have secured absolute efficiency at least expense, in a practical fence that will positively turn cattle, horses, hogs and pigs. A fence that is strong, practically everlasting, proven thoroughly efficient under all possible conditions.

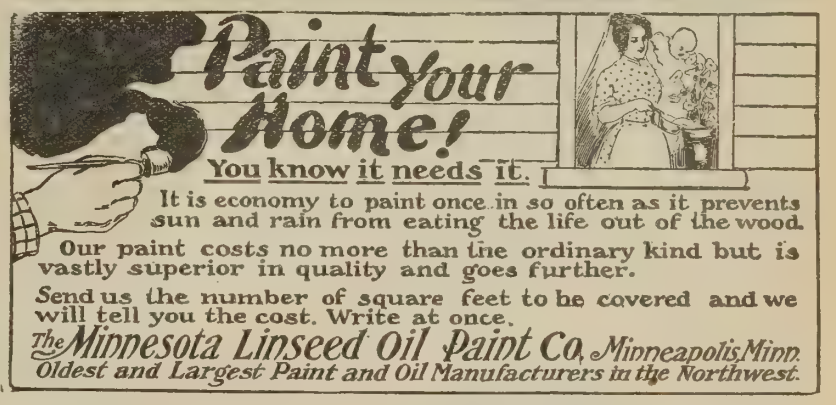
YOU CAN'T GO WRONG! in selecting the **ELLWOOD WOVEN FENCE.**



ELLWOOD FIELD FENCE (Standard Style)

Sold by our agents in every town. If you can't get it in your town, write us direct, and we will see that you are supplied.

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It is economy to paint once in so often as it prevents sun and rain from eating the life out of the wood.
Our paint costs no more than the ordinary kind but is vastly superior in quality and goes further.
Send us the number of square feet to be covered and we will tell you the cost. Write at once.
The Minnesota Linseed Oil Paint Co, Minneapolis, Minn.
Oldest and Largest Paint and Oil Manufacturers in the Northwest.

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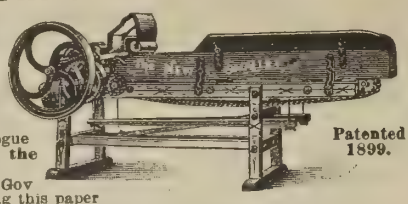
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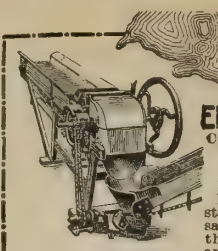
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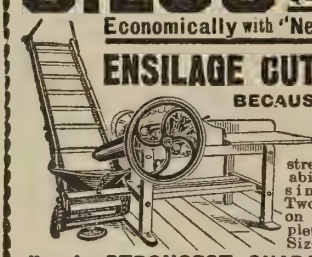
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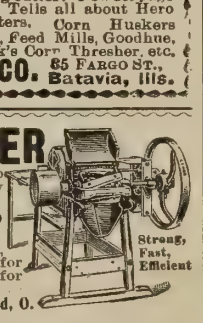


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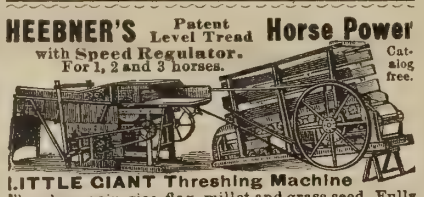


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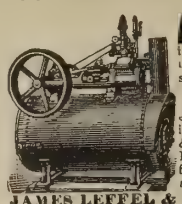
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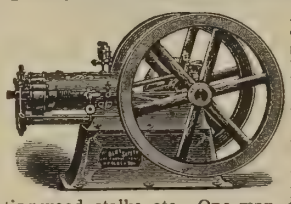


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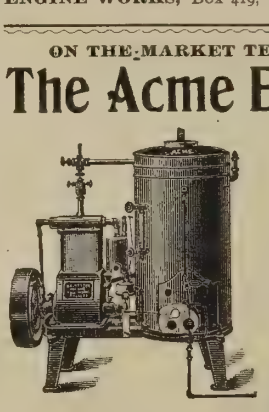
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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
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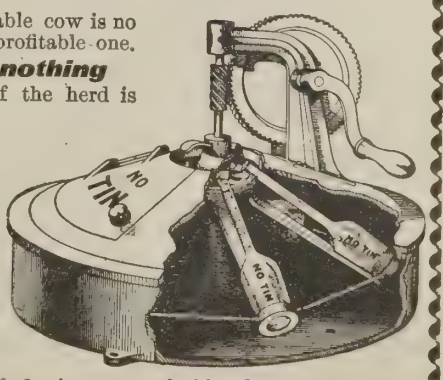
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May be Cooled and Aerated in one Process,

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The **Champion Cooler** can be used with ice, cold well water or running water. There is no other Cooler so convenient and so effectual.

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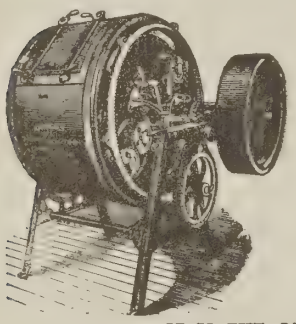
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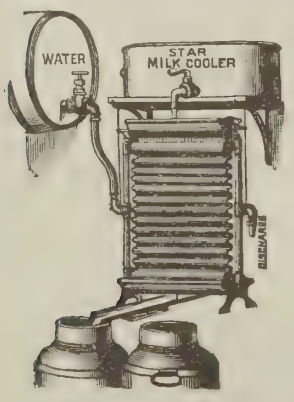
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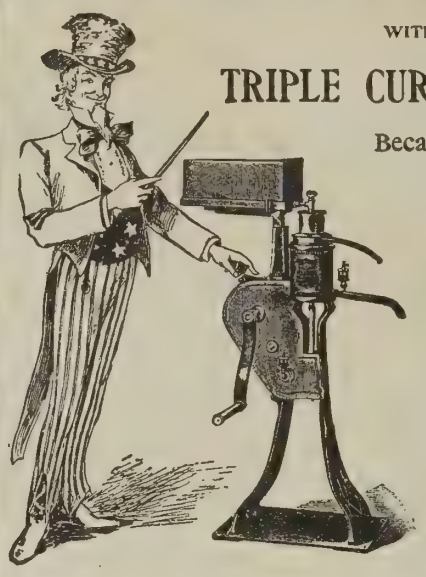
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Skims the Cleanest,
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And in other important points Excels all other Separators.

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If interested, send for our large illustrated catalogues giving full particulars and containing hundreds of testimonials from users.

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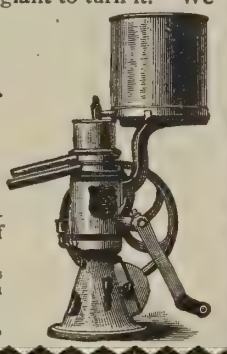
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to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

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to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

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JUDGE HOLT, of Minneapolis, has fined C. N. Brundage, agent for the Hammond Packing Co., twenty-five dollars for selling oleomargarine of a yellow color like butter. That is fair. When harlots put on the vestal garments of the bride, they should be punished for their fraud and deceit.

THE cut we give, this week, should call the attention of our northern breeders to the possibilities of dairy work in the south. If there are many such herds in the south, the northern breeders must look to their laurels and markets, or the acclimated cattle of Texas will capture the more southern trade.

THE long list of large premiums on dairy products to be won at the Wisconsin State Fair, Sept. 11 to 15, ought to insure a rare dairy exhibit from this great dairy state, not to mention the efforts which will be made by other states to capture premiums. The present State Fair management seems bent on giving all features of Wisconsin agriculture their proper place at the State Fair. It ought to be appreciated by large exhibits and attendance.

PASTEURIZING and preserving are words somewhat alike in sound but very different in practice. A Madison, Wis., milk dealer thought they were alike both in sound and practice and in consequence paid $25.00 and costs, to be instructed in the difference between the words, by the Judge of the Court.

The agent of a milk dope house in Chicago told the milk man that the dope would pasteurize milk. The milkman believed him then, but now he knows better. Knowledge is expensive sometimes.

THE MOST PROFITABLE CREAMERY BUTTER MAKER.

Every business has a certain percentage of cheap, unprofitable men. Invariably you will find them men who are afraid of giving good measure. Their motto is, "Do as little as you can and get as much as you can." The creamery business has its share of such men, but they are constantly being weeded out. The standard is being rapidly raised and as they have never taken pains to educate their minds to a broader and better understanding of their position and duty, they must go.

But there is one phase of the butter maker's position that should be understood and practiced more than it is. That is, his influence as an educator among his patrons.

A gentleman, who is secretary of one of the largest co-operative creameries in Iowa, in writing us a year ago on this question, said:

"A good butter maker does more than make butter. His influence is felt on the farm. A good patron does more than bring milk to the creamery. His influence is felt in the creamery. The patron is often stupid and stubborn and will not learn, and many butter makers don't care whether he learns or not."

That secretary hit the mark square in the center. The butter maker who will command the largest respect and the best pay, is the man who is capable of helping the patrons the most. He must be a well read and well posted man in the art of caring for cows, to be capable of giving good advice to those who need it.

He must be skillful outside as well as inside of the creamery.

Hence, we see why there is a constant growing demand for butter makers better educated in all that the business demands. Some men will educate themselves. They are good school masters for themselves even if they never attended a dairy school. Such men are appreciated by the people they work for. They know the value of the best thought and experience in this business, and they strive to get the patrons to accept of it.

Such relationships are especially valuable as more and more of the creameries become co-operative. In speaking of the butter maker of a large co-operative creamery in Wisconsin, one of its largest patrons once remarked to us:

"He is the best man we ever had among us. He helps us to select books and papers; helps to buy improved live stock and keeps *pushing us up* all the time. I think it is fair to say that in the eight years he has been with us, our cows have increased 25% in their butter product and it is nearly all due to his efforts. Of course we pay him good wages and no creamery can hire him away from us."

There is a whole sermon in that plain man's statement, which many creamery butter makers will do well to ponder on.



FROM A HERD OF JERSEYS SHIPPED TO SALTILLO, MEXICO,

By Mrs. W. G. HUGHES, Hastings, Texas.

Thoroughbred Stock.

ED. HOARD'S DAIRYMAN:—There are two stages in the process of convincing the farmer that he ought to pay the closest attention to the characteristics as well as the breed of his breeding stock. He will quite easily agree, as a rule, that poor, runty animals, whether bull or cow, will hardly produce valuable offspring, but when it comes to going down into his pocket for means of starting the better class of stock and weeding out the inferior, he hesitates and too often says that he hasn't the money just now.

What is to be done in such cases? Probably the everlasting sermon is the thing in its way, but the lively example is much better. An Erie county dairyman, without appearing to notice it, gave me a text the other day that is good for a host of sermons in this line. It was a very remarkable instance and may possibly be an extreme one, but it is fact and if other instances of the sort are less pronounced, they are all the more frequent.

There was a bull in the herd that was thought to be excellent for the breeding of cows. He was a thoroughbred Jersey and his reputation and market price were high. The owner was not satisfied with mere reputation, though, and he took careful note of his heifers. It was not long before he noticed a bad defect in them. The udder was imperfect. It was deep and heavy at the rear, but there was no forward end worth mentioning. Perhaps it should be said that the teats were placed too far forward, as this would explain the difficulty; but at any rate they were not only so far forward that they gave the udder fairly the appearance of malformation, but they were in pairs, making it sometimes hard to milk the heifers.

The dairyman kept the bull long enough to satisfy himself that the difficulty came from that source and then he sold him. I do not think that the reason for disposing of him was mentioned, but the price asked was quite enough to tell the story. There was no cheat about the sale.

Then the dairyman increased his knowledge of the wonderful results of prepotency as a corrective of faults in cows. Having a young imported Jersey, he bred him to some of the cows that had developed such one-sided udders. It is perhaps too early yet to make sure of results, but there is every indication that the effect of the changing of the bull will be complete and the herd will soon be rid of all further defect in the udder.

It has been rather slow in coming, but it must sooner or later be acknowledged that the individual animal is a variety all by itself in every case and that the best results in breeding must come from a study of the parents similar in its way to the study of plants for hybridization. Individuality in plants is comparatively slight, but it can be made considerable of, while in animals it is always large. We must not only know what an animal is, but what it can do, from a study of its progeny.

This work must, for the most part, be done for a long time yet, by the few. Farmers are still trying to cover the whole domain of husbandry. If they were natural students, the many ways, that they have to turn, would make it necessary for them to skim the surface of most things they undertake to do. There was a time when a little of this and a little of that, all pretty poorly done, brought a fair profit when put together, but that time is past. A farmer who is not a good deal of a specialist, at least in some direction, is lost, and the sooner he comes to realize the fact the better. It is not out of the question for him to profit by the successes of others, and in these days of voluminous literature of the farm every farmer can at least become posted, which is quite close to being specially educated.

JOHN CHAMBERLIN.

Erie Co, N. Y.

Let us Spray.

Cows and Flies.

ED. HOARD'S DAIRYMAN:—Mr. Lighty, of Pennsylvania, on page 508 of your paper, says "I find by spraying my cows and stable every morning and evening with coal oil I can materially reduce the flies. I use a little hand vaporizer that costs fifty cents."

I want to again tell you readers how useful I find the little tin spray pump I have used since the horn fly came. I use pure kerosene to spray the cows with every time we milk. I spray them wherever the flies congregate, except on the udder.

I find most flies on fore legs and shoulders of the cows. A pint of kerosene will spray thirty cows three times. In years past, long before the middle of August, we have darkened the stable in order to milk without danger of being kicked by the infuriated cows. This year the doors and windows are wide open and the cows stand quietly after being sprayed. They do not huddle together in the pasture as they used to and the flies are not nearly as numerous on the home farm, but in my pasture four miles away, and on farms around me, they are plenty. I began to spray early and killed off a large part of the first generation that hatched out.

I kept up the spraying and have held them in check. I do not believe the horn fly travels very far from one farm to another, and I do believe that if every owner of cattle would spray them thoroughly in spring and kill off the few horn flies that hatch out from last year's eggs, or wintered over flies, we would soon be rid of this costly pest. Let us spray. Amen.

C. V. PORTER.

Viroqua, Wis.

Separators and Cream.

ED. HOARD'S DAIRYMAN:—I have experienced the same occasional variation in the quantity of cream mentioned by F. L. Combs, Annapolis, Md.

It is conceded that to produce thick cream the cream aperture is to be made less, and that a higher rate of speed than the standard tends to the same result, in a degree; and that the opposite of the above gives thinner cream.

The inflow of whole milk it would seem must always be constant, and that the thickness of cream depends upon the ratio of the two outflowing streams. Shall we assume that this ratio can only be changed by changing the cream aperture? If the skim milk tubes could become contracted, clogged while the cream apperature remained the same, the ratio would be changed in the same direction as when the cream aperture is enlarged, and this should give us thinner cream.

Again, if the cream aperture becomes clogged, and the skim milk tubes are not, we get cream thicker than we expect. Is it impossible that either one of these outflows should ever get clogged? They certainly may be; but I have never observed close enough to demonstrate the fact of it in any given instance.

I cannot undertake to show the effect, if any, of extra high or low speed on the above but think it must influence the results.

I think it would be an easy task for a machinist to conduct experiments proving or disproving the above theory as to the ratio of outflow; but just the cause in every day work, is a different matter.

GEORGE A. GREENE.

Chautauqua Co, N. Y.

The Effect of Phosphates on Pasture.

In a recent interview in the Ottawa (Canada) *Free Press*, Prof. Robertson, who has just returned from England, related the following experiment by Dr. Somerville of the Durbon (Eng.) College of Science:

"Dr. Somerville has been carrying on investigations into the improvements of pastures. By a light application of Thomas slag (containing phosphates) a three acre plot has been improved to carry twice as many sheep, and yield nearly twice as much mutton per acre as the adjoining plot of three acres untreated. That was not due to an increased yield of produce on the field, but to an improvement in the quality of the herbage. When a part of each of the plots was cut as hay, there was little difference in the yield per acre. The application of phosphates had produced a plentiful growth of white clover on a treated plot; whereas clovers were hardly visible on the other one. There had not been any sowing of clover or grass seeds on the field. It was an old, permanent pasture.

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Seasonable Notes From Michigan.

Feeding on Pasture.—Securing the Corn Crop.—Shooking Corn.—Shredded Fodder.

ED. HOARD'S DAIRYMAN:—Pastures are perhaps better than usual at this time of the year, although in some places close cropping has resulted in burned roots and the surface is as bare and brown as it is possible for a pasture to be.

There are still many farmers who do not feed anything extra during summer, and of course such are now complaining that the cows are drying up. This is the old cry, repeated year after year, yet it seems impossible to make them see their mistake in not providing plenty of succulent food for the dry time which is sure to come during July and August.

The time of year has now come when the corn crop is to be taken care of, and farmers ought to realize the importance of securing it in the best possible condition.

Corn is by all odds the most valuable crop we have, yet none is more carelessly treated. The stalks are fully as valuable as the ears, containing as they do so great an amount of nutrients, which, when properly treated, are relished greatly by all farm stock.

The trouble is with most farmers, they let the corn stand too long before cutting.

They do not realize how much the kernels will mature and harden in the shock, so sacrifice the fodder for the sake of allowing the ears to get fully ripe before cutting.

The size of the shocks is an important factor in determining the quality of the fodder. Put up in large size shocks the stalks do not become weather beaten, but will cure out nicely, while retaining the fine, pale green color which we so like to see when winter comes.

Another thing to be looked after is to see that the shocks stand firmly and do not get blown over when the first windy day comes.

We have made it a rule for several years, in fact, ever since we began to take special interest in the dairy, to cut our corn just as soon as possible. This is usually the last of August. We try to get it all in the shock before the first frost. There will be some soft ears anyway, and a few extra makes not half the difference that the damage to the fodder amounts to, in allowing the stalks to remain uncut waiting for belated ears to mature.

There is always plenty of work to do digging potatoes, putting in wheat, cutting and securing clover seed, etc., during the autumn months, so that the corn usually is left till the last thing. This results in considerable damage to the fodder, unless unusually well put in shock.

Many farmers hire the corn husked by hand outright at so much a bushel. Where this is done, it costs no more to get it done early. Exposure to autumn storms destroys much of the nutritive properties of the fodder, especially after husking.

As regards husking by machinery, I like it. Of course, there are some drawbacks, but it disposes of a long and disagreeable job in a few days' time. There are no cold fingers or strained wrists.

The fodder is nicely shredded and in good condition for use. The expense is about the same as for hand husking.

Some fear that the shredded fodder will spoil. Such fear is groundless. It will undoubtedly heat, but no harm results from it. It may be put in stacks outdoors anywhere. I have left it right in the field until needed, then drawn it in, a stack at a time, and found it had kept perfectly. There will be some corn scattered by shelling, but it is an easy matter to allow the hogs to gather this, which they will do in a very short time.

I think, however, that fodder shredded by a husking machine is hardly equal to that put through a modern feed cutter. It is not so finely cut.

In drawing to the machine for husking, broad runners attached to a stone boat, make a better vehicle than a wagon. It wants something low, very low down, so that the shocks can be turned or tipped upon them without lifting. Most farms are provided with something of the kind, a sort of sled, which does not draw so hard as a stone boat, and which is very convenient to use about the fields in hauling cultivators, plows, etc., as well as green feed for the cows during summer. We find one of these very handy about the place. Two teams will be required to keep the husker going, besides one to haul the grain to the crib.

Where the corn is husked by hand, great care should be exercised in binding the stalks afterward. The tops must be well secured or water will reach the center of the bundle.

Binder twine is better for this purpose than the stalks themselves, since they are so apt to be dry and brittle. Sometimes marsh hay is employed, and I well remember seeing my father twist his bands from the bundle which he carried to the field. It pays to buy twine to tie with, it is so much more satisfactory.

I hope every farmer who reads this paper will try, this year, to take better care than ever of his corn stalks. The majority have not silos, but with intelligent treatment much more could be realized from the stalks than is at the present time.

As treated upon many farms, half their value is lost entirely, and some of them are absolutely worthless as food for stock.

Now, a few words about those movable mangers. They are simply made to fit the width of the stall, and set in the proper position, far enough toward the manure trench so that the smaller cows are made to stand at its edge, the same as the larger ones. The space between this manger and the feeding alley is bridged over by a slanting platform of matched boards, so that the food slides into it easily.

The upright pieces, between which the animal thrusts her head to eat (and to one of which is fastened, vertically, the iron rod which holds the end of her neck chain) are placed just the same as in longer stalls, only nearer the manure trench, thus making a shorter stall.

We have tried having shorter platforms for the younger cows, before they attain to full size, but like those with movable mangers, best, since at any time they can be converted into full length stalls with very little trouble.

The front of our manger is higher at the sides than in the middle. Here there is a depth of but eight inches, while at each side they are sixteen inches. This is to prevent the cows from tossing the food from the manger as they are so liable to do while eating.

W. C. ROCKWOOD.

Michigan.

"We Want Sweet, Thick Buttermilk."

ED. HOARD'S DAIRYMAN:—I shall at once try to comply with your request to give some advice on the above question put to you by a dairyman of Montgomery, Ala. This gentleman states that his customers are delighted with his butter, but do not like his buttermilk, and asks where the fault may be.

Now it is of no use to find fault with one's customers, and we all have, in general, to furnish a product which suits their taste, no matter if it differs from ours or that of other civilized people, then all that remains for us to do, is to find out how to please them.

First, then I would ask your inquirer to keep in mind that "sweet" when applied to buttermilk in the south, and generally in the United States even, does not mean actually sweet, but only that which has a pleasant acid taste and is not very sour. But I have found in my eight years' experience in the creamery business in the South, viz; Kentucky and Tennessee that some people prefer a quite thick buttermilk, some a rather thin and fluid one.

Now, if your correspondent has his cream just properly ripened and not oversour, he will produce a rather fluid buttermilk, even if no water is added to the churning when the butter begins to "come." I always had plenty of customers for our "natural" (if I so may call it) buttermilk, produced from the churning of cream containing about 20% butterfat, and carefully ripened; but such buttermilk was always very fluid.

Of course I could make it get thicker, simply by leaving it at a somewhat higher temperature, say 60° F. until next day, and then stirring it vigorously; but we are very apt to get the buttermilk too sour by so doing.

The way in which I produce the heavy, thick buttermilk, not very sour, is by letting the separator skim milk clabber at proper ripening temperature, about 60° F., and then churning the same for about five minutes. But our main secret of success for selling any buttermilk in as fine condition to consumers as when first made, is by at once after churning, cooling it (whether the thin or the thick kind) to below 50° F. and keep it at that temperature until delivered.

We all know that even the best and sweetest milk deteriorates awfully fast if left at a temperature above 60° F., not to speak of 70° F., or more; and therefore we should easily understand how natural it is that buttermilk, in which all germs and especially those producing acidity are very far developed, will spoil and become over sour much quicker.

Yet, it is a common thing that the same dairymen who will give much care to cool their sweet milk, will consider it needless to cool the buttermilk, which is already sour.

As stated in a former letter, a very fine article of buttermilk can be produced from a pasteurized skim milk, if such is properly ripened by adding a good and fine-flavored starter of freshly clabbered whole or skim milk.

Such makes a very smooth buttermilk which, if kept cool, has a better keeping quality, viz., does not so easily become over sour, than that produced from raw milk or cream; neither is such so apt to let the whey separate from the curd, which is the common trouble which befalls people who claim that no buttermilk can be produced as good from separator skim milk as from churned cream.

The trouble is simply that because acidity develops quicker in skim milk than in cream, especially if such is fairly rich, the skim milk needs more care in ripening to avoid it becoming too sour. It takes some practice before you succed.

First, therefore, see to it that your buttermilk is right when it leaves the churn; and then put it in Common Sense coolers with a dasher in, set in as cold water as you have, and preferably in ice water, stir frequently till cooled below 50° or even 40° if you can, and when put in cans for shipping or delivery, have these protected in some way from the outside warm air, until sold. Tell your customers to keep the buttermilk as cold as their sweet milk if they wish to keep it from becoming over sour for next meal. If buttermilk is kept near freezing point in ice or ice-water, you may keep it absolutely fresh and palatable. If the best kind of buttermilk was sold in bottles, ice cold, I am confident you cuold get a good recommedation for such from physicians, as many people can digest such, who cannot at all digest sweet milk.

J. MOLDENHAWER.

Washington, D. C.

Bone Dust for Young Stock.

Touching trials of bone dust, as fed to young stock, the "Societe Nationale d' Agriculture" of France says: The bone-dust employed as an addition to the feeding ration, is known commercially as "*poudre d'os verts*," that is, the powder is produced from what may be described as raw bones simply dried in the open air, and not treated in any way with chemicals. One of the animals experimented upon was a calf 164 days old, weighing about 478 pounds. It received per day about one and one-half pounds of skim milk, three and one-half pounds of oats, three and one-fourth pounds of hay, and three pounds of mangels. On this ration it increased nearly fifty pounds in twenty-four days. To the ration was then added about four ounces daily of bone powder, and in the next twenty-four days the calf increased in weight eighty pounds. Thus there was a gain of thirty pounds in twenty-four days obtained without change of ration beyond the addition of a total of five and one-half pounds of bone powder, which cost three and one-half cents. The bone dust is said to promote digestion and assimilation of the food, and to favor the formation of flesh and fat. Though it is intended to continue the record of this method of feeding, the experimentalists have no doubt of the utility of bone powder as an addition to the rations for young beasts, and indeed, of other animals.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

TAXES ON CREAMERIES AND CHEESE FACTORIES.

Being a former Jefferson County boy, and a reader of your paper, I wanted to ask if there is any other state in the Union where the state law compels a cheese factory, making full cream cheese, to take out an "annual permit" to manufacture. Here in Nebraska we pay to the State Treasury $10 for each creamery or cheese factory.

T. E. G.

Avoca, Nebraska.

We do not know of any legislation, elsewhere, quite as strict as this Nebraska statute, but we are not prepared to say that if the money thus collected is applied to a thorough, official inspection of the factories and incidental instruction, it may not prove a wholesome regulation.

RESTORING BODY TO PASTEURIZED CREAM.

I have been told that there has been a bulletin given out by some of the experiment stations, in which they recount using lime water to thicken cream for retail trade. Can you tell us where we can get this bulletin and if it is practical?

F. E. R.

Whitehall, N Y.

The bulletin referred to is the one issued by the Wisconsin Experiment Station, on the use of calcium sucrate, for restoring the body of pasteurized cream. It can be had on application to the station.

Calcium sucrate is a compound of caustic lime and common sugar, dissolved in water.

When added to pasteurized cream, which has lost its body by heating, the lime compound acts by restoring the thickness of the cream by its action on the casein, and by its causing the fat globules to reunite in groups.

Caustic lime in fine powder or lime water,

both have the same action but the use of caustic lime is not practical, on account of the difficulty in handling it, and the lime water dilutes the cream, as lime is but slightly soluble, one part to 700 parts of water. The solution of lime in sugar syrup was found to solve the difficulty in a practical manner, and enables one to restore the body of pasteurized cream in a thoroughly satisfactory way.

Great care should be used as to the amount of sugar-lime solution added, as too much will cause the cream to become semi-solid on standing, and also give it the taste of the lime, a condition which would result in an immediate loss of custom.

A MASSACHUSETTS RATION.

Enclosed please and $1.00 for binder and pamphlet on raising calves.

Although I have taken the DAIRYMAN for a few months only, I don't see how I could get along without it. I wish it might be in the hands of all dairymen in this section.

Have been particularly interested in the feeding question, and I believe that dairymen in this section need to learn the importance and value of a balanced ration. Will you kindly give me a balanced ration from the following:

Cream gluten meal, $20 to $23; mill feed $18; corn meal $18; mixed hay; cotton seed meal is about the same price as gluten.

Grafton, Mass. T. R. C.

Gluten meal, corn meal and cotton seed meal are highly concentrated feed stuffs, and should be extended or diluted with something much lighter. Nothing is quite so good for this purpose as light, clean, flakey bran. If this is not available, hay or straw may be chaffed fine and used for this purpose. Possibly the "mill feed" might be used, but this is a very indeterminate expression. In the formula which follows we specify bran, but if this cannot be had, the mill feed may be tried. For cows weighing not more than 1,000 pounds, and not past their prime milking period, the daily average allowance—giving the large milkers more and the others less—may be tried.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17.16	.96	7.92	.32
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. gluten meal	1.84	.52	.87	.12
Totals	24.29	2.23	11.11	.62

One pound of cotton seed meal might be substituted for the same amount of gluten meal, and if one wanted to feed heavier, one to two pounds of corn meal might be added.

ALFALFA AND BEGGAR WEED SEED.

In HOARD'S DAIRYMAN of Aug. 11, 1899, I saw a lengthy article on "The Florida Beggar Weed," in which article the beggar weed is very highly recommended. Also another article speaking of the great superiority of alfalfa as a stock feed. Where and at what price can I procure seed of both plants?

Columbus, Ga. N. R. K.

You can obtain alfalfa seed from any dealer in seeds. We cannot say where Beggar Weed seed can be obtained, but you can probably obtain information on the subject by writing to the Florida Experiment Station.

ENAMEL FOR WET WALLS.

In reply to an inquiry on page 509 of the DAIRYMAN for an enamel for wet walls, Mr. Monrad sends us the following:

As to that inquiry, it seems to me that I have read somewhere that the addition of a certain amount of "kaolin" to common paint will do just what J. M. on page 509 asks for. J. MONRAD.

SERVICE FOR YOUNG BULLS.

In answer to a delayed inquiry, by a Dakota subscriber, who has a valuable young Jersey bull from Hood Farm, we would say that a single service every second week ought not to injure a well developed yearling; indeed, in case of necessity, we would not hesitate to use him more frequently, say one service every ten days.

WAGES OF BUTTER MAKERS.

Kindly let me know what salary a first-class butter maker would demand. We prefer a graduate. C. A.

Spanaway, Wash.

It depends on the amount of work to be done and the responsibility which he assumes.

It may be anywhere from $40 in a small creamery, handling but little milk, to $100.00 per month in the largest creameries.

Perhaps $60.00 per month is a good average.

SUPPLEMENTARY FEED ON PASTURE.

We have answered this question so often, that it would seem regular readers ought to be pretty familiar with our views, but one of our new readers repeats the inquiry, and we may say briefly for his benefit and that of others, that when pasture is abundant and fresh, there is nothing better and nothing generally so cheap as good hay. But where the pasture grass becomes short and dry and scanty, recourse must be had, not only to hay or silage or some soiling crop, but to more or less grain.

Bran is good in such cases, and where corn is cheap, some ground corn may be added. Gluten feed is also giving good results.

A MISSISSIPPI RATION.

Please give a balanced ration of the following, for Jersey cows: Cotton seed hulls $3 per ton, cotton seed meal $16, wheat bran $17, and corn meal $20.

Mississippi. J. M. T. HAMILTON.

Mr. Hamilton is only a recent reader of HOARD'S DAIRYMAN, and is therefore excusable in large degree for not having something better than cotton seed hulls as roughage for milch cows. That cows will eat these hulls, that they will sustain life, that they may be useful and even economical as a part of the ration, is cheerfully admitted; but they contain only a meager amount of nutriment adapted for milk making. Posterity has justified the complaint of the ancient Israelites against that Pharaoh who compelled them to make bricks, but would not furnish them material necessary for that purpose; in like manner the milch cow prefers an unanswerable indictment against her owner when he does not provide her with the elements in her daily ration that she is expected to return in her milk. We may not understand all the intricate mysteries of digestion, assimilation and metabolism whereby the cow manufactures milk, but investigations have gone far enough to show that the solids in the milk come from the solids in the feed, and that there is no other source than the protein in the feed, from which she can derive the casein in the milk.

Cotton seed hulls are not only remarkably low in protein, but they are very difficult of digestion—about on a par in these respects with wheat straw. They may be fed in limited amounts with satisfactory results, but they should not constitute the only roughage. Good silage and hay of some description must be supplied for winter forage and for the seasons of summer drouth, before we can reasonably demand paying returns from the milch cow.

A good Jersey cow in Mississippi when in fair flow of milk (say, twenty to twenty-five pounds daily) will require from twenty to twenty-two pounds of dry matter in her daily allowance of feed and this dry matter should contain approximately the following amounts of digestible nutrients:

Protein	2.25 pounds
Carbohydrates	10.00 pounds
Ether extract (fat)	.65 pounds

The problem before us is to find these digestible nutrients in the feeds named by our correspondent, and maintain a wholesome and healthful correspondence between the roughage and the concentrates. The stomach of the cow is a capacious affair, designed by nature to work over large quantities of coarse feed, which supplied the requisite material for the maintenance of herself and offspring. The modern milch cow must do more than this, and hence must have more feed, We must therefore have bulk enough to distend the stomach, otherwise it cannot properly perform its functions—and must incorporate in this bulk, richer feeds.

It has been found expedient, under ordinary conditions, to have about two-thirds of the dry matter in roughage or coarse feed, and the balance in concentrates (grain).

In making up a trial ration, we can reject the corn meal because of the price, and because it does not furnish as large a per cent of protein as bran, and the following comes as near our requirements as is possible:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. cotton seed hulls	13.33	.05	4.97	.26
5 lbs. bran	4.41	.63	1.93	.15
3 lbs. cotton seed meal	2.75	1.12	.51	.27
Totals	20.49	1.80	7.41	.68

Notice what a vast improvement it would be to take away some of the hulls and add cow pea hay.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
5 lbs. cow pea hay	4.47	.54	1.93	.06
10 lbs. cotton seed hulls	8.89	.03	3.31	.17
Grain as above	7.16	1.75	2.44	.42
Totals	20.52	2.32	7.68	.65

Or we may use crab grass hay as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. crab grass hay	8.24	.57	3.97	.14
5 lbs. cotton seed hulls	4.46	.02	1.66	.09
Grain as before	7.16	1.75	2.44	.42
Totals	19.86	2.34	8.07	.65

A CALIFORNIA RATION.

Will you please formulate for me a balanced ration from the following feeds: Pasture, Bermuda sod grass. Have crushed barley, $17 per ton. Bran is worth $17 per ton, middlings $19, oil meal $40, cotton seed meal $40. Would it be advisable to sell the barley and buy a substitute. Cows weigh 900 pounds. E. M. L.

Lockeford, Cal.

We cannot give a complete formula for a ration where cows are at pasture, because of the impossibility of estimating the amount of grass they may be able to get. It is always necessary for the feeder to be careful in feeding and see that each cow gets all she wants and no more. This watchfulness is doubly necessary when cows are at pasture. We would advise mixing by weight three parts bran, two parts crushed barley and one part cotton seed meal and feeding from six to twelve pounds of this daily, apportioning the amount according to the capacity of each cow to respond. Having barley, there is also undoubtedly barley straw and some of this may be fed.

CLOVER QUESTIONS FROM VERMONT.

1. Is it so late that crimson clover sown alone would furnish any feed for cows this fall?

2. How much seed shall I use to an acre?

3. Am I so far north that I cannot raise alfalfa?

4. If not, when must I sow it and with or without a catch crop? I. W. G.

East Calais, Vt.

1 and 2. With favorable conditions for germination, which include the preparation of a good seed bed as well as sufficient moisture, it is probable that crimson clover, sown at any time prior to September first, would furnish very considerable fall feed. But to make assurance of fall feed we would recommend sowing with barley or oats, using ten to fifteen pounds of the clover seed with two bushels of the grain per acre.

2 and 3. Alfalfa is becoming a favorite crop in many places where a few years ago it was considered impracticable to grow it.

From recent experience, it would seem probable that it would do well in many Vermont localities, but in all cases where new crops are to be tried it is prudent to experiment first in a small way. That is just what the editors of this paper are doing with alfalfa the present season. The popular directions are to sow alfalfa without a nurse crop on ground free from weeds, and thoroughly prepared. Alfalfa has the reputation of being a very tender plant when young, and hence needs best conditions. The present season in this vicinity has been exceptionally propitious for seeding, and our best success has come where the alfalfa was sown with oats and the oats cut very early for hay. The alfalfa has come on beautifully since the oats were cut and is now an excellent stand, showing a good many blossoms.

A NEW YORK RATION.

What grain would you feed to get the best results from, counting cost of feed? Wheat bran, $18 per ton; wheat middlings, $19 per ton; cotton seed meal, $25 per ton; oats, 40c per bushel, unground. Will have ensilage enough to feed my fresh cows and those not more than four months in calf, twenty-five to thirty-five pounds per day; good oat straw and mixed hay, clover and timothy, got in in shape. Object, cream.

My cows are grades of Durham, Jersey and Ayrshire—all of them heavy milkers and range from 1,000 to 1,100. They will be in all periods of milk, some fresh every month.

Clinton Co., N. Y. H. T. F.

The main points in feeding a milch cow are (1) to satisfy her appetite; (2) include enough protein to enable her to reach her full capacity as a milker; (3) secure these feeds at least cost.

The last point rules out oats very decidedly, and middlings with less emphasis. The second point suggests the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.26	.21
10 lbs. hay	8.58	.48	3.96	.16
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	23.63	2.36	10.88	.73

The above formula gives sufficient protein and ether extract, but is deficient in carbohydrates, and the amount of dry matter will not suffice to fill the stomachs of these large cows. Therefore add what oat straw they will eat.

CREAM QUESTIONS.

A dairyman at Valcour, N. Y., asks what per cent of fat is required for "standard" cream. The answer is that the standard varies with the locality. In some places sixteen per cent fat is accounted standard cream and in other places the requirements are from twenty to twenty-five per cent. Perhaps twenty to twenty-two per cent is the more universal requirement.

***

He also asks how much more butter, cream containing twenty-eight per cent fat will make than cream containing 22.5 per cent fat. This would be a purely mathematical problem, if we assume that the churning is equally exhaustive in either case, but this is unlikely, because, as a rule, the richer cream churns out cleaner, and in any event, there is less buttermilk for the percentage of loss to apply to. It is therefore quite safe to estimate that the twenty-eight per cent cream will yield twenty-five per cent more butter than the 22.5 per cent cream.

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His third question is what per cent of fat must cream carry to yield one pound of worked butter from two quarts of cream. That amount of cream will weigh a fraction over four pounds, and as it requires .85 of a pound of fat in the cream for each pound of worked butter, it is approximately correct to say that two quarts of cream testing twenty-one per cent fat will yield one pound of butter.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, No. XXIII.

BACTERIA AS SOIL MAKERS.

If one lives in a country which has not been covered, in by-gone ages, with that mantle of ice, known as the glacier, he is, doubtless, familiar with the general principles of soil formation. That superficial covering of the rocks known as the sub-soil, was once as hard and enduring as the underlying stone. If one notes the appearance of a vertical section of these layers, as may often be done in a deep railroad cut, they will observe the gradual change from the firm, intact stone below, to the mellow, rich soil above. First, there is to be seen the broken, angular bits of rock that are hard and resistant. Between these is the coarse earth, which above becomes more homogenous, making the rich fertile soil.

While this process of rock-weathering and soil making is generally looked upon as the result of purely chemical and physical changes, still vital actions aid and accelerate the same. In the very earliest stages, when the bare rock is exposed to the action of sun and rain, these lowest of all organisms, the bacteria, are helping on the process of soil manufacture. It seems incredible, that any thing alive could exist, much less grow, in such a situation, but certain forms, as the nitrifying bacteria are able to do so. These germs require, for their nourishment, no prepared food, no organic substance of any kind. Bathed in the carbonic acid, which is present in small trace in the air, they assimilate their nitrogen from the ammonia of the air, and so form the acids which, in part, act upon the rock mass, dissolving the same, and aiding in the weathering process.

The film of organic matter, which they produce, gives conditions that enable the rock-loving lichens to establish themselves; then the mosses, and finally the higher plants, and so, aided by many different forms of life, the enduring granite, as well as the softer sandstone, yield gradually to decay, and soil is slowly formed.

BACTERIA AS HUMUS FORMERS.

The more valuable function of bacteria, as soil makers, comes in the later stages of soil formation. Even after the rock has been ground into powder by the "gnawing tooth of time," it is not fitted, fully, for the function of crop production. The finely ground rock flour may contain the necessary lime, magnesia and iron that has been rendered more or less soluble by the processes of weathering, but before the plant can take these minerals, and build them up into stalk, leaf and grain, other elements must be forthcoming, the most important of which is nitrogen and carbon.

If you look at a vertical section of soil, some feet in depth, it is at once apparent that the superficial layer is sharply contrasted from the lower. The one is black or brown, as the case may be; the other changes in appearance, with the character of the underlying rock. This upper layer derives its different color and appearance from the action of living forces. It is the humus, or layer of vegetable mold. It represents the scene of labor into which the soil bacteria largely enter. The organisms that work over the refuse of organic existence, be it vegetable or animal, finds on the surface of the soil, favorable conditions for humus formation. Compacted by pressure from above, heated from the absorbed rays of the sun, moistened with the water that is precipitated as rain or snow, and held in this material as if it were a great earth sponge, this mass of dead organic tissue yields easily to the attacks of innumerable saprophytic forms, that tear down the complex cell, appropriating what is needed to maintain themselves, and throwing out the remainder as a waste product, which material may serve in turn, for other forms to feast on, until, finally, the wide spreading tree, or the pulsing brain of an animal or man may be given off to the elements, in the form of invisible gas.

The formation of humus represents not a single process, but a many-sided, complex, process that varies greatly with the conditions. One vegetable mold of the forest, the acid and antiseptic peat bog, into the depths of which animals may have fallen centuries agone, to be unearthed, unchanged at a later date, the rich black muck of the lowland moors, all these are characteristic forms of humus. They represent organic matter on the way to be utilized by succeeding generations of plants. In the form of humates and organic or albuminoid nitrogen, the carbon and nitrogen are held in reserve to be given up slowly to each succeeding crop by the gradual process of decay.

What a wise provision is this! How like a savings bank that pays a small annuity, but does not permit of the impairment of the principal. So long as the supply of humus is maintained, so long will the needful elements be gradually given to the growing plant. Rob the soil of its humus and you destroy at once its crop producing power. It used to be thought that it was necessary for the humus to be completely decomposed, before it could again enter the living plant, but recent discoveries indicate that the plant may take more than purely mineral food from the ground. In the processes of decomposition, various organic compounds are produced, some of which can certainly be appropriated by the plant. The composition of plants grown on soils rich, as well as deficient, in humus, tell this story. Take the beet sugar plant; on soils rich in organic matter, the yield of sugar is much lessened, as the saccharine matter combined with the absorbed organic matter cannot be recovered.

Besides acting as a store house of fertilizing material, humus exerts a very beneficial effect on the soil in other ways. Its power to retain moisture is very marked; where present in quantities, it acts as a sponge, absorbing and holding immense quantities of water, yielding this up gradually. The denudation of our large forest areas, and the consequent destruction of the humus, permits the water precipitated as rain to run off quickly, instead of being held as it used to be. The sudden and tumultuous freshet has replaced the gradual rise of many of our river systems. Such processes not only promote erosion but they tend to lower the ground water level, because a less amount of the water that falls as rain, percolates into the soil. The desolated, gullied fields of the south, testify what the soil will become, if the humus content is not conserved.

Then again, the texture of the soil is profoundly affected by the amount of humus that it contains.

It lessens the cohesion of soil particles, and therefore makes the soil more friable, an improvement that is of especial value in clay soils, that have a tendency to bake.

The formation of humus, being dependent upon the action of biological forces, is hastened or accelerated by the effect of external conditions. Moisture and temperature are the two most important factors that determine the rate of change. Abundant moisture and a warm soil hasten greatly the processes of decay.

While the formation of humus is a necessity in a soil, from the standpoint of agricultural practice, still the presence of too much organic matter impairs its fertility, because it stops other necessary processes. As humus is always acid, such soils may become so sour that proper plant growth cannot occur.

Another of the important soil processes is that of nitrification, in which nitrates are formed from the organic ammonia as in humus. If, however, the soil is surcharged with humus, the bacteria of nitrification cannot properly develop and therefore the fertilizing organic matter remains unutilized, because unavailable.

Salt and Salting Cheese.

WHY NOT USE THE BEST SALT?

Ed. Hoard's Dairyman:—While most butter makers have learned that it pays to use the best salt they can get hold of, there seems to be a tendency, among most of the cheese makers, to buy the very cheapest they can get even the coarsest barrel salt.

This is all wrong. Such salt is uneven, and, as a rule, full of rust, dirt and pan scales (gypsum.) Often it contains a small percentage of lime (which is harmless) calcium chloride (which attracts moisture and causes the salt to lump,) and magnesium chloride (which gives the salt a bitter taste.)

Too coarse and uneven salt does not dissolve quickly enough, and, what is more, dissolves unevenly, and this fault we can easily detect.

Rust and dirt specks may be detected, by dissolving the salt in a glass, or, better still, a high cylinder full of water, when the dirt will show at once, either as a sediment on the bottom of the glass, or as a scum on top.

As regards the absolute chemical purity of a salt, which salt agents often boast about, it plays but very little role, as long as the impurities are not present in too large quantities, especially the magnesium which imparts a bitter flavor to it. Most of our so-called dairy salts are pure enough for all practical purposes.

But it is said that some manufacturers simply grind up coarse salt, and then the pan scales cannot be detected, and for that reason we should not be satisfied with the fineness of the grain and the name of dairy salt, but should protect ourselves by buying *those brands only that have stood the test of years.* There are many refineries where the product seems to be all right to-day and all wrong to-morrow. It requires experience and an expensive plant to make a uniform good salt, just as it does to make a uniform good cheese.

But—and a very large B-U-T, if you please—granted that we have bought one of the very best salts in the market, we must still test it, not only for possible dirt accumulated in transit (when shipped in poor bags,) but also for *taint.* Salt will absorb odors very easily. I know of a case where a car load was spoiled by being shipped in a cattle car not properly cleaned and deodorized. Hence, we must buy of a dealer who understands this, and keeps his stock in a clean place.

Mr. H. B. Gurler, who once had salt tainted by storing in a shed next to a stable, recommends in his "American Dairying," to test salt for taint, by dissolving it in warm water, when a nose in fair working order, will detect it.

It is a peculiar fact, that a higher percentage of the creamery butter makers read and study, and keep "up to date," by subscribing to Hoard's Dairyman and other dairy papers, than do the factory cheese makers. Possibly this explains why they do not seem to have learned that the best salt is none to good for cheese as well as butter.

Another reason, I believe, is in the common system of farmers paying the cheese factory owner so much (or rather so little) per pound for making, leaving it to him to buy the supplies. As there is strong competition, the price of making is reduced, and he tries to save himself, by buying the cheapest of supplies. It is true, he guarantees his cheese to sell at "market" price, but the farmers overlook the fact that the other factories work on the same principle, so that the system has the tendency to reduce the quality (and "market" price) all round, and that they—the farmers—have to suffer the loss in the end.

It seems to me so evident that it pays to buy good salt for cheese, (as well as the best rennet and coloring,) that it needs no arguments.

THE OBJECT OF SALTING CHEESE.

In discussing the quality of the salt used, it may be of interest to take up the question of applying the salt to the cheese; doing so, we should consider the reason why we use salt at all.

First of all, it is used as *flavoring*, and as such only is it used on cheese intended to be eaten at once; and in this connection the detriment of an inherent, bitter flavor or absorbed taint in the salt, will be self-evident.

The second object is to use it as a preservative, arresting or rather delaying, and modifying the fermentation in the cheese.

"He Laughs Best Who Laughs Last."

A hearty laugh indicates a degree of good health obtainable through pure blood. As but one person in ten has pure blood, the other nine should purify the blood with Hood's Sarsaparilla. Then they can laugh first, last and all the time, for

Hood's Sarsaparilla
Never Disappoints.

The third object—and by no means the least important—*is to absorb moisture from the curd*, which will also reduce the fermentation. Too much salt will make the cheese too dry and crumbly and delay its ripening too much, but, up to a certain point, salt acts on cheese as it does on butter when we have poor milk—like acid and charity—"it covers a multitude of sins." It is certain that a sufficient quantity of salt to delay ripening for two or three months, directly or indirectly produces a better cheese.

The best cheese (I refer to Cheddar and similar cheese) cannot be made from a fast curing curd.

Salt has also the effect of hardening and toughening the rind, especially where it is applied from the outside either dry or through a strong brine bath.

There are three systems of applying the salt to cheese: 1. Mixing with the curd. 2. Rubbing the dry salt on the surface of the cheese. 3. Brine salting.

APPLYING THE SALT BY MIXING IN THE CURD.

This is undoubtedly the oldest system and is still the only one used for Cheddar cheese. As soon as the curd is ripened enough (developed sufficient acidity, as shown by the hot iron test) and subdivided fine enough by the mill, the salt is mixed with it and will soon be dissolved by the moisture attracted from the curd, and a circulation is at once established where the thin whey passes out and mixes with the heavy brine which enters the curd. The result is a reduction of moisture (and weight) just in proportion to the salt used.

This will explain the necessity of having a salt of uniform grain so as to get a uniform abstraction of moisture from the curd. It also explains the necessity of mixing the salt and curd carefully, and for that reason I favor a rather coarser salt than for butter. Very fine salt will mush, like fine sugar on berries, and be more difficult to distribute evenly.

There is, of course, quite a quantity of salt lost in the whey expelled. To use the word "lost" is perhaps not quite fair as that part of the salt used has fulfilled its mission by drawing out the whey in which it was dissolved.

APPLYING THE DRY SALT TO THE SURFACE OF THE CHEESE.

This system is used by makers of various cheese (not Cheddar) and has the advantage of allowing them to control the curing of the cheese, by delaying or hastening the application of the salt. As a rule, the cheese is first allowed to dry for four to five days in a warm room. This starts the fermentation and then the maker regulates it partly with the salting.

It is applied by rubbing it dry over the surface of the cheese and the result is as described above—a gradual absorption of the



Not a Preservative

but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

brine with exudation of the whey from the cheese. Before salting again, the moisture not evaporated is wiped off the cheese with a dry cloth. If too much salt is applied to start with, the rind becomes thick and dry and the diffusion of the brine in the cheese is not uniform. The upper side only is salted and when absorbed it is turned and the other side gets a salting; hence the round side gets twice as many applications as the flat ones and becomes, as it needs to be, firmer.

If salted too lightly in the beginning, the cheese becomes soft and is liable to lose its shape. But it will be seen that by slower or quicker application of the salt, the moisture is removed accordingly and the fermentation is increased or decreased. And—if you please—it is possible to repair, to a certain extent, errors before pressing (such as leaving too much moisture in the curd) by a free application of salt.

The application must also be regulated according to the temperature and moisture in the room. It "goes without saying," that too much salt in a dry room will make rind too dry and it will crack.

The progress of the salting may be followed by plugging one of the cheese.

For this system, a fine salt is better than a coarse one, and a salt mill with which to crush it very fine belongs to the inventory of the cheese factory.

SALTING IN BRINE.

This system has become more and more popular, and it is said that the cheese thus salted will absorb only a certain amount of salt from the brine, and this can only contain 26.5 per cent salt. It is evident that the circulation of brine into the cheese must cease as soon as the whey in the cheese has attained the same specific gravity as the brine.

The brine is made with a surplus of salt and salt is sprinkled on the upper side of the cheese which is turned twice a day. The cheese is generally left to dry a day or two after leaving the press and it takes from two to four days to finish the salting. A soft cheese will absorb the brine quicker than a hard one, and no fixed rules can be laid down.

Dr. Fleischmann made some experiments with Swiss skim cheese showing a loss of weight by salting as follows:

		I		II
	% Loss.	From Press	% Loss	
Weight from press	13.35	14.60		
Weight after 24 hrs. in brine	13.00	2.62	14.20	2.74
Weight after 48 hrs. in brine	12.80	4.12	14.00	4.11
Weight after 72 hrs. in brine	12.60	5.62	13.08	5.48
Weight after 96 hrs. in brine	12.55	5.99	13.75	5.82

Two experiments with full cream cheese showed similar results,—between five and six per cent loss in weight in four days.

It appears from these experiments that most of the salt is absorbed and whey expelled in the first two days, and that it is done in a uniform manner. The rind is very firm as the cheese is taken out having absorbed an excess of salt, which is distributed later, making it more elastic.

This system gives altogether a much nicer rind than by the other two, and deserves more than a passing thought.

IS BRINE SALTING POSSIBLE FOR CHEDDAR CHEESE.

Dr. Kleurge, from whose book I have drawn part of the above information, finishes by saying about salting the curd: "While this—rather crude system is used as yet for certain kinds of cheese (referring to Cheddar) it is presumably because no one has taken the trouble to try a better one, like the brine system."

With a slight modification in the making, by developing a little less acid before going to press, it seems to me also that it may be possible to adopt the brine salting for Cheddar, and it would certainly be worth while for our Experiment Stations to take the matter up.

To change it without modifications, as Dr. Kleurge seems to suggest, would not do, and a series of experiments will be needed to get at the right way.

Possibly a compromise might be the thing, so as to apply half the salt in the curd and finish it in a brine bath. In any case I hope to see this question investigated carefully.

J. H. MONRAD.

Cow Comfort.

ED. HOARD'S DAIRYMAN:—With interest I read L. W. Lighty's article, Cow Comfort in Summer, and on the comfort of the cow during the hot months and fly time, depends, largely, this year's production.

Thinking men have adopted stabling during the heat of the day, and pasturing at night. Mr. Tilson, of Tilsonburg, Ontario, was one of the first to adopt this method, and he found it not only increased the milk flow during the heated term, but wonderfully increased the fall and winter flow, above all former years.

To increase the flow of milk, and not to re-establish a decrease, is successful dairying.

This method has proved so gratifying to us, that our experience may not be out of place. Cow comfort the year round is our motto, and the requirements are sunlight, pure air, thorough ventilation.

Our stables are arranged with southern exposure, 3×6 feet windows six feet apart, giving the cows abundance of sunlight all day long. The autumn, winter and spring sunshine are among the requirements of successful dairying, as much as the exclusion of the burning sun of July and August.

When the summer season advances, and fly repellents no longer assure the cow's comfort, we cover the windows on the outside, from the top down to within six or eight inches of the bottom, with cloth or shutter, leaving the window opened at the top, by this means giving free access of air on the inside. We cover the windows from the bottom nearly to the top opening, leaving the stable nearly dark. The cows are fed and milked in the morning, and turned out. The stables cleaned, bedded, and the cows returned at nine o'clock a. m., remaining until after milking at night, when they are turned out to pasture until morning. This relieves them of the fly nuisance entirely, and a friend remarked, "their appendages would drop off from disuse."

The result is, no preceptable shrinkage of milk since June, and stock in best possible condition for fall and winter production. In addition to this treatment, we feed our cows three hundred and sixty-five days in the year. They receive their ensilage and grain ration in proportion to the succulence and condition of their pasture, combining comfort, care and feed.

J. F.

Marion Co., Ind,

Feeding Young Pigs.

Prof. Thos. Shaw recommends the following supplemental feed for young pigs where they do not get feed enough from the sow: If there is skim milk on hand, partition off a place in the pen where the dam is, if necessary, but which she cannot reach, and there, in a low trough, feed some skim milk as soon as the pigs will drink it. As soon as they take it freely, feed them a slop of shorts and milk. Then give them a little oats or corn stewn on the floor in addition to the slop. Feed the slop so that it will not become stale at any time. If there is no skim milk at hand, a thin slop of shorts and water is next best, presumably a little warm if the weather is cool. But when the trough room is ample, young pigs may have their food supplemented by allowing them to eat with the dam at will. The same kinds of food that are best suited to provide an abundance of good pure milk from the dam, will alone provide the right sort of feed for the pigs. But the trough should be low and one or more planks should be in front of it, so that the little pigs can easily get into it. And care should be taken not to feed much bran or the hulls of oats to the sow when the pigs are learning to eat, as such food is too coarse for the digestion of the little pigs. It is surprising how soon they will learn to eat thus along with the dam. Take it all in all there is perhaps no better mode of management than that just subscribed for average conditions. It is the least labored. It answers very well and forces one to be cautious as to the character of the food given to the dam.—*Indiana Farmer.*

Regulating Test Bottles in Vermont.

Act No. 81 of the Vermont laws of 1898 entitled, "An act for the protection of dairymen, and relating to testing milk and cream," provides that all glassware used in dividend making, whether by Babcock or other tests, at creameries or cheese factories, shall be tested as to its accuracy, and if found correct, indelibly marked as proof thereof. The law provides further, that every person using the Babcock test in dividend making shall secure a certificate as to competency.

This law took effect February 1st, 1899. The latter part of December, 1898, regulations were issued by the superintendent of the dairy school of the University of Vermont and State Agricultural College, in accordance with this act, and sent so far as possible to all creameries and cheese factories in Vermont. Up to August 1st, there have been tested at the experiment station, 9,564 milk and cream bottles, and 1,515 pipettes. Nearly four per cent of the old bottles in use at the time of the enactment of the law, were found to be incorrect, but with the new glassware that has since come into the state, this percentage has materially decreased.

Correct apparatus is etched with the characters "Vt. Ex. St." on the neck of the bottle or bulb of the pipette. Tested glassware can be obtained direct from the large dealers in dairy supplies in the state.

Two hundred and forty-one certificates have been granted to persons to use the Babcock test. Failures have occurred in thirty-one cases, and eighteen examinations are now pending.—*Chicago Produce.*

Anti-Aborsio.

At a Farmers' Institute held at Gilboa, Schoharie Co., N. Y., on March 18th and 19th, 1896, the following inquiry was found in the "Question Box," and was answered by H. Van Dresser, State Lecturer at Farmers' Institute, also President of Breeders' Association of the state of New York.

Question—What is known of Anti-Aborsio as a preventive and cure of abortion in cows; also as a disinfectant?

Answer—"Abortion is a terrible disease. In my travels I find it prevailing throughout the entire Union at a loss to the farmers of many millions of dollars. I am glad that a remedy has been found. I speak from personal knowledge and the knowledge of such men as Congressman Wilber, Senator Brown and McLaury Bros., all of whom are extensive breeders of fancy cattle, and many more who are using the remedy with perfect success. One man at my place had eleven cows abort; sent and got one gallon of Antiaborsio which stopped it at once. About six weeks ago I met Henry L. Wardwell (an importer of fancy cattle) at a meeting in New York City of the Jersey Cattle Club. He announced at the meeting that he had used this remedy and that it had proved a perfect success. In my travels I have met many that have used it, and to my personal knowledge do not know of a single failure. If there is one in this room who has used it and found it to be a failure, please arise." No one arose. "I have used this remedy and found it to be a perfect success, and am now using it in my poultry house as a disinfectant. Everybody should use it and it should be universally used throughout the United States.

I do not own any part of this remedy and am not interested in it in any way except in the interest of the farmer."

IS YOUR HAIR TURNING GRAY?

What does your mirror say? Does it tell you of some little streaks of gray? Are you pleased? Do your friends of the same age show this loss of power also?

Just remember that gray hair never becomes darker without help, while dark hair rapidly becomes gray when once the change begins.

Ayer's Hair Vigor

will bring back to your hair the color of youth. It never fails. It is just as sure as that heat melts snow, or that water quenches fire.

It cleanses the scalp also and prevents the formation of dandruff. It feeds and nourishes the bulbs of the hair making them produce a luxuriant growth. It stops the hair from falling out and gives a fine soft finish to the hair as well.

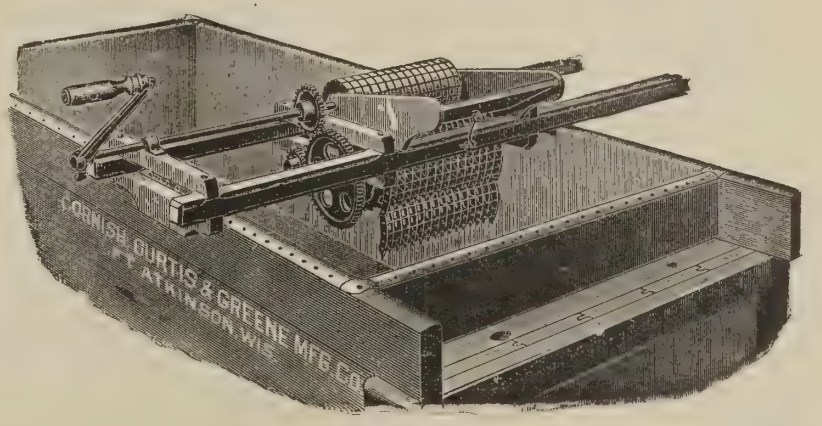
We have a book on the Hair and Scalp which you may obtain free upon request.

If you do not obtain all the benefits you expected from the use of the Vigor, write the Doctor about it.

Address, DR. J. C. AYER, Lowell, Mass.

SHORTHAND Book-keeping, Penmanship, 64-page Illustrated catalog free. Board and tuition reasonable. Situations for Graduates. Address, D. L. MUSSELMAN, President, Gem City Business College, Quincy, Illinois.

Kasper Rotary Curd Mill.



The demand for a large capacity curd mill for cutting curd into cubes has induced the inventor to bring out the Kasper Mill. In construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves with indentation to fit the knives of the cylinder; the curd being fed into the hopper is forced through the openings in the cylinder by the wooden roll. The cylinder is made in three sections hung on hinges, and, as it revolves, each section as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from 7 to 10 minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability and ease of cleaning are some of its principal features. All parts being galvanized or tinned prevents rusting. Weight of the machine complete is about 38 pounds. List price, $25.00

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making

Agents for DE LAVAL ALPHA SEPARATORS.

The General Purpose Cow.

A Competent Witness Describes Her.

In a personal letter to one of the editors, a friend out in Oregon writes as follows:

"It is about time some of us acknowledged the receipt of favors from you, in the shape of the DAIRYMAN. Now, I am no dairyman, as you know,—would not know a dairy if I should meet one in the road, unless it should be riding in one or those fine dairy wagons advertised in said paper, yet I enjoy reading much of its contents.

I was much interested in the discussion pertaining to the dual or general purpose cow, but it is clear to me, that none of your correspondents have yet struck upon the true type of said animal. I once knew a man in Texas, who possessed a sure-enough general-purpose cow. This man, during the few hours he could spare from hunting, fishing, and talking politics at the village saloon, cultivated a small patch of cotton, a little corn and a few potatoes, and as he owned no horse or mule, he utilized the cow for plowing the ground and keeping down the weeds. When his wood pile needed replenishing, he'd hitch the cow to the cart, and haul up a "jag" or two, and when the roads were muddy, he'd saddle and ride her to town.

In the meantime, the cow would furnish milk, butter and buttermilk for the family, and hunt her own forage on the range. More than this, when this man would go to Arkansas to see his "wife's kinfolks," which was upon the arrival of each new member of the family, the cow was used as motive power for the trip.

This cow had no pedigree, but was bristling with points—points that you could hang a hat upon. She also had stomach capacity, and an unsatiable appetite. She would climb oak trees for the leaves and branches. If she had such a thing as a pelvic arch, she did not know it; while there was never an escutcheon in the family, and if one had been offered her she would not have known what it was or where to put it.

She was, in fact, just a plain, everyday, Texas long horn; a jack at all trades, and master of none; was of but little use for milk, a poor substitue for a horse and of little value for beef—a mere makeshift in any capacity. But this style of cow is now out of date, a back number, and will soon be heard of no more in the land."

The illustration on another page in this issue, confirms the conclusion of our correspondent, by showing that even in Texas there are true special-purpose dairy cows, and the neighboring Republic of Mexico is to be congratulated upon securing such animals as are there depicted.

What Made the Silage Spoil?

ED. HOARD'S DAIRYMAN:—On opening my silo, 12×28, last July, I had to throw out about twelve or fourteen feet of ensilage before my cows would eat it. Around the edges it was rotten, soft towards the center. It was sour, but had a good color. It smelt very bad. This year it was the same way, but not so deep. I threw out five or six feet before ensilage was good. My corn was all right when I put it in. The first time I filled it I began on Saturday and finished on Monday; last year I filled it in one day. I had two and three men in silo at time of filling. We tramped the edges only. I wet the top thoroughly after I finished and would tramp it down every day or two.

I am confident it is not the fault of silo. Silo is stave, tongue, and groove, and will hold water. My larger silo, 16×34, keeps ensilage perfectly. Some little spoils around the edges for three or four feet, but after that it is as good against the stave as in the middle. My silos are exactly alike. Would like to know what you think the trouble is.

Dickerson, Md. N. W.

Of course, if the two silos were treated exactalike it is impossible to say what caused so much waste in one, when there was so little in the other. The only explanation we can think of is that the wetting applied so soon after the silos were filled, reduced the temperature in the small silo more than in the large one. Had the wetting been delayed for a day or two, or until the top layer was heated up to about 120 degrees, perhaps the result would have been different. The extra tramping after filling, might have been injurious in a similar way. We do not think it advisable to break up the "sealing" on the surface.

Using a Separator.

ED. HOARD'S DAIRYMAN:—In your issue of August 11th, F. S. Combs, of Annapolis, Md., asks for information in regard to the richness of the milk. As to the first I am unable to say.

2. His speed is too low or the skim milk outlet is partly closed by improper cleaning.

Do not tamper with the float or other adjustment. See that all tubes leading in and out are clear and you will have no more trouble with your cream if the proper speed is attained.

As to a cow's giving richer milk in the morning than at night, I believe to be because she gives a little more milk at night than morning, the amount of butter being the same. It is so with me. A. READER.

Zenobia, Ill.

Cut or Shredded Ensilage.

The shredder has come into very general use as an implement for chopping up dry corn fodder, and is largely superseding the fodder cutter. Dry stalks when torn into long, thin shreds are much easier to handle than when cut up fine. It is the general belief that cattle eat the stalks better when shredded than when cut. The square, sharp edges of heavy stalks which we get in cutting are avoided, and cattle do not get sore mouths from the shredded fodder, as they occasionally do from eating cut stalks.

E. S. Powell, in the *Country Gentleman*, says shredded fodder makes much better bedding, because it is softer and longer. Cattle do not eat the shredded stalks any cleaner than when they are cut fine. At least such has been my experience, continues Mr. Powell. What they refuse to eat is better for bedding, and is easily swept out behind the mangers. But for putting the corn into the silo, I like the cutter much better than the shredder. Last fall we tried the two methods. In one 190-ton silo the corn was cut into half-inch lengths. An eighteen inch cutter with an eleven-horsepower engine and a fifty foot carrier handled the corn easily, and as fast as four men could work on wagons and round the machine. After filling this silo we swung the carrier round to another silo of the same size, and put in the shredder head in place of the knives.

While the engine had an easy time of it before, we found that with the shredder it required all the power available, and greater care in feeding so as not to stop the machine with a big armful, which would have gone through the cutter with only a groan. The shredded corn came out so loose and light that it was necessary to put a third more speed on the carrier in order to take care of it.

The shredded corn filled up much faster, but after the second day's work it seemed apparently to settle as fast as we kept putting in. As there were no scales on the place, and we did not have enough corn to fill this silo full, there was no way of closely comparing which of the two methods would allow the most corn to be put in the silo. But figuring it out from the number of loads and the acreage, none of us could see that one method had any decided advantage over the other in this respect. I have heard it stated that a silo would hold one-third more of shredded than of cut corn, because the shredded corn would settle firmer; but from our experiments, I doubt if there is as much as ten per cent difference, if there is any, in actual results.

The shredded ensilage was opened and fed first. There was less of it spoiled on top than of the cut, but not enough to make much difference. This was undoubtedly due to the fact that the one silo was opened in November and the other in March. The shredded ensilage we could handle nicely with a fork; so we could the other, if the tines were close together. The shredded ensilage does have an advantage over the cut in handling, but that is the only advantage we could see for it. The feeding is the crucial test, and in this the cut ensilage was superior. It was sweeter and brighter in color, and the cattle ate it with less waste. The long, fine shreds of the heavy stalks were not eaten as clean as the cut pieces. For dry fodder, I think the shredder is to be preferred; but for ensilage, I much prefer to use the knives.

FILLING THE SILO.

We have found that the riper we can get the corn before putting it in the silo, the better we like it when it is taken out. Last year we had some experience with frozen corn—our first since we built a silo—and we do not fear a frost nearly as much as we formerly did, as the frozen corn came out apparently in good condition, and we feel that we would risk some frost rather than to cut too green.

We have always cut our corn with the sickle, and so long as we can get men at a reasonable rate, we think it will pay to do so. Four men will cut and load three acres of corn in a day. We have been paying seventy-five cents per day for this work, and we think this is cheaper than it is being done with the harvester. We prefer steam power for driving the cutter, as it is very steady, and we think cheaper than horse power.

We always keep a good reliable man in the silo when we are filling, to keep the corn evenly mixed and spread and to tramp it firmly in every part, especially the corners. To assist in mixing we place something in front of the carriers to catch the corn and let it drop straight down. In this way we get it very nearly right, while if it is allowed to fly from the carriers, the heavy part will go to one side of the pile and the light to the other side. We prefer to put in the corn continuously until the silo is full, then to wait three or four days and fill up again and afterwards to put on a few pails of water and tramp thoroughly each day for a week. The corn will then form as good a covering as is required and we think cheaper than anything we could get on, the waste will not be more than from two to three inches deep over the surface of the silo. It is best to allow the silage to settle for a time, say a month or more, before commencing to feed, although we have fed right along from the time we quit filling. The cattle ate it all right, but we found as we got down to where it was properly cured it was much better. This winter we are cutting hay and straw and mixing it with the silage, a meal ahead, letting it get a little warm before feeding, and so far we are well pleased with the result, feeding meal with it to the milking cows only, the dry cattle doing very well without any other grain than the corn in the silage. You will be pleased with the result if you save a quantity of silage to feed when the pasture fails, say in July and August, and up to the time the corn is ready to put in the silo. We have done so for years now and we get better returns from this method of feeding than from any other we have tried. The cows are very fond of it and are doing well and it is always inside and ready; no hunting for feed in a storm. The silo may be constructed of different forms, and of any material that will combine strength with a texture sufficiently close to exclude air. We think the circular form is the ideal one for ease in packing and preserving qualities; there being no corners in it to require special care in filling, every side presents equal conditions for settling and pressure.

There may be circumstances when it will be advisable to make what is commonly called the square silo, to fit a certain part of a building or to save space. Then I would say, go ahead, build your silo square or oblong to suit the corners. Be particular in filling the corners when putting in the corn, and you will be safe. There are two things to bear in mind when constructing a silo. The silo must be as nearly air tight as possible, and there must be sufficient pressure on the silage to drive out and exclude the air from the cut corn. Right here let me ask you to think of the condition of the corn as it is dropped into the silo and spread about. It is fresh and green, every part with a straight cut edge, and pack as you will there is a very large part of the space occupied with air, something we must get rid of before we can preserve our corn. How are we to do it? We supply the conditions and nature's law does the rest. The necessary conditions are pressure—continuous pressure; the very air that permeates the freshly cut corn assists in its own expulsion by uniting with the elements of the corn and starting a chemical action which causes heat and the air being expanded is forced out. At the same time the corn is softened so that it settles together much more closely than would be possible without this softening process and we believe the corn is at the same time made more digestible by this process. So here the farmer is as usual working hand in hand with nature, making use of nature's law to accomplish the purpose he has in view. Now we must have our pressure ready to act constantly, forcing down and closer together those particles of corn and when this is done our silage cools down and as long as those conditions are maintained our silage is soft. We now see the necessity of pressure and the modern way to get it is to build a deep silo and fill it to the top; and when we say a deep silo we mean not less than twenty-five feet and up to thirty-five feet: Our own silo is twenty-eight feet deep and is giving good results. I do nor think a silo less than twenty-five feet in depth would be satisfactory.—JACOB BRAY, in *Prairie Farmer*.

SAVE THE WHOLE CORN CROP

A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through our

JANNEY COMMON SENSE Corn Husker and Fodder Shredder



There can be no dreaded "corn stalk disease" where fodder is prepared with our machine. You can make a great deal of money husking for neighbors. Costs less than a third as much as a thresher, but makes more money. Write for catalog.

It husks out all of the corn clean, and shreds all the fodder at the same time. Makes clean, healthful food, as the patented screen in the feed elevator takes out all the dust, dirt, smut, etc.

Go to your nearest dealer and see one.

JANNEY MANFG. CO., Box 29, OTTUMWA, IOWA.

Will it Pay to Build a Stave Silo.

ED. HOARD'S DAIRYMAN:—I have about twenty-five head of cattle, including two horses, three or four cows, a lot of two-year-olds and several calves. I have in sight to feed them through the winter, eight acres of oats, about ten tons of oat and pea hay, ten acres of corn, and a quarter of an acre or so, of turnips and mangels. If possible I shall sell some of the oats and corn, Now, would you advise me to put up a *temporary silo*, as I stay on this place only until spring? Will I run risk of losing any considerable part of the siloed fodder—any more risk, that is, than I would run by cutting up and husking in the usual way? My plan is to make a stave silo over a ten-foot hole in the ground, the hole to be uncemented or lined in any way, the silo so made that it may be taken apart and moved (except the hole) to my future home next summer. Is there much loss by freezing in a simple stave silo made outside of any building.

I read often "don't cover the silo." Does that mean no roof at all? Wouldn't rain and snow be a damage and a nuisance? G. L.

Adams, Wis.

We would not advise building a silo for a single season's use, but if the new location in this case is not too far away, we think it would pay to build the silo for the present season and then move the material to the new home.

Experience has shown that freezing does not materially injure silage.

"Covering the silo" is a misnomer for covering the silage in the silo. It used to be thought indispensable to cover the silage with chaff, or green swale grass, or something of that kind, but now as a rule farmers run on some of the corn from which the ears have been removed. Of course some of the top will spoil, but the green cornstalks make about as cheap a cover as one can get. There should be some sort of a roof over the silo. For temporary purposes a few poles across the top covered with straw or marsh hay or anything that will keep out rain and snow, is all sufficient.

An Independent Veterinarian and His Theory of Tuberculosis.

Dr. Edward Moore is a veterinarian who, after long years of notable success on both sides of the sea, has suddenly acquired greatly increased prominence by disputing the commonly accepted belief that tuberculosis is communicable from beast to man. He first publicly attacked this belief in a paper

presented last spring to the Albany County Medical Society, and noticed in these columns at the time; and he has more recently, by an address before the Assembly Tuberculosis Committee (which we printed last week), urged on that body the necessity of great caution in taking for granted that it has been proved that human health is endangered by using either the milk or the beef of tuberculous animals; in fact, he went so far as to predict that it will be found that "where cattle tuberculosis is plenty, human tuberculosis is so rare as to bear no relation to it; that while you are in the thick of bovine tuberculosis, you are practically outside the consumptive belt." If the germ was originally identical, he believes that it has been so modified in each case that it can live only in man, or only in cattle, as the case may be, and dies harmlessly when transferred from one to the other. Everybody must earnestly hope that this view will ultimately prevail. If it does, Dr. Moore will rank as the pioneer in correcting a widespread and most injurious error; and it should be understood that his opinion is entitled to immense weight, considering that he was studying the disease before some practitioners of the present day were out of their cradles, and insisting strenuously on the necessity of isolating infected animals and disinfecting their surroundings, before many people knew anything about tuberculosis in cattle at all, or entertained the faintest suspicion that it was "catching" among the animals of the herd.—*Country Gentleman.*

Weaning Pigs.

A few days before weaning time we are not so particular to have the sows full fed on milk making foods, but are careful not to have them run down in flesh. Dropping off the soft feed, bran and middlings, and adding corn will do this.

Before weaning, the pigs should be well started on pastures of good quality, blue grass or clover both will work no injury. If the sows can be limited on the amount of pasture for a time it will hasten the drying up of the milk. If the milk flow is partially checked before the pigs are taken from the sow it will be much better for the sows, and the danger from caked teats reduced to a minimum.

When separated, leave the pigs in their old runs, and the same troughs, and put the sow in a dry lot or shed. Keep them separated for twelve hours or a day, and not longer the first time, or the pigs may lose their taste for fresh milk and refuse to suck, at the risk of injury to the sows.

Leave them together but a short time and then separate again for twenty-four hours. After this there will seldom any harm result to the sows if the pigs do not suck any more.

While the sows are shut away from the pigs their feed should be a little dry corn with plenty of good, fresh water. If in good shape when returned to pasture they will not need grain in any form.

Before weaning, the pigs should be up to full feed, so that when taken from the sows there will hardly be a perceptible increase in food necessary. The management here pointed out will carry the pigs over this important time without a check in growth.

JOHN M. JAMISON, in *Ex.*

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, was exceedingly light, only two lots aggregating 6,120 pounds being placed on sale. Bidding opened at 21 cents and both sales were at that figure. The quotation committee, however, announced the market active at 20 cents. The sales reported were:

	Pounds.	*Price.*
Darinda	3,000	21c
Dundee	3,120	21c

The markets for the corresponding week of the three preceding years were as follows:

August 22, '98, 10,680 pounds of butter sold at 18c.
August 23, '97, 12,420 pounds of butter sold at 18½c.
August 24, '96, 49,320 pounds of butter sold at 17c.

The New York market, Monday, was reported steady at 21 cents.

The dairymen of Elgin, Carpentersville and Algonquin have prepared a statement showing the cost of production and the inadequate returns for milk, and after it is signed will forward it to the officers of the Borden Condensing Company asking a conference with a committee before the next contract price is fixed. It is hoped that the organization may result in better prices for milk. Some farmers say that there is absolutely no profit to them under present conditions and should prices not advance they will sell their herds and devote their energies to agriculture, pure and simple. H. C. B.

Elgin, Ill., August 21st, 1899.

DAIRY MARKETS.

ELGIN, Ill., Aug. 21—There were 102 tubs offered; all sold at 21c; committee reported market active at 20c.

CHICAGO, Aug. 21—Butter—Creamery, extra 20c; firsts, creameries 18@18½c; seconds, 15½@16½c; dairies, selections, 17c; No. 1 14c; No. 2 13c; extra ladles, 13½@14c.

Cheese—Full cream, Twins, new, good to choice 9¼@9½c; Young America, 9¾@10c; Swiss, 8@10½c; Limburger, 7@8½c; bricks, 8@9¼c.

Eggs—Fresh, at mark, cases returned, sold at 10½@11c; loss off; cases returned 12½c.

Bran—Offerings small. A car sold billed through at $10.50 per ton.

Cattle—All desirable corn-fed cattle sold actively, with average prices about 10c higher. The best grass Westerns also shaded higher, while undesirable natives and westerns were barely steady. Canning and butchering stock ruled steady. The general trade was active and a good clearance was made. Two loads of 1,633-lbs Short horns sold at $6.60, the highest in many years, and the highest for August since 1884. Two loads of 1,409-lb steers sold at $6.50. Six loads of 1,408-lb corn fed western steers sold at $6.35. Most of the native steers sold at $5.40@6.15; grass western steers sold at $4@5.25; grass western cows and heifers $3.25@4.70, and straight grass Texas, $3.65@4.60 for steers and $3.50 for cows.

MILWAUKEE, Aug. 21—Butter—Creamery, Fancy prints, per pound 20½c; extras 20@20½c; firsts 18@19c; seconds 16@17c; imitations per pound 16@17c. Dairy, selections per pound, 15@17c. Market unchanged with receipts of 6,597 lbs. and a fair trade.

Cheese—American full cream, new, choice to fancy 9@9½c. Brick, new, per pound, choice, 8½@8¾c. Limburger, new, choice, per pound 8½@8¾c. Swiss, New Drum, choice, 10@10½c; Block choice 10@10½c; No. 2, 9½@10. Market steady, receipts, 880 lbs.

Eggs—Fresh, per doz. 11½@12c; loss-off cases returned. Market steady; receipts 294 cases.

FOND DU LAC, Wis., Aug. 21—Offerings 730 Twins and 750 Daisies; demand good, Twins at 9½c, Daisies 9¾@10c.

MUSCODA, Wis., Aug. 21—Offerings to-day 1,422 boxes cheese; market firm; Twins 9⅜c: Daisies 9⅞c.

BALTIMORE, Md, Aug. 21—Butter—Firm. Creamery Separator, extra, 22c; extra first, 20@21c; creamery firsts, 19@20c. Creamery Imitation, extras, 17@18c. Ladle extra, 16c. Western store-packed, 12½@13c.

Eggs—Market firm. Strictly fresh stock, 14½@15c.

ST. LOUIS, Mo., Aug. 21—Butter—Firm. Creamery 17@21c; dairy, 13@17c.

Eggs—Steady; 12c.

BOSTON, Aug. 21—Butter—Creamery, extra, 21½c; western extra, 21c: dairy extra, 18@19c, Imitation creamery, 15c; Western ladle, 14c; print creamery, 22c; box creamery, 21c.

Eggs—Fancy near by 21@22c; choice, fresh, 17c; Michigan extra, 16c; western, 15@17c; fair to good, 14c.

KANSAS CITY, Mo., Aug. 21—Butter—Creamery, 17@ 9c; dairy, 15c.

Eggs—Fresh, 11c.

NEW YORK, Aug. 21—Butter—Creamery, western extra, 21c; firsts, 20c; state extras, 20½@21c; firsts, 19½@20c.

Cheese—State, full cream, large or small, colored or white, choice, 9@10c.

Eggs—State Pennsylvania and western, 17@18c.

PHILADELPHIA, Pa., Aug. 21—Butter—Solid packed creamery, extras, 21c; firsts, 20c; prints, fancy, wholesale, 22c; jobbing, 23@27c.

Eggs—In fair request and firm with moderate offerings of fine fresh stock. Western choice, fresh in free cases, loss off 15@15½c: fair to good. 12@13c.

BALTIMORE MARKET.

BALTIMORE, Aug. 17—Butter—Before the opening of business in this line of goods on Monday morning, the atmosphere was ominous of some disturbance to take place presently in prices, and it was obvious that no purchases of moment would be made, at least of extra separators, at the figures of the previous week; therefore as all the buyers were arrayed against an advance, and all the receivers convinced that there was an enhancement of values based upon substantial reasons, the selling was pretty much confined to supplying the needs only of the day. On Tuesday, when the higher prices had become an accomplished fact, to a certain extent, not, however, to the degree experienced elsewhere, there was more disposition manifested to procure some of the highest grade on the market, before the full force of the general movement would have its effect here; so there was a gentle selling going on, and is now progressing at conservative prices, but to an extent in happy relief of, and sharp contrast with the lazy condition noted in our last issue. It is believed now, that this upward movement marks a permanent advance, or, at least, of sufficient duration to permit an unloading, and if the exporters can continue their orders at the new quotations, there should be a healthy clearing out of summer goods, and encouraging inroad made upon the accumulations of June makes in the freezers. The price fixers in this country heretofore, almost invariably, have not recognized the best thing when they have had it, but have grasped for more money at the risk of cutting off the demand, and have succeeded in accomplishing the latter. Will it occur this year? Gathered cream creameries, imitation and high grade ladles have felt the movement some, but it is not reflected so much in the values; the benefit is rather in the fact that the selling has been rendered easier at about old valuations, and old lots have been gotten rid of that were awful slow sellers. Of store-packed the receipts have been light with grading poor, but for a' that the demand has been active.

Creamery Separator, extras, 20½@21c; firsts, 19½@20c; seconds, 18@19c. Gathered Cream, extras, 18½@ 9c; firsts, 17@18c; seconds, 16c. Ohio, extras, 18½@19c: firsts, 17@18c; seconds, 16c. Imitation, extras, 16@17c; firsts, 15c; seconds, 14c. Iowa & N. W. Ladle, extras, 15c; firsts, 14c; seconds, 13c. Ohio & Indiana Ladle, extras, 15c; firsts, 14c; seconds, 13c. Ohio Storepacked, extras, 12½@13c; firsts, 12c. W. Va., extras, 12½@13c; firsts, 12c. Creamery Blocks (2 lbs.) extras, 23c; firsts, 22c; seconds, 21c. Creamery Prints, (½ lb.) extras, 23c; firsts, 22c; seconds, 21c. Md. Va. & Penn. Prints, extras, 19@20c; firsts, 18c; seconds, 16@17c.

Eggs—Our market rules firm and strong under continued light receipts. There is a quick demand for all choice to fancy stock, and supplies of this kind are kept well cleaned up at full prices, 14@14½c. Stock of doubtful quality is not so eagerly sought after.

Cheese—Receipts of cheese continue rather light; demand good for the season; market firm as quoted:

New York State Cheddars, fine, 10@10¼c; choice, 9¾@10c: fair, 8¾@9c. Flats, fine, 10½c; choice, 10@10¼c; fair, 9@9½c. Small, fine, 10¾@11c; choice, 10¼@10½c; fair, 9¾@10c. Ohio Flats, fine, 9¾@10c; choice, 9¼@9½c; fair, 8¾@9c. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 9@9¼c. Swiss Cheese, fine, 12@13c; choice, 11@11½c; fair, 10@10½c.

301 Exchange Place. G. M. LAMB & BRO.

MANCHESTER, ENGLAND, MARKET.

A very firm market prevails at Copenhagen. English prices have risen 3s to 4s. Free on board orders for this week's shipments are very large, so that an absolute scarcity of butter is bound to ensue before shipments are ended. An advance of the official quotation was inevitable. It is now wired four kroner higher. Copenhagen says the advancing movement is likely to continue. Irish Centrifugal Creameries have followed the Danish rise. Several creameries are holding their produce to benefit by the advance. This is a most mistaken policy. No rise in price will compensate for the deterioration of overheld or badly kept butter. The quality and reputation of such creameries must suffer. As much as four kroner over top has been paid for some Danish dairies. The last advance in quotation will help to stop the over-prices. Irish firkin butter and factories share in the rise. It is estimated 250,000 packages are stored in New York in private and public cold stores, or about 20 per cent more than last season. Continued advances in Europe would soon help to bring the surplus American butter to this side. Present quotations for Danish are about 25s higher than at th corresponding period of last year. Trade is however good in Europe and in America and a brisk demand prevails. A change in the weather would probably damp the ardor of speculators, and with a large surplus in America and the part that margarine and process butter can play when prices go too high will act as a modifying influence. 20,941 casks of Danish and Swedish are crossing for next week, being 566 casks increase, and 1,711 casks Finnish, being 205 casks less. Arrivals of margarine via Hull, 10,248 packages, and via Grimsby 5,475 packages.

DOWDALL BROS.

DOESN'T WANT HER NEIGHBORS TO REPEAT HER SEPARATOR MISTAKE.

BALATON, Lyon Co., Minn., July 24, 1899.

(Copy).

THE DE LAVAL SEPARATOR CO.,

Chicago, Ill.

Dear Sirs:—Will you please send your catalogue to Mr. James Hall, Mr. John Murphy and Mr. Brown, all our neighbors, who keep a good many cows and need separators very much. I don't want them so badly sold as I was when I got mine four or five years ago. I was persuaded to take a ——— separator and I regretted it when the first milk went through. If we were able, we would set it aside and get a "Baby," but we cannot do it at present. We hope to find some way to get one in the near future.

Send catalogue to above names at Balaton, and also one to Ernest King, Heron Lake, Jackson Co., Minn., and oblige,

Yours very respectfully,

Mrs. E. A. GLATFELTER.

If any intending separator buyer will take the trouble to send for a De Laval catalogue and briefly study the illustrated differences of system between the "Alpha" disc and other separators, he will not be likely to make such a mistake.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	NEW YORK.	PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Man and wife, no children, for small dairy farm: clean and experienced milkers. State age, wages expected, nationality, and give references. WM. J. HOFSOMMER, Breese, Ill.

Wanted to hire a good substantial and reliable farm hand. Middle aged and single. J. B. SHATTUCK, Cherry Creek, N. Y.

Wanted—A dairyman to take charge of from 30 to 50 cows. Location healthy. Comfortable house. Married man perferred. Address J. H. MINGE, Faunsdale, Ala.

Wanted—At Meramec Highlands, St. Louis County, Missouri, an experienced dairyman milker. Man with a family preferred. Wages $30.00 and house rent. Also wanted, an experienced, well equipped farmer, who might do dairy work during the winter, or man with a family of grown children to combine, both preferred. Address, MERAMEC HIGHLANDS CO., 208 N. Fourth St.. St. Louis, Mo.

A buttermaker that is willing to milk and also a competent man in feeding stock can get a steady situation. Wages to buttermaker $25.00 per month; helper $20.00 per month, year round. Reply and send references to JAMES N. NORGAARD, Wolcott, Col.

Wanted—A good Jersey breeder, feeder and dairyman for small Jersey farm. Must be a good buttermaker. Write stating age, health, competency, experience, references, etc. SPRINGSIDE JERSEY FARM, Denton, Tex.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Wanted—An expert Northern dairyman, graduate of Wisconsin Agricultural College, and of life-long experience, wants position in charge of southern dairy farm. Will work for salary or on shares, and furnish A No. 1 references. Address E. O. THORSGAARD, Streator, Ill. 26-3

Wanted—A man with family, honest and industrious, to take charge of a 250-acre farm, well improved, with dairy attached, for an interest in profits. A fine opening for the right man. Must come well recommended. Good market for produce. Can sell any quantity of sweet milk at 20c per gal., buttermilk 10c per gal., and butter 25c per pound. For particulars address J. O. THURSTON, Bartlett, Tenn.

Wanted—An able bodied man and wife to work on and have charge of a stock and dairy farm. Address "A. B. C.," General Delivery, Quincy, Ill. 28-2

A Bargain—Ten head of registered Holstein-Friesian cows, butter bred and tuberculin tested. Price, $700.00. For particulars write L. C. MORSE, Sparta, Wis. 28-2

Wanted—A position by an experienced buttermaker. Best of references. Can accept position Oct. 1st. ANTHON STOKKE, Stoughton, Wis.

Auction of Guernsey cattle on Sept. 20th, on farm of GEO. D. TELFER, near Fort Atkinson, Wis. Watch this column for more extended notice. 28-2

For County Fair, Woodstock, Ill.—The North-Western Line will sell excursion tickets at reduced rates, August 28 to September 1, inclusive, limited to include September 2. Apply to agents Chicago & North-Western Railway.

Very Low Rates to National Encampment, G. A. R. Philadelphia, Pa., Sept. 4 to 9, 1899, via the North-Western Line, from all stations, excursion tickets to be sold to Philadelphia, Pa., September 1, 2 and 3, only for trains arriving at Chicago September 1 to 4, inclusive. Apply to agents for full particulars. 28 2

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates, from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

A Cheese Instructor's Report.

Sample of Work Done by the Wisconsin Dairymen's Association.

GEO. W. BURCHARD, SECRETARY.—Sir:—Inclosed you will please find report of my visit to the ——— factory, along with a duplicate copy of my tests of the milk of that factory.

The original copy has been pasted on the intake door of the factory. I have given all milks at all factories careful and thorough tests all this season, and usually have the results with me at our evening meeting of the patrons, explaining the terms "lactometer reading, and specific gravity" and so on, so that they thoroughly understand just what we are getting at.

I could not possibly get a meeting at the ———factory, as two threshing outfits are at work among the patrons and they could not well come out. I found the ———factory spraying their cheese with formalin to prevent mold, they were not using it every day, and rather slack when they did use it, so were not deriving much benefit from its use.

Mr.——of—— ——factory told me he had been using it extensively in his basement curing room with very gratifying results. He not only sprays his cheese but has jars of the formalin sitting under the curing tables.

I do not approve of it, and do not advocate its use, I very much prefer the burning of sulphur in small quantities or using a solution of borax in the cheese hoop. Still better is an opening in the lower part of the curing room with a ventilator shaft to create circulation, and the generous use of good washing powders with scalding hot water on ceilings and curing tables, or if lathed and plastered, a fresh coat of whitewash.

I am bound for the Popolar factory, of Sauk Co., and from there to South West Wyoming factory, of Southern Iowa Co. This will use up the week as the drives are long, hard ones.

I met Mr. Adolph Schoenman, of Plain, Sauk Co., this evening and he is planning for another big meeting of his patrons next October. He will get out special printed invitations to each of his eighty patrons and and their families, and has booked your humble servant for the address of the evening. I should be pleased to have some member of the Executive Committee, of the Dairymen's Association, present at this meeting if possible, so that he may tell the members at their next annual meeting, something of these evening meetings of the patrons of our Wisconsin cheese factories. I am not quite sure that you can read these lines but I am momentarily expecting the freight east and have written hurriedly. U. S. BAER.

Why Creameries Differ in Prices Paid to Patrons.

ED. HOARD'S DAIRYMAN:—This question is discussed quite carefully by a contemporary, but in the conclusion drawn, one of the main reasons has been overlooked. For a few years I have tried to study this question from various aspects, right on the ground, from actual observation and investigation. My observations were, of course, very limited, and much remains to be done yet before I feel safe in drawing definite conclusions, but under one set of conditions I always found a corresponding result.

Let me illustrate by a few examples. I visited Mr. Jones' creamery and introduced myself by telling him I was not a revenue officer nor a tax collector nor yet a drummer, but simply a dairyman in quest of knowledge.

It was a co-operative creamery and Mr. Jones was manager. He was a very intelligent man and made my stay very pleasant. A wiry little fellow was the butter maker, who had intelligence enough to command $75 per month, while strapping big fellows were offering their services for $40. I met the board of directors and what do you think, they really had a few books on co-operation and also some bulletins on the same subject. They were intelligent, up to date people.

I met most of the patrons who were, with few exceptions, quite intelligent, all readers of some up-to-date dairy or agricultural paper, and knew how to produce good milk and deliver it to the creamery in a good condition. Those were a few of the conditions, and what were the results? Butter was then quoted in Philadelphia at twenty-four cents.

The patrons were paid twenty-three cents per pound of butter fat, besides I was told that unless extra expenses were incurred quite a handsome quarterly dividend was made. The butter was of such a quality that there was a demand for it, nearly all of it was contracted for at an advance.

As nearly as I could learn, and I could come very close, as everyone was ready to cheerfully give information, the patrons realized from butter alone on an average $51.00 per cow per year. After completing my memorandum and notes of this enjoyable visit, I wrote below: "This creamery is a financial and moral success, and the whole secret of the success is intelligence, *intelligence*, INTELLIGENCE. The people who produce the milk are intelligent, so are the manufactures the sellers and the buyers of the butter." Not fifty miles away I visited Mr. Smith's creamery. Mr. Smith was the owner, the manager and the butter maker. He did not know good butter from bad and was so suspicious that I had much difficulty ascertaining any facts I desired, still I learned first that he was a "conceited ignoramus" and asserted that he knew all about the business.

He was paying sixty-five cents per one hundred pounds for milk. He was getting (quotations were same as before) twenty-one cents for his butter. This I only learned through his "cussing" the commission merchants. He said they were a set of swindlers and never paid what they quoted. The patrons were of the same stripe, ignorant, suspicious and selfish.

Did they read a dairy paper? No, some of them read the "Snideville Snider" and that cost a dollar and they could not afford to spend more money on papers, With the greatest difficulty I learned the number of cows and got the figures from milk sheets, all daubed and greased up to make them quite illegible. But after I had patiently listened to the patrons denouncing the creamery owner as a fraud, and the creamery owner denouncing everybody but himself as a cheat, I came close enough to actual figures to be sure that the patrons of Smith's creamery realized on the average not more than $24 per cow per year and possibly a little less. Everybody said it don't pay and if they told the truth in anything I felt sure this was only too true.

Poor, ignorant, superstitious owners of poor cows bringing a poor quality of milk to an ignorant creamery manager, who makes a stuff that must be sold at a sacrifice to poor, ignorant buyers. At the bottom of the notes on this creamery appear three words in large letters. Failure from ignorance.

L. W. LIGHTY.

Patrons' Bulletin.

The following is the report referred to in Mr. Baer's article, on this page:

Factory. AUGUST 15, 1899. Factory.

BABCOCK MILK TEST.				WISCONSIN CURD TEST.		
No. of Sample.	Butter Fat Test.	Lactometer Reading, Specific Gravity.	Yield of Green Cheese per 100 Pounds of Milk.	Flavor.	Texture.	Remarks.
1	3.50	1.0304	9.35	Good.	Good.	Clean, solid-bodied curd.
2	3.20	1.0304	8.89	Good.	Good.	Close, meaty curd.
3	3.00	1.03	8.71	Fair.	Soft, mushy	Few pin holes, old musty flavor.
4	3.80	1.0314	9.94	Fair.	Fair.	Close body, weedy flavor.
5	3.80	1.032	10.08	Bad.	Poor.	Barnyard taint, full of gas.
6	3.50	1.0278	9.09	Fine.	Fine.	Splendid good curd.
7	3.40	1.0309	9.32	Good.	Good.	Good, firm body.
8	3.60	1.0309	9.63	Fair.	Fair.	Mushy, sticky textured.
9	3.40	1.031	9.33	Fair.	Fair.	Close body, but too soft and pasty.
10	3.20	1.0286	8.62	Fine.	Fine.	Nice, clean, firm body.
11	3.60	1.0298	9.60	Fair.	Good.	Slightly tainted with weeds.
12	3.90	1.0305	9.97	Bad.	Poor.	Very gassy, spongy, strong bitter flavor.
13	3.70	1.0297	9.52	Bad.	Spongy.	Very gassy, very badly tainted.
14	....	.....	....	.....	.....	Did not haul on this day.
15	3.50	1.0312	9.48	Fair.	Fair.	Showing some small gas holes.
16	3.70	1.031	9.78	Fine.	Fine.	Good textured curd.
17	3.60	1.032	9.77	Bad.	Bad.	Very gassy, floating, spongy curd.
18	4.00	1.032	10.39	Fine.	Fancy.	A perfect curd in every way.

NOTICE:—Nos. 5, 12, 13 and 17 milks will not yield the cheese credited to them above, because of the bad flavors and gassy fermentations which they contain. Where cheese is made from such milk the cheese maker is compelled to develop the maximum amount of acid, cook to the limit and resort to extreme measures in the process of manufacture, all at the expense of quantity as well as quality.

READ THIS!—Acid dissolves curd, causing a loss of solids; therefore 100 pounds of bad milk will not only ruin the flavor of a vat of 5,000 pounds of good milk, but will also make less cheese per 100 pounds of milk. That cheese maker does not exist, and never has existed, that can produce a first-class cheese from gassy milk, or milk containing bad flavors.

IMPORTANT!—As cheese is an article produced for human consumption, it is the duty of every milk producer to exercise every precaution to keep his milk and all milking utensils in a neat, clean condition, and to furnish nothing but good, clean, pure milk to the factory. It is a duty you owe all mankind, as well as your fellow patrons, especially do you owe it to the hosts of little ones who are likened unto the Kingdom of Heaven. U. S. BAER.

State Cheese Instructor for the Wis. State Dairymen's Association, Fort Atkinson, Wis.

"Boiled Butter."

The tendency of the age seems to be to find substitutes for almost everything. The object with these substitutes, on the part of the manufacturer, is of course to have the imitation resemble the genuine so closely that it cannot be distinguished by the average consumer; then to set a price upon it just enough below the article that he copies to insure its ready sale. Of course it is not true in all cases that fraud is intentionally perpetrated, but it is so in many, and especially so perhaps in the imitations of pure foods. In dairy products there is nothing imitated more than pure butter. As its substitutes we have oleomargarine, butterine, peanut butter, cocoanut butter and "renovated" butter. This last product is known by a good many names—"boiled butter," "aerated butter" and "process butter."

This product is a comparatively new competitor of creamery butter and it is made in the following manner: Old, country butter of various degrees of rancidness and color, that is, so rank in taste, smell and appearance as to be unsalable for direct consumption, is thrown into a tank surrounded with water at a temperature of 100° Fahrenheit or over, and melted. When the mass has become thoroughly melted the vat is skimmed, leaving the butter fat at the bottom. It is now removed to another vat similar in construction to the first, where, as the mass at this stage of the process has a very bad odor, the next step is to remove this disagreeable and disgusting smell. This is done by pumping the fat up in a pipe, by means of a rotary pump, and discharging it into the vat again through a strainer, which allows it to fall in small streams. The exposure of the fat to the air for some time removes the odor. After the fat has been sufficienly aerated in this manner it is ready for the next step. This is the adding of about one-fourth as much skim milk as there is fat. A perfect emulsion of the fat and skim milk is made by the same pumping operation, except that the strainer is removed. The emulsion is then run in a vat of ice water where it is quickly chilled, taking the granular form and looking like butter before it is salted and worked. It is now salted, worked, and printed, or packed in tubs ready for the market.

Owing to the large amount of moisture in it, process butter contains only about 75% of butter fat, while butter contains from 83% to 88% of butter fat. As it is mixed with so much skim milk, it also contains a relatively large amount of casein, which causes it, unless kept at low temperatures, to lose its flavor very soon.

While it is fresh it is not readily detected as process butter, and is sold in direct competition with pure creamery butter. As it will not keep well, becoming entirely unfit for consumption if held for any length of time under ordinary conditions, it is a menace to the manufacture of pure butter.—H. HAYWARD, in *National Stockman*.

Charlock Spraying.

Judging from newspaper reports, the results of spraying charlock appear to have been very varied. As our experiments have now proved, beyond doubt, to be a complete success, it may be well to describe how and when the operations were carried out. The field experimented on has been a great grower of charlock for many years, and in this respect is considered the worst in the neighborhood. It is about two acres in extent, and was seeded with oats after lea. Before spraying, the charlock was in full bloom, standing from twelve to fourteen inches high, about on a level with the oats. The leaves of the charlock had become small and the stems rather tough. It was feared, at the time, that we were a little late in starting the spraying, which afterwards proved not to be the case.

The first plot of nearly three-quarters of an acre was sprayed on Monday, June 12, with 2% solution of copper sulphate, at the rate of forty gallons per acre. The weather was hot and dry, and had been for some time. The plot was examined next day, when the charlock had the appearance of only being slightly checked. It was then decided to spray a small plot with a 2½% solution, at the rate of sixty gallons per acre. This was done on Wednesday, June 14, and on the same day another plot of about half an acre was sprayed with an 8% solution of sulphate of iron at the rate of sixty to seventy gallons per acre. The field was inspected on Friday, June 16.

Plot 1 (sprayed with 2% solution copper sulphate). A large proportion of the charlock was dying off; corn slightly affected by the spraying.

Plot 2 (sprayed with 2½% solution copper sulphate, sixty gallons per acre). Charlock almost entirely destroyed. Corn affected by the spraying.

Plot 3 (sprayed with 8% solution of iron sulphate, sixty to seventy gallons per acre). Charlock turned black and appeared to be entirely destroyed. Corn only very slightly affected by the spraying.

In order to make comparisons and draw conclusions, one part of the field was left unsprayed. The line of demarkation between the sprayed and unsprayed was as definite as between the plowed and unplowed portion of a lea field. A few days after the spraying some heavy showers fell. This was just what was required to see if there was sufficient nourishment left in the stem to produce seed. On examining the field at this date, we find several plants producing pods on plot No. 1, but about 75% of the charlock has been killed. On plot No 2 about 97% has been destroyed. Although the corn received a slight check after spraying, it appears to be a full crop now. On plot No. 3 fully 95% of the charlock has succumbed to the spraying. The corn is slightly darker, and appears to be a fuller crop than the unsprayed adjoining. The chief conclusions that may be drawn from the experiment are as follows:

1. A 2% solution of copper sulphate, or an 8% solution of iron sulphate is strong enough.

2. It is better to increase the number of gallons of solution per acre than to increase the strength of the solution.

3. Although forty gallons of solution per acre is sufficient when charlock is not abundant, at least seventy gallons per acre should be used when charlock is thick.

4. Each plant must be thoroughly drenched in order to prevent it producing pods.—HENRY F. HILL in, *Farmers' Gazette*, Ireland.

Concerning Tuberculosis.

ED. HOARD'S DAIRYMAN;—Please accept my thanks for so courteously explaining your views upon what I inadvertantly called the "spirit" of the article on page 460. I must say I am in sympathy with what you say, and am simply trying to get the opinions of various authorities upon the necessity of the tuberculin test for tuberculosis in cows. It isn't a subject on which I am entitled to write with any degree of authority from researches of my own, and only say what others, who are more or less competent to speak, have said. It has been my good fortune as manager of this business to have talked with hundreds of physicians in this and other cities in the Eastern states, as well as to have attended various meetings of hospital staffs, and thus have been afforded opportunities for personal discussion on this and other subjects. Some have flatly re-

fused to believe that there was much possibility of a healthy tissue in a human being becoming infected with tuberculosis germs in milk, or even that such germs were liable to be there, while others, and really the larger number, have the opinion to the contrary.

As a matter of fact we do, as a precaution, have all our cows tuberculin tested when deemed necessary by the veterinary who has charge of our herd. Cleanliness in barns, cans, milkers, utensils, in fact evrything, is rigidly enforced, as we believe that cattle furnished an abundance of pure air, light, pure water, proper food, and kept *clean* in *clean barns*, are the only ones not liable to disease constantly, and fit to furnish milk for the hundreds of babies and children dependent upon it.

Yes, certainly, most certainly, "there is danger in traveling in boats, in carts or wagons, or even in journeying afoot," and *yet* people *do not* ordinarily use these conveyances when marked "condemned" or "unsafe," and I question if you would be willing to regularly use milk from a cow which had tuberculosis.

I surely am not an "alarmist" on this subject, though I do believe that every possible precaution should be used in producing milk for family use, and, using your figure, while one hundred men might safely ride in a condemned boat, wagon or cart, the one hundred and first man would lose his life, and who is to blame but the man allowing such boat, etc., to be used? I truly fail to see the wisdom of trying to escape looking squarely at a danger and remedying it, because we surely do consider there is danger here, however much we may try to avoid looking at it, and to keep ourselves from acknowledging it. WALTER HASTINGS.

Providence, R. I.

Good Pork for Three Cents a Pound.

There is *pork and pork*. Pork that is made in filthy, ill-smelling pens, fed on city swill, offal from slaughter-houses, dead horses, and other foods of like character, and finished off on corn-meal, which is fit only to breed scrofula and other maladies that afflict humanity.

Pork made in pure air, open fields, clean pens, fed on grass or other cooling and succulent foods is healthy, sweet, delicious and fit to be placed on the tables of the most fastidious epicure of any country.

Experiments made at stations have demonstrated beyond question that the character of the meat produced is very much due to the nature of food eaten, and in no animal more so than in the pig.

That corn foods of like composition produce meat largely fat with small bones, and but little muscle or lean meat, and that dry and hard; while nitrogenous and succulent foods make strong bones, plenty of blood and lean meat, and that juicy and tender.

They have further shown that this modification or change of character can only be made when the pig is young and growing. As in the human family, "early impressions are most lasting and hard to obliterate," so in the pig, it is hard to overcome, the effect of the food in the first few months of its life.

What the farmer wants to know is, how to make pork most healthful and of highest quality, and consequently be most in demand and bring the highest price. Luckily, such pork can be produced at the lowest cost. In order to make such pork cheap he must start right. Of course there is much in breeding, but so long as there is so much more in feed and care I am not going to enter into a discussion of breeds further than to say select one that will respond quickly to good feed and care.

When such an one is found, remember there are certain principles in animal nutrition that must be understood and certain conditions complied with to produce the best pork, at least price. Among these principles the following are important:

The pig eats, first to sustain life, after that to increase in size.

The most of the food used in sustaining life goes to support bodily heat.

The balance in replacing worn-out tissues and keeping up the functions of life.

All growth comes from food eaten in excess of that necessary to sustain life.

The elements of nutrition needed in the food vary according to the functions to which they are to go. Those used to keep the pig warm must be carbonaceous or heat-producing.

The supply of fat in the growth or in fatting comes from the same element, which is also largely drawn upon by the exercise the pig takes.

The hair, hoofs, lean meat or muscle as well as the blood comes from the nitrogeneous elements, while the bones are from the mineral elements in the food.

If the pig be fed wholly on food deficient in any of these elements it cannot thrive. If lacking in bone material its frame will be dwarfed and its bones weak and liable to break. If on food rich in the carbonaceous and lacking in the nitrogenous elements it will cease to grow and become excessively fat. It may be even "starved to death as fat as butter."

If on the contrary, the food contain an excess of the nitrogenous and bone-making material the pig will develop a larger frame with lots of muscle and very little fat.

Another very important principle is involved. The digestive and assimilative ability of the pig is very much greater than when it comes to "hog-hood."

And lastly, but by no means least, comes the fact that a pig once stunted *can never after* be made to make pork at a maximum profit.

With these principles established as well as the fact that people now call for, and eat lean meat, and reject that which is unduly fat, it follows that to make the best pork at lowest cost the pig must be well-bred, started right and then fed, from its natal day till it brings up on the block, on the right kind of food to produce juicy, lean meat and enough to make the largest gain.

The pig that is wintered weighing no more in the spring than in the fall has been fed all winter at a dead loss, and worse still it has become stunted and dwarfed beyond hope of recovery or profit from subsequent feeding.

The best pork, most economically made, is that which is produced on the pig in the shortest time after it is born, one that gets most of its living on a fresh pasture in the open summer field.

But in order to get the pigs in the spring for this purpose we must winter a lot of breeding sows to drop pigs ready to go on to the fresh pasture of early spring. To do this successfully and cheaply is one of the prime factors in this whole problem.

An unhealthy sow cannot produce a healthy, thriving pig. An over-fat sow will be sure to bring small little pigs hardly worth the raising.

What is wanted is a strong, healthy big-formed pig with lots of growth and to get such an one we must have a strong well developed muscular sow in the most robust health, with a system so nourished as to be free from all feverish tendency, and natural in all functions and able to furnish an abundance of good milk for the pig from the moment of birth.

Such a sow in such a condition can never be had by feeding on any food rich in carbonaceous material and running out of doors and sleeping in a snow bank.

She must be put into a dry, airy, well-ventilated, warm and roomy pen and fed on cheap, succulent food, nitrogeneous in its nature and with an abundance of bone-making material. A dozen sows weighing from 200 to 300 pounds each may be put into a pen as above described, 30x40 feet, with good height to the ceiling, and be safely wintered on six bushels of mangels and 24 pounds of coarse middlings or fine, re-ground bran, each day, with all the good early cut, well cured clover hay they will eat, and be in the finest condition to farrow an average of eight well-developed, healthy pigs each. The mangels should be fed whole so as to give the needed exercise in eating them,

These sows should be bred so as to farrow in March or very first days of April, and, of course, a few days before each is expected to farrow, she should be penned off by herself, with the proper conditions of bedding, etc., to render it sure she will have no difficulty in bringing forth the expected litter. As the mangels can be grown very cheaply, and the bran bought for from $10 to $15 per ton, the cost of wintering will be but very little, and your pigs cost only a song. Having thus secured a lot of pigs very cheaply, and what is of more importance, having them well born, the remaining thing to do is to feed them at least cost on the most desirable food. No food is better or cheaper for the young pig, than sweet skim milk when it can be had. But as soon as old enough, pigs should always have the use of a pasture field. Clover makes an excellent pasture for pigs, but no plant is better food for the pig or more easily provided, than Dwarf Essex rape; by having land rich and prepared in the fall, it can be seeded to rape with the first warm days of spring, and in from four to six weeks be large enough to begin feeding. Pigs are very fond of this, and may be pastured on it, or it may be cut and fed to them in another place. If the rape gets the start of pigs, it should be mowed off for sheep or cattle, in any case it grows quickly after being cut or eaten off, so that a comparatively small field will feed a lot of pigs.

In addition to all the rape or clover they will eat, the pigs should have some dry food; for this purpose nothing is better than coarse middlings. Bran, even if ground very fine, is not as good for the young pig; it is all right for feeding the old sows in winter, but is too coarse and laxative for the pig. Unless it prove too laxative, the addition of a little linseed meal, one part to four of middlings will be a good change for the pigs occasionally.

They should have all the middlings they will eat clean so as to keep them gaining as fast as possible until they weigh from one hundred to one hundred and twenty, live weight. There may now be added to the feed one-four h its weight of corn meal, and this should be increased from time to time until the food is half corn meal.

As soon as the pig will dress from one hundred and fifteen to one hundred and seventy-five it should be sold, and if one is reared and fed as above indicated it will have cost less than three cents a pound for the dressed weight and the meat will be lean, tender, juicy and sell for such a price as to leave what should be a very satisfactory margin of profit.

If the following mixture be prepared and kept in a bag under cover and always accessible to the pigs and hogs, it will be found very beneficial and go far in keeping them free from internal parasites:

One and one-half bushels corn cob charcoal, three pecks hardwood unleached ashes, fifty pounds fine bone meal, six pounds salt and one pound copperas.

Break the coal quite fine, mix coal ashes and bone meal together, and dissolve salt and copperas in water, and with the solution sprinkle the mass frequently, stirring so as to have all well incorporated together. To prepare the cob coal, dig a hole in the ground, start a fire in the bottom, pile on the cobs, and cover quickly. Leave just vent enough so the whole mass will get on fire, and then cover up and leave until the whole is cooled down. This is a capital condiment for the hogs at all times.—J. S. WOODWARD, in *Farming*.

Dairy Legislation in North Dakota.

The Dairy and Food Commissioner of North Dakota is sending out the following letter, calling attention to the recently enacted laws on dairy products.

We notice that boiled butter is slowly taking its place beside oleo. The letter is sent to all dealers, handlers and producers of dairy products:

Your attention is respectfully invited to the accompanying law recently enacted, governing the sale of oleomargarine and butterine, and also to what has been commonly known as "boiled or process butter;" also to those sections relating to the procuring of licenses by owners of milk dairies and dealers in milk, living in cities of over one thousand inhabitants, and that every creamery and cheese factory shall procure a stencil or brand bearing a suitable device, or words which shall clearly designate the quality of the product manufactured, as well as the number and location of the factory; also that said factory shall, on the 1st day of November each year, make a full and accurate report to this office, of the amount of business done during the year.

Demand for Dairy Machinery in Belgium.

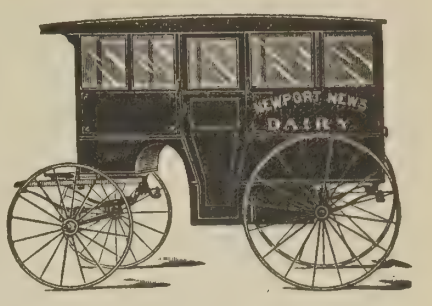
ED. HOARD'S DAIRYMAN:—Consul Le Bert writes from Ghent, May 19, 1899:

I have this day received from Mr. A. Heynssens, Rue Haut Port 12-14, a letter asking the names and addresses of important firms in the United States manufacturing dairy machinery, such as churns, separators, butter workers, dairy articles, refrigerators, cheese making machines, etc. He desires firms not as yet represented in Belgium and asks that catalogues and circulars, with conditions of sale, be addressed directly to his firm. This house is one of the oldest and largest in the provinces of East and West Flanders, handling the line of goods mentioned. Upon inquiry, I learn that none of these articles are manufactured in Belgium.

The importations to both Flanders are chiefly from England and Denmark. Considering the vast dairy industry of the Flanders and our improved apparatus, there should be, with proper representation, a wide field for our manufacturers of dairy machinery and utensils. HENRY E. ALVORD.

Chief Dairy Division, Washington, D. C.

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Blackleg, Its Nature, Cause and Prevention.

[Paper read before the Utah State Farmers' Institute by PROF. L. A. MERRILL.]

There is possibly not a section of country in the United States so little affected by contagious diseases as is Utah. As an explanation of this fact, we find in the high altitude, the dry climate and abundance of sunshine; conditions unfavorable to the growth, development and perpetuation of infectious diseases.

Most of the diseases of the human family,—and this is also true of our farm animals—are due to microscopic organisms, principally vegetable, which pervade the animal tissues, and the symptoms of disease are manifest because of their presence. When we understand that these organisms are so minute that 1,000,000 of them may be found in a single drop of water, then we can realize why, for hundreds of years, before the introduction of the microscope, the origin and contagious character of these diseases were sources of doubt and mystery.

There are certain kinds of substances in which these bacteria thrive better than others, just as there are certain kinds of soil in which certain kinds of cereal crops thrive best. For example, the blood of our domestic animals furnishes an excellent home for germ life, and in consequence there are many diseases of farm animals due wholly to the presence of these germs.

BLACKLEG (SYMPTOMATIC ANTHRAX).

This is a specific infectious disease probably not communicable at all by a volatile poison. It is a disease especially of cattle, but may be communicated to all species of animals. It is especially a blood disease, due to a rod-like bacteria (Bacillus Anthrax).

It is not a contagious disease, that is, an animal will not contract it by simply coming in contact with another. As a rule, the germ is introduced into the system through some wound or abrasion of the skin or by means of food or drink. The blackleg bacilli are not able to multiply in the presence of oxygen; in technical language it is anaerobic.

This explains the fact, that while they do not develop on parts of the body exposed to free air, such as the skin and mucous membranes, the germs find the conditions necessary to their growth in the parts underneath the skin, as the underlying connective tissues to which the air does not have access. One characteristic point to be noticed in connection with this bacillus is, that one of the ends of this bacillus or germ is enlarged. This enlargement consists of a hard shell-like substance, which protects the spore stage of the bacilli. A structure of this kind would naturally be resistant to external influences, being able to withstand heat, cold, light, and other unfavorable conditions, and even decomposition in a dead body, which would more quickly result in the destruction of unprotected bacilli. With such a protection the blackleg germ may exist for a long time outside of the animal body, and it is very difficult to eradicate the disease from a pasture which has once become infected.

The germ possesses a high degree of vitality, in out door conditions. It is endowed with practical perpetuity. Dr. Stalker, of Iowa, relates an incident in which a calf died from blackleg. Seventeen years after the grass from over the grave of this animal communicated the disease.

SYMPTOMS.

The first thing that you will notice is that the animal appears dull, stupid, and remains apart from the rest of the herd. Examine with a clinical thermometer, and you will find an intense fever—104-106° F.

The pulsations are so rapid that they can hardly be counted, respiration becomes accelerated, the animal moves around with difficulty, frequently lies down, and when water is near at hand drinks at short intervals and but little at a time; the mucous membranes are at first dark red and congested, but they change in the course of twelve hours to a dirty leaden or purplish color. The most important diagnostic feature, is the development of a swelling or tumor under the skin; it is usually noticed on the thigh or shoulder, and it is to the effects that this swelling produces that this swelling gets its name "blackleg" or "black quarter." By moving the hand over the parts affected, one can hear a crepitating sound, and percussion gives a clear resonant tone, due to the collection of gas in the affected parts.

If an incision be made into the swollen parts a frothy dark-red fluid is discharged. If the incision is made while the animal is alive or soon after death, there is no offensive odor to the dischage, but decomposition takes place very soon after death.

The symptoms become more and more intense until the temperature may exceed 140 per minute, the animal is unable to rise, the extremities become cold, and just before death, the temperature falls below normal. There is trembling of the muscles, which as death approaches, may develop into violent convulsions.

AGES OF CATTLE AFFECTED.

It is more likely to affect young animals than old ones. It attacks cattle usually between the ages of six months and two years, but it may attack cattle either over or under these ages. It is not uncommon to see the disease at any period of the year in this state, though very few cases are seen during the summer months. Farmers usually complain that it is the best bred and most thrifty cattle in the herd that are affected. This is true because the blood of a well-conditioned calf furnishes a better soil for the organism, being charged with plastic fatty material, conditions favorable to the rapid development of the blackleg germ.

TREATMENT.

Owing to the rapid and violent course of the disease, treatment is of little or no avail. Numerous remedies are in use, but the cases of recovery on record are exceedingly rare. Incisions are sometimes made into the affected parts, and some strong disinfectant is used, as carbolic acid, corrosive sublimate, creoline, solution of salts (iron and copper). Sometimes the parts affected are cauterized with the hot iron, but this seems to me to be a prescription for the effects produced without first removing the cause. Bleeding from the jugluar vein in early stages is also practiced, from one to four quarts of blood being drawn from the animal. Stockmen who have had considerable experience with blackleg, think that exercising the animal violently, when the first symptoms are observed, gives good results. A man with a horse runs the sick animal about as long as it can go without suffering. After the violent exercise, the animal should be kept moving gently until it is cooled off. The explanation of this treatment is that the violent exercise keeps the blood from settling in any part of the body. That class of remedies known to be destructive to germ life, as indicated in this disease, tincture of iron or one per cent solution of carbolic acid, is sometimes injected hypodermically in the affected parts, and this has been attended with good results.

DISPOSITION OF BLACKLEG CARCASSES.

If, after the calf dies, the calf should be used for pig feed, you will get another manifestation of the same disease in the hog. Here it will be known as "black tongue", and is characterized by a gangrenous condition. If the carcass is left unburied, the germ may come in contact with other calves, and thus spread the disease. Vermin or birds also scatter the infection. It is always advisable, therefore, to burn the carcass immediately, and if possible, right at the point where the animal died. If the animal is buried, it should be placed in the ground at least six feet, and the carcass well covered with lime before the earth is thrown on. The ground should also be covered with lime or some other active disinfectant.

PREVENTION.

Improvements made in the condition of the soil may contribute in great part to the disappearance of anthrax. It is proper, from the blackleg standpoint, to drain swampy grounds and favor the exit of the water, also to prevent animals from feeding upon infected pastures. It has been known for a long time that most animals, which recover from blackleg, possess a more or less complete immunity. It has also been observed that occasionally individual calves have a natural immunity. These facts have given rise to researches which have led to the discovery of means enabling us to create immunity artificially. Pasteur in France, discovered that this germ could be cultivated under various conditions; that he could even devitalize the germ, inoculate it into an animal, give the animal a mild form of the disease, and thus render the animal immune. The scientific researches of Pasteur have been turned to a practical application which has resulted in the saving of thousands of dollars in the United States.

To-day the best preventive treatment for blackleg is vaccination of susceptible animals with a weakened virus. This virus is prepared as follows: The "bruised-looking flesh" from an animal that has died from blackleg is cut from the affected quarter, cut into small bits, dried into a temperature of near 100° F., pulverized and the coarser particles taken out. The powder is then heated for six or seven hours at a temperature of about 180° to 200° F. The vaccine is sent out by the bureau of animal industry at Washington, D. C., in packages of ten and twenty-five doses per package. This powder is dissolved in water and is then

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ready for use, but must be used within twenty-four hours, after being dissolved in water. This vaccine is introduced under the skin of an animal by means of a hypodermic syringe. The most convenient place to inoculate is on the side of the neck, just in front of the shoulder, where the skin is loose and rather thin. This system of preventing blackleg has been carried on quite extensively in some of the eastern states, and appears to have given excellent results. It is to be hoped that in this state stockmen who are interested in this disease may investigate the method of vaccination, adopt it, and thus effect a saving of thousands of dollars annually.

Filling Silos, Covering, etc.

Fast or slow filling is debated, but the only difference amounts to about this: With slow filling there is more time allowed for the material to settle, and one gets more material into the pits if he is a week about it, than in two days. In Ohio we use the rapid filling. Where one fills two silos, and can do so, it is a good plan to fill into one a half day, and then the other. The carrier of our machine carries over one silo, and throws into No. 2; so by simply removing a trap slide in the carrier over No. 1, or replacing it, the silos can be alternated in filling, without changing the machines. We know of no tests that place greater feeding value upon slow, rather than a fast filled silage. In a fast filled silo, there is a greater show of space after it has settled. To overcome this loss of storage, some silos are provided with a top rack some eight feet high, about the top of the silo, and this rack is filled, and as the silage below it settles, it finds its place in a few days in the pit, which, when settled, will be brimming full.

How shall the silo be covered to protect it from the air? Does it need any cover at all, more than the roof above it? Some silos now are even denied this protection. Certain it is, that no one now covers silage with plank, paper and weights. The most simple cover, and extensively used, is no cover at all, simply putting the litter about the cutter, upon top of the silage, making it firm by treading and leaving it, allowing the top layer of a few inches—three or four, possibly six—to mold and rot, and seal itself away from the air. A few (the third or fourth day after filling, and some treading) sprinkle twenty pails of water on the surface of the silage, and thus hasten the molding and sealing. As good a plan as we knew of, is to copy the last method, and add it to a bushel of oats, raked into this warm, wet surface, and grow a cover of oat roots mixed with the decayed silage. The growth will soon fall down and die, making a cover we have never seen excelled, and so matted that it is easily taken off. Others put on wet, old straw, and some use saw dust wet down, and others commence at once to feed from the silo as soon as filled, and, hence, need no cover.

In the winter, on approach of very cold weather, it is a good plan to put some boards over the silo, and cover with a half ton of straw. This holds in the heat, keeps out cold air, and more germs find in the warm silage a pretty good home to colonize in, and then in cold weather the cows get a warm breakfast, instead of now and then an iced menu.

The reports from all sections of the country this year, 1899, give to the silo greater prominence than ever, in the economy of cattle feeding. In no year of its history have the inquiries about it been so numerous, and so much along the lines of definite inquiry. Criticism is rarely heard. To profit by their use seems to be the one desire. We know now of no market objections to the milk of silage-fed cows—good silage. The fancy milk for Philadelphia, New York and Boston, is three-fourths of it, silage made.—John Gould, in *Ohio Farmer*.

The annual report of Osage Co-operative Creamery Company, of Osage, Ia., states that the company is operating on the gathered cream plan, that farm separators are being very largely used by the patrons, with the result that the cost to the farmers of hauling their butter, producing and manufacturing it, is extremely low; a very great difference between what it costs in the sections where the amount of milk is not large and the hauling expensive.

Clover Failure.

As a rule, not more than one clover field out of every three or four is a good stand, even in a favorable season, and usually it is the fault of the way the field is managed, either at sowing time or after the nurse crop has been taken off. Most farmers do not cover the seed deep enough. One of my neighbors has been trying to seed a certain piece of ground for four years and has always failed. He invariably sows his nurse crop (usually oats), then waits three or four weeks and then sows his clover seed on the hard ground without any covering. The result is, the seed does not come up, or if it does come up and live until harvest it is sure to die when the grain is removed and the young plants are exposed to the hot sun. The root is not deep enough to stand the dry weather that is almost sure to occur about harvest time and directly after harvest.

Fall wheat or rye is the best nurse crop I have ever tried, preferably rye, but in many parts of the country oats is the principal small grain crop and must be depended upon for a nurse crop. In seeding clover with oats I cultivate my oats in and harrow once to smooth the surface of the ground somewhat in order that none of the seed will get covered too deep. Then I sow my clover seed at the rate of ten pounds of clover and five pounds of timothy seed per acre. I harrow enough after sowing the seed to thoroughly pulverize all clods and smooth the surface. Do not be afraid of losing the seed by covering it up; it will come out all right.

If you use fall wheat or rye, sow your grass seed as early in the spring as you can harrow the field and harrow until the seed is well covered; it ought to be covered not less than one inch deep, and two is better if the land is at all light. I sowed a field of rye to clover in the spring of 1897. The ground was quite hard, so I harrowed it two or three times before sowing the seed in order to get a good seed bed, then I sowed the clover seed and harrowed as many times more. My neighbor told me I had ruined my rye, but I thought not, and at any rate I cared more for a good stand of clover than for a few bushels of rye. The result was I had a fair crop of rye and a splendid stand of clover. The rye being somewhat thin gave the clover a chance to do its best.

Many times the nurse crop is left standing until it is too ripe. Let the nurse crop be what it may, it should be cut as soon as possible, for every day it stands after it could be cut lessens the chance to save the young clover plants, for it rapidly absorbs what little moisture there is in the ground and thereby robs the clover.

If the conditions are favorable after harvest, and nothing is done to prevent, the clover will head out. It is not advisable to let it head, for it is the nature of clover, after maturing a crop of seed, to die. If the field is so situated that you can pasture the clover off, it will be all right, but if not convenient to pasture, run the mower over it set high enough to clip the heads nicely and let them lie on the ground. In cutting the nurse crop cut the stubble as high as you can, as the stubble will help to catch the snow and protect the young clover. Do not pasture off too short.—*Prairie Farmer*.

Moulting and Laying.

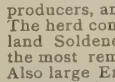
The moulting of hens is usually from June to November, sometimes extending well into the winter. The moulting period is not the same with all hens, nor does a single hen begin at the same period every year, but usually a month sooner or later. For instance, a hen beginning to moult in June may not begin the next year until July, and such hens will moult later every year, until their moulting period reaches into the winter. The hens that begin to moult early are those that finish their moulting, and are ready for laying before winter commences. Having then completed their growth of feathers, they are in excellent condition for doing service, but should the process of moulting extend into the cold season, the hens that have not finished will probably not lay until spring, consequently, the matter of moulting is one which all who are interested in fowls must consider. The moulting process requires three months, and as the production of feathers demands a large proportion of nitrogen and mineral elements, it becomes necessary to supply the fowls with something more than grain and grass.

Carbonaceous food exclusively is detrimental, as the hen is rather inconvenienced by the fat stored on the body, rather than benefited thereby, and yet the majority of poultrymen feed liberally of grain to their moulting hens in the belief that such food is the best that can be given. The food should consist principally, of ground meat or cut green bone, that has a fair proportion of adhering meat, but all fat foods should be avoided. A bran mash composed of bran and cooked potatoes, will provide an agreeable change, while ground bone, milk and a little sulphur in the food once a day will be beneficial. All hens not yet having commenced to moult will prove poor layers before Christmas, and if such hens are fat they should be disposed of. It is a well known fact, that has been repeated in these columns frequently, that if a hen or pullet does not begin to lay before cold weather, she will perhaps, not begin before early spring, but if she starts in to lay before winter begins, she will continue to lay for a long time, or until she becomes broody. Pullets hatched last spring will not moult until next year, as only the hens will moult in summer, but a pullet hatched very early—about January or February may moult, though the chances are, that she will not do so until next year. Clean, dry quarters should be provided for the hens that are moulting, and lice must be kept down, as the hens that are moulting will quickly succumb to lice, owing to the debilitating effects of the process. As to the males, they should have been sold off long ago, as it does not pay to keep one that is moulting, unless such male possesses some characteristic that is sought, and the sooner the males are sent to market, the higher the prices they will bring.—*Farmer's Guide*.

Macbeth makes half the lamp-chimneys; and half the dealers won't sell 'em, because they don't break.
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Write Macbeth Pittsburgh Pa

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY Cattle—SHETLAND PONIES.—Old Homestead Herd was champion at O., Ill. and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock for Sale. Inspection invited. L. V. AXTELL, Perry, Lake Co., O.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

104 Holsteins For Sale.
Young Bulls and Heifers by the richly bred **Royal Paul.** Prices right for quality. Show animals, all ages, bred for butter makers.
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Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

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MECHTHILDE BULLS FOR SALE.
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CAREME
Is the 4th highest butter cow in Holstein history. Her butter record is 35 lbs. 9 oz. in 7 days, 100 lbs. 12 oz. milk in 1 day, 2,591 lbs. in 30 days. Winner of first prize at New York State Fair, 1888. Breeders' Gazette says: "Greater things are expected of her than she has already done, she is hard after Mechtchilde." Valley Mead Farm boasts to contain the best of everything, so it possesses also three daughters of Careme, which have been great prize-winners, and many grand-daughters.
VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**



Keep Your Milk Sweet
— BY USING —
TINNED STEEL MILK CANS
. . MADE BY THE . .
Buhl Stamping Co.
Our Handbook is mailed free to Dairymen who ask for it.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

Guernsey Bull For Sale . . .
We have a Guernsey Bull, **Von M. No. 4717,** for sale. Three years old and of excellent breeding. Good reason for selling. Price $65.00.
Address, **THE JOHN HEIN CO., Tony, Wis.**

REGISTERED
GUERNSEY BULLS
We offer several well-bred young Guernsey Bulls, dropped in April and May, '99, at **$25.00 Each,** registered and transferred. They are handsome and well grown and grandsons of Gold Bound No. 2726, bred by Mr. Levi P. Morton and sired by Imported Midas 2003. Dam, Imported Lady Antornelle 2d, 3680. **M. B. ROWE & CO., Fredericksburg, Va.**

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

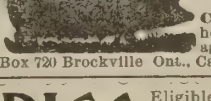
ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** **Farm Supt., Madison, N. J.**

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898.
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

AYRSHIRES **Finely Bred** and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Cedar Hill Notes.

Heat and Milk Flow.—Fall Feed.—Cream in Hot Weather.

ED. HOARD'S DAIRYMAN:—Forty-six pounds shrinkage in our herd's milk in twenty-four hours, from excessive heat, is what our daily milk record shows for the date of August 13th.

Feed, care and other things count for naught in such a case. We must put up with the loss the best we can. In our case it puts us in bad shape, as we must make 210 pounds of butter weekly, to fill a ten months' contract. The party of the first part don't care whether it is hot or cold, just so he gets the stipulated amount of butter.

Some good rains have started blue grass to growing once more, and in case we have regular rains, fall feed will be abundant. We have sown several acres of crimson clover, turned under our pea stubble for it. This is our first experience with this plant. Rape with us is a very fine soiling crop; it stands the drouths well and yields an immense amount of good feed.

We have our foundation partially completed for second silo, and the corn will be ready about the first of the month for cutting. The staves for this silo are twenty-six feet long, of spruce. We have given them a good coat of tar on all sides while down, which will insure long life when built.

Will the DAIRYMAN readers tell us what self-binding corn harvester to buy, and are they a sccess—very heavy corn? We are contemplating buying a Deering.

During these very hot days our method of handling cream is giving good results. Our butter goes from churn to worker in soli body, and points at once as well as in cold months. As before stated, we use a channel vat, ripen cream twelve hours, then hold twelve hours with ice and brine; then churn at 60 or 62°. Feeding cows two pounds of cotton seed meal, daily, each. Our cream makes four pounds of butter per gallon, and requires thirty-five minutes to churn.

We are now enjoying a visit from a Waukesha Co., Wis., dairyman, and even if he does come from a dairy state and county, we are giving him some surprises in methods and herd work. BUFF JERSEY.

The DAIRYMAN cannot undertake to decide upon the merits of different makes of farm machinery.

Haymaking.

Practically all kinds and species of pasture plants become hard as they grow old, and rapidly deteriorate in nutritive value and digestibility with age. Moreover the maturing of seed very seriously lessens the vitality of the plants by imposing a heavy tax on them; to such an extent, indeed, is this the case that some of the more sensitive and small grasses disappear it permitted to seed while they are young. The loss of vigor entailed necessarily lessens the aftermath, and probably adversely affects the crops of the following year, besides encouraging the growth of weeds. It is our experience that seeding for several years in succession eliminates quite a number of pasture plants, the gaps which would otherwise be left, being quickly filled up with indigenous and often worthless species. Hence the grass crop should be cut early in the season, and before any of the plants have produced seeds. There are two objections that can be urged against early cutting, but fortunately both are of small moment. Firstly, the yield may be slightly smaller, but against this must be set the increased bulk of aftermath, which more than compensates for any deficiency; and, secondly, the produce is liable to shrink in drying, proportionately rather more than would older vegetation, which is naturally stiffer and more fibery. As a matter of fact this second objection is hardly worth consideration under any circumstances.

As illustrating the depreciation of pasture grasses with age, the following figures are useful: When in full and early leaf the nutritive value of cocksfoot—which is, by the way, certainly the best and most nutrttive of all pasture grasses—may be represented by the numeral 137, falling to 100 when the plants begin to bloom, to 87 after bloom, and to 70 when the seeds ripen. That is to say, cocksfoot loses approximately half of its net value by ripening its seeds. Again meadow foxtail, another very valuable species, has a full-leaf nutritive value of 148, depreciating to 106, 89 and 81 at respectively flowering, after flowering and maturing of seeds. Parallel results are obtained by analyses of tall fescue, fescue, yellow oat grass, timothy, rye-grass, hard fescue and rough-stalked meadow grass. Briefly, then, one loses in quantity by too early cutting, and in quality by too late mowing; while late cutting is also prejudicial to the aftermath. The time of mowing is, however, to some extent, dependent on the season and crop. For instance, it is occasionally necessary to cut early to prevent specially noxious weeds present in the herbage forming seeds, and also when the crop is laid and so liable to rot. Again, late mowing is often unavoidable in very wet seasons, since hard and fibery hay—bad as it may be—is better than that injured by being made in excessively wet times. Lattermath hay is generally considered superior to ordinary hay in nutritive value; but the succulence of autumn growth and the heavy dews of late fall combine to render its making so precarious that we advocate its much more extended use as silage.

DRYING BY SUN-HEAT.

It is customary to spread hay out in the sun to dry as soon as it has been cut, the produce being turned frequently, and carried to the stock from the cock without breaking it out, and in the evening made up into cocks, which are spread out again when the dew has evaporated on the following morning. A very heavy dew might cause serious injury were one to occur, so that the advisability of cocking the hay the first night should be apparent. The tedding machine can be freely used during the second day if the weather be favorable, and light or medium crops, which do not contain disproportionately large quantities of leguminous plants, may be carried the evening of the third day as a general rule. When the weather is continuously wet the grass must be left as cut, unless—and this is much the wiser plan—it be carried directly to the silo and converted into ensilage. The leaves of all leguminous plants become brittle as they dry, and if handled over-much they break off, a great part of the nutritive value of the whole crop being thus lost. The produce therefore of this class of plant should be turned as little as possible and only by hand in the swathe. To early carrying is injudicious, because the presence of much sap in the plants induces heating in the rick, sometimes even actual firing.

The old method of testing the condition or succulency of the crop by twisting a few stems into a rope is a good and reliable one. If moisture exudes it is yet too early to carry the crop. Experiment proves that from twenty-five to forty per cent of the dry substance is washed out of clover hay by rain, so that partially dry hay ought always to be made into rather thick or high cocks when rainfall is expected, so that the least possible quantity of water may have access to it. The hay from cocks that have become heated in this way, dries very rapidly when spread out in dry weather.

CLOVER HAY.

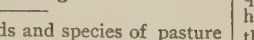
For marketing purposes greenness is desirable, it being justly regarded as an indication of well-made hay, but the color is not of much consequence if the produce is to be used at home. The brown clover hays so frequently seen, are specially made with the object of obviating the necessity for frequent turning and consequent loss of leaf, while sacrificing the color. This quality of hay, which is in every respect as nutritive and wholesome as green hay, is made by drying the plants in the sun, turning them once only during the operation, until about two-fifths of the water contained in them is evaporated, that is to say until they are nearly half-dried, when they are made into cocks.—*Journal of Agriculture*, Ireland.

A GOOD THING ONCE MORE.

Every volume of HOARD'S DAIRYMAN contains some things that ought to be published from two to three times a year, even for the benefit of old readers. Then, again, the subscription list is all the time increasing, and new readers are coming into the circle, so that a valuable bit of experience is still more worth repeating. On page 214, of the issue of April 22, 1898, is printed the valuable experience of A. M. Stevens, of the state of Washington, in removing obstructions from the teats of cows. It is so full of practical wisdom that we republish it in this number:

That obstructed cow's teat seems to be legion, judging by the many inquiries I see in the DAIRYMAN concerning them. In the last number of HOARD'S DAIRYMAN, page 151, is one stopped up with a lump in it. Now, at the risk of getting a scolding, we will give a little of our experience with obstructed and damaged teats. No. 1: Cow's teat became tender, hard to milk, inflamed, and only with hard pressure could a very fine stream of milk be drawn; end of teat scabbed over. At this stage, I had the milker turn the cow over to myself. As the quarter was hot and swollen, bathed it with turpentine and camphor, shut the feed off the cow; tried one of those rubber milking tubes, but the teat was so much inflamed, could not insert it in the teat without great force; so abandoned the trial, wrapped the teat up in an ointment made of spermaceti, gum myrrh, and olive oil, and let it go for three days; milked the other three teats regularly, and rubbed the affected quarter gently; second day rubbed the quarter with fish oil, and when we unwrapped the teat, found the swelling in teat gone, and the end of teat free from scab. Could only get a little water out of it; on examination found a lump about one and one-half inches from the end of the teat in the milk duct.

Well, we took a piece of fine spool wire and made a loop, something like the diagram



perhaps a little wider at the looped end, inserted the looped end, which was perfectly smooth, into the teat until it passed above the lump, turning it round and round, moving it up and down gently, until we got the lump in the loop and pulled it loose, then milking, with the wire still in the teat, very gently, we were rewarded with catching the nodule in our hand. It was, perhaps, as large as a grain of wheat. Well, we milked the teat, same as the others, for several days, got nothing but a thin, watery fluid out of it, but in perhaps a month or six weeks' time, the quarter gave nearly the usual amount of milk, and, at the next freshing of the cow, it was all right.

Case No. 2. This was an injury from being stepped on by another cow; teat was badly bruised, and quarter soon caked, and could get milk with difficulty; teat too much inflamed to insert tube; bathed quarter with aconite, and wrapped the teat up same as number one.

The teat closed so we could get no fluid out of it. Kept it wrapped up until the inflammation somewhat subsided, then took the wire loop and inserted it gently, found the teat closed with a cheesey substance, perhaps dried pus or gargety milk, but effected an opening through it with the wire loop and got a small quantity of watery fluid from the teat. We opened it with the loop at each milking for a few days, until it became all right, and at next freshening was as good as ever.

Case No. 3. This was a clean cut about three fourths of an inch from the end of teat, perhaps done by a barbed wire; teat cut fully half off, and milk came ou of the wound in attempting to milk it. It was an ugly looking affair, and we concluded the quickest way to treat it was the best. So we got our pruning shears, sharpened them, and cut the teat square off at the wound, wrapped it up and let it go for three days. We then bathed the quarter in fish oil and iodine, shut the feed off the cow, dressed the teat every three days and milked it very gently. It healed remarkably quick, the milk returned in the quarter, and to-day is as good as ever.

A tube or plug was not available in either of these three cases; in two of them the wire loop was used successfully, in the third, it was not used or needed. All three cases had a successful termination, and unless something better is invented, will use it again if circumstances require it.

A. M. STEVENS.

Kittitass Co., Washington.

Illinois Jersey Breeders' Exhibition.

ED. HOARD'S DAIRYMAN:— Will you kindly make mention of the following in your paper: In order to encourage the Illinois Jersey Breeders to make an exhibit at the State Fair to be held in Springfield the 25th–30th of September, the Illinois Jersey Cattle Club offers the following premium: Jersey Breeder's young herd, to consist of one male and four females, under two years old, the females to be bred and owned by the exhibitor, and the male to be owned by the exhibitor; First prize, $20.00, second prize, $10.00, and third prize, $5.00. Competition open to all Illinois Jersey breeders.

Tamaroa, Ill. WALTER R. KIMSEY, Sec.

It is reported that at the Chicago packing houses, the meat of the average steer brings about $40, while the product not eaten, will bring about $55, divided as follows: Hide, hair, horns and hoofs, $25; fat, blood, sinews and bones, $15; other miscellaneous wastes, $15. These are carefully graded, and sold for different purposes, even the contents of the paunch being used to make into cardboard. The horns are worth now $150 a ton, owing to the prevalence of dehorning. A yearly count showed about one pair of horns to each six steers. The saving of material formerly wasted at the abattoirs, cheapens the cost of meat to the consumer, and still adds to the profit of the packing companies.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to test it? Send to us for the material for making the test and we will mail it to you free of charge.

Thatcher's Orange Butter Color

Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.



Prosecuting the Oleo Dealers.

The Illinois Dairy Union, which is an auxillary of the National Union, has inaugurated a warfare on the dealers in oleomargarine in Chicago.

Detectives employed by the Dairy Union have been going about among Chicago grocery stores making purchases. They have called for the best butter.

Seventy-eight of these purchases have been analyzed and seventy-four of them have been found to be plain oleomargarine. In every instance the price paid was from seventeen to twenty-three cents, while the retail price of good creamery butter has ranged from nineteen to twenty-five cents. The oleomargarine, according to the Union, costs the retailer about six cents a pound, while the ordinary profit on butter is but two or three cents a pound.

Secretary Knight declares that the revenue laws regarding the stamping of every retailed package of oleomargarine and the displaying of a license issued by the government are openly violated.

During the past few months the demand for milch cows has fallen off at an alarming rate and the demand for beef fat has increased in proportion.

Ten years ago the sales of oleomargarine amounted to less than 25,000,000 pounds. For the fiscal year just ended the sales have been 87,800,000. The dealers have cut down their orders of butter, preferring to get the immense profit in oleomargarine in preference to the small one in butter.

Dairymen Need Good Roads.

It is often a surprise to us that patrons of cheese factories and creameries do not rise up in their might and demand good roads at any cost. In sections where co-operative dairying has been carried on for years, we often find our very worst roads, which during the spring and fall months must be almost impassable. To haul milk five or six miles over such roads, would to many seem almost an impossibility, but still it is done and the same thing continues year after year.

If the bad roads in such sections were replaced by roads that would remain good at all seasons of the year, the patrons of the factories in these localities would be able to get their milk hauled very much cheaper and would get a better quality of product out of the milk when delivered. We speak advisedly in regard to this latter contention. There is no doubt that milk is often materially injured for either butter or cheese making by being churned or agitated, as it is when hauled half a dozen miles on some of those almost bottomless or rough, rocky roads.

In this goodly city of Toronto there are block-paved streets so bad that to ride on them gives one a sensation not unlike a quick tumble down a stairway. A year or two ago, before the block pavement was replaced by asphalt, on one of the streets the city milkmen could not drive because the milk would be churned into such a state that their customers would not take it. In order to retain his trade one milkman was compelled to leave his wagon at the end of the street and carry the milk by hand for a couple of blocks If hauling milk a block or two even, on this rough pavement would have such an injurious effect on milk for family use only, what must be the effect when milk is subjected to similar treatment for an hour or two when on the road to some creamery or cheese factory? Is it not reasonable to suppose that its quality will be very much injured for either butter or cheese making?—*Farming.*

Milk for Poultry.

On every side we hear the warning words "Don't feed any sour food," and in the next moment comes the advice to "give them all the milk, both sweet and sour they will use." Slop may be the natural food for hogs, but it is not for hens. Milk as a fluid, either sweet or sour, is very good for "mixing ground food for fowls," but when placed in pans for them to eat or drink it is more of an injury than a benefit, for the reason that it soils the plumage and taints the ground, thus attracting the flies and other insects, which bring with them more injury than the good the fowls have received from the milk. One attribute of success, namely cleanliness, is almost an impossibility where milk is used as a drink or fed in pans to the fowls. What can be more disgusting than a lot of half grown chicks besmeared with sour milk and covered with flies! And to add to their sorry plight down comes a misty rain, completing their uncanny appearance.

I have often seen the feeding ground of a lot of growing chicks covered with sour milk and flies, the ground well beaten down with the patter of the feet of both ducklings and young chicks. What can be more disagreeable than the odor of this feeding spot after a shower has been driven away, and the warm sun shines upon the ground and proceeds to bring to life the deposit of the many insects drawn to the locality by the besmeared condition of the ground? And those who care for these fowls wonder why gapes, diarrhœa and cholera come to their flocks. None so blind as those who will not see. Why not get all the advantage of the milk by using it to mix with their ground food instead of placing it in pans for them to run through and paint the ground to their own destruction?

Cleanliness is the one great thing with poultry. No one can begin to keep their surroundings in even half-way condition, who places pans of milk or slop of any kind for fowls. Many writers advocate the plan, and tell us in glowing terms of the benefits to be derived from this feeding of milk as a slop to poultry. If the benefit is to come to them from the milk, use it each day to mix their ground food with, and feed it to them in boxes or troughs, not upon the ground, and provide feeding space sufficient for all to feed at once. Where no ground food is provided for the poultry, better give the slop to the hogs.—*Country Gentleman.*

Liming Soils.

(Press Bulletin.)

Lime is a necessary plant food but being far less often deficient in soils than nitrogen, phosphoric acid or potash, it does not receive like attention from farmers, especially as such fertilizers as acid phosphate, bone meal, and ashes contain it in large amounts.

Chemical analysis shows that while lime accumulates in the soils of very dry regions, it leaches out of the soils of a moist climate like that of Tennessee. Although Tennessee soils are derived largely from lime rocks, they are often poor in lime as is proven both by analysis and by practical experience. This is strikingly illustrated by the "red soil" of the Highland Rim, which, though derived from limestone, is not productive until limed and afterwards improved with cow peas and phosphates, when it becomes a first-class wheat land.

This article has special reference to common quick lime, which is generally easy to get and the most efficient form when properly applied. There are at least four important conditions under any one of which highly beneficial results would be expected to follow its use; first, when a soil is deficient in its supply of lime for plant food; second, when there are abundant supplies of nitrogen, potash and phosphoric acid in the soil, but so locked up as to be largely unavailable for plant use; third, in case of sour or acid land; and fourth, lime acts strongly to lighten stiff and heavy soils.

Chemically, the chief results of liming are the changing of unavailable plant food to available, and the neutralizing of injurious acids.

By holding the finer particles together, lime makes a compact soil flocculent and porous, and thus counteracts tendencies to bake and to dry out. It also prevents the excessive leaching of loose soils. Lime nourishes, also, some of the most useful soil bacteria, while it is destructive to injurious insects, fungi, etc.

Among the evil effects of lime are its tendency to set free ammonia, to make some soils too open, and, as an exception to that stated above, it is said to nourish the organism which produces scabby potatoes. Soils are often found, too, on which it produces little change, particularly those that have been well dressed with phosphates.

As its merits usually far overbalance its demerits, every farmer would do well to test it under such conditions that its true effect can be plainly seen, such as by liming one part of a uniform field and by leaving the other unlimed, both parts receiving neither different treatment nor other fertilizer, For this test, wheat, oats, cow peas and clover give good indications.

The amount applied depends on the kind of soil, whether heavy or light, rich or poor. For a heavy, clayey soil, or for a very rich soil seventy to eighty bushels per acre is a reasonable amount. For very light and for rather poor land twenty to thirty bushels are sufficient at the outset. The humus supply in such land should be increased by stable manure, cow peas, or the like, or the lime may do harm. As many as three hundred bushels to the acre have been used with advantage on very stiff clay, while as a rule very poor land should not be limed.

It is well to bear in mind that the chief action of lime is to improve the mechanical condition of soils, and is therefore to be applied by the ton rather than by the pound. Forty to fifty bushels per acre is given as an average amount, which, if we allow eighty-five pounds to the bushel of unslaked lime, is 1¾ to 2¼ tons.

Immediately after burning, lime has the composition, calcium oxide, which readily unites with water to form calcium hydrate or slaked lime, the best form for general application. When exposed, this slaked lime slowly combines with the carbonic acid of the air, forming the same compound as in the limestone before burning, but in a very fine state of division. As this is far less energetic than slaked lime, the following method of application is recommended; freshly burned lime is put in heaps at convenient distances for distribution; forty pounds, twenty-one feet apart each way, would give two tons to the acre. To prevent the ready access of air these heaps should be covered with soil. If the ground be moist the lime will fall to a fine powder in a few hours; if it be a dry time a little water can be used. Just as soon as it is slaked to a powder it should be spread and plowed, or preferably, harrowed under. It is important that the day for spreading be dry to prevent the formation of lumps.

As lime frees ammonia and also renders soluble phosphoric acid, insoluble again, care should be taken not to apply it at the same time as other fertilizers or stable manure. The fall is the best time for the application of any form, caustic lime in particular.

Calcium sulphate, commonly called gypsum or land plaster, is another form of lime which is much used. While of value, it is not so highly thought of as the quick lime. Its chief merit seems to be to make available certain insoluble forms of potash already in the soil. In this way its superior effect when applied to clover is accounted for. It is best to apply it some months before planting, or as a top dressing. It is frequently used at the rate of two hundred to three hundred pounds to the acre. As a rule, it does not pay on very poor land and is not advised where high farming is practised.

Often the effects of lime can be seen for years while a fresh application every five or six years is frequently profitable. The present tendency is to lime oftener and to apply less at a time.—*Tennessee Experiment Station.*

Beware of Cheapness.

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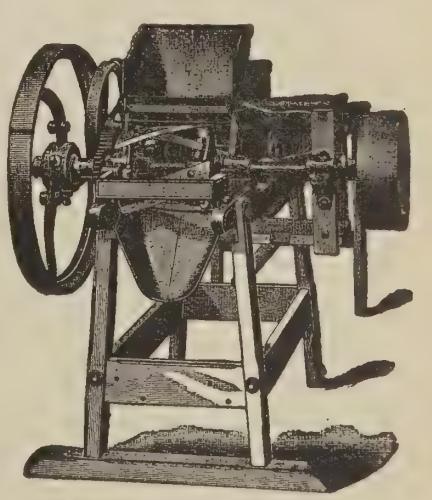
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American Butter in England.

To Mr. Arthur Dodge, the Washington correspondent of the Milwaukee *Sentinel*, we are indebted for the following interesting summary of the forthcoming report of Major Henry E. Alvord, Chief of the Dairy Division of the Agricultural Department at Washington. The report recounts the experiments that have been made by the Secretary of Agriculture in promoting the sale of American butter in England.

In commenting upon the results obtained in these experimental exports, Maj. Alvord said: "The apparent indifference of American producers of dairy products is one difficulty in the way of establishing a good market for high-class dairy products of this country abroad. We have observed that our producers pay little attention to the export trade unless there is an over production in this country. In order to be successful in building up a foreign market our exports must be continuous. The English merchant does not desire to build up a trade on a certain line of goods, and suddenly find that the supply is shut off. Inquiries are coming to the department from English buyers asking names of American creameries that can be recommended to furnish regular shipments. Only last week," said Maj. Alvord, "we received a communication from an English firm asking reference to a creamery that could furnish 600 tubs of high-grade American butter a month."

The importance of the British market to American exporters of butter is shown by the fact that in 1897 English buyers purchased abroad $77,000,000 worth of butter. In fact, British purchases of butter from the outside have doubled during the past ten years, and last year the quantity imported by the United Kingdom aggregated 3,500,000 hundredweight. The latest figures on British importations of butter show that the United States leads Canada on butter sales to the United Kingdom by 154,000 hundredweight against 109,000 hundredweight sent by Canadian exporters. Denmark continues to be the chief source of supply for butter imported into Great Britain, the Danes sending 1,300,000 hundredweight into the United Kingdom last year. All other countries combined sent 1,600,000 hundredweight. The importance of this export trade is further shown by the fact that the American exports of butter to all countries last year aggregated 20,000,000 pounds, valued at $3,263,000.

NORTHWESTERN DAIRY PRODUCTS USED.

The experimental exports by the department included lots of high-grade creamery butter from Fort Atkinson, Wis., Strout, Minn., Big Stone City, S. D., and various points throughout the dairy districts of the West. The department paid for the butter used the regular market price, at the time of shipment. The exports were generally in packages varying in size, form and treatment. In the general trade of Great Britain it was found that packages holding from fifty to sixty pounds are desirable. It was found that double linings for packages of paper parchment and paraffine applied hot to close the cracks and joints in the wood were desirable. The department trials also included butter in prints, and also packed in tin and paper boards, sealed suitable for ocean voyages. Thorough analyses were made of butter selected in the open London market. The summary of the results obtained as set forth in the report ends with these significant observations:

DESIRE TO EXPERIMENT FURTHER.

"American butter can only be introduced abroad successfully and establish a demand for it, with the full recognition of its merits, after a period of persistant effort. English merchants of standing and in control of reliable, high-class trade must be interested in the effort, and induced to act as agents for butter sales. These agents must be regularly supplied with butter, uniform in quality and quantity, and suited to the markets they represent, for seven or eight months of the year. The department cannot establish this foreign trade in high-class butter or even begin it, but it may do something toward ascertaining the conditions which control such trade and assist in making them known to many interested parties." The result of the trials, the officials conclude, justify a repetition of the experimental shipments upon an enlarged scale and in a broader field, and to include besides butter, other perishable farm products which this country has to sell.

GAINS AND LOSSES ON SALES.

Some difficulty was experienced by the department in securing refrigerator space on American trans-Atlantic lines, and better results were obtained on shipments over lines between Montreal and London. Under the fostering care of the Dominion government seventeen steamers sailing from Montreal have been fitted with refrigerators. The cost of transportation on these experimental exports ranged from 1¾ to 3¼ cents per pound of butter, net weight. The average from Iowa was less than 2½ cents, and from Kansas 2¾ cents. Time of shipment required from creameries in Wisconsin, fourteen days; Minnesota, sixteen to eighteen days; South Dakota, seventeen or eighteen days, which allows for handling in cold storage and reshipment from time of loading at the creameries, to placing on the London market. The general opinions expressed by British consumers were highly commendatory of this American butter, although where its supply was unknown, they believed it to be the "Best Dorset" (English) or Danish butter, the favorable brands in the high-class retail trade for cured or salted butter in London. By special efforts the department secured the co-operation of dealers to advertise by placards "Selected Creamery Butter From the United States." To sell it readily as such they were obliged to place the price rather lower than that of butter of greater reputation, but admitted to be no better, on sale at the same place. Twenty-four and twenty-six cents were the respective prices of the two grades.

The purchases for these exports were made during April and October, and ranged from thirteen cents, the lowest price paid in Kansas in July, to twenty-five cents, the October price paid in Connecticut The London sales ranged from 15¼ cents in May, to 21¾ cents in October. Butter from Minnesota and Ohio sold at a net profit of 2¼ cents a pound, from Kansas at two cents profit, and from Wisconsin at about one cent profit. The average cost of these lots was 14¼ cents, and the average selling price 18½ cents. Following is a sample expression from wholesale merchants in London on, the American shipments:

SOME BRITISH OPINIONS QUOTED.

"We have carefully inspected your American butter, and find the quality and condition better than any of the kind we have yet seen, but it contains too much liquor, which runs when defrosted." Another said: "I have inspected samples of butter and consider the quality to be very fine. There is but one fault that I can find, and that is the firkins contain too great a percentage of water. I am sure this class of butter would be taken up very largely by the consumers in London and suburbs, if it could be shipped in large quantities regularly throughout the season, and the quality kept equal to this lot. I should like to have 2,000 to 3,000 packages a month." A retail dealer said; "The package of American butter was in every way satisfactory. By this I mean that it was well made, carefully packed, and possessed of the very best keeping quality. The flavor was agreeable, and the amount of salt just about right to suit the general English taste." Another said: "For the London trade it savors too much of the Irish 'twang'; is a little too salt and the color too high." The general expression by consumers was that the American butter was excellent. One consumer said: "It came, saw and conquered." One said: "It is very good; similar to Irish creamery, but I think the quality superior. It was rather light in color; otherwise, it was, in my opinion, excellent."

WHAT THE BRITISH MARKET DEMANDS.

The experiments by the department induced the officials in charge to conclude that "The demand for butter of good quality in Great Britain, and the steady increase in this demand, offers a market for large quantities of the best creamery products of the United States." It is further observed that there is no reason why butter from this country should not compete successfully with Canadian and Australian butter in the markets of the United Kingdom, at all seasons of the year. The local requirements of markets in different parts of England and Scotland will have to be further studied, and care taken to prepare butter to meet the varied tastes. As a rule, the British demand a butter freer from brine, more waxy in texture, firmer, or "better in body" than the average "extras" of the American creamery. For export butter, more time and care in making and packing are essential; less attention to securing a "quick high" flavor and more attention to good body. The flavor may be mild, rather slow in development, but should be "clean" and uniform month after month.

CARE IN MATTER OF SHRINKAGE.

The report further says that it seems probable that pasteurizing cream and the use of pure cultures for ripening will be well adapted for making successful export butter. The color in British markets is permitted to vary somewhat with the season, but very little artificial coloring is desirable at any time. A natural grass yellow is generally regarded as too deep. Some English markets prefer butter

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very pale, or a slight shade of straw color. As to salt, the tendency is to use less. It is also noted that shrinkage must be provided for. The usual loss is about one-half of one per cent on the net weight. The department investigations were not conclusive on this point, but if fifty-seven pounds of weighed butter is packed in an export box, the net weight in any market of Great Britain within a month's time, will be pretty certain to exceed fifty-six pounds. It is necessary to allow for shrinkage of weight on every small package, as the London market laws require full weight in all commodities at retail, and are strictly enforced.

Corn Fodder in August.

With the approach of dry weather, many pastures are unable to supply food for good milk production, and with continued dry weather, the falling off in milk yield becomes a serious matter. It is not economy to wait until the pastures are poor before helping the cows to procure better food. There is a hesitancy on the part of many, who are raising corn fodder, to feed any of it during the summer, because they fear that they will not get full value for the crop. The doctrine is: Let the cows get along the best they can and let the corn fodder mature.

Corn fodder in its early stages of growth, while it contains a large per cent of water, contains valuable milk stimulating nutrients. The dry matter of corn fodder in its early stages of growth, is more nitrogenous in character, and therefore more suitable for milk stimulation, than matured corn fodder. Of course less weight of dry matter per acre is secured, but then there are no heavy losses from corn stalks that are so hard and woody that they cannot be eaten by stock. When the pasture becomes barren, corn fodder, with a little bran or grain, will keep up the flow of milk and prevent the creamery checks from being cut in halves. It is better economy to feed green corn fodder in August to keep up the flow of milk, than it is to feed dry, bleached corn fodder in December, when the cows are demanding more food to keep their bodies warm, and are possibly not producing milk. A field of corn fodder in August should not be considered too good to feed.

What does corn fodder in August contain in the way of nutrients, and what is the cow able to get out of the corn fodder? We must, of course, recognize that there is a great difference in corn fodder. That which is grown on a farm where the land is well cultivated, manured, and the crop properly cared for, is at least one hundred per cent more valuable than stunted, sickly, yellow corn fodder, half starved and grown on poor land. A horse that is well fed can pull a bigger load than a "plug." So can corn fodder that is well fed, produce a better yield of milk than "scrub" corn that is half starved. Green corn fodder contains from 85 to 88% of water—about seven-eighths water and one-eighth dry matter. If we were to remove the water and consider only the dry matter, we would find from eleven to fifteen per cent of protein. It is this material (protein) which gives the fodder its value. A cow has no objection to eating fifty or sixty pounds per day of green corn fodder, and if it is good fodder she gets over a pound and a quarter of protein. If the cow were compelled to search the pasture and get a few mouthfuls here and there, she would not get very much protein, and the flow of milk would fall off seriously. Pure corn fodder, valuable as it is, however, should never be fed alone, but along with a fair amount of bran or grain, it gives excellent results as a milk stimulating food.—HARRY SNYDER in *Farm Stock and Home.*

Cement Concrete Structures.

Mr. Isaac Usher, of Queenston, Ont., in his Institute talks gives a few of the essentials and methods in the following words: "In building concrete structures, clean gravel only must be used. It must not be earthy, loamy or sandy. It must not be too fine; in fact, the gravel should run in size from a wheat grain to egg size. If gravel of this sort is used, about eight barrels of gravel are used to one of cement, and it makes a stronger wall than very fine gravel and cement, equal parts, and is also more economical. Cement is put up in jute and paper bags. The jute bags hold two cubic feet of cement. The preparation of the concrete mixture is somewhat as follows: A bottomless box, three feet by four feet by one foot high, is used, on a large platform where the mixing is done. The box is placed and half filled with gravel, then half the cement to be used is added; then to the box is added as much more gravel, and then the balance of the cement. The proportion here is one to six—twelve cubic feet of gravel and two cubic feet of cement.) *This is mixed thoroughly* DRY! When thoroughly mixed, water is added gradually. About three to four pails of water is needed for the above quantity, varying a little according to amount of moisture already in the gravel. The water is thoroughly worked in until the mixture has the consistency of mortar. Only a small amount of sand in the gravel is needed, gravel about the size of eggs being most economical. *Mix thoroughly, and when using ram down hard.* It is better to excavate to get a good foundation. The foundations for walls are usually eighteen inches thick, and on this is built a ten-inch wall, the wall being built in center of the footing (foundation.) This size wall will support any weight in connection with a barn structure. Planks and studding are used to hold cement concrete while building; another method is by the use of clamps. A railroad barrow is the most useful article for carrying the concrete mixture around in. Large stones can be used in the heart of the wall, but they must be rammed down tightly. One barrel of cement will, with the necessary gravel, build a wall thirty-five feet long and one foot high. Good cisterns can be built in the ground with this material. The walls are usually four inches thick, with a parachute roof—eighteen to twenty-four inches of a rise. In this roof is a manhole twenty inches across. The manhole trap is of iron.

CONSTUCTION OF FLOORS.

The manure trough (gutter) is put in first, then a 2×6 on the floor side and 2×8 stall side is used to hold the cement in place. There is a slight slope in the stalls, about three-fourths of an inch. The floor for a cow stable is made about three and one-fourth inches thick, two and one-half inches of the rough, six to one concrete, being used and rammed down thoroughly, then about three-fourths of an inch of the two to one concrete being used on top of the first lot. In this method one barrel will put in about fifty square feet. A floor is all the stronger and will wear better if it is three-fourths to one inch thicker with the rough concrete, six to one. The foundation for the floor should not be broken stones, as they let air in and the concrete will dry out too quickly It is far better to level the earth thoroughly, then put on a layer of sand or gravel one to two inches thick—on top of this the concrete. Never put the concrete right on clay. Sockets are made 6×6 and built in at the side for the stall posts. The sockets are made by using watersoaked blocks 6×6, which are left in one-half to one hour, then withdrawn, and a hole is left in which the stall post is placed. In horse stalls a two inch fall is given. If sharp-shod horses are stabled, the floors should be planked on top of the concrete. Floors should not be polished with an iron towel, as it will make a slippery floor.

Note.—The bottomless box used for mixing the concrete in, has cleats nailed along each side, to be used as handles to lift it around by.—*Farmers' Advocate.*

The Season for Fattening Hogs.

In his "Pork Production," F. D. Coburn, Secretary of the Kansas State Board of Agriculture, has the following to say on the above subject:

There are two seasons of the year, when the greatest gains can be made in hogs of the same type, and under similar conditions with the same amount of corn. These are early in the spring, before the weather becomes excessively hot, and in September, October and November, before it becomes excessively cold. Prudent farmers, therefore, aim to do the bulk of their feeding in these months. The objection to early fall feeding, lies in this, that the packers usually make a combined effort to beat down the price of hogs at the beginning of the packing season. The fact that a very large per cent of the hogs are fed in the fall of the year, and thrown upon the market, enables them to do so in ordinary seasons without much difficulty. This season, however, is likely to prove an exception. The packing season begins the first of November and the sharp demand at present prices, for both live hogs and pork products, makes it probable that the usual effort will not be made, or at least, not with the earnestness this year. While it is true, as a rule, that higher prices prevail in February and March than November and December, the difficulty in making weights during the first named months, and the heavy expense involved in the way of keeping up the animal heat, go far to neutralize the difference in prices. Where the farmer does not sell in car load lots, it is a good thing to have a few hogs to turn off at different seasons of the year. It is also a good plan to have the largest lots to turn off at the close of the season, when the greatest gains can be made with the same amount of corn. Much of the loss in hog feeding, in extremely cold weather, can be avoided by securing proper shelter. Corn must be very cheap indeed, if it is not dearer than pine boards at present prices. It must be understood, that the food that is used to maintain animal heat is just as truly used as fuel in the hog, as coal is used in the stove for maintaining the temperature of the home. The warmer the house provided, ventilation and other health requisites being secured, the less fuel is required. The same rule applies in the hog pen. Heat may be purchased at too great an expense to health at the home, as well as in the pen. The permanency of prices requires that marketing of hogs should be kept up over the entire year. The market necessitates feeding, and while it is true that the greatest gains can be made at the seasons above mentioned, and while it is also true that it is usually more convenient to feed a large number in the fall of the year, for obvious reasons, yet the farmer should be prepared to feed off hogs at any time, and at the weights which the market requires.

Kansas Cows.

The total number of milch cows in the state is 684,182, an increase of 78,257, or 12.9 per cent. Dickinson county leads with 14,948, with Pottawatomie, Osage, Sedwick and Washington following in the order named; the aggregate gained of these five counties is 7,716. The increase in milch cows in 1897 was 37,463 and in 1898, 53,387, making a total increase for the three years of 169,107.

The number of cattle other than cows is the largest Kansas has ever had, and for the first time in the history of the state, has passed the 2,000,000-mark; in the last four years the number has increased nearly 1,000,000 or 75 per cent. This year's gain over 1898 is 203,746, or 10.19 per cent, making a total of 2,201,886. Greenwood county retains her lead in other cattle, having 69,177, followed by Barber with 65,806, Butler 59,610 and Cowley 56,829.

CONCERNING OUR ADVERTISERS.

THE following letter just received from Henry Stevens & Son, indicates that Holsteins are as usual, in brisk demand:

ED. HOARD'S DAIRYMAN:—Among recent sales from Brookside were three beautiful two-year-old heifers to that extensive and well known breeder, Mr. A. A. Cortelyou, Neshanic Station, N. J. These heifers were not only fine individuals, but exceptionally well bred and all had made large official butter records.

Mr. W. A. Matteson, Utica, N. Y., Pres. of the H. F. Assn., also purchased of us two very fine show animals.

We have also shipped to Mr. B. F. Wright, North Ridge, N. Y., the fine yearling bull Duchess Ormsby Prince. His dam, Dutchess Ormsby 3d, was very sucessful last season as a two-year-old in the show ring and is also a very large producer. She won first prize in the two-year-old class in the seven day butter contest at the Omaha Exposition last fall.

Our sales of young bulls have been good but we still have on hand thirty bulls from two months to ten months old, many of them are backed by the largest official butter tests ever made.

Feed in pastures has been good until recently and our cattle have done exceptionally well; our herd now numbers 160 head. We are building a silo and extensively repairing the barns on a farm we purchased last winter, and are not going to be able to show this fall, but are glad to know that our breed will be well represented at most of the leading fairs and we feel confident that they will continue to take the lion's share of the prizes in competitive butter and milk tests.

Lacona, N. Y. HENRY STEVENS & SONS.

We wish to direct the attention of our readers to the advertisement of the Janney Mfg. Co., of Ottumwa, Iowa, which makes its first appearance in this issue. As the reader will observe these people are the manufacturers of the famous corn husker and fodder shredder bearing the firm's name. We are assured by the manufacturers that this machine is no longer an experiment but an assured success. This fact is borne out by the excellent line of testimonials set forth in their published matter. It would seem to us that this machine should prove a boon to farmers, in that it saves entirely the element of hand labor which now enters so largely into the expense of growing a corn crop. Anything which will save that expense will certainly tend to increase the profit of growing a corn crop. Write these people for circulars, etc.

VERY POPULAR.

The "Osgood" Standard Scales, manufactured by the Osgood Scale Co., Central Street, Binghampton, N. Y., are the subjects of an illustrated announcement to the trade, in this issue. They emphasize the fact that they want dealers and agents everywhere to handle the farm scale. The house adds a proposition to ship scales on a thirty days' trial. The wagon scales made by this firm are becoming very popular, and the sales are larger than was expected. A catalogue will be sent on application.

CLEANLINESS and comfort of the domestic animals are to be provided in every form available. The dairy will be in every sense more attractive if the owners of cows will use the Newton Cow Tie, an illustration of which will be seen in their announcement in our columns. For further particulars our readers should address the E. C. Newton Co., Batavia, Ill.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

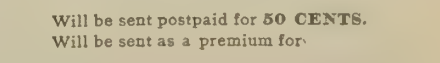
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

SUCCESSFUL DAIRYMEN use 1 cent's worth

SHOO-FLY

Saves 3 quarts milk daily if used in time. NO FLIES, TICKS, VERMIN OR SORES ON COWS. Thousands duplicate 10 gallons. *Beware of imitations.* "I have used several so-called 'Cattle Comforts,' *none* equal to *'SHOO-FLY.'* It is effective and cheap. Used 100 gallons." H. W. COMFORT, Fallsington, Pa., President Pennsylvania Dairy Union. Send 25c. Money refunded if cow is not protected.

SHOO-FLY MFG. CO., 1005 Fairmount Ave., PHILA., PA

BUGGIES.

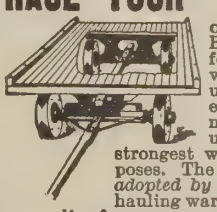


Leather Quarter Top $36.50

Carriages, Road Wagons, Phaetons, Wagons, Farm Implements of all kinds at factory prices. Buy direct and save all intermediate profits. We ship on "approval." Send for catalogue.

JOHN DORSCH & SONS, 223 Wells St., Milwaukee, Wis.

HAUL YOUR CORNSTALKS



on our Low Down, Broad Tire, Wide Platform, **Handy Wagon** with wheels that turn under the load. It is easy draft, easy to load, never breaks down or upsets. Best, handiest, strongest wagon for all farm purposes. The only low down wagon *adopted by U. S. Government* for hauling war supplies. We want one live farmer as our agent in every county. Write for terms and descriptive circulars, free.

FARMERS' HANDY WAGON CO., Saginaw, Mich.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for **50 CENTS.**

Will be sent as a premium for

ONE NEW SUBSCRIBER.

A MILK dealer in Madison, Wisconsin, who was arrested and fined for using preservatives in his milk, explained its use as follows:

Mr. Wergin explains the manner in which he, unknowingly, violated the law by the statement that the preservative used was purchased from a Chicago firm, whose agent stated that it was the same thing as is used in pasteurizing milk and cream, which is permitted under the law.

Here is a good illustration of how expensive ignorance is. A little reading would have shown the difference between the "preservatives" and pasteurization, and saved $25.00 fine and the loss of customers, which usually follows such a conviction.

Good Results From the Plowing Under of Green Clover.

Among the many things of interest seen by the large number of farmers who have visited the Central Experimental Farm at Ottawa, during the past few weeks, none have awakened greater surprise than the striking illustrations made this season showing the advantage to crops of the plowing under of green clover. This is particularly seen in a field of oats of about ten acres. This land in its preparation in the spring, was treated the same throughout; the field was all sown the same day with one variety of oats, the Bavarian. Last autumn about eight acres of this field had a good mat of red clover turned under, which was grown from seed sown (ten lbs. per acre) with a barley crop in the spring. One acre was plowed which had been in Brome grass for two years. One acre, which had been occupied with other pasture grasses for a similar period; and one acre with a mixture of pasture grasses and clover.

Over the whole area where the clover was turned under, the increase in the growth of the oat crop is most striking. The difference in the highest part of the grain will average about twenty inches, and the deep green color of the leaves on this part of the field and the vigor of the plants are in striking contrast to the crop on the adjoining land, where there was no clover. This remarkable increase in growth, affords convincing proof of the added fertility given to the land by the plowing under of green clover. In another field, which has been planted with potatoes, a strip of the land covering eight rows of this crop had clover grown on it last year, which was plowed under. In that strip the growth of the potatoes, as compared with the same variety on the adjoining land where there had been no clover, was quite remarkable, the plants being much larger and more vigorous. The results of the crops in both those instances will be watched with interest.

Last year a like illustration was given on eight plots of land on another part of the farm, on four of which red clover had been sown with grain in the spring of 1897; while on the other four, grain was sown without clover. This land was all plowed in the autumn of 1897 and in the spring of 1898 the whole area was sown with Banner oats. The greater vigor in the growth of the grain where the clover had been turned under, was very noticeable quite early in the season and became more striking as growth advanced. These results were brought under the notice of a large number of visiting farmers during the season of 1898. When this crop matured the grain on these eight plots was harvested and threshed separately and the yield per acre on the four plots on which the clover had been grown, exceeded that obtained from the plots on which there was no clover, by an average of eleven bushels and one pound per acre.

In another field clover was similarly sown, in 1897, in different quantities with grain on a series of plots with three left as check plots without clover. As these were all to be planted with Indian corn they were not plowed until May 23rd, 1898, by which time the clover had made a heavy growth. After plowing and harrowing, the corn was planted, and when harvested in the autumn the average crop on all the plots on which not less than eight pounds of red clover had been sown and plowed under, exceeded in weight the average yield of the three check plots on which there was no clover, by four tons, two hundred and thirty-three pounds per acre.—WM. SAUNDERS, Director Experimental Farms, Ottawa, Ont., in *Farming*.

The Sand Vetch.

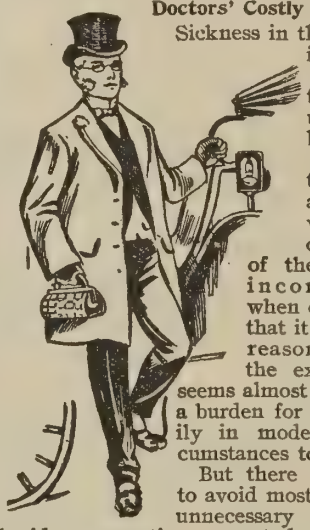
Among the various leguminous crops recently introduced into this country, with such manifest advantage to the farms and farmers, there is not one which, in our judgment, promises greater results than the sand vetch, or hairy vetch as it is sometimes called; and especially is this so in the South, where our greatest need is something to cover up the land, and continue growth during winter, and thus prevent the leaching and wasting of our soils by the rains. German or crimson clover is a most valuable plant for this purpose, but, unfortunately, it is easily killed by drouth or the hot sun in the early fall months, when just germinating, and the securing of a stand has been found to be a great difficulty in the way of its adoption, with any degree of universality. In many sections it is largely grown, and its value as a forage crop and as an improver, is so great that no effort should be spared to secure, at least, a few acres, by making several sowings at intervals during this month and the next. The sand vetch has come to us as a valuable adjunct to this clover. For the past three or four years it has been tested widely throughout the country, and very fully in Virginia. It has been found to be perfectly hardy and not nearly so susceptible to killing by the hot sun or drouth in the early fall, as crimson clover. Whilst it does not make a very vigorous growth during the winter, it yet lives and grows, and is ready to push into quick and luxuriant growth as soon as ever the mild days of spring set in. When once this growth starts, it continues through wet and drouth, and the quantity of forage made is wonderful. It has made as high as 45,000 pounds of green feed to the acre, and this feed is of the most nutritious character. It is much richer in protein (the muscle and growth producing element) than red clover, or than the cow pea, whilst in fat-producing matter it is nearly the equal of those plants. As a soil improver it is richer in nitrogen, phosphoric acid and potash than any of the clovers or the cow pea. If intended for forage or hay, it should be sown at the rate of thirty or forty pounds to the acre, with a light seeding of winter oats, wheat or rye. This will hold up the vines, and make it easier to cut and harvest the crop. If only intended as a pasture or an improver, sow alone at the rate of forty or fifty pounds to the acre. Sow in August, September or October, on well prepared land. When sown alone it will make a perfect mat all over the field, which will continue to increase in thickness all through the spring and summer, as the vines fall down and grow through again. One of our subscribers had a large field of this vetch last year, which was sown alone, and intended only as an improver of the land, which in the early fall was covered with a mat of the vines, six inches thick, and so dense that not a particle of soil could be seen. When plowed down the soil was found to be as mellow and full of vegetable matter as possible, and when consolidated with the roller was in the finest condition for the production of wheat, winter oats or grass crop.—*Southern Planter*.

Skim Milk as Human Food.

Skim milk contains nearly all of the food value of the original milk, with the exception of the fat, and even this may be present to the extent of from one-tenth to one per cent. It contains from three and five-tenths to four per cent of protein, about five per cent of milk sugar and eight-tenths per cent of ash or mineral matter. Its chief value is as a muscle-making food, and hence it is of great value to growing children or laboring people. Its economy as an article of diet can best be shown by comparing it with other foods. Twenty-five cents will purchase six and one-half times as much total nutrients and five times as much protein in skim milk at two cents a quart, as in sirloin steak at twenty-two cents, or four times as much nutrients and three and one-half times as much protein as mutton shoulder at fifteen cents a pound. Or three quarts of whole milk, worth from six to eight cents at retail, will hold more total nutrients and more protein than a pound of round steak. At the present prices the only common food materials that will furnish more protein for a given sum of money than skim milk, are beans, wheat, flour, oat meal, corn meal and salt codfish.—Prof. C. S. PHELPS, in *Homestead*.



Doctors' Costly Visits.



Sickness in the family is hard enough to bear under the best of conditions. It almost always cuts off part of the regular income, and when on top of that it adds unreasonably to the expense it seems almost too great a burden for any family in moderate circumstances to endure.

But there is a way to avoid most of these unnecessary expenses besides preventing a great deal of the sickness itself.

"Doctor's visits come high," says Mrs. Bela F. Howard, of Glen Ellen, Sonoma Co., Cal. "I have been in this place sixteen years and have only had a doctor once in my family since that time, thanks to Dr. Pierce's Common Sense Medical Adviser and his medicines. This book saves doctor's visits. I cannot do without it in the house. I have had two copies but cannot keep them. Enclosed I send 21 one-cent stamps for another copy." Another lady, Mrs. Jennie Warren, of Clifton, Graham Co., Arizona, says: "With pleasure I write to you again to let you know that I feel as well and strong as I ever did. With your kind and good advice and Dr. Pierce's Favorite Prescription I have been entirely cured. I thank you a thousand times for your good advice. I think that if every person who is sick in any way will write to you for advice and will take the medicine you prescribe, according to directions, no other doctor's services will be needed."

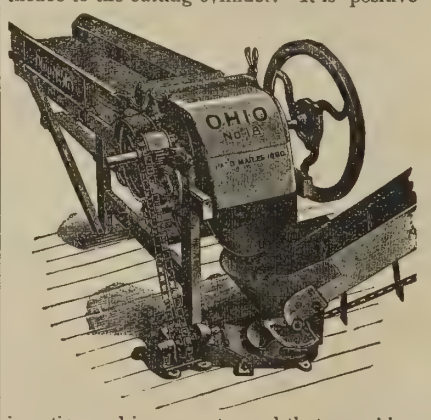
The great thousand-page Medical Adviser will be sent free paper-bound for 21 one-cent stamps to pay the cost of mailing only; or in cloth-binding 31 stamps. A whole medical library in one volume. Address R. V. Pierce, M. D., Buffalo, N. Y. He will send professional advice (in a plain sealed envelope) free of charge. All letters are considered in sacred privacy, and never published except by the writer's permission.

ILLUSTRATION.

SOMETHING NEW IN FEED AND ENSILAGE CUTTERS.

We are presenting herewith, for the benefit of our readers, something entirely new in the way of an ensilage and feed cutter. This is one of the "Ohio's" which are so well and favorably known to our readers and to the public in general. This new machine is styled the "Ohio" Standard Self Feed Ensilage Cutter. It differs from the regular "Ohio" line of cutters in the following essentials:

This machine is equipped with a direct and positive self-feeding device termed a traveling feed table, which consists of a web of hard wood slats passing over sprocket wheels, and delivering all fodder immediately to and between the feed rolls, and thence to the cutting cylinder. It is positive



in action and is so constructed that anything thrown upon the web or moving table must be passed on to the knives. Conveniently placed levers enable the operator to control the feed perfectly, however, stopping and starting instantly, should that be necessary, without skip or jar and without breakage, making the machine absolutely safe, and preventing the introduction of any foreign substance which might injure or break the knives or machine.

The greatest advantage in this new feed table, however, is the ability to increase the capacity of the machine, and at the same time save labor.

The new Metal Strip Swivel Elevator is another vast improvement applied to the "Ohio" machines. It will be observed that by a pivotal attachment this new feed carrier or elevator may be instantly adjusted to any direction and lowered or raised to any desired angle. A great advantage and the saving of much time is found in the fact that it is not necessary to take off the elevator chain in setting up, or otherwise changing the machine. The metal buckets used on this elevator to take the place of the old-style wood slats are made to correspond to the greatly increased capacity noted above, and easily take care of and deliver all feed passing through the machine. In all other respects this machine is the exact counterpart of the famous "Ohio" cutters, all of which are manufactured by the Silver Mfg. Co., of Salem, Ohio. They will take pleasure in mailing you a more complete description of their Ensilage and Fodder Cutting Machinery.

Winter Crops

perish when they lack nourishment. Liberal fertilization insures the vigor necessary to resist winter killing.

Potash

Phosphoric Acid and Nitrogen in well-balanced proportions, are what they need.

Send for our books telling all about composition of fertilizers best adapted for all crops. They cost you nothing.

GERMAN KALI WORKS,
73 Nassau Street, New York.



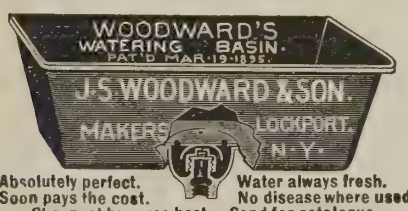
Stock Tanks

Any style, size or shape. Farmers can **buy direct** from our Factory at lowest Wholesale Prices. ☞ Catalogue Free.
C. E. BANTA MFG. CO.,
Box 274 E, Chicago, Ill.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Water always fresh.
Soon pays the cost. No disease where used
Cheapest because best. Send for catalogue.

WELL DRILLING MACHINERY



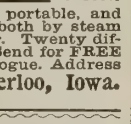
Established 1867.

Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address

KELLY & TANEYHILL, Waterloo, Iowa.

LIGHTNING WELL MACHY IS THE STANDARD

STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES



WRITE FOR CIRCULAR M6

THE AMERICAN WELL WORKS

AURORA, ILL. - CHICAGO. - DALLAS, TEX.

$30.00 OUR PIASA BIRD SULKY

Old Reliable Gang $35. Disc Harrow $16.



16-in. Walking Plow $9.50.

We challenge any plow for good work, light draft, easy handling, we have thousands of testimonials from farmers. Sent on trial, satisfaction guaranteed. Send for big free catalog and prices on buggies, harness, sewing machines & 1000 other things, delivered. Address,
Hapgood Plow Co.,
Box 369, Alton, Ill.

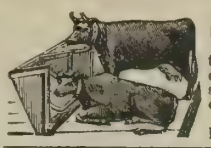
The only plow factory in the United States selling direct to the consumer.

BE HUMANE,

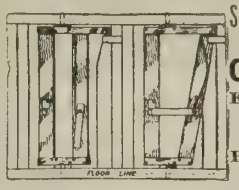
and profit at a cost of only 1c. per day, by using



The only reliable Lotion positively preventing Flies, Gnats and Insects of every description from annoying Horses and Cattle. Soothing and Healing if applied to sores. Applied to cows it secures gains in Flesh and Milk. Guaranteed Pure, Harmless and Effective. Gallon Can, $1.50; ½ Gallon $1 00; Quarts, 50c. Beware of imitations. Sold by Druggists, Saddlery, Agricultural Implement, Flour and Feed and Seed Houses, or **The Crescent Chemical Co., Philadelphia, Pa.**



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free



Scott's Perfect Swinging And Self Closing

Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT,
211 Beach Street,
Bridgeport, Conn.



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H C. DRAKE or M J. DROWN. Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

The Willard Knapp ...Cow Tie...



The LEAST EXPENSIVE, the MOST DURABLE, and the BEST DEVICE for Fastening Cows.

NEVER BUY ANYTHING

Simply because it is cheap. But when the **least** expensive is the **best**, why not use it?

WHAT ALL DAIRYMEN SAY

Must be so. Send for circulars with up-to-date testimonials from up-to-date men.

WILLARD H. KNAPP & CO.,
Box R. - - CORTLAND, N. Y.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**



$5.95 DIAMOND STUDDED CASE

Solid 14K Gold Plated Case 3 Parisian Diamonds, and Rubies. American movement Jeweled & accurately regulated stem wind & set Warranted for 20 years.

Sent C. O. D. $5.95 with privilege of examination Do not take from the express office if you think this watch is not equal in appearance to a $50 watch. Mention nearest express office, Ladies' or Gent's. Agents and salesmen coin big money. Address

EAGLE WATCH CO., 66 Maiden Lane, New York

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$ 1 50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year	1 65
HOARD'S DAIRYMAN and National Stockman and Farmer, both one year	1 85
HOARD'S DAIRYMAN and Michigan Farmer, both one year	1 50
HOARD'S DAIRYMAN and Practical Farmer, both one year	1 65
HOARD'S DAIRYMAM and Farm Journal both one year	1 10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2 00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1 50
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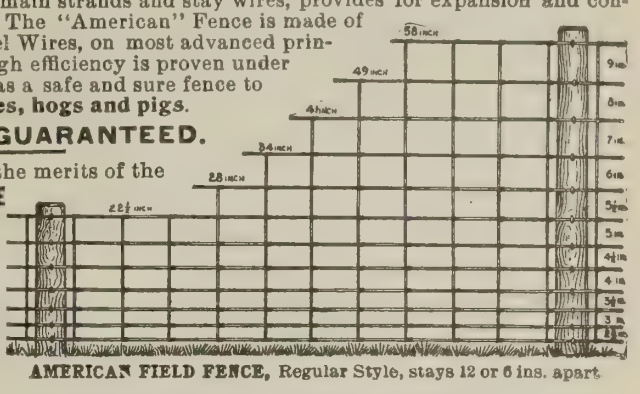
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Large, strong wires heavily galvanized. **Tension curve** at every intersection of main strands and stay wires, provides for expansion and contraction. The "American" Fence is made of Best Bessemer Steel Wires, on most advanced principles. Its thorough efficiency is proven under all circumstances as a safe and sure fence to **turn cattle, horses, hogs and pigs.**

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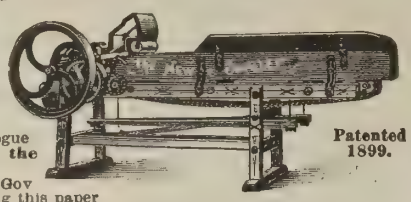
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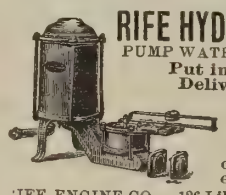
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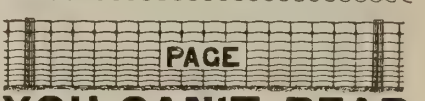
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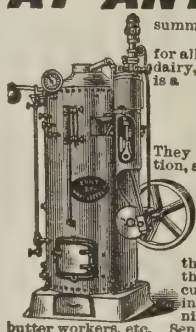
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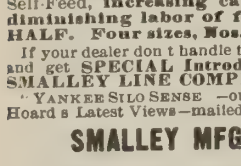
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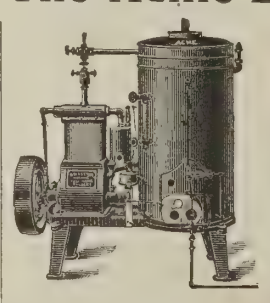
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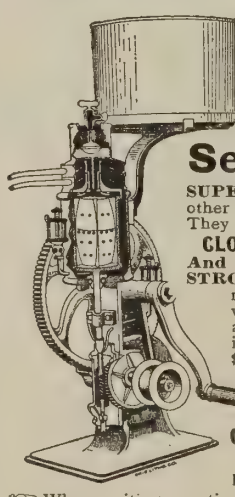
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See that the name of the American Cotton Oil Co. appears on the red tag.

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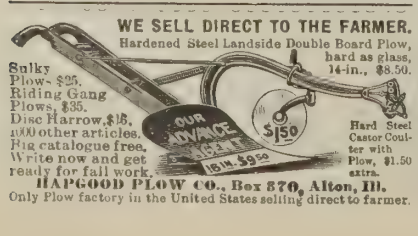
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Only Plow factory in the United States selling direct to farmer.

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

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THE LARGEST PREMIUMS ever offered for Dairy Products in the state is now provided in the dairy department of the **WISCONSIN STATE FAIR,** to be held at **Milwaukee, Sept. 11, 12, 13, 14 and 15, 1899.** Every creamery, dairy, or cheese factory in the state should make an exhibit. Remember if you do not win the Sweepstakes Prize you are sure of your share of the pro rata premiums, which for butter amounts to over $360, and for cheese $330, besides Special, and that duplicate score cards with all special defects, if any, written thereon, will be mailed to each exhibitor in a sealed envelope. Now is the time to make the dairy department of the State Fair what it should be—second to none. Wisconsin Dairy School Students are especially invited to exhibit samples of their dairy products. All exhibits will be carefully looked after and taken direct from the Express Wagon to the large glass Refrigerator in which it will be exhibited. Special attention will be given to re-shipment or selling exhibits at close of fair according to directions received; this will be under the personal supervision of Prof. E. H. Farrington, of the Dairy School. All articles, after being receipted for, will be taken direct from the refrigerator by the Express Co. Exhibitors should write their name and P. O. address plainly on bottom of each package.

All manufacturers or dealers in dairy supplies are specially invited to exhibit. At the Fair is where you will find the wide-awake, progressive and enterprising dairymen, and these are the men you want to show your goods to.

Address all communications in regard to Entries to **JOHN M. TRUE, Sec'y, Madison, Wis.**

For Dairy Premium List or general information write the Superintendent,

J. W. THOMAS, Anson, Wis.

31 Ag

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Devoted to Dairying and Dairy Stock Interests.

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VOLUME XXX. FORT ATKINSON, WIS., SEPTEMBER 1, 1899. NUMBER 29

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Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

PRINT BUTTER Should be wrapped in . . . GOOD **Parchment**
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YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.
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"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,
A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.
IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad oder left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.
SEND $1.00 FOR SAMPLE GALLON by Freight.
This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.
FITCH CHEMICAL COMPANY, Bay City, Michigan.

A Business Talk.

The great majority of creamerymen this season will buy some new material for their creameries. It is important that this material shall be of good quality. It will last longer and be cheaper in the end than the average of such supplies on the market. When

FITTING UP A CREAMERY

See that the **Vats, Churns, Butter Workers, Tin Ware, Butter Boxes, Engines and Boilers** are of the Haney-Campbell manufacture. They cost no more than the other kind, but are of much better quality. Mere mention of these things is meaningless; they must be seen to be appreciated; they must be tried to appreciate their excellent lasting qualities.

Tubular Separators have conquered the world in the matter of clean skimming. They produce a smooth even cream, and have large capacity. They run without the use of a steam engine and have practically no wearing parts.

Babcock Testers are machines that have been made on clap-trap lines until recently. We have a full line of the Elgin Manufacturing Co.'s testers—**No-Tin, Russian** and **Standard.** Send for our illustrated catalogue.

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DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

Convince Yourself.

Does it ever occur to you that a practical demonstration of merit is worth more than the "tale of woe" which comes from a salesman with an "ax to grind." It is remarkable how wonderfully interested in the welfare of the creamerymen (?) some wild eyed competitors of the Tubular have become. Why are they so energetic in their efforts to prevent creamerymen from giving the Tubular a trial? Because they are trembling in their boots. Do they fear that the creameryman will be the loser? Oh, no! Because it is the last card they have to play, and they know that when the Tubular is given a fair trial it gives satisfaction and proves itself in every way superior to their back number machines. Some of these fellows have been weeping "crocodile tears" over Mr. J. A. Chillqvist, of Nettle Creek, Ill., but the following letter from this gentleman shows that it has paid him to use his own judgment rather than listen to false friends.



NETTLE CREEK, ILL., August 4, 1899.
The Sharples Co, Chicago, Ill.

Gentlemen:—Your letter of inquiry of a recent date was duly received and should have be answered sooner but from the fact that I wished to see fully what the Tubular would do. I have now fully decided after carefully testing the machine, and am prepared to say that it meets fully your recommendation, and even more, as it requires very little power to operate same and the cream is equal, and I believe superior, to any separator that I have ever used. I have used separators for the last fifteen years, including nearly all makes, Danish-Weston was the first, then De Laval and Sharples and also Alpha, all of which I considered good, but I now say from experience that I regard the Tubular separator as the leading machine. I was warned against using or buying this as it was an experiment; it has proved to me the right kind of an experiment. What can we expect unless we look to advancement. I am skimming 2500 pounds per hour and this not to exceed .03 to .05 and have always found that my own judgment has served me better than the talk of competitor's agents of separators or anything else. There are several Tubulars running near me, and all are more than pleased with results from their machines. Yours truly,
C. A. CHILLQVIST.

The Sharples Tubular Separator

Represents the latest great advance in cream separator construction. More revolutions, less speed, more centrifugal force, less power, more perfect cream, less fat in skim milk, more durability and less complication.

The Bowl alone Revolves. It is a Hollow Bowl. It Spins on Air. Placed on Trial and Results Guaranteed.

Send for Catalogue No. 46.

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BRANCHES—Toledo, Ohio. Omaha, Neb.
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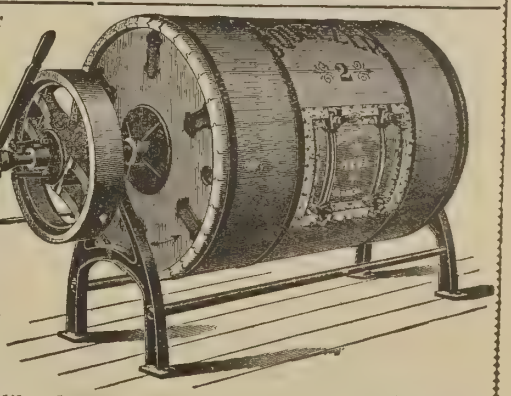


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Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by **THE HELLER & MERZ CO.,** Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

The Machine that will Build a Butter Trade.

Because it will make a superior quality of butter.

THE SQUEEZER COMBINED CHURN AND WORKER



squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

Made for the Dairy,

and is easily operated and readily cleaned. No dairy should be without it.

Will do Exhaustive Churning at any Temperature.

We are prepared to repair all cream separators and employ highly skilled men for this work.
Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

EXPERT TESTIMONY

SUBJECT:

Disbrow Combined Churn and Butter Worker

Witness: A. M. LARSON, Meriden, Kan.

MERIDEN, Kan., August 6, 1899.

T. J. HOWE, Esq, Owatonna, Minn.

Dear Sir:—Yours of the 1st inst. to hand, and in reply will say, that I have used a Disbrow No. 6 for about a year and a half and it has worked to my entire satisfaction. The churn is very light running and the engineer says, "it takes only about one-half the power it did to run the 400 gallon box churn which we had in before we got the Disbrow." While we had the box churn we could hardly churn while the separators were running, as it would shake them and make them tremble so it was hardly safe to be in the room where they were We experienced nothing of that kind since we got the Disbrow; it runs steady and causes no vibration, the gearing is very simple and is changed from churn to worker and reverse.

I have less trouble with mottles since I have used the "Disbrow." When the butter is taken out of a box churn to be worked, the temperature, either warm or cool, the surface of the butter, as it is hard in an average creamery to have the temperature the same as the butter, the soft part gets worked or overworked before the hard butter gets worked, and the result is badly mottled butter. The combined churn and worker keeps the butter at an even temperature, and consequently less mottles.

I always revolve the churn twice, in slow gear, after I have salted the butter and before I change it to a worker. To revolve the churn in fast gear is very hard on the churn and should never be done at the above stated time, but when put in slow gear the churn revolves as smooth as if there was no butter in it, and the revolving of the churn two to three times after salt is added before changed to worker, incorporates the salt with the butter.

I have churned 1,000 lbs. at one time in the No. 6, but think it a little too much; 900 lbs. is about right. I do not think it is worth the while touching upon the work that is saved by using the combined churn and worker, as I think it saves the buttermaker half the labor there is in using a box churn.

Trusting that my information is what you want, if there should be anything I have not touched upon, will be pleased to give you the information I can.

Respectfully yours,
A. M. LARSON, Buttermaker.

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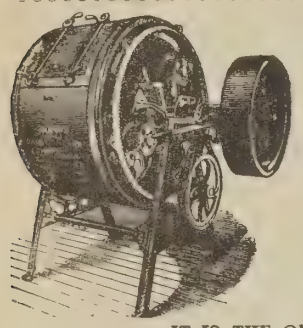
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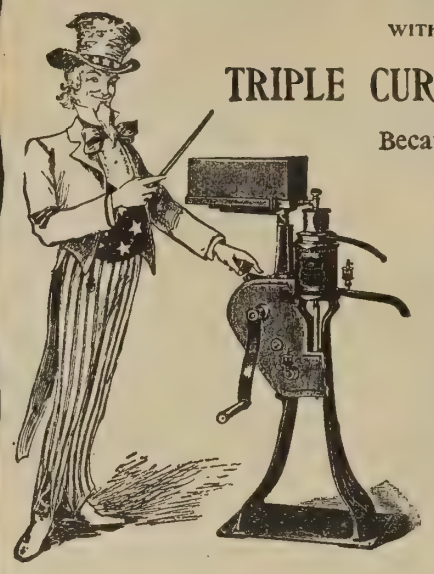
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Operates the Easiest,
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And in other important points Excels all other Separators.

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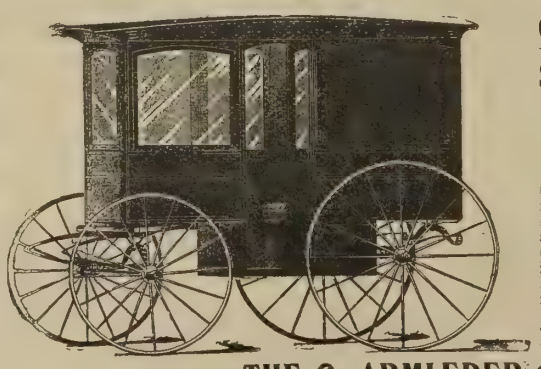
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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

WALTER O. CLARK, of Des Moines, Iowa, sued Edward Dicks in the District Court and obtained a verdict for $855 for damages to his health, resulting from the use of a tuberculous cow, which Clark had rented of Dicks. Clark's physician testified that he, Clark, had been greatly injured by the use of the milk of this cow. It is somewhat difficult to see how the doctor could testify that he knew Clark had acquired tuberculosis from the cow and from no other source.

LAWS REGARDING OLEOMARGARINE.

The decision of the Maryland Supreme Court, in a recent oleomargarine case, appears to us to be a strained effort in behalf of the counterfeit, and against the honest product of the farm. But the farmers of Maryland must not become discouraged.

No judge or court has long maintained itself, that was seen to be without sympathy for the products of honest toil, and in favor of a counterfeit that depended on deception and fraud for its sale and success.

The recent decisions of the United States Supreme Court block out the limits of constitutional legislation very closely, which may be defined as follows:

"State laws prohibiting coloring oleo to resemble butter are valid, but state laws forbidding oleo in its pure uncolored state to be brought in are not valid, neither are state laws requiring oleo to be colored any particular color.

State laws prohibiting the sale of oleo inside of a state from one citizen to another are valid, provided the seller is not the importer.

State laws prohibiting the manufacture, sale or importation into a state of oleo, made in the semblance of butter are valid.

The smallest package of oleo that can be originally put into a package is ten pounds, and no dealer is allowed to sell a package of oleo, in excess of ten pounds, unless he holds a license as a wholesale dealer."

SOME HOLSTEIN ILLUSTRATIONS AND RECORDS.

We give on this page a couple of illustrations of cows from the herd of W. B. Smith & Son, of Columbus, Ohio, and invite attention to the communication of Mr. C. G. Williams, in another column, describing the herd and the manner by which it was built up.

There is something more than a merely casual correspondence be ween the "style" of these cows and the records which follow their pictures. A slight rearrangement of the letters,—simply transposing the s and the u, which makes the word read "causal"—describes and explains this correspondence.

We place but little reliance on the numberless "signs" which are put forth from time to time as the infallible indications of dairy ability, unless they can be shown to rest upon some sound physiological basis, and contribute in some way to the adaptation of the animal to its environment and the work required.



PANA 33959, H. F. H. B.

Born Aug, 5, 1892. Dropped last calf Feb. 20, 1899.

The total yield for the seven days, March 19–25, was 539.6875 lbs. milk containing 15.5281 lbs. fat; equivalent to 19.41021 lbs. butter, containing 80 per cent fat.

We demand the arching flank and the thin, incurving thighs, because without these there will not be adequate room for a useful udder; we want a rising pelvic arch—about which the *Jersey Bulletin* makes itself almost irresistibly funny—because it indicates that nature has thereby provided the best possible kind of framework for supporting extra weight. We do not expect to draw milk from "thighs" or "pelvic arches," but when we see the provident mother of the old time, knitting woolen socks and mittens in July and August, in anticipation of the demand that will come in January, and the modern mother providing in other ways for the future wants of her household, we feel well assured that nature, not less provident, works on well defined and harmonious plans. When, therefore, we see the combination of incurving, thin thighs with a well cut up flank, we have reason to expect that in due time and with proper care, there will be an udder to occupy the space. If, in addition to this, there is a rising pelvic arch, we may conclude further that there has been wise provision for carrying this udder without undue tension upon the spinal column.

But the most perfect machinery in the world is worthless without power to run it. It is of little avail that a cow has adequate provision for an udder, unless there is also the means for supplying that udder with the necessary material for it to work upon. This must come from the food eaten and digested. The model cow must therefore have large storage and digestive capacity.

Observation has also taught us that milk making is intimately connected with, and dependent upon nerve force. The good milch cow has abundant nervous energy, which is largely supplied by the nerves radiating from the spinal column. It is immaterial that we cannot trace out and explain all the whys and wherefores of the mysterious connection of the nerves with the elaboration of milk. Possibly some day there will develop a physiologist of sufficient keenness of perception to discover these things, but for the present, we must be content to accept the fact, and draw the conclusion, that in some way a large backbone, with its processes not too closely interlocked, contributes somewhat to the efficiency of the cow as a milk producer.



PAYNE'S LADY DEVRIES OF ROCHESTER 2nd, 32883 H. F. H. B.

Born April 23, 1892. Last calf May 4, 1899.

The total yield for the seven days, May 17–23, was 570.25 lbs. milk, containing 17.06 lbs. fat; equivalent to 21.375 lbs. 80 per cent butter.

There are those who talk or write, with considerable appearance of great learning, about the necessity of heart girth and lung room. We have to say in regard to such matters that it has never yet been shown that any cow was ever deficient in these respects. Mere outside appearances and measurements are not indicative of the size of the internal cavities. Wherefore, other points being satisfactory, we may not be seriously alarmed if the animal is not over wide between the forelegs, and does not girt up to somebody's arbitrary standard.

It seems to us that the foregoing is a fair statement of what one would expect to find in a good dairy cow. If he was about to have one built to order, these are the main points to be insisted upon. The illustrations on this page give us from life, without any addition or pruning, the outlines and general form of two cows who have demonstrated their right to be classed as good cows. Do not the theories and the facts correspond? Is it not demonstrated that there is such a causal relation between form and performance, that, either one being given, it is not impossible to predict with some approach to exactness what the other will be.

We cannot conclude these hastily written notes, without renewing our protest against the custom of our Holstein friends estimating the yield of butter, by adding twenty-five per cent to the total amount of fat. This was not, as they seem to claim, the rule at the World's Fair. As a matter of fact the churned and well-worked butter there, showed an increase of only about 16⅔ per cent, and when this butter was reduced to the eighty per cent of fat standard, the increase was less than twenty per cent.

How the Hollanders Do.

In speaking of the necessity for the dairyman who wants good cows, to raise them, and further that he shall use wise dairy methods in doing the same, an eastern exchange says:

"It may not be amiss on this point to call the attention of our readers to the method adopted to the Hollanders, who are dairy farmers by instinct, and whose ancestors have followed the business for hundreds of years. In order to keep their dairy cattle up to the standard, they in the first place select the bulls invariably from the calves of their choicest milkers. In like manner they sell all their heifer calves for veal, or as yearlings, except about twenty per cent, and these are selected from their choicest milkers and raised on skim milk and other feeds adapted for growth instead of for beef production. In addition to this, they apply the greatest of all tests, performance at the pail. These heifer calves are brought in at about two years old, are thoroughly tested as to milk production, and if they do not prove satisfactory are sold for beef after their first season.

This is a rational way of procuring a herd of best milking cows. In fact, it is the only way, and if any of our readers wish to have a herd of ten or twenty cows that will give them between two and three hundred pounds of butter fat a year, they must select the sire from deep milking strains of whatever breed they have, must select the best heifer calves from the best milking cows, must feed these heifers for growth and not for beef, on oats as a grain feed instead of corn, and then reject the unworthy ones."

Feeding for Eggs.

It is difficult to give a general formula that will suit all conditions, still we believe in the morning mash, winter and summer. It is composed of one-half ground corn and oats, one-fourth bran, and one-fourth boiled vegetables or soaked beef scraps, or cut clover hay steamed; mixed with boiling water at night, covered up and left to steam and fed warm in winter. In summer, cold water is better. Whether to feed this mash every day or every other day, (alternating with wheat, or wheat and cracked corn mixed in winter) can be decided by experiment. Meat in some form, either raw or cooked, should be fed two or three times a week, and green food every day, winter and summer, if fowls are confined in yards. Green cut bone is an excellent feed, either separately or mixed with the mash.

Our manner of feeding for eggs is to give the mash every other morning in summer and every morning in late fall and winter. Care should be taken, however, not to give a full meal, but sufficient to satisfy hunger, and thus compel the hens to hunt around for whatever they may find in the yards or litter of the crops. We feed nothing at midday but green food, such as cabbage, and at night, wheat, oats and cracked corn, separately or mixed together. The heavy breeds being generally less active than the light, need to be carefully fed and kept busy scratching. Avoid over-feeding if you wish an abundance of eggs.—*Country Gentleman.*

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A DES MOINES daily paper says that the pasteurization of milk consists in separating the fat from the milk and then remixing it in different proportions, suited to the needs of each particular baby. What the average daily paper don't know isn't worth knowing!

HOW SHE WAS BRED.

When a ship is to be built the first thing they do is to employ a designer to draft her lines. If, after she is built, she does not sail well the blame is laid to the designer, and it is usually a right judgment. The principles of intelligent dairying apply in the same way to the construction of the modern dairy cow. Here is a chance to use fine skill and judgment, a chance to be broadly intelligent, a chance to take hold of and use the rich treasures of other men's experience and wisdom. When the cow is launched, if she does not sail well, if she refuses to keep up with her companions and make profitable voyages each year for her owner, it is comparatively easy in looking her over to note whether she was well constructed along the lines of the best dairy performance. If she was not, it will show in her "lines" as the ship builders say. Faulty lines make faulty performance. Is it not so in nearly everything?

A sewing machine must be built along the lines of its performance or it will not perform well, any more than a ship. So must a mowing machine, or any other machine be built. Every time, it is the work they have to do that must govern in their construction. The same principle holds good in all other domestic animals, and in the birds of the air. A greyhound is designed for great speed in running, and he is built that way; a bull dog is built for fighting and his build shows it. A game cock is designed for fighting in another way. See how trim and muscular he is built, designed for the greatest activity, courage and gameness possible; not an ounce of superfluous flesh on him.

So it is with the dairy cow, and if the farmer has vague and wrong notions as to her form and build it will tell every time in her appearance and the outcome of her performance. A. M. Stevens, of Washington, bred the grade cow Peggy of Elmwood. He took a native cow of decided dairy form. This cow he bred to a three-quarter Jersey bull. A heifer calf was the result, the mother of Peggy. Then he bred the mother back to her own sire, and the result was Peggy. In a test at the state fair Peggy was put on the course and tested in company with four other cows. The test was reported in the DAIRYMAN of Oct. 28, last year. The test was for two days. In this time she gave forty-nine pounds and ten ounces of milk a day, testing 4.32 per cent, equivalent to two pounds and fifteen ounces of butter a day. Note well that she was not only a dairy cow, but still more, was bred in a dairy manner and fashion. Care was taken that from the bottom up, her lines should be laid in a specific dairy style. As a result she answered back in strong response to the dairy skill and judgment of the man that bred her. There is meat in this experience, for all men to take and consider who would learn well how to design and construct a profitable cow. The principle involved applies equally well to all dairy breeds.

OLEOMARGARINE AS BUTTER.

There are, in the aggregate, a large number of people who, never having come in personal contact with oleomargarine or its promoters, are disposed to believe that the crusade against it is prompted solely by personal motives, and in the interests exclusively of dairymen. They look upon the subject as merely a contest for supremacy in the market between two rival food products of practically equal merit. They take for granted that the inspired (?) articles in the metropolitan newspapers, praising the product of the slaughter house, and the certificates given by expert (?) chemists as to its healthfulness—both of which are on an equality with much of the testimony in the Dreyfus case—are statements of facts. They will not knowingly use oleomargarine themselves, but see no reason why those who want to use it should not be permitted to purchase it.

From their premises, the conclusions reached are logical. The trouble is that the premises are false.

It is perfectly safe to say that not ten per cent of the oleomargarine which is made and sold, is placed before the final consumer for what it is. There is no way in which the exact figures can be ascertained. It is known, however, that in at least nine cases out of ten the retailer sells oleomargarine as butter. It is also known that the manufacturers sell immense quantities to hotels, restaurants and boarding houses, which later appears upon the tables as butter and is paid for as butter.

But the casuist says: If the substitute is of such quality that the consumer cannot detect the difference, what right has he to complain or how is he injured?

There are two answers to this question.

(1). He is injured by being required to pay more than he ought. Oleomargarine, when sold on its own merits, is always much cheaper than butter. It can easily be afforded for less than half the lowest market price for butter. The laboring man who is deceived into purchasing oleomargarine is swindled out of ten cents on every pound that is weighed out to him. The keeper of a hotel, restaurant or boarding house, who serves oleomargarine makes a dishonest ten cents on every pound that he can deceive his patrons into eating.

(2). Oleomargarine is not a healthful food. Every chemist who assumes to pronounce to the contrary, goes outside of his science, and his opinion in that behalf is of no more value than that of a stage driver. Chemistry cannot determine that or any other similar question.

Chemistry cannot determine, for example, that arsenic is poisonous or that sugar is not poisonous. The chemist can analyze a substance and say that arsenic is or is not present, and then, relying upon the tables furnished by others, can say whether the quantity found is sufficient to destroy life. He can analyze oleomargarine and tell us with great accuracy just what its components are and in what proportion they are present, but only the human stomach, after it has been fed with oleomargarine for months, can pronounce upon its healthfulness. And it does not follow because a robust man, working ten to fifteen hours per day, can eat oleomargarine with impunity, that others under different circumstances could do so.

The following clipping from *The* (London) *Dairy* of August 15th, fully corroborates all that we have said above:

A little incident reported from Bristol would, says the "*Evening Standard*," have come in usefully during the debate upon the Food and Drugs Act, a few days ago. Emily Stallard, an inhabitant of that ancient and famous city, was summoned by the police for selling margarine as butter. Her methods are worth noting. She bought "large quantities" of the compound, took it home, and made it into neat "pats" with an acorn on the top. Then she dressed herself up as a farmer's wife, with a clean cap and a check apron, arranged the pats nicely in a basket with a white cloth, and perambulated the town offering "country butter" of her own making. Who would not feel tempted to buy from an honest and industrious farmer's wife, compelled by agricultural depression to hawk her own produce about the streets? Emily Stallard did uncommonly well, no doubt, until her little trick was discovered—when she had to pay twenty pounds and costs. How many of her sort are still carrying on the business? But it is asserted by a member of the Somerset County Council, who has been making careful inquiries, that the working classes are not great consumers of margarine. As Mr. Edmund Hill learns, it is public institutions, convents, schools, business establishments where the employes are boarded, that use the stuff. It seems not unlikely. In such places people must eat what is provided. But Mr. Hill has made another curious observation. At the Wells Asylum, with which he is connected as a member of the County Council, the inmates receive margarine. In the asylums of Dorset, Wilts, and Hants—the adjoining counties—butter is furnished, and the death rate at Wells is thirty per cent higher. At Taunton, whilst the patients had butter, there were eleven deaths in thirteen months; margarine was substituted, and in nine months the deaths rose to twenty-two.

The hospital experience recounted above, is in strict accord with French investigations, where, after fair trial, oleomargarine was condemned as unhealthful, and its use prohibited in hospitals. In the United States it has been observed in public institutions of various kinds, and in the boarding schools for girls, that the use of oleomargarine lowered the vitality of the inmates very perceptibly.

And now that an effort is being made to have Congress enact a law which will either put the unholy profits at present made by dealers in oleomargarine into the public treasury, or stop them altogether, there is a great hue and cry that this is class legislation in favor of dairymen. Dairymen do not deny that they are interested in the proposed legislation, or that it will not benefit them. But their interest is legitimate, and the expected benefit no more than they have a right to demand. From whatever point of view it is approached, oleomargarine depends upon fraud and deceit for its distribution and sale. If it were not for this fraud and deceit, not one pound would be consumed where now a thousand pounds are used. Whenever and wherever it is made to resemble butter, it should be made to pay a tax equal to the difference in its cost and the average price of butter. If, as its makers claim, it is superior to butter and there is a legitimate demand for it in place of butter, they can well afford to pay this tax, and the government needs the revenue to be derived therefrom. On the contrary, if there is no legitimate demand for it, if consumers will not knowingly buy or use it, is it not consistent with good morals and sound public policy to put such a tax upon it as will remove all temptation to dispose of it for what it is not?

If, as some courts are disposed to hold, it is a legitimate article of commerce, it can well afford to pay a tax of ten cents per pound. If, on the contrary, and as the actual facts are, it is not a legitimate article of commerce, and the traffic in it is maintained by wholesale deception and fraud, it is competent for congress to tax it into the oblivion it so richly merits.

CHEESE AS A SUBSTITUTE FOR MEAT.

The increased cost of meat is a question of great interest to the average consumer of the product of the steer. In many cases it may mean a decided decrease in the actual amount of meat used, and a replacing it with other forms of food, cheaper in price, but of less nutritive value, and consequently of greater actual cost to the consumer.

The present outlook is that the high price of meat will be kept up for a number of months at least, and perhaps for more than a year, reports showed a decided decrease in the number of beef cattle on the ranges and elsewhere available for food purposes. Good beef cannot be produced in a few months, nor can the market be supplied by importations from other countries, and this will cause people to look carefully for a substitute for their accustomed food. Under these conditions, dairymen should make special efforts to bring before the constantly increasing consumers, the high nutritive value of dairy products, calling especial attention to the cheapness, palatability and food value of such products when compared with the best that the butcher can produce.

It is an invariable rule that the working man in this country eats meat every day, always once, sometimes three times, and the necessity of such food has got to be beyond dispute among the majority of our people. The cheapness of meat and the ease with which it has been produced has made it a universal food, and in consequence other articles of greater value, and at the same time cheaper in price, pound for pound, have been neglected, partly through custom and partly for want of pushing by powerful companies, but perhaps as much as anything through want of knowledge of the methods of preparation and use.

FOOD VALUE OF MILK.

It is hardly necessary to explain the great food value of milk; that it is a complete food for growing children, as well as animals, is a well known fact. It contains every ingredient necessary either for the growth or sustenance of the human body. Three and one-half quarts of new milk (costing 17½ cents) will supply the food requirements and daily wants of a full grown man. An equal supply of well balanced food would require in the form of beef, 3.6 pounds, if all the necessary food ingredients are to be supplied. This would cost in the neighborhood of fifty cents, if there was no waste in the meat. If bone and inedible parts are taken into account, the cost would be considerably larger.

In spite of this advantage of milk over meat, both in cost and value, there are but few families in the country that do not skimp the milk supply to buy beef—being held fast in the laws of custom and prejudice that decide that beef must be more valuable than milk as one is a solid, the other a liquid. The fact is, however, that 3½ pounds of milk, costing (at 6 cents per quart) 10.5 cents, is worth as much for food as one pound of boneless beef. And when we consider that at least 15% of beef is

waste and useless for food, the economy of milk becomes still more apparent.

FOOD VALUE OF CHEESE.

Without an exception, cheese is the most concentrated food known. Roughly speaking, it is composed of one-third water, one-third fat and one-third protein. The following table shows the composition of the digestible nutrients present in cheese and sirloin steak:

	Cheese.	*Sirloin Steak.*
Water	30.2	48.3
Protein	28.3	15.0 } Digestible
Fat	35.5	16.4 } Nutrients.
Waste	—	19.5

It appears from the foregoing that cheese has only two-thirds as much water as the average beef, has twice as much protein (muscle forming material) and about twice as much heat producing material. The waste or inedible proportion in cheese is very small, being but a fraction of a per cent of the amount of food bought, whereas in beef, it averages twenty per cent waste, and may, in the cheaper portions, amount to as much as fifty or sixty per cent.

If we take into account the edible part of meat alone, we find that a pound of cheese is equal to more than two pounds of meat, and in comparison with the meat as bought, where the waste must be considered, at least twenty per cent more must be taken from the value of the meat.

At present prices, a dollar's worth of cheese is worth nearly $2.50 worth of beef steak, and the man who finds it difficult to make both ends meet should, in the light of the above figures, endeavor to make the process easier by including cheese in the circle of his daily food.

By far the majority of consumers look upon cheese as an article to be used sparingly, and as an article of luxury rather than food. This idea comes partly from habit, partly from the quality of the article as found in too many cases, but perhaps from a want of knowledge of the methods of preparation in such a manner as to make it take the place of the more expensive meats, and thus appear on the table as the principle dish in place of its usual position of an appetizer at the end of the meal.

There are numberless ways and methods for the cooking of meats and it is perhaps from its former abundance that meat has taken so prominent a place in our diet, leaving cheese (more valuable, yet not so well known) to a lower place on the list of foods. But with the advanced price of meat should come a greater attention to cheese as a valuable and cheap food, and also better and improved methods of manufacture, handling, and more especially of cooking in appetizing ways.

As a rule, the cook books give but little attention to the last question, contenting themselves with a few perfunctory allusions to cheese cooking, and yet the methods to be used are simple and the result is an excellent series of appetizing dishes. Williams, in his "Chemistry of Cookery," gives the following methods for cooking cheese: Take a quarter of a pound of grated cheese; add to it a gill of milk in which is dissolved ¼ teaspoonful of cooking soda, with mustard, salt and pepper to taste. Heat the mixture carefully until the cheese is completely dissolved. Then beat up three eggs, and add this to the solution of cheese, stirring well. Pour into a shallow, buttered dish and bake until nearly solid.

2. Take slices of bread and soak them in a batter made of eggs and milk; then place the slices of soaked bread in a dish and cover each slice with a thick coating of grated cheese. Add another layer of bread and one of cheese until the dish is full. Pour surplus batter over the top layer and bake in a slow oven. A small amount of cooking soda may be used as in the first recipe.

It will be noticed that in both of these methods, cooking soda is used. This is for the purpose of bringing the cheese into solution and mixing it evenly through the mass, thus preventing the formation of the tough, leathery curds which come from the heating of cheese by itself. There is no doubt that if the average consumer could obtain good cheese and then have it placed before him in some appetizing dish, as above given, the consumption of this article of food would be greatly increased, both to the benefit of the consumer and the dairyman.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

FOR FALL PASTURE.

Please advise us what you would recommend for a fall pasture for milch cows, also best time to sow, etc. Do you consider rye a good pasture feed for milch cows?

St. Louis, Mo. S. D. Co.

Rye makes a very good pasture, but is hardly equal in our opinion to oats or barley, unless it is expected to harvest a crop next summer from this fall's seeding. Sow at different times so as to secure a succession of fresh feed. It would not be amiss to add some clover seed. Crimson clover is recommended for this purpose.

MIXED SILAGE COMPARED WITH TIMOTHY HAY.

Can you tell me the value, as compared with timothy hay, of ensilage, of which two-thirds is whole corn, and one-third soja beans. Ensilage was in good condition. W. D. T.

Cambridge, O.

The digestible nutrients contained in one hundred pounds each of average timothy hay and such silage as is described above, are shown in the following table:

	Timothy hay.	*Mixed silage.*
Protein	2.8 lbs.	1.77 lbs.
Carbohydrates	43.4 lbs.	12.20 lbs.
Fat	1.4 lbs.	.35 lbs.

This would indicate that for purely nutritive purposes, the hay would be worth approximately three times as much as the silage, but if we take into consideration, their relative milk producing value, which is in large degree indicated by the relative amount of digestible protein in each, the ratio is materially reduced, and two to one would be nearer the truth.

When it is remembered that one can easily produce five times as much silage as hay per acre, the great economy of the silo comes out in bold relief.

WHERE CAN PRIME COW HAY BE HAD?

Is alfalfa or any really prime cow hay on the market? If so kindly tell me where I can buy it.

I keep but one cow; she is now at pasture in pear orchard. Are the pears that fall, also apples, detrimental to her in any way?

Southold, N. Y. W. H. H. G.

We do not think the best hay for milch cows is very often sent to the cities. The demand there is not sufficient to justify it. Very likely, if one should go to a hay dealer in the city and prefer a special request that he obtain a few bales of clover hay, he could arrange to have them shipped with balance of order.

The fallen fruit will not be likely to injure a cow, unless there is too much of it. The amount she should be permitted to eat should be limited, certainly not exceeding a half bushel daily. There is also danger of choking, especially if the cow is hurried when eating; or an attempt is made to drive her away from the tempting food.

A MASSACHUSETTS DROUTH RATION WANTED.

Will you please give me a ration for butter from the following named feeds: Bran, corn and cob meal, cotton seed meal.

Pasture is poor and I am feeding corn stalks, but dry weather has hurt them, and cows do not seem to be doing as well as they should. G. S.

Southhampton, Mass.

The foregoing represents the condition of thousands of dairymen in all parts of the world. When we consider the almost countless number of dairymen who will not be advised, who will not even respectfully consider the suggestions submitted to them from time to time in these columns, and by others who have made dairy problems a special study for years, we are discouraged and despondent. In such moments we turn to the other side of the picture, turn our eyes to the right and the left and the front, instead of looking to the rear, and we see a constantly increasing company of earnest, active, progressive, thinking men and women, some of them skirmishing far in advance and occasionally sacrificing themselves in pioneering the advance against ignorance, superstition and lethargy, and others in the front rank of the advancing army, and we gather new hope and inspiration.

Prevention is better than cure. It is comparatively easy by wise forethought and fore-*action* to prevent, for example, the ravages of yellow fever, as was demonstrated by Gen. Butler in New Orleans in 1862–63, and by Gen. Wood in Santiago this present year; but once an epidemic is established, it must run its course.

We may not be able to control the seasons, or command the clouds to give or withhold rain, as we may wish, but we can provide in advance for these seasons of drouth by building summer silos and filling them with corn a year in advance, or with clover in June. It is of course too late for our friend to help himself in this way this year, but his present embarrasment should be a warning to others as well as himself. Read what J. E. G., of Ontario, says elsewhere in this issue, and let his experience provoke you to adopt his methods.

Our friend must consider at this time, especially if his cows are not to be fresh this fall, that he must feed them now quite as much with a view to what they ought to produce through the fall and early winter, as for present yield. When a shrinkage in the milk flow is once firmly established, it is practically impossible to obtain a normal flow again. Full feed may produce some improvement, but there will remain a large per cent of permanent shrinkage.

On the assumption that the pastures and the corn stalks furnish but little milk making material, he may find it necessary to feed as much as ten pounds of grain daily. In that event we would suggest four pounds bran, four pounds corn and cob meal and two pounds of cotton seed meal. Such a combination would supply approximately three fourths of the protein required, and other digestible nutrients as follows:

Protein	1.50 lbs.
Carbohydrates	4.40 "
Ether extract (fat)	.46 "

If, as is probable, these cows are receiving a smaller allowance at present, increase the amount gradually and note results. Do not expect the cow to respond at once, any more than you would expect a run down and tired horse to respond in one day to increased feed. Be encouraged, if at the end of a week or ten days there is a sensible improvement, and keep increasing the daily allowance of feed as long as improvement in yield can be observed.

TO PREVENT SILAGE SPOILING WHERE ONLY A SMALL AMOUNT IS REMOVED DAILY.

Will you please advise if silage, as ordinarily put up in a round silo, will decay, provided not more than one inch is used from the upper surface each twenty-four hours. In case the silage is likely to spoil when so thin a layer is removed in each twenty-four hours, the question arises as to the best plan to prevent decay setting in. Our silo is so large that the number of head of stock kept cannot consume more than one inch below the upper surface each day, and we are anxious to know in a case of this kind, if the silage is likely to spoil, what course can be taken to preserve it. C. J. H.

Detroit, Mich.

There is no question that in cases of this kind the silage will be materially injured, especially when the temperature is not pretty low, although not "spoiled" in the general acceptance of the term. To prevent this, recourse must be had to covering of some kind that will measurably keep the air from the surface of the silage. A good arrangement, as well for convenience as for efficiency, would be a piece of old sail cloth or other heavy canvas or tarpaulin same size as silo, to spread over silage. When the time for removing the silage arrives, turn back the canvas half way across the silo, remove the amount required, and then replace the canvas. Of course any other device which will exclude the air and can be readily moved will answer the same purpose.

CROSS BREEDING A LOTTERY.

Please tell me what the results would be to cross a registered or grade Holstein cow with a registered Ayrshire bull. The Jersey and Ayrshire is said to make a good cross, but I have never been able to find out any thing about the others. W. J. R.

McKeesport, Pa.

No one can tell in advance what will be the result of cross breeding. We know—or at least we think we know—that in line breeding we are pretty sure the progeny will resemble the parents or other ancestors. Not infrequently they take back through several generations and in too many particulars reproduce the faults and peculiarities of their plebeian progenitors. The improved qualities which have been obtained by years of careful selection and appropriate environment until definite breed characteristics have been established are, for example, like those of an improved variety of corn. They may not include everything that is desirable, but the bringing together of two diverse breeds of cattle is likely to result in much the same confusion that would result from planting different varieties of corn side by side. The first cross would, doubtless, produce some excellent animals, a part of them inheriting more largely from one breed, a part from the other breed and not a few reverting back to the primitive traits of both. In other words, there is a conflict between the alien elements and when they are so evenly matched that neither can gain ascendency, they become mutually destructive and thus open the way for the re-establishment of the original scrub tendencies common to both. Thus cross breeding is a lottery in which there are occasional prizes and numerous blanks.

FLAX SEED MEAL FOR CALVES.

Please give me your opinion of flax seed meal, boiled, fed to calves in skim milk, and what quantity per day. SUBSCRIBER.

Madison, N. J.

Flax seed meal, which we understand to be ground flax seed, and not the ordinary linseed oil meal of commerce, is an ideal supplement to skim milk for calf feeding, provided it is not given to excess. One should commence with a very moderate allowance, say, a tablespoonful with each meal, and, taking careful note of the results and being governed thereby, gradually increase the amount as the condition and growth of the calf may seem to demand. Bear in mind that the calf, whether male or female, intended for dairy purposes, should not be allowed to become veal fat, and that the development of a capacious stomach is much to be desired. Skim milk with a limited amount of ground flax seed, and all the nice, bright hay it will eat, makes a first-class ration. A few whole oats may be added, and some bran also, because these are bulky foods, and not deficient in muscle and bone forming elements.

Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Schools.

ED. HOARD'S DAIRYMAN:—The dairy school announcements, which appear this week, remind us that the summer season will soon be over, and that the winter with its opportunities for training the mind and storing up information for future work, is close at hand. How times have changed in recent years, in this particular, in regard to dairying. Only a comparatively short period has elapsed since the cheese and butter maker found the winter time hanging heavily on his hands, with nothing much to do, but loaf around the country village, and, perhaps, forget a great portion of the knowledge which the previous summer's operation had given them.

But with the advent of the dairy school, and the demand for more skilled and intelligent service in our cheese factories and creameries, all this has been changed. The maker to-day has opportunities which the maker of fifteen or twenty years ago never dreamed of. And what is better still, this demand for men whose knowledge of their business goes away beyond the mere mechanical ways of doing things, makes it necessary that every maker should take advantage of these opportunities.

When the dairy schools were first established in this province, there were some who were of the opinion, that their usefulness would be gone, after a few years, when all the makers had taken the course. But several years have elapsed since their inauguration, and as far as we can see, there is just as much interest shown, and as great a necessity for them, as there ever was. In fact, the constantly increasing demand for a better quality of product, makes these training institutions for the cheese and butter maker a greater necessity than ever.

Though we have not reached the stage, in this country, when no cheese factory or creamery will engage a maker unless he can show a certificate of having taken a course, and passed a satisfactory examination, at one of the dairy schools, yet we believe the time is drawing nearer, when such will be the case; and the sooner it comes the better. The maker of to-day must not only know how to make butter and cheese, but must also know the reason for doing things connected with the process. The "know how" and the "why" of doing things has become an absolute necessity in good cheese and butter making.

Of course, we do not contend that every person sent out from our dairy schools will be a first-class man. It would be a miracle if such were the case. It is just as reasonable to expect that every pupil who attends our collegiate institutes and higher educational institutions, and receives a certificate which permits him to teach in the public school, is going to make a first-class teacher, as it is to expect that every student at our dairy schools is going to make a first-class maker. As there are comparative failures in the first instance, so there will be in the second.

But what we do contend for, is that every thing else considered, a term at the dairy school will make a man a better cheese and butter maker than if he had never attended. A dairy school course should prove a good test for a maker. If, after taking the course, and after having passed the examination, he then proves a failure as a maker, the individual may take it for granted that he hasn't the qualities in his make-up that are essential in a good cheese or butter maker, and the sooner he quits the business, and adopts some other vocation, the better for himself, and the industry as well.

But while there have been such failures as we have described, we are glad to report that they are comparatively few. Experience with dairy school students for several years back, has shown that the best, the most skilled, and the most intelligent of the younger class of makers who are operating factories today, are those who have had a dairy school training. There is something in the influence and teaching of a dairy school, outside of the mere daily routine of lectures and practical work, which makes a young maker, especially, think more of the business in which he is engaged, and which inspires him to look deeper into things and to make a greater effort to be at the top in his calling.

But we have, perhaps, moralized too long upon the school and the maker's relation to it. Let us return to the announcements already referred to. The first one is that of the Provincial Dairy School in connection with the Ontario Agricultural College at Guelph. This opens on December 4th and will continue till March 23rd, 1900. There will be two sessions. The first, beginning on December 4th and closing on December 22d, will be a special creamery course to aid makers who cannot spare the time for the full course, and who wish to operate creameries for a portion of the winter and the early spring.

The second session, which will cover the full courses in the factory and home dairy departments, will open on January 3rd and close on March 23rd.

The second announcement is that of the Easton Dairy School at Kingston, Ont., which will open on December 4th and close on April 7th, 1900. This period will be divided into four courses of three weeks each, and one of six weeks duration. The shorter terms are arranged to meet the needs of makers who do not wish to take the full course, and of those who have already taken it, but wish to brush up a bit during the winter months. With these opportunities, no maker should be without the great assistance which a dairy school training will give him.

The readers of the DAIRYMAN are familiar with the work that has been done in Prince Edward Island, by the Dominion Government, under the direction of Professor Robertson, in establishing the dairy industry there, and how successful it has been.

The first cheese factory was established in 1892, and last year there were thirty-four co-operative cheese factories, and twenty-three co-operative creameries in successful operation, and the total value of the butter and cheese available for export was $364,557.63.

The same line of work is to be started in Nova Scotia, and the Dairy Commissioner leaves next week to make final arrangements. No co-operative cheese factories will be started by the government, as there are already a number of these in successful operation. The work will be confined to co-operative creameries, which will be operated during the coming winter, in order to demonstrate the possibilities of the winter dairy business in that portion of the Dominion.

J. W. WHEATON.

Toronto, Canada.

Note and Comment.

Some Dairy Intelligence.—The Wisconsin Station Cows.—Effects of the City Cream Trade.—Quality of Milk at Factory.

ED. HOARD'S DAIRYMAN:—It must be very refreshing to the makers of HOARD'S DAIRYMAN, to read the views of intelligent dairymen, especially of the Badger State itself, and note how it has elevated the dairy tone of the state in question, if not all of the entire country. As an instance, we insert here some Wisconsin dairy lore, found in a late issue of the *Philadelphia Farmer*, and commend it as a choice bit of dairy literature, that ought to make its author famous.

G. W. WEBB, Arcadia, Wis.—I believe that the average farmer should breed from stock that will make good beef when ready for market. A full-blooded sire is all that is necessary. Many of the most successful farmers here formerly used Short-horn sires, and by careful selection got cows that were profitable for butter as well as beef. Nearly all of them, through the influence of the Jersey papers, changed their herds by using Jersey or Guernsey bulls. They have stuck to the change long enough to give it a fair trial, and have found that they made a mistake, and are getting back to the beef breeds as fast as possible. One can, only by long and careful selection, get a profitable herd of cows from the butter breeds. Not many first-class butter cows are found among the butter breeds. One can be found more frequently in the beef breeds. One argument of the Jersey men was the less amount of feed required to keep a Jersey. The fact is that a Jersey is a good feeder, and will remain thin with the same amount that will keep a good Short-horn grade in good condition, and giving a good flow of milk. So far as feed is concerned there is no saving in having a little Jersey, for they are always hungry, and are the happiest animals while eating, I have seen.

Yesterday we went to a Summer Institute and as usual picked up a point or two. One dairyman was contending that "he wanted cows that would get fat while they were being milked, so that in case he wanted to sell them, they would go for beef. The retort was that a cow rarely did two things well at the same time, and if she fattened, it was at the expense of milk, and at eighty cents per hundred for milk, it made pretty dear beef in comparison." "Well, I don't sell the beef, I want to keep the cow for several years." "Then what good is the beef, if you can't sell it along with the milk?" But you see, a cow that is fattening along with milk giving, always gives larger messes of milk, and holds out longer."

"Now it has been proven, with a lusty growing steer and a good dairy cow, that it only takes two pounds more dry, feed matter to make a pound of twenty cent butter than it does a pound of five cent live beef. What will be the cost of that cow beef of yours when you come to sell the cow at ten years old?" "Well, it isn't that way with my cows. One of my fat cows milks the year round, and gives a good mess. 'Yes, that's a fact,' said a neighbor, 'but say Jim! what 'er the other fourteen a doin' six months of the year 'sides eating hay."

* * *

The Wisconsin *Bulletin*, Number 75 is a valuable contribution to dairy literature, and its compilation has increased the debt, the dairymen owe Prof. Farrington, not a little. One thing conspicuous about it is the confirmation of what we have observed for years in our own herd, that it was the smaller and poorer milkers that gave out first, and dried up, and boarded the rest of the year. We have in our life owned three cows that were away up in yield, and they were each year round milkers, with here and there a cow that started out with great flow and rounded up with beef as her final contribution to the dairy supply of the season.

The pictures of cows No. 1, No. 42 and No. 55 are particularly interesting to a student of dairy types and functions, especially so if they are to be sized up with "Terry's Pet" page 447, and other cows of like conformation, as guides in dairy form; but if No. 42 is to go into the class with the "400," there has got to be some "redhedity" hunted up to go with that great depth of barrel, and pressed digestive ability, or the occupation of the dairy judge is gone, and when No. 32 is set up, this "brother to the ox"—begging the poet's pardon—is ready to let an old farmer friend of mine have the floor, when he says, "tain't the breed so much as the cow herself, and all there is of a cow any way is a good, big square udder, back sloping ribs, an incurving, cat-ham thigh, a backbone that sort 'o sags, and a somewhat of a deep and roomy paunch," yet cannot see that he has picked out five of brother Hoard's best "pinters" in the selection of a dairy cow.

The length of hip in Nos. 34 and 55 is remarkable, as well as the apparent wide space of the shoulders at the brisket, in both points, showing large maternal functions, and strong vitality, accounting possibly for the large fat production.

It is to be noticed that the good cows all milked over 300 days—No. 34, full 350; all of which goes to show that there are cows and cows, as well as some others that crop out here and there, as well as at Chicago; though it begins to look as if the Swifts, and other dairymen (?) of that village were soon to hold the record for butter production with their dual-purpose animals.

"Think of Ease But Work On."

If your blood is impure you cannot even "think of ease." The blood is the greatest sustainer of the body and when you make it pure by taking Hood's Sarsaparilla you have the perfect health in which even hard work becomes easy.

Hood's Sarsaparilla
Never Disappoints

It is a matter of great regret that we hear that the famous Mt. Pleasant creamery of Southeast Ohio has closed its doors, and the plant has been sold, and the affairs of the company wound up. Without doubt it was, in its products offered to the market, at the very front of the creameries of the central states, and managed as only Quakers can, and every cow contributing to its supply of milk a Jersey, there was never any discount on its butter.

But the fate that has overtaken other concerns, came over the Jefferson Co. hills, and in spite of George Scott and the other friends, the creamery received its "go to." It was the same story again, increasing demand for cream for the city, at a price that set butter making aside, and the cheapening of hand separators, made taking milk to a central just to be creamed, out of the question.

Fifty cents per gallon for cream at the farm was the cause of the demise of this creamery, as well as of others, and we think that the end is not in sight, either in demand for cream, or the dissolution of creameries. In some sections the creamery is making its gravity set milk into cheese that are branded and sold as skims, and bringing a fair price, seven cents this year; the concerns are holding on pretty well, and some of these creameries are leading the market in price paid for milk. The concern near here is paying eighty cents against the cheese factories sixty-five and seventy cents.

***

We believe that the factoryman who stipulated in the contract that the party on demand should prove the purity of the milk he offered, by drinking the last half pint of milk in the can, has hit upon a good scheme in securing a better and purer quality of milk at his factory. That all milk that is brought is strictly clean and uncontaminated, is not believed by those who stand at the weigh can 730 times in the year. Some have asserted that the only thing that they have failed to see or discover in the milk, in that time, has been the leg of the cow herself. Of course all that will disolve has liquified in the transporting, and what does not, is run into the vat strainer, and 2,000 or so pounds more of milk run over it—whatever *it* may include—and then the maker is ready to produce goods with *dairy* flavor, without further recourse to cultures.

While not all are guilty, there are a lot of careless patrons, abetted by factorymen who care as little for cleanliness and tidy surroundings as Alaska Indians, and if the two classes should be relegated by a great common law, into obscurity, and be made to subsist upon the cheese and butter made from the last milk in the cans, for the next thirteen moons, there would be somewhat of a change.

Not long since we saw a can of milk turned into the weigh can that would have



Not a Preservative

but a preventive. If you would have your milk keep sweet longer and be free from all objectionable odors, use a CHAMPION Milk Cooler-Aerator. It does its work perfectly and it's use does'nt violate any law—it doesn't need to be used on the sly. Our book "Milk" is free.

CHAMPION MILK COOLER CO.,
67 Main Street, - Cortland, N. Y.

caused the Sphynx to blush and shut its one well eye, and yet the factoryman took it, and said later on, that if he did not, the fellow would take his milk over to Willie Waldorf Astor's concern, and he would be a patron short.

Here is the whole secret. Too many little factories, just able to exist, simply a living for the owner, and to lose a patron with his 50,000 pounds of milk a season, meant to him quite a sum of money.

What is wanted is a pooling of factorymen and the acceptance only of milk off its fat basis and purity, and making it impossible for a patron to change factories if his milk and its quality and purity are called into question. There are untold numbers of factories with A No. 1 patrons and good equipped factories, and then on the other hand, there are others.

If the average board of health did not "slop over" so often; and so frequently quarantine, and tuberculin spook, it would be a good thing for the dairy interests of the United States to put our factories, creameries, and skim stations under certain reasonable sanitation rules, and regulations, and the patron, can, stable, and milk offered, under inspection, and have clean material to start with, out of which to make butter and cheese; then if the maker had a clean record and overalls, and a certificate of proficiency from a good dairy school; and the whey and slop of the creamery sewered into Lake Apmoojenegamook in Maine, instead of being drawn home in milk cans, we might improve to a great extent a considerable portion of our cheese and butter product that is now doing serious damage to the reputation of our better class of dairy goods.

JOHN GOULD.

TUBERCULIN TESTING ON CLOVER FARM

An Interesting Letter from the Proprietor, H. B. Gurler.

Some time since we noticed the following in an Elgin, Illinois, paper:

H. B. Gurler has had his cows tested for tuberculosis. Cows valued at $700, that did not stand the test, were ordered killed. As an experiment, he killed a calf that had been fed on milk from a cow having tuberculosis. The calf was found to be diseased. Mr. Gurler's is undoubtedly the ideal dairy of Illinois, all of which goes to prove that milk is not to be depended on, from whatever source it comes. As a disease medium milk is a great factor.

The clipping was sent to Mr. Gurler with request that he give us the facts in the case. He writes as follows:

ED. HOARD'S DAIRYMAN:—On my return from a short vacation I find yours of the 19th on my desk.

Seven to eight hundred dollars covers the value of all the cattle killed on Clover Farm that were convicted of tuberculosis by the tuberculin test. I had never found an animal grown on Clover Farm to be tuberculous until last January, when some calves that were being fed on skim milk from a skimming station, were found to be tuberculous. I cannot prove that they contracted the disease from this source, but I cannot conceive any other way that they could have acquired it. They were dropped by cows that had been tested with tuberculin. So I am reasonably sure the disease was contracted from some source.

After four and a half years of experience with the tuberculin test, I am quite confident of its reliability.

There have been about 900 tests made with tuberculin on Clover Farm and only one animal that passed the first test has ever reacted on the second or any later test.

You are at liberty to use these facts in the matter if you desire. The dairymen are not in a mood to receive kindly the hard facts in the case. They will reach this condition later. H. B. GURLER.

There is a good deal more unsaid than said, more that is suggested than written, in the above statement by Mr. Gurler. It should be understood in the first place that he is one of the advanced and representative dairy farmers of the United States. Further, he is the author of that most excellent book, "American Dairying." Mr. Gurler is not only a man of ability and thorough dairy intelligence, but he is a man of strong and reliable character as well as eminently conservative. All these characteristics may well cause men, who are seeking light on this absorbing question of tuberculosis, to ponder well on what he says.

The farmers who blindly oppose the testing of their cows, are simply hugging a delusion to their breasts. They have a right, however, to insist that none but the skilled practitioners and men of thorough honesty shall be employed by the authorities to make the tests. Too often, we fear, some half educated veterinarian comes to the front and does more harm than good in his testing of cows.

Another thing is worth remembering, that Mr. Gurler speaks of, that is, his exemption from infection among the cattle he has raised himself. This is due to the fact that he took pains to have only healthy cows in his herd. Mr. Gurler believes that he cannot afford to raise or keep tuberculous cows, not alone because he is selling their milk, but for the additional reason that good health in his herd is a matter of value to him. Indifference in this respect, so often seen among cattle owners, is a serious drawback to their own profit, because of the resulting loss of cattle.

Cedar Hill Jersey Farm Notes.

For Next Winter.—Poultry on the Dairy Farm.

ED. HOARD'S DAIRYMAN:—All signs point to the return of fall and winter once more. Ten years ago we would have dreaded the return of cold weather, but to-day the up-to-date dairyman, with his improved methods, rather looks for cold weather with feelings of pleasure. He is saved many little annoyances and much work, while the eight months of fall and winter will show more profit from his herd than the hot, dry months of summer.

Warm, light barns, plenty of south side places for cows to bask in on winter days, water with temperature raised above sixty degrees, ensilage balanced with some of the grains, and all the above balanced with a carefully bred herd of working cows, will yield good returns if the robins are not nesting.

Our water supply will be warmed by steam this winter by running a pipe into the supply cistern. We have over four hundred feet of continuous tight fences and buildings for our cows to take their sun baths on winter days.

We have a 25×27 foot silo nearly completed. It is built of 2×4 spruce pieces twenty-six feet long; it is being put up by our own boys. They have not put on hoops yet and will not till the last thing. We have solved the problem how to put up a stave silo, so that all joints will be tight and no springing can occur. We use forty-penny spikes, drive them through the 2×4's the wide way, nailing each piece to the one already in place. This makes a good job, both in building and after it is built, as our 2×4's are really only 2×3¼ inches, our spikes penetrate the second piece 1½ inches. I am sure this will greatly strengthen our silo.

Institutes and Dairy Conventions are again making dates, and Buff Jersey is getting his share of requests to be present. We are always glad to meet representative farmers and dairymen at these meetings. Everyone learns something new and the change is beneficial. In our case we must use moderation as our home work is taking up our t me.

* * *

POULTRY ON THE DAIRY FARM.

Who among the DAIRYMAN readers are making poultry one of the branches. Cedar Hill farm will make the poultry department next to the herd from now on. We have this season hatched five hundred pullets of our two popular breeds, Leghorns and Barred Plymouth Rocks, so that by cold weather we will have a flock of young laying hens to consume a large amount of our skim milk that would be, under the average conditions on our dairy farms, fed to a lot of hogs that would be apt to die with cholera about the time we wished to realize on them.

This morning I gave our various yards of fowls twelve gallons of skim milk to drink and mixed their feed with six gallons more. I am sure no better use could be made of this milk. On September first we will load our two incubators with five hundred eggs so that we can stock our brooder house with chickens for the mid-winter market, and also to regale my many friends who come from far and near to visit. "BUFF JERSEY."

THE BOSTON CHAMBER OF COMMERCE ON THE TEN CENT TAX.

At a special meeting of the Boston Chamber of Commerce, the following resolution was unanimously adopted:

Resolved, That we believe that a tax of ten cents per pound by the United States Government on colored oleomargarine would in no way conflict with our present State anti-color law, and would additionally protect pure butter from unjust competition with oleomargarine. As merchants and dealers in butter, we believe a tax of ten cents per pound sufficient.

The people are lining up with the National Dairy Union on this question. Members of Congress will "hear the joyful sound" in due time.

The Falling Leaves Give Warning of Winter

So the falling of the hair tells of the approach of age and declining power.

No matter how barren the tree nor how leafless it may seem, you confidently expect leaves again. And why?

Because there is life at the roots.

So you need not worry about the falling of your hair, the threatened departure of youth and beauty. And why?

Because if there is a spark of life remaining in the roots of the hair

AYER'S HAIR VIGOR

will arouse it into healthy activity. The hair ceases to come out: it begins to grow: and the glory of your youth is restored to you.

We have a book on the Hair and its Diseases. It is free.

The Best Advice Free.

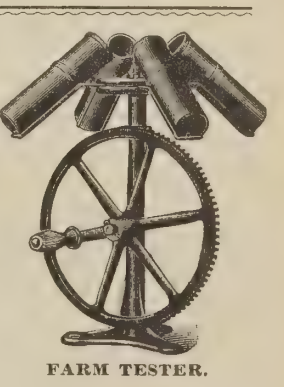
If you do not obtain all the benefits you expected from the use of the Vigor, write the doctor about it. Probably there is some difficulty with your general system which may be easily removed. Address,

DR. J. C. AYER, Lowell, Mass.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Cement Floors for Stables

A Trial Subscriber Renews and Submits a Question.

ED. HOARD'S DAIRYMAN:—Having been a subscriber to your paper for the last three months, (on trial) I mail you to day under separate cover, my renewal to begin with September 1st, as I do not want to miss any papers.

I keep a small dairy of fifteen milch cows, and am building a new stable in which I wish to put a cement floor. Will you please give information in regard to mixing, and putting in cement, also foundation or bed, and would you advise putting in mangers before or after cementing. Mangers will be double, two cows together, and then a short partition, tie with chain around neck.

No. Kingsville, O. R. E. F.

This question was pretty well discussed by Prof. King and others at the last meeting of the Wisconsin Dairymen's Association, and we compile from that and other sources as follows:

1. Be sure to secure good drainage, and to this end cover the excavation four inches deep or more, with sand.

2. On this bed place a layer of concrete, made of seven parts coarse sand and gravel, one part Portland cement well mixed, dry, and then use just water enough to thoroughly dampen it, and mix again. After spreading this concrete, tamp it down quite solid, and until the water begins to show on the surface.

3. On the above as a foundation, spread a coat of cement mortar, two parts clean, coarse sand, to one part Portland cement, first mixed dry as above, and use only so much water as may be necessary to make the mortar spread readily, and make only a small amount at a time. Use a wood trowel or "float" to compact the mortar and force out the air, and do not smooth the surface.

4. Keep everything off the floor for at least twenty days, and keep it well sprinkled from time to time, to prevent too quick drying.

5, If mangers are made of cement, put them in at the time the floor is made; if of wood, not until the cement has hardened.

6. If common water lime is used, take about twice the quantity above specified for Portland cement.

Gold Medal Butter.

[Paper read before the Massachusetts Creamery Association by R. F. JAYNES.]

I commenced the butter business twenty-one years ago. Thirteen years I spent in New York, and when I left there six years ago and came to Vermont I thought I was quite a butter-maker. As I look back over those thirteen years I can see I was only starting on the road to my chosen profession. I expect to learn more about butter-making in the next five years than I have in the past twenty-one. And I tell you, boys, we can get some good ideas from each other here, and by experimenting on them derive a great deal of benefit from this meeting.

It will be easy for me to tell you how I make butter, but years of experience, and especially the experience this winter at the dairy school at Burlington, show that conditions vary, and you cannot make butter in just the same way everywhere. At Burlington I often churned at 54 to 56 degrees and had butter in fifteen to twenty minutes with only .06 to .12 per cent of fat in the buttermilk, while at home I have to churn forty to sixty minutes at 58 to 62 degrees, and leave .1 to .2 per cent of fat in the buttermilk.

I give the man that takes the milk strict orders not to take one can of milk that is off in any way.

We enjoy a reputation on our butter, second to none in uniformity. I often have butter-men in Boston ask why neighboring creameries have butter off every once in a while, while ours is always the same. To us this is a great benefit, as we cater only to the fancy trade and must have butter of fine quality every day.

Now, starting with good milk, if your strainer becomes dirty, change for a clean one; it is hurtful to sift new warm milk through dirt or filth. It is worse than patrons leaving their cans standing in the barn exposed to undesirable odors.

I separate milk at a temperature of 75 to 80 degrees, which leaves the cream 70 to 72 degrees when the run is done. I leave it at this temperature, stirring often, as it is impossible to get an exhaustive churning unless the cream is thoroughly mixed during the ripening process. I do not commence to cool it until it shows acid enough so I can cool it down to churning point and hold it there at least three hours before churning. I find that this is of more importance to produce an exhaustive churning than it is to the quality of the butter; why, I cannot tell.

I experimented on this a great deal at Burlington, and my highest tests of buttermilk were from cream not cooled the night before churning. I wish you would test your buttermilk from cream cooled just before churning and from cream that has stood at the churning point not less than three hours, and write me the results. I know of butter makers that cool their cream to churning point by putting ice directly into the cream in the churn and letting it cool down as they churn. I wish they would test their buttermilk and see what the results are. Most creamery men test skim milk often, but very few know anything about how their buttermilk tests.

Upon the right amount of acidity depends the flavor your trade demands. This is entirely a matter of individual judgment; some want a higher flavor, almost on the verge of acidity; to others high flavor means a flavor that comes from sour milk and butter milk; others desire a clean, pure milk flavor. The true odor of perfect butter is a mild, desirable flavor or combination of flavors, hard to describe and only met with in perfection under perfect conditions.

New York desires a flavor that comes from cream testing as high as .6 per cent, while my trade in and around Boston requiries a little over .4 per cent acidity. Right here, in my mind, is where you lay the corner stone upon which you must build your reputation. As flavor is about the only thing now that is scored off in our exhibits, to produce that desirable flavor depends upon condition of the milk or the ripening of the cream. I run a cream of about thirty-five per cent fat test and find it gives me a better flavor than a thinner cream. I will tell you why I think so. First, if milk is off in any way the more you have of it in the cream the more of the undesirable bacteria will be developed and season your butter. Then if the milk is good the trouble will be that the acid will coagulate the casein and turn it into cheese; a large amount of it will be taken up and absorbed by the globules of fat as they adhere to each other. Hence, you will have part butter and part cheese, which will give you that undesirable sour or cheesy flavor.

The butter globules are round and the surface tension keeps them separated one from another. They are supposed to be pure as they come from the cow, and are seasoned by the milk surrounding them. Now if we could take the globules out as soon as the milk was drawn from the cow and put them into a pickle made of pure pasteurized milk and keep them pure until we have a sufficient amount of acidity developed to give us the desired flavor, we ought to have a perfect butter. So for this reason I run my cream as free from milk as I can, and I find that the thirty-five per cent cream is as heavy as I can churn and have a sufficient amount of liquid in the churn to float the butter, and have it come in a granular form.

I would advise the butter makers of Massachusetts, that are not having satisfactory results to try running a cream of not less than thirty-five per cent fat; to try the Farrington and Ward test, and use an acidity of forty-five; keep cream in a clean, pure place, cool it to your churning point the last thing before you leave the creamery for the night; churn at a tempeature that will bring butter in about forty-five minutes in a granular form; wash once in a water not more than three degrees different from the churning temperature; work and salt about three quarter ounces to the pound. Unless your conditions are much different from mine, you ought to have a butter that will score for extras.

HUSK YOUR CORN, SHRED YOUR FODDER, SELL YOUR HAY.

A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through our **JANNEY COMMON SENSE Corn Husker and Fodder Shredder**



There can be no dreaded "corn stalk disease" where fodder is prepared with our machine. You can make a great deal of money husking for neighbors. Costs less than a third as much as a thresher, but makes more money.

Write for Free Catalogue.

It husks out all of the corn clean, and shreds all the fodder at the same time. Makes clean, healthful food, as the patented screen in the feed elevator takes out all the dust, dirt, smut, etc.

Go to your nearest dealer and see one.

JANNEY MANFG. CO., Box 29, OTTUMWA, IOWA.

It is important that everything about the dairy should be scrupulously clean, for the flavor that you want to develop will not come where bad odors are allowed to exist. Butter culture I never use. I develop my flavor every day just as I want it in my cream. If for any reason you should have bad milk or poor cream you should improve the flavor of your butter by using some good starter, rushing the cream along and getting it out of the bad company it is in as soon as possible; everyone is known by the company he keeps.

Making gold medal butter is not all that is needed for success in business. What good does it do to make an extra article if you cannot sell it for an extra price? To be able to do this it is necessary to visit the markets of our large cities and see your butter as others see it. It has been instructive to me to visit the butter rooms in Boston and study the wants of the customers as they come and go.

Not long ago a buyer came in and asked the salesman if he had anything extra, and the salesman said he had an extra extra, and started to show him a pile of tubs across the room, when the buyer stopped him and said, "No, I cannot use butter put up in such dirty looking tubs, no matter how good it is; it would be too hard to convince my trade that any one would put good butter in such dirty looking packages." He bought a poorer quality of butter that was more pleasing to the eye. After he went out I examined this butter, and found that it was a very fine goods, but the tubs had been handled with dirty hands and carried to the station in a dirty wagon; there was also butter on the outside of the tubs.

I cannot too strongly urge you all to be particular in putting up your butter, to have it neat and attractive to the eye. Do not neglect any of the small things, then you will not be as apt to forget the large ones. The first appearance goes a great ways towards forming one's opinion of anything. I visit my customers often to study their wants. I never have any argument with my trade. I give them just what they ask for and try to please them so well that they are willing to pay me an extra price, not only for the fine quality of the butter, but for the certainty that they will get what they want when they want it.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade, aggregated 7,860 pounds. All bids were at 21 cents, and all sales were at that figure. The Quotation Committee, however, declared the market firm at 20 cents. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Darinda	3,000	21c.
McConnell	1,260	21c.
Red Clover	3,600	21c.
Total	7,860	

The sales for the corresponding week of the three preceding years were as follows:

Aug. 29, '98, 8,580 lbs. of butter sold at 18c.
Aug. 30, '97, 3,900 lbs. of butter sold at 18c.
Aug. 31, '96, 29,580 lbs. butter sold at 16@17c.

The New York market, Monday, was reported steady at 21 cents. H. C. B.

Elgin, Ill., Aug. 28, 1899.

DAIRY MARKETS.

ELGIN, Ill., Aug. 28—There were 131 tubs offered; all sold at 21 cents. Committee reported firm at 20c.

CHICAGO, Ill., Aug. 28—Butter—Creamery extras, 20c; firsts, 18@18½c; seconds, 15½@16½c; dairies, selections, 17c; No. 1, 14c; No. 2, 18c; extra ladle. 13½@14c.

Cheese—Full cream, Twins, new, good to

YOUR BOYHOOD DAYS COME BACK WITH A BUMP



when you look at the original of this "Milking Time." We send it on heavy paper, suitable for framing, for a 2c. cent. stamp. THE FENCE used in this cut is the

"HARTMAN" STEEL ROD LAWN FENCE.

Very strong, cheap as wood. Write at once for prices.
HARTMAN MFG. CO., Box 14, Ellwood City, Pa.
N. Y. Office, Room 65, 309 Broadway, N. Y. City.

HERE IS A

BLIZZARD

that is accompanied with Comfort and Profit.



This new departure machine

Cuts and Shreds

All kinds of Green and Dry Fodder

and elevates it to any desired height by a Pneumatic Tube. It can be changed easily and quickly to either cut or shred without taking out cylinder. Always remains true and cuts and shreds perfectly—no danger to knives resulting from resetting. Capacity, as much as you can get into it. Cuts from ½ inch up. Strong and safe. Write for complete descriptive matter. Go to your dealers' and examine the machine.

DICKS AGRICULTURAL WORKS, Box 20, CANTON, OHIO.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for GLUTEN FEED. This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address CHAPIN & CO., Milwaukee.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY,
27 Beaver Street, NEW YORK.

Farm For Sale A farm of 400 acres of choice land all under cultivation, on which is a cow barn for 100 cows, horse barn for 14 horses, large silo, large hog house and sheep shed, blacksmith shop, ice house, chicken house and machine sheds; one large 11 room house and one 5 room cottage and one large creamery building and feed mill complete with machinery. Watered by 3 wells, 2 with first-class windmills, and a nice little lake. 3 miles from railroad station an church; school house on farm. Is 3 miles from County seat. A model farm with modern conveniences at a very low price if taken at once. Might take some Milwaukee lots in exchange. Write or see W. E. WEBSTER, Hudson, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

choice, 9¼@9¾c; Young Americas, 9¾@10c; Swiss, 8@10½c; Limburger, 7@8½c; Brick, 8@9¾c.

Eggs—Fresh, at mark, cases returned, sold at 10½@11c; loss off, cases returned, 12½c.

Bran—Firmer and prices 25c higher. Offerings light and trading confined to one car at $11.25 per ton.

Cattle—The choicest beeves sold as high as any time this year, but the general cattle market ruled weak to 10c lower for natives, with instances of 15c decline late in the day. Seven loads of 1,449@1,513 .lb. steers sold at 6.60, some 1,518-lb. corn-fed westerns selling at that price; about a dozen loads averaging 1,400@1,540 lbs. sold at 6.40@6.50; most of the 1,160@1,380-lb. steers sold at 5.35@6. Comparatively few natives sold below 4.50. The 4,500 grass westerns received sold at steady prices, principally at 4.25@4.60 for steers and 3.20@4.45 for cows and heifers. Over 500 thin grass Texas steers sold at 3.45@3.50, averaging 895@906 lbs. Texas cows sold at 2.70@3.10; feeding cattle were in good request at steady prices. Country dealers took a good many grass westerns at 4.40@4.75. Native butcher stock steady.

FOND DU LAC, Wis., Aug. 28—Offerings 744 Twins and 550 Daisies; market quiet for Twins at 10c.

PLYMOUTH, Wis,, Aug. 22—Cheese—The sales reported today were 1,200 Twins at 9¼c; 250 cases Young Americas at 9⅝c, and 75 cases at 9¾c.

SEYMOUR, Wis., Aug, 22—Cheese—The offerings today were 318 boxes of Twins, and 173 Daisies; 248 Twins sold at 9⅛c, 74 at 9⅜c delivered at Appleton. 172 Daisies at 9⅜c.

MUSCODA, Wis. Aug. 28—Offerings to-day 1,200 colored Twins, 105 White Twins; market active; car lots 10c; local lots 9⅞c.

SHEBOYGAN FALLS, Wis., Aug. 23.—Sixteen factories offered 1,162 boxes of cheese on the call board today, and all except one lot was sold as follows: 377 cases Young Americas at 10c; 265 at 9⅞c; 106 Twins at 9⅝c; 50 at 9⅜c; 100 Daisies at 10c; 184 at 9⅞c, and 30 at 9¾c; market active.

NEW YORK, Aug. 28—Butter—Creamery, western extra, 21c; firsts, 20c; state extras, 20½@21c; firsts, 19@20c.

Cheese—State, full cream, large colored, fancy, 10¾c; white, 10c; small colored , 10¾c; white, 10½c.

Eggs—State, Pennsylvania and Western, 17@18c.

BOONEVILLE, N. Y., Aug. 21—Cheese—No sales of cheese were reported, but 9½c was paid for some, while others were sold on the basis of the Utica market.

OGDENSBURG, N. Y., Aug. 21—Cheese—1,277 boxes of cheese were offered. A bid of 9¾c resulted in no sales, but later on the street sales at 9⅝c were reported.

WATERTOWN, N. Y., Aug. 21—Cheese—On the Board there were no sales. On the curb the transactions were: 1,840 boxes at 9¾c, 425 boxes at 9⅝c: and 300 boxes and 60 Twins at 9⅞c.

NORWICH, N. Y., Aug. 21,—Cheese—The sales of cheese were: 460 boxes of large colored at 10c, 450 boxes of small colored at 10c, 187 boxes of small white at 9¾c, 600 boxes Skims at 8@8¾c.

LITTLE FALLS, N. Y., Aug. 21—Cheese—The extremely hot weather appears to have had a depressing effect. Nearly all of the cheese sold here today will go into cold storage. The transactions aggregated 99 lots or 6,098 boxes at 9¾@10c, the bulk being small white and small colored at 9½c.

Butter—There were sales here today of 26 pckgs of dairy butter at 18½@20c, bulk at 19c.

UTICA. N. Y., Aug. 21—The cheese market today showed a substantial advance in prices over those of last week, in sympathy with the firm tone at other primary markets and at the seaboard. Another cause of strength in the market, was the decided shrinkage in the make of cheese, because of the dry weather. Following is a list of sales: Lots, 192; boxes 14,193; prices, 9½@10½c.

The transactions on Aug. 23, 1897, were 8,601 boxes with the ruling price 8¾. The transactions on August 22, 1898 were 7480 boxes, with the ruling price 7c.

The sales of butter to-day were 19 packages at 20c; 26 packages at 20¾c, and 181 packages at 21c. Prints are selling at from 22@23c.

BOSTON, Aug. 28—Butter—Creamery extra, 21½c; western extra 20c; dairy extra 18@19c: imitation creamery 15@16c; western ladle, 14@15c; print creamery,22c; box creamery, 21c,

Eggs—fancy, near by, 17c; choice, fresh, 17c; Michigan extra, 16c; western, 16c; fair to good, 15c.

ST, LOUIS, Mo., Aug. 28—Butter—firm; creamery, 17@21c; dairy, 13@17½c.

Eggs—easier; 12c.

KANSAS CITY, Mo., Aug. 28—Butter—creamery, 17@19c; dairy, 15c.

Eggs—fresh, 11½c.

CINCINNATI, O., Aug. 28—Butter—firm, 21c.

Eggs—quiet, 11½c.

Cheese—firm; good to prime Ohio flat, 9c.

NEWARK, N. J., Aug. 28—Fancy Elgin creamery 21c, Receipts, fair.

PHILADELPHIA, Pa., Aug. 28—Butter—Solid-packed separator, creamery, extras, 21c; firsts, 20c; seconds, 17@19c; imitation creamery, extras, 17c; firsts, 15c; seconds, 14c; ladle packed, extras, 15c; firsts, 14½c; seconds, 13½c. Print butter—Creamery extras, 21c; firsts, 20c; seconds, 19@20c.

Eggs—Pennsylvania and nearby, 16½c; western 16½c; southwestern, 15c; southwestern, 12@13c.

BALTIMORE, Md., Aug. 28—Butter—Market steady; creamery separator, extra, 22c; extra first, 20@21c; creamery first, 19@20c; creamery, imitation extra, 17@18c; ladle extra, 16c; western store packed, 12½@13c.

Eggs—Market firm; strictly fresh stock, 14½@15c.

NEW YORK MARKET.

NEW YORK, August 26—Butter—Receipts for the week, 36,936 packages. Exports for the week, 6,493 packages.

The market is about same as last week, with perhaps a larger accumulation of fresh creamery makes, and receivers showing a trifle more disposition to meet the views of buyers.

Local trade confined their wants to extra quality only, and were obliged to pay 21c, but out of town buyers were able to buy lines of fine fresh creamery at 20c, and there is considerable stock of this kind going over unsold. Exporters bought very little creamery this week and took only finest lines at 20c; they are reported as buying considerable lines of fine June ladles at 15½@16c, and current makes at 14@15c. The supply of fine dairy is very light and the inquiry good, sales are readily made at quotations. We quote:

Creamery, extra 21c; medium, 19½@20c; poor 16@17c; Dairy, extra, 19@20c; medium, 17@18c; poor, 14@16c. Ladle, extra, 15½@16c; medium, 14½@15c; poor 13@14c.

Cheese—Receipts for the week, 31,525 boxes. Exports for the week 6,350 boxes.

The market continues to advance and the whole trade is wondering when prices will come to a halt. Sales in the interior are fully as high as here, and the demand seems to be general. Exporters bought large colored cheese at 10¾@10½c and small sizes sold readily to home trade at 10½@10¾c. White cheese are selling at ¼c pound under colored. Market closes firm. We quote:

Full cream, small, extra, 10¾c; medium, 10@10½c; poor, 7@9c. Full cream large, extra, 10½@10¾; medium, 10@10¼; poor, 6@8c.

Eggs—Receipts for the week, 54,049 cases.

Receipts were larger but the amount of fresh stock was only barely enough to supply the demand. We quote:

N. Y. & Pennsylvania, strictly fresh laid, per dozen, 19@20c. Northern & Western, strictly fresh laid, 16@16½c. Other sections, fair to good marks, 12½@15c. DAVID W. LEWIS & CO.
177 Chambers St.

BALTIMORE MARKET.

BALTIMORE Aug. 24—Butter—The receipts of separator creamery direct from the primary points have been of the usual quantity, since our last issue, and as a general thing the grading has been up to the expectations of the receivers, and it is suspected that in this opinion the buyers share, because the differences between them have been largely confined to questions of values; and as this has been "sellers" week, it is needless to add that the victory has been theirs, and at the close the advance has been general, and well sustained with every prospect of being permanent; probably some parcels may be carried over, but it is thought that this is because the retailers have not adjusted their prices to the new conditions, and are trying to do with a lower grade of goods. With gathered cream makes, there is this difference, that the quanity shipped from regular sources has shrunken about thirty per cent, since the flush of the season, and the quality has fallen away about the same proportion, and yet it seems to go into present use about as fast as received, many buyers having given up the higher grade that was available to them when prices were lower during the flush of receipts, and gone back to this useful variety. Imitation creamery and ladles are in light receipt, and good demand when fit for table purposes; the lowest grades are in fair demand also. Blocks and prints are not active in proportion to other styles of the same grades, because of so many absentees, who usually take these varieties. In storepacked the demand is good, receipts light; quality poor.

Creamery Separator, extras, 20½@21c; firsts, 19½@20c; seconds, 18@19c. Gathered Cream, extras, 18½@19c; firsts, 17@18c; seconds, 16c. Ohio, extras, 18⅝@19c; firsts, 17@18c; seconds, 16c. Imitation, extra, 16@17c; firsts, 15c; seconds, 14c. Iowa & N. W. Ladle, extras, 15c; firsts. 14c; seconds, 13c. Ohio & Indiana Ladle, extras, 15c; firsts, 14c; seconds, 13c. Ohio storepacked, extras, 12½@13c; firsts, 12c. W. Va., extras, 12½@13c; firsts, 12c. Creamery Blocks (2 lbs.) extras, 23c; firsts, 22c; seconds, 21c. Creamery Prints, (½ lb.) extras, 23c: firts, 22c; seconds, 21c. Md. Va. & Penn. Prints, extras, 19@20c; firsts, 18c; seconds, 16½@17c.

Cheese—Receipts of cheese continue light; demanp good; market firm as quoted.

New York State Cheddars, fine, 10¾@10½c; choice, 9¾@10c; fair, 8¾@9c. Fla s, fine, 10½@10¾c; choice, 10@10¼e; fair, 9@9½c. Small, fine, 10¾@11c; choice, 10¼@10½c; fair, 9¾@10c. Ohio Flats, fine, 9¾@10c; choice. 9¼@9½c; fair, 8¾@9c. Picnic, fine, 10@10¼c; choice, 9½@9¾c; fair, 9@9¼c. Swiss Cheese, fine, 12@ 3c; choice, 11@11½c; fair, 10@10¼c.

Eggs—Our egg market rules steady under continued light receipts of choice fresh stock; all receipts of this kind meet with quick sale at 14½c Heated and inferior stock are pressed for sale at irregular prices. G. M. LAMB & BROS.
301 Exchange Place.

MANCHESTER, ENGLAND, MARKET.

Copenhagen reports:—"A continued, very strong market with heavy over prices paying, and orders exceeding supplies by a long way. Quotation is expected other four kroner up to-morror. How long the trade can stand these advances we don't know, but apparently there is an actual shortness of butter, and the high prices are a natural effect thereof." The official rate is now definitely wired four kroner higher. At Manchester, notwithstanding the rise of last week, which it was feared would check the demand, there was again a good clearing demand for all choicest butters, which were promptly sold at our quotations. Secondary was slow of sale. The weather, which was cooler, has again turned warm. New York reports a shrinkage in receipts of ten per cent on the week, but from causes natural to the season of the year—warmer weather, drier pastures in some sections, flies, etc.—and was fully anticipated. Shipments to Europe since May 1st, are 34,006 packages, compared with 26,416 packages for the same period last year. A 30s rate of freight from New York by the Cunard and White Star lines, has been a strong inducement to shippers. Freights will be 40s this week, and accommodations first-class, so exports are expected to be as large as last week. The importance of the outlet cannot be over estimated, as American exporters hold large stocks of June and July goods, and are most anxious to export all August surplus to Europe. Of Danish and Sweedish, 19,702 casks are crossing for next week, being 239 casks less, and 1689 Finish, or 22 less. Cork market closes higher to-day for Irish, with an active demand and weather warmer. An increasing demand for margarines and mixtures is now manifest.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—An honest and reliable man capable of managing a large dairy. Must be experienced in all dairy work and with all dairy machinery. Liberal wages to good man. G. C. STREET Houston, Texas.

Wanted—A man to take charge of a creamery on shares. Seventy miles from Pittsburg. Address, CREAMERY, Hanoverton, Ohio.

Wanted—Married man and wife. Man must be thoroughly experienced in care, feeding and milking of high class Jersey cows and other stock, must understand separator and Babcock test. Woman must take charge of cream and dairy utensils and make butter. Must board themselves. Address BOX 173, North Greenfield, Wis. 29-2

1899 the Greatest of "Alpha" Disc Years.

For eight years past every year has been an "Alpha" disc year in the sale of cream separators, their success being greater from year to year and greatest of all in 1899.

Beginning with a relatively small sale in 1890 the superiority of the "Alpha" disc system was so great as to achieve instant success. The sale in 1891 was double that of 1890, and the sale of "Alpha" disc machines has thus continued to virtually double itself from year to year, in the Factory and Dairy sizes combined.

The recognized supremacy of the "Alpha" disc system is now so great in Factory separators that the purchase of De Laval machines in 1899 has been almost universal, exceeding 95 per cent. of the total sales in the West, and 85 per cent in the East. In the Farm or Dairy sizes of machines the users of such separators have not yet come to so well understand the differences between separators, but are rapidly acquiring this knowledge from practical experience, and the same percentages nearly hold good, and within another year or two will undoubtedly do so.

Users of separators—whether big or little—have come to understand that **The "Alpha" Discs are literally the heart and soul of a perfect cream separator** and that the all around efficiency and general practicability of the "Alpha" disc machine is simply unapproachable by anything else that can be put together in the shape of a cream separator, regardless of price, clap-trap claims of would-be competitors and every other conceivable consideration.

The differences in principle and construction between the "Alpha" and other separators are fully illustrated and made plain to every one in the De Laval catalogues—Creamery or Dairy—which may be readily had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Wanted—Active young man to work on farm and in milk dairy. Must be good milker and able to manage retail route. Permanent place for right man. References required. W. W. McMAHAN, Eaton, Ind.

For Sale—25 choice milch cows, 3 to 9 years of age, and 15 heifers aged from 15 to 20 months, all high grade Guernseys. Also a full-blood Guernsey bull 2 years old for sale. A. L. STRONG, Elkorn, Wis. 29-2

Wanted—Position by an experienced buttermaker. A. R. EPPERSON, Frankfort, N. Y.

Wanted—to hire a good substantial and reliable farm hand. Middle aged and single. J. B. SHATTUCK, Cherry Creek, N. Y. 28-3

Wanted—By Sept. 1st, a single man to feed and look after a large herd of dairy cows in Colorado. Must be thoroughly experienced and a good milker. Steady place to right man. Address, giving full particulars and experience, BOX 524, Denver, Col.

Wanted—Man to take charge of Jersey dairy farm. Prefer a married man from dairy school. Must be well recommended and a worker. I do the kid glove part. State wages. GEO. A. BUCKSTAFF, Oshkosh, Wis. 29-2

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Married man, 30 years old, without children, wants position on dairy or stock farm to take management or otherwise. If necessary can run separator and make excellent butter. HENRY NIELSON, Box 56, Breese, Ill.

Wanted—A competent person, with about $1,500, to buy an interest in and run an established dairy, adjoining the city of Baird, Texas. Interest to be only in live stock and dairy outfit and not in the land, of which there is 1000 acres, 200 acres in cultivation and 800 acres pasture, all of which will be rented reasonably. All improvements necessary for first-class dairy. Spring, spring-house, 400-ton silo, barns, corrals, etc. Regular sale for creamery butter, 25c year round; milk 20c per gal. No other dairy. Address at once. W. C. POWELL, Baird, Tex. 29-3

For Sale—An almost new 16 inch Ohio feed cutter with 22 foot carrier. Used 10 days filing silo. Price $62 for outfit. Only reason for selling is we have a larger one of same make GEO. C. HILL & SON, Rosendale, Wis. 29-2

Auction of Guernsey cattle on Sept. 20th, on farm of GEO. D. TELFER, near Fort Atkinson, Wis. Watch this column for more extended notice. 28-2

Wanted—A thoroughly competent and experienced man to work a dairy farm. Must understand care and feeding of dairy cows. Also must understand steam and care of separator and all modern dairy utensils. Graduate of some dairy school perferred. For particulars address A. J. DAUGHERTY, Streator, Ill. 29-tf

Wanted—Two married men of small family, to work on dairy farm Must be sober, willing and industrious and thorough milkers. Men whose wives will milk, perferred. Steady employment to right parties. Must board themselves. Address P. O. Box 173, North Greenfield, Wis. 29-2

Wanted—An able bodied man and wife to work on and have charge of a stock and dairy farm. Address "A. B. C.," General Delivery, Quincy, Ill. 28-2

A Bargain—Ten head of registered Holstein-Friesian cows, butter bred and tuberculin tested. Price, $700.00. For particulars write L. C. MORSE, Sparta, Wis. 28-2

Wanted—Hand separator, second hand. State make, capacity and price. PHILIP W. FARR, Hamshire, Jefferson Co., Tex.

Very Low Rates to National Encampment, G. A. R. Philadelphia, Pa., Sept. 4 to 9, 1899, via the North-Western Line, from all stations, excursion tickets to be sold to Philadelphia, Pa., September 1, 2 and 3, only for trains arriving at Chicago September 1 to 4, inclusive. Apply to agents for full particulars. 28-2

Excursion Tickets to County Fair at Rockford, Ill.,—Via the North-Western Line, will be sold at reduced rates, September 2 to 8, inclusive, limited to September 9. Apply to agents Chicago & North-Western R'y.

Half Rates to State Fair at Milwaukee, Via the North-Western Line. Excursion tickets will be sold from all stations in Wisconsin and Michigan, September 9 to 15, inclusive, limited to September 16, at one fare for the round trip. Apply to agents Chicago & North-Western R'y. 29-2

Excursion Tickets to County Fair at Belvidere, Ill.—The North-Western Line will sell excursion tickets at reduced rates, September 4 to 8, inclusive, limited to September 9. Apply to agents Chicago & North-Western R'y.

For Agricultural Fair at Evansville, Wis., the North-Western Line, will sell excursion tickets at reduced rates, September 4 to 8, inclusive, limited to September 9, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Milwaukee Industrial Exposition to be held September 2 to October 7, Via the North-Western Line, will be sold at reduced rates. For rates, dates of sale, limits, etc., apply to agents Chicago & North-Western R'y. 29-sp

To California, via the Midland Route.—Every Friday night, at 10:35 p. m., a through Tourist Car for San Francisco, carrying first and second-class passengers, leaves the Chicago, Milwaukee & St Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City (with stop-over privileges at Salt Lake City), for all points in Colorado, Utah, Nevada and California. The Tourist Car berth rate from Chicago to San Francisco is only $6.00, and the sleeping car berths should be reserved a few days in advance of departure of train. Through tickets and sleeping car accommodations can be secured from any agent in the east, or by applying at the Chicago, Milwaukee & St Paul Depot or City Ticket Offices in Chicago. Send for our free illustrated California folders. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill. 29-sp

Exceptionally Low Rates to Denver, Colorado Springs and Pueblo, Via the North-Western Line. Excursion tickets will be sold at greatly reduced rates from all stations, September 5, 6 and 7, limited to September 30, 1899, inclusive, account of annual meeting of Order of Hoo Hoo. Variable routes, delightful scenery Excursion tickets at favorable rates will be sold from these Colorado points to Ogden and Salt Lake City, Utah. Apply to agents Chicago & North-Western R'y.

Comments and Queries From Robinswood Farm.

Wise Policies Needed for Guidance.—Economy in Expenditures and Investment of Capital Necessary.—Practical Conditions Must Decide Crops and Selection of Breeds.—The Ayrshires as Dairy Cows.

ED. HOARD'S DAIRYMAN:—As years roll by the competitive struggle for existence does not appear to become more easy. The farmer's lot may not be the hardest, but it is not easy. Probably he enjoys as much of the blessings of existence as the followers of any vocation,on an average, and accumulates as much; although the opportunities for great acquisitions by the few, do not exist in a pursuit which is fitted for the many to pursue.

Reasonable success comes to more farmers than to any other class of workers. Nevertheless, the law of the survival of the fittest, and the influence of environment are in force among farmers as well as among lawyers, doctor, and merchants. Compare the situation of the cotton farmer of the south and the cow farmer of the north.

The farmers of our rough New Hampshire hill district have had a very hard and discouraging time of it since the opening of the comparatively near, fertile and easily tilled lands of the middle west. The established beef raising industry was made, and is now, practically, impossible in competition with easily tilled, rich corn lands. It is no wonder that a great part of the best blood of the district, left it for the west or for vocations in the towns. But now that the middle west, including Texas grazing districts, has skimmed the first cream of their lands, and has had to come down to the cow and general farming, it becomes apparent that there is just as good a chance for the farmer in these hills as anywhere.

Farms can be bought for a quarter part of the costs of improvements. The right kind of farming will extract the inexhaustible stores of potash and phosphoric acid in these naturally rich, though rocky soils. A beautiful country, near at hand and excellent markets, schools and intelligent society, and a marvelously healthful and vitalizing climate, more than counterbalances advantages of other and distant sections of the country. But to win success, the farmer has got to calculate very closely.

The issue of HOARD'S DAIRYMAN of July 28th, was of exceeding interest to me, because it touched on those problems of policy which have got to be solved and accepted before our local farmers can hope for success. One advantage possessed by the farmer is, that there is usually little need of his paying out ready money. What he raises with his own labor, he makes. If he improves his farm without cash expenditure, that is so much saved and laid away. If he does not make much, he does not risk a loss. I doubt if there is any farmer in the land who can make for himself the maximum rate of wages of his district in raising cow feed, if he depends solely on the butter or milk product of his cows for his returns.

A few able men, "drivers," can secure labor at a lower rate, and work it to a profit; but not the average farmer. The farmer who ventures outside of a safe conservatism in expenditures, stands a right-smart chance to lose more than he gains. The butter farmers of our district cannot afford to pay out money for cow feed of any kind, concentrated or otherwise. The importance of feeding a balanced ration is great; but if to balance the ration, one has to pay out more than is gained, where is the sense of such a policy?

There are some who think the fertilizing value of the boughten concentrates is a large item, but I think that value has been largely over estimated from a practical point of view. Farms can now be bought all over this country at a small fraction of the cost of creating the available plant food in them, through the process of buying concentrated cattle foods for butter making. Those who sell milk may afford to buy these foods, because they have got to pay out cash for the return of the fertility continually going off of the farm in the milk can; but the butter maker can do better by buying fertilizers to grow the crops he needs for feed.

The farmers of our section with its cool, short summer, have got to buy a soluble, concentrated fertilizer to drill in close to his corn seed, in order to secure a quick, early growth, if he is going to get a satisfactory crop. I am inclined to think that an investment in fertilizers for growing other forage crops would pay some sort of a return on any farm lacking in available plant food, if the manure is carefully saved and used in growing these forage crops; but for our local farmers, if they want to invest capital in their farms, there is no such other good investment, as in buying a good superphosphate to increase their corn crop.

The next best investment in fertilizers in my opinion is the purchase of wood ashes, for its effect in increasing the clover and other nitrogen collecting crops. How far it may be practical for our farmers to go outside of ordinary clover in growiug protein foods remains to be proved. But if it shall be decided that corn, clover, oats and timothy are the only forage plants that our farmers can profitably raise, (for, so far as I know, all the legumes are difficult to harvest and somewhat expensive to raise,) then will come up the question as to what breed of cows will most profitably consume and utilize these crops.

Many readers should be very thankful for Mr. C. C. Morris' paper on forage crops. It was helpfully suggestive. If a farmer cannot afford to give or buy a completely balanced feed for his cows, then it would seem that a breed like the Ayrshire would be more profitable than a breed whose one point is a large butter test. A ration having a disproportionate ratio of hydrocarbons would be somewhat more wasted if fed to a Jersey than to a cow who might need more of the hydrocarbon for her sustenance and ultimately produce more veal and beef than the Jersey.

No one claims that any one cow can be a great producer of butter and cheese and also of veal and beef, but the matter is still unsettled as to which kind of a dairy cow will bring in the most profit for the farmer's labor, a general-purpose cow like the Ayrshire or a highly specialized cow like the Jersey. The answer must largely depend on the price of butter. If there are enough pure bred Ayrshire herds in the United States and Canada that are capable of making a good show at the pail and that could be depended on for sufficient fresh and unrelated blood to warrant a farmer taking up this breed, there ought to be very many farmers who would be glad to know the fact.

There are innumerable farmers in the land who would prefer to keep a cow that would be of moderate value for milk selling, cheese making or butter production, and for veal and beef, than to keep the one-string-to-the-bow, highly productive butter cow. That may be a wrong policy to accept, but is it not time for the farmers of the country to call a halt and severely question the wisdom of the policy of putting so much effort into increasing the individual product of the cow? May not such extraordinary outputs be only secured at an unprofitable cost, in comparison with a more moderate yield from a larger number of cows, fed on a less concentrated and not entirely balanced diet?

Will Ayrshires or Jerseys pay best? Other things being equal, the cow whose organs of milk production are least taxed, will have the best general health and live longest. Special excellencies are always secured at a cost of defects in other characteristics.

I have been re-reading Flint's "Milch Cows and Dairy Farming." Thirty years ago this work was law and gospel relating to dairy matters. The author in those days did not know the silo and the centrifugal separator. He thought the proportion of butter and cheese in milk was largely regulated by the quality of the feed, but most of his teachings are as good today as then. The scientifically balanced ration table was not in existence then, but good dairy farmers knew that linseed, cotton seed and bean meals would increase the flow of milk.

Flint rated the Jersey cow as being first-class for the gentleman's lawn, and rated the Ayrshire as being the best and most profitable all around dairy cow. Why has the Ayrshire receded into the background? Is it merely a matter of fashion? Of course, the intensive butter cow is the cow for the butter specialist, but fine butter is cheap now and if all the farmers in the land get good silos, raise balanced rations and grow from pure bred Jerseys or high grades, where will the price of butter go to? Is it not rather a risky thing for a whole district to take up a purely specialized butter cow? If there are good Ayrshires in existence, why not hear from them? I had one many years ago that was a grand cow in every respect. She cost $100 and was well worth that money in those days. J. M. W. KITCHEN, M. D.

New Hampshire.

Dairying in South Dakota—Running Separator with Water Power.

ED. HOARD'S DAIRYMAN:—For benefit of C. J., Aug. 11, HOARD'S DAIRYMAN:—I have been running a No. 2 Baby separator with water power for about three years, and find it very satisfactory. Get supply of water from small artesian well, flowing about one barrel per minute. For a resevoir I use a 100 barrel tank. I made an overshot water wheel, nine feet in diameter, with galvanized iron buckets and spokes,something like a bicycle wheel. The tank is elevated four feet, and the wheel in pit, five feet; the waste water runs off through a drain.

The tank furnishes a two foot head; 1½ inch stream from tank gives sufficient power, and with what well flows will run separator one hour.

We use this power for churning and last year made nearly 7,500 pounds of butter; it makes a very nice power as it is always ready.

South Dakota is all right for dairying, land is cheap and grass and hay and corn fodder make good feed with grain. We have to pay from $5 to $7 per ton for bran. I have only had three years' experience with dairying, but so far have found it very satisfactory.

I like to read the DAIRYMAN, as it gives me ideas to study on and helps me in mapping out my work for the future. I aim to make the dairy a specialty and am thankful for any suggestion that will improve my condition and plans.

My herd, last year, consisted of twenty-eight common cows, fresh about the first of September, and so they are now beginning to come fresh again. We shipped over 7,000 pounds of butter, which netted an average of 20 cents for the year. The calves raised are worth $500, and $200 for hogs sold which were raised mostly on grass, skim milk and buttermilk.

Feed was all raised on the farm except bran, which for the year, cost $150. In addition, we raised 2,000 bushels of wheat and all the oats and corn we fed. My cows are Short-horn grades, but as my aim is butter, I have placed at the head of my herd a young bull from Karlen & Co's herd, Valencia Sir Mechtchilde, and hope to produce a herd of cows that will beat the old ones.

If C. J. would like further information about water power and will write me direct, I will answer any inquiry. F. E. MOSES.

Emsby, S. Dak.

Night and Morning's Milk.—Using the Separator.

ED. HOARD'S DAIRYMAN:—I notice in your issue of Aug. 11th, an inquiry by F. I. Cowles, in regard to the relative yield of cream of morning and night's milk and the occasional difference in the quality of cream or volume,from a given amount of milk from the separator.

In regard to the first question, I will say that it seems to be an established fact that the morning's milk, even if the intervening period of time between the two milkings be the same, the morning's milk will be less in quantity, but test higher in fat, and even though less in quantity, will contain more fat on the whole than the night's milking.

The physiological reasons for this seem to be not very well understood generally as yet. Whether it be, as in the case of Mr. Cowles, the cows having a large pasture to range in during the day time and being confined in a small yard at night, it might thus be that the increased exertion and probably a larger

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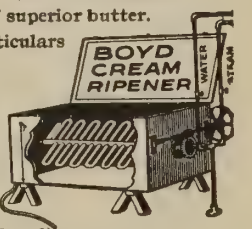
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quantity of water drank during the day, account for the larger amount of milk and the lower test at night and on the whole less fat.

The cows being confined in a small yard at night, thus keeping them more at rest (quiet being made an essential feature in the successful care and management of the dairy cow), might have so beneficial action on the nervous system of the cows, that it will stimulate the system to the larger yield of fat.

In regard to the second question, I will say that the speed, feed and temperature are the three cardinal points to be observed in operating a separator. The speed of a separator determines to a large extent the quality of the cream, or relative yield or volume of cream to a given quantity of milk. If the speed of the separator goes up and the rate of inflow remains constant, the volume of cream will be decreased, whereas, if on the other hand, the speed goes down, the volume of cream will be increased, and consequently a thinner cream will be obtained.

The quality or volume of the cream may also be changed some by the rate of the inflow. If the speed remains constant and the inflow is decreased some, a smaller quantity of milk flowing into the bowl, it will remain longer in the bowl and be more exhaustively separated, i. e., a richer cream, or decreased volume for a given quantity of milk.

The temperature effects separation, inas much as a higher temperature will decrease the viscosity of milk and thus facilitate the separation of the fat globules from the milk serum. Ordinarily a temperature of 75° to 86-90° F., varying with the season of the year and period of lactation, will give the best results, but the efficiency of separation is increased with an increasing temperature, up to about 155° to 160° F. as a maximum limit.

It is possible to increase the flow of milk into the bowl, when a float is used and float capacity already established, by enlarging the opening into the bowl in the regulating cover and increasing the speed correspondingly, but this is generally not advisable, as it leads to over taxing the capacity of the separator. H. J. BERNARDS.

Bear Lake Co., Idaho.

Building a Grain Stack.

A grain stack should be started very much like a round shock. Care should be taken to have the stack round and to have the heart of the stack in the middle so as to induce even settling on all sides. The bundles on the bottom of the stack should all set on end, so that few heads may come in contact with the ground. After the bottom has been built out large enough it should be bridged over and the bundles laid flat. This method of laying the bundles should be followed until near the drawing in point. It is best to not try to keep the "butt" of the stack too steep, but to keep the heart full and the body of the stack, except the outside row, packed down very solid. While the "butt" of the stack is protected by the top and will not get wet, as a usual thing, it is quite important that it be well built and kept level and hard. If put up loose and carelessly the stack is very likely to swing over to one side in settling. The bundles do not lap quite one-half i. e., the butts of the bundles in the inner rows are laid three or four inches inside of the bands of the bundles below them. This will keep the stack about the right pitch until ready to draw in. If the stack becomes too flat at any time it can be steepened by laying the rows closer together, thus getting an extra row in a course.

DRAWING IN.

When the stack is high enough from the ground to "draw in" it should be steepened by laying a double course at the outside of the stack and by lapping the bundles clear to the bands. It is important that plenty of room be left at the outside of the stack between rows one and two, so that there will be little danger of slipping out. Rows two and three should be laid very close, row three leaving only three or four inches of row two uncovered. The balance of the rows to the center of the stack should be lapped to the bands. This method of laying the bundles should be followed as closely to the top of the stack as possible, thereby keeping the heart very full. It is wise to occasionally leave out the double row if the stack becomes too steep.

TOPPING.

Topping out a stack is rather the most difficult part of the process, though a nice, smooth top is not of so much importance as a good shoulder, by which is meant that part of the stack just above the "drawing in" point. If the center of the stack is kept full and solid all the way up, the few top bundles are not of so much consequence, as the top is narrow and will dry out if it does get wet. If a stack has a bad shoulder, however, and gets wet it is very difficult to dry it out, and usually the water will settle to the center in such a case. The stack should not be drawn in rapidly at the start as there will be a tendency to take in water at the shoulder unless left full and rounding. When near the top it can not be drawn in too fast so long as it is kept very full in the middle.

Nearly everyone has a way of his own for topping out grain stacks, so the only rule that will be given here is to keep the heads of every bundle pointed toward the center of the stack and to keep the center *full* enough, so that the last two or three courses may be drawn in very rapidby, leaving a round and rather short point on the stack. Finish by placing two or three well broken up bundles over a stake run six or eight inches into the top of the stack.

STACKING WITH A FORK

Is much preferable to stacking on hands and knees. When once accustomed to stacking with a fork a man can stack fully as fast as with his hands, and it is easier on both pitcher and stacker. In kneeing a stack it is necessary to get very close to the outside of the stack, even while drawing in. This is contrary to good principles in stacking, as the outside should be left loose that it may settle as much as the center.

In fork-stacking the stacker can keep near the center of the stack most of the time, and he should never get closer to the outside than the second row, thus leaving the outside loose and with plenty of room to settle. The harder he can tramp the center the better. A good sized bulge is also an aid to the proper settling of a stack. In short the end desired is to have the center hard and compact enough to settle but little and to have the outside loose and overhanging to allow of all the settling possible. This end is best accomplished by fork-stacking.—*Farm, Stock and Home.*

Butter as a Food.

A writer in the "*Vegetarian*" has the following: "It will first be well to make clear the difference between butters and other fats, and then to deal with the process of manufacture. The fats (butters) which are obtained from the secretions of the mammary glands of most animals are materially different in composition from those which occur in the adipose tissue, and it is in this difference chiefly that the superiority of butters over animal fat lies, for the butters that are intended for the tender digestions of the very young are, of course, much more readily acted upon by the pancreatic juice than are the fats obtained from the adipose tissue, and thus more readily assimilated by the system. Furthermore, milk fat, when taken in the form of milk or cream, is already broken into exceedingly fine particles, so that the process of digestion has thus partially been performed; for the digestion of oleaginous matter does not, as in the case of food of an albuminous or carbohydrate nature, consist so much in its decomposition by the gastric juice and the pepsins contained therein, but chiefly in its emulsification and its occlusion by the villi in the small intestines. Fats are also partly saponified by the pancreatic juice, and here again butter fat is much superior to any other, as being far more easily decomposed. So it is evident that, partly owing to its peculiar physical condition, and partly because its chemical constitution renders it more easy of digestion than any other fat. Where fat is required to retain the temperature of the body—as it is in considerable quantity in all the temperate climates—butter fat holds, par excellence, the first place.

Mottled Cheese.

In some seasons considerable trouble arises with what is known as "mottled" cheese. A cheese maker sent a small sample of mottled cheese to the college in the autumn of 1897. From this sample a starter was made by pasteurizing skim milk, and to this was added some mottled cheese, which has been finely grated. After the starter had developed properly, it was strained into a vat of 300 pounds of milk, on 27th November, 1897. The cheese made was very badly mottled, and had a characteristic unpleasant odor. On 1st December, 1898, the coloring had nearly all disappeared.

Further experiments were made during April, May, August and September, 1898—forty-five in all—300 pounds of milk being used in each vat. The cheeses were colored with Hansen's cheese coloring at the rate of one and one-fourth ounces per one thousand pounds of milk. In most cases a "control" vat of the same milk was used. Starters were made by pasteurizing skim milk and adding to it, either some of the cheese from which it was desired to make a starter, or some of a previous day's starter. On four days sour whey from the whey tank was added directly to the vat of milk. Several cultures, prepared from mottled cheese, were used as starters.

A complete record of each experiment is given in the report under review, but it will suffice here to give the main conclusion, which were arrived at by the experimenters:

1. Mottled cheese may spread from one day's make to another, but it is most likely to do so from or through the starter.

2. The mottles usually appeared in from two to four weeks after the cheese was made.

3. Sometimes a starter produced mottles, and some times the same starter did not.

4. Pasteurizing the whole milk used in the vat did not prevent mottling.

5. In no case did the mottles appear in the white (uncolored) cheese, made from any of the starters.

6. The cultures (made from mottled cheese) did not cause mottling to any extent. In one or two cases there was a slight waviness or mottling.

7. In some cases the mottles appeared quite strongly, and then disappeared after a time. In some cases the mottling appeared in spots through the cheese. A cheese made 22nd August, was examined on 29th November, and the first plug showed no mottles. Out of five plugs drawn from different parts of the cheese, two of them showed mottling.

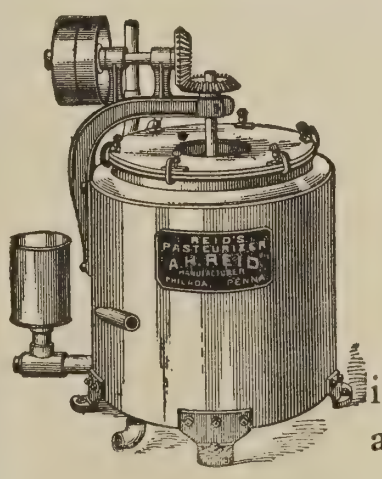
8. Starters made from the whey tank produced mottling of the cheese and a very bad flavor. It is probable that the difficulty is caused in some cases by taking whey home in the milk cans and then sending the milk to the factory in these cans, not properly washed and scalded.

9. It is also probable that the root of the difficulty lies in the fact that a germ or bacterium attacks the coloring matter, added to the milk to produce colored cheese. It takes some time for the effects to become marked and the white spots to appear.

10. It is likely that the trouble appears only under certain favorable conditions of weather, etc. Should this trouble appear in a factory, the maker should look closely after the whey tank and washing of cans, especially if the whey is returned in the milk cans. He should also make white cheese, which are cleaner and more wholesome.—*Rep. Ontario Agri. Coll.*

That Grass or Garlic Taste

as well as all other tastes and odors are removed by the Reid Pasteurizer. The cream and butter always retain their fine flavor, keep sweet longer and sell at better prices than unpasteurized The



REID Pasteurizer

is the only practical, scientifically constructed, and economically operated pasteurizer built.

Mechanicsburg, Pa., Aug. 1, 1899.

We have used Reid Pasteurizers in each of our four Creameries for twelve months, and now cannot speak too highly of them. Is this sufficient recommendation? We would not be without them under any circumstances.

Yours truly,
THE CUMBERLAND VALLEY CREAMERY CO.

Write for book about the best skimming machine made—the **Reid Long Spindle Separator** or for our new catalogue containing everything used in butter making.

A. H. REID, 30th and Market Streets, PHILADELPHIA, and CEDAR RAPIDS, IOWA.

New York Farm and Dairy Notes.

Handling Ensilage Corn.

ED. HOARD'S DAIRYMAN:—The following plan of handling ensilage corn when it is put in the silo whole, as many farmers still do, and which has been sometimes practiced on our farm, may be of use to some of your readers. The only kind of corn we ever put in the silo without cutting with the ensilage cutter, was an early variety of flint corn, and this was planted so thinly and it eared so well that there was a heavier weight of ears than of stalks. The tall growing varieties of corn I would always run through the ensilage cutter. The corn is cut and laid in bunches, an armful in a bunch. In drawing the corn to the silo, two low-down wagons are used, on which are platforms of planks.

Before the corn is placed on the wagon, two lengths of rope, with the ends tied together, thus forming a loop at each end, are laid on the bottom of the wagon and lengthwise of it. The rope should be a few feet longer than the wagon. On this rope is placed a layer of corn, one or two feet deep, and then another rope is laid down as before, an another layer of corn put on, and so on until the load is completed.

It was then driven to the silo where the corn had to be elevated ten feet or more to the top of the silo. A large rope ran over pulleys at the top of the silo; at one end of the rope is attached a jointed hook, so made that when a load of corn is drawn up by it, it can be dumped with a rope attached to it. One end of the binding rope on the wagon is picked up, and pulled through the loop at the other end, and the hook is hooked into it. A horse hitched to the other end of the large rope, draws the bundle of corn to the top of the silo, where it is dumped in layers on the bottom.

By this plan there is no lifting of the corn when unloading, and large loads are unloaded in a few minutes. The only hard work is in cutting the corn and placing it on the wagon. With the use of the corn harvester this part of the work is made easier, and I suppose the corn harvester will soon be as generally used as the reaper or binder. I know by experience something about the hard work of lifting the heavy armfuls of green corn stalks, and the sore muscles and lame back resulting from a long day's work in the field, or in lifting the corn from the wagon, and carrying it to the top of the silo.

Of course this plan of unloading the corn is of no use to those who cut the stalks and use an elevator to carry them into the silo, but when the smaller varieties of corn are grown, having mature ears, I think the main advantage in cutting the corn is, that the work of taking it out of the silo is facilitated. We have not found this very difficult when feeding the uncut stalks, and the extra work certainly is not equal to the cost of running an ensilage cutter, if one has not the power of his own to drive it. I want ears on the stalks which are nearly mature, then if the corn is put in at the right time, the quality of the ensilage will be good.

When using the ensilage cutter and elevator, it may be that all of the readers are not familiar with the plan of using the tube made of sacking to facilitate the work of distributing the corn evenly over the bottom of the silo. This method has been several times described in the agricultural papers, but it may yet be new to some. Several of the large grain sacks are cut open at the bottom, and sown together so as to form a tube reaching from the top of the elevator to the bottom of the silo. The corn from the elevator drops in to the top of the tube, and as it falls to the bottom, a man takes hold of it and carrying it around the silo, thus distributes the corn evenly over the bottom of the silo. As the silo fills, the tube is shortened by removing one or more of the sacks. This is much easier than the old way I used to practice, of pitching the corn around the silo with a fork as it fell from the cutter.

With the help of the corn harvester, the low-down wagon—using two, so one wagon may be driven to the platform by the cutter and the corn put through the cutter as fast as unloaded, while the other wagon is loaded in the field—the elevator, and the tube for distributing the corn as described, the work of filling the silo need not be hard, when the stalks are so large they must be run through the ensilage cutter. After the corn has been cut in the field, five men will be needed to keep the ensilage cutter running, and two teams, if the corn is cut by horse power as we usually have done on our farm; one man to load the corn in the field, one to drive the team, one to unload it, one to feed the cutter, and one man in the silo. If an engine, or other power is used for driving the cutter, only one team will be needed.

In my locality the gasoline engine is sometimes used for cutting corn, and I think very satisfactorily. Where the farmer keeps two teams, or can change work with a neighbor, probably the tread horse power is the most economical for cutting the corn. When many acres of corn are grown, and the business carried on on a large scale, the steam engine will be needed to drive the cutter. Farmers would do well to keep an account of the exact cost per ton of filling the silo. One enterprising farmer in my neighborhood has found it has cost him thirty cents per ton to store the corn when it was grown ready for the silo, and I think this about the usual cost of filling the silo in this vicinity. The most of the farmers, who have it, use buckwheat chaff for covering the silos when they are filled. W. J.

Delaware Co, N. Y.

Notes From Southern Pennsylvania.

ED. HOARD'S DAIRYMAN:—That is an excellent idea of calling attention to the best the paper contains—it is very helpful to us busy readers. Could not you make that a permanent feature. Sometimes we have time to read all the paper contains, but at others we are so pushed that we hardly have; but we do want to get at least the richest cream.

But I want to say I hope every reader will read every word on the editorial pages in every copy, as that contains more of the real kernel of dairy information and wisdom than all the other pages. This last for the readers, not for the editor.

DILUTION SEPARATORS.

Call them delusion separators and you come nearer the truth. Some one said farmers must have a lot of ready cash and the boom of good times have reached them, by the way they spend money for these fake cans. No, my friends, I know some of the buyers personally, and they take the money that they sorely need to buy clothing and food for the wife and children; they are simple folk and are simply *swindled* by a set of unrighteous, cussed rascals who are out of jail. One man who works hard, and his wife and children work like slaves, gave his note for $23 for a tin can worth possibly $2. I have no remedy to propose. Those people will not read any papers, they will not come to our farmers' institutes, and, frankly, I do not pity them, but I do pity their wives and children. I am afraid their case is hopeless.

THE VICIOUS BULL.

This topic should not be dropped from the dairy press. Dairymen and farmers become so reckless, that it is well to repeat danger signals. I see the *Breeders' Gazette* advises killing the vicious bull, but that is poor advice and cannot be followed. There may be extreme cases where such a course is advisable, but in general the advice is foolish. I think I am safe in saying that seven-eighths of all Jersey and Guernsey bulls at maturity, or four or five years of age, are more or less vicious. Sometimes they do not show much of this bad disposition in general, but all of a sudden they will become furious and kill some one.

Of this a few terrible examples have come under my observation lately, in this part of our state. In my own county, the Hon. Gerard C. Brown, one of the noblest sons of the State of Pennsylvania, was killed by a Guernsey bull who never showed much bad temper until he made the fatal attack.

A large bull should absolutely not be at liberty in the field or in the yard with the cows, though they may be in appearance ever so gentle, as they may in an unexpected moment become furious and do just what hundreds of their progenitors have done before.

It is very poor policy anyway to have the bull running with the cows and young stock, not to think of the risk, as we cannot keep a record and do not know when our cows should be dried off nor when they need the attention we should always give cows at calving time. Besides, the heifers will frequently come in too young. Keep the bull in a bull proof pen or stall and always use proper precaution whenever it is necessary to handle him. *Never trust a big bull.* This last sentence would save many lives annually, would every stockman heed and practice it.

OUR CORN CROP.

We have a very large corn crop maturing finely, but only a very few of our people are in a position to utilize the crop properly. But the leaven is doing its work slowly. Quite a number of parties have written or



4,000 Pounds
is the guaranteed capacity of this wagon. It is equipped with
ELECTRIC STEEL WHEELS
with stagger oval spokes, broad tires, etc. It has angle steel hounds front and rear. It's low down and easy to load. One man can load it; saves an extra hand in hauling corn fodder, etc. A pair of these wheels will make a new wagon out of your old one. Send for free catalogue and prices.
Elecric Wheel Co. Box 130, Quincy, Ill.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.
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THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

FOR SALE BULL CALVES
Of St. Lambert, Pedro and Combination strains. Some extra fine ones at farmers' prices. GEO. A. BUCKSTAFF, Oshkosh, Wis.

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ONE YEARLING BULL
Out of a tested dam and TWO BULL CALVES out of large milking dams, for sale. Write for price. W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
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ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
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The blood of Combination. (Sire of 25 in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
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There's plenty of Jersey blood NOT AS GOOD as that of
Old PEDRO 3187.
There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

ARDEN HERD OF
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JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
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Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Hood Farm Jerseys Combination and Tennessee Blood. Bull dropped Oct. 21, 1898. Will be ready for service soon. His dam's six generations were tested. Sire, the great Brown Bessie's Son, at the head of the Hood Farm herd. Dam, Lily 'Oonan, 14 lbs. 6½ oz., full sister of the great prize winner, Lily Martin 2d. Write for price to HOOD FARM, Lowell, Mass.

Dry Weather
here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our BEST COWS and HEIFERS. Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting Jerseys to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
WINTERGREEN HILL FARM CO.,
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FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert 13657
78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and will be sold CHEAP.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. 224
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio.

called to get definite plans for silos and I am glad to say in most cases they are readers of the DAIRYMAN. The others move along in the rut, in blissful ignorance.

The crop of corn stalks is too valuable to neglect, even though you have not yet a silo. By careful management the crop of stalks can be made very valuable as a winter feed. Care for it just as you do for your choicest hay and it will be all right.

A number of our experiment stations have determined that the feeding value of the stalks on an acre is about as much as that of the ears, and every one of us who has fed nice, well cured corn stover to milk cows, knows that ton for ton the stover is to be preferred to well matured timothy hay.

Now, look at the prices of hay. I see in our Baltimore market, at the hay scales, it is quoted at $15, while hay buyers are out offering farmers $11 per ton in the barn, for choice. Can we afford to waste a feed so valuable? We can not get $15 per ton for our stover, but if we cut, cure and store it in the best possible condition, it will take the place of hay, which in the end amounts to the same thing.

In the large corn fields of the west, cutting machinery will no doubt pay, while we in the east with our rather small acres can more generally cut it cheapest and most satisfactory by hand. The shredder or fodder cutter is of course an absolute necessity for every one who desires to most economically utilize the corn plant.

THAT SKIM MILK VAT.

The worst abomination about the creamery, especially at this time of the year, is that large vat into which the skim milk is run and from which the patrons help themselves. It is sometimes cleaned out. Not long ago a friend informed me that when they reached bottom in theirs they were astonished to find a dead dog. That is the worst case I have heard of yet thus far, but the only wonder is that any hogs can drink such abominable stuff and live. Then think of putting such stuff into the cans to be used to-morrow to bring milk from which to make good butter. Patrons and creamerymen should combine to abolish that vat. The milk should be taken as it comes from the separator and not allowed to rot before it is fed.

L. W. LIGHTY.

Adams Co., Pa.

Cream for Whipping.

Separator Cream Will Not Whip as Well as Hand Skimmed.

ED. HOARD'S DAIRYMAN:—In answer to your favored request to give some light upon the above point, as claimed by a subscriber in Missouri, I shall try to do my best, though I fear I cannot give full satisfaction.

The claim is an old one, and many parties yet stick to it, and some actually yet prefer a hand skimmed cream for that reason. Still I have found a great change going on in favor of the separator cream. The large city ice-cream manufacturers were slow in admitting, that taking every thing into consideration, they were better off with the apparently thinner, more fluid cream from the separator, which could be depended upon as absolutely sweet, than with thicker, though not actually richer, cream gained by the old-fashioned method of skimming by hand, after setting the milk, warm from the cow, in shallow pans for twenty-four hours or longer.

I mention this most old-fashioned way, especially, because the same objection, which at first prevailed against the separator cream, also held sway quite a while as to cream gained from "Cooley creamers" or by any manner of "deep setting" in ice-water, as compared with the "shallow setting" cream.

But, while, of course, the "deep cold" way was a great improvement over the "shallow lukewarm" method, still anyone who has gone deep enough in the subject knows now, that the separator was even a far greater step forward. And yet, I guess it must be admitted that some of the great whipping capacity of the old-fashioned cream has been lost.

All that is left for the producer and retailer to do, is to convince his customers as to the far more healthy character of separator cream, no matter whether used for coffee and tea, ice-cream, or whipping, than of cream which has been exposed to a surrounding air of very doubtful character for twenty-four hours. And while I myself only know too well, that it is of no use to make customers change their taste according to our convience, still it becomes a very different matter when we can get the physicians on our side, and positively be able to prove the enormous amount of bacterial life of every kind and description, which is to be found present in milk and cream thus exposed.

While, no doubt, a great majority of such germs may be harmless, still it is seen that many are not, and the apparent greater thickness of hand skimmed cream of only 14%, as compared to fresh separator cream of 20% or even 24%, is really only caused by a beginning deterioration, which in a very short time will cause a most undersirable souring.

I am confident that in the long run, our customers will prefer to pay a little more for cream for whipping purposes, guaranteed to contain a higher fat per cent, when they find that in case part of such cream was not used at once, but was left over till next day, such cream would have just as sweet and fresh a flavor, as when first received.

If the same customer had bought the "thicker," hand-skimmed stuff (pardon the name), they would the next day have had some mean tasting, rank, probably sour stuff on hand, not fit for anything. And this is what causes the growing favor which pasteurized cream is gaining among the best class of city customers, that they have cream which is O. K. the day after it was bought, even in hot weather.

But your inquirer may say, this all is no solution of the problem in his case. I have one more suggestion to make, and while I never myself have tried the method, still I believe it might be made of practical value if properly applied. I refer to the

RESTORATION OF THE VISCOSITY OF CREAM,

as invented by Messrs. Babcock and Russell, of Madison, Wis. Of late several inquiries as to this method have appeared in HOARD'S DAIRYMAN, and the inquirers have been referred to the bulletin on that subject by the Wisconsin Experiment Station. But with all my regard for the ingenuity of the invention and its possible usefulness, still its dangers are so many that I have decided to let it alone.

The fact that the addition of any matter, in ever so small proportion and of a perfectly innocent character, is against the laws of many states and cities is an added reason for not using it. That "viscogen," properly used, will do all that is claimed for it, and give no offensive taste of lime either, is sure; still if not applied properly by the dealer, it is apt to do more harm than good. Therefore, I advise producer and dealer to let it strictly alone and not to tamper with anything whatever to be added to milk or cream.

But it would be quite a different thing if we could introduce "viscogen" in a form in which the customers and their cooks could use it and just add the amount necessary, given by directions, for the amount of cream which they either wish to whip or use for ice-cream. Then "viscogen" would be entirely legitimate and probably become even more popular than "Hansen's Rennet Tablets" for making "Junket" (clabbered sweet milk), which are now sold by most grocers. I, for one, wish that Dr. Babcock and Prof. Russell would try to find a way to make such a way for the use of "viscogen" possible, and then would be glad to supply all my customers upon demand.

Washington, D. C. J. MOLDENHAWER.

Keeping Hogs Healthy.

Mr. Niles, a veterinarian, in a paper read before the Iowa Swine Breeders, said:

In connection with the loss of young pigs I only wish to point out the fact that diseases of the young are on the increase, that several of these troubles, such as the troublesome ulcerative sore mouth, some form of diarrhœa the nasal disease, known as snuffles and some others, are infectious, and are due to some element in the yards, nests, etc., capable when it comes in contact with the pig of setting up a disease process. In dealing with all of these troubles, prevention should be the rule. Perfect cleanliness, with disinfection of pens with carbolic acid, chloronaptholeum, creolin, or some other equally good agent, and of the soil with lime, should be the means employed. The separation of the well from the sick is also an important feature. The most severe plague of all to the young pig is our old enemy—hog cholera. Our observations have convinced us of the fact that it is not safe to re-stock cholera yards and pens for at least one year after the disease has disappeared.

To place hogs in the spring, in yards where swine died in the fall, and up into the winter, with cholera, is very liable to develop another outbreak of the disease. In order, then, to most effectually rid the farm of the disease, new yards and pens should be provided for all uninfected, swine brought onto the farm. For the purpose of providing shelter in new yards, and for the ease with which it may be disinfected the small movable hog house is a most valuable factor in swine growing. It would be hard to say too much in its favor. For the accommodation of the brood sow and for a small lot of shoates it is especially well fitted. That water courses may be a factor in the spread of disease, should be kept in view. During cholera times water from a well is always preferable, and if possible the herd should be fenced away from the stream unless it originates on the farm. Whenever there is danger from cholera our herds should be as completely isolated as it is possible to make them. Especial pains should be taken to prevent, in any way, contact with outside hogs. Prevention is always better than a cure, and without disease germs be in some way brought to the herd the disease will not appear. Much complaint is heard throughout the country regarding the complications following castration. Just a brief hint concerning them.

As a rule pigs should be castrated early, but never when there is a probability that they will be exposed to cholera before recovering from the operation. At this time the pig is more liable to take the disease, the attack is more severe and recovery consequently less liable to occur. The knife used in performing the operation should always be surgically clean, that is, free from infection. This condition can be easily brought about by immersing it in boiling water for a few minutes. The openings should be made low down, and of sufficient length to insure good drainage. Should the objectionable bunches appear, which will seldom be the case if the operation be performed in this way, remove them early with the knife. When small they may be easily removed without danger to the pig, but if allowed to reach great size their removal becomes difficult and death often follows.

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Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

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Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

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Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

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Is the 4th highest butter cow in Holstein history. Her butter record is 35 lbs. 9 oz. in 7 days, 100 lbs. 12 oz. milk in 1 day, 2,591 lbs. in 30 days. Winner of first prize at New York State Fair, 1888. Breeders' Gazette says: "Greater things are expected of her than she has already done, she is hard after Mechtchilde." Valley Mead Farm boasts to contain the best of everything, so it possesses also three daughters of Careme, which have been great prize-winners, and many grand-daughters. VALLEY MEAD FARM, Monticello, Wis.

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Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

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SHETLAND PONIES.

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Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. **GEO. C. HILL & SON, Rosendale, Wis.**

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First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE, Farm Supt., Madison, N. J.**

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

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Northern New York Pencillings.

Corn Fodder and Milk Flow.—Water Supply and Shade in Pasture.—Creamery Sharks in New York.—Pure Blood vs. Scrubs.—Big Butter Yields.

ED. HOARD'S DAIRYMAN:—Everybody, agricultural editors and writers included, is praying for rain, while the cows are preying on everything within their reach, or beyond it, that has digestible nutrients in it.

Just why some of the farmers do not cut and feed their corn to their cows is a conundrum. With cheese selling at ten cents, one would naturally be led to think that it would be a good financial scheme to so provide for, and feed the cows, as to keep up their milk flow; but, as in years gone by, the farmers are caught in the lurch; no summer silos, and many of them without "sowed corn", even.

Meanwhile, in many pastures, the water supply is failing, while the horn-fly pest is greater than ever. No shade in many pastures; a red blazing sun; a 90° in the shade temperature, with only a scanty covering of November, brown colored grass in the pastures, furnishes a poor outlook for the cows on which the hopes of many a farmer in Northern New York depend for cash to pay accrued interest, or to make payments on that mortgage.

Last year at this time cheese sold for seven and one-half cents. Last Saturday it reached the ten cent notch, but the offerings were enough less to fully offset the difference, so that, to the farmer, who has no feed for his cows, the advance of two and one-half cents per pound for cheese brings no relief.

There are some farmers in town who are making preparations to build additional silos for summer feeding, and others say they are going to invest in them; but the chances are that those who are "agoin' to" will not get there, but will be caught again in next summer's drouth, just as they have been each year, almost, during the last two decades. But there will be some, who will profit by this and former years' adversity, by building silos and filling them another year with silage for summer feeding, when the drouth comes.

The creamery promoter shark is playing his little game, or trying to, in this county. As usual, however, he has steered clear of each locality where farmers' institutes are wont to be held, or where HOARD'S DAIRYMAN is taken and read. Just now, if one is to believe the newspaper reports, a Chicago promoter is trying to victimize the farmers of Theresa, this county. Theresa is a town that doesn't take to farmers' institutes very kindly, only one or two, one day's meetings ever having been held there, and these were so slimly attended that no further applications have been put in from there. It is a good place, therefore, for the creamery promoter and aquatic separator can frauds, to work their little games.

At a meeting of the Watertown Produce Exchange, recently, Mr. C. S. Kellog exposed the whole fraud, and told the Theresa farmers to keep out of the deal, giving his reasons therefor. His speech was printed in the Watertown *Standard and Times*, but the chances are that the dupes have never read it, and, notwithstanding all the efforts being made by the exchange, and the timely warnings of the two papers, the promoters will succeed in "roping" enough farmers "into the game," to establish a creamery there or near by, whether there are a hundred cows, or only a dozen in the neighborhood.

Fully eighty factories were represented on the Watertown Board of Trade, Saturday, the nineteenth, and it was reported the falling off in milk receipts at these factories was an average of fully 40%, also that the farmers were then feeding hay, bran, and other mill stuffs to their cows. But these foods will not take the place of green peas and oats, nor well grown corn. Yet, some farmers having corn, refuse to cut and feed it now, when it has nearly reached its greatest value, but are waiting to harvest, cure and feed it in the old way.

Prof. Plumb, not long since, had an article devoted to pure blood stock, in the *Rural New Yorker*, which ought to be printed in every first-class agricultural and dairy paper extant. In it, the folly of rearing and selling every calf dropped, whether of value or not, because it has a pedigree and registered ancestry behind it, was fully set forth. This practice has more fully than anything else, prevented the average farmers from purchasing pure breed sires to bed their herds. So many failures have resulted from the purchase of such sires, that hundreds of dairymen refuse to buy them, preferring to continue the breeding of cross bred or scrub sires, instead.

A few days since I was at Adams, and saw thirty bulls, two to three years old, in the cattle yard, awaiting shipment in the afternoon of that day. They came from Ellisburg, Adams, Henderson, Lorraine and Rodman, all adjoining towns, and had been bought for two and one-half cents per pound. They were of nearly every color or combination of colors, of all shapes and forms, except that of the dairy, and weighed from 700 to 1,200 pounds. Not one of them was worth a dollar for breeding purposes, and had been sold for bologna mill meat, their owners not caring to use them another season. But each of these farmers have another sire, "a son of his father" coming in to take the place of his bologna ancestor next spring, and will in time follow in his foot steps. Ask one of those farmers why they continue the rearing and using of such sires, instead of putting a thoroughbred of some breed into their herds, and they will at once refer you to some one who has invested in such a sire, paying big money for him, and which turned out to be only a scrub, not so good as some of their cross bred or natives. So they at once discarded the thoroughbreds and went back to their old loves.

Had the breeders who sold these full blood scrubs, slaughtered them at sight and sold only those of real merit instead, thousands of farmers would now be using pure bloods. In Delaware County, this state, in the town of Bovina, Mr. Powell and myself did not find a cross-bred native or scrub sire among the 120 herds visited. Every one of them was either a pure bred Jersey or Guernsey. Those farmers had learned the value of such sires, and, while nearly all their cows were either Jersey or Guernsey grades, each one had a thoroughbred sire in his stable. They had learned the modus of selecting a calf that would develop a sire of the desired qualities, and thus seldom made a mistake in their selections. Those calves, whether heifers or bulls, that did not have the requisite qualifications, went to the block. They were neither raised nor sold.

The *Jersey Bulletin*, however, does not favor such a practice, but says, raise everything and do the weeding out later on, when you have learned that the bull or heifer is worthless. One can't tell, it says, from external appearances, what sort of a cow or bull a calf will grow into. Dairy form in a calf don't count; only time will determine its value. Such advice is good for the professional breeder who is looking after customers and high prices based on pedigree and registry, but the average dairyman who wants to improve his herd by grading it up, won't listen to any such clap-trap. He don't propose to pay $25, $50 or $100 for a bull calf that has nothing behind it but pedigree and much talk of its owner; and as developed service sires, that have records, are too high in price to meet the capacity of their pocketbooks, they refuse to purchase, and so continue the practice of using mongrel sires. Among the 365 herds of cows of fifteen each, in this town, there are not more than twenty-five thoroughbred sires. The others are of the types I saw in Adams. Next year, about August 1st, there will be another exodus of these bulls. It is not to be wondered at the small yield of milk—less than 3,500 pounds per cow—in this town. But



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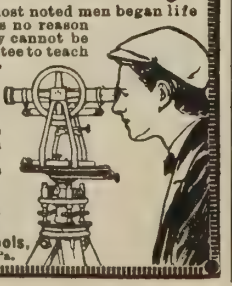
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Farm for Sale. 163 Acres—1½ miles from prosperous County seat, with population of 4000. Good four roomed house—large roomy barns and other out buildings. 2000 bearing Peach trees; 1000 young Peach trees—500 thrifty Apple, Pear, Plum, Cherry and Quince trees good fences and plenty of water. Now stocked with Registered Jersey Cattle. For price, terms, etc., address,

MAPLE GROVE FARM, Hocking County. Logan, Ohio.

it will never be increased until mongrel and thoroughbred scrub sires are discarded and only thoroughbreds of merit given their places. That day is somewhere in the future, but not yet in sight.

The *Jersey Bulletin* is now after the scalp of Mr. Rice, of Ontario, who has dared to question the big yields of some of the Jerseys reported in the *Bulletin*. He says the Babcock test has ended the days of such cows and their churn tests. Whereat the *Bulletin* gets mad, calls him "Rice" and says he milks Holsteins, which give thin milk, and asks if he ever heard of chemists who have analyzed the butter from some of these cows and which showed 80% to 85% butter fat, a proof conclusive that Mr. Rice has lied.

No doubt but Mr. Rice has heard of men who sail under the chemist's flag, but who have their price. It was no trick at all, and is not now, for the oleo gang to find chemists to swear to the wholesomeness of their vile compound. Nor do the users of preservatives in butter, cream and milk, or the contemptible wretches who are adulterating every thing we eat, drink or wear, meet with any trouble in finding chemists who will not hesitate to give their wares a "clean bill of health." All that is necessary to secure a certificate is cash enough, and their services can be as readily obtained in aid of the big butter churn tests as of hog butter or adulterated food products.

What troubles the *Bulletin's* soul most, is the failure of the Babcock to find the fat in the Jersey milk, sufficient for such yields of butter, while it finds too much in some Holstein milk. Its only war is waged against the Holsteins. The other dairy breeds, however, i. e., Ayrshire and Guernsey, would catch it just the same if there were enough of them to make a show. The want of respectable—or, rather, competitive—numbers, is all that saves them and their owners, from the abuse of the screed. But they "will catch it" should they ever develop into respectable competitive numbers.

Dr. C. D. Smead, of Logan, N. Y., writes me under recent date, in answer to some inquiries relating to his famous old, grade cow, which, I think, is now past her twenty-second birthday, the following:

"She dropped her last calf on February 10th, last, sired by my Guernsey bull, Rydale. It is a fine heifer calf, having almost perfect Guernsey markings, with the old cow's form, and six well developed teats. The old cow is still hale and hearty; eats six pounds daily of corn, oats and chop mixed, two-thirds being oats. Two months after calving, she produced thirty pounds of milk daily, which tested 4.8 per cent fat. Four months after calving she was giving twenty-eight pounds per day, testing 5.2 per cent fat. At present she is giving twenty-six pounds per day, testing 5.4 per cent. The calf is being raised, and, although I was offered fifteen dollars for it when but six weeks old, I shall keep it and see what it will make.

Her teeth are fairly good now, but I see that it bothers her some to eat hard food, which she will not be compelled to do in the future. She has not been dry since her first calf was dropped, which was when she was about twenty-two months old, but has been milked *every* day since; and there has never a day passed that she did not eat a grain ration of some kind. Her first calf is now running in the same pasture with her, and is the property of my hired man, being his family cow. She also dropped a heifer calf sired by my bull. It is a fine one and is being raised for a cow, and both cows are in calf again to the same sire. I can only hope that both will again drop heifer calves."

We often hear the question, "How long before a cow will wear out, if fed such rations, as you recommend?" asked at the Institutes; and, "Would not the digestion and stomachs of the cow be ruined if we fed all our cows in that way?"

While not all cows will live and produce such yields of rich milk every day during twenty years, nor be capable of eating, assimilating, digesting and paying for such rations, because of a lack of constitutional vigor, there are thousands which would, if given the chance, but which go to the shambles at an early age, never having had "a good square meal" during their life times, except that which they got in the pasture during the few days of June flush. If no more cows died from eating liberal, properly balanced rations, than from a want of them, there would soon be a big discount in bovine funerals in this expanded Republic of ours.

Belleville, N. Y. C. W. JENNINGS.

Cleanliness in Dairying.

A great deal has been written upon this subject, but I think that a few more lines would not be out of place, judging from what I observed today while taking in the milk at the college creamery. It is not at all unusual to find all sorts of filth in the bottom of a can, such as grounds, manure, etc., etc. Such a state of affairs cannot be tolerated much longer if we expect to be able to compete with Denmark and other countries in the leading butter and cheese markets. We must educate the producer in order that he may fully realize the vital importance of perfect cleanliness in dairying. Of the many reasons for the necessity of cleanliness in handling milk, one of the first is that milk is a liquid and will dissolve a large portion of the foreign matter that finds its way into it. When this matter is once dissolved, no amount of straining can remove it. Another reason for giving especial care to the handling of milk would be that from the necessity of the case it is not the so-called unobjectionable kinds of dirt, that are sometimes distinguished as "clean dirt," to which milk is usually exposed, but to the germ-laden dust and obnoxious odors of the cow stable, as well as particles of dried manure, hairs, and other minute particles, so apt to drop into the pail during milking. We must bear in mind that it is not the dirt of itself that gives rise to so much trouble, but that it is the undesirable kinds of bacteria which enter the milk along with the dirt, as they exist in untold numbers in these objectionable contributions. When the forage and bedding are handled just before milking, as is often the case with men who have not made a special study of dairying, a very objectionable kind of bacteria (known as hay bacillus) find their way into the milk with the dust. In addition to the sources referred to, it oftentimes happens that the unwashed hands of the milker, together with some old coat that has previously served a period of more esteemed service, but now serves as a special garment for the grooming of horses and milking the cows, furnishes a smaller, though very objectionable, part to the general supply. Again, we may find that good housewife or domestic who has not learned the superiority of a good brush to the much used dishrag, has been unable to remove all the slimy substance that adheres so tenaciously to the vessels. Thus a supply of bacteria, sufficient for an undesirable seeding, is in this way preserved. Not only is milk liable to contamination from the above named sources, but it is of such composition that when once seeded the bacteria can neither be skimmed off nor strained out, but are there to stay, as it furnishes temperature, moisture and food supply so admirably adapted to their growth and increase, that under these favorable conditions they multiply at an inconceivable rate of rapidity. This increase in undesirable bacteria very materially affects the keeping quality of the milk, thus greatly shortening the time in which it can be put upon the market in an apparently fresh condition. Or if the milk is to be used for the manufacture of butter and cheese, the presence of these germs will prevent a proper ripening of the cream, thus making it impossible for the butter maker to secure that much-sought-for quality, good flavor, in his butter. In the production of cheese they produce gassy and floating curds, which cause the cheese to be spongy and "pinholey." After these things have been considered, there is yet the influence that uncleanliness may exert upon the health of the consumer of the milk or its products, and also as regards securing the best price for the article offered for sale. As regards health, there is no longer any doubt that impure milk is not only undesirable, but positively dangerous, from the disease germs that are likely to abound wherever there is dirt, filth or decay. The milk may not only serve as a means of conveying the germs of such diseases as typhoid fever, tuberculosis, and numerous other virulent diseases, but the decomposition that is set up in the milk by the putrefactive bacteria may produce in milk or its products toxic compounds that are extremely poisonous, and which often produce sickness or even fatal results. This form of poison, as well as various other troubles, develops in cheese also, and is, like other cheese diseases, supposed to be the outcome of improper care of the milk. In butter, one of the most annoying effects of undesirable bacteria is the earlier development of butyric acid and the consequent rancidity of the butter. From some experiments made here at the Iowa College creamery in regard to the keeping qualities of butter made from cream that had been separated from milk which had been exposed to unfavorable conditions that are so frequently to be met with, and other cream that was free from all undesirable kinds of bacteria, I am firmly convinced that uncleanly conditions are more directly responsible for rancidity in butter than is indicated by any authority that I have read upon that subject. I do not hesitate to venture the opinion that if more thorough cleanliness was rigidly practiced by all who put butter upon the market, the reduction in the amount of rancid butter would be sufficient to silence those champions of oleomargarine and other imitation butters who have been successful in persuading so many that these products of the great packing corporations should be allowed to supplant butter as an article of food on account of their better keeping qualities. While it is possible by resorting to pasteurization and pure culture starters, to improve the quality of butter made from milk that has been poorly cared for, I think it is admitted that there is no process by which poor milk can be made to produce the very best butter or cheese. We must also bear in mind that while commission merchants purchase the poor butter with reluctance at a lower price than is profitable to the producer, they are eagerly watching for the very best, and will often pay from half a cent to one cent a pound above market quotations to customers who can always supply them with the very finest article.—W. J KENNEDY, in *Prairie Farmer*.

One of the reasons, that dairying has been profitable to the farmer who undertakes it, is the fact that this industry gives steady employment throughout the year, not only to the farmer himself, but in some measure to his children large and small as well. This factor is of often of the highest importance and brings the dairy industry in strong contrast with grain growing, where labor is employed only a part of the season, to be idle the rest of the time.—*Ex.*

In Washing Paint

don't scrub it and wear off the surface. Use Gold Dust Washing Powder according to directions printed on every package and you will be pleased with the results and surprised at the saving in labor.

Send for free booklet—"Golden Rules for Housework."

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Is it **CHANCE**, is it **GOOD LUCK**, or is it **MERIT** that has enabled the patrons of

GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

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In 1897.....H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use **GENESEE SALT**, and write to our General Western Salesman, Mr. F. A. TRIPP, 34 Clark Street, Chicago. Or address

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Takes the place of a wire cutter. Pulls staples with ease and perfection. Perfect grip to pull wire. Weight 19 ounces. All parts steel. Price 50c. Mail or express prepaid, 60c. Money back if you want it. Send for circular.
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For Kicking Cows.



Either from habit or from sore teats. **Price 50 c.**
Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted.
Sent Postage Paid.
Agents Wanted,...
Henry Bassett,
SALEM, N. J.



Official Tests of Holstein Friesian Cows, from May 1 to June 1, 1899.

These tests are invariably made by Agricultural Colleges and Experiment Stations at the homes of the cows for periods of seven consecutive days. The butter fat is determined by the Babcock test and the butter calculated on the basis of 80% fat to a pound, the rule established at the World's Columbian Exposition.

Shadybrook Gerben 43753; age 6 years, 9 months, 8 days; 38 days after calving: milk, 589.8 pounds; butter, 23 pounds, 4.2 ounces.

Dirkje Von Holingen 3d 35256; age 6 years, 6 months, 27 days; 29 days after calving: milk, 544.7 pounds; butter, 21 pounds, 13.1 ounces.

Lady Payne's Devries of Rochester 32883; age 7 years, 11 days; 13 days after calving: milk, 569.6 pounds; butter, 21 pounds, 5.4 ounces.

Maplecroft Maid 35907; age 5 years, 4 months, 2 days; 60 days after calving: 21 pounds, 5.3 ounces.

Genesta Echo 2d 31478; age 6 years, 8 months, 18 days; 13 days after calving: milk, 541 pounds; butter, 20 pounds, 3 ounces.

Fay M 35970; age 5 years, 9 months, 25 days; 19 days after calving: milk, 511.4 pounds; butter, 19 pounds, 8.6 ounces.

Lady Pörthenea Adine 42754; age 4 years, 6 months, 6 days; 23 days after calving: milk, 530.8 pounds; butter, 18 pounds, 4.4 ounces.

Aaggie Iras 2072 C.H. F.: age 3 years, 2 months. 8 days; 24 days after calving: milk, 479 pounds; butter, 18 pounds, 1.8 ounces.

Tulu 3d 35534; age 5 years, 11 months, 1 day; 34 days after calving: milk 412 pounds; butter, 18 pounds, 1.2 ounces.

Small Hopes Aaggie 2d 39111; age 4 years, 5 months, 7 days; 17 days after calving: milk, 457.8 pounds; butter, 17 pounds, 8.5 ounces.

Shadeland Angie 21700; age 9 years, 2 months, 24 days; 50 days after calving: milk, 432.1 pounds; butter, 17 pounds, 7.5 ounces.

Carlotta's Nola 34501; age 5 years, 11 months, 24 days; 21 days after calving: milk, 422 pounds; butter, 17 pounds, 6.9 ounces.

Pleasant Valley Queen 38445; age 4 years, 4 months, 2 days; 31 days after calving: milk, 414.3 pounds; butter, 16 pounds, 10.9 ounces.

Como's Aaggie Beauty 35559; age 5 years, 1 month, 10 days; 43 days after calving: milk, 389.4 pounds; butter, 16 pounds, 7.8 ounces.

Lady May Pietertje 43145; age 7 years, 11 days; 37 days after calving: milk, 425.1 pounds; butter, 16 pounds, 7.8 ounces.

Hetje 6th's Pietertje 38945; age 4 years, 24 days; 28 days after calving: milk, 406.5 pounds; butter, 16 pounds, 1.4 ounces.

Verbella May 3d 48892; age 2 years, 10 months, 28 days; 63 days after calving: milk, 395.3 pounds; butter, 15 pounds, 15.3 ounces.

Shadeland DeKol 41386; age 2 years, 11 months, 28 days; 34 days after calving: milk, 383.2 pounds; butter, 15 pounds, 5.3 ounces.

Inka Wayne's Netherland 39633: age 3 years, 9 months, 1 day; 47 days after calving: milk, 383.4 pounds; butter, 13 pounds, 14.5 ounces.

Lady Oak Fern 44126; age 2 years, 2 months, 26 days; 36 days after calving: milk, 298 pounds; butter, 13 pounds, 7.9 ounces.

Princess Mahomet 47105; age 3 years, 1 month, 28 days; 68 days after calving: milk, 312.3 pounds; butter, 13 pounds, 2.2 ounces.

Lady Waldorf 43827; age 1 year, 11 months, 7 days; 14 days after calving: milk, 267.9 pounds; butter, 12 pounds, 14 ounces.

Piebe Queen 4th 45006; age 2 years, 25 days; 48 days after calving: milk, 321.4 pounds; butter, 12 pounds 8.9 ounces.

Pietertje de Haan 40973; age 3 years, 4 months, 29 days; 30 days after calving: milk, 350 pounds; butter, 12 pounds, 2.8 ounces.

Jessie Fobes 2nd Maud 2nd 44123; age 2 years, 28 days; 11 days after calving: milk, 230.2 pounds; butter, 11 pounds, 3.2 ounces.

May Beets 42835; age 2 years 7 months; 16 days after calving: milk, 262.1 pounds; butter, 10 pounds, 15.4 ounces.

Pietertje Tweede 2nd 43832; age 1 year 11 months, 17 days; 21 days after calving: milk 256.4 pounds; butter 10 pounds, 11.8 ounces.

Plum 10th 43773; age 1 year, 11 months, 13 days; 21 days after calving: milk, 254.2 pounds; butter, 10 pounds, 4.7 ounces.

Inka Mercedes De Kol 1828 C. H. F.; age 1 year, 9 months, 4 days; 5 days after calving: milk, 253.8 pounds; butter, 9 pounds, 1 ounce.

S. HOXIE, Sup't of Advanced Registry.
Yorkville, N. Y.

"Ohio's Famous Herd of Holsteins."

ED. HOARD'S DAIRYMAN:—I had thought you might be interested in a visit paid to the above famous dairy herd, and perhaps its equally famous dairyman, Mr. E. F. Smith, junior member and manager of the firm of W. B. Smith & Son, of Columbus, O.

We have herds of thoroughbred cattle in which interest centers almost entirely in pedigree; other herds in which dairy work is the all in all. Here, I think, we have a happy union of the two ideas. Certain it is that this has been a working herd from the start.

Seventeen years ago this firm took the contract of supplying the state hospital for the insane, what milk it needed and has been supplying it ever since. The herd was composed originally of grade Short-horns; later a few Jerseys were introduced, but not proving as satisfactory as was hoped, they gave place to the grade Holstein, and the latter have been replaced by the thoroughbred Holstein, until it now numbers some sixty cows—perhaps unequaled by any herd of sixty cows to be found in the country. But let me tell you about them.

To get these cows together, Mr. Smith has bought five herds outright and the tops of five more. Any cow proving unsatisfactory has been speedily sent to the butcher. He seldom sells a cow other than to the butcher. One exception to this rule, that has given Mr. Smith no little pain, is the world-famous cow, Calamity Jane, now owned by Geo. Rice, of Canada. This cow was bred and raised by the Smiths; however, the herd has a good many "Calamity Janes" in it.

While some breeders have one or two cows of exceptional merit and trot them out for an official test, "Ohio's Famous Herd" starts them in bunches of a dozen and a half. Ten cows tested last winter by the Ohio Experiment Station averaged 470.65 pounds of milk and 19.87 pounds of butter (80% fat) in seven days.

How does this compare with the World's Fair test, Mr. Editor? When we consider that all these cows are in one herd, and, what is of no little importance, all the tests made by a state official, I think this is a most remarkable record. Remarkable as it certainly is, there are many others of this herd equally good. Mr. Smith will be on deck next winter with another string just as good.

I said Mr. Smith supplied the hospital with milk. It requires about two hundred gallons a day for this purpose. Being located on the hospital grounds and in their barns, he has no room for surplus stock, no feed either for growing calves. His milk brings fourteen cents per gallon, too expensive feed for even high priced calves; accordingly the latter are all sold at seven to ten days of age. From such dams as the above, and from the best sires that money will buy, it is not surprising that the calves are wanted and at good prices. They are usually booked weeks in advance of birth.

Speaking of sires, it must not be forgotten that the herd is headed by Paul DeKol. The Holstein world understands that so far as breeding and transmission is concerned, he is without a peer.

The herd averages as a whole eleven and one-half thousand pounds of milk per head, per year and tests on the average 3.6%.

The cows are milked about ten and one-half months and freshen every month except April and May. They are for the most part dehorned.

Back of every famous dairy is a famous dairyman. And in this case back of the dairyman is HOARD'S DAIRYMAN. Money will buy a good cow, but it will not feed or breed one. Cow sense is as essential in dairy management as horse sense is in the world in general. Mr. Smith is richly endowed with this commodity. Handicapped in his feeding, in that a foolish prejudice of the hospital authorities will not allow him the use of ensilage, yet he (I don't know what better to say) "get's there just the same."

Dairymen passing through Columbus, O., can spend an hour very profitably at the hospital barns. Mr. Smith is chock full of "cow" and unwinds at slight provocation. His house is full of silver cups and plates won at dairy tests and state fairs.

I have asked him for a photograph or two which readers of the DAIRYMAN will doubtless like to study. C. G. WILLIAMS.

Concerning the Raising and Care of Calves on the Farm, and Matters Connected Therewith.

ED. HOARD'S DAIRYMAN:—There is a considerable advantage in raising calves on the farm, where a part of the cows come fresh in milk from September to December, and the remainder in spring. This method results in having milk the year round, thus enabling the farmer to raise a certain number of calves in the fall, or what can be conveniently cared for, and what more is wanted in the spring.

If a farmer has good comfortable quarters, where calves can be kept during the winter, those dropped in autumn will get well started before cold weather, and with proper management, grow thrifty right along, regardless of the season, and by the time that grass grows another spring, be in prime condition to go to pasture and get their own living.

In this way there will be milk for both calves and pigs during the winter, and then, as more come along in spring, another lot should be started, that should be fed well along into the summer. This method divides the work of calf raising, and makes it possible to rear more, if it is desirable, than if all were to be raised in cold or warm weather.

We have some very fine heifer calves, that came along from the last of September until December, and having good care during the winter, were turned to pasture in the spring, when they refused their milk, weaning themselves and without the usual noisy complaint.

With warm, comfortable pens, and good care, I like very much the raising of winter calves.

These animals will come to the barn another winter in a condition to grow right

We Keep the Following . . . .

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And much prefer to send them out as such; however to those readers who are unable to secure subscribers, they will be sent post-paid upon receipt of price indicated.

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The Dairy Calf—Breeding and Raising,
By L. S. HARDIN. One Subscriber or - .25

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Acme Shipping Book,
For Creamerymen and Cheese Factorymen Four Subscribers or - - - 1.25

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Four Subscribers or - - 2.00

Newton's Computator,
Ten Subscribers or - - - 4.50

MILKING TUBES AS PREMIUMS.

Pilling's Silver Milking Tube, One New Subscriber or - - - $ 0.40 | **Moore Bros'. Safety Milking Instrument,** Three Subscribers or - $ 1.00

along, and will be a long ways ahead of those raised in the spring.

I notice there is a good deal of difference in the size and appearance of the calves—mostly spring raised—one sees in passing along the road. Some are good, others middling, and the remainder, far too many, small and inferior.

This illustrates pretty well the care and attention that is bestowed on this branch of farming, and the character of the owner, or the one who does the work.

A sorry sight is a lot of small, poor, ill cared for calves, as it comes along toward winter. If the same care is extended through the cold weather, what will these animals be by another spring? If they do not die, they will not be worth as much as a good calf should be at the commencement of the winter.

Our dairy stock should have good care at all times, and especially is this important with the calf up to the time that she becomes a cow. A well fed and cared for heifer is now as advanced and good for the dairy as used to be the case years ago at three years old. And this same management often doubles the value of our cows, as milk and butter producers.

Every farmer and dairyman will certainly consult his own interest in faithfully caring for his animals. Endeavor to have them come to the barn at the commencement of winter in good condition. Then keep the younger ones growing right along, and the cows yielding a fair profit on the care and feed bestowed.

If there is to be milk through the winter, raise some promising heifer calves to take the place of the older cows in the dairy; make the conditions for this purpose the best possible, and see if the results do not justify all the labor and expense incurred.

Franklin Co., Vt. E. R. TOWLE.

Use and Value of Lupines.

Among nitrogen-producing plants suitable for green manuring, the lupines have long held a prominent place. There are three species of cultivated lupines, called blue, yellow and white, after the color of the flower. All are annuals. The lupines thrive upon the most sandy and barren soils, where not even rye will grow. They have very long roots which penetrate light soil to the depth of six or eight feet. These plants are all quite hardy and when properly treated, yield a large amount of vegetable matter, which is very rich in nitrogen. The growth, however, is entirely worthless for forage, as it contains a bitter, poisonous substance, called *lupulin*. The lupines yield a great amount of large seed. In Europe the seeds are crushed and macerated in water for a day or two. This washes out the injurious substance, and the residue makes a good food for sheep.

In the United States land is still so plentiful and cheap that lupine soils are not considered worth cultivating, except in some localities where early vegetables and stone fruits are grown for market. On better soils crimson clover will yield more profit than lupines. Lupines may be sown in spring in the northern, and in fall in the southern states. The seed is usually sown broadcast at the rate of forty to sixty pounds per acre, and covered in to the depth of three to four inches. The plants, when suitably fertilized are vigorous growers, and one plant spreads out till it occupies a square yard or more.

The seed of cultivated lupines is nearly all imported and costs about ten cents per pound. Like all leguminous plants the lupines draw upon the free nitrogen of the air for the more costly part of their food, and fix this in their tissues, which when turned under, become available for non-nitrogen gathering plants. Chemical analyses show that one ton of green lupines contains of nitrogen eight and eight-tenths pounds; phosphoric acid six pounds; potash seventeen and three-tenths pounds. The average growth on well fertilized soil is six tons per acre, which at the prices of commercial fertitizer makes the fertilizing value per acre worth about $20. Of this $20, $8.00 represents the value of the nitrogen taken from the atmosphere, $1.80 is the value of the contained phosphoric acid, and $10.38 that of the potash. Both the latter substances must come from the soil. As the very sandy soils, on which lupines are ordinarily grown, contain naturally scarcely a trace of either phosphoric acid or potash, both these substances must be supplied in the fertilizer, or it will not pay to grow lupines.

A good fertilizer for lupines is acid phosphate 600 to 800 pounds per acre, kainit 800 to 1,200 pounds, or muriate of potash 200 to 300 pounds. Lime and marl are also needed where a permanent improvement of the soil is needed.—GERALD MCCARTHY, in *Country Gentleman*.

THE USE OF MILK PRESERVATIVES.

The Special Harm of Formaldehyde—It Checks Digestion.

In a recent article on pure food legislation, the *American Druggist* alludes to the means sometimes employed to preserve milk in hot weather. In New York State the employment of boracic acid, salicylic acid and sodium benzoate are prohibited strictly. So, too, is that of formaldehyde. Of this latter drug, the periodical referred to, says:

"Its peculiar advantage for this purpose lies in the fact that only a minute proportion is necessary for preservation, and that it was supposed to exercise no restrictive action on the digestive processes. During the last few months, however, this latter supposition has been widely challenged, but it is only recently that satisfactory experiments have been carried out, leading to the conclusion that formaldehyde, even in minute quantities, exercises a decidedly inhibitory action on the process of digestion.

"A series of experiments carried out by Dr. Frank Morrison, President of the Indianapolis Board of Health, for the purpose of definitely ascertaining this fact, showed that in a dilution of only one drop to a gallon of milk, formaldehyde delayed its digestion in artificial gastric juice for several hours, while the addition of ten drops almost entirely stopped the digestive process. Dr. Morrison's experiments show conclusively, that even the smallest trace of formaldehyde delays the processes of digestion. It may be objected that test tube experiments are no criterion of what goes on in the human stomach, and while this is, to a certain extent true, the natural process of digesting milk is so nearly approached in the test tube that, provided comparative experiments are made, the results may be accepted as fairly accurate.

"Dr. Morrison has also made a large number of experiments on animals, and, we understand, that the results from these experiments confirm the results obtained by artificial digestion. While there may be some difference of opinion as to the advisability of using preservatives in certain articles of food, all important authorities agree that milk is not a proper subject for the addition of any chemical preservative. It seems to be a food which is only suitable for use in the fresh condition. Decomposition should be prevented, either by the use of ice or by pasteurization, and not by the addition of any foreign substance. Even the latter process is open to objection, on account of the changes which it causes in the natural proteids of the milk."

CONCERNING OUR ADVERTISERS.

BY the advertisement of L. V. Axtell, Perry, O., it will be noted that the Old Homestead herd of Guernseys will, this fall, have representatives at Ohio, Wisconsin, Indiana and Illinois State Fairs. We trust readers of the DAIRYMAN will not loose the opportunity of a better acquaintance with this herd.

WRITE for the catalogue of Fairbanks, Morse & Co., Chicago, Ill. Their gasoline engine is a winner and their whole line of goods are known for quality. They are advertising with us and would be glad to send catalogues if you will mention HOARD'S DAIRYMAN.

"Your Boyhood Days" is the seductive head line of the very neat and attractive advertisement of the Hartman Manufacturing Co., of Elwood City, Pa., which appears elsewhere in this issue. The cow and the cat and boy and their attitudes will certainly bear out the declaration of the first line of this ad. By the way, this picture is a reproduction of a photograph taken from life. The Hartman people have had a large number of copies stricken from the original plate and printed on extra heavy paper. The whole makes a very pleasing little picture suitable for framing and will be mailed to any address on receipt of a two cent stamp.

While the Hartman Steel Rod Lawn Fence is subjugated in the picture we might say just here that it is a very neat and durable fence which materially adds to rather than detracts from the lawn.

IN the last issue can be found the advertisement of the Janney Mfg. Co., of Ottumwa, Iowa., placing before the readers of HOARD'S DAIRYMAN their combined corn husker and fodder shredder. There is no combined machine for this work on the market that receives so general an endorsement from its users. There are hundreds of the readers of the DAIRYMAN that might find this machine a great saving to them and as this company are more than pleased to forward circulars and complete information as to construction and capacity, we trust they will, at least, chance a postal card to obtain it. The following from one of the users of the machine, is certainly an excellent endorsement:

"JANNEY MANUFACTURINGCO., Ottumwa, Iowa.—GENTLEMEN:—The eight roll Corn Husker we purchased of you in October, 1896, has given us entire satisfaction in every way. It husks the corn clean and shreds the fodder in the best possible manner for feeding stock. We have a dairy of fifty cows (50) cows, and we value the corn fodder, when shredded, equal to timothy hay, for feeding cattle.

We have husked about twenty thousand (20,000) bushels on an average each year, for ourselves and neighbors. We use a traction engine to run the husker. Corn can be husked in the fall just as early as your corn will do to crib, and the fodder, when shredded, can be stacked in the field or put in the barn and keep good. We have tried it for the last three years, and find it keeps good, but corn must not be husked when it is wet with rain, any more than you would stack hay with water in it, but no trouble about fodder keeping if stacked in the field.

Our machine husked as fast and as clean the last year as it did the first year. The husking pin you have in the rolls, is made to husk corn and it will do it too, and being reversible makes it the best husking pin made. We husked forty thousand (40,000) bushels and then reversed our husking pins, and we again had a husker that would husk as good as when new from the factory, and that we consider a great advantage in your husker.

Yours truly, SMITH BROS."

Ringwood, Ill.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FAILURE TO BREED.

Have a fine Guernsey heifer, seventeen months old, which so far fails to get with calf. Has been served at each time she comes in heat, which is every twenty to twenty-one days; was first served at eleven months old.

Mickleton, N. J. W. H. B.

ANSWER.

Yes, there can be something done for your heifer. First, stop bulling until she has been prepared for service, Bulling, as I have kept on stating for ten years in the DAIRYMAN, is the most ruinous of anything in all such cases. The advertised remedies may be tried.

FOOT AIL.

A number of cows in our district, including five of our own, have been affected with a severe lameness in one of their fore feet; lasts for about a week, then they seem to recover. Don't think it a case of broken hoof; trouble seems between the hoofs.

Stonenall. J. M. D.

ANSWER.

Foot foul, foot canker, foot ail, etc., etc., such have you and your neighbors, and I think all from the same source. Some form of filth may be in the roads, in the pasture, in the barn yards, etc., etc. First see to, find out and remove the cause. Wash between the clefts of the hoof, thoroughly, with hottish water and tar soap. When quite dry, soak a piece of cotton batting or sponge in Tilden's Bromo Chloralum, one to eight of cold water Let this be done three times the first day. Next day change to Pyroligneous acid twelve ounces, fish oil thirty ounces; soak another piece of sponge in this and crowd to the very bottom of the cleft. Do this daily until not needed. Remove the cause.

LUMP ON KNEE.

I would like to ask about one of my cows. She has a lump on her knee about the size of a man's two fists; looks something like a wind puff only hard. On the same shoulder there are a number of small lumps, each about as large as the top of a man's thumb. She seems to be in perfect health, only she gives very little milk.

A SUBSCRIBER.

ANSWER.

Your cow is of a scrofulous diathesis. I would not attempt to doctor her. I would not, under any circumstances, use the milk; it is impure. Cows, nor anything else are fit to propogate from with such constitutional defects, as nature is ever persistent in bequeathing such defects to her descendants. This law is established beyond contradiction.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses** and **Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

KIDNEY TROUBLE Is a deceptive disease—thousands have it and don't know it. If you want quick results you can make no mistake by using Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists in fifty cent and dollar sizes. Sample bottle by mail free, also pamphlet telling you how to find out if you have kidney trouble.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ROBERTS' ANTI-ABORTION SERUM



Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

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Retention of Placenta and Failure to Breed.

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Dr. Horne's Anti-Abortient

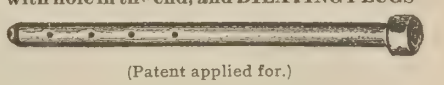
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

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SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

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Summer Feeding.—Fly Repellent.

ED. HOARD'S DAIRYMAN—I noticed W. K. M's inquiry as to whether I have "adopted soiling for cows in summer." I did that six years ago, and one year was enough. I built a summer silo and found the trouble so small as compared to cutting and feeding the green food that I planted a few acres more corn for summer and put in the silo.

We had to fall back on soiling this summer, as a frost struck our corn field on July 10th, 1898, causing a loss of twenty-five tons, and now, notwithstanding green peas and oats and green corn, our shrinkage, as compared with feeding silage in the summer, last year, is at least 20%. At the end of my new barn I have built two silos, 14×30 feet, holding nearly 100 tons each, and have corn enough growing to fill them. We feed six pounds of bran the year around and in the fall and winter, three pounds ground oats, additional.

Having a new and commodious stable, with thorough system of ventilation (not quite completed), I propose another year to keep all milk cows in the stable in the daytime in summer, darkening the stables. I have watched closely the effect of the flies on the production of milk this summer. We use seal oil one gallon, crude carbolic acid, four tablespoon-fulls, and put on with a horse brush.

This lasts about a week, when it has to be renewed. We do this each Monday morning, and on looking at the milk sheet for the Sunday evening and Monday morning and compare with the Monday evening and Tuesday morning there is frequently a difference of from five to ten per cent, in the whole herd, some cows more than others.

If the cows are kept in a dark stable, with good silage and meal, they would not be wasting their food (energy) fighting flies and traveling up and down bare pastures, consuming all they get in endeavoring to keep their bodies alive, as I have seen this summer. Is it any wonder the dairy cow does not pay in the hands of the shiftless keeper of cows?

Uxbridge, Ont. J. E. G.

Improvement of Herds.

There is no subject more interesting to agriculturists than the improvement of the animals on the farm; the study of them in consequence holds the highest rank. We think a report upon this question should be developed in a very precise method.

We would consider, first, the improvement of the herd in general, its interests and its profits.

Second, the way to succeed in the improvement of the herd.

The first question to which the attention of the farmer is directed should be the constitution of his herd, and we do not hesitate to say that an incredible number of cultivators occupy themselves very little with this question. They consider the animals necessary things. They forget that an animal with many qualities gives to its product the best, and that it costs no more to nourish a good animal than a bad one. We see every day in the villages the farmer conduct the cow to the bull at his neighbor's, because his stable is convenient or the price of breeding is cheap, although the reproduction be of mixed race and deplorable form, while a little further on is found a bull of pure blood and better conformation.

In almost all the country the same apathy appears, and certainly our efforts should be especially directed to persuading those interested that the improvement of the animal is one of the first conditions of a good culture. The form of the animals should be the first consideration, not only because it should be beautiful to the eyes, but because the animal with the best conformation gives the best profit. We should seek to produce the most flesh and the least bone to render the merchandise useful.

An animal badly constructed gives defective prices, and experience demonstrates to the contrary—that when his lines are regular it is always more profitable for the seller and the butcher, when he terminates his career and accounts are settled.

It must be admitted, then, that the animal well constructed is advantageous to the breeder, and that greater care in breeding gives increased profits.

In many cases the milk is the most profitable feature of the farm. The making of butter and cheese, the utilization of the milk and cream for the workers on the farm, and also, for the nourishment of calves and hogs—for none of these should be neglected. We conclude this first point with the following résumé: The utility of the improvement of the animal, in its form, in its construction, in its qualities, in meat and in milk, cannot be doubted. This is evident to those who are at the head of progressive farming, but a long experience has convinced me, with certainty, that it is exceeoingly difficult for these new ideas to gain admittance among the agricultural classes, and that it is only by unceasing efforts that any good effect can be produced.

This should all be thoroughly discussed, and in order to penetrate under the thatched roof of the small contractor, the first attempts at improvement should be of the most elementary character.

Second, the way to succeed in the improvement of the herd. This is the question: How shall we improve the herd? The first thought that presents itself to us is selection. It is evident that in countries where the races are of good quality, the most natural way of improvement is to always eliminate the bad animals and preserve for reproduction only the choicest. This is the first procedure and in every case is always imposed, but it is often inefficient in the sense that it rarely succeeds in correcting the principal faults that are developed in a race by long breeding, and must disappear slowly.

In order to produce a real and true effect, efforts must be applied with great spirit, not only among individuals the more cautious and intelligent, eliminating without mercy the bad and mediocre animals, but it is necessary that the whole mass of breeders join their forces in improving their herds, and continue during several generations.

It is very rare one finds a community with the courage to give up the old habits and accept and apply without hesitation the new procedure. The selection is therefore extremely important, and should be made with the greatest care and attention by those who understand well its importance.

It is not by judicious crossing that one can operate happily and readily. The crossing of two distinct races should never be made at hazard, but should be a serious study and with profound examination.

We often hear these expressions: "My herd has such faults! I will take a bull of some other race having the qualities desired." This is the gravest of errors. All the attempts imaginable that have been made have only affirmed, in the most peremptory manner, that races cannot be mixed without greatest prudence, or the results may be most deplorable.

We repeat, then, that the most effective way of improving stock is by careful selection.—*Journal d'Agricultue Pratique.*

Transfers of Guernsey Cattle from August 1 to 15, 1899.

BULLS.

Argus of Maple Ranch 6045, Hopewell Brothers to Louis J. Kendall, Worcester, Mass.
Beulah Fanchon 6123 Louis Cabot to Herman Whitaker, Mason, N. H.
Duke of Pittsfield 6133, James H. Rowley to Walter Cutting, Pittsfield, Mass.
Gulliver 6068, E. T. Gill to Walter B. Allen Springfield, Vt.
Prince of Allegan 6117, John C. Chalmers to J. L. Shigley, Hopkins, Mich.
Torchlight 5794, E. T. Gill to D. S. White, Jr., Jobstown, N. J.

COWS.

Alice of Broadview 6962, Beamer 11921, Corya, 11925, Cory B. 6970, Cory R. 4311, Creena 11922, Dora R. 8326, Lady Timon 3857, Thyra 2d 4460, Timona 11923, James H. Rowley to Walter Cutting, Pittsfield, Mass.
Daisy E. 9084, D. R. Kinsell to McCormick & Edgerly, Pataskala, O.
Economy 6745, Iola 4th of Norway 11443, Mark Hughes to Edward R. Strawbridge, Moorestown, N. J.
Francis Emma Willard 11908, Maggie Dickson 11036, Maggie Dunn 11909, Est. W. G. Thompson to J. R. Steele, Goff, Pa.
Lena Cheyne 11894, Riverside's Winifred 11895, James Forsyth to D. S. White, Jr., Atlantic City, N. J.
La Belle Nannie 11918, Rufus Gunn to L. A. Shaw Amherst, Mass.
Margaretta of Riverside 11893, James Forsyth to Nat Wallis, Fitchburg, Mass.
Queen of Guernsey 2d, 11900, S. C. Hall to R. E. Osborne, Gonic, N. H.
Rose L., 11910, John G. Mobley to Wm. F. Claussen, Claussen, S. C.
Trevose Bess 11899, Craige Lippincott to W. H. Ridge, Trevose, Pa.
Triangle Star 11684, S. A. Lowrance to Elliott Warren, Winston, N. C.
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Don't forget that your heart and lungs and brain and nerves are supplied with blood and nutriment through your stomach, liver and bowels. If they do not do their work properly — if the blood is full of poisonous matter your whole body will soon be full of impurity and disease, and it is small wonder you dream of disaster.

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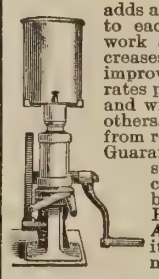
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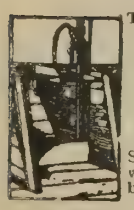
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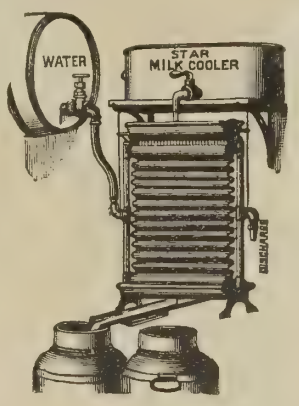
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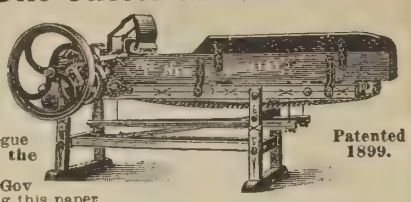
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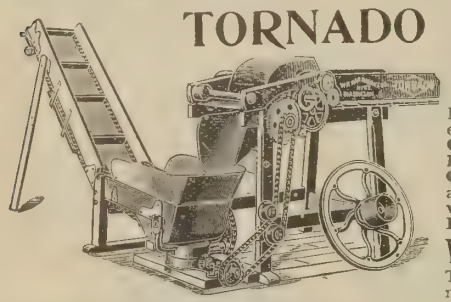
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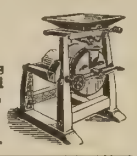
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FEED MILLS



We make over 85 sizes and styles of **Buhr Stone Mills,** 2 horse power and up. It has been our specialty for nearly fifty years. A buhr stone mill is the best and only mill suitable for all kinds of grinding on the farm. Easiest kept in order, lasts a lifetime, large capacity, less power.

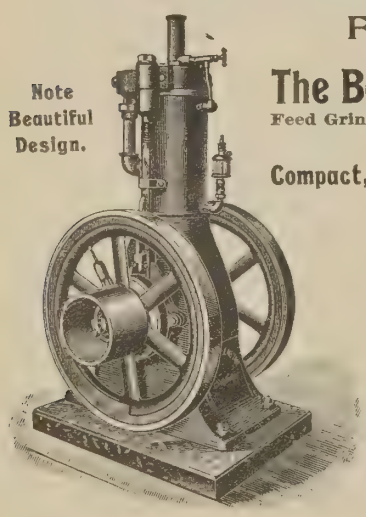
Get our new book on Mills before you buy. It will pay you.

NORDYKE & MARMON CO., Flour Mill Builders, 25 Day St., Indianapolis, Ind.

The Burrell Upright Engine

FOR GAS OR GASOLINE.

Note Beautiful Design.



The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

3 Actual H. P., On Time	$160.00
Spot Cash	145.00
1½ Actual H. P., On Time	140.00
Spot Cash	125.00

Price includes Gasoline Tanks and full set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

Skillin & Richards Mfg. Co.,

SOLE MAKERS, 239-241 So. Jefferson St., Chicago, Ill.

Horizontal Engines made in larger sizes.

Attention Dairymen!

THE LARGEST PREMIUMS ever offered for Dairy Products in the state is now provided in the dairy department of the **WISCONSIN STATE FAIR,** to be held at **Milwaukee, Sept. 11, 12, 13, 14 and 15, 1899.** Every creamery, dairy, or cheese factory in the state should make an exhibit. Remember if you do not win the Sweepstakes Prize you are sure of your share of the pro rata premiums, which for butter amounts to over $360, and for cheese $330, besides Special, and that duplicate score cards with all special defects, if any, written thereon, will be mailed to each exhibitor in a sealed envelope. Now is the time to make the dairy department of the State Fair what it should be—second to none. Wisconsin Dairy School Students are especially invited to exhibit samples of their dairy products. All exhibits will be carefully looked after and taken direct from the Express Wagon to the large glass Refrigerator in which it will be exhibited. Special attention will be given to re-shipment or selling exhibits at close of fair according to directions received; this will be under the personal supervision of Prof. E. H. Farrington, of the Dairy School. All articles, after being receipted for, will be taken direct from the refrigerator by the Express Co. Exhibitors should write their name and P. O. address plainly on bottom of each package.

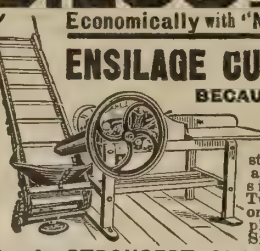
All manufacturers or dealers in dairy supplies are specially invited to exhibit. At the Fair is where you will find the wide-awake, progressive and enterprising dairymen, and these are the men you want to show your goods to.

Address all communications in regard to Entries to **JOHN M. TRUE, Sec'y, Madison, Wis.**

For Dairy Premium List or general information write the Superintendent,

J. W. THOMAS, Anson, Wis.

SILOS Are Filled Quickly and Economically with "New Hero" ENSILAGE CUTTERS

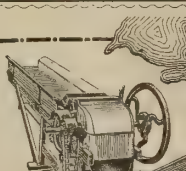


BECAUSE THEY EXCELL in rapid work, strength, durability and simplicity. Two gears only on the complete cutter. Sizes to suit all needs. **STRONGEST GUARANTEED.**

SOMETHING NEW: OUR UNIVERSAL SWIVEL CARRIER, runs at any desired angle, and can be changed from one angle to another without stopping cutter. New 160 page catalogue mailed **FREE.** Tells all about Hero Ensilage and Fodder Cutters, Corn Huskers Sweep and Tread Powers, Feed Mills, Goodhue, Wind Mills, Shellers, Peck's Corn Thresher, etc.

APPLETON MFG. CO. 85 FARGO ST., Batavia, Ills.

"OHIO" SELF FEED ENSILAGE CUTTER



Cuts 33⅓ % more than regular machine.

Saves 75% in time.

Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

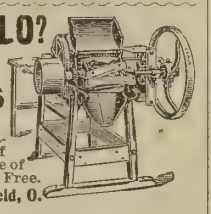
NEW METAL STRIP SWIVEL CARRIER.

Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue **FREE. Prof. Woll's "A Book on Silage" 10c.**

THE SILVER M'F'G CO., Salem, Ohio.

HAVE YOU A SILO?

Then you will need ensilage machinery.



THE ROSS ENSILAGE MACHINERY

is unsurpassed in quality, capacity, durability and ease of operation. Doubles the value of a corn crop. Catalog No. 7 Free.

The E. W. Ross Co. Springfield, O.

HAVE YOU SEEN THE

Jack of All Trades?

PUMPS WATER— SHELLS CORN— GRINDS FEED— CHURNS BUTTER—

—and hundreds of other jobs with the strength of 15 men. Most Convenient and useful power ever invented. Costs only TWO cents per hour to run. Especially adapted to farm work.

IT IS A NEW ENGINE MADE BY

Fairbanks Morse & Company

Chicago	St. Paul
Cleveland	Minneapolis
Cincinnati	Omaha
Louisville	Denver
Indianapolis	San Francisco
St. Louis	Los Angeles
Kansas City	Portland, Ore

MORE WORK, LESS POWER.

Economy of food and economy of power are the result of using

THE CYCLONE CORN HUSKER.

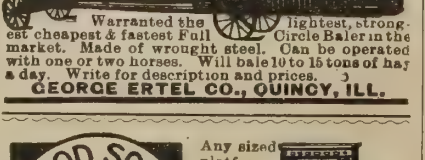


It husks, cuts and shreds the fodder, green or dry. Easy to feed. Runs with 3-horse tread or 6-horse sweep or engine. Circulars and prices free upon request.

ROSENTHAL CORN HUSKING MACHINE CO.

81st and Walnut Sts., MILWAUKEE, WIS.

GEM FULL CIRCLE Baler



Warranted the lightest, strongest cheapest & fastest Full Circle Baler in the market. Made of wrought steel. Can be operated with one or two horses. Will bale 10 to 15 tons of hay a day. Write for description and prices.

GEORGE ERTEL CO., QUINCY, ILL.

OSGOOD SCALES — Write for Special Offer. — U.S. STANDARD



Any sized platform

Single, double or combination beam. Wagon, stock, hay and sugar cane scales.

OSGOOD SCALE CO.,

91 Central St., Binghamton, N.Y.

THE "HOOVER" DIGGER

DIGS POTATOES Rapid, Clean and Cheap.



By mentioning this paper you can get illustrated book free.

HOOVER, PROUT & CO. Avery, Ohio.

$30.00 OUR PIASA BIRD SULKY

Old Reliable Gang $35. Disc Harrow $16.



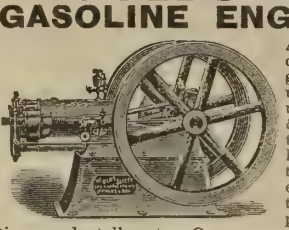
16-in. Walking Plow $9.50.

We challenge any plow for good work, light draft, easy handling, we have thousands of testimonials from farmers. Sent on trial, satisfaction guaranteed. Send for big free catalog and prices on buggies, harness, sewing machines & 1000 other things, delivered. Address, **Hapgood Plow Co.,** Box 869, Alton, Ill.

The only plow factory in the United States selling direct to the consumer.

The OLDS GASOLINE ENGINES!

SIMPLE and ECONOMICAL

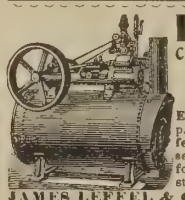


Are especially desirable for general farm use. 1, 2½ h-p upright and 3 & 4½ horizontal have gasoline in base so that they are easily moved to do grinding, pumping, cutting wood, stalks, etc. One man easily starts all sizes in warm or cold weather. Catalogue with full particulars free. **OLDS GASOLINE ENGINE WORKS,** Box 419, **Lansing, Mich.**

LIGHT POWER,

Cheap Power and Effective Power can be best secured in one of these

LEFFEL ENGINES.

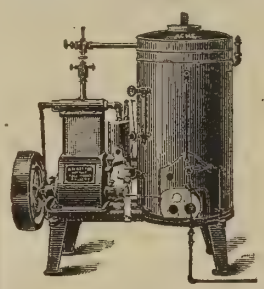


Either horizontal or upright from 3 h. p. up. Ideal for cutting and grinding feed, pumping water, sawing wood, separating milk, churning, &c. Best for farms, dairies, creameries, &c. Send stamp for **Book on Power.**

JAMES LEFFEL & CO., Box 50, Springfield, O.

ON THE MARKET TEN YEARS.

The Acme Engine Still LEADS



1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

No. 9 Center St., Rochester, New York.

REDUCE YOUR COAL BILL

BY USING The No Scale Company's

High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.**

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

BELTING



We carry a complete stock of all kinds of **RUBBER and LEATHER BELTING.** We buy our goods at Sheriffs' and Receivers' Sales. Write for **FREE ILLUSTRATED CATALOGUE** No. 20 on Hardware, Pipe, Roofing, Plumbing Material, Wire, Rope, Dry Goods, Clothing, etc., etc.

OUR PRICES are ONE-HALF of OTHERS

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.



"Engineers' Bargains,"

our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO., Detroit, Mich.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., SEPTEMBER 8, 1899. NUMBER 30

University of Ill

If You Have CREAMERY BUTTER to sell, write

J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.

REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. **149 Reade Street, NEW YORK.**

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy Creamery Butter and Cheese.

REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,

Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for one gallon can. You won't regret it. Manufacturers of **LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc.** Manufactured by

CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE FOR CLEAN CLEANING

SAVOGRAN INDIA ALKALI WORKS,-BOSTON.

Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Is it **CHANCE**, is it **GOOD LUCK**, or is it **MERIT** that has enabled the patrons of

GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

In 1895.....F. G. OLTROGGE
In 1896.....THOS. MILTON
In 1897.....H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use **GENESEE SALT**, and write to our General Western Salesman, Mr. F. A. TRIPP. 34 Clark Street, Chicago. Or address

Yours truly,

THE GENESEE SALT COMPANY, New York.



BUGGIES, HARNESS, SEWING MACHINES at wholesale prices: No agents, no middlemen, no money in advance, 40 per cent saved. Sent subject to examination. We discount prices of any other company. We also sell Plows, Cultivators, Harrows, Binding Twine, 1000 other things. Send for free catalog. **HAPGOOD PLOW CO., Box 427 Alton, Ill.**

P. S.—We are the only Plow Factory in the United States selling implements direct to the consumer.



Convince Yourself.

Does it ever occur to you that a practical demonstration of merit is worth more than the "tale of woe" which comes from a salesman with "an ax to grind?" It is remarkable how wonderfully interested in the welfare of the creameryman (?) some wild eyed competitors of the Tubular have become. Why are they so energetic in their efforts to prevent creamerymen from giving the Tubular a trial? Because they are trembling in their boots. Do they fear that the creameryman will be the loser? Oh, no! Because it is the last card they have to play, and they know that when the Tubular is given a fair trial it gives satisfaction and proves itself in every way superior to their back number machines. Some of these fellows have been weeping "crocodile tears" over Mr. J. A. Chillqvist, of Nettle Creek, Illinois, but the foll wing letter from this gentleman shows that it has paid him to use his own judgment rather than listen to false friends:



NETTLE CREEK, ILLINOIS, August 4, 1899.

The Sharples Co., Chicago, Ill.

Gentlemen: Your letter of inquiry of a recent date was duly received and should have been answered sooner but from the fact that I wished to see fully what the Tubular would do. I have now fully decided after carefully testing the machine, and am prepared to say that it meets fully your recommendation and even more, as it requires very little power to operate same, and the cream is equal, and I believe superior to any separator that I have ever used. I have used separators for the last fifteen years, including nearly all makes. Danish-Weston was the first, then De Laval and Sharples, also Alpha, all of which I considered good, but now I say from experience that I regard the Tubular Separator as the leading machine. I was warned against using or buying this, as it was an experiment; it has proved to me the right kind of an experiment. What can we expect unless we look to advancement. I am skimming 2500 pounds per hour and this not to exceed .03 to .05 and have always found that my own judgment has served me better than the talk of competitors, agents of separators or anything else. There are several Tubulars running near me and all are more than pleased with results from their machines. Yours truly,

C. A. CHILLQVIST.

The Sharples Tubular Separator.

Represents the latest great advance in cream separator construction. More revolutions, less speed, more centrifugal force, less power, more perfect cream, less fat in skim milk, more durability and less complication.

The Bowl alone Revolves. It is a Hollow Bowl. It Spins on Air. Placed on Trial and Results Guaranteed.

Send for Catalogue No. 46.

The Sharples Co., **P. M. SHARPLES,**
Canal & Washington Sts., CHICAGO, ILL. **West Chester, Pa., U. S. A.**

BRANCHES—Toledo, Ohio. Omaha, Neb.
Dubuque, Ia. San Francisco, Cal.

D. DERBYSHIRE & Co.. Brockville, Ont.



ALDERNEY BUTTER COLOR

Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.

Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.

BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

....IT HAS MADE ITS REPUTATION....

THE **RUSSIAN BABCOCK TESTER**



is in use in the best and largest creameries in the United States.

It does rapid work and does it accurately. It is built for the man who has become tired of the old rattletrap tin tester that must be renewed every year or two. It is made of cast iron, **fitted with ball bearings and accurate glassware.** Send for illustrated Catalogue, No. 51.

We are prepared to repair all cream separators and have the most experienced men for this kind of work.

ELGIN MANUFACTURING CO., ELGIN, ILL.



The Perfection . .

Chemical Fire Extinguisher

Thousands OF DOLLARS' worth of property and many lives are lost every year from Fires which could have been easily extinguished with one of these machines.

It is a handsome, highly polished solid copper machine, affording perfect protection from fire. Indorsed by all the leading insurance companies.

It should be in every creamery, cheesefactory and home.

Equal in every respect to the high priced extinguishers. No valves to get out of order. Always ready to use. Turn bottom end up, and it will throw a stream of fire destroying chemical fluid 50 feet. Each machine tested to 200 pounds per square inch, and fully guaranteed.

Price within the reach of everyone. Let us quote you.

The National Export Exposition.

At Philadelphia, Pa.

For the advancement of American Mannfacture and the extension of Export Trade; opens September 14th and closes November 30th, 1899.

This will be the most elaborate and extensive exposition of its kind ever held in our country. The exporting of Dairy Products is one of the largest items of American Commerce, and we intend to be "Right in Line."

We will exhibit a Model Milk Distributing Plant, exhibiting in actual operation our Mechanical Refrigerating Plant, Potts Pasteurizer, De Laval Separator, Bottle Filler, Ideal Steam Turbine, and new Acme Belt Bottle Washer, Sterilizing Oven, Disbrow Churn, etc., etc. In fact, exhibit the most complete collection of Modern, Up-to-date Apparatus for handling Pasteurized Milk for retail trade.

It would pay you to take advantage of the cheap Railroad Excursions, and visit this exhibit and become acquainted with the modern process of handling milk.

We should be glad to have you write us at Philadelphia, care of the National Export Exposition. We will have representatives there to give you any information in regard to any apparatus necessary for such a plant.

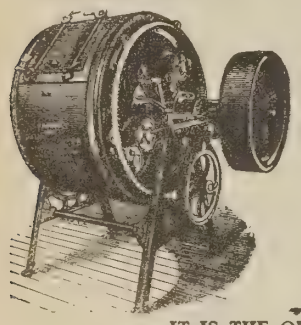
Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,

BRANCH HOUSES:— Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

We are General Agents for Hansen's and W. & R. Butter Color.



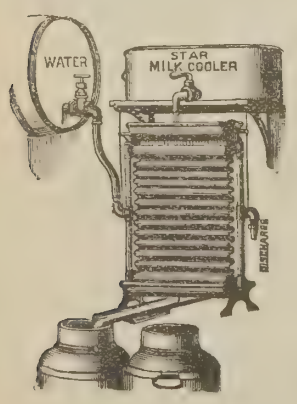
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also AERATES.

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

SEEDS THE ALBERT DICKINSON CO.

DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

Dairymen, when Visiting the State Fairs,

BE SURE AND LOOK UP OUR EXHIBIT.

There you will find our representatives who will be pleased to show you

The Improved U. S. Separator

and explain its many points of excellence. Be sure and investigate its merits before purchasing any other make. It is fast being recognized as the best for every day use.



The U. S. the Queen of Separators.

MIDDLEBURGH, N. Y., August 10, 1899.

About a year ago I desired to purchase a separator, and naturally I examined very thoroughly the different ones advertised. Becoming convinced that the Improved U. S. was the best, I accordingly purchased one, and a full trial for over a year has proven the wisdom of my choice. It is the most perfect in construction, skims perfectly clean, runs so easily that a child can operate it, and, in fact, is the acme of perfection. It is the queen of separators, and it affords me great pleasure to forward this unsolicited testimonial.

J. E. YOUNG.

Should you be unable to attend your Fair or fail to find our exhibit, drop us a postal to that effect and we will send you our latest illustrated pamphlets.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

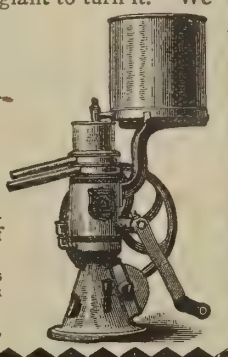


A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators

to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.



We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

THE ONLY LOW-DOWN

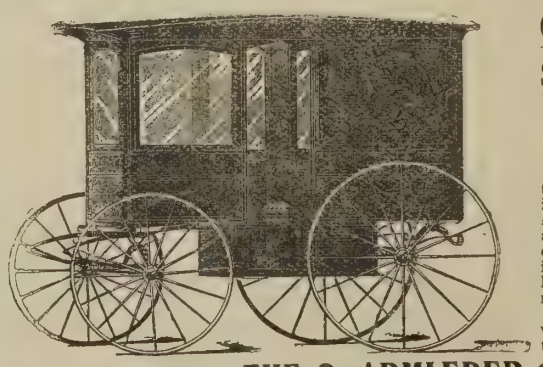
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. ☞Send for Catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,
Sole Manufacturers,
DE KALB, ILL.



A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

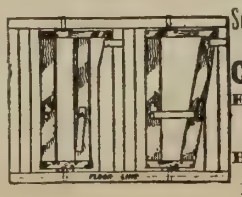
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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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H. E. Cook, the noted dairyman of Lewis Co, N. Y., says that in a dairy of 100 cows, in twelve years, he has raised the product per cow, from 3,000 pounds to 6,000 and 7,000 pounds, simply by changing from "dual-purpose" breeding to "specific-purpose." And yet there are thousands of dairy farmers who prefer the beefy, 3,000 pound cow to one which will yield 6,000 pounds. In reality, they have never looked into the question beyond being governed by a loose sort of notion. It is a queer basis for men to do business on, but it exists neverthless.

At the Kansas Experiment Station, the question was put to the patrons of the Meriden creamery: "What farm or dairy paper do you take?" Out of seventy-seven patrons, who answered this question, fifty-three took no farm or dairy paper.

In looking up the details of the records of the patrons it was interesting to note that the highest yield was made by a man who takes both dairy and farm papers. The man with a "farm paper" was getting from $60 to $80 worth of dairy products from one cow, while the man who had no time to read was getting $20 to $30. Secretary Coburn, of Kansas, very well said: "Muscle, to win, must be lubricated with brains."

"PERFECTLY SATISFACTORY."

The illustration on this page was made from a photograph sent us by Baldwin Bros., of Adrian, Michigan, and represents in their own words, "one of our herd of special-purpose cows. The position is rather bad, but it shows what she is, and her performance at the pail is perfectly satisfactory."

We are not told what breed, or breeds, she represents, and if one should attempt to judge from the picture, the chances are, a mistake would be made. It would seem possible, therefore, for all of us to study this illustration without bias of any kind, and learn something about the general appearance and special points of a cow whose performance at the pail, which is the ultimate criterion of merit, is perfectly satisfactory to her owners.

It is true the position is constrained, but this may be rather a help than a hindrance to right conclusions. It helps us very much in coming to a judgment upon cattle, whether from personal inspection or from a picture, to get away, in the first place, from the first impressions which come from looking at the animal as a unit. The beauty of outline and the stateliness of pose which have been impressed upon us by the artists who draw from life (?) are not without their influence, and the handsome cow has an undue advantage, when only dairy merit is to be considered.

Try covering all but the rear third of this cow, and then make a critical study of the form and anatomy of the exposed third, with a view to forming some definite conclusions as to the relation of the several parts to the work required of them, and the ulterior purposes they must serve. For a cow to be perfectly satisfactory at the pail, there must be not only an udder but a place for it and support for it, and these must be so formed and disposed, as to enable the udder to perform its function with the least friction and wear and discomfort to the cow.

Having finished a study of the rear third, cover that, and uncover the middle third, and give it the same kind of an examination and study. Consider what the internal organs must accomplish in order to supply the udder with the material required to enable her to perform satisfactorily at the pail. The cow cannot make milk from nothing; cannot deliver from her udder more than goes into it

Follow the same system with the front third, and when each has been examined and passed upon, defects and excellencies balanced, look at the animal or the picture as a whole, and note whether the several parts (thirds) correspond with, and mutually assist and reinforce each other.

Having done this, we feel confident that reasons to corroborate the conclusions of the owners, will be apparent; and when the same processes of examination are applied to other cows, a very close approximation can be made to a correct judgment in regard to their dairy ability. It is immaterial to what breed the cow may belong. Unless she has the true dairy conformation, in addition to the specific breed requirements and peculiarities, she is likely not to prove satisfactory at the pail.

The breeder should not neglect the breed points, but for the working dairy, these are of subordinate importance.



A COW WHOSE PERFORMANCE AT THE PAIL IS PERFECTLY SATISFACTORY.

Property of Baldwin Bros., Adrian, Michigan.

Valuable Abortion Experience.

Much loss and disappointment is being experienced in many dairy sections, both east and west, in consequence of abortion. One of the most valuable communications to this paper on this subject was by F. E. E. of the North Carolina Experiment Station, in February, 1896. We reprint the essential portion of the same to show the value of thorough disinfection in the treatment of this disease:

"In regard to abortion I wish to make a few remarks. Abortion has seldom came under my notice until within three years. I have read and heard much about the ways in which it comes and goes, and have seen a case or two. It seemed to have dropped down on this farm, and we had to grapple with it. We do not believe in charms, or "wearing itself out," or "medicine" which you give by the mouth, and some statements we have seen of cows "threatened to abort," etc., we pass over. Our diagnosis was abortion, though we had not some of the symptoms dwelt upon by Prof. Nocard in his report to the French government.

In April, 1894, Nocard's treatment was begun. The stable and shed were thoroughly cleaned, and treated with copper sulphate solution, one and one-half ounces to a quart of water, sprayed around freely. Two or three inches of shed bottom was removed and carted away, and plowed into a field where animals do not run, and fresh earth was put in its place. Then during that summer, once in about ten days, the spraying was repeated. When this was done the first time, the cows were tied in stalls and wiped over with the following solution, recommended by Prof. Nocard, who had then had no opportunity of testing its effects or efficiency: Distilled water (rain water in our case) four and one-half gallons, glycerine and alcohol (36°), each, three and one-fourth ounces, and bichloride of mercury, two and one-half drachms. The cows received an injection of this per vagina two or three weeks in succession, but it seemed two strong and that was dropped from our treatment. This accords with a later recommendation from Prof. Nocard, which we saw a little later for the first time.

When the first cleaning up was done, the cows were sponged around tail, vulva, and adjacent parts, special attention being given to the tails, so if any "germs" were there they would be destroyed. This sponging became a part a of the daily work, and it was proposed to keep it up until a cure was effected.

Cows were held back in breeding for fall and winter of 1895, and have now all come in with healthy calves, save two, one of which was suspected to have been injured, and the other may be, or not, a case of abortion.

Of the last calves, one was born dead or at least was dead when first seen, with no appearance of having moved itself. Of all the calves we now have from cows which have previously aborted or have been in contact with them, two were premature, but are active, vigorous calves. We believe the disease is headed off. Also that it can be stopped on any other farm by this means and care not to, by any practice, spread the disease. Your correspondent has this case now to encourage him to undertake the eradication of the disease. If he has faith in germicides, and will use them persistently, there is hope for him. F. E. E.

N. C. Expt. Station, Raleigh, N. C.

Misleading Retailers.

Chicago Oleomargarine Makers Resort to Misrepresentation.

In their desperation, the oleomargarine dealers have resorted to some of the most ridiculously flimsy "guarantees" to their cats-paws, the retailers, which business men have ever been guilty of perpetrating.

In an effort to encourage retailers to continue to palm oleomargarine off as butter, they have guaranteed to protect them against prosecutions, but always take pains to state that their guarantee is against results under the law which "has been declared unconstitutional."

Two weeks ago *Chicago Dairy Produce* printed the guarantee of one William J. Moxley, in which he attempted to mislead his customers to believe proceedings were being brought under the anti-color law passed in 1897, and in regard to which there was a disagreement among Cook county judges regarding its constitutionality. Now comes Braun & Fitts, the second largest makers of the outlawed article, with a decoy in the shape of a guarantee, which reads as follows:

"Every licensed butterine dealer in Chicago has received circular letters from the secretary and attorney for the 'Illinois Dairy Union,' promising all sorts of trouble to dealers in butterine, (that honest and pure article of food.) Well, now, don't you believe a word of it; there is a law against blackmailing and we want now and here to go on record to the assertion, as an affidavit, that we shall civilly and criminally prosecute any man or party of men interfering unlawfully with the butterine business in this or any other state.

"We know just exactly where we stand; we are properly advised on the subject; and now we make you a 'fair offer'—'handle our goods as you always have, we in turn promise and guarantee full protection against the state law (which has been declared unconstitutional) to the extent of paying cost of prosecutions, fines, and stand all costs pertaining thereto.'

"In declaring the law unconstitutional one of the judges stated to the effect 'that the "butter ring" were in his opinion liable to prosecution to recover damages done an honest industry.'

"Fair enough, isn't it? Renew your efforts, and be assured that we will be prepared to fight any number of rounds in any kind of a legal fight, to the finish."

The reader will notice two things. First, this company states that "we shall civilly and criminally prosecute any man or party of men interfering 'UNLAWFULLY' with the butterine business in this or any other state." This is about the plainest piece of "bluff" ever sent out to brace up the failing courage of a class of men who are being arrested daily, in Chicago, for practicing a fraud upon the public. Anyone who "unlawfully" interferes with anyone's business may expect to be proceeded against, either civilly or criminally. But the prosecutions in the city of Chicago are being brought lawfully, under laws which were passed nearly twenty years ago, and which have never been pronounced unconstitutional, and with which the public are in sympathy fully as much as they are with the federal laws prohibiting counterfeiting.

Again, this wonderful guarantee says:

"We, in turn, promise and guarantee full protection against the state law (which has been declared unconstitutional)," etc.

Now here is another instance of where the manufacturer is endeavoring under false representations to get the retailer to continue a fraud upon the public. They guarantee protection against "the state law which has been declared unconstitutional," knowing fully that the Dairy Union is not prosecuting under that law, and that they cannot be held to the guarantee anyhow. But if they can mislead the retailer and induce him to take chances, then their object will have been attained.

But let the retailer remember this: The law under which prosecutions are being made, provides as a penalty for the third offense, a fine of not less than $500 nor more than $2,000, and not less than one year in the penitentiary. Does the dealer desire to run this risk? Does he desire to risk his liberty, his whole future and reputation upon the powerless postal card guarantee of a maker of an article designed to be used to defraud the public?

It might do to risk a fine, but when one comes to risk a penitentiary sentence, prescribed by law which must be carried out by the court—why, that is different. And the Dairy Union is collecting evidence of second and third offenses right along, with the intention of making examples of some of the more persistent violators of the law.—*Chicago Produce*.

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Coming Events.

Georgia Dairymen's Association, Grantville, Ga., Oct. 12, 13, 1899.

THE milk dealers who put faith in the guaranty of the dope dealers that form aldehyde could not be discovered in the milk by the chemist, have had a rude awakening. Five in Beloit, two in Janesville and one in Fond du Lac, all in Wisconsin, have paid twenty-five dollars and costs for using that undiscoverable milk preservative. Do they get this out of the guaranty fund or is it a personal expense?

"Cheese," said some wiseacre long ago, "digests everything but itself." Never, says the editor of the National Druggist, was there a greater error perpetrated by a popular proverb. It aids in the digestion of nothing, and being almost totally indigestible, simply adds another burden to an already overburdened digestive system. The feeling of comfort produced in a person of robust digestive faculties by partaking of a little—a very little—cheese is due entirely to the excitation of the flow of digestive fluid provoked by the indigestion of a completely indigestible substance.

The foregoing is a very successful effort on the part of some one to speak as the fool speaks. Actual digestion experiments made by Profs. Arnold and Engleman years ago, showed that well cured cheese digested easily in seventy minutes. It is the new, unripened cheese that is indigestible.

THE VALUE OF SPECIFIC DAIRY BREEDING.

The following is the monthly record of the milk of the registered two-year-old Jersey heifer, Queen Felch 4th, owned by W. D. Hoard, Fort Atkinson, Wis.

This heifer dropped a fine heifer calf Jan. 6, 1899. She showed wonderful development of udder for so young a cow, and arrangements were made to keep a record of her milk, with a Babcock test of its per cent of butter fat. The record was commenced on the 10th day of January, the heifer then giving an average of 37 pounds of milk a day with a test of 4.7 butter fat. The following is the monthly record in weight of milk up to the 21st day of August:

January,.....712 lbs.
February,.....820 lbs. 10 oz.
March,.....908 lbs. 6 oz.
April,.....804 lbs. 1 oz.
May,.....747 lbs. 14 oz.
June,.....765 lbs. 10 oz.
July,.....549 lbs. 8 oz.
August, (to 23rd) .....351 lbs. 12 oz.

Total milkyield, in a few days over seven months, 5,659 lbs., 13 oz. The average test in butter fat is 5 per cent, or a yield of 282 lbs. of fat, the equivalent of 330 lbs. of butter.

This heifer has at least three months more in which to give milk, and her average yield per day at the present time is between 16 and 17 pounds. We believe the heifer will produce at least 60 pounds of butter before the close of her milking period, which will be the last of October. This will make her record equal nearly 400 pounds of butter. This heifer contains 25 per cent of the blood of the famous old Jersey bull, Ike Felch, which Dr. Linsley, in his "Jersey Cattle of America," includes as one of the five foundation Jersey bulls of America. The mother of this heifer, Queen Felch, was one of the richest butter cows we have ever known, and the heifer shows the inheritance of form and performance strongly. Last year we bred this heifer to her own brother, a son of Queen Felch, and the result was one of the strongest, finest heifer calves we ever raised to a seven months age. The record this heifer is making, together with her rich dairy lines of inheritance, makes it evident to us that it pays to breed specifically for dairy performance.

THE RULE AT THE WORLD'S FAIR.

Mr. Gillett, whose communication is printed in another column, is so much in the habit of not making mistakes, that, after reading what he had written, we turned to the records almost persuaded that we should find them proving our memory at fault as to "the rule at the World's Fair." Moreover, Mr. Gillett is always so courteous in controversies of this character, that we should not have been at all cast down, had the investigation shown that our former position was untenable.

It goes without our saying so, that the citations from Mr. Fuller's report are strictly accurate, but it should not be forgotten that the butter yields reported are simply estimates made by Mr. Fuller, and are wholly independent of any and all rules, whether those adopted by the World's Fair management, or promulgated from any other authoritative source. In making his report to the American Jersey Cattle Club, Mr. Fuller was not unlike too many of our Holstein and other friends, more anxious in his estimates about big figures than strict accuracy; but he was very careful, also, where there was an official record, made up according to the rule adopted by the World's Fair Committee, and approved by Mr. Buchanan, not to claim more than the rule would allow.

Thus, for example, on page 40 of his report, which is the pamphlet cited by Mr. Gillett, he gives the yields of the several herds in the ninety days' test as follows:

	Total fat.	*80 per cent butter*
Jerseys.....	3516.08 lbs.	4274.010 lbs.
Guernseys.....	2784.56 "	3360.431 "
Short-horns	2409.97 "	2890.869 "

In this table, the credit given is for the butter actually made, but reduced for purposes of comparison to the uniform standard of 80% fat. In other words, every eighty pounds of fat, found in the *butter* by the chemist, was credited to the cows as one hundred pounds of butter. Had the rule followed by Mr. Fuller, in estimating the butter that could have been produced from the milk in the cheese test and in the heifer test, which Mr. Gillett refers to as, at least, a partial justification for the methods of our Holstein friends, been adhered to, the following figures would have been given;

	Total fat.	*80 per cent butter (actual.)*	*80 per cent butter (estimated.)*	*Difference.*
	Lbs.	Lbs.	Lbs.	Lbs.
Jerseys	3516.08	4274.010	4395.10	121.090
Guernseys.....	2784.56	3360.431	3480.70	120.269
Short-horns.....	2409.97	2890.869	3012.46	121.591
Totals.....	8710.61	10525.310	10888.26	362.950

These figures show that, according to the rule at the World's Fair, it required nearly eighty-three pounds of fat in the milk to make one hundred pounds butter 80% fat, and it is, therefore, misleading on the part of our Holstein friends, to claim that they are following the World's Fair standard, when they estimate eighty pounds of fat in the *milk* as equivalent to one hundred pounds of butter. They may have other good and sufficient reasons, as stated by Mr. Gillett, for continuing this practice, but we quite agree with him, that it would be much better to report simply the total fat and let every one make estimates therefrom to please himself.

DEATHS IN A SILO.

Three men dead, and a fourth man nearly suffocated in the silo of the Marathon County Asylum, (Wisconsin) August 30th, would seem to be ample justification for the caution so frequently repeated in HOARD'S DAIRYMAN, concerning the dangers attendant upon not providing adequate means for the escape of the carbonic acid gas, resulting from silage fermentation. While this caution has been specifically directed against sinking the pit much below the surface of the ground, the reasons advanced have applied with equal force against any arrangement or construction which did not provide for openings not more than three to five feet above the surface of the silage, so as to allow the free escape of this deadly gas, or at least prevent its accumulation where it would interfere with breathing.

The silo, where this accident occured, was thirty-three feet deep, and was provided with three openings; the filling had been in progress for five days, and had reached to within *eight* feet of the upper opening, after settling over night. The situation when the men reported for duty on the fatal Wednesday morning was:—(1) a mass of freshly cut silage, twenty or more feet in depth, and in the height of its first fermentation; (2) a space of *eight* feet from the bottom of any opening from which the gas could escape, to the top of the silage; (3) weather very warm and contributing to rapid fermentation and development of gas; (4) during the preceding night the gas had accumulated above the silage to such a depth that the instant the men went down the ladder to resume work, they were asphyxiated. Carbonic acid gas is not poisonous, but its effect when inhaled is the same as would result from filling the lungs with water, if that were possible. This gas is not infrequently found in wells, and many accidents have resulted where men have descended into wells, without taking proper caution to ascertain whether gas was present. A lighted lantern, lamp or candle lowered into this gas is instantly extinguished.

That there are not more of these silo accidents is probably due to the fact that so few silos are actually air or water tight. This gas will find its way out of a silo, wherever water could escape, and one or two comparatively small leaks would probably prevent its accumulation. But, on the other hand, the presence of this gas is indirectly essential to the preservation of the silage, for in this way only, can the air be fully excluded, and when air is present, fermentation will go on and destroy the silage. We must have in the first instance a fermentation (heating to about 120°) which produces this carbonic acid gas, and this in turn, if it cannot escape, excludes the air (just as the filling of a bottle with water, drives the air out) and practically arrests further fermentation or decay.

The lesson from this accident is not to condemn or abandon the silo, but simply provide that there shall be an opening, both when putting in and taking out the silage, not more than four or five feet above the surface where the men must stand while at work. In other words, provide that the gas cannot accumulate to such a depth that it can be taken into the lungs.

A Trial Subscription Proves its Value.

A New Jersey Feeding Problem Submitted

ED. HOARD'S DAIRYMAN:—Five months ago a friend put into my hand one of those coin cards for a trial of the DAIRYMAN, which I made use of. Having read it the five months, I find I need it all the time, so you will see enclosed $1.00 for a year's subscription.

We grow corn and rye on farm, which we have been feeding mixed with bran, along with all the green fodder corn they will eat. Cows have fairly good pasture. Now, I want a little assistance. Please give balanced ration from above feeds. If you could substitute something to take place of bran that would be cheaper, why, all the better. Price of bran is $18.40. Have tried gluten, but cows don't seem to like it very well. It seems to have a burnt odor. Can get dried brewers' grains at $14.60. Would they answer in place of bran? We sell the milk.

Farmingdale, N. J. M. C. D.

M. C. D. is not the only trial subscriber who has found HOARD'S DAIRYMAN, a necessity It is not our habit to say much about ou circulation in the editorial columns, but we are assured the returns are coming in very satis factorily, as the result of friendly assistance from our readers, and for which they will please accept our thanks.

Replying to the inquiry submitted, we have to say that when pasture is fairly good, corn and rye make a very satisfactory grain supplement, if one can afford to feed them. Usually, they can be exchanged for some other feeds with a margin of profit. Gluten feed ought not to have a burnt odor, and its presence is doubtless the cause that M. C. D's. cows do not take to it kindly. It is probable however, if not fed too much at first, they may learn to like it. Dried brewers grains, if of good quality, are worth more than bran, but cows do not always eat these with keen relish. They should be well soaked before feeding and some ground corn mixed with them—say, one pound corn to two pounds grains. The amount to be fed must be governed by circumstances; six pounds may suffice for some cows and ten pounds be none too much for others. The true economy of feeding consists in giving each cow all she can make good use of. As long as a cow does not commence to lay on superfluous flesh, one may be quite sure she is not being fed above her capacity.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

SAND VETCH IN NEW YORK

Referring to the article, "The Sand Vetch" on page 562 of the current volume of the DAIRYMAN, have you any knowledge as to what effect the severe winters of this section would probably have on this plant? What is the market price of the seed?

St. Lawrence, Co., N. Y. SUBSCRIBER.

The sand vetch has not been tried with sufficient thoroughness for us to say what it will do under all conditions of climate, but it is known that it is a valuable drouth resisting plant and would seem to have a very wide adaptability to varying conditions. It has been grown successfully in Dakota and

Minnesota. As the winter is very severe in both these states, it would seem to indicate that it would winter well in New York, more especially as it would have the protection of a heavy snow fall—a condition which does not always prevail in Minnesota. We do not know. Write to dealers in seeds.

A NEW YORK FEEDING PROBLEM.

In our dairy barn we milk fifty-six cows. We feed them in one week, 160 bushels brewers' grains, at 10 cents a bushel; eighty-three barrels starch feed, at 40 cents a barrel; fourteen hundred weight of middlings, at $17 a ton. Each cow receives fifteen pounds a day of timothy and clover mixed, at $10 a ton, and one-half bushel ensilage.

We also have twenty-four head of young stock which we propose to winter on ensilage and oat straw. Can you give us a ration for our milk cows, that will give us as good results as the brewers grains? The dairy is eight miles from Albany, New York, and carting grain twice a week is arduous; all other feed we get in bulk. We are anxious to get the price of feed down and not drop below the average of 475 quarts of milk per day.

We read your paper with great interest, and any suggestion of yours will be highly appreciated. A. H.

Albany, N. Y.

We have no information which enables us to estimate the weight of a bushel of brewers grains (wet) or a barrel of the starch feed. If the grains are of average quality—that is, not too much water in them—their feeding value is about one-fifth that of the dried grains, and the starch feed about one-fourth that of the dried feed. The wet feeds, at the prices named, are probably somewhat cheaper, unless the hauling and waste are items of considerable importance. While we cannot unreservedly, condemn the use of these wet feeds, we never recommend their use, and for the reason that, unless extra caution is observed, they sooner or later foul the premises to such an extent as to seriously injure the milk after it comes from the cow.

Following would be a good average ration;

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay.....	12.87	.72	5.94	.24
20 lbs. silage.....	5.28	.26	2.80	.14
3 lbs. dried grains....	2.75	.47	1.09	.15
3 lbs. gluten feed....	2.77	.61	1.45	.09
3 lbs. middlings.....	2.64	.38	1.59	.10
Totals.....	26.31	2.44	12.87	.72

Such a ration should suffice for large cows in full flow of milk.

In place of the grain allowance above indicated, one could expect about same results from five pounds bran and four pounds gluten feed.

The young stock will, no doubt, seem to get along pretty well on the silage and oat straw, but we incline to the opinion that it would be better to include more protein, especially for heifers intended for the dairy, for much the same reason that in rearing a colt for speed, we would give him more protein than if intended for draft purposes.

A NOVA SCOTIA RATION.

My cows are high grade Jerseys and I am sending my milk to a creamery. I will feed each cow per day twenty pounds mixed timothy and clover hay, thirty pounds mangels. Now will you kindly complete for me the cheapest balanced ration from the following feeds. Corn meal at $23.00 per ton, bran at $18.00, cotton seed at $27.00, linseed at $30.00. J. D.

Port Williams, N. S.

For cows of the character named and fresh, or nearly so, we recommend daily allowance as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay....	17.16	.96	7.92	.32
30 lbs. mangels.....	2.73	.33	1 62	.03
5 lbs. bran.....	4.41	.63	1.93	.15
1 lb. cotton seed meal	.92	.37	.17	.09
Totals.....	25.22	2.29	11.64	.59

If it is desirable to increase the allowance for certain animals, take out one pound of bran and gradually increase to two pounds cotton seed meal. Give salt every day.

CALVES FROM A TUBERCULOUS BULL.

I should like to have your veterinary or other expert, state whether in his opinion it is wise to raise stock sired by a bull recently tested for tuburculosis and which was evidently in an advanced stage of the disease when used. The dams are believed to be perfectly sound.

When used, last winter, the bull was in apparently good condition, with the exception of a cough which he had more or less for about a year, but which veterinarians did not think due to the lungs. I presume the usual test would have determined the matter but the best veterinary in this locality did not seem to think it necessary, though requested to make the test. E. E. S.

Lake Co., Ohio.

The probabilities are decidedly in favor of the calves not inheriting the disease, but they should be watched with extreme care and carefully tested with tuberculin, when two or three months old. Moreover, having had such an animal in one's herd, and more especially if he has run with the cows or been watered in the same trough, it would be prudent to have the entire herd tested and all animals that react, carefully separated and kept by themselves, or, if not particularly valuable, at once destroyed.

Perfectly healthy calves have been reared from diseased mothers, by taking them away from the dam at birth and giving them milk from healthy cows or fully pasteurized milk from reacting animals.

DROUTH ON LONG ISLAND.

We are having it very dry now, and we find it very hard to keep our cows from shrinking, as the pastures are very brown.

I am feeding thirty pounds of corn fodder, three pounds of wheat bran, two pounds of ground oats, one pound of corn, two pounds of cotton seed meal.

If you can suggest any alternation that would improve the rations, I would be very thankful. The cows are in about the right flesh. F. M. S.

Oakdale Station, L. I.

The allowance above specified is decidedly deficient in digestible protein, unless the cows get more from the pasture than is probable. It would remedy this defect somewhat to substitute all bran for the corn and oats, or still better, malt sprouts or dried brewers grains.

COW POX.

Last night six of our cows were broken out with the cow pox. I at once gave them a dose of physic, and rubbed on some ointment. I would be very thankful if you would give me a prescription that is a sure and quick cure. Is there anything to keep it from going through the whole herd?

I find your paper a great help, and I don't think any dairyman can afford to be without it. F. M. S.

Oakdale Station, L. I.

Following is the prescription often recommended by Dr. Horne for cow pox: Thoroughly cleanse the teats with Tilden's Bromo Chloralum, one to eight of water. Then when dry anoint all the sores with spermaceti ointment and almond oil, one ounce each, gum myrrh, one dram—to be intimately mixed. Apply twice a day for a while. Give full dose of physic. Be careful of your hands and milk tube. Do not go from an affected cow to another without a very careful washing of the hands with soap and hot water.

PROXIMITY OF DAIRY HOUSE TO STABLE.

Will you please advise us through the columns of your paper how close a dairy house can be built to cow stable, expecting to get best results. Other conditions, viz., ventilation, drainage and cleanliness, are first-class. Manure carted away daily.

Worcester Co., Mass. SUBSCRIBER.

The conditions named, would justify placing the dairy house practically in contact with the stable, but because it is next to impossible to secure these conditions every day, it is only common prudence to provide some intervening space, and we should give more heed to convenience than distance. Would not consider fifteen feet too close for practical safety.

BEST SALT FOR COWS.

We are having some talk around here as to which is the best salt for cows, and so I am going to write to you to find out which is the best. Some say that common rock salt in barrels is best, but I don't. P. L.

Granton, Wis.

Without saying that it is absolutely the "best salt for cows" we prefer the common barrel salt and to give it at least once daily to each cow with her feed. The more we have to do with the cow and feeding of cows, the more are we impressed with the idea that the nearer we approach to the practices which are best for ourselves the better will it be for the cows. Personally, we can see no more reason for putting out a lump of salt for the cow to "lick" as she may be inclined than there is for each man to carry a lump of salt in his pocket for use in a similar way. Similarly, the "salting" of cows once or twice a week, does not appeal to us as the best way. Of course, where it is impossible, or even seriously inconvenient, to give salt with the feed, either of the above methods answers a very good purpose.

SHREDDERS AND SHREDDED FODDER.

I want information on shredders and shredded corn stalks as a cattle food. Am cutting up my corn early to get best results from stalks. Expect to take ears off and shred stalks early. I want to know where to get a machine and what kind and how to treat and feed the shredded product. Please answer in your next issue and oblige.

Galena, Kansas. Dr. J. K. W.

As to the value of shredded fodder the evidence is all in its favor. Where the fodder is dry it can be run from the machine into a mow in the barn and will not take injury, but if not quite dry it is safer to put it under sheds or in narrow stacks.

Our advertising columns give all the information we have in regard to the manufacturers and dealers who supply these machines, any of whom will take pleasure in answering letters of inquiry as to prices and special points of merit. In the absence of the regular shredder, a very good job can be done by putting the corn through the cylinder of a common threshing machine, which will shell off most of the corn and split the stalks fairly well.

MILK TO MAKE A GALLON OF CREAM.

How much 4% milk will it take to make one gallon of 22% cream. J. L.

North Greenfield, Wis.

A gallon of 22% cream will weigh 8.43 pounds, and will contain 1.82 pounds of butterfat. If there were no loss in separating, it would take 46 pounds of 4% milk to make the above cream, but as the loss in separation may be anywhere from .1 to .5%, the actual amount of milk necessary may be from one to ten pounds higher, depending on the quality of separation.

BUTTER RENNET.

The following inquiry has come to the Secretary of the Wiconsin Dairymen's Association:

WISCONSIN DAIRY ASSOCIATION,
Madison, Wis.

GENTLEMEN:—Can you furnish Butter Rennet and at what price? ——— ———.

We omit both signature and post office address, inasmuch as the inquiry was from a dealer in "Dry Goods, Groceries, Drugs and Family Medicines," and was, doubtless, prompted by some of his customers who had received a circular from some source descriptive of wonderful results obtained by using "butter rennet." It is simply a stupendous fraud and humbug. There is no such substance or combination of substances as butter rennet. There are various nostrums that can be used which will help to incorporate more than the legitimate amount of water in butter, but the resulting stuff is of very inferior quality and will soon ruin the reputation of anybody who sells it for butter.

EFFECT OF SEPARATION ON GERMS.

Does running the milk from tuberculosis cows through a separator, destroy all germs which may be in it? W. A. S.

Perry, N. Y.

Running milk through the separator will remove a large number of germs by enclosing them in the material that forms the separator slime, but after all immense numbers are left in the milk itself.

Disease germs are no different from the other varieties in this respect and may, like the other varieties, be partly removed in the slime. If there are any present in the milk that can cause mischief, the separator will not destroy or affect them in any way.

FOR HANDLING MANURE.

Will you let me know what is the cheapest way to handle manure from a stable of twenty cows, which has no cellar. I wish to have the manure retain all its qualities without its becoming an expensive fertilizer through repeated handling. C. S. S.

Boston, Mass.

When other conditions will permit the practice, the cheapest and best way to handle manure is to load it direct from the stable into a Kemp Manure Spreader and haul it directly to the fields to be fertilized. When the construction of the stable will allow the wagon to pass in and out, the manure may be placed immediately in the spreader, but in other cases a carrier or car may be used as shown in the advertisement of D. B. Cherry & Co. on page 603. If by reason of deep snow or otherwise the manure cannot be taken directly to the field, build a manure shed some distance from the stable and dump the contents of the carrier under that. A common wheelbarrow can be used, but such a method would not be as economical as to use a car running on a suspended wire or other track.

A STABLE PLAN.

Could you kindly help me by sending a few plans in your next Journal of a dairy barn to hold about fourteen cows, including a place for feed and hay, as cheap a plan as you can. A. F. J.

Evanston, Ill.

A barn for the stabling and feeding of fourteen cows should be thirty-four feet wide and forty-six feet long, and if other stock or vehicles or machinery is to be housed, as much longer as these additional demands may require. We would arrange the stable about as follows: A central alley or drive way, eight feet wide; on either side, for a distance of thirty-two feet from one end, a gutter twelve inches wide and four inches deep; next to the gutter a platform two inches higher than the central drive way and five feet wide; on this platform build stalls with swinging partitions from three and a half to four feet apart and adopt some one of the various methods of fastening that have been described in these columns.

There will then be left room in one corner for one hospital (box) stall and opposite to it space for a feed and storage room and stairway. Arrange to take hay in at one end (or both ends) from the outside with a horse fork. Provide not less than five good sized windows on each side and two at each end.

FEED AND FAT.

To decide an argument, please answer in your next edition the question, how much, if any, the test of a cow, or the per cent of fat in her milk, can be increased by changing rations? P. W.

Los Angeles, Cal.

A sudden change of feed, whether in character or amount, is very likely to produce a temporary change in the quality of the milk; not directly, but as a result of the effect of the feed upon physical condition or health of the cow. As soon, however, as the cow becomes accustomed to the change in feed, the milk returns to its normal condition. In other words, the feed has no appreciable, direct effect upon the per cent of fat in the milk. This is governed by the inherent temperament, or quality of the cow herself.

Note and Comment.

Drouth in Ohio—Road Dust—Land Plaster—Nitrogen—Nitrogenous Feeds for Calf Raising—Early Filling of Silo—Silo Expansion—Bran and Gluten.

ED. HOARD'S DAIRYMAN:—It is not mentioned by any of the "old timers" who moved in here "right arter the war of '12," that they remember of another so complete a ready made drouth falling out of the sky, and getting so quickly to work, as the one Northern Ohio is now struggling with. It came full sized at the start, and the start was a big all night's rain, and in two days all sign of it was gone and the farmers were saying, how dry it has turned "all t'wunts." Pastures turn brown in a day almost, and dewless and often very cold nights seemed to give the brown a deeper hue. I never knew cows to shrink in milk faster. It was the old story again repeated, nothing handy to feed the cows for a soiling crop, and the cows shrank faster than the milk price went up.

At the creamery here, the shrinkage was over a half, and the rise in milk was only twenty cents per one hundred.

The weather man sends out forecasts to put up the unbrellas, but he only gets dust thrown in his eyes to mock his wisdom, and the flies keep right on torturing the cows, and in the houses getting mixed up with tangle-foot. About the only comforting thing to be gotten out of the drouth is that it is a pretty nice time to lay in a couple of hundred bushels of fine road dust for the stables next winter, and get a fine absorbent, and deodorizer, combined, and not be compelled to go to the plaster trust to get them to trust you for a lot of land plaster that is no better absorbent, and not as good a deodorizer as the dust.

The best thing about the plan is that it gets a fellow to work on the road a day or two and not spend all of the time in getting there, and telling stories and calling it working on the road and then blame bad roads upon the administration and Mark Hanna.

Speaking of absorbents in the stable, causes the inquiry, if your plaster must be bought, why not buy it in the form of acidulated S. C. Rock and get the full value of the purchase in the phosphoric acid, and in addition about one thousand, one hundred pounds or so of the gypsum to the ton thrown in, and then when used in the stable, the nitrogen is caught The manure is strengthened with the phosphoric acid, the element in which it is weak, and better results must follow from the stable combination. There seems to be a growing impression, that the farmer by the better saving of the manure of the barn, and growing more clover and legumes generally—crops direct, and catch—can pretty near supply the fertility wanting, by reinforcing it with the cheaper forms of fertilizers carrying phosphoric acid and potash only, and the use of either road dust, or with phosphoric acid rock, is to secure and deliver to the fields this desired fertility, at the minimum point of cost. The cheapening of dairy products is not alone a question of feed, but is closely allied with the maintenance of fertility, and its application, to the end that maximum crops can be raised and then harvested with the least loss of food material, and utilized with smallest waste of animal force in digestion and assimilation.

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A little experiment is being made with a calf this summer. While in itself it is not new, it yet illustrates something which too few of us are familiar with: the effect of feeds strongly nitrogenous, upon the growth and make up of the calf and its development. Last spring we took "Slicker's Alaho," some ten weeks old, and placed her in a large, light, box stall, gave her plenty of clean straw bedding, and gave her from then on until now a ration of clover hay and wheat bran, with now and then a handful of oil meal, with plenty of fresh well water at her command. The growth of that calf has been a marvel. The feed has all gone to growth of frame and red meat. She has never showed a sign that she was trying to get fat.

When turned out into the big yard for a run, she has the nerve and strength of a running colt. Now eight months old, she is fast showing up signs of a fine udder, to be; and milk veins to match are easily traceable. It has been a lesson all the time; the sunshine of two large windows into her pen, free air and liberty of motion, it has been a marvel how she has responded to her food in desirable growth, and the small cost to secure it. Two quarts a day of bran has been her daily grain feed, with the clover hay. The estimate is that she will weigh fully seventy-five per cent more than the usual summer calf of her age, with the promise that she will in every respect equal her "Slicker" mother, when she arrives at dairy age.

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It is a strange condition of affairs in Ohio, when as early as August 24, farmers are filling their silos to save the fodder from further "firing" in the rows, and other things that appear when there is no rain or dew, and the corn is actually "going back," as the farmers express it. North of here on the higher lands, corn is being cut and shocked in the fields, where the owners have no silos, corn not over half grown, neither silked or nearly ma ure. That the corn, cut in this state, has a feeding value equal to its cost, I have grave doubts; but then what will a fellow do? The silage crop about here is the nearest approach to a failure that I have ever seen. Here and there is a fine stand, but these fields are the exception.

There is a lesson being gotten out of it by some farmers, who are building silos as fast as possible, and as soon as they can, will fill the pits with this "spotted" field corn, and try to get all of its food value possible, because they see that if cured and fed in the old way, there will be little feeding value; but harvesting it this way they will make a great saving in food, and have their silos ready for a better crop in 1900, as big crops always grow presidential election years.

I have never known so many silos to be erected in any year in this section, as are being built now. Five men were here in one day to get pointers about silos, and how they were best to build. I think they all decided to erect stave silos, and two will use Page wire fence hoops.

One man, who seemed a little fearful about the strength of the bottom hoop, will use two webs of the fence, by doubling them. Nearly all silos being erected are of the stave pattern. A few will be of the square pattern, with cut corners, as that form will best fit into the barns. Several inquiries about "distributors" for silos prompts this answer.

To my mind the hopper box, with "trousers leg" attachment, is the best of the many ways of getting the silage evenly distributed, and the material well mixed, and that without labor other than "leading" the flexible tube about the silo, until the pit is pretty nearly full, when it will be necessary to do some work with a fork; but then we like to have a small platform built over the silo, and let the silage fall upon this temporary floor, and it is then forked down into the silo, and with a better mixing than one can get who works on a level on the surface of the silage.

If one does not use the hopper plan, the platform under the top of the carrier, so to enable the forker to throw the silage down, is by far a superior way to that of letting the silage fall down unobstructed into the pit, then thrown about. This means at best, that on one side of the silo, the heavier parts of the silage, grain, and the like are thrown, and on the other, the lighter stuff falls, and it takes no end of work to overcome this, by forking material backward and across, and then it will be too much settled in the center, too much of this here and not enough of that, there, and mouldy spots and defective sections will appear here and there as a result; all avoided by either of the two plans indicated above.

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I notice with interest the purchases of grain at our station for milk making, and see how the farmers always shift back to fine bran, called here "seconds". Last spring there was a slight drift to gluten, and some of the dairy foods warranted (?) to be as good as bran, but this late summer it is all bran again, and not a pound of anything else will be sold here again for months. Most farmers exchange oats for money, and with it buy seconds. Some have their home raised corn, ground cob and all, and mixed with bran for winter feed; but in this locality bran is the best feed for making city milk, especially with the silo men. Whether all of these men take the increased manurial value of the bran added ration into account is doubtful, but those who do, and use absorbents, and draw the stable wastes afield each day, are convinced that this plan of bran buying is a pretty close solution of the fertilizer question, and increasing crops confirm the faith which is within them.

JOHN GOULD.

The Care of Fall Pigs.

ED. HOARD'S DAIRYMAN:—Sows bred last spring, or during early summer, will soon be farrowing now, and should have been getting plenty of green food and exercise, especially during the later weeks of gestation.

For thrifty litters greater dependence can be placed upon fall than upon spring farrowing. There is rarely ever any difficulty in saving a goodly proportion of the young porkers at this season of the year, whereas in early spring mortality frequently occurs with alarming persistency during the first few days.

The reasons for this are not difficult to understand. During summer the sows are allowed the run of the fields to a certain extent; at least they are not closely confined in a filthy sty and fed upon corn, as is so commonly the case in winter. The exercise in the open air is good, the grass and other green food is an excellent diet for the animal at this particular time, and all tends to prepare the way for a thrifty litter.

As soon as the pigs are a few days old the mother should be brought gradually to full feed. She must have plenty of nourishment if she is to supply the needs of a growing family. For this purpose bran, mill feed and ground oats or barley are better than corn, and the latter should be avoided. Corn has its place in the dietary of the hog, but it does not belong to this period of its life. Skim milk made into a thick slop with the ground feed is an excellent factor in promoting a flow of milk. Feed generously. I have no sympathy with the man who scrimps the feed of a sow that is suckling pigs. Growth at this period can be put on very quickly by means of the mother. Allow young pigs to have plenty of exercise. Turn them out for a run every day, if they are not where they can have the freedom of a yard. That disorder which sometimes gives trouble and which is commonly known as "thumps," is caused by lack of exercise, in nine cases out of ten. Lying in the nest all day causes an over production of fat where the dam is generously fed, and the little things soon begin to suffer. If they run and play, as they will when out of doors during the pleasant fall days, they retain their thriftiness and grow in bone and muscle, rather than accumulate so much fat. As soon as possible allow them to eat for themselves. They will get into the trough sooner than might be expected and sweet skim milk, bran, shorts, ground oats are all good promoters of healthy growth.

We wean at about ten weeks, then breed the sows again as soon as possible, usually by the middle of November. This brings the spring farrowing about the middle of March. With care, and due attention to breeding, it is not at all difficult to regulate the farrowing very closely, so that two litters a year can be secured without fail.

After weaning, the pigs should receive very careful attention, until the change has been thoroughly established. Carelessness in the amount and character of the food at this time, may result in a lot of unthrifty, stunted pigs.

Give only what they will eat up clean, before another feeding. Clear the trough of anything remaining therein, and give less next time. It is better to have them hungry, for the next meal, than leave a lot of feed to be nosed over.

Pigs get "cloyed" or off their feed when thus treated, and this gives them a great set back. They should clean the trough out within the time between feedings, yet receive all they will eat. It requires skill and considerable experience to feed a lot of pigs, so as to keep them growing right along from the first day of their lives. It isn't everyone that knows enough to feed a hog, although it is not generally considered as requiring a great degree of intelligence. The main point to be kept in view is to feed of good growing, encouraging food all they will consume, and no more.

Pigs cannot thrive in confinement, unless their quarters are dry. Wet beds breed disease. Straw is plentiful on most farms, yet from sheer shiftlessness the stys are frequently wet and filthy. No animal more thoroughly enjoys a good, clean bed of straw, than the hog. He may be able to endure filth better than some animals, but that is no reason why it should be understood that he prefers it.

Skim milk is an excellent drink for pigs, but it does not alter the fact, that even with this, they require good, pure water to drink. This should be supplied in abundance, at all times.

When about five months old, it is time to begin to prepare the pigs for market. We allow ours to run out day times, even during cold weather, but shut them in a warm house at night. After the fattening begins, it may be better to confine them more closely, but we have had excellent results in allowing exercise right along.

As a finishing feed give all the corn they will eat for six weeks, or thereabout. Watch the market and sell on foot, a much better way than to dress them, unless the number is small. W. C. ROCKWOOD.

Mich.

"Keep to Your Place and Your Place will Keep You."

Without good health we cannot keep situations nor enjoy life. Most troubles originate in impure blood. Hood's Sarsaparilla makes the blood rich and pure, and thus promotes good health, which will help you "keep your place."

Hood's Sarsaparilla
Never Disappoints

City Milk Supply.

ED. HOARD'S DAIRYMAN:—On page 494, I read a communication from Mr. Miller, under the heading of "Nuisances in City Milk Supply." Permit me to say that Mr. Moldenhawer, to my mind, has done every dairy farmer, who wants to follow the onward move of the time, a good service in writing the articles under above heading.

It can clearly be seen from them, how necessary it is to constantly watch and warn the employes to be careful; in fact, it amounts to this: No dairy farmer or dairy dealer who wants to supply good and pure milk, can afford to keep any but intelligent help, that can be depended on to be painstaking in their care of their employer's interests.

This can only be expected when the employer himself is painstaking and sincere in his wish for good and clean milk, and when the help is well paid and treated well. Every up-to-date dairyman should think more of this, and not be satisfied with taking the man that will go for the lowest pay.

The best farmers see and understand this point. For instance, Mr. Bailey, the owner of the celebrated Thorndale Dairy, in Chester, Pa., has supplied his help with a comfortable sitting room, where can be found not alone the latest magazines and farm journals, but also a good assortment of good books. Mr. Bailey knows the value of good and intelligent help, and the men always appreciate such regard for their welfare and comfort. Mr. Editor, I hardly believe that there ever will be cause or need for Mr. Moldenhawer's sharp criticisms in places where both owner and help really know and want to do right.

I wish to remind every dairyman that publicity is, has always been and always will be, one of the surest safeguards against evil of all kinds, and I see no reason why it should not be so in the case of a dairyman

NICE MILK
Can only be produced where the
Champion Milk Cooler--Aerator
is used. Our book about it free.
Champion Milk Cooler Company,
67 Main St., Cortland, N. Y.

who allows poor and careless handling of a food article.

Mr. Moldenhawer has done the dairy farmers a favor in showing them that a great number of city dairymen are inclined to keep on supplying carelessly handled milk, when they, by a little watchfulness and care, at least, could avoid making the milk worse than when received from the farmer.

I have a number of friends in the medical profession, who are very good patrons of well cared for milk. Many of them read HOARD'S DAIRYMAN as close as they would a medical journal, and every reader of the DAIRYMAN can rest assured that the medical profession and dairymen supplying milk to towns must work together for their mutual benefit.

Dairymen cannot expect to be favored by medical men, unless they both, in their writings and deeds, show that no excuse or inconvenience can keep them from producing the cleanest milk.

Now, Mr. Editor, I have carefully read your valuable and progressive paper for several years, and as far as I can judge, it is much against your ideal view of the dairy question, to rest and be content in saying, "Oh, well, the products from even the worst kept dairy are better handled than the products from bakeries, candy and whisky shops and like places, and why should we keep on reaching after something higher, when the average dairymen already produce a cleaner food article than most other places where food is produced."

This is a very dangerous and hurtful conclusion to be content with, and, Mr. Editor, I have wondered why some of your eminent writers did not answer Mr. Miller, but since this was not the case, I feel it to be my duty to warn the dairymen against such contentment, which is dangerous to the great dairy interest of this country.

The highest ideal is not too high for the dairy industry of a country that ought to be the greatest dairy producing land in the world. Don't let us bother how well or how poor other food products are handled, but follow the highest ideals and the good advice always found in the "DAIRYMAN." When we do that it will soon be found that we have no right to be careless because other people are. JAS. C. JORGENSEN.

Brooklyn, N. Y.

Shredded Ensilage.

ED. HOARD'S DAIRYMAN:—I read the account given by Mr. H. W. Strong, of Washington county, Vermont, in a recent number of the DAIRYMAN, concerning his experiments with shredded ensilage, with a degree of interest, all the greater, because so exactly in accord with the experience I have had myself, along the same lines, during the past two or three years; and it is, of course, always gratifying to know that one's own conclusions in respect to the advantages of a new practice of this kind, are borne out by the opinion of others.

I bought my shredder, also, in the summer of 1896, and have used it for filling my silo ever since—three seasons. The preparation of the ensilage is certainly superior to any I have ever seen put up with a square cut machine; and the same opinion is expressed by farmers generally, in my vicinity, who have been watching my experiments.

Our corn, which is of the Leaming variety, large growth and many large ears, invariably comes out much better than the ensilage of most of my neighbors, which is prepared in the usual way, and the ears of corn, especially, are as sweet and nearly as hard as when put in, while of those put through a cutter, a large per cent are covered with mold. In fact, the ensilage keeps perfectly, and cows eat it greedily, and with practically no waste.

Another gentleman, who lives not far from me, has also been filling his silo with shredded ensilage during the past three years, and is quite as enthusiastic concerning its advantages as I am, and as we are both using the same machine, the "St. Albans," with which Mr. Strong says he has obtained the successful results he describes, the query suggests itself to my mind, whether there may not be something in this question, of the kind of shredder that is employed in making such experiments, that will serve to explain, in some measure, the diversity of opinion one sees expressed in the discussions that take place from time to time, in the papers, upon this subject.

One would not compare the work of a cutter, which cuts pieces three inches in length, with one adjusted to cut one-fourth inch lengths, without making due allowance for this difference in the character of the product; and in the same way, it seems to me, it is essential, in order to obtain a correct solution of this matter, to have it appear what the term "shredding" implies, in respect to fineness of quality, and capacity for close packing.

A great many makes of shredders are now sold—some of them do very fine work; the product of others is as coarse in texture as the fodder put through an ordinary threshing machine; while the work of still another class, is very uneven—some of the fodder being very fine, but with many coarse pieces mixed through it.

The shredder I use makes fodder of a very uniform, fluffy character, and as compared with the ensilage prepared by any machine, cutting into one-half inch lengths, it will pack in the silo fully twenty per cent closer.

Now close packing is a prime condition for the good keeping of ensilage, and it is precisely because ensilage properly shredded, packs closer than any I have ever seen produced by a cutter, that the new method is in my opinion, a decided improvement upon the other.

The feeding, as one writer has said, "is the crucial test," and having seen the silage come out of our silo, year after year, sweeter in flavor and brighter in color, than that taken from neighboring silos, filled according to the usual practice, and seeing it eaten by my cattle with the keenest relish, and practically without any waste whatever, it seems to me the case for shredded ensilage is about as well established as it need be.

Onondago Co., N. Y. W. B. CANDEE.

The Hen on a Vacation.

People take summer vacations for the purpose of recuperating their wasted energies and laying up strength and vitality for the work that is still before them, and nature gives the hen a vacation for the same purpose.

The hen ceases to produce eggs because her system demands a rest. She, herself, hasn't anything to do with it; that is, she does not stop from choice. She cannot cease laying and become broody whenever she chooses, as some appear to think, neither can she continue to lay indefinitely. How foolish, therefore, to say nothing of the cruelty of the practice, to punish hens when they become broody, as so many do, by the inhuman methods resorted to by some, to break up the desire to set.

The kindest, surest, most proper and effective method is to place the hen in a most comfortable coop, on the ground, if possible, in a cool spot, with a small run where she can take exercise in the sunshine, with a dust bath if she wants it, and there feed her well, give her plenty of clean water, sharp grit, and a variety of food, for the more comfortable and happy she is, the sooner will she be ready to go back to her work, and the greater will be her ability to continue it.

The same is true of the moulting season. Moulting usually begins in August or early September, but may be earlier or later, being determined largely by the age of the fowls. It is not a disease, but a natural process by which nature keeps a fowl supplied with feathers, as, if the feathers were not renewed yearly, the natural wear and tear would soon leave the fowl without covering.

Moulting may be continued for three months and usually leaves the fowl, unless very well fed, in a debilitated condition. During the moulting period fowls seem more susceptible to disease. They should, therefore, have especial care during the critical time. Hens usually gain in weight during this process. The manufacture of feathers requires but little carbon, this goes to form fat, but the lack of other necessary ingredients in the food ration may protract the production of feathers, as well as leave the hen weak and debilitated. Lime, phosphoric acid, nitrogen, iron and sulphur are required, and must be supplied in the food.

The rations should consist of a generous supply of bone meal, charcoal, meat and vegetables. A pinch of red pepper or a little tincture of iron given in the drinking water is an excellent tonic. Sunflower seeds are said to loosen the feathers, and give gloss and brilliancy to the new growth. Hemp seed is recommended for the same purpose. An excellent grain ration consists of ground oats and bran, equal parts, and to each quart of this, one gill of linseed meal. This may be given twice daily, allowing the hens all they will eat. Give, also, a regular ration of gound meat and green bone. Cut green bone may be fed at the rate of one ounce per hen per day, given in the soft feed.

A Charl tte, N. C., poultry keeper has recently hit upon a novel and inexpensive method of supplying his fowls—growing chicks, I believe—with insect food, which might answer very well for a change of diet for moulting hens. He takes ten or twelve pounds of cotton seed meal, wets it thoroughly and puts it into a ridge, about four feet long, in the chicken yard. A couple of boards are laid over it to keep the chicks from scratching it about. In from three to five days it is full of maggots. He then uncovers it gradually, and the chicks find the maggots. Other materials, as corn meal, bran and cotton seed meal, or flax seed meal moistened with molasses water, may be used. This method would be practicable only during the hot weather, but certainly is one of the easiest and cheapest methods of obtainable insect food yet brought forward by any one.—*Northwestern Agriculturist.*

Keep Coughing

We know of nothing better to tear the lining of your throat and lungs. It is better than wet feet to cause bronchitis and pneumonia. Only keep it up long enough and you will succeed in reducing your weight, losing your appetite, bringing on a slow fever and making everything exactly right for the germs of consumption.

Stop coughing and you will get well.

Ayer's Cherry Pectoral

cures coughs of every kind. An ordinary cough disappears in a single night. The racking coughs of bronchitis are soon completely mastered. And, if not too far along, the coughs of consumption are completely cured.

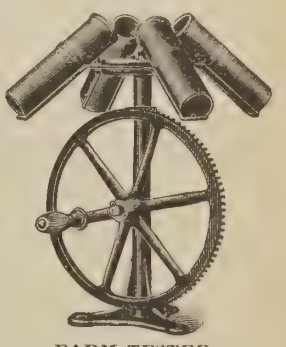
Ask your druggist for one of

Dr. Ayer's Cherry Pectoral Plaster.

It will aid the action of the Cherry Pectoral.

If you have any complaint whatever and desire the best medical advice you can possibly obtain, write us freely. You will receive a prompt reply that may be of great value to you. Address,
DR. J. C. AYER, Lowell, Mass.

Be Careful



FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



MOTOR TESTER.



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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

PLAIN TALKS ON BACTERIA AS APPLIED TO FARM PROBLEMS.

[By Prof. H. L. Russell.]

Second Series, No. XXIV.

MANURES FROM A BACTERIOLOGICAL POINT OF VIEW.

Manure, as commonly used, means the excrements of animal life. These include not only the liquid excretions from the body, the urine, but the undigested remains of the food which is passed off from the intestine. The urine is especially rich in urea, a somewhat complex nitrogenous body excreted from the kidneys. As a plant food, however, urea has no value; in fact, it acts as a poison to protoplasm. But it is capable of being converted into a form that is assimilable by plant life. The solid excreta from the intestine is not so rich in nitrogen, but it also contains a certain amount of plant food which is not available until transformed. The transforming forces that take these animal wastes and convert them into food that will sustain another crop of green plants, are the bacteria. Where do they come from? A bacteriological examination of carefully voided urine shows that it is not at all rich in bacterial life. It, like most of the secretions of the healthy body, is practically sterile, but if urine is allowed to stand for several days after it is voided, a marked change occurs. The clear fluid becomes cloudy and sooner or later an ammoniacal odor is evident. This has been occasioned by the development of certain bacteria that have the power of growing in this quite acid solution and transforming the urea into ammonium carbonate. As this substance is volatile, it passes off readily into the air unless something is present with which it can unite. Even in the form of carbonate of ammonia, the nitrogen is not yet available for plant food. It must be acted upon still farther, undergoing a process known as nitrification, which subject will be considered later.

Although the urine is poor in bacterial life when it is excreted, the wastes from the intestines are far from being in a similar condition. The processes of digestion that go on in the animal body are very complex. The food is first rendered soluble so that it may be absorbed; then it is digested by the different tissues of the body and appropriated into the substance of the individual cells. Much, however, of the food is of no use to the animal body and could not be utilized on account of its insoluble nature. Such material is cast off in the excreta, but with it comes myriads of bacterial germs that have been harbored in the intestine. In this habitat, special forms are able to thrive on the partially digested food. These work over and break down in part the material that cannot be utilized by the animal; but although somewhat broken down when evacuated, it is still far from being of any fertilizing value as a food for growing crops.

RIPENING OF MANURE.

This fact is, of course, well known. Green manure must first undergo a long series of changes before it can be appropriated by the green plant and built up into stalk and ear. But from the time it is thrown out of the animal these millions of organisms are busy at work, changing the insoluble matter into soluble form, transforming it from the complex state into a simpler but more stable condition. In fact, the ripening process which is so essential in preparing it for further use, is merely a continuation of the changes that are inaugurated in the animal. Of course the kind of organism that is at work on this refuse pile does not remain the same throughout the whole process. As one kind of fermentation is followed by another, so one kind of bacteria succeeds another. We may imagine the process like that which is going on in cleaning up of the debris of a great ruin. One shift of laborers follow another; one working on the iron work, another on the wood work; so these different classes of bacteria pick out the peculiar substances that are best adapted for their purpose, leaving the refuse to be worked over by some other kinds.

KIND OF FERMENTATION GOVERNED BY EXTERNAL CONDITIONS.

The type of fermentation that goes on in the ripening heap of manure is determined to a large extent by the influence of external conditions. In the manure heap, nearly all varieties of germs are represented, at least so far as the different types of activity are concerned; but whether one or the other gains the ascendancy depends upon whether abundant oxygen is present, copious supplies of moisture and the like. In the outer part of the manure heap, the type of ferment action is such as can go on where the free oxygen is present. These oxidation processes reduce the combined substances that are locked up in the raw manure into simpler forms, some of which are gaseous and therefore go off into the air.

For this reason, if a manure heap is loosely built up, the character of fermentation is aerobic and intense. The result of this is to cause the loss of valuable fertilizing properties. A well compacted heap retards this oxygen fermentation and so preserves the organic matter from too rapid change.

The type of fermentation that goes on in the middle of the heap is quite different from that on the exterior. Here the atmospheric oxygen is greatly diminished in supply, or entirely lacking, and the result is that only those bacteria can grow that can develop in an oxygen-free atmosphere. These forms, known as anaerobes, are able to break down the organic matter, but they form far different products than are produced where oxygen supply abounds.

The type of bacterial activity is also greatly modified by the presence of moisture. The dry dung of horses undergoes intense fermentation, and is therefore subject to "fire-fanging," a condition that destroys in large part its fertilizing quality. This can be prevented by mixing this kind of manure with that of other kinds of animals that is richer in water. Under these conditions, the aerobic bacteria are somewhat repressed and the intense activity is minimized.

The losses that arise from too intense and rapid fermentation are confined mainly to the nitrogen and the humus-forming elements. The rapid formation of ammonia due to the decomposition of the organic matter accounts for the loss of nitrogen, while the organic matter is also too completely burnt by this same process, thus rendering it of less value for the formation of humus.

The losses that actually occur on farms are not entirely due to these biological processes. One of the most prominent ways in which loss in fertility occurs is that due to leaching. This is caused by exposure of the manure to the action of wind and rain. The soluble elements in this way leach out. This process is itself a physical one, but back of this is a biological cause, for if no bacteria were present, no ripening changes would occur, and as a consequence the insoluble organic matter would not become soluble and therefore could not leach away.

To these tiny, microscopic forms then the farm is much indebted, for were it not for these organisms, the fertility removed in the crop year by year would soon become depleted and unless restored by these agencies would render agriculture unprofitable.

The Rule at the World's Fair.

Mr. Gillett's Views.

Ed. Hoard's Dairyman:—I have noted from time to time in your publication, in referring to the plan used by the Holstein-Friesian Association for determining the amount of butter from a given amount of fat, (the 80 % basis) that you criticise the Association and that in your issue of September first you state: "This was not as they seem to claim, the rule at the World's Fair."

Permit me to say the H. F. Association does not hesitate nor do I hesitate to say that this was the very basis used at the World's Fair in tests where the amount of butter was estimated from the amount of fat produced, or in other words in tests where the churn was not used.

To substantiate this claim I refer you to the report of V. E. Fuller, and on page 21 of this report, we find the following in refering to Test No. 4, for two year-old heifers: "The churning in the dairy was dispensed with; the fat was ascertained by the Babcock oil test * * * and the butter was estimated therefrom, on a basis of 80 % oil in the butter."

Now, let us turn to page 50 of this report and note in the table that the Jersey heifers produced a total of 155.38 pounds of fat and are credited with 194.226 pounds of butter. If we take our pencil and divide this amount of fat by 80, we will find the same figures for the amount of estimated butter, which is identical with the plan used by our Association to-day. Let us farther turn to page 34 of the same report and note in the table showing the estimated butter in test No. 1, the cheese test, a total of 602.01 pounds of fat. Dividing this amount by 80 we have 752.5+ pounds estimated butter, exactly the figures given in the third column and reported by the chairman of the testing committee, as being the amount of butter produced.

It was upon this very basis that the Holstein people have been working and I cannot understand the force of your statement that "it was not a rule at the World's Fair." Indeed it appears to me very plain that it was a rule at the World's Fair and under the light of these facts I think we are justified in so stating that such is the case.

I make no claim that this is the correct basis for determining the amount of butter from the fat, as this is not the point. The point, is was the 80% method a rule at this fair.

As this question has never had an explanation in your paper, I wish to briefly outline how our association came to adopt the 80% method. We were I believe, the first association to recognize the Babcock test for determining the amount of butter our cows produced. We adopted this test prior to the World's Fair, and at that time estimated the amount of butter on the basis of adding one-fifth to the fat. Then came the World's Fair; and in the tests mentioned from the fact that the 80% method was used it was thought we were wrong, hence the change to the present plan. Sometime later the Associated Chemists agreed upon the plan of adding one-sixth to the fat for determining the amount of butter.

During the interim we had been accepting cows for admission to Advanced Registry on the 80% plan, supposing this would hold for all time, and be generally accepted as a fair and equitable way of apportionment of butter from fat. To change at this time, would in some cases require cows to make a greater yield of fat for admittance to Advanced Registry, than was required of those admitted on the 80% plan for determining the butter. In fact, some that were admitted would by adding one-sixth to the fat, fail to reach the requirement, but at the same time are accepted and registered.

I know of no other association that is using the plan of adding one sixth nor can I find my estimate at the World's Fair worked out on this basis. I believe the Jersey Cattle Club has adopted the plan of adding one fifth to fat and personally I believe this is nearer correct than either the eighty per cent or the plan of adding one sixth. I believe, with the separator and the Babcock test, it is both possible and practicable to retain all the fat, in carefully conducted tests of single cows, fed and handled for great yields, though it may not be so in creameries where a large quantity of milk is handled.

In truth I think our association was practically correct before it made the change to conform to the plan used at the World's Fair, but in any event let me assure you that we are not using the present plan with the intent of making our cows appear better than they really are nor with a view of deceiving any one. In all reports of tests the association states the amount of butter fat produced, or if reporting the finished product the basis of calculation, and the reader can take this amount of fat and figure out as little or as much finished butter therefrom as he sees fit.

Certainly there is no injustice in this, but it appears to me there is an injustice to he Holstein fraternity when one of the leading dairy papers comes out boldly with the statement that there was no such rule at the World's Fair for the expression of fat yields in terms of butter. First it conveys the idea to its readers that our people wish, from a basis of false claims, to mislead the public and second it makes the butter fat yields at the World's Fair in those tests where the churn was not the guide, appear larger than they really are.

I trust the time will come and I believe it is near at hand when the amount of fat only will be stated in reporting tests of dairy cows. There is a diversity of opinion as to the

Prepare for Winter.

Now is the time to think about keeping your stock warm during the coming winter. Before cold weather sets in look over your out buildings and see if there are any leaky roofs, any shingles or clapboards coming off, or any cracks that need stopping up to make the buildings warm.

It is poor economy to have cows and horses sleep cold in the winter, and every farmer knows how much more profiable hens are, and how much faster the chickens grow if they are kept warm.

If you will accept a suggestion from us, of which the editor of this paper will approve, you can fix up your old outbuildings, prevent leaky roofs, make warm your sheds, barns, hen houses, hot beds or green houses at very little expense.

Go to your nearest hardware dealer and get a roll of **Neponset Red Rope Roofing,** which is made for any outside covering, and is



postively water-proof, wind-proof, and frost-proof. There are five hundred square feet in each roll, and it will only cost you $5.00 including the necessary nails and tin caps.

Don't confound **Neponset Roofing** with common tar paper, which, when exposed to the weather will crack, crumble and quickly rot away.

Tar paper was all right for your grandfathers, but in this age of advancement a covering which is very much more durable and economical is required, and that is **Neponset.** It is cheaper and better than shingles; it takes the place of shingles or clapboards on outhouses, and back-plaster in dwellings. Any one can put it on and it will last for years.

If you would like to have a sample of this paper and full particulars before you buy, send a postal card to **F. W. Bird & Son, East Walpole, Mass.,** and they will send it to you by return mail free.

amount of butter that should be credited the cow from a given amount of fat and by reporting the fat alone we leave every man to weigh this amount of butter according to his own estimate, guided by his ability to convert the same into butter without loses occuring through skimming and churning processes.

It is equally as true to say from a given amount of fat we have so much butter, 80% fat, as it is to say we have a different quantity by adding one-fifth or one-sixth. The fact is, we have butter from neither, it is only an expression of butter; an equivalent under certain conditions of the finished product and in cases where the churn is used perhaps none would be absolutely accurate but so long as the facts are stated, I fail to to see any injustice or that it can be in any way misleading.

Men were born to disagree and it is perhaps better that such is the case but it does not follow from this that they should have any less respect for one another on account of a difference of opinion and I therefore trust you will accept this in the same kind spirit that prompts it. W. J. GILLETT,

Rosendale, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Board of Trade met on Tuesday this week, Monday being a holiday. But 6,660 pounds of butter were placed on sale and all was sold at 21 cents. The market was declared steady at that figure. The sales reported were:

	Pounds.	*Price.*
Darinda	3,000	21
McConnell	1,140	21
Red Clover	2,520	21
Total	6,660	

The sales for the corresponding week of he three preceding years were as follows:

Sept. 5, '98, 7,800 pounds of butter sold at 18c.
Sept. 6, '97, 18,000 pounds of butter sold at 17c.
Sept. 7, '96, 87,120 pounds of butter sold at 15@16c

The New York market Monday was reported steady at 21 cents. H. C. B.

Elgin, Ill., Sept. 5, 1899.

DAIRY MARKETS.

ELGIN, Ill., Sept. 5—There were 111 tubs offered; all sold at 21 cents; committee reported steady; 21 cents.

PLYMOUTH, Wis., Sept. 5—Sales to-day, 1,150 Twins at 10½ cents; 400 Twins at 10¾ cents, and 1,125 Americas at 10¾ cents; market active.

SHEBOYGAN, Wis., Aug. 30.—The offerings on the Call board to-day were 1,310 boxes of cheese, all but 115 of which were sold as follows: 80 cases Young Americas at 10⅞ cents; 243 at 10¾ cents; 337 at 10½ cents; 128 Twins at 10⅝ cents; 38 at 10½ cents, and 369 Daisies at 10½ cents; market active.

MANITOWOC, Wis., Aug. 30.—Offerings of cheese at the Dairy board to-day were: 1,300 boxes Daisies, 150 boxes Twins, 800 boxes Young Americas. All offerings sold; Daisies at 9¾ cents, Twins at 9¾ cents, Young Americans at 10 cents.

FOND DU LAC, Wis., Sept. 4—Cheese—Offerings 743 Twins and 500 Daisies; market fairly active at 10¾c for Twins.

MUSCODA, Wis., Sept. 4—Cheese—Offerings to-day 1,263 boxes Twins; market firm; all sold; carlots 10⅝c; small lots 10 7-16c.

CHICAGO, Ill,, Sept. 4—Butter—Creamery, extras, 20c; firsts, 18@18½c; seconds, 15½@16½c; dairies, selections, 17c: No. 1, 14c; No. 2, 13c; extra ladle, 13½@14c.

Cheese—Full cream, Twins, new good to choice 10½@10¾c. Young America, 11@11¼c; Swiss, 9@11c: Limburger, 8@9c; Bricks, 9@10c.

Eggs—Fresh at mark, cases returned, sold at 12c, loss off; cases returned, 14@14½c.

Cattle—Receipts were estimated early at 17,500 and later at 16,500. The general market opened strong to a shade higher, but closed weak at last week s closing prices. Trade was active and a good clearance was made. A load of 1,456-lb.steers sold at $6.60, which was the top a year ago. Three loads averaging1,204 lbs. sold at $6.50,and two loads of 4-year-old steers averaging 1,714 lbs. at $6.40. Corn-fed westerns sold at $4.50@6.30. Seven loads of 1,313@1,345-lb. grass western rangers, direct from Dakota, sold at $5.35@5.40. Most of the grass westerns sold at $4.40@4.75, with a train load at $5.@5.15. Grass Texas steers sold at $3.b5@4.12½. Most of the corn-fed native steers sold at $5.60@6.25. Native cows and heifer sold a shade higher.

NEW YORK MARKET.

NEW YORK, Sept. 2—Butter—Receipts for the week, 37,751 packages. Exports for the week, 19,086 packages.

The market is steady and strong at last week's quotations. Most of the exports were goods bought several weeks ago at prices ranging from 18@20c, and held in cold storage here because there was no freight room until this week. Local trade is buying only enough fancy, fresh butter to supply their immediate wants, but so little of the arrivals are running extra in quality, that full prices have been obtained. Exporters are taking some of the finest June creameries at 20@20½c, and are reported as buying large lines of ladle butter at 14@16c. New York State dairy is scarce and wanted. We quote:

Creamery, extra, 21c; medium, 19@20c; poor, 15@17c. Dairy, extra, 19@20c; medium, 16@18c; poor, 14@15c. Ladle, extra, 15½@16c; medium, 14½@15c; poor, 12½@13½c.

Cheese—Receipts for the week, 39,000 boxes. Exports for the week, 11,660 boxes.

Our market don't keep up with sales reported at interior points. Exporters took some of the finest large cheese at 10¾c@11c, and home trade bought liberally of small sizes at 11@11¼c with several sales reported fancy western New York cheese at 11⅜c. All under grade cheese are in light supply and wanted at full prices. We quote:

Full Cream, large, extra, 11c; medium, 10@10½c; poor, 7@9c. Small, extra, 11¼@11½c; medium, 10¾@11c; poor, 7@9c. Part Skimmed, extra, 10@10½c; medium, 9@9½c; poor, 6@7c.

Eggs—Receipts for the week, 59,447 cases. Finest marks, fresh stock, are in ready demand at our advanced quotations. fair to ordinaty lots slow and irregular in prices.

N. Y. State & Penn. best marks, per dozen, 18@20c; Western & Northern, 16½@17c; other sections, fair to good, 12½@16c. DAVID W. LEWIS.

177 Chambers St.

BALTIMORE MAKKET.

BALTIMORE, Aug. 31.—Butter—The usual quantity of separator creamery has reached this market this week, and without any particular display of energy directed toward accomplishing the result, likewise without any unusual movements after the efforts were rewarded by the sales, somehow the bulk of the arrivals have found buyers who wanted them for immediate use, and so they have effectually disappeared; the other part, distinguished from the bulk by reason of defects in grading, has given the salesmen more concern, because, if experience has taught anything it would be that it has not been profitable to "go against" the street on the question of values, where faulty creameries are the subject of bargain and sale; but on the other hand the firm feeling in the west with respect to the future renders him undecided as to the best thing to be done at this time, notwithstanding the experience of the many previous years. Gathered cream creamery products are now about normal in quantity—the receipts, this week, show no further falling off compared to last week—and are fairly satisfactory in quality. Imitation creamery is very scarce, so is also ladle, and while the grading is by no means high, yet the demand is urgent enough to encourage receivers to insist upon getting full prices. Store packed is in light receipt with active demand.

Creamery Separator, extras, per lb, 20½@21; firsts, 19½@20; seconds, 18@19; gathered cream, extras, 18½@19; firsts, 17@18; seconds, 16; Ohio, extras, 18½@19; firsts, 17@18; seconds, 16; imitation, extras, 16@17; firsts, 15; seconds. 14; Iowa & N. W. Ladle, extras, 15; firsts, 14; seconds, 13: Ohio & Indiana Ladle, extras, 15; firsts, 14; seconds, 13; Ohio Storepacked, extras, 13; firsts, 12@12½; W. Va., extras, 13; firsts, 12@12½; creamery blocks,(2 lbs.) extras, 23; firsts, 22; seconds, 21; creamery prints, (½ lb.) extras, 23; firsts, 22; seconds, 21; Md., Va. & Penna., prints, extras, 19@20; firsts, 18; seconds, 16@17.

Cheese—Receipts of cheese fair; demand good; market firm.

New York State Cheddars, fine, 10¾@11; choice, 10¼@10½; fair, 9¼@9½; Flats, fine, 11@11¼; choice, 10½@10¾; fair, 9½@10; Small, fine, 11¼@11½; choice, 10¾@11; fair, 10¼@10½; Ohio Flats, fine, 10¼@10½; choice, 9¾@10: fair, 9¼@9½; Ohio Picnic, fine, 10½@10¾; choice, 10@10¼; fair, 9½@0¾; Swiss cheese, fine, 12@13; choice, 11@11½; fair, 10@10½.

Eggs—The receipts of choice fresh eggs so far this week have been exceedingly light, while the demand for this kind has been quite active, consequently we write our market in good shape and bare of choice stock. Prices are firm at 16c, and the tendency is for still higher prices.

301 Exchange Place. G. M. LAMB & BRO.

LIVERPOOL, Sept. 4—Cheese--American finest white, 53s; American finest colored, 54s.

MANCHESTER, ENGLAND, MARKET.

MANCHESTER, Aug. 19—Copenhagen has again advanced the official quotation four kroner this week, showing current rates 20% over the corresponding week of last year. Of this advance 15% of it has been put on during the past four weeks apart from over-prices paid for special dairies. These continued advances have been caused by the recent hot and dry weather scorching the pastures. Up to now the consumptive demand has absorbed the supply at these continually rising figures, how long it will continue to do so is a difficult question to answer. The import into the United Kingdom to the end of July shows an increase of 4,722 tons of butter compared with the same period of 1898. Of this increase Denmark has contributed 1,169 tons, and compared with 1887 as much as 4,202 tons. Sweden, on the other hand,though extending dairying considerably has exported 1,102 tons less owing to increased home consumption through general manufacturing prosperity. The other countries most prominent in this increase are Australasia, Canada, and the United States. Ireland is doing her share in improved dairying, Centrifugal Creameries now number nearly 400 on the Danish system, and with the newest Swedish Separators, whilst the outpour of factory butters is assuming very large dimensions. Shipments at sea for next markets from Denmark and Sweden are cabled 19,066 casks, being 636 less than the previous week, and 1,966 fins, or 277 casks more. Cooler temperature begins to prevail with rain.

Margarine arrivals—*Via* Hull, 11,650 packages. *Via* Grimsby, 4,717 packages. DOWDALL BROS.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—To build, buy or rent creamery in good location. References furnished. ED. SEAMAN, Blue Mouud, Wis.

Wanted—A position by a first-class buttermaker and creamery manager. Twenty years' experience. Best of references. Married. Address C., care HOARD'S DAIRYMAN. 30-2

Wanted—A man with family, honest and industrious, to take charge of a 250-acre farm, well improved, with dairy attached, for an interest in profits. A fine opening for the right man. Must come well recommended. Good market for produce. Can sell any quantity of sweet milk at 20c gal., buttermilk 10c per gal., and butter 25c per pound. For particulars address J. O. THURSTON, Bartlett, Tenn.

Wanted—Married man to take charge of 25 cow dairy. S. READ, Bristol, Tenn. 30-2

Wanted—To rent to reliable person at once, herd with pasture and stables, 3 miles from Augusta, Ga. Address J. M. McKIS, Augusta, Ga.

For Sale—2nd hand U. S. cream separator, No. 5. G. W. SHAW, Allen's Falls, N. Y. 30-2

Keystone Corn Husker and Fodder Shredder for sale, in perfect repair, at greatly reduced price. Apply FONT GROVE FARM, near Slingerlands, Albany Co., N. Y.

1899 the Greatest of "Alpha" Disc Years.

For eight years past every year has been an "Alpha disc year in the sale of cream separators, their success being greater from year to year and greatest of all in 1899.

Beginning with a relatively small sale in 1890, the superiority of the "Alpha" disc system was so great as to achieve instant success. The sale in 1891 was double that of 1890 and the sale of "Alpha" disc machines has thus continued to virtually double itself from year to year, in the Factory and Dairy sizes combined.

The recognized supremacy of the "Alpha" disc system is now so great in Factory separators that the purchase of De Laval machines in 1899 has been almost universal, exceeding 95 per cent of the total sales in the West, and 85 per cent in the East. In the Farm or dairy sizes of machines the users of such separators have not yet come to so well understand the differences between separators, but are rapidly acquiring this knowledge from practical experience, and the same percentages nearly hold good, and within another year or two will undoubtedly do so.

Users of separators—whether big or little—have come to understand that **The "Alpha" Discs are literally the heart and soul of a perfect cream separator** and that the all around efficiency and general practicability of the "Alpha" disc machine is simply unapproachable by anything else that can be put together in the shape of a cream separator, regardless of price, clap-trap claims of would-be competitors and every other conceivable consideration.

The differences in principle and construction between the "Alpha" and other separators are fully illustrated and made plain to every one in the De Laval catalogues—Creamery or Dairy—which may be readily had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Wanted—A practical and reliable dairyman to take charge of my dairy farm, and will rent for a term of years to right party. Farm has all the modern improvements, consisting of 2 silos, stone floors (700 yds.), system of waterworks, brick creamery and a private market for all the butter at 25c in Sioux City. Cream separator and a market for cream. My farm of 200 acres lies 6¾ miles south of Sioux City, on the Missouri bottom lands. We have two cottages for help and can handle 40 cows with ease. I wish to rent as my children are too small to assist me in care of farm. A. J. WESTFALL, Sergeants Bluffs, Iowa. 30-2

Guernseys at Auction—I will sell at Public Auction on my farm near Fort Atkinson, Wis., on September 20th, commencing at 10 a. m., 32 head of high grade and registered Guernseys, consisting of 4 registered cows, 8 high grade cows, 10 two-year-old high grades, half coming fresh this fall, 10 grade calves from 1 month to 11 months old, 1 registered bull calf 6 months old, Springer Jr., No. 3926, the head of this herd, will also be sold. This is an excellent lot of well bred grades and full bloods and offers exceptional chance to secure good stock. GEO. D. TELFER. 30-2

Public Sale of High Grade Jerseys—I will sell on Sept. 14th, on my farm near Fort Atkinson, Wis., 32 head of high grade Jerseys, consisting of 26 milch cows, 6 two-year-old heifers and 1 full blood Jersey bull eligible to registry. This is a choice herd bred for butter producers, and offers buyers good chance for rare grade stock at their own prices. W. E. SOWLE.

Wanted—Married man and wife. Man must be thoroughly experienced in care, feeding and milking of high class Jersey cows and other stock, must understand separator and Babcock test. Woman must take charge of cream and dairy utensils and make butter. Must board themselves. Address BOX 173, North Greenfield, Wis. 25-5

For Sale—25 choice milch cows, 3 to 9 years of age, and 15 heifers aged from 15 to 20 months, all high grade Guernseys. Also a full-blood Guernsey bull 2 years old for sale. A. L. STRONG, Elkorn, Wis. 29 2

Wanted—to hire a good substantial and reliable farm hand. Middle aged and single. J. B. SHATTUCK, Cherry Creek, N. Y. 28-3

Wanted—Man to take charge of Jersey dairy farm. Prefer a married man from dairy school. Must be well recommended and a worker. I do the kid glove part. State wages. GEO. A. BUCKSTAFF, Oshkosh, Wis. 29-2

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Wanted—A competent person, with about $1,500, to buy an interest in and run an established dairy, adjoining the city of Baird, Texas. Interest to be only in live stock and dairy outfit and not in the land, of which there is 1000 acres, 200 acres in cultivation and 800 acres pasture, all of which will be rented reasonably. All improvements necessary for first-class dairy. Spring, spring-house, 400-ton silo, barns, corrals, etc. Regular sale for creamery butter, 25c year round; milk 20c per gal No other dairy. Address at once. W. C. POWELL, Baird, Tex. 29-3

For Sale—An almost new 16 inch Ohio feed cutter with 22 foot carrier. Used 10 days filling silo. Price $62 for outfit. Only reason for selling is we have a larger one of same make. GEO. C, HILL & SON, Rosendale, Wis. 29-2

Wanted—A thoroughly competent and experienced man to work on a dairy farm. Must understand care and feeding of dairy cows. Also must understand steam and care of separator and all modern dairy utensils. Graduate of some dairy school perferred. For particulars address A. J. DAUGHERTY, Streator, Ill. 29-tf

Wanted—Two married men of small family, to work on dairy farm Must be sober, willing and industrious and thorough milkers. Men whose wives will milk, perferred. Steady employment to right parties. Must board themselves. Address P. O. Box 173, North Greenfield, Wis. 29-2

Half Rates to State Fair at Milwaukee, Via the North-Western Line. Excursion tickets will be sold from all stations in Wisconsin and Michigan, September 9 to 15, inclusive, limited to September 16, at one fare for the round trip. Apply to agents Chicago & North-Western R'y. 29-2

Excursion Tickets to Milwaukee Industrial Exposition to be held September 2 to October 7, Via the North-Western Line, will be sold at reduced rates. For rates, dates of sale, limits, etc., apply to agents Chicago & North-Western R'y. 29-sp

To California, via the Midland Route.—Every Friday night, at 10:35 p. m., a through Tourist Car for San Francisco, carrying first and second-class passengers, leaves the Chicago, Milwaukee & St Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City (with stop-over privileges at Salt Lake City), for all points in Colorado, Utah, Nevada and California. The Tourist Car berth rate from Chicago to San Francisco is only $6.00, and the sleeping car berths should be reserved a few days in advance of departure of train. Through tickets and sleeping car accommodations can be secured from any agent in the east, or by applying at the Chicago, Milwaukee & St Paul Depot or City Ticket Offices in Chicago. Send for our free illustrated California folders. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill. 29-sp

Excursion Tickets to Carnival at Watertown, Wis., via the North-Western Line will be sold at reduced rates Sept. 13 to 15 inclusive. Apply to agents Chicago & North-Western Ry.

Excursion Tickets to Union Fair at Lodi, Wis., via the North-Western Line, will be sold at reduced rates, September 9 to 14, inclusive. limited to September 15. Apply to agents Chicago & North-Western Ry.

Excursion Tickets to Northern Illinois Fair at Freeport, via the North-Western Line, will be sold at reduced rates, September 11 to 15, inclusive, limited to September 16. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Milwaukee Industrial Exposition, to be held September 2 to October 7, via the North-Western Line, will be sold at reduced rates from all stations in Wisconsin and Michigan. For rates, dates of sale, limits, etc., apply to agents Chicago & North-Western R'y. 30-sp

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

INFORMATION WANTED.

It is impossible to get too much information regarding the breeding and testing of the dairy cow. Every year brings a new lot of dairymen, and, also, a new crop of calves, which should be fed, milked and bred in a manner to give the largest returns. In many cases the returns will be satisfactory; others, through want of the right kind of knowledge, have not made the success which they anticipated. From both classes much valuable information can be derived; to know where and how one has failed is as valuable, as to know why another was successful. We shall be glad, therefore, if a number of the readers of the DAIRYMAN, and the larger the better, would send us answers to the following questions, taking care to give their failures as well as successes:

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions. Do not worry about the style or grammar of your statement. Answer each question by number, and state your experience.

BUTTER AND CHEESE EXPORTS.

A marked increase in the exports of butter this season may, in some measure, be due to the efforts of Secretary Wilson, of the Agricultural Department, to improve the quality. But the principal reason is probably the decrease in the available supply from Denmark and other countries in Northern Europe. During July, 20,807 packages of butter were exported, as compared with 2,587 packages in July last year. But in the corresponding month of 1897 there were 36,042 packages exported. For the week ending last Saturday 35,125 packages were exported from Montreal, more in one week than the United States exports in a month. This is due to the bad reputation United States butter obtained in Europe by reason of the large exports of oleomargarine and other imitations as "real creamery butter."

There never was a better illustration of the wisdom of the old saying that "honesty is the best policy" than in the experience of the United States in the export trade in butter and cheese. Formerly we did a large export trade in these goods—many times greater than that of Canada. Now Canada greatly exceeds the United States in the exports of cheese, and sends abroad nearly as much butter, which sells for a higher price than butter from the United States. The United Kingdom imports 350,000,000 pounds of butter, of which not 5% comes from the United States. This country permitted imitation cheese and imitation butter to be exported as the genuine articles. European consumers soon found that they were swindled and refused to buy either cheese or butter from this country. As a result our export trade in those articles fell off to insignificant figures.

Canada would neither permit the manufacture nor export imitation butter or cheese. Hence our loss was Canada's gain. Her exports in cheese and butter increased in proportion as those of the United States declined. This result was not because she could produce better or cheaper butter and cheese, but for the reason that European consumers could be sure of getting the real articles when purchasing cheese and butter that came from Canada.

Congress legislated to some extent on the question when it was too late. Our exports of cheese this year are only about one-half what they were last year. It looks as though more stringent legislation was needed so far as the export trade is concerned.—*Philadelphia Press.*

It will be remembered in this connection, that the present effort of the dairymen and consumers of the United States to have Congress impose a tax of ten cents on all colored oleomargarine, is but another move in the direction of honesty and the imposing of additional burdens on fraud and dishonesty. The filled cheese law was carried through Congress by the efforts of Congressman Cook, of Wisconsin, backed by the earnest work of the National Dairy Union. As the *Press* says, it was too late to prevent the serious destruction to the reputation of American dairy products which had taken place, but it largely stopped its further disastrous work. The effort to impose a ten cent tax on oleomargarine is in line with the same good purpose. Let every farmer, dairyman and consumer hold up the hands of the National Dairy Union in this most righteous crusade against the colossal fraud and counterfeit of the age.

MAKING PURE MILK.

A "Milking Room" at Fairfield.

Mr. Francisco started twenty years ago, with an output of thirty-five quarts per day. There are now about 500 cows in the dairy, with a daily output of 4,000 quarts. To handle properly this army of cows and ocean of milk requires the labor of sixty men, who are organized into squads, each to do its regular work. The men who handle the horses are not permitted to go near the cows; the milkers must change their clothes and wash their hands before milking; the cows are carefully brushed and carded every day; in fact, every possible precaution is taken to insure absolutely clean and pure milk.

I went to the dairy on July 19th, with the Essex Co. (N. J.) Medical Society, to inspect a new contrivance—"the milking room." There were about seventy-five doctors present, all of whom were interested in securing pure and clean milk for their patients. Every good doctor knows what a large proportion of the people he treats, are at the mercy of the milk they drink. The drugs he uses must be pure and of standard strength or he cannot foretell their effect. The milk that feeds the children and invalids, must be free from harmful germs, or it will upset all his skill. The Essex Co. doctors keep an eye on the Fairfield Dairy, and many of their ideas and suggestions have been put into practice by Mr. Francisco.

The latest scheme is a "milking room." This is a light, airy room, built out from the main stable, with three sides open to sun and air. It contains places for twenty-four cows. The milkers stay in this room entirely. The cows are driven in and milked, and then driven back, while another squad take their places. Thus no milking is done where the cows eat and sleep, and the milk does not come near the bedding and manure. The milk is drawn into closed sanitary milk pails, which are wiped with a damp cloth before the milk is strained into the cans. The cans are carried on a steel cable, high in the air, to a distant milk house, where it is quickly cooled on a great Star cooler and at once bottled and packed in ice. From the cow to the cooler, few germs have a chance to get into the milk, and after that the low temperature has a very chilling effect on the few that do enter.—*Rural New-Yorker.*

Poultry Raising as a Profitable Side Issue.

We consider our poultry one of our greatest helps in bringing the profit side of our books upwards, instead of the reverse. However, we do not expect them to take care of themselves and then bring in a profit. We generally keep from 150 to 200 hens, and for that number of hens we have two good, warm, dry, roomy hen houses with large windows in each end so they can be kept well ventilated. These houses are thoroughly cleaned out every week or two. The roosts are taken out each time and painted with liquid lice exterminator to keep down lice and mites, the later being the worst enemy of poultry in this locality. Then lime is scattered plentifully over the floor and side walls and our hens enjoy a clean sleeping place. We have another house we call the setting hen house. This house is about ten by fourteen and without a floor, so we can place the boxes for the setting hen on the ground, thus getting more moisture for the eggs than when the hens sit on a board floor or in a high nest. When Mrs. Biddy gets broody we allow her to set about five days, then we prepare the box for her by first painting the inner sides and bottom with the lice exterminator, then put in enough fresh hay to make a comfortable nest, next put in the eggs and sprinkle them with Persian insect powder. After dark we get the hen and place her on the nest, then leave her alone; having previously provided her with kafir corn, water and a box with ashes and a little sulphur mixed as a dust bath. We attend to putting feed and water in this room about three times a week and the hen does the rest, bringing forth a nice brood of healthy little chicks free from lice. There is no trouble of turning off and feeding and then putting back and shutting up the hen. Anyone who tries the above will never set hens the old way again. We usually set from seven to nine hens in this room at one time. When the little chicks are hatched we give from fifteen to eighteen to one hen and turn part of the hens out to lay again, then we clean all the boxes and the ground and put in a fresh lot of biddies to set. For the hens and little chicks we use good sized dry goods boxes with slatted fronts made of lath. Near these we have a self feeder, as we call it, made of lath, and about five by six feet square and high enough to place on an upright box, fixed on the same plan as the self feeders used for hogs. This is kept full of kafir corn or other fine food for the little fellows and the hens cannot disturb them. We also keep a pan of fresh water convenient for them. We raise from 250 to 300 in this way with less work than many have in raising one hundred. In October we look over our old hens and select the nice, plump breasted ones and those we know to be the youngest to keep over for another year, for we think old hens will set sooner in the spring than pullets and also make better mothers. We look over the pullets and sell all inferior ones. In October the pullets are broken to sleep in the hen house by shutting them together with the hens, in the yard surrounding the house for a week, after that they will go in of their own accord. On stormy days they are kept in this yard also. We keep a plentiful supply of feed before them, giving kafir corn principally. We feed a warm mash every morning and give some tonic once a week to keep them healthy. We keep mostly Rose Comb Brown Leghorns with a few Langshans and other varieties.

Mrs. C. B. E., in *Prairie Farmer.*

On Milking.

It is not a paradox to say that there are several ways of milking cows. The best way is that which obtains the maximum quantity of milk. To this end, therefore, the dairy farmer is bound to regard the operation of milking as one of the greatest importance, and one which involves certain actions, all of them simple, some of which, to the man who does not understand cows, may even appear childish. As an instance, we may mention that the Normandy milkmaid is taught from her childhood always to sing softly to the cows she is milking. The object, of course, is to keep the animal in good humor, to induce her to forget that she is being milked, and—sensitive creature as she is—to prevent her from keeping back her milk. Indeed, the beneficial effect of music on the flow of milk is by many thought so great that we have heard an American dairy farmer seriously say that it would pay the owner of a large herd to employ a band to discourse sweet music during milking time.

Apart, however, from hypothetical considerations, there are others which should be always carefully followed. Remembering the fact that the mammary glands are particularly active during the actual period of milking, it is of importance that the act of milking be continuous, without intermission from the beginning to the end. Gently pressing the cow's flank with his head, the milkman should firmly grasp with his hands teats which are diagonally opposite. They should be grasped sufficiently high to slightly compress the udder. The motion of each hand should then be alternately upwards and downward. The milking should be slow at first, then gradually accelerated, until a quick motion has been attained which should be continued rythmically to the end of the flow of milk.

The importance of milking to dryness cannot be too strongly impressed, when it is remembered that the milk which is last drawn contains the largest proportions of butterfat.

A person who is not gentle to cows should never be allowed to milk them. Nor is their sensitiveness to be forgotten. The milkman who does not walk straight up to a cow in a field, but who makes a detour to reach her, is a man who fully appreciates the timidity of the dairy cow.

The foregoing considerations relate to the quantity of milk to be obtained. As regards the milk actually yielded, the most important factor is that of cleanliness, though it is the one perhaps the least considered. The milker should always wash his hands carefully, as well as the cow's teats, before milking. It is better also to waste the first few jets of milk which issue from the udder, and which may contain some deleterious bacteria, than to run the risk of spoiling the amount kept, by obtaining a slightly larger quantity of milk.—*Dairy World*, England.



GOOD WHEELS
MAKE A GOOD WAGON.
Unless a wagon has good wheels it is useless.
ELECTRIC STEEL WHEELS
are good wheels and they make a wagon last indefinitely. They are made high or low, any width of tire, to fit any skein. They can't get loose, rot or break down. They last always. Catalog free.
Electric Wheel Co., Box 130 Quincy, Ills.

Dark or White Shelled Eggs.

It has long been a pet theory on the part of those who happen to be the breeders and owners of birds producing dark shelled eggs that such eggs are richer and better in every sense than eggs having white shells. A set of experiments has recently been carried out by a thoroughly scientific analytical chemist to test the truth of this theory, and it turns out that if there is any natural difference the advantage rests with white shelled eggs; so away goes one strong reason for keeping Langshan fowls. These fowls lay the deepest tinted eggs of any fowls in existence. If they do lay a richer egg than any other fowl, it must spring from another cause, and that is concentration, as they lay the smallest eggs of all the large breeds of fowls. It is quite conceivable that it is possible that the smaller class of eggs laid by the larger fowls may be richer, but we have long held the opinion that the principal factor in giving the richness and pleasantness of eggs, is the food they eat, and from our own observation the very best flavored eggs are produced by fowls having a free run on heathery hillsides, and no doubt, the richness of the flavor is derived from the large amount of insects procurable. The inference, then, is that if you want richly flavored eggs you must take care that your fowls have a fair supply of sound, sweet flesh, for be it remembered that the bulk of animal food procured in the shape of insects is actually eaten alive, and so are perfectly sweet.

That the flavor of eggs can be sensibly affected by the food they eat is proved by the fact that eggs laid by fowls and ducks that have access to fish, lay eggs having a strongly fishy taste. We have no wish or intention of writing anything to injure the repute of the Langshan fowls or any other laying dark shelled eggs, as we confess to have a liking for dark shelled eggs, and we are yet in doubt as to whether an analysis can seize upon the most valuable property of a fresh egg —viz., its flavor. Whilst we, therefore, are prepared to adopt the accuracy of the chemist's deductions as to the actual feeding values of the different eggs, we are still inclined to the opinion that small, dark-shelled eggs are of richer flavor than the large white shelled ones, but we also believe that food has the most important part to play, and for the reason that the eggs of hens too freely fed on potatoes are liable to be very much lacking in richness of flavor. The plain lesson from these remarks (which remarks are based on facts) is that if you wish to have richly flavored eggs, you must feed rich and varied food, a fair amount of which shall be sweet, animal food.—*Scottish Farmer.*

Feeding the Pig for Pork.

What is a complete food for the pig, and will it pay to feed some wheat even when wheat is pretty high in price? If wheat is fed with corn meal the results are highly satisfactroy. Bran, because of its character of composition, is not a wholly desirable feed for pigs. Middlings may be fed with profit at any time during the hog's life. They are not only rich in protein and ash, but are what may be called a clean, smooth food, being free from the objectionable crude fiber which so prominently distinguishes bran. Barley is an excellent food, and will enable such sections as Northern Dakota and Montana to produce some of the best pork in the world. In these and other sections like them, barley and peas will make pork production profitable, if given the opportunity. Peas, as all understand, are a highly nitrogenous food, and when dry, should always be fed with some other grain.

There are some who do not appreciate the value of clover hay for swine. It is to be regretted that such appreciation is not universal. It is not only valuable because of its high merit as a feed, but because of the bulk that it furnishes. No growing animal should be fed exclusively upon the grains. Swine will eat dry clover hay with a relish, but the better way to feed it is to cut it up, steam it or pour hot water on it, and mix with meal. Pasture, if it is the right kind of pasture, is nearly an essential in profitable swine raising. It should be clover pasture, but if it is not, it must be composed of short and tender grass.

NEW 20th CENTURY

STYLES, CAPACITIES AND PRICES

OF THE LATEST IMPROVED

De Laval "Alpha" Cream Separators

"BABY" OR "DAIRY" SIZES.

SEPTEMBER FIRST marks the introduction of the Improved 20th Century "Baby" or "Dairy sizes and styles of "Alpha" De Laval Cream Separators. These improvements denote another advance in centrifugal cream separator construction and efficiency. Great as has been the universally conceded superiority of the De Laval machines heretofore, the standard is now raised still higher. As near practical perfection as have been the De Laval separators the past year, the latest improvements make them still better, until it is difficult to-day to perceive the possibilities of further improvement.

There has been a two-fold purpose upon the part of the De Laval makers in this respect. In the first place, they have had their skilled experts at work for three years to devise every conceivable means of bettering their machines, with which to fittingly celebrate the trade opening of the new century. Following precedent in the development of the De Laval machines no expense has been spared to this end. Nor has cost of production been considered in the determination of the makers to give the 20th Century purchasers of a De Laval separator as nearly perfect a machine for the purpose as twenty years of experience could devise and the finest shops of the kind in the world produce. That this result has been achieved will be instantly apparent to any one familiar with cream separators on *seeing* the new machines. And when it comes to *operating* one of them the previous user of separators will readily find that the 20th Century machines are in a class by themselves in efficiency and completeness, while the *longer* he uses one of them the greater will be his appreciation of its superior practicability and durability.

In the second place, while the sale of the De Laval machines has always been five times that of all others combined, it has been a problem with the De Laval makers for several years how best to so convincingly demonstrate the all-around greater merit of the "Alpha" machines to every intending buyer as to make their use as universal as the overwhelming superiority of the "Alpha" disc construction justifies it should be and must ultimately make it and thus lessen the temptation of the inexperienced buyer to take chances with one of the inferior and supposedly "cheaper" separators which the expiration of the original patents on the "hollow bowl" type of separator has led several former manufacturers of gravity creamers to take up and attempt to find a market for on their own account. This the De Laval makers confidently believe they have accomplished in the machines now launched upon the market. These machines are now advanced so far beyond everything else for the clarification of milk and the separation of cream from milk that they are simply unapproachable in principle except through infringement of the "Alpha" disc processes, and in mechanical construction and practical cheapness except through manufacture on as large a scale and with equal experience,—all of which, moreover, must be readily and convincingly apparent to any one with even the most casual consideration.

While furthermore, the American use of dairy cream separators is as yet in its infancy. Where there are five machines used in a locality to-day there will within five years be fully fifty. Within five years the home and farm use of centrifugal separators will be as universal as is their creamery or factory use to-day. Every one creaming milk for any purpose or in any quantity must use the centrifugal method when once really cognizant of its advantages. Within another five years every quart of milk marketed for human consumption will be first centrifugally clarified and purified by passing it through an "Alpha" disc machine, without utilizing the separation features. This is the assured future of the centrifugal cream separator, but preliminarily necessary to such broader sale are thoroughly pract cal machines for inexperienced home and farm use,—machines large in capacity and *easy of hand operation,* simple, durable, complete in finish and attachments, thoroughly efficient, and at same time reasonably low in price in proportion to resulting benefits. Such separators the De Laval makers present to the public in the new 20th Century machines—machines for everybody, that nobody can criticize and nobody ask for anything better or cheaper.

NEW 20th CENTURY MACHINES

Old Style "Hollow Bowl" Baby No. 1,	150 lbs.	capacity,	$ 50 00	Improved Iron-Stool Baby No. 2,	450 lbs.	capacity,	$125 00
Old Style "Strap" Humming-Bird,	175 lbs.	"	50 00	Improved High-Frame Baby No. 2,	450 lbs.	"	125 00
Improved "Crank" Humming-Bird,	225 lbs.	"	65 00	Improved High-Frame Baby No. 3,	850 lbs.	"	200 00
Improved Iron-Stool Baby No. 1,	325 lbs.	"	100 00	Improved Dairy Steam-Turbine,	850 lbs.	"	225 00

For complete details, cuts and general descriptive information relative to centrifugal separation generally, and the Improved Alpha "Baby" Separators particularly, see the De Laval "Dairy" catalogue, a copy of which may be had for the asking.

THE DE LAVAL SEPARATOR CO.,

WESTERN OFFICES:
Randolph & Canal Sts.,
CHICAGO.

GENERAL OFFICES:
74 Cortlandt Street,
NEW YORK.

BRANCH OFFICES:
1102 Arch Street,
PHILADELPHIA.

Lice on Poultry and How to Destroy Them.

It is mainly young birds that are affected by parasites; the adults, though greatly inconvenienced, feel the presence of the unbidden guests far less. Parasites are both internal and external; the external ones may be permanent or partial parasites; they may remain on their host or only go to their host at feeding time. Many parasites develop by means of a very complicated series of changes, which have to be passed in either two different hosts or in different parts of the same host. In the former case the knowledge of the parasite's life history may very materially help us to check its increase or to even stamp it out. With one exception in poultry, namely, the tapeworms, no such complicated life history exists, and with regard to these tapeworms we know little or nothing. The parasitic diseases of poultry may be grouped under two heads, namely:

1. Animal parasites.
2. Plant Parasites.

The former are far and away the most important, nevertheless fowls suffer very severely from one vegetable parasitic disease called "favus."

Of poultry parasites I regard the bird lice, scientifically called Mallophaga, as the most prejudicial, as they cause the greatest loss, both directly and indirectly, to poultry keepers. These lice, of which eight species are found on the fowl, four on the duck, five on the goose, and three on the turkey, are more or less permanently parasitic, but they may, in the case of certain species, leave their host and pass part of their time in the nests, but generally speaking they only leave their host to go to another individual. There is a very general idea that these lice pierce the skin of the bird and suck out the blood. No such thing.

These bird lice have a true biting mouth, by means of which they gnaw away at the so-called epidermal products of the skin, namely, the feathers, the base of the feathers, the scales, and the skin itself. Now, we must remember that the skin is very sensitive, and the result of this gnawing is to set up violent itching. This irritation, produced by bird lice, causes very considerable loss, in two distinct ways. Brood hens are very frequently covered by two species of these insect pests, which attach themselves very closely to their chest; and by a third species, which can be found wandering from bird to nest occasionally. This latter creature is the one that covers the hands when plucking a fowl.

These lice congregate under the wings and around the rump in particular, but the latter wanders all over the body. They set up constant irritation, an inflamed condition of the skin results, and thus the pruritus increases in extent and violence from day to day. The result is that the birds become restless, and I believe that a great percentage of failures in hatching are due to this cause. Secondly, I am convinced from experiment and from the numerous reports sent to me by fanciers and others, that certain lice prove very prejudicial to chicks. We frequently find a "tick-like" species attached to the head and necks of chicks and poults. These lice cause severe irritation to the tender skin, worry and annoy the chicks, stop them feeding, and although they do not actually suck the blood, they scrape so hard at the skin as to cause such serious pathological disturbances as weaken the system. The result is that the growth of the chick is hindered, and the individual never makes up for this check at the critical period of its development. Such few observations as I have made by comparing lousy and clean chicks, at the end of the year, fully bear out this point that many pratical men have noticed. Lice are also partly the cause of "feather eating," for a bird will often peck at the nits and lice on another bird and pull feathers out in so doing.

All observers abroad, and the few who have paid attention to this subject in England, are agreed that these wingless insects breed all the year round, but especially in the spring. The eggs are laid by the female on the feathers of the host, especially amongst the "down feathers," to which they are attached by numerous fine threads at their base. In from six to ten days they come forth as young lice, very like the adult, only paler in color, and at once commence to irritate the host. They gradually grow by a series of moults into the adult form. Some few may breed in the nest, but speaking generally, reproduction and development take place on the bird.

There are three distinct ways in which they are distributed from bird to bird—namely, by the cock, by detached specimens that may be found in the nest, and by certain two-winged flies that are parasitic on poultry. Dr. Sharp exhibited at the Entomological Society in 1890 one of these two-winged insects with several of these bird lice upon it. The pests are undoubtedly spread by the cock, and also to some extent from bird to bird, via the nests. The part played by the two-winged flies is not of much account although of interest. One, I fancy, connot be too careful in regard to a new cock in seeing that it is free from such and other pests, for I believe this to be one of the most fruitful sources of infection in such-like diseases. A thorough examination should be made of the bird before he is allowed to run with the hens, not wasted time, for it may possibly save much future inconvenience. Hens, of course, also carry lice.

Medical science teaches us that weakness and a debiliated constitution are often the precursors of disease. Just as with man so with our birds. Lice weaken the constitution and cause a general unhealthy condition, the result is that the patients are more liable to contract such fatal or troublesome maladies often appearing in epizootic form, as diphtheritic roup, gapes and chicken cholera. In every case of diphtheritic roup I have examined, lice swarmed over the bird, and the first stage of treating the patients is to rid them of these insect pests. Lice also prevents sick birds from recovering when out of health.

Lice can easily be checked, and I feel sure it is to every poultry breeder's advantage, whether he be a fancier or farmer, to take steps to do so. Dust baths should always be allowed, having some insectifuge mixed with the dust. Half dust and half gypsum, steeped in paraffin, is a good mixture for these natural baths of gallinaceous birds. Broody hens should always be treated previous to being placed on the eggs. A small quantity of mercurial ointment or white percipitate should be rubbed into the base of the feathers around the anus and under the wings, and other places where lice congregate. The nest box should be well disinfected, and lime placed on the floor, and pyrethrum sprinkled over the nesting material.

Young chicks, as soon as any signs of lice are seen, should all be dressed up the neck and head with this ointment—the smallest quantity only, as it is poisonous. Every fresh bird should be examined and cleaned before being allowed to run with the rest. Roosts must be kept scrupulously clean, especially the nests and perches. It is important that the houses should be well constructed, for when badly built the cracks and joints harbor countless pests, which may not be reached by any insecticide used. The fowl's worst enemy and greatest source of annoyance may then be checked, or even obliterated entirely.—F. V. THEOBALD, in *Farmer's Gazette*, Ireland.

The Schmidt Treatment for Milk Fever.

An account is given in the *Veterinary Record*, by Mr. Rowland G. Saunders, M. R. C. V. S., of the Colonial College, of his treatment of a case of milk fever under the Schmidt method. The following is Mr. Saunder's description of the case: "The subject was a fourteen-year-old Short-horn cow in good condition, and having the reputation of a good milker. She calved on Friday morning, June 16th, and at four p. m. on Saturday she was found showing partial paralysis of the hind limbs. She could only just walk, the feet being brought forward with great difficulty, while her quarters swayed to and fro in the characteristic manner. The eyes were staring and the pupils somewhat dilated. She kept much in this condition throughout the rest of the day, except that the paralysis became rather more pronounced. She went down and got up again with difficulty; and we left her standing the last thing that night. As we so often have cases of post-partum paralysis amongst our cows here, I did not feel convinced that this was going to develop into milk fever; so I delayed injecting the potassium iodide, and the last thing gave a drench containing a a pound of sulphate of magnesium and six drachms of aloes, as she had passed no fæces for some time previously. I was called at 5 a. m. Sunday and on going to the dairy I found her down, almost unconscious, with her head turned to the right side. Her ears and limbs were cold, respirations were slightly accelerated (32), the pulse was small and frequent (76), and the temperature 90.2, which latter symptom I regarded as a very unfavorable sign.

We immediately milked her dry and (after washing the udder with soap and warm water followed by a two per cent lysol solution) I proceeded to inject two drachms of potassium iodide dissolved in a pint of boiled water at the body temperature, a quarter into each teat. It was injected with an Arnold milk fever syringe, the air was admitted at the same time. The udder was afterwards hand rubbed, to equally distribute the solution throughout the gland. I did not consider it safe to drench her. We kept her as much as possible on her sternum or chest during the day by means of sacks of straw. A quantity of hard fæces was removed, salt enemata were given at intervals and the urine removed, there being a large amount on first passing the catheter. The pulse beats remained the same in frequency, although they became weaker.

By three p. m. I was disappointed to find that the temperature had fallen still further to 88.3. During my absence and against my strict injunctions, the attendant attempted to drench her, and succeeded in getting some gruel 'the wrong way.' Small quantities of milk were stripped from the udder at intervals. In the evening she was lying in the same position with her head to the right side, except that they had turned her over twice. A thin discharge was flowing from her nostrils. The rectum contained fæces softer in consistence. At times there were very fetid eructations of gas. At ten p. m. she seemed rather worse than better, and showed no sign of returning consciousness. I inject-

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Dry Weather here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned. **WINTERGREEN HILL FARM CO., Scottsville, N. Y.**

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ed another two drachms of the salt into the udder and left her well propped up with straw sacks for the night.

On Monday, ten a. m., she was still down, but was fast regaining consciousness. Tears were flowing from her eyes, and a rather thick discharge from the nostrils. Pulse, 68, rather stronger; respirations, 28, and temperature 99.4. At midday she was still improving, and on making an attempt almost got up. Throughout the day she had small doses of rectified spirit and spirit of ammonia in gruel every two hours. Small quantities of milk were taken from her at intervals. At nine p. m. she regained her feet, but looked very dull and sleepy. She was disinclined to move and when made to do so staggered a good deal. She ate a bran mash and drank a pail of water. On Tuesday she was still improving, although still showing much lassitude. At mid-day three pints of milk were stripped from her, and shortly after the calf was put back with her again; but she took little notice of it. On Wednesday she was quite convalescent, and was feeding well and giving almost her full quantity of milk. There was no sign of any abnormality of any part of the udder.

I am fully aware that it is extremely difficult to say that a particular cow would have died without a particular mode of treatment, as so many presenting very unfavorable symptoms from the first, make good recoveries with or without treatment, while, on the other hand, seemingly benign cases often disappoint us by terminating fatally. With milk fever we are unfortunate in the fact that up to the present we have failed to discover any symptoms which are of much use in arriving at a prognosis. I have brief notes of some eighteen cases that were treated with chloral, and with them the only symptom that I have found of any use whatever in forming a prognosis has been the temperature. Where a cow's temperature has fallen below 100 F. within a few hours after showing the first symptoms, I have invariably seen such a case terminate fatally. On the other hand, the opposite does not hold good, as a cow will in some cases die although during the whole of her illness the temperature has never dropped below 100°.

Of course, it is quite possible that a wider experience may disprove this, but be it as it may be, until I have proof to the contrary, I feel justified in attributing the recovery of a cow with a temperature below 100° to whatever treatment was adopted, and not to nature unaided. The above is the first case with such a low temperature that I have seen recover, and therefore I shall certainly use Schmidt's treatment for these cases in future, not neglecting other important points, as keeping the patient propped up on her sternum, taking the urine away, etc. I venture to think that when mammitis occurs as the result of the injection it is due more to uncleanliness of the syringe, or of the udder, than to the irritant effect of the potassium iodide.—*Agricultural Gazette*, Ireland.

The Thoroughbred the Farmer's Fowl.

It is with great pleasure that I hear every day of the increasing demand for thoroughbreds on our great poultry farms. I really believe that even our small farmers are waking up to the fact that a dunghill fowl is a poor investment. It has been a long row to hoe, but we may congratulate ourselves that the thoroughbred is winning its way, even with the most prejudiced. Of course this is greatly due to the improvement in our different money-making breeds. Such grand breeds as our Plymouth Rocks, Wyandottes and Brahmas are attractive enough to fascinate even the most skeptical. It is useless to announce to the expert breeders of these varieties what their good qualities are; on the contrary, we depend on these breeders to tell us of them. It is from such breeders that we learn of improvements in condition and laying qualities.

We hardly can expect the average farmer to try experiments with fowls. He has plenty of other work to do, and it is customary to leave the care of the hens to the good wife. It costs no more to feed a first-class fowl than it does to feed a dunghill, and the former will lay many more eggs than the latter. Does such a statement appeal to a farmer? Yes, it may, but he does not believe it to be a fact. To him a hen is a hen, and she is supposed to lay eggs. Occasionally he discovers that one hen is a better layer than another; yet I doubt very much whether he ever stops to consider why. The hardest task is to convince our farmer friend that a hen costing $1.50 can possibly be any better than one costing fifty cents. This latter is the price usually considered high enough for any hen.

It is through the laying quality alone of a thoroughbred that we must try to convince the farmer that it is better than a dunghill. Eggs, and plenty of them, appeal to him. He can produce a chicken and a plump rooster quite good enough for the market stall, from his dunghills, and at but little cost for feed and care. I doubt very much whether it would pay the average farmer to raise what are known as first-class broilers. It would take much of his time, and in order to put broilers on the market early enough to catch the highest price, he would be obliged to use incubators and set his eggs as early as December and January. To obtain fertile eggs so early means skillful and scientific breeding, which would take him out of the ordinary rut of the farmer and make him an expert. Setting eggs under a hen is more to his liking, and besides, the hens move along in their natural way and set when they become broody. His chicks mature to broiler age about August 1st, and this is early enough for him to realize a little profit.

The first step, therefore, towards inducing him to adopt thoroughbreds is through the increase in the egg-yield. If he can see that for no more expense in feed and care he can obtain more eggs from each hen, it is a convincing argument that they are better. Once having bought or acquired by trade, or in any other way having obtained some thoroughbreds, he must remember to keep them separated from the rest of his flock. The safest way to do this, and to be free from all anxiety, as to contamination from his common fowls, is to get rid of the latter entirely and keep nothing but thoroughbreds —so many mistakes have been made by farmers buying first-class thoroughbred hens and then letting them run at large with the rest of the flock.

This is a fatal error. It is the reverse of what is intended, for it improves slightly his common fowls and ruins his thoroughbreds in one season. Thoroughbreds must be kept pure. If a new male is desired for next year, he must of course be of the same breed and variety as the original stock. Barred Plymouth Rocks must be kept always Barred and not crossed by White or Buff, thinking that because they are all Plymouth Rocks it will do as well. This will probably sound absurd to breeders of these varieties, but it has been done frequently, and the farmers were perfectly ignorant that they had begun crossing in color. Of course it does not materially decrease the value of the breed as far as the flock is concerned, and it may not decrease the egg yield, as all Plymouth Rocks are good layers, but it may degenerate into careless crossing, which will soon reduce the thoroughbred to a dunghill.

Thoroughbreds, when from good laying strains, can be kept good layers only by careful attention. The eggs from the best layers, for example, those that lay first and continue the longest, should be given the preference for setting over those of others that lay later and stop earlier. Early and good layers will reproduce the same quality in their pullets. A strain kept in this manner for years, with the care necessary to keep them in good condition, will develop a prolific laying strain which will become of great value as money makers. Again, there is little value in a layer after her hen year. She will lay her best in pullet year and a little less in hen year; then she should be disposed of. If no other way presents itself, she will always bring a good price in the market as a dressed or live fowl.

It is in this very point of age that farmers make great mistakes. If a hen is considered a good layer, she usually becomes a pet and is kept on indefinitely, until she dies of old age or disease. Little do they stop to think that she is lay ng fewer and fewer eggs. The feed that she requires would keep a first-class layer, which would be a source of considerable income. It is in these small points of economy that money can be made. The thoroughbred is the farmers' fowl She is a producer and a money-maker, and she will stand good care and abuse equally well. She is worthy of the former and often gets the latter, but her blood and breeding stand her in good stead, and stamp her, through any and all conditions, the best of our domestic fowls.—*Country Gentleman.*

Skim Milk as a Food for Milch Cows.

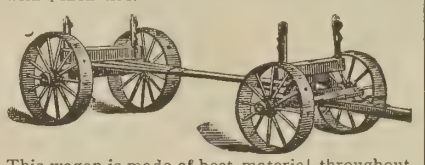
Mr. J. Lindstroem, a Swedish farmer, has conducted experiments with a view of utilizing skim milk as a food for milch cows. He recently gave an interesting account of his experiments and of the method of proceedure followed, in making the "skim milk food," the main features of which are given below. The milk is first pasteurized, or simply boiled, in order to kill all bacteria which it may contain. It is then cooled to 80°, and rennet is added. When the milk has coagulated, as much chaffed straw as there is curd is added. This mass is mixed in a tank or vat, and left for two or three hours. The whey not absorbed by the straw is run off, and the whole is left for forty-eight hours, when it will be fermented and ready to feed. It is stated that enough of this food may be fed to correspond to four kilos (8.8 lbs.) of whole milk per head per day, and this will replace about four and one-half pounds of ordinary grain food. The method appears to be simple and easily worked. No doubt, other coarse foods, also ground oats, etc., can be incorporated with the curd in the manner described.—*The Dairy*, England.

Food Value of Koumiss.

According to one authority; one and one-half gallon of mare's koumiss contains as much nutriment as a strong adult requires during one day. Many persons prefer skim milk koumiss—or koumys, as it is sometimes spelled. During the warm weather, when every one is inclined to drink freely, the use of koumiss is a wholesome and nutritious addition to our summer drinks.

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Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians
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Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

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Pigs 2 to 3 months old, both sexes, for sale.
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Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

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Alfalfa.—Its Cutting Time.—Its Feeding Value.

(Press Bulletin.)

For the past five years the Utah Experiment Station has been carrying on a line of investigation to determine at just what time in its growth alfalfa should be cut for best results, composition, annual yield per acre, and feeding value, all being taken into account. In connection with this work the feeding value of such well known roughage crops as timothy hay, corn fodder and red clover have been compared with that of alfalfa.

For this experiment a field of alfalfa was divided into three equal pieces; one being regularly cut when the first blooms appeared, the second when in full bloom, and the third when half the blossoms had fallen, these being denominated early, medium and late cuttings, respectively. Incidentally there was made a comparison of the first, second and third crops.

The details of this investigation are reported in Bulletin No. 61 of the Utah Station, a copy of which may be obtained by addressing the Director at Logan. Below are given the more important facts, together with the conclusions that may be legitimately drawn from the results:

1. The largest annual yield of hay per acre is obtained by the method of early cutting and the lowest by the late, the average result standing as follows: Early cutting, 100; medium, 92; and late, 85.

2. The early cut alfalfa contains the highest per cent of protein and fat, the most valuable food constituents, and the lowest per cent of crude fiber, the most indigestible portion. The former decrease constantly, while the latter increases rapidly from early bloom to the full maturity of the plant.

3. The proportionate amount of leaves to stems is greater at early bloom than at any subsequent time, and both leaves and stems contain a greater per cent of protein and a a less per cent of crude fiber at this time than at any later period in the growth of the plant. The relative proportion of leaves to stems in the different cuttings is as follows: Early, 42 to 58; medium, 40 to 60; late, 33 to 67.

4. Alfalfa leaves as compared with stems are very much richer in protein, fat and nitrogen-free extract, and they contain a much smaller proportion of crude fiber. The per cent of the protein and fat grows constantly less and that of the crude fiber greater from the time of early bloom to maturity. The average composition of all cuttings and crops shows the leaves to contain 150 per cent more protein than the stems, 300 per cent more fat, 35 per cent more nitrogen-free extract, and 256 per cent less crude fiber.

5. The more important nutrients, protein and fat, have the highest per cent of digestibility in the early cuttings, and it grows less and less with the age of the plant.

6. In the feeding tests, the highest gains were made from the early cuttings and the lowest from the late, the results standing proportionately as follows: Early cutting, 100; medium, 85; and late, 75.

7. The variation in the amount of the different cuttings eaten per day was very slight, being the highest for the early cutting and the lowest for the late, but the quantity of dry matter and also of digestible matter required for a pound of gain was decidedly lowest for the early cutting and highest for the late, the relative amounts of dry matter standing as follows: Early cutting, 100; medium 131; and late, 166.

8. The annual beef product per acre was largest from the early cuttings, not only in the general average, but in each separate season's test, and that from the late cuttings was smallest, the proportional products standing as follows: Early cutting, 100; medium, 79½; and late, 69½.

9. Taking all points of comparison into consideration, both separately and collectively, including everything that pertains to the largest yield and highest feeding value, the tests favor cutting alfalfa for cattle feeding when the first blooms appear.

CROP COMPARISON.

10. The first crop gave the largest yield in each of the five tests, and in fourteen out of the fifteen cuttings, while the third crop gave the lowest for every test, and in every cutting but one. The average acre yields for the five years, including all cuttings, stand in the following relation: First crop, 100; second, 78; third, 39. For the early cuttings alone, first crop, 100; second, 83; third, 66.

11. In the average composition of all cuttings for three years, the nutrients of the three crops vary but little. The second has slightly the highest per cent of protein and fiber; and the third the most fat and nitrogen free extract.

12. The third crop has the largest proportion of leaves to stems; but the per cent of protein in the leaves is highest in the second crop, and the next highest in the first. The leaves of the first crop contain the most fat, and of the second the least.

13. The third crop produced a higher average rate of gain in the feeding tests than the first or second and also higher than any of the separate cuttings. The amount eaten daily was also highest of all, but the dry matter and digestible matter for a pound of gain were the lowest. In a pound per pound comparison the gains stand as follows: First crop, 100; second, 81; third, 126; dry matter for a pound of gain, first crop, 100; second, 115; and third, 69.

14. The beef product per acre, taking the average result of all cuttings for the five years, was very much the highest for the first crop and decidedly the lowest for the third, standing as follows: First crop, 100; second, 61; and third, 45; But taking the early cuttings alone they stand, first crop, 100; second, 80; and third, 69.

15. Pound per pound, taken as a whole, the results show the highest feeding value for the third crop and the lowest for the second.

16. The average annual beef product from early cut alfalfa was 705.61 pounds per acre; it required 9,575 pounds of timothy to produce an equal weight; 11,967 pounds of red clover, and 10,083 pounds of shredded corn fodder.—*Utah Experiment Station.*

Crimson Clover Seed.

The use of crimson clover (*Trifolium incarnatum*) has increased to such an extent that it is now a standard crop in many parts of the Southern and Middle States. It is distinguished by its long head of brilliant scarlet blossoms and by the great depth to which its roots make their way. Wherever the winters are not too severe it thrives and is a valuable plant for soiling or for hay. It is a winter annual, the seed being sown any time from the middle of July to late fall in the Southern States. It grows throughout the milder weather in winter and quickly makes a dense cover to the ground in spring. This can be pastured, cut for hay, or turned under for green manure, or all three, depending upon conditions.

THE SEED.

The seed of crimson clover is larger than that of red or mammoth clover and is almost perfectly oval in shape. The fresh seed is of a bright, reddish yellow color and has a high polish. As the seed becomes older the color changes to a reddish brown, and eventually the polish is lost and the seed has a dull, dark reddish brown color. Such seed should never be purchased, as it is too old to grow well.

In general the seed of crimson clover is less liable to contain many weed seeds than the seed of other clovers. It is harvested before most of the weeds have matured their seed, and being planted in late summer or fall it tends to choke out what weeds may come up with the young plants. In some cases, however, it contains the seeds of serious weeds and farmers should be on their guard when purchasing. In a number of tests made at this laboratory the seeds of fifty weeds were found to be more or less fre-



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frequently present. Most of these occurred but seldom and then only a few seeds in a sample, but sorrel, yellow trefoil and mustard were found in seventy-two per cent of the samples. In the worst samples there were from 3,000 to 6,300 weed seeds per pound, while in one case there were 38,958 seeds of yellow trefoil per pound. The seeds of a species of geranium are not infrequently present. These are of about the size and shape of crimson clover seeds, but lack polish and are marked with fine pits, which are at once evident when the seed is examined with a low-power hand lens.

The most serious adulteration of crimson clover seed is that of Egyptian clover (*Trifolium Alexandrinum*). It is stated that this is not uncommon in European seed, but so far we have not observed it in American samples. The seeds of Egyptian clover are of the same size and color, but the form tends more to egg shape. There are deeper lines on the edge where the rootlet can be seen outlined on the seed. In crimson clover this edge is about as smooth as the back, but in Egyptian clover there is a marked depression on each side of the rootlet.

The worst weed that can possibly get into a clover field is dodder. The seeds being small are seldom found in crimson clover seed, but they may be present in poorly cleaned samples and a lookout should always be kept for them. The seeds of dodder are small and gray and look like minute lumps of clay.

GERMINATION.

While crimson clover seed is comparatively pure, its germination often leaves much to be desired. This seed deteriorates rapidly with age and fresh seed should always be demanded; nor should an assurance of its being fresh be sufficient, but a guarantee of a definite percentage of purity and germination should be demanded from dealers. Seedsmen always disclaim any warranty and as a rule they oppose a guarantee, but there is no reason why clover seed of all kinds should not be guaranteed. The purity can be accurately determined and a simple germination test is all that is needed to determine the vitality of a given sample. Dealers can readily make their own germination tests, as many do now, and there is no excuse for the carelessness of some who sell seeds as they would nails, without the least knowledge of their quality.

Consumers should not only insist on a guarantee, but should test the germination of their seed whether guaranteed or not. This can easily be done at home by anyone. A piece of moist cloth (flannel is best) is laid on a plate, the seeds placed between the folds of the cloth and a second plate inverted over the whole. A certain number of seeds, one hundred or two hundred should be carefully counted out, and the germinating ones removed, and counted as fast as they appear. Germination will begin on the second day, and good seed ought to sprout eighty to ninety per cent in three days.

The importance of the germination test can not be too strongly urged. If preferred, it may be made in the soil. In some respects this is a better test, showing not only how many seeds will produce sprouts, but, also, how many will produce plants. The vigor of the plants can also be noted. The soil test, however, requires more time, and is less convenient than the cloth test, and the latter will show the value of the seed, if note is taken of the number that sprout after the third day, and of those that make weak sprouts. Even though the percentage of germination during a ten-day test, comes up to eighty or ninety per cent, if germination is slow and the sprouts weak, the seed will not give satisfaction. Crimson clover seed germinates rapidly, and in most cases one or two days will be enough to determine whether the seed is fit for use.

Many of the failures with crimson clover are due to the use of old seed, which is sold at a low price. This is discolored, and will show poorer germination, than fresh seed and produce weaker plants. Even fresh seed may, however, be of poor quality. The seed of crimson clover is not easy to harvest. The plants require to be cut when the seed is hard and ripe, but not yet loosened from the plant. If wet weather follows cutting, or if the seed is not properly dried, it becomes discolored, and may begin to sprout. If it is then dried and germination is checked, the vitality of the seed may be seriously injured. It is, therefore, never enough to say that a given sample is fresh, but the consumer should insist upon a guarantee, and upon seed that will test eighty-five to ninety-five per cent. Two-thirds of the samples tested at this laboratory, have germinated more than ninety per cent.

AMOUNT OF SEED TO USE PER ACRE.

The amount of seed per acre varies under different conditions. From twelve to twenty-five pounds has been recommended, but in most cases fifteen to twenty pounds is about the quantity required. The amount needed will, of course, depend upon the quality; a sample that will give ninety per cent of strong sprouts, will go further than one germinating less than fifty per cent. Seed in the husk is sometimes used, and with good results in dry weather. When this is used, more seed is needed, say a bushel per acre. —Circular No. 18 U. S. Dep. Agriculture.

A Special Scholarship in Veterinary Science.

ED. HOARD'S DAIRYMAN:—The McKillip Veterinary College, Chicago, Ill., offers a junior scholarship in that institution, valued at $75.00, to the second year student in the Wisconsin Short Course in Agriculture showing the greatest degree of proficiency in the subject of veterinary science in the Department of Animal Husbandry.

The above generous offer will give the successful young man in the Short Course in agriculture an opportunity to become a veterinary surgeon with comparatively little cost.

In accordance with announcement in Short Course circular and elsewhere, the McKillip College accepts students who have completed the Short Course in Agriculture as juniors, thus enabling them to compete for the degree by attending two sessions. The winner of the scholarship will, therefore, be given the one year's credit on standings from the Short Course and have free tuition for one of the two remaining sessions. R. A. MOORE.

Results of a Sub-earth Duct.

Mr. George Hately, Secretary of the Cheese and Butter Association of Western Ontario, has received the following letter:

In reply to your request for information regarding to the sub-earth ducts which have been recently added to the curing rooms in my district, I submit the following report:

Caistorville—The sub-earth duct is completed and in operation. The duct is eight feet deep and extends 118 feet under ground. It is made of three rows of five-inch tile, two rows of six-inch tile and one row of eight-inch tile, all laid close together with the eight-inch tile in the middle; over the tile there is a covering of rye straw.

In digging the trench for the tile a spring was found near the factory. The water from the spring runs in the bottom of the trench for its entire length, which possibly somewhat increases the moisture in the curing room. The intake pipe is built with galvanized iron, fifteen inches in diameter, and thirty feet high, with cowel on top.

The outlet from the curing room is simply a hole in the ceiling on the opposite side to that at which the duct enters.

On the day on which I visited Caistorville the temperature on the outside in the shade was 85° F. Inside the curing room a strong breeze was coming in from the duct at a temperature of 60° F. The temperature of the curing room did not exceed, during the day, 69° F. The curing room at this factory is very poor. I am of the opinion that with a reasonably good curing room the temperature can easily be held at 65° F. The moisture of the curing room was from 80 to 82. There was no mold on the cheese.

At Woodburn, Caledonia and Canboro, sub-earth ducts have been put in, but were not ready when I visited these factories. On my next visit I will take careful note of the results with the sub-earth ducts and report to you thereon. JAMES MORRISON.

Exports of Butter.

Exports of butter this year have increased largely over those of last year. The total exports of butter to Europe from May first to August fifth, this year, have been 44,320 packages as against 26,341 packages for the same time last year. This increase is said to be due to the fact that there has been a material falling off in European markets of supplies from Denmark and other North European states. The dry weather that has prevailed in Europe, has caused a shortage of supplies, especially of the better grades. Over three-quarters of recent export purchases have been of creamery butter. It is believed that the export demand will continue strong enough to get rid of surplus butter and keep the home market in good condltion. Canadian producers have shared in this export movement to even a greater extent than Americans. Since May first the shipments were 163,381 packages as against 59,683 during the same pe iod of last year.

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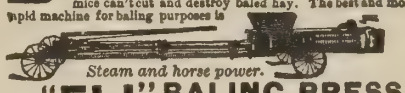


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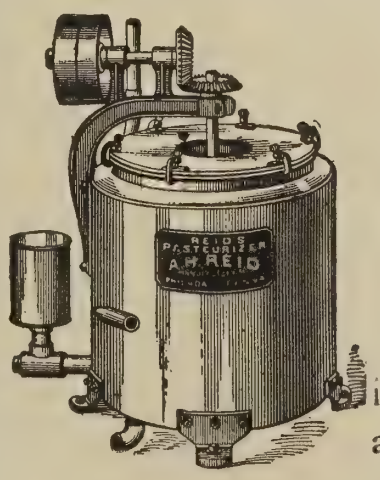
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Write for book about the best skimming machine made—the **Reid Long Spindle Separator** or for our new catalogue containing everything used in butter making.

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Winter Dairying.

Mr. John Benson, Buxton, Derbyshire, read the following paper on Winter Dairying, at the Irish Conference of the British Dairy Farmers' Association:

There are various opinions as to the best and most profitable way of feeding dairy cows in winter, as also on the treatment of milk intended for butter and cheese making. I do not propose, however, to consider the different systems of feeding or dairying, but rather to give a *resume* of the results of my experience in the management of a herd of dairy cows and feeding experiments conducted at the Midland Dairy Institute during the last four years.

These experiments were undertaken to ascertain which foods produced the best quality of butter, and other experiments were also carried out in the dairy on the treatment of milk intended for butter and cheese making, with the object of producing a good flavored butter or cheese, resembling, as far as possible, an article turned out during the best season of the year.

The crops grown on the farm, and used for feeding the cows were: hay, oats, straw, mangles, cabbages, and occasionally swedes. In all the experiments oat straw and hay formed—as, of course one or the other will always do—a major portion of the ration, and the experiments dealt chiefly with the effects of cabbage and root crops, and also of various artificial foods, meal and grain, on the production of milk and the quality of butter and cheese made therefrom.

In all these experiments, the hay was fed long, the straw chaffed and partially steamed, and the pulped roots and meal mixed with the chaff before being fed. The cakes were given as a separate meal.

The chaffing and partial cooking of the straw was found to have a decided advantage over the unsteamed straw, but too much steaming and cooking was found to do harm to the health of the cattle. During one winter the chaff was cooked thoroughly, till in fact it turned brown. The cows, however, were not so healthy. They seemed delicate and took cold quickly, and were difficult to keep in good condition, and the calves from these cows in spring were delicate and difficult to rear. The cows also seemed more liable to abortion. At the same time, the milk yield was very good, and, no doubt, thorough cooking of food would be an advantage where quantity of milk is the main object, and where the cows are sold off as they become dry, and replaced from time to time by others in full milk. Ours, however, was a breeding herd, the best young stock being reared for the dairy, and the cows only sold when they proved barren or otherwise unfitted for the dairy.

Of the roots and green food given to the cows, we found that swedes produced or tended to produce, a good supply of rich milk and butter of excellent quality; and, provided the milk was handled properly in the dairy, there was no taint of turnips in the produce, whether butter or cheese, and the butter made during the periods when swedes were fed in abundance was good flavored, of firm texture, and a nice color.

Cabbages we found not to produce a good butter. It was naturally pale, wanting in flavor and body, and the milk fed largely on this food was particularly liable to be tainted, and, as a rule, was poor in quality. The quantity yielded was very good, and there is no doubt that the cabbages form a valuable food when the production of milk for sale in towns is the main object. The taints in the milk were found to decrease considerably when this green food was given out in the grass fields, which fact points to external contamination of the milk.

Mangels, though undoubtedly an excellent food, and far superior to cabbage, do not produce a particularly good flavored butter—certainly not so good as that from swedes. The butter is extremely pale, requiring a large use of artificial coloring matter. The milk, however, is not so liable to be tainted as is the case where cabbages are fed in abundance.

Of the artificial food stuffs and meals there is nothing, in my opinion, so good as a linseed cake, poor in oil, and maize meal. Maize meal, when fed in conjunction with straw chaff, pulped roots, hay, and a little linseed cake, low in oil, was found to produce a quality of butter, leaving nothing to be desired. On the other hand, linseed cake, very rich in oil, undoubtedly tends to the production of an insipid and soft quality of butter, and when this rich cake was fed at the rate of four or five pounds daily, the butter produced was not equal in value, by two pence per pound, to that obtained when the cows were fed on a poorer linseed cake and maize, as in the above ration. Of course, as is well known, a rich linseed cake will improve the condition of the cow, but what we want is a good quality of fat in the milk, and not on the cow's back. Cotton cakes, whether decorticated or undecorticated, I consider are foods more suitable for summer than winter use. The quality of the butter from these foods is fair, but too firm and brittle. Its effects on cows giving milk and on their progeny, when fed in large quantities in winter, is disastrous. It is all very well to say that analysis points it out to be a food quite as valuable as linseed cake, but we require palatability and safety in food stuffs besides mere quality. Bean meal, when fed in moderation, and oats, are, no doubt, splendid foods for butter and cheese production, but we found, as a rule, that when a fair price was obtainable, it was better to sell these food stuffs and replace with maize and linseed cake. At present prices, and taking weight and feeding value into consideration, better value can be obtained by selling oats and beans, and replacing with maize and linseed cakes.

Where butter and cheese production are the main objects in a dairy, wet brewers' grains should be avoided. Brewers' grains in the wet state are most detrimental to the quality of manufactured dairy products, and in making contracts for milk it has been my practice to stipulate that these be not used under any condition whatever. No doubt for the production of a large quantity of milk they are valuable and extensively used, but when such milk has to be worked up into butter and cheese the results are most unsatisfactory. Wet brewers' grains when fed in even moderate quantities produce a milk which is unstable and acidifies quickly. The return both as to quality and yield of butter and cheese is most disappointing. Dried grains, however, are no doubt a good deal superior to the wet grains, and are valuable for mixing with chaff, as they improve the appetite of cows and act medicinally. When fed alone, however, I find that many cows will not touch them, and even those cows which take to them well at first will refuse to eat them if the feeding is continued for a lengthened period.

There are other cakes, meals, etc., which are used to a certain extent by dairy farmers, but as I have dealt with the foods principally in use and have not had much experience of the others I shall proceed to remark upon the treatment of milk in the dairy.

In milk a few hours old many different types of bacteria may be found. Some may be favorable to the quality of the butter and cheese produced, while a large number act deleteriously towards these products. During the winter months these latter classes of bacteria abound, and, especially from November to February, we have a condition of things which is not at all favorable to the manufacture of the best quality of butter and cheese. The cows are, as a rule, kept in close sheds, and external contamination results. How to overcome these difficulties is a matter of importance to the dairyman. The lactic acid bacteria, which are, no doubt, essential to a good flavor, seem to develop very slowly during the winter months, allowing undesirable bacteria to gain the ascendancy. We constantly find in dairies where milk and cream are untreated during winter that bad flavors and undesirable qualities in the produce abound, which lessens greatly the market value of these products. The object of the dairyman, therefore, should be to so treat his milk or cream as to make it a suitable medium for the growth of desirable bacteria. Of course, as I have mentioned before, the food of the cow will exert a great influence on quality and flavor, but if milk is carelessly handled, no matter how good it may have been when first drawn, the butter, etc., obtained will be of low grade and the market value decreased.

When butter is made on the farm, the milk should be separated as quickly as possible, and while still retaining its animal heat. I am aware, however, that this is often impossible with evening's milk, which, as a rule, is kept till morning, re-heated and separated along with the morning's milk. The correct treatment of the evening's milk, therefore, deserves attention. It is essential that where milk is kept overnight, it should at once be passed over a refrigerator or otherwise quickly cooled. Nothing tends so much to produce undesirable flavor in milk as a slow or retarded cooling. I have invariably found that in farms where the evening's milk has been poured into the churns or receivers and allowed to cool gradually during the night, the flavor of butter made from such untreated milk was vile, and a great amount of after treatment was required to make butter from it which would be at all passable.

I do not consider pasteurization necessary when butter is made on the farm premises, provided attention is given the evening's milk as before described. I should, however, recommend that the cream be cooled to 70° or 75° F. immediately after separation, and a starter used to ripen the cream. This starter may be a preparation made from a pure culture, such as Hansen's, or, preferably, a quantity of clear sour buttermilk kept from a previous day's churning, and added at the rate of about two per cent, may be used. Where churning takes place only once or twice each week I find it best to add a smaller amount of starter to the first lot of cream put into the cream vessel, and as each lot is added to stir the bulk carefully. Often, however, a good flavor is not obtainable on a particular farm. The necessary bacteria may be absent. Under these conditions I have found it best to procure a little sour cream or buttermilk from a dairy noted for the quality of its butter. To get the best results it is necessary to at first take a quantity of separated milk and heat this to 150° F., cool down quickly to 90° F., and then add the sour cream or buttermilk. The mixture is allowed to cool slowly, and acidification should take place at a comparatively low temperature, or the resulting starter will be gritty and coarse. It is necessary to strain this starter before adding to cream.

It will easily be seen that by working on this method the desirable ferments will be introduced into cream, and that afterwards a correct flavor can be retained by using the sour buttermilk for future churnings, or a preparation can be made from day to day by inoculating pasteurized milk from the original starter.—*Agricultural Gazette*, Ireland.

The Hog Packers Want.

No animal has done more to lift mortgages and convert cheap farm products into ready money than the hog. He will grow and give a pretty good account of himself, even if treated upon the "root hog or die" plan, and yet no animal responds more quickly to careful, intelligent and common sense treatment. Through over refinement in breeding, or injudicious use of too concentrated or improper food, he sometimes comes to grief and rushes pell-mell over the cliff into the sea of hog cholera, as it were, as if he was really possessed with evil spirits, but with whatever shortcomings he may have, he is truly one of the best and most available money makers for the average farmer. For that reason a careful study of the hog and his treatment is well worth while. Mr. Louis Smith writes: The plan of the editor of the *National Rural* and *Family Magazine* to bring this matter to the attention of farmers is commendable, and I am glad to answer as best I may his practical questions as to the best and most profitable conditions for marketing this valuable food animal. In answering the question: "What weight of hog usually commands the highest prices, and why?" I should say from 175 to 250 pounds. Such hogs yield a larger percentage of high priced meat—they are not too fat. In a general way this answer will also apply equally well to the question: "What weight of hog is in greatest demand by packers, and why?" Although there are times when special cuts are wanted, or for instance, when lard is scarce and high, that heavier and fatter hogs will command a premium. Then again, there is always a demand for 170 to 190 pound hogs, suitable for making the best bacon. Such hogs sell at top prices even when the general average weights are running heavy.

A most affirmative yes can be given to the question: "In buying hogs, do you inquire how they have been fed, or upon what kind of food; and does the kind of food upon which they have been fatted affect the price, other things being equal? Wheat or corn-fed hogs bring the best prices. Hogs fed on soft food are discriminated against, and those fed only upon nuts and mast are oily and undesirable. In replying to the question: "What breed of hogs do you prefer, if you have any preference, and why?" will state that Swift & Co. prefer Berkshires and Poland-Chinas because they yield the largest percentage of high-priced products. On the other hand the Yorkshires and Tamworths are more favorably regarded in Canada and abroad, where the English bacon trade is catered to. The question: "Have you any preference as between the black and white hog? If so, why?" has an element of business sentiment back of it. Butchers who purchase whole carcasses prefer white hogs; they are more attractive for display. But for packing purposes no preference is shown. The black hog is as desirable as the white animal. The question: "Is there a sufficient demand for the bacon hog, such as is produced in Canada, Ireland or Denmark for the English market, to warrant an increase in the production of such hogs by the American farmers?" calls for a more extended answer. There is a sufficient demand for bacon hogs.

The English market each year uses a large and increasing amount of a superior quality of bacon. In the main it is supplied by home-curing and by importations from Ireland, Denmark and Canada. This bacon cannot be made from the ordinary American type of hog, nor can it be made from light hogs, young or otherwise, of the breeds we have in general use. Light hogs, of course, make light bacon, and there is occasionally a demand for light bacon that makes light hogs sell at a premium, but it must not be supposed that these light hogs are made into the class of bacon that the English market wants at fancy prices. If our farmers would produce a bacon-type of hog, using those breeds that furnish this product in Ireland, Denmark, or Canada, and what is still more important, feed and breed for bacon, they could produce it at a profit and still at a price which would enable American packers to supply the fine bacon to the English market. For such a type of hog the packer could and would pay a higher price

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OVER EIGHT HUNDRED DOLLARS IS OFFERED IN PREMIUMS FOR DAIRY PRODUCTS AT THE

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Each exhibitor will receive a score card, showing the score, with all defects found written thereon, in a sealed envelope. All exhibitors should send 60 lbs. Creamery Butter, 8 lbs. Dairy, and 6 lbs. of Prints. Cheese should be, Cheddar, 1 box, 60 lbs; Twins, Flats, or Daisies, 1 box, two in a box; Young America, 1 cheese not less than 8 lbs.; Brick and Swiss Cheese, 60 lbs., just as prepared for market. **Butter and Cheese** will be kept in **glass refrigerator** and **re-shipped or sold** the next day after the Fair closes, according to direction received. Write name and address on **bottom** of each package, to save mistakes.

Make all entries with Secretary at Madison, Wis. **J. W. THOMAS, Supt.**

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HOARD'S DAIRYMAN and Ohio Farmer, both one year	$ 1 50
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HOARD'S DAIRYMAN and Orange Judd Farmer both one year	1 75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2 25

than for the ordinary hog. A good deal of misapprehension on this point exists because light hogs do not always command a premium. As before shown, the fact that a hog is light is not evidence that he will make the high-grade bacon wanted. In fact, light hogs such as we get now, are used simply to make light bacon for ordinary use, and such bacon does not always command any premium over the heavier sorts. When it does the the packers pay more for this class of hogs; when it does not they pay less, because the balance of the hog is less profitable. Another point to be understood is that no packer can afford to undertake to supply any special grade of meat unless he is sure that he can secure a steady and sufficient supply of raw material. Unless there are enough bacon hogs to insure this sufficient supply it is not reasonable to expect them to command the price they would if the packer knew it was safe to notify his customers abroad that he would furnish them the bacon wanted in any quantity and for delivery at any forward time named. When asked whether "the bacon hog can be as profitably or more profitably produced by farmers in the corn belt than the common American hog?" I can only answer that this is a question depending altogether upon local conditions. The man who fattens his hogs as part of his cattle-feeding, using them to utilize the droppings, cannot grow a bacon-hog at all.

Whenever the daily receipts show a satisfactory percentage of true bacon hogs they will command a substantial premium. The question of whether that premium will be enough to offset increased cost of production will be settled by each individual for himself. We believe that the man who devotes his attention intelligently to the production of the bacon hog will get more money for his work than the ordinary hog raiser. The question of the corn belt cuts little figure, as an exclusive corn feed will not make the quality of meat wanted. Corn can be only one element in the food. The Canadians use largely peas, barley, oats, wheat bran and shorts. The need is for a food that will form a large percentage of lean meat, and corn furnishes fat and heat. The question, "From your experience as packers and marketers of pork, what suggestions have you to make to the hog raisers as to what is the most desirable hog for market and how should it be made?" is most important. I advise farmers to market younger hogs—hogs that mature at about six months of age, and weigh from 175 to 250 pounds. A painstaking, successful Iowa farmer, who aims to mature and market his hogs at six to seven months, weighing 220 to 230 pounds, says experience has taught him that with corn worth 25 cents per bushel, the first one hundred pounds of hog cost him $2, the second, $2.75, the third, $3.50, and the last hundred pounds of a 400-pound hog, $4.25. This in view of the fact that, as a rule, the 175 to 230-pound hogs are in best demand, and consequently sell at best prices, added to the tied-up capital and greater danger from disease, by holding hogs to make them heavier, makes a powerful argument for early maturity. If a feeder had unfinished cattle, and could not replace his 230-pound hogs with shoats, it might pay to hold longer; but circumstances always alter cases. As a rule, Americans seem to lack confidence in their ability to produce the best. It is not so with people in some other countries. In England nothing ever quite equals home productions. They pay more per pound for home grown beef than for American beef, but only when the latter is labeled. Sold strictly on its merit as beef, the American product always wins its way with the best judges, and I think it will be so with our hog products. If our farmers were in Canada, it would be wise for them to do as the Canadians do, and vice versa. We must work out our own problems in our own way. We believe that American farmers can make the most money, and produce the finest hogs in the world, by using, say, the bone and muscle-making grains upon grass until the pig weighs about seventy-five pounds, and then carefully bringing him to early maturity on good, sound Indian corn.—*Prairie Farmer.*

The Right Spirit.

Commenting on the conspiracy to override law which the oleo makers have engaged in everywhere, the Mankato, Minn., *Review*, says:

The State Dairy and Food Department does not let up a minute in its determined efforts for protection of the dairy interests and producers of food articles. The fourteen manufacturers of oleomargarine, backed by $46,000,000 of trust money, have doubled their product within the last year, tons on tons of which come into this state to rob the farmer and dairyman. The Department is relentlessly pursuing the adulterators of lard, with the determination, if possible, to drive every pound of the bogus stuff out of Minnesota. There is not a great corporation operating this stuff in the state but has been proceeded against. Oleo and bogus lard have got to go.

There is a vast difference in the quality of pork. Some is sweet, tender and juicy. Some is directly the reverse. Feed is largely responsible for this difference. In experiments, conducted for the purpose of determining the influence of food on the quality of pork, it has been found that milk, corn, barley, oats and peas produce the most solid and best flavored meat. Potatoes produce a soft pork. By-products of the flour mill make an inferior pork. Oil meals produce pork that is oily and of poor flavor. The meat made from feeding beans is without flavor, and hard and indigestible. Acorns do not make good pork.—*The Epitomist.*

CONCERNING OUR ADVERTISERS.

IN A NEW FIELD.

The Sharples Company, manufacturers and dealers in Cream Separators and all kinds of Creamery Machinery, is now located at Nos. 28, 30 and 32 South Canal Street, Chicago, Ill.

Realizing the advantages of a central location near to and in direct communication with all the dairying regions of the Ohio, Mississippi and Missouri valleys, the Sharples Company has established a western office, salesroom and warehouse at the above location.

The office is commodious and suitably appointed for the use of the manager and his assistants. The salesroom is well adapted to the exhibition of all kinds of machinery and fixtures used in dairies, creameries and factories. The store room furnishes ample storage for a large stock of separators, churns and creamery machinery. In the rear is established a machine shop for refitting and repairing dairy and creamery machinery and fixtures. The company is prepared to attend to the wants of their patrons, old and new, with their usual promptness and fidelity.

Mr. P. M. Sharples, the largest manufacturer of cream separators in the United States, is president of the Sharples company.

Mr. A. W. Rockwell, the secretary and treasurer, is favorably known throughout the dairying regions of the Northwest, having been for many years manager of the P. M. Sharples branch house in Omaha. Mr. Rockwell, as manager of the Sharples company, hopes to continue the pleasant business relation established with all his former patrons and also to make many new friends in this new and promising field.

It is the storm beaten fodder that is left uneaten, and it is the loss of this fodder that compels the farmer to feed his hay. The loss of corn fodder is a waste of a portion of the corn crop. As the fodder when properly preserved is nearly equal in value to the grain, no farmer can afford to allow his fodder to be wasted.—*Farm Notes in Philadelphia Record.*

Information of value, relative to the cutting, shredding and crushing of corn fodder, and the best means of feeding, is given in a pamphlet issued by Heebner & Sons, Lansdale, Pa., and will be sent free on application to all who read HOARD'S DAIRYMAN.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

BRONCHITIS.—SORE EYES.

For three years I have had trouble with my calves. They come all right, and some of them do well all the way through, while some of them take a heavy hacking cough and rattle in the throat, while drinking and all through the day. They hold their heads low while coughing, and seem to have fever, as they can't stand sunshine at all. The disease is on the increase, as some of our cows have the same old heavy cough, but seem healthy otherwise.

I also have some cows and calves that have sore eyes (this too seems to be running through my herd); their eyelids swell up and look like what we call pink eye in horses; it usually lasts about ten days. L. W.

Ardmore, I. T.

ANSWER.

No. 1—Looks much like verminous bronchitis. This is also called hoose, husk and half a dozen local names. This disease is usually contracted by calves from two weeks to three months old which run in wet, damp pastures, or in a pasture where old cows graze. Separate the affected at once and keep in a dry, shady place. Feed of the best and most nutritious food, any of the oil cakes or oil meal, roots of any kind, carrots being the best. Put the calves into a closed room and burn and fumigate with flour of sulphur thrown upon a hot piece of iron, live coals of charcoal, for twenty minutes, not more, and see they are not too much affected. If they are, give them a little fresh air and stop fumigation. Give common table salt, one tablespoonful, or oil of turpentine, one tablespoonful, in milk, to be violently shaken before giving. Give each day, gentian, ginger and sulphate of iron, equal parts, half an ounce to three months' old calves. Less for younger ones, of course. Mix these thoroughly; each day for two to three days.

PERHAPS TUBERCULOSIS.

I have a cow that is stiff in her hind part and bunches are growing out on outside her hind legs below the stifle joint. She is getting very poor. Can it be from going into the water, as my pasture is along a river and the cows very frequently cross the river? The cow freshened about two months ago.

Camp Douglas, Wis. H. C. H.

ANSWER.

I don't like your symptoms at all. I am seriously in the belief you have a case of tuberculosis, and would advise you to get the state veterinarian to examine the cow. I would not use the milk. I don't think it is fit for use.

MANGE IN CATS.

Some time ago wrote the veterinarian this question: What can I do for my ailing cats? They have the mange. He read it cows and replied accordingly. Now, Mr. Doctor, this is a serious thing with us. Our cats are almost as necessary as the cows, but they keep dying or we have to kill them, get scabs, itch. Have tried a drug store preparation of vaseline, tar, sulphur and other things, but it is so hard to apply. Any suggestions you my offer will be very thankfully received.

Greenville, Pa. R. E. K.

ANSWER.

Dipping in a tan pit and then washing immediately in clean water, has cured many dogs of scabs, etc. Chloride of lime, one ounce, pure lard, or lard oil, 12 ounces, thoroughly mix and rub in all the scabs, every other day for three dressings, if needed.

RHEUMATISM.

My neighbor has three cows that have taken sick in the last two weeks. They get lame in the hind legs and their udders get caked and they dry up. The first one that got sick has lost the two hind teats, that is, they will give no milk; the second one is getting better and the last one is very bad; she chills bad and is not able to get up, and her water is just like blood. T. J.

Boaz, Wis.

ANSWER.

You tell what is wrong yourself. The cause in your case I know not. There are many causes for the conditions named. Almost anything that unbalances the general or local system is a cause. The teats are the effect of the disease; the symptoms point to several forms of disease; they will come O. K. when the cause is removed, no doubt. I believe rheumatism is the disease. Rub hard, three times the first day, and twice a day afterward, until the lameness is entirely gone, with oil of cedar, four ozs., four ffs. ammonia, two ozs., fish oil six ozs.; shake hard. Then find the cause and remove it. If you can, internally give two drams of prickly ash and half a dram of stramonium in two ozs. old whisky and four ozs. of water; on the fourth day give sharp dose of physic, then repeat the internal medicine for four days, and then physic dose No. 2. Keep dry, good exercise in the sun.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

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AFTER HARVEST, FENCING.



Now that your crops are all in, you will have time to attend to that fencing. The best farm fence you know, is THE ADVANCE FENCE. It's the one that is sold direct to the farmer at wholesale prices. Nobody can buy it cheaper than you can. Entirely interwoven. No loose ends. Circulars and special discounts free.

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SWAMP-ROOT Is not recommended for everything; but if you have kindey, liver or bladder trouble it will be found just the remedy you need. At druggists in fifty cent and dollar sizes. You may have a sample bottle of this wonderful new discovery by mail free. also pamphlet telling all about it and its great cures Address, Dr. Kilmer & Co., Binghampton, N. Y.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

MILK FEVER AND GARGET

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CURES EVERY TIME. Breeders will save their best cows by having this remedy on hand for instant use. Necessary apparatus, medicine and full directions for treatment of two cases mailed for $2.

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Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

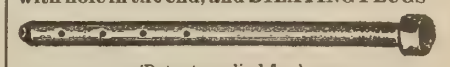
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

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PAGE THE SUCCESS

of **Page** Fence is not in doubt. Over 500,000 farmers are using it, and telling their neighbors to use it.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

A Year's Record With a Scrub Cow.

[*Press Bulletin.*]

The best cow owned by the Kansas Agricultural College gave last year 9116 pounds of milk and 383.7 pounds of butter fat; value of products for the year was $73.17. For the best month last year she gave 977 pounds of milk and 37.12 pounds of butter fat. For the first month of this year her milk yield was 1250 pounds, which made 44.89 pounds of butter fat. This is an improvement over her best month last year of 273 pounds of milk and 7.77 pounds of butter fat, or 21%. Such gains show what can be done by feed and care, and if the farmers will pay more attention to this part of the work, they will realize more from their cows.

J. A. CONOVER,
Kansas Experiment Station.

What Does Milk Cost?

There is probably no farming question as to which there is so wide disagreement among farmers, as there is about the cost of milk.

It undoubtedly costs more in winter than it does in summer, and this was especially true under the old-time system of feeding on dry hay and cornstalks, with sometimes a little grain for variety, which, however, usually went to make fat on the body rather than to increase the milk flow. There was no inducement in those days to have cows calve in the fall, for the fresh flow came at a season when it was almost impossible to keep it up. Milk is always dearer in winter than in summer, but under these conditions the slightly increased price did not pay the extra cost, and all the winter-made milk had to be sold at a loss.

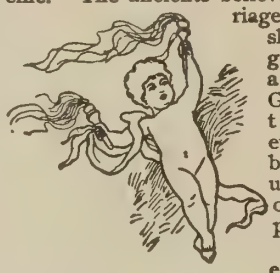
Now, however, a farmer who has a basement barn and silos to ensilage his corn fodder, can have cows drop their calves in the fall with some confidence that the winter product will pay its cost. Corn fodder is so much cheaper than is pasture on high priced land, that if it can be given in succulent form and if cows can be protected from winter's cold, the winter's milk does not cost any more than that made in summer, where the main dependence is on pasture. We believe that good pasture in June will bring more milk from a new milk cow than will any other feed. But that is not saying that even then it is the cheaper feed. It must be remembered also that June pasture fills out only a small part of the summer.

The grass is sappy and innutritious in May, and by July or August it either grows hard and woody or dries up so that cows will not eat so much of it, and what they do eat will not make so much milk. So great is the need of extra feed for cows at this time that corn drilled for fodder is often cut before it has even got into blossom, and when it, of course, has very little nutrition. So soon as corn matures sufficiently, it will furnish a ration that will materially increase the milk flow of cows at pasture. Indeed, many of the best farmers put their cows in darkened stables during August heats, partly to protect them from flies. They find that entire reliance on soiling with green corn or with clover makes a larger milk flow and makes it more cheaply than does reliance on pasture, even when corn is cut and fed daily as an adjunct to it.

This, we think, pretty nearly proves that, considering results, the winter feed of cows costs less than it does while they are at pasture. Most farmers deceive themselves into thinking that their summer pasture costs nothing, because they expend neither money nor labor to secure its product. The cow is turned in, eating with one mouth, but all the time trampling the tender grass with four feet, soiling the grass, besides more or less bruising it and injuring its roots. If the pasture is clover, this injury is so serious that stock ought never to be turned into a clover field until it is nearly ready to blossom. Until this time, clover is about the poorest feed that can be offered to a cow. But turn a cow into a field of clover when it is in blossom, and what will be the result? She will trample through it, biting off the clover heads and soiling or destroying fully twice as much as she eats. If the same clover is cut and fed green to the cow, she cannot separate the heads from the stem so well and will eat the whole of it. In this way three times as much feed will be got from an acre of clover as can be secured by pasturing. Some of the clover will be soiled so that the cow will not touch it through the remainder of the season.

Every farmer who has pastured clover knows that toward fall, while most of the clover will be eaten down almost to the roots, there will be a considerable portion that has grown hard and woody, so that it has little nutritive value. When the clover is eaten off early, the second growth promptly springs up and is both palatable and nutritious. That is what grows up after the first crop has been cut for soiling or for hay. A second, third and even fourth crop of clover may be grown if the soil is rich enough, and each one will be more nutritious than the first. This repeated cutting of clover is far better for the root growth than pasturing it can be, for in pasturing, the constant trampling of the ground hurts the plant and lessens both its roots and top growth. In short, clover will usually produce, not only three times as much feed when cut with a scythe or mower, as when pastured, but it is nearly or quite three times as much benefit to the land. When the clover is cut, more or less leaves fall upon the soil, and it is the rotting of these that doubles and trebles the growth that the clover would otherwise make. The cow returns only the excrement from the clover she eats, but that is not in condition to help the clover growth materially the same season.—*Boston Cultivator.*

In the mythology of Ancient Greece Hymen, the god of marriage, was the half brother of Esculapius, the god of medicine. The ancients believed that marriage and health should go together, and as a result the Greeks of that time have ever since been looked upon as types of physical perfection.



Sickly mothers cannot bear healthy children. The prospective mother should use every precaution to preserve and foster her health. Not alone for the sake of the little one to come but for her own sake. A perfectly healthy woman is in no danger and in very little pain at her time of trial.

There must be due preparation for this time. Nature makes the preparatory period three-fourths of a year and women who take the hint from nature and use the time properly need have no fears of the outcome. Dr. Pierce's Favorite Prescription is a medicine designed to cure all distinctly feminine ailments and taken during the period of gestation it renders childbirth easy, safe and comparatively painless.

It is the invention of Dr. R. V. Pierce, of Buffalo, N. Y., a regularly graduated physician and skilled specialist in the cure of all diseases of woman.

Mrs. Orrin Stiles, of Downing, Dunn Co., Wis., writes: "I cannot praise your 'Favorite Prescription' enough, for I have not been as well for five years as I now am. In July last I had a baby boy, weight 11 lbs. I was only sick a short time, and since I got up have not had one sick day."

Sick women can consult Dr. Pierce by letter free of charge. Every letter is held strictly private and sacredly confidential.

Designing *men* work on women's feelings, by advising women to "write to a woman who understands woman's needs." It is useless to seek advice about disease of any woman who is not a physician. So far as known no qualified woman physician is connected with any proprietary medicine establishment.



THE JONES UMBRELLA "ROOF."

A NEW UNION TWILLED SILK "ROOF" $1.00

RE-COVER YOUR OWN UMBRELLA.

The Adjustable "Roof" fits any frame, requires no sewing, and can be put on in a minute. You can re-cover your own umbrella without the slightest trouble or moments delay.

Take the measure (to the fraction of an inch) of your old umbrella; count the number of outside ribs; state if the center rod is steel or wood; send to us with $1.00 and we will mail postpaid, a Union Twilled Silk 25 or 26 inch Adjustable "Roof" (27 or 28 inch, $1.25; 29 or 30 inch, $1.50). Umbrella "Roofs" all sizes and prices from 50 cents to $8.00 each, according to quality. If you are not absolutely satisfied in every particular, send the "roof" back, and we will refund the money *at once*, including stamps you have used for postage. Over a quarter of a million "Roofs" sold.

Booklet, "Umbrella Economy" with simple instructions necessary with your order.

All first-class dealers sell Jones Umbrella "Roofs."

The Jones-Mullen Co., 396-398 Broadway, New York.

Manufacturers of the highest grades of Umbrellas to the largest stores in the world.

Purity and Dryness

ARE QUALITIES THAT DISTINGUISH

Diamond Crystal Salt.

The relative purity of the dairy salts of the world is given in a valuable bulletin lately issued by the UNIVERSITY OF WISCONSIN.

Speaking of DIAMOND CRYSTAL, Prof. F. W. WOLL says:—

"The claims of this company for exceptional purity and dryness in their salt are fully substantiated by the analytical results obtained by the writer."

Lime and chloride impurities injure butter; damp, heavy salt is unfit for dairy use. **"The Salt that's All Salt"** is both PURE and DRY. Every dairyman should insist on having it.

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

ILLUSTRATION.

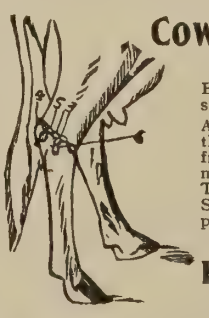
In buying machinery of any kind the buyer makes a radical mistake if he does not insist upon getting that machine which has the most points in its favor, one that is thoroughly adapted to the work it is intended to do. The capacity, the strength, the durability, are all points which must be taken into consideration, as well as the simplicity of operation and the cost.

We show on this page an illustration of the Eli Continuous Travel Press in operation, and can highly recommend it to hay growers and shippers. It possess in the first place large capacity so that



it is economical in operation, and in the second place, sufficient strength to make heavy, compact and closely compressed bales when a large quantity of hay or other material is fed into it. It turns out a solid uniform bale, in striking contrast with the loose and bulky bales so often seen upon the market. Some idea of the power of the Eli may be gained from the fact that a 500 pound pull of the team applies more than 30,000 pounds pressure on the charge. Of course, to withstand this pressure the press must be very solidly built and the manufacturers have seemingly succeeded in building some of the strength of Gibralter into the Eli. Every care is taken in the construction of the Eli and every press is backed by the maker's reputation. The press can be telescoped so as to require but little room in hauling or storing.

In addition to the horse power press the Collins Plow Co. also makes a full line of steam power presses with every improvment that mechanical genius can devise to facilitate their work. They will send catalogue upon application.



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For Kicking Cows.

Either from habit or from sore teats. **Price 50c.**

Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars.

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Henry Bassett,
Salem, New Jersey.



GOLDOMETOR for locating gold, silver and other minerals. In a pocket case. Also Rods and Spanish Needles. Catalogue, 2 cent stamp. B. G. STAUFFER, Dept. H. D., Harrisburg, Pa.

$30.00 OUR PIASA BIRD SULKY

Old Reliable Gang $35. Disc Harrow $16.



We challenge any plow for good work, light draft, easy handling, we have thousands of testimonials from farmers. Sent on trial, satisfaction guaranteed. Send for big free catalog and prices on buggies, harness, sewing machines & 1000 other things, delivered. Address,

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The only plow factory in the United States selling direct to the consumer.



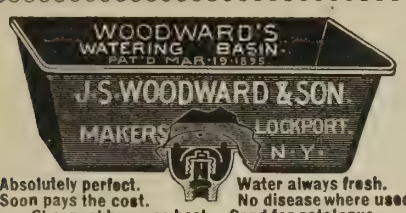
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It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

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Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. No disease where used Send for catalogue.

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Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address

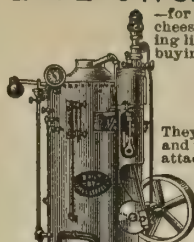
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LIGHTNING WELL MACHY IS THE STANDARD
STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES
WRITE FOR CIRCULAR M16
THE AMERICAN WELL WORKS
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Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

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LEFFEL ENGINES.

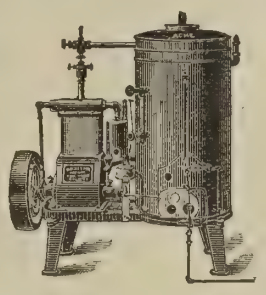
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ON THE MARKET TEN YEARS.

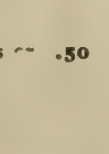
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1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

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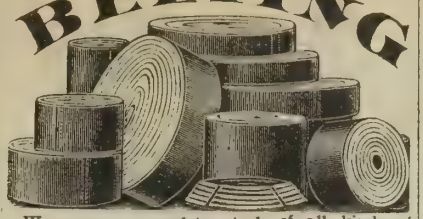
our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO., Detroit, Mich.

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BY USING
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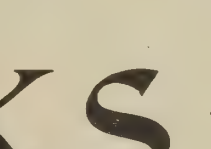
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Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean **E. C. NEWTON CO.** Batavia, Ill. Catalogue Free

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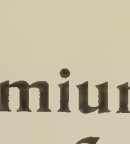
FARMERS should know its value and its importance in a fertilizer, to be applied to their grain crops.

Our illustrated books which tell what Potash is, how it should be used, and how much Potash a well-balanced fertilizer should contain, are sent *free* to all applicants. Send your address.

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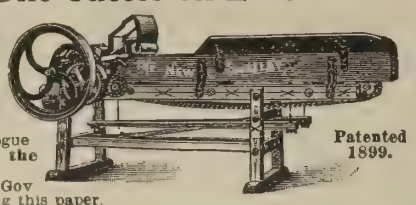
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If your dealer don't handle them, write for 99 Catalogue and get **SPECIAL Introduction PRICES on the SMALLEY LINE COMPLETE.**



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The best way to Shred Ensilage is with the

St. Albans Ensilage and Fodder Shredder.

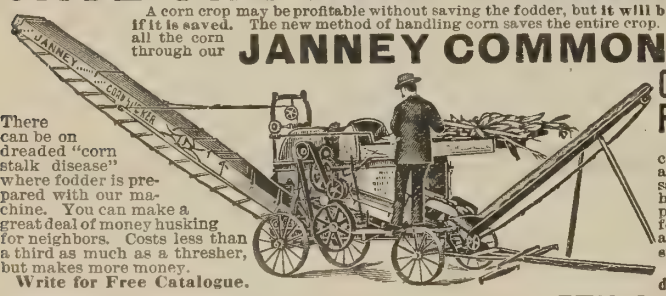
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A corn crop may be profitable without saving the fodder, but **it will be twice as profitable if it is saved.** The new method of handling corn saves the entire crop. The new way is to run all the corn through our

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There can be no dreaded "corn stalk disease" where fodder is prepared with our machine. You can make a great deal of money husking for neighbors. Costs less than a third as much as a thresher, but makes more money.

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Feeds and Feeding

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Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

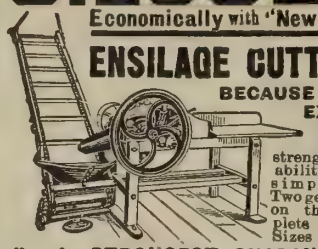
"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

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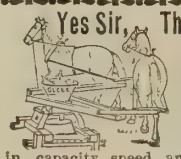


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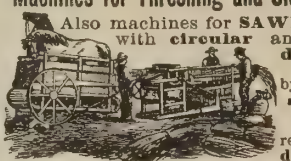


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Machines for Threshing and Cleaning Grain.



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LITTLE GIANT Threshing Machine Threshes grain, rice, flax, millet and grass seed. Fully warranted. Feed and Ensilage Cutters, Feed Grinders.

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Best Mill Made.

Junior Size,	$11.70
Medium "	15.50
Senior "	19.50

Cider Mills

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CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

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Ammonia	8.50%
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See that the name of the American Cotton Oil Co. appears on the red tag.

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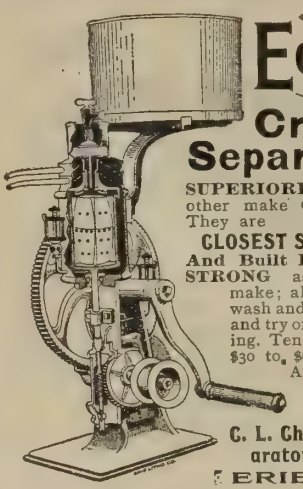
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Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

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C. L. Chapman Separator Works, ERIE, - PA.

When writing mention HOARD'S DAIRYMAN.



The Simplicity, Durability, Perfect Separation, and Convenience of Operation of the DAVIS Cream Separator Are Perfect.

Creameries as well as dairy farmers are interested in the Davis Cream Separator, as the gain in quantity and improvement in quality of butter is wonderful.

Correspondence solicited. Agents wanted.

DAVIS CREAM SEPARATOR CO. 88-92 W. Jackson St., CHICAGO, ILL.

$10.00 A YEAR



is added to each cow's profits on every farm where they use

The Kneeland Omega Cream Separator.

Has points of merit possessed by no other, among them its simplicity, slow speed, ease of operation and cheap price. Makes better butter and more butter. Separates thoroughly. Everyone guaranteed to be just as claimed, or money refunded. Illustrated catalogue, prices and our book "Good Butter, and How to Make It," is free. We want every farmer to send for them. **Agents wanted** everywhere. Address,

The Kneeland Crystal Creamery Co., 42 Concord St., Lansing, Mich.

BE HUMANE,

and profit at a cost of only 1c. per day, by using



The only reliable Lotion positively preventing Flies, Gnats and Insects of every description from annoying Horses and Cattle. Soothing and Healing if applied to sores. Applied to cows it secures gains in Flesh and Milk. Guaranteed Pure, Harmless and Effective. Gallon Can, $1.50; ½ Gallon $1.00; Quarts, 50c. Beware of imitations. Sold by Druggists, Saddlery, Agricultural Implement, Flour and Feed and Seed Houses, or **The Crescent Chemical Co., Philadelphia, Pa.**

Farm For Sale A farm of 400 acres of choice land all under cultivation, on which is a cow barn for 100 cows, horse barn for 14 horses, large silo, large hog house and sheep shed, blacksmith shop, ice house, chicken house and machine sheds; one large 11 room house and one 5 room cottage and one large creamery building and feed mill complete with machinery. Watered by 3 wells, 2 with first-class windmills, and a nice little lake. 3 miles from railroad station and church; school house on farm. Is 13 miles from County seat. A model farm with modern conveniences at a very low price if taken at once. Might take some Milwaukee lots in exchange. Write or see W. E. WEBSTER, Hudson, Wis.

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., SEPTEMBER 15, 1899. NUMBER 31

If You Have CREAMERY BUTTER to sell, write

J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.

REFERENCES:— Members of the Nat. League of Com Merchants
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**

REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,

Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

EVERY MONTH A PAYING MONTH.

Nine out of ten creamerymen cannot say this of their business; there are always some months in the year when their business does not pay, and it is these dull months which make the creameryman grow gray headed.

There is a way to make every month a paying month, have you ever thought what it is? What is it that makes a dull month in the creamery business? Shortage of milk, is it not? The manufacturing expense is nearly as great in making five tubs of butter as in making ten, but the profit on the latter is twice as much.

A number of creamerymen have hit upon a plan which insures a good supply of cream every day, and while some days are better than others, the results are such that every month returns a nice profit to the creameryman's pocket. The plan is this: Place Farm Separators with patrons too far distant to make the hauling of milk practicable and with others who will not send their milk to the factory because they havn't a large amount, but who would send their cream if some one would call for it.

This is no theory, as the plan is proving a success wherever tried and every creameryman who will test it can increase his profits from three to five dollars a day under the most ordinary conditions. Three dollars a day means over a thousand dollars difference in a year's business and there are not many who would knowingly let a thousand dollars slip through their fingers.

We will explain the plan more fully to any creameryman who will write us. We know it will pay you to investigate. It requires no additional capital; we will look after that, and all you need furnish is the necessary "push" in placing machines.

This is no "friendship" affair, it's just a question of whether you want to make money or not. We leave it with you to answer.

The Sharples Company,

Canal & Washington Sts., - CHICAGO, ILL.

WE WANT TO MAKE YOU PRICES ON

Cream Separators,	Combined Churns and	Engines,
Cream Vats,	Butter Workers,	Tanks,
Milk Testers,	Boilers,	Tread Powers,

Feed Cookers, Etc., Etc., Etc.

A Life Insurance Policy

is a most excellent thing in any occupation, but it seems a little hard that it should be enforced upon butter makers who are operating a certain kind of separator. Still it is the only way in which he may protect his family, having thus taken his life in his hands. These "complicated separators" have earned the label "Dangerous" by their long list of dead. It was a complicated separator that burst and so seriously injured buttermaker J. W. Segar, at Pecatonica, Ill., on April 12th. It was a "complicated separator" that burst and killed Albino Balzari, at Oso Flaco, Calif., on April 20th. Is there no remedy but an insurance policy? Oh, yes:



THE SHARPLES TUBULAR SEPARATOR

is a sure and effective remedy. These and all other Sharples made separators are absolutely safe. Among the multiplied thousands of Sharples made separators in use in this and other countries, not one has ever burst or otherwise injured anybody. If you value your life or that of your employees, Sharples Separators are the ones to buy. They will do all things which any separator will do and do it better and cheaper, and then they are absolutely "burst proof." The SHARPLES TUBULAR SEPARATORS replace many of these "complicated separators." THE DIAMOND CREAMERY CO., largest manufacturers of butter in America, use the TUBULAR and have thrown out the Alpha. "HORTONS" of New York, largest manufacturers of ice-cream in America, use the Tubulars and have thrown out the Alphas. "DARLINGTONS," the highest priced butter men in America, use the Tubular and have thrown out the Alpha. Scores more have done the same and thousands more will do it.

Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.

P. M. SHARPLES, West Chester, Pa., U. S. A.

BRANCHES—Toledo, Ohio. Omaha, Neb.
Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.



ALDERNEY BUTTER COLOR

Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.

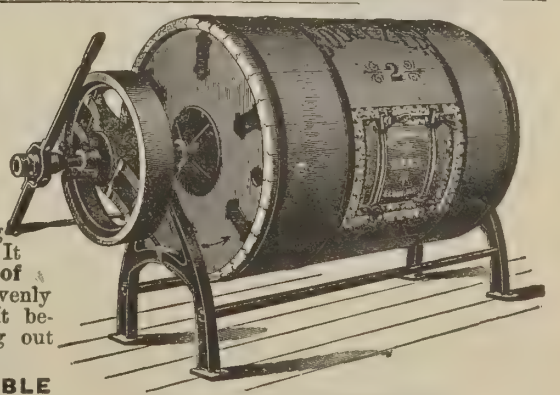
Manufactured by **THE HELLER & MERZ CO.,** Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

It Does Not Destroy the Grain.

THE SQUEEZER COMBINED CHURN AND WORKER

will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.

IT IS SIMPLE, DURABLE AND EASILY WASHED.



Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.

Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.

EXPERT TESTIMONY

SUBJECT:

Disbrow Combined Churn and Butter Worker

Witness: A. M. LARSON, Meriden, Kan.

MERIDEN, Kan., August 6, 1899.

T. J. HOWE, Esq., Owatonna, Minn.

Dear Sir:—Yours of the 1st inst. to hand, and in reply will say, that I have used a Disbrow No. 6 for about a year and a half, and it has worked to my entire satisfaction. The churn is very light running and the engineer says, "it takes only about one-half the power it did to run the 400 gallon box churn which we had in before we got the Disbrow." While we had the box churn we could hardly churn while the separators were running, as it would shake them and make them tremble so it was hardly safe to be in the room where they were. We experienced nothing of that kind since we got the Disbrow; it runs steady and causes no vibration, the gearing is very simple and is changed from churn to worker and reverse.

I have less trouble with mottles since I have used the "Disbrow." When the butter is taken out of a box churn to be worked, the temperature, either warm or cool, the surface of the butter, as it is hard in an average creamery to have the temperature the same as the butter, the soft part gets worked or overworked before the hard butter gets worked, and the result is badly mottled butter. The combined churn and worker keeps the butter at an even temperature, and consequently less mottles.

I always revolve the churn twice, in slow gear, after I have salted the butter and before I change it to a worker. To revolve the churn in fast gear is very hard on the churn and should never be done at the above stated time, but when put in slow gear the churn revolves as smooth as if there was no butter in it, and the revolving of the churn two to three times after salt is added before changed to worker, incorporates the salt with the butter.

I have churned 1,000 pounds at one time in the No. 6, but think it a little too much; 900 pounds is about right. I do not think it is worth the while touching upon the work that is saved by using the combined churn and worker, as I think it saves the buttermaker half the labor there is in using a box churn.

Trusting that my information is what you want, if there should be anything I have not touched upon, will be pleased to give you the information I can.

Respectfully yours.

A. M. LARSON, Buttermaker.

SEND FOR CIRCULARS.

OWATONNA MFG. CO.,

SOLE MANUFACTURERS. *OWATONNA, MINN.*

Creamery Package Mfg. Co.,

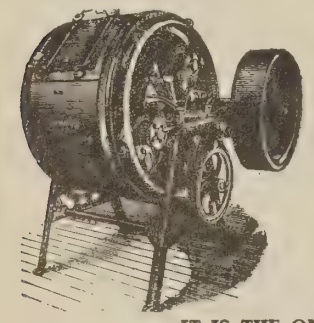
GENERAL SALES AGENTS,

BRANCH HOUSES:— **1, 3 and 5 W. Washington St., CHICAGO, ILL.**

Minneapolis, Minn. Kansas City, Mo.
Waterloo, Iowa. Omaha, Neb.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.



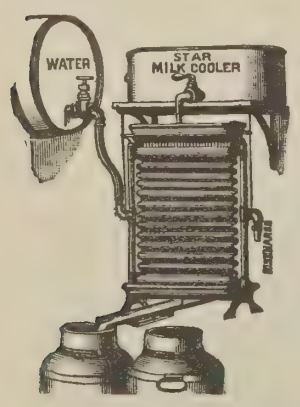
THE DAIRY "VICTOR" Churn.

This Combined Churn and Batter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also AERATES.

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

STAR MILK COOLER CO., Haddonfield, N. J.

DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5 00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

Dairymen, when Visiting the State Fairs,

BE SURE AND LOOK UP OUR EXHIBIT.

There you will find our representatives who will be pleased to show you

The Improved U. S. Separator

and explain its many points of excellence. Be sure and investigate its merits before purchasing any other make. It is fast being recognized as the best for every day use.



The U. S. the Queen of Separators.

MIDDLEBURGH, N. Y., August 10, 1899.

About a year ago I desired to purchase a separator, and naturally I examined very thoroughly the different ones advertised. Becoming convinced that the Improved U. S. was the best, I accordingly purchased one, and a full trial for over a year has proven the wisdom of my choice. It is the most perfect in construction, skims perfectly clean, runs so easily that a child can operate it, and, in fact, is the acme of perfection. It is the queen of separators, and it affords me great pleasure to forward this unsolicited testimonial.

J. E. YOUNG.

Should you be unable to attend your Fair or fail to find our exhibit, drop us a postal to that effect and we will send you our latest illustrated pamphlets.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

Worcester Salt

Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

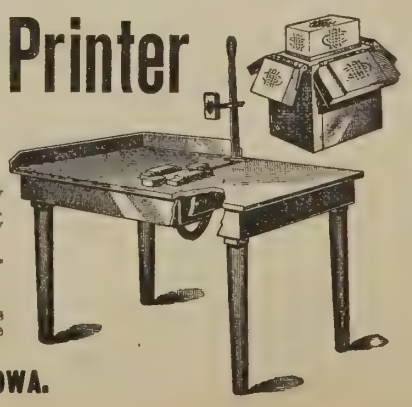
FITCH CHEMICAL COMPANY, Bay City, Michigan.

Self Gauging "All Over" Printer

The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.



The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

making it a most desirable printer for large dairies or creameries. Write us at once for descriptive circular and price list.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

W. D. HOARD, Editor.

G. W. BURCHARD, Associate Editor.

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All countries in the Postal Union $2.04 a year; not in the Postal Union $2.56.

Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

STATISTICS of the amount of oleomargarine sold in the United States during the year ending June 1, 1899, furnished the pure food department of Pennsylvania, show that during that time there were 87,800,000 pounds of oleomargarine sold in the United States. The farmers lost over $12,000,000 by it being substituted for the real article.

IT is stated by butter experts in Chicago that a very large per cent of the number one creamery, sold on South Water Street, is the farm dairy product mixed with spoilt butter. How long will it be before that Illinois Dairy and Food Commisioner gets to work? What between oleo, process butter and the blended article, some one is going to be very busy, if he does his duty as it should be done.

THE editors acknowledge with much satisfaction the receipt of cards announcing the marriage of Prof. John W. Decker, of the Wisconsin Dairy School, to Sarah Elizabeth Hurlbut, of Elkhorn, Wisconsin. We congratulate John most heartily and can assure the bride that thousands of her husband's friends among Wisconsin dairymen unite with us in best wishes for her future happiness.

IT is evident that the "Holland Process" butter is being made in large quantities and a corresponding number of dairymen are getting fooled out of their money to pay for the "butter rennet," and will be fooled still worse if they suppose that they can delude commission men, or other customers, into buying their hydraulic butter a second time.

The Minnesota Dairy commission has seized forty tubs of the stuff and the makers are consequently "out" the whole amount. Instead of selling water for butter as they expected to, they stand a very good chance of prosecution for adulteration of food.

As another illustration that it is the man and the cow, and not the location that determines success in dairying, we instance the case of Mr. Amos Vaughan, of Tillamook, Oregon. He has a dairy of twelve cows, and from April 10, 1898, to February 2, 1899, there was sold from this herd 3,124 pounds of butter.

Average per pound	$ 0.1987
Average per cow	51.7250
Amount of cash received for same	620.70
Eight head calves	60.00
Pork	62.50
Total	$743.20

THE Illinois Dairy Union has taken up the prosecution of dealers in oleo in Chicago, who sell it for butter, and have sent out notice to a large number that they propose to continue prosecutions until the fraudulent sale is abandoned.

A case was made against J. F. Somes, trading under the name of the Ohio Butter Co. This case was not contested and Mr. Somes paid the fine, $25 and costs. A large number of other dealers who have been selling butterine for butter are on the list for prosecution. The Union proposes to keep up this fight until the fraudulent sale is thoroughly eradicated in Chicago. This line of work will have the sympathy and support of not only the producers of pure butter, but the consumers as well, who desire to secure the pure article.

IT WOULD NOT SOUR.

J. J. Billingsly, President of the Indiana Dairymen's Association, is strongly opposed to the use of poisonous preservatives in milk. In a recent interview in the Indianapolis *Seutinel* he relates the following incident:

"Consumers generally have had no idea of the material effects of formaldehyde when used to preserve milk. As an instance I recall that not long ago a lady of my acquaintance went to a neighbor's house to borrow some soured milk. The lady of the house said that she had no soured milk but some sweet milk which she would place in a vessel beside a hot stove and that the would-be borrower might return in four hours, when the milk would be soured for her. She did not return for ten hours. The milk had been by the hot fire all the time but was still perfectly sweet. She went away and returned fourteen hours later. Meanwhile the milk had remained by the hot stove twenty-four hours, and was still sweet.



THOROUGHBRED JERSEY COW, "PRIDE OF THE WEST."

Property of J. R. BOWEN, Morley, Ill.

MINNESOTA'S CREAMERY INTERESTS.

The St. Paul *Pioneer Press* has taken a census of the creameries of Minnesota, and the amount of their annual product from which we glean the following interesting facts:

Total number of creameries	673
Number of creamery patrons	52,320
Capital invested	$2,700,000
Cows supplying milk	400,000
Milk received in 1898, pounds	1,382,718,000
Butter made in 1898, pounds	62,849,000
Butter shipped from state in 1898, pounds	50,000,000
Gross receipts in 1898	$10,370,000
Operating expenses in 1898	$1,094,500
Paid patrons in 1898	$8,546,400

Of the eighty-two counties in the state seventy possess creameries.

The capital invested is about $2,700,000. The 400,000 cows at $30 each, are worth $12,000,000. The value of 52,320 farms supporting the industry is put at $130,000,000. The total value of the investment in Minnesota is upwards of $160,000,000 when the value of the 100 cheese factories and the city milk supply dairies are included.

Over one-fourth the farmers of Minnesota are patrons of creameries. The average creamery gets milk from about six hundred cows. The average number of cows per patron is from seven to ten. The average milk yield per cow is 3,500 pounds and the average butter yield is 160 pounds.

The largest average milk yield is in Steele County, 4,660 lbs. per creamery cow, and the next highest average is in Freeborn, 4,450 lbs. Brown follows close after with 4,056 lbs. The average per cow for the seven counties, Meeker, Martin, Goodhue, Freeborn, Rice, Steele, Kandiyohi, is 3,700 pounds of milk a year. The average from 133 creameries out of a total of 329 in the twenty principal creamery counties is 3,600.

Freeborn leads with the highest average butter yield per cow, 211 pounds a year; Steele and Brown following with 206 and 189 respectively. Rice is not far behind with 171, and Blue Earth 169. The average for the twenty principal dairy counties is 167 pounds per cow. In some of the new dairy counties the average butter yield per cow drops as low as 100 pounds. The average is a scant 160. There is apparently great room at this point for improvement in the dairy type of the state. The fact that the average butter yield per cow in Freeborn is 75 to 100 per cent larger than in other counties that might be named, explains why Freeborn makes dairying pay while the other counties in question see little money in it.

The books of the creameries in twenty counties show that the average yield of butter is one pound to twenty-two pounds of milk. The average creamery patron sends about 26,400 pounds of milk, from which is made 1,200 pounds of butter. Not far from 80% of the butter goes to New York. The cost of transportation in refrigerator cars is one cent a pound. The receipts of Minnesota creameries in 1898 exceeded $10,370,000.

The 52,320 patrons of 673 Minnesota creameries took away over $8,500,000 as receipts for milk and cream, which was equivalent to 13.6 cents per pound of butter made from the milk they furnished, without any labor cost to them for making and shipping butter to market. It made their milk worth about 62 cents per hundred and made the milk of the 400,000 cows bring in a little over $21 per head.

THE FUTURE RESTS WITH THE COW.

Minnesota's success with the creamery has been absolute. The future development of Minnesota's dairy interests depends upon the breeding and feeding of the dairy cow. In this direction, Minnesota, as other states, has wide room for improvement.

It is significant that while the average butter product of the Minnesota creamery cow is only 160 pounds, Prof. Haecker, at the State Experiment Station, has no trouble in getting 300 pounds from the common cow by scientific feeding and care. In discussing this important theme, Prof. Haecker says:

"The increase in the cost of food to produce this gain of 140 pounds in the cow's yearly butter product is only $5. The gain in butter at 15 cents per pound for 140 pounds, is $21, and the additional skim milk is worth $4.50, a total increase of $25.50 in the value of the product for an outlay of $5 extra in food. This is a net profit of $20.50 per cow, which for the 490,000 cows furnishing milk to Minnesota creameries, aggregates $8,000,000 per annum as the result of scientific dairy feeding."

Prof. Haecker has demonstrated the practicability of his theories in yearly experiments extending over eight years at the state farm. His experiments have secured the attention of the national department at Washington, and all over the dairy districts of America. Nor has his work failed to have its influence in Minnesota. In Freeborn and Steele, where the greatest attention has been paid to his experiments by Minnesota dairymen, the butter product per cow has risen to 211 and 206 pounds respectively, which is about 30% higher than the average for the rest of the state, and double the average of a dozen or more of the poorer counties.

Suffocation in a Silo.

ED. HOARD'S DAIRYMAN:—There has just occurred in our state at Wausau, Wisconsin, an accident, the cause of which should be clearly understood, as it might be repeated whenever conditions are favorable.

Three of the inmates of the County Asylum went into the silo in the morning, for the purpose of spreading and tramping the silage, but were at once overcome by the carbonic acid gas which had been generated during the night, but which could not escape on account of the position of the lowest open door.

Mayor J. H. Reiser, trustee of the Marathon County Asylum, writes me: "Our silo is twenty-five feet inside diameter and twenty-eight feet to the top of the plates, with one 2′ 8″×5′ opening in the roof for the cutter elevator. We have three openings 3′×4′ 6″ on the side leading to the barn. The first opening is ten feet from the bottom, and the other openings about six feet apart. We had our silo filled above the second opening and about six feet below the upper door. We had been cutting six days in filling the silo, and the day before the accident occurred, had been filling all day. The opening in the ceiling had been left open all the time, and the doors in the sides had been left open until after we got up to them in filling."

With this statement of the conditions, the cause of the accident is clear.

1. When green material is cut fresh into a silo, carbonic acid gas is generated at once, and rapidly by the living cells until they die and it is this respiration of the living but mutilated plant cells, which is at once the source of the first heating of the silage, and of the carbonic acid gas given off.

2. When this silo was left at night with the silage six feet below the open door, the stillness of the night, the rapid generation of gas and its heavier weight than the air, caused it to accumulate to a depth of six feet in the silo.

3. When the men entered the silo they were at once submerged beneath the carbonic acid gas, in which they drowned as quickly as if they had been beneath water.

Now had the doors been closer together, so that when the men entered the silo their heads were above the opening, they would not have experienced any difficulty.

Had the night been windy so as to have produced more draft in the silo, it is not likely that the accident would have occurred.

Had these men not entered the silo until after the machine had started, and the silage had begun to fall, the accident would not have occurred, because in a very few minutes the stirring of the air would have so much diluted the carbonic acid gas, that no inconvenience would have been experienced.

It is also probable, too, that had the men been of sound mind and vigorous, the accident would not have occurred, as they would have realized the difficulty quickly enough to have saved themselves.

The lesson to learn from this sad accident is, that when a silo is being filled the machinery should be started before the men enter the silo, after it has been left standing for some hours, unless an open door is so near the silage that a man's head is above it.

The carbonic acid gas is not a poison, but in it a man will drown as he does in water, and care must always be exercised in sending children and incompetent people into a freshly filled silo or one that is being filled, if it has stood some time under conditions where the person's head would come below an open door.

The danger largely disappears a few days after filling in a good silo, because as soon as the cells of the plant are dead, the respiration stops, and the carbonic acid gas is no longer rapidly generated. F. H. KING.

Madison, Wis.

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Coming Events.

Georgia Dairymen's Association, Grantville, Ga., Oct. 12, 13, 1899.

THE annual circular of the Wisconsin Dairy School, located at Madison, Wis., is now being distributed. The class of last winter was the largest in the history of the school. There were four graduate students, eight who took the course for the second time, and 114 first year students, making a total of 122 butter and cheese makers in the class of 1899.

The next term of the school begins Dec. 5, 1899, and closes Feb. 22, 1900. The estimated average expenses of a student is fifty-seven dollars for the term. The number already registered is nearly twice as many as one year ago at this time, which suggests the necessity for early application in order to secure admission.

WAS IT A FOOL ANSWER?

In its issue of September 2, 1899, The Denver *Field and Farm* published the following:

The following fool answer is given by HOARD'S DAIRYMAN to an inquirer living at Montclair, Colorado, and it would seem that such a paper should have known better about which it tried to advise:

"First of all, buy a feed cutter and power to operate it, for the purpose of chaffing a part of your alfalfa hay to mix with corn chop. The daily allowance for each cow, graduated to her capacity for digestion, assimilation and converting the feed into milk, should be from twenty to thirty pounds of hay and six to ten pounds of the corn chop. We should aim to feed approximately half of this hay chaffed and mixed with the grain, and would try chaffing it twelve to thirty-six hours before feeding, adding enough water to the mass to cause it to heat and soften. We cannot say how long this heating mass would keep without injury. This will vary somewhat with the weather and surroundings and can only be determined by experience. In the absence of arrangements for chaffing some of the hay, bran must be mixed with the corn chop to extend it so that it can be better digested. Use equal parts by weight."

The editors of HOARD'S DAIRYMAN are as anxious to learn as any one can possibly be, and they realize so fully that what they know is but little when compared with what they do not know, that they are willing to be taught from any source and are not over particular whether the instruction comes in courteous form, if it is founded on facts. It will be observed that the *Field and Farm* did not indicate in what respect our answer was misleading or unwise, and accordingly we wrote for such information and received the following reply:

We object to the idea of buying a feed cutter for the reason that such implements are utterly unknown here and must be rated as an unnecessary burden and expense, especially in the way of labor. In the second place the only way that alfalfa hay can be fed, is direct from the stack with as little handling as possible. It could not be fed through a feed cutter without loss of leaves, which is the best part of the plant. The soaked chaff as you mention it, would ferment inside of thirty-six hours and taint the milk. We tried the experiment fifteen years ago and know all about it. This is the reason alfalfa cannot be siloed. Wet alfalfa has the taste and smell of very rank wetted tobacco leaves and is about as appetizing to a cow as such forage would be.

If these objections are sound we ought to withdraw the advice given and apologize for giving it, for it is a matter of considerable importance to dairymen in alfalfa regions to know the best methods of feeding it and what to feed in connection with it. Alfalfa is a splendid forage plant, but like many other forage plants, does not of itself furnish a complete and properly balanced ration. Moreover, it is a very bulky food and a cow in full flow of milk, could hardly eat enough of it to furnish the necessary solids for that amount of milk. It is therefore expedient to supplement alfalfa and all other kinds of roughage with feeds much more concentrated.

The tables of digestible nutrients in feed stuffs, show that ground corn is admirably adapted for this purpose in connection with alfalfa; but ground corn is much too concentrated for safe or profitable feeding by itself. To secure best results it must be extended with some lighter and more bulky material. Bran may be used for this purpose; or any long forage, if so finely "chaffed" that it will mix with the ground corn, will serve a similar purpose, and the circumstance that feed cutters are utterly unknown in Colorado (if such is the fact) can hardly be said to be a good reason for not recommending them for this or any other use to which they are adapted.

The further objection that they are an "unnecessary burden and expense" will depend altogether upon the relative prices of the alfalfa hay and bran. In the inquiry to which our answer was made, alfalfa hay is quoted at $6 per ton, and bran at $16. If, therefore, the hay can be had and chaffed at less expense than the bran can be bought for, there will be economy and not unnecessary burden or expense in using a feed cutter,—a proposition too plain for argument.

Moreover, if in the handling and cutting, the leaves become detached from the stems, they are not necessarily lost. We have practiced for years running common clover through a feed cutter, and are convinced that it pays to do this. Of course, many of the leaves are broken off, but they all go in with the rest of the cut fodder and are not lost. We often mix this cut clover with silage for twelve to twenty-four hours before feeding, with the result that the dry and woody stems of the plant are moistened and softened, and thereby made more palatable and are eaten.

It will be observed also that our advice about wetting the chaffed alfalfa was purely tentative and suggested for trial as an experiment. This is in accord with our universal custom in cases where we are not quite sure that we are right, and we are not fully convinced yet that such an experiment would not prove satisfactory now, however it might have turned out fifteen years ago. Despite the positive assurance of the *Field and Farm*, that alfalfa cannot be siloed, it has been conclusively demonstrated in recent years, not only that it can be successfully siloed, but that butter made from cows that were eating two-year-old alfalfa silage, *ad libitum*, scored ninety-eight and three fourths points, and was awarded the sweepstakes gold medal at the California State Fair, two years ago.

Let us say in conclusion that we try at all times to discard all foolish pride of opinion, and shall be ready in this instance, as in any other, to conform to well authenticated facts. If the friend in Colorado tries the plan of feeding suggested, or any other of our readers can contribute any facts throwing light upon this problem, we shall be glad to hear from them.

AN IGNORANT TEACHER.

The fact is that science has got the better of the cow. Butter is nothing more than the food eaten by the cow, subjected to certain internal processes and precipitated into the milk, from which it is extracted in the form of fat. In a margarine factory the same result is effected, and the fat of cows and oxen is converted into butter without the intervention of the cow. The component parts of margarine and butter are precisely the same, with the exception of the former not containing the volatile, tasteless and unnutritious butterine.—*London Truth.*

The editor of a daily paper, like Bacon, takes all knowledge for his province, but once in a while his machinery slips a cog, as in the above clipping. If we only knew how the food is "precipitated into the milk in the form of fat," and if also we had the knowledge that butterine is the same as butter—except, it would be a long step forward. The last five words of the article we heartily endorse, although we have suspicions that the editor didn't mean it that way.

However, in the general hash which Labouchere has made of the subject, there are several statements which should not be allowed to pass unchallenged.

One is that in a margarine factory the same results are obtained as in the cow's udder. It needs but a slight knowledge of physiology to know that chemical analysis does not always, or even frequently, tell all there is to be known regarding products of the animal body. The reagents take no cognizance of the power that may exist in the enzymes, digestive fluids and glandular secretions nor of the nutritive value of the various fats found in butter.

There is no doubt that milk that has been heated, has an entirely different nutritive value from the same substance fresh from the cow, and the same is true of other animal compounds.

Contrary to the opinion above expressed, butyrine (not butterine) has a decided nutritive value and it probably occupies a position in the animal economy that cannot be taken by the more difficultly soluble fats found in butterine or oleo. In his book on Foods Prof. Bell writes as follows: "When the highly complex and peculiar character of the constitution of butter is considered and that it is the fat derived from or natural to milk, which for a time at least is the principal food of the young, it is probable that butter performs some more specific office in the system than ordinary fats."

The chemist has his limitations and when he assumes to invade the domain of physiology, of digestion and nutrition, his analyses taken by themselves are absolutely worthless and the dictum of an editor based on such premises, becomes dangerous because of the effect it may have on the wide class he appeals too.

The International Congresses of the Exposition of 1900.

Congress of the Rational Alimentation of Cattle.

An international congress on questions concerning the rational alimentation (feeding) of cattle has been organized by the French Society of that name, under government patronage, for the exposition of 1900. The meetings will take place during the three days beginning June 21, following immediately after the congresses of agricultural teaching and agronomic stations, and preceding by a single week the great congress of agriculture. The present congress appeals to agriculturists and specialists of all countries, in order that results already acquired may be submitted for examination.

The membership card is ten francs for French members; foreign delegates are admitted free, unless they desire to receive the publications of the congress. Only members of the congress can take active part in the work of the congress.

Reports on the following questions are already under preparation; documents and communications concerning these questions are earnestly solicited from other countries. All such communications should be in the hands of the committee of organization by the first of March, 1900:

1. Substitutes for milk in the food of calves, whether to be reared or butchered. Reporters, M. Gouin, corresponding member of the National Society of Agriculture, proprieter and breeder; Dr. Saint Yves Menard, Director of the vaccination service of the city of Paris.

2. Influence of food on the fatty matters in milk. M. Dechambre, Professor in the National School of Agriculture, at Grignon.

3. Part played by saccharine matters in nutrition; use of molasses and sugar in the food of cattle. M. Grandeau, Inspector General of Agronomic Stations.

4. Importance of the relative proportions of nitrogenous and non-nitrogenous matter in the rations of working animals. M. Lavard, Delegate Administrator of the Omnibus Company, Paris.

5. Sale and purchase of food according to analysis; supervision of foods. M. A. Ch. Girard, Professor at the National Agronomic Institute.

6. Ensilage. M. Jules Le Conte of the Cour de Comptes, proprieter and breeder.

7. Drying methods applicable to the preservation of food substances rich in water, (beets, potatoes, green fodder, etc.,) M. Grandeau.

Communications concerning the congress should be addressed to the Secretary-Treasurer, M. Gallo, 69 rue de la Victoire, Paris. The American members of the Comite de Patronage are, Messrs. W. O. Atwater, Director of the Storrs Agricultural Experiment Station, Storrs, Connecticut; W. A. Henry, Madison, Wisconsin, and C. D. Woods, Orono, Maine.

Various Virginia Queries.

Does Sorghum Decrease Milk Flow?—How to Increase the Milk Flow.—Feeding Problems.

ED. HOARD'S DAIRYMAN:—I would like to have you answer a few questions for me. Before taking your paper I bought some very poor cows and it is a puzzle to me to know what to do with them. I cannot sell them for milk cows, as some barely give me a gallon a day, and I can't sell them for beef, as they refuse to take on fat.

They have a good pasture to run in and in addition I feed them about ten pounds of mammoth clover, mixed with wheat bran. Since taking your paper I have tried to get better stock and now have some Jerseys and five registered Holsteins—one very good Jersey bull and one registered Holstein bull. However, with all my pains in selecting and care of stock, they are way below the standard in their flow of milk.

Now, I want to know what you would advise me to do with my first cows to get them fat and what to do with the better ones to get an increase of milk.

Please give me some idea what amount of milk I should get from forty head of good Jersey cows (not like I have, but what I expect to be able to have some day). Besides the pasturing the cows have, I feed wheat bran, hay and green sorghum to them twice a day. One of my milkers attributes the decrease in flow of milk to the soiling with sorghum. Can that be the cause?

I will soon be able to soil cow peas and fodder corn and I am in hopes that will do better.

Taking the advice of your paper I purchased a round silo and am now busy setting it up, and expect to commence filling it as soon as completed. If it does what is claimed by all users, I shall put up two more nex spring, in order to be able to feed cattle

through the hot summer when the pastures are too dry for pasturing.

Please formulate a balanced ration from the following feeds obtainable here: Wheat bran, $16; corn and oat chop, $18; cotton seed meal, $24; corn and cob meal on farm, mammoth clover on farm.

Also one with ensllage. NOVICE.

Lynchburg, Va.

We do not know what better to do with those "very poor cows" than to increase the feed—particularly the corn and cob meal. A pound or two of cotton seed meal per day may be added.

We are quite certain the green sorghum did not cause the shrinkage in milk, unless it be that not enough of it was fed. It should not be forgotten when feeding green fodder of any kind that nearly or quite four-fifths of it is water. Neither does ten pounds of "mammoth clover mixed with bran" afford over much material from which the cow can make milk. The Arkansas blacksmith said: "I can't live on wind and work too." Neither can the cow give milk unless she is furnished the material from which to make it.

Independent of pasture, we suggest the following as not more than a profitable average allowance for cows that are in condition to yield fairly well. Some will probably need less—because they are strippers or naturally not good milkers, and others will need more, particularly if they are large cows and capable of giving more than twenty-five to thirty pounds of milk per day:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mammoth clover	15.76	1.14	6.40	.38
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn and cob meal	3.56	.25	2.52	.14
½ lb. cotton seed meal	.92	.37	.17	.09
Totals	23.76	2.26	10.63	.73

If any cow will eat more of the clover, she should have it.

When silage is available, feed from twenty to forty pounds per day, according to the supply on hand and reduce the clover by four to eight pounds.

The Drouth In New York.

The great drouth is causing enormous loss throughout the dairy and farming districts of Central and Northern New York. Pastures everywhere are baked and burned, and the farmers are already making heavy inroads in the stock of feed, which they have counted upon to carry their cattle through the winter. Ordinarily they are not called upon to use this feed until much later in the year.

Creeks are drying up, and in many places the dairymen are compelled to feed their cattle hay and to carry water long distances for them. Milk for the dairies and cheese factories is running short in a large territory, and that from which the metropolitan milk supply is obtained is seriously affected. It is expected here that the the prices of butter and cheese will be increased as a result.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

DRYING OFF HEIFERS.

W. Appleby, Maricopa county, Arizona, has some grade Jersey heifers, due to have second calves this fall, that are giving a good yield of milk, and wants to know whether to keep on milking them or dry them off, so as to insure a month's rest. It is considered hardly orthodox to say so, but, somehow, we can hardly escape the conviction that it is better to follow the inclination of the heifers in such cases. We have had two or three cases in our own herd, and have had other cases reported to us where quite serious results have followed the forcing-dry process. Under ordinary circumstances, it is doubtless expedient to give heifers a short rest, but where they have inherited or acquired a tendency to continuous milking, we would not interfere with it. If they will go dry readily, give them the rest; if not, feed them extra liberally and continue milking.

HUNGARIAN HAY.

I have been a subscriber of your valuable paper for the last four years, and am in need of a little information in regard to Hungarian hay as a roughness for milch cows. Clover hay is scarce in central Illinois on account of the drouth. R. W. D.

Farmer City, Ill.

Hungarian grass, if cut so early that the seed has not matured, makes excellent hay, rating about midway between clover and timothy. But if it is allowed to ripen so that the seed will shell out considerably in handling, it will be of decidedly inferior quality.

FEEDING GRAIN TO DAIRY COWS.

If I am not infringing too much on your time I should like to ask you a question in regard to feeding cows for milk, with the following feeds, all of which I have on hand; corn ensilage, gluten meal, Quaker oat feed, wheat bran, brewers dry grains, (mixing equal parts by weight), good clover and timothy hay mixed, a limited amount of alfalfa hay. Am milking seventy-five cows; milk made into butter. Two-thirds are Holstein grades, one-third grade Guernseys. Three-quarters of the cows fresh this fall. If my questions are not making you too much trouble, you will greatly oblige me by an answer.

Cazenovia, N. Y. W. M. B.

A ration based upon the following formula, as an average for the entire herd, giving a few of the largest producers more and those that are well past full flow, less, ought to be productive of good results:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
12 lbs. mixed hay	10.30	.58	4.75	.19
10 lbs. mixed grain	9.10	1.66	4.13	.40
Totals	26.00	2.57	12.38	.77

The grain mixture mentioned is not well adapted for feeding with alfalfa hay, as it would produce a ration containing an unnecessary proportion of protein. A mixture of hominy chops and bran, or ground corn and bran would be better and probably cheaper.

HOMINY CHOP

Will you please tell me through your inquiry department what hominy chop is, as sold for feed? Is it a by-product? If so, how is it made? W. C.

Gilbertsville, N. Y.

Hominy chop is the by-product resulting from the manufacture of the hominy which is on sale in every well regulated grocery and finds a place upon the tables of many families and hotels. It consists of the chit or heart of the corn kernels, the outer envelope or bran and the finer particles resulting from breaking up the kernels. The corn hearts are rich in fat and low in protein, which makes the hominy chop of less value to feed with timothy hay and corn stover than with alfalfa or common clover. It is especially adapted for use with alfalfa hay.

STABLE WIDTHS.

I have a space of 24×36 feet between two barns which I wish to fill out with a stable for cows. Will there be room enough for two rows of stalls, the long way, and give sufficient room for a feeding alley in the center? F. T. F.

Orleans, Mich.

Twenty-four feet does not give sufficient width for two rows of cows. We find even thirty feet less than is desirable, and when the new stable is built it will be not less than thirty-four feet wide inside the walls. Nothing is gained by trying to pare off a fraction of cost in building house or barn, by reducing the dimensions in length, width, or heighth. We prefer to have cows face outward, and have any number of reasons for this preference, but not one of them is of any force or validity with the man who prefers to have cows stand facing each other, unless it be the circumstance that such an arrangement demands greater width for the same degree of convenience.

And still it is possible to stable two rows of cows in a space of twenty-four feet. This will allow for walks two feet wide along the walls, gutters one foot wide, platforms five feet wide (or less), mangers two feet wide, and central feeding alley four feet wide. So narrow a stable as this should not be tolerated without some adequate provision for ventilation.

In the annexed diagram, A represents the space between two of the studding and will be approximately 4″×16″ and 8 feet high.



On the outside and about eighteen inches above the ground, make an opening, b, to admit air, which will rise and enter the stable at c, which is close to the ceiling. To remove the cold and foul air, Prof. King just reverses this current, by providing a second flue, which may be an independent chute, or may be built between studding as above, only the intake is placed near the floor, and the flue should extend as high as possible.

RATIONS WITH AND WITHOUT BEET PULP.

I want to trouble you to figure out a ration for me based on a fixed feed of twenty pounds ensilage a day, timothy and clover hay mixed, ad libitum, figuring bran at $12.-25 a ton, malt sprouts the same price, and dried brewers grain at $14.75, gluten feed $16, gluten meal $20, and new process oil meal $25. The gluten feed is supposed to analyze 27% protein, fat 3%, extract matter 50%, fibre 7.25, ash 3.21. The gluten meal is guaranteed to analyze nearly 38% protein, 2% fat, extract 47%.

My object is to ask you to figure me out the most economical ration for my cows, which are Jerseys and weigh about eight hundred pounds apiece. I also want to add that I can have for the cost of hauling, which is a matter of three and one-half to four miles, all of the beet sugar pulp that I can use. This whole cost would perhaps represent $1 a ton. Please take this latter food into consideration. Cow foods are getting higher every day, which prompts me to ask you these questions.

I wish a ration including beet pulp and one without, if you please. D. D. S.

Kalamazoo, Mich.

As we have never fed any beet pulp, our answer is necessarily based upon its analysis, not wholly ignoring the fact, however, that those who have had experience with it are quite unreserved in its commendation. It is possible that it has a value beyond its purely nutritive content, as silage, roots and oil meal have, in aiding the digestion of the other elements in a ration. This extra value would not be very appreciable where there are other sources of succulence, as, for example, in combination with silage. If neither silage nor roots could be had, we should advise the use of this beet pulp, but under the circumstances given in the inquiry we would not rate the beet pulp above half the value of the silage or one-tenth the value of the mixed hay.

For the ration without beet pulp we suggest as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
12 lbs. mixed hay	10.30	.58	4.75	.19
5 lbs. bran	4.41	.63	1.93	.15
4 lbs. gluten feed	3.69	.82	1.94	.12
Totals	23.68	2.29	11.42	.60

We would not feed the above indiscriminately to every cow, for, unless the herd is exceptionally unique, there will be some cows that cannot make profitable use of such feed. This inability may be inherent, and in that case, such cows should be disposed of; or it may arise from temporary disability, length of time since freshening, or other causes. On the other hand, there is almost certain to be other cows that can convert more feed into dairy products; and if so, it is economical to increase their daily allowance. In other words, the amount of feed should be graduated to the capacity of the cow to make good use of it. To make sure on this point, let the milk be weighed and not guessed at, and tested, and the exact figures recorded; and this not for a single week or a month but for all time.

When beet pulp is used the only change we would recommend would be to substitute twenty pounds of it for, say, two pounds of hay.

TESTING CREAM.

Will you please inform me through your paper, the proper method of testing cream, gathered from the hydraulic separator or any other process of raising cream? We have a creamery here that tests the gathered cream from patrons by diluting two-thirds with water, then they test in Babcock's milk test bottles. Then they multiply the test by three and add four to the test. For example: The test shows 7%×3=21+4, makes a test of 25%. The patrons are not satisfied with the test they get. Now, is this the proper way to test cream? Are there not bottles made to test cream without having to dilute with water, or do you consider the test made by diluting with water a correct test? J. W. D.

Auburn, Nebraska.

If exact work is wanted, the proper apparatus should be obtained and the sample of cream weighed into the bottle. This is the only way in which the testing of creams of different richness can be performed with an approach to accuracy.

If you do not wish to go to this extent, the cream can be measured as you are now doing, provided that care is taken in mixing the cream, so that an accurate sample is obtained and the pipette washed out and the washings added to the cream in the bottle. If the cream is diluted, as in the above case, then the scale reading should be multiplied by three and a correction made for the variation which exists when creams of different richness of fat are measured, as follows:

For a scale reading of twenty per cent add 0.25%; for a scale reading of fifteen per cent add 0.1%. Readings between these may be corrected in proportion. Below ten per cent no correction is necessary.

We are at a loss to know what the added four points are for, unless it is supposed to show the amount of overrun. If this is the case, it is decidedly inaccurate and should not be used in this way. The proper manner is to divide the proceeds according to the amount of butter made and the amount of fat furnished by each patron.

THE OATS ARE CHEAPER.

As bran and middlings are both $14 per ton and oats 18c per bushel, which will be the cheaper feed for cows? C. L. O.

Marengo, Ill.

Oats at eighteen cents per bushel are only $11.25 per ton. We account them to have about 10% greater feeding value than bran. Consequently when bran costs $14 per ton, oats are worth nearly twenty-five cents per bushel.

COW WILL NOT GIVE DOWN HER MILK.

We have a cow that has been fresh about two months and has been giving about sixteen pounds at a milking. Now she refuses to give down more than two or three quarts. She has always been handled gently and is naturally a quiet cow. She troubled us a little last year, but the habit seems to be growing. What can we do to make her give down? W. R. R. C.

Otsego Co., N. Y.

It is probable this cow's udder is unusually sensitive and the operation of milking causes some pain. Try milking more gently and at the same time give the cow some bran or other feed to distract her attention from the milker.

Note and Comment.

Drouth and Milk Flow—Effect of Flies—Spiking the Silo Staves—Unsolved Problems in the Dairy—Siloing and Cutting Dry Fodder.

ED. HOARD'S DAIRYMAN:—Making a business of dairying, and leaving it to fight out its future with the "wild elements," are two distinct conditions. To illustrate:—one must say at the start that the drouth here is becoming something to be feared and trem bled over, and if some one would let loose a bull against it, as once did a Pope against a comet, there would be a great dust kicked up to start with, sure. Pastures, there are none, and how to feed the cows with milk at ninety cents and "a rising," is a problem to some; others think nothing about it more than that "Allah wills it!"

Yesterday I saw a young dairyman, and was asking him about the milk yield. "Jerusalem, but how I am feeding the bran, corn fodder and sending the cows down into the big swamp to get something green to eat," said he in reply. "They are shrinking some, but I can't help it, but the flies are the worst bother, I can't fix 'em. Yes, the cows get water in abundance in every lot. Twan't for that they would go dry sure. I can't let them shrink if it does cost. Milk is going up fast, and I must have the high fall and early winter prices, and have milk to sell to get them." Not two miles away is another sort of dairying. The farm is a high and dry affair, depending upon rains, cavities, and a well with a windmill for water for the cows. All three have now failed this company, and the windmill "fell together" at last. Three dollars would have fixed it, but it was not done, and the cows had to be driven a mile to the creek.

Although unsoiled, the dairy was giving thirty-five gallons of ninety cent milk daily when the drive commenced. If a cow could drink 100 lbs. of water a day, why not have her drink it all at once and have it "done to," as Uncle Theodore expresses it. So they are watered once a day after a dusty drive of one mile, and with the result, a shrinkage of 200 pounds of milk per day, and still a "goin' down." One dollar and eighty cents a day is a pretty good rebate to pay upon an outlay of two or three dollars for pump fixing, still this is the way that some folks make their profits, in what they save, and at the same time accounts for much of the "dairying does not pay" talk.

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While one swallow is not a proof of summer, any more than a rise in coal means immediate winter zero weather, still I like to try things on a small scale now and then. So last week I tied a blanket on a cow to see whether keeping the flies off would affect her yield of milk, the feed remaining actually the same. The first twenty-four hours showed little result, but then the milk began to increase and by the fifth day the gain was four pounds of milk a day, or four cents a day interest on a ninety cent investment in a blanket. Of course four cents cannot be multiplied by 365 days, but there is a hint in the matter worth considering as well as the apparent comfort of the cow. Was this 0.52 of a pound of solids, the actual expenditure of force material before used by the cow in keeping herself free or—attempting to—from flies? As this test was on a cow that was eight months in milk, a fresher cow might have shown a less marked result. What does the Short stop editor say about it?

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So long as Adam remained in the garden, it was a pretty hard job to convince him that the earth was round. Same way in silo building. Some of the die-hard-ones have an idea that while Buff Jersey seems to have a good thing in spiking the silo staves together edge ways, he cannot again pull them together with a hoop when they shrink out in the summer, and one would have to run the chance of the staves swelling to an air proof joint. What are the facts, friend Jersey? If it is the thing, it is valuable as it knocks the staging fixtures all to pieces. The inventive age may be said to have arrived in the history of the silo.

***

I have recently been greatly interested in reading Prof. Van Slyke's "Unsolved Problems in Dairying" and hope that from his great fund of experimental knowledge, he will give us farmers many rays of light in the days to come. He is not sure that the compounding of rations for cows has been always free from the theoretrical. There is a general belief that the fat of milk is a result of protein in the food and that milk cannot be profitably made without one-fifth of the ration is digestible protein. He thinks there is unquestioned proof that fats in milk can be formed from starch and sugar foods, and that the feeding of highly nitrogenous rations are not essential. He doubts, it seems, that fats in food have very much if anything to do with the fats in milk, and that to some extent proteins have their value in producing a stimulative effec , rather than one of construction, i. e., reappearing as an increase of fats in the milk.

In an indirect way all this is proof that the feeder can not change the character of the milk by increasing the amount of either fat or protein in the ration, a thing which many dairymen assert with Andrew Jackson's tenacity of belief, that they are doing, or could if they wanted to.

That there has been some juggling with the character of the milk for a day or two, we believe to be the explanation of the matter, but do hope that Prof. Van Slyke will settle it some way so that we can have a new bone of contention to "argy" over at the institutes in the future, for up to date the best definition of fat formation in milk we have seen is that by a noted scientist that "Fat formation in milk is the expression of a quite specific adaptability of the living protoplasm of the milk cells;" though we doubt if Charley Jennings can tell whether the definition is a joke, or a symbol of scientific ratiocination.

***

I am still getting silo inquiries and silage information wanted, but our last was about cutting dry fodder into the silo after the corn was husked, and yet this man wanted grain and all for the cows. What passes my comprehension is why men want to husk corn and grind it to mix with the fodder and the hay. There is a great loss in drying the fodder. Most authorities put it above twenty per cent.

No man can husk, crib, grind and pay toll on corn ears for less than one-fourth of the market value of the grain, which is another fourth, loss, but by another process. If I remember rightly, Prof. Henry found that to keep corn unhusked, and in good shape, then cut it ears and all into one-half lengths and feed it, that its feeding value was one eighth more than could be realized from it by husking and grinding its grain and then feeding it back with the fodder. It meant that the labor of husking and grinding was all thrown away.

When one comes to cutting dry fodder they will find that the saving in weight handled, is quite made up by slower cutting, imperfect work, increased power demanded, not to mention an all winter's job. All of these plans are excuses for not building a silo, and loss at every point is the penalty for refusing to build and use them. JOHN GOULD.

Notes from Southern Michigan.

Environment of the Dairy Herd.

ED. HOARD'S DAIRYMAN:—This matter of environment is of great importance. When a small boy, I frequently saw dairy cattle pastured in the corners of rail fences, during the coldest winter weather, and snow covering their backs for days at a time.

That was an extreme that needed the attention of the society which prevents cruelty to animals. But now we have another extreme, practiced by some dairymen, that needs the attention of the dairy papers and proper health officers, if not of the above named society.

It is being reported, far and wide, that tuberculosis is increasing among dairy cattle at a terrible rate, especially in the eastern states. It is true that this disease is slowly increasing in certain dairy districts, but not to the extent that the alarmists would have us believe. I do not believe that five per cent of the cattle of Michigan are affected with this disease, but this estimate of course includes all classes and breeds.

But there is some cause for alarm, and it is high time for dairymen and breeders to "look out." The present general "hot-house" treatment, or rather the environment of many herds of dairy and breeding cattle to-day represents the other extreme to which I wish to refer, and is aggravating and spreading tuberculosis among cattle to a serious extent in some dairy districts. It is within the province and power of our dairymen to control and limit the spread of tuberculosis, I verily believe, by so changing the environment of their cattle that neither extreme be followed.

Of course, where disease is present, it must be eliminated. But the owner of a herd of healthy dairy cattle should have no serious trouble in keeping his animals in a generally healthy condition, provided their environment is maintained in a rational manner.

During the last five years I have visited and inspected many hundreds of herds of dairy cattle in Michigan. In some cases an ideal plan of housing, caring for, and feeding the cows was steadily maintained, due regard for the health of the cattle being constantly considered. In other cases the environment or treatment was such that but a few years can elapse before disease will make its appearance in the form of tuberculosis, and whole herds of fine dairy cattle be almost entirely wiped out.

How can this danger be avoided? Our own herd is in a healthy condition. We know this because the tuberculin test has been applied with not a single reaction. We shall buy no more animals hereafter from strange herds that have not been tested, unless the seller will guarantee each animal to pass the test. In selling stock we shall be willing to make a test before the transfer is made. This practice is bound to obtain to a large extent in the leading dairy districts during the years to come.

We feed our cows liberally, but never try to force them for a "record." We house them in a comfortable stable, but we do not believe in continuous stabling. Our stable is not a fancy, air-tight box, but fairly well ventilated, and we turn our cows out for a short time every pleasant day during the whole winter. Much as our good friend, John Gould, believes in continuous stabling, from November until May, we have seen too many tuberculous cows as a partial result of this practice, and could not be induced to put our cows in close confinment.

Extremes seldom pay, and why cannot our brother dairymen follow the "happy medium" of safety in their plan of environment of their dairy herds? Sometimes I think I do not want our cows watered in their stalls, but of course a water supply system can be arranged to obviate any contamination of the individual supply of water for each animal.

One of the most serious problems in securing proper and healthy environment of dairy cattle is in the perfect ventilation of stables. I have been greatly interested in Prof. King's experiments in this line. In the building of future cow stables, more attention must be paid to furnishing a larger number of cubic feet of air space to each animal. Stables must be larger, ceilings higher, and provision be made for keeping the air constantly, but gently, in circulation, without creating a draft.

If these conditions be followed in a rational manner, without the hot-house treatment of forcing for a great record, commencing with a healthy herd, we do not believe there is any serious danger of disease. Then my next advice would be to observe the utmost cleanliness and to thoroughly disinfect the stables, stalls, floors, mangers and gutters frequently. With these sanitary precautions there is little danger of tuberculosis or any other disease. Of course, I would not allow any man suffering from tuberculosis to work in my cow stable.

These conclusions regarding the proper environment of dairy cattle are the result of actual experience. During the last two years I have assisted in testing over 1,500 head of cattle for tuberculosis. Some of the cattle slaughtered were absolutely rotten, and others in the first stages of the disease. Others were quarantined and re-tested. I do not believe in destroying all cows that react on the first test, under certain conditions.

But I have seen enough of this insidious and terrible disease, and carefully studied the conditions, until I feel that every dairyman and breeder of pure bred dairy cattle should be warned against aggravating the disease by improper environments. The tuberculin test may be applied and wholesale slaughtering may go on at great expense, until "dooms-day," but unless there is some reformation in the environment of dairy and breeding cattle, and this modern "extreme" be more carefully avoided, tuberculosis in our great dairy sections will increase until it becomes as serious as it now is in European dairy districts. J. H. BROWN.

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The Summer Silo And the Fly Pest.

ED. HOARD'S DAIRYMAN:—In the letter by J. E. G., on page 582 of the DAIRYMAN I find two points that I would like to carry a step further. They refer to ensilage and the fly pest.

It now looks as though the silo would take the place of all sorts of soiling in dairy work just as soon as the real value of it is well appreciated. It is well enough to have green fodder at command through the summer season and most of the better class of dairymen try to do so, but there are times when that will also fail. In not a few parts of Western New York this season, the weather has been so dry that even sowed corn has failed to make growth enough to make it of much value. The pastures have stood still, if indeed they have not burned over, either by the scorching rays of the sun or fires that came for the most part from the railroad. It has been a terrible season and has lasted from early spring.

What was my surprise and gratification on talking this week with an acquaintance, a man of education and well known to science, to learn that he was actually profiting from the drouth. He has an Erie County dairy farm and his pastures stood still, as did those of his neighbors, but he had some well-filled silos left over, and he proceeded to feed his cows twice a day from them all summer. The result is that where the milk of cows confined to pasturage ran down more than half, his cows have given about as much as usual. The cost of silage is more than of pasturage, but he assures me that he will make money, for all that, on the rise in cheese.

It was at first supposed that ensilage would not keep over summer, but that idea is already exploded. My friend rates it along with canned fruit and says it will keep as well if properly put up. This fact reduces the feed question to its lowest terms and practically places the farmer out of the reach of drouths.

In warm weather the fly question is close to that of feeding. Our domestic animals are giving their substance to these pests and are correspondingly worthless in spite of themselves, to say nothing of the discomfort they endure. I am sure that J. E. G., in using applications to drive away flies or in shutting up his cows in a dark stable to avoid them, is working in the wrong direction. At the best this is but a stand off. It may benefit the individual animal, but it will be at the expense of those that are not taken into the account. Trying to keep the flies on short rations will only make them the more ravenous; it will not exterminate them. They will breed just as much as ever. If we can cut off their breeding places we will do well

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and much ought to be accomplished in that direction, but I am convinced that the real remedy is from fly traps.

Some recent successes with sticky fly paper, with which we made war on the house flies at the farm, convinces me that this could be used with much effect against all flies, but I would like to see a trap made on the plan of a mosquito bar, say out of some sort of canvas that could be set up, tent fashion. The cows could be induced to go inside of it by a wide doorway and then come out of a passage so narrow that it would brush all the flies off and leave them inside the net or tent, where they could be killed by pressing the sides together.

It is strange to me that the fly question has been allowed to take care of itself so long. It is a great source of loss as well as of distress to our domestic animals. Who will be first to come to the rescue of the poor beasts, not by brushing the flies away to go after some less favored creature, but to kill them outright and rid the earth of them? They do not travel very far and ought to be killed on every farm as fast as they appear.

Erie Co., N. Y. JOHN CHAMBELIN.

Dangers Attending So-Called Food Preservatives.

Of late then have sprung into existence a number of preparations, claiming to be safe and efficient food preservatives. They have been hawked from house to house, especially in rural districts, and on the strength of representations made by agents have found employment domestically in the canning of fruits and vegetables, and preservation of milk and milk products; fortunately, however, the representations made as to their efficiency in the preparing of meats have proved delusive, and thus in many instances led to their general abandonment as regards other domestic products. How far they have been, or are now, employed by factories engaged in wholesale production and marketing tinned products is a matter solely of conjecture, yet there are good reasons for surmising they are generally ignored, except, perhaps, in the preserving of the poorer and cheaper grades.

The least objectionable of these so-called preservatives owe what little virtue they may be possessed of either to salicylic or boracic acid, sodium salicylate or sodium biborate (borax); it is said that fluoric acid is sometimes employed, but no data or definite evidence is obtainable regarding such use or this agent.

As regards salicylic acid and salicylates, the dangers attending their employment have been thoroughly exploited in the past; further, the changes induced in the presence of fruit acids, whereby abnormal colors are developed, are in the majority of instances inhibitory. Boracic acid and borax, however, are in general use in some foreign countries for the preservation of products that are to be exported, but are forbidden by law as regards those intended for home consumption. These drugs, too, are popularly believed to be "harmless," which if true would simply mean they are in inert, and of little or no utility. They are, above all, cheap and can be obtained anywhere.

Within a few months, several cases of severe and dangerous poisoning, as the result of the employment of boracic acid and borax, have been chronicled in the medical press, both of America and abroad. In one instance five of a family numbering seven souls all told were seized with severe and excruciating colic accompanied by nausea and vomiting, that prostrated the unfortunates for three and four days; the trouble was brought directly home to the milk employed as a beverage, and to which had been added a preservative powder consisting of almost pure boracic acid. Two members of the family escaped because the milk used by them was only what was required for a cup of tea. The same milk, fed to half a dozen fowls, killed all but one, and this was rendered so ill that it was dispatched. In another family, numbering nine individuals, six partook of milk which had been "kept sweet" by the aid of borax, and all were thereby made seriously ill. Several cases of dangerous—and one of fatal—poisoning of infants and children by borax, fed in milk, are on record. Probably many more have escaped notice, the malady being ascribed to "cholera infantum," "summer complaint," colic, etc.

That accidents are not more frequent from the careless and ignorant use of these drugs, aside from the reason just mentioned, is due to two causes: First, the distress occasioned thereby closely resembles that which is apt to follow upon indiscretions of diet and improper exposure. Second, many adults are but slightly susceptible to the malign influence of the drugs, when they are only taken into the stomach casually and occasionally in moderate and unrepeated doses. As regards milk, it is possible, as has been suggested, that the drugs produce certain chemical changes therein, producing a new toxic agent, or enhancing or intensifying the untoward effects of the boracic acid or its sodium salt; but this has never received careful investigation and study.

Borax and boracic acid have been employed in a variety of diseases, both as internal and topical medicaments, and of late years—the former especially—have been exploited as remedies for epilepsy, though now practically abandoned because of the unfortunate results that follow in their train.

A single large dose, as already intimated, induces derangement in the digestive aparatus that simulate colic and the results accruing to indiscretion in the use of foods; besides, the action is very much like that provoked by toxic doses of lead. When taken in divided doses, and persisted in for some time, a burning, colicky pain in the "pit" of the stomach is experienced, followed by intense nausea and vomiting; the mouth and throat are dry, and there is a remarkable dryness of the hair and skin, the former falling, the latter developing skin diseases, resembling eczema, salt rheum, etc. *Most unfortunate of all is a tendency on the part of both drugs to develop and foster kidney disease, or when such is already existent in simple and acute form, to transform it into one of chronic, malignant, and fatal character.*

With this knowledge, it is evident too much circumspection cannot be employed as regards the use of so-called food preservatives, and that as a rule such should be regarded with the utmost suspicion, particularly if their exact contents or composition is unknown.—*Scientific American.*

STAND BY YOUR SPECIALTY.

St. Paul talks plainly to those shifting Christians who are moved about "by every wind of doctrine," and D. H. Otis, of the Kansas Experiment Station, who is doing a lot of good, practical dairy work in that state, writes as follows under the above caption:

A creamery patron, who milks cows when butter fat is high and beef low, but who turns his attention to beef when butter fat is low, sends in his dairy report for a year and at the close remarks: "Profits scarcely visible to the naked eye. What shall we do to be saved?"

Breeding a herd of cows for milk one year and beef the next, is a suicidal policy that no enterprising breeder would dare practice. By this haphazard method the above patron realized for butter fat $19.63 per cow per annum. The Kansas Agricultural College scrub herd pushed along dairy lines brought an average of $37.75 per cow per annum. This difference of $18.12 per cow is what would have been visible to the naked eye, had his cows been handled as the college cows were handled. "What shall we do to be saved?" Settle upon some definite line of work, study the business in all the details, find out what others are doing in the same lines, make your business a hobby and above all stick to it.

As plain and straightforward as the above advice is, it is too plain to be seen by lots of farmers. They like to "gamble" on a shifty, changing sort of farming, for there is just enough uncertainty about it to make it attractive. Then, besides, it is charming to think of a cow that you can do anything with—but make money.

Co-operative Dairying in Holland.

According to the German paper, *Milch Zeitung*, an extraordinary development has of late years taken place in co-operative dairying in Holland. For several years, says that paper, much attention has been paid to the manufacture and marketing of butter, now nearly all carried out on co-operative principles—peasant proprietorship in that country being almost universal. Large butter factories, too, are the rule, where the most advanced methods are adopted. For instance, with a view to making first-rate butter, the cream is often pasteurized and separated by the Schwartz process, instead of by the centrifugal system. Artificial cultures are often used, and the result is most satisfactory. So are the simple, but very businesslike methods of marketing. At Maestricht a combined association disposes of the great bulk of the butter and cheese made by the members. It not only sells the produce for its members upon co-operative principles, but endeavors to put the individual dairies into direct business relation with foreign firms, particularly in England, with the aid of the Dutch consular agents.

Right chimney, good lamp.
Wrong chimney, bad lamp.
Besides breaking.
Go by the Index.

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THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Mr. Dairyman:

Are you getting all the cream from your milk by your present method? We should like to put an



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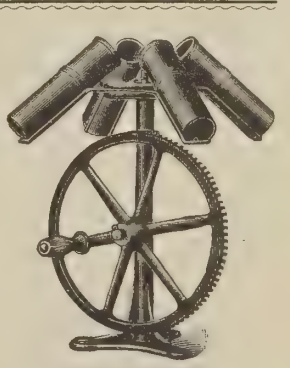
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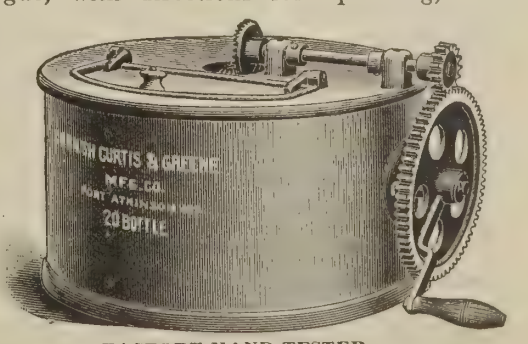
MOTOR TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

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Official Program of the Farmers' National Congress.

Nineteenth Annual Session, Faneuil Hall, Boston, Mass., Oct. 3-10, 1899.

TUESDAY, OCT. 3RD.

10 A. M.—Congress called to order by the President.
Invocation by Rev. George C. Lorimer, D. D., Tremont Temple, Boston.
Appointment of Committee on Credentials.
Address of Welcome by Hon. Josiah Quincy, Mayor of Boston.
Address of Welcome by His Excellency. Roger Wolcott, Governor of Massachusetts.
Addresses of Welcome by Governors of other New England States, and of New York, are expected.
Address of Welcome in behalf of Boston Chamber of Commerce.
Response by Hon. W. D. Hoard, Fort Atkinson, Wis., President of the Congress.
Response by Hon. J. M. Stahl, Chicago, Ill., Secretary of the Congress.
Response by Hon. W. G. Whitmore, Valley, Neb.
Response by Hon. B. F. Clayton, Indianola, Iowa.
President's Annual Address.
Report of Committee on Credentials.
Recess to 2 p. m.
2 P. M.—Appointment of Committees on Resolutions, Finance, Place of holding next meeting, and President's Address.
Address, "The Mission of the Experiment Station," by Dr. Henry H. Goodell, President Massachusetts Agricultural College, Amherst.
Discussion.
Address. 'Decline of Farm Lands in the East; Cause and Remedy," by Hon. J. W. Stockwell, Secretary Massachusetts State Board of Agriculture, Boston.
Discussion.
Recess to 8 p. m.
8 P. M.—Introduction of Resolutions.
Address, "Agricultural Progress and Profit," by Hon. Franklin Dye, Secretary New Jersey State Board of Agriculture, Trenton.
Discussion.
Adjournment to 10 a. m. Wednesday.

WEDNESDAY, OCT, 4TH.

10 A. M.—Introduction of Resolutions.
Address, "Inventions for Farmers," by Hon. W. B. Powell, Shadeland, Pa.
Discussion.
Address, "The Canadian Department of Agriculture," by Hon. Jas. W. Robertson, Dominion Commissioner of Agriculture," Ottawa.
Discussion.
Recess to 2 p. m.
2 P. M.—Introduction of Resolutions.
Address. "Problems Confronting Farm Life." by Hon. W. S. Delano, Lee Park, Neb.
Discussion.
Address, "Intensive Gardening," by Hon. E. F. Whitstein, Louisville, Ky.
Discussion.
Recess to 8 p. m.
8 P. M.—Introduction of Resolutions.
Address, "The Promotion of the Consumption of American Products in Foreign Countries," by Hon. James Wilson, Secretary of Agriculture, Washington.
Discussion.
Address, "Benefits of the U. S. Weather Bureau, to the Farmer," by Prof. Willis L. Moore, Chief of the Weather Bureau, U. S. Department of Agriculture, Washington.
Discussion.
Adjournment to 10 a. m. Thursday.

THURSDAY, OCT. 5TH.

10 A. M.—Introduction of Resolutions.
Address, "Teaching of the Elements of Agriculture in the Common School," by Hon. C. C. James, Deputy Minister of Agriculture for Ontario, Toronto, Canada.
Discussion.
Address, "Railway Transportation," by Hon. L. S. Coffin, Ex-Railway Commissioner, Fort Dodge, Iowa.
Discussion.
Recess to 2 p. m.
2 P. M.—Introduction of Resolutions.
Address. "Fertilizers and Their General Application," by Dr. E. B. Voorhees. Director N. J. Agricultural Experiment Station, New Brunswick.
Discussion.
Address. "Farming as it Influences and is Influenced," by Dr. E. L. Furness, Furnessville, Ind.
Discussion.
Recess to 8 p. m.
8 P. M.—Evening session devoted to Good Roads. In charge of Otto Dorner, Milwaukee, Wis.
Adjournment to 10 a. m. Friday.

FRIDAY, OCT. 6TH.

10 A. M.—Introduction of Resolutions.
Reports of Committees.
Address, "The Necessity of Pure Food Legislation," by Hon. H. C. Adams, Dairy and Food Commissioner of Wisconsin, Madison.
Discussion.
Recess to 2 p. m.
2 P. M.—Election of Officers.
Address, "The Western Tenant and his Eastern Landlord, by Hon. H. R. Hilton, Topeka, Kansas.
Discussion.
Address, "Dairying," by B. Walker McKeen, Secretary Maine State Board of Agriculture, Augusta.
Discusssion.
Final Report of Committees.
Addresses: Speakers and subjects to be announced.
Recess to 8 p. m.
8 P. M.—Address, "Improved Farming in the South," by Col. T. C. Slaughter, Prosper, Texas.
Adjournment for Excursions.
Final Session at 2 p. m., Tuesday, Oct. 10th.

EXCURSIONS.

To Plymouth Rock, Saturday, Oct. 7th.
Down Boston Harbor, Monday, Oct. 9th.
To Concord and Lexington. To Cape Ann.

RECEPTION.

Reception by Boston Chamber of Commerce.

HOTEL ACCOMMODATIONS AND RATES.

American House (headquarters), 54 Hanover Street. American plan, $2.25 and $2.50 per day.
Adams House, 553 Washington Street. European plan, $1.50 and upwards per day.
Brunswick, Boylston, corner Clarendon Street. American plan, $4.00 and upwards per day; European plan, $1.50 and upwards per day.
Crawford House, Court, corner Brattle Street. European plan, $1.00 per day.
Parker House, Tremont, corner School Street. European plan, $1.00 and upwards per day.
Quincy House, Brattle Street. American plan, $2.50 and $3.00 per day; European plan, $1.00 per day.
Revere House, Bowdoin Square. European plan $1.00 and upwards per day.
Touraine, Boylston, corner Tremont Street. European plan, $3.00 and upwards per day.
United States Hotel, Beach, corner Lincoln Street. American plan, $2.50 per day.
Vendome, Commonwealth Avenue, corner Dartmouth Street. American plan, $5.00 and upwards per day.
Young's Hotel, Court and Washington Streets. European plan, $ .00 and upwards per day.

RAILROAD RATES.

Rate of railroad fares for Delegates and Associate Delegates and friends to and from the Congress, one and one-third. All must procure certificate with every ticket purchased.

The Butter Won't Come.

ED. HOARD'S DAIRYMAN:—I am having trouble with my cream. It will not churn thoroughly. The cream will get in a granular form, but will not unite, except a very little of it. The little butter we do get is nice. The cream is taken direct from separator, after running through a screen, and placed on cellar bottom, or in running water both having a temperature of about 68° F. We put two creamings together for a churning. After setting awhile the cream forms into two parts; the upper forming into little granules, while the lower seems like whey. We separate direct from cows. C. E. S.

Martins Creek, Pa.

We might be able to help if more data were given, but as nothing is said about the degree of ripeness or temperature of churning, we can only suggest where the trouble may be.

Are your two batches of cream of the same ripeness? Is one batch a little sweeter or sourer than the other? Do you keep them separate until ready to churn? How often do you churn and at what temperature? Does your cream have a clean, sour smell and taste, or is it curdled without souring? If we knew something about the above points, we could advise you better.

The only point that helps us is the statement that the cream separates into layers, the lower one like whey. This would indicate an over ripening and "wheying off" of the cream, a condition which causes the formation of viscous compounds in the cream, and consequent poor churning. The past hot weather was liable to cause very rapid ripening, and if this process is carried beyond its proper point, the butter loses both in flavor and yield.

This is especially true, if the ripening has been allowed to go on until the cream "wheys off," for at this stage the churning is often but partly completed, and the butter, what there is of it, of poor flavor.

Looking carefully to the ripening of the cream and the churning temperature will cure nine out of ten cases of poor churning.

Cedar Hill Dairy Notes.

Handling the Bull.—Poultry.—Filling Silos.

ED. HOARD'S DAIRYMAN:—That bull, and how to handle him, is much written about. At Cedar Hill farm our bull is a source of recreation as well as useful; at the same time he is rendered docile and easily handled. Our boys have broken him to saddle and also to harness.

They drive him to town three miles in a two wheeled road cart, using a single harness on him, and busy days when they do not have time to drive or ride him, they put him in the tread power and let him run it for an hour. This exercise makes him glad of a rest and keeps the mischief down.

We keep him tied all of the time. He is kept free from flies with our shoo-fly and is the picture of health and vigor.

***

Many inquiries have reached our desk lately from dairymen who have read our poultry articles in various journals. The general tone of these is that our substituting poultry for hogs, will not pay. Yesterday we weighed two cockerels fourteen weeks old; they weighed four and one-half pounds each and at present produce prices we can get fifty cents each for them. Multiplying this by several hundred that we have, makes a total that is worth considering; but our aim is eggs during the winter months when prices are high. With our frost proof houses and steamed foods, fed to the greatest of laying breeds, Leghorns, we will realize as much from a dozen eggs as a pound of butter.

Vermin do not trouble us. From our sulphuric acid jug we not only make our milk tests but also get the best vermin destroyer we have yet used; we use four ounces of acid in three gallons of water; this we use with a spray pump in houses and on any ground we may mistrust is infected.

***

In ten days we will be cutting our ensilage crop. We see so much written about how to build silos but very little how to fill. Our method may interest some of the DAIRYMAN readers. We have a sixteen inch cutter, thirty feet carrier and twenty-eight feet conveyor, driven by a ten horse boiler and eight horse engine; the engine is fifty-five feet from cutter. We use a sack tube on carrier, saving one man in silo; use only low wheeled wagons with flat decks. A Deering corn binder saves us four cutters, one loader, and one team and driver, over old way, besides we can handle more corn in a day than old way. "BUFF JERSEY."

Selection of Breeds.

ED. HOARD'S DAIRYMAN:—The article from the pen of J. M. W. Kitchen, M. D., of New Hampshire, in September 1st number HOARD'S DAIRYMAN, to my mind contains points in reference to the selection of breeds, well worthy of thoughtful consideration, and especially to many of our eastern dairymen and stock breeders.

Some two years since, the writer contributed a short article stating some of the desirable qualities of the Short-horn, and profits derived from the sale of butter and stock, by keeping the increase from a grade Short-horn dairy, of twenty cows, till two years old before disposing of same, instead of vealing or selling the calves later on; believing that in pursuing such a course the net profits would be equal to those derived from the same number of Jersey or Guernsey cows; that the eastern farmer could keep his young cattle and attend to their wants much easier and less expensively than a herd of all Jersey or Guernsey cows could be kept.

F. H., of McGregor, Iowa, took exceptions to statements therein, and more especially to the weight and price two year old cattle had been quoted at. Well, if those figures then looked large, what will he think when informed that the same class and heft of cattle are now selling at $46 per head, instead of $40, as quoted two years ago.

One of my neighbor farmers has just disposed of 155 head two-year-old steers at $46 per head, off his grass pastures. Other lots are selling at only one dollar per head less. They are not of the screw auger kind, however, nor are they of the Holstein blood.

The latter breed are great milkers, but the steers seem to require more age to round out and lay on fat, than the Short-horn. The latter breed, if as great pains be taken in selecting a sire to head the herd and heifers from only the best milkers be saved, as is taken by owners of other breeds, will be found so nearly equal to the best of other kinds that no farmer need be ashamed of their record.

Some of our Chautauqua County farmers have tried the Jersey, Guernsey, and more recently the Holsteins breed as dairy cows, but very few, however, have made a success by the keeping of either of the two former breeds. The latter, however, seems to be holding their own fairly well.

Chautauqua County has been and still continues to be the home of the Durham. So much so that it is very doubtful if any other breed very soon takes its place or crowds it out to any great extent. Somebody has got to raise beef cattle, and surely it does not look like an over supply coming from the



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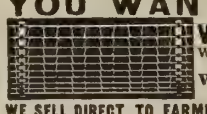
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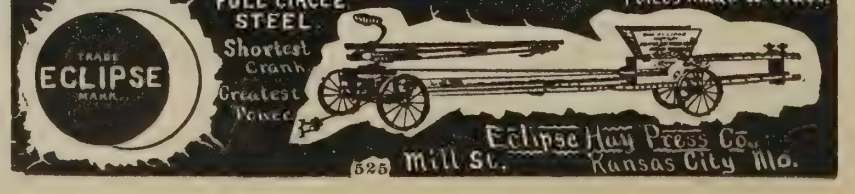
Volume XXIX of Hoard's Dairyman

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Jersey and Guernsey breeds. Their breeders argue, while some of their followers believe, that a cow to do well at the pail can never be very valuable for beef herself, or bring a steer worth keeping for that purpose. The breeders of the Short-horns are perfectly willing others should stick to that belief, well convinced that every herd of Jerseys or Guernseys so established, tends to raise the price of his two-year-old steers in just that proportion.

What a blessing that we cannot see all alike; were it so what a tumbling over one another there would be in securing houses and lots in McGregor, Iowa. T. J. F.

Chautauqua Co., N. Y.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offerings of butter on Monday's board of trade, aggregated 5,040 pounds and all was sold at an advance of one cent to a cent and a half. Bidding opened at 22 cents and 2,640 pounds sold at that figure. The remainder, 2,400, brought 22½ cents and more could have been sold at a like figure. The quotation committee announced the market firm at 22½ cents. The sales reported were as follows:

Factory.	*Pounds.*	*Price.*
Darinda	1,800	22
Red Clover	2,400	22½
McConnell	840	22
Total	5,040	

The markets for the corresponding week of the three preceding years were as follows:

Sept. 12, '98, 11,160 pounds of butter sold at 20c.
Sept. 13, '97, 12,300 pounds of butter sold at 17½c.
Sept. 14, '96, 53,280 pounds of butter sold at 15c.

The New York market Monday was reported firm at 23 cents. H. C. B.

Elgin, Ill., September 11th, 1899.

A Wide Circulation.

ED. HOARD'S DAIRYMAN:—There has been an unprecedented demand for bulletin No. 75, "Testing Cows at the Farm," which was sent out by this department recently. A second edition has been ordered so that the calls which are constantly being received for this bulletin may be supplied. One creamery company has asked for four thousand copies for distribution to its patrons, and others want from two to six hundred copies for the same purpose. E. H. FARRINGTON,

In charge of Dairy School.

A Remedy for Rats Wanted.

ED. HOARD'S DAIRYMAN:—I find your paper holds such a valuable fund of information, that I am taking the liberty of asking you, or any of the readers of HOARD'S DAIRYMAN, through it's columns, how to rid my farm of rats which will not eat poison, get caught in traps, or give one an opportunity to shoot them. They breed under the chicken houses and are overrunning my farm, cellars, barns, chicken houses and private dwelling. I shall consider it a great favor if you can suggest anything that will rid me of this pest. C. S. STILLMAN.

Middlesex Co., Mass.

DAIRY MARKETS.

ELGIN, Ill., Sept. 11—Eighty-four tubs offered, 40 sold at 22½c; 44 sold at 22c; committee reported firm, 22½c.

CHICAGO, Ill., Sept., 11—Butter—Creamery, extra, 22c; firsts, 19@20c; seconds, 15½@16½c; dairies, selections, 17c: No. 1, 15c; No. 2, 14c; extra ladle, 13½@14c.

Cheese—Full cream, Twins, new, good to choice, 10¾@11c; Young America, 11@11½c; Swiss, 9@11c; Limburger, 8@9c; Bricks, 9@10¾c.

Eggs—Fresh, at mark, cases returned, sold at 12@13c; loss-off, cases returned, 14½c.

Cattle—The better grades of native and range cattle ruled steady, with other grades weak to 10c lower. Trade was active, and an early clearance was made. The best natives offered sold at 6.00; best grass westerns, 5.25, and best straight Texas, 4.90. Most of the native beef cattle sold at 5.50@6.25, and grass westerns largely at 4.50@5. Native butcher stock sold actively at strong prices. A car load of fancy 1,228-pound cows sold at 4.90 and some fancy 941-pound heifers at 5.55. Feeding cattle were in active demand. A lot of 150 Canadian feeders, averaging 742 pounds, sold at 4.25.

Bran—In fair request and steady, with sales at $12 in bulk and $12.75@13 in sacks.

MILWAUKEE, Wis., Sept. 11—Butter—Creamery, fancy prints, per pound, 21½c; extras, 21½c; firsts, 20@21c; seconds, 18@19c; imitations, 17@18c. Dairy—Selections, per pound, 16@18c. Market strong, as the scarcity continues while the demand is good. Receipts, 10,755 pounds.

Cheese—American full cream, new, choice, to fancy, 10@11c; Brick, new, per pound, choice, 9½@10c; Limburger, new, choice, 8½@9c; Swiss, new drum, choice, 10½@11c; block, 10½@11c; No. 2, 9½@10c. Market steady; receipts, 7,700 pounds.

Eggs—Fresh, per dozen, 14c, loss-off, cases returned. Market strong and continues to advance, choice lots being scarce and wanted; receipts, 260 cases.

MUSCODA, Wis., Sept. 11—Offerings today, 1,281 Twins; market quiet, car lots, 10¼c; local lots, 10⅜c; 130 whites sold at 10⅜c.

FOND DU LAC, Wis., Sept. 11—Offerings 833 Twins and 420 Daisies; market quiet at 10⅛@10¼c.

SHEBOYGAN FALLS, Wis., Sept. 6—Sixteen factories offered 1,160 boxes of cheese on the call board to-day, and all except 45 cases of Young Americas were sold as follows: 560 cases Young Americas at 10¾c; 200 Twins at 10½c; and 355 Daisies at 10¾c. The market was less active than for two weeks past and not a bid was raised after being placed on the board.

MANITOWOC, Wis., Sept. 6—Offers of cheese at the dairy board today were 900 boxes of Daisies, 160 boxes Twins, 900 boxes Young Americas. All offerings Daisies sold at 10¼c; Twins at 10¼c; 450 Young Americas at 10½c; 450 Young Americas at 10½c.

NEW YORK, Sept. 11.—Butter—Creamery, Western, extras, 22½c; firsts, 21@21½c: state extra 22@22½c; firsts 20½@21½c.

Cheese—State, full cream, small, colored, fancy, 11⅝@11¾c; white 11¼c; large, colored, 11½@11⅝c; white 11⅜@11½c.

Eggs—State, Pennsylvania and Western 17½@18½c.

KANSAS CITY, Mo., Sept. 11.—Butter—Creamery 20c; dairy 15c.

Eggs—Fresh 12c.

CINCINNATI, O., Sept. 11.—Butter—Firm.

Eggs—Firm, higher 13c.

Cheese—Firm; good to prime Ohio flat 11@11¼c.

ST. LOUIS, Mo., Sept. 11.—Butter—Firm—Creamery 17@21c; dairy 13@17c.

Eggs—Higher at 12c,

BALTIMORE, Md., Sept. 11.—Butter—Firm; fancy creamery 22@23c; fancy imitation 18@19c; good ladle 14@15c; store packed 12@14c.

Eggs—Firm, unchanged; fresh 17@18c per doz.

BALTIMORE MARKET.

BALTIMORE, Md., Sept. 7—The absentees, who during the earlier summer months betook themselves to the green fields and pastures new, and there fed on viands and other nutriment that didnot pass through our hands, including butter to give savor to the good things that ripen about them, have turned their hastening footsteps towardour cityand quite a percentage, who have outstripped the majority in a race for home having arrived and brought their appetites along, are making their home comingpal pable in the increased demand for the table grades of all varieties of butter, bothfresh and freezer stock, the latter being a temporary shift however, made necessary only because of the receipts of fresh having been adjusted to the summer condition, which was by a large majority decided to be a record maker for spending the season out of town. Separator creamery can be regulated as to receipts of fresh, with greater ease than any other kind, so that item gives little or no concern to the receivers; but our merchants are unanimous in their call for an increase of supplies of gathered cream, imitation creamery and ladle packed, from points of production. There is a larger and growing demand for thirty pound tubs of gathered cream creamery, and probably quotations would be exceeded. Exporters have shown some more activity, and it is manifest that the demand from the other side has not been satisfied, although the shipments have been heavy —very heavy indeed for August. At present, there is a shortage in prints and blocks which will not be a feature as soon as the consumptive demand in the near by country slackens. The light receipts of store-packed find prompt sale on arrival.

Creamery Separator, extras, 21½@22c; firsts, 20½@21c; seconds, 18½@19c. Creamery Gathered Cream, extras, 19½@20c; firsts, 18@19c; seconds, 17c. Creamery Ohio, extras, 19½@20c; firsts, 18@19c; seconds, 17c. Creamery Imitation, firsts, 16½@17c; seconds, 15@16c. Iowa & N. W. ladle, 15@16c: seconds, 14c. Ohio & Indiana Ladle, firsts, 15@16c; seconds, 14c. Ohio Storepacked, firsts, 13c; seconds, 12@12½c. W. Va., firsts, 13c; seconds, 12@12½c. Creamery Blocks (2-lb), extras, 23½@24c: firsts, 22@23c; seconds, 21c. Creamery Prints (½-lb), extras, 23½@24c; firsts, 22@23c; seconds, 21c. Md., Va. and Penn. Prints, extras, 20c; firsts, 19c; seconds, 17@18c.

Cheese—Receipts of cheese, fair; demand good, market firm. N.Y.State Cheddars, fine, 12@12¼c; choice, 11½@11¾c; fair, 10½@10¾c. Flats, 12¼@12⅜c; choice 11¾@12c; fair, 10¾@11½c; Small, fine, 12½@13c; choice, 11¾@12¼c; fair, 10¾@11½c Ohio—Flats, fine, 11½@12c; choice, 10¾@11½c; fair, 10@10½c. Ohio Picnic, fine, 11¾@12¼; choice, 11@11½c; fair, 10¼@10½c. Swiss Cheese, fine, 12@13c; choice, 11@11½c; fair, 10@10½c.

Eggs—The receipts of all choice to fancy eggs are extremely light; our market rules firm and strong for all desirable stock; the demand is active at 16½c; we advise prompt and liberal shipments of fresh stock, as our market was never in better condition than it is at present. Please bear in mind that our quotations are for fresh, and not for heated or other inferior stock.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK Sept. 9—Butter—Receipts for the week, 33,119 packages. Exports for the week 3,454 packages.

There has been a fair current of business through the week with motion enough to keep stock fairly well distributed through regular channels, at an advance of fully 1½c per pound. Prices are now up to a point where there is hesitency on the part of buyers as to increase of load, and at the moment many prefer to decrease than to increase stock. The outcome, however, is in favor of a large fall business, and perhaps higher prices for finest grades of butter.

Early in the week prices for extra fresh creamery was advanced to 21½c, and at the close was quickly taken at 22@22½c; under grades were enquired for, and sold readily at 18@21c; fine dairy, hardly enough coming to make price, few parcels fine sold at 20@21c, and fair to good quality at 15@18c. Fresh ladle butter is in light supply and good demand with sales at 14@16c, the latter price for finest marks. Fresher goods have had some call from out-of-town buyers, and we note sales of several hundred tubs best June Creameries at 21@21½c, also small lines of June Ladles at 15½@16½c. We quote:

Creamery, extra, 22½c; medium, 20@21c; poor, 16@18c. Dairy, extra, 20@21c; medium, 17@19c; poor, 14@16c. Ladle, extra, 15½@16c; medium, 14½@15c; poor, 14@14¼c.

Cheese—Receipts for the week, 37,270 boxes. Exports for the week, 8,019 boxes.

Exporters have shown little interest this week, and the local trade was not so snappy, and prices however, are steady at the close. Sales of large cheese were at 11@11½c, and small sizes at 11½@11¾c. Under grade cheese are scarce, and wanted at 9@10½c. We quote:

Full Cream, small extra, 11½@11¾c; medium, 10¾@11¼c; poor, 8@10c. Full Cream, large, extra, 11@11½c; medium, 10½@10¾c; poor, 8@10c

Eggs—Receipts for the week, 49 616 cases. Market about same as last week; fine, fresh stock all wanted at full prices, and inferior goods dragging at quotations ranging from 13@16c. We quote:

N. Y. State & Penn. best marks, per dozen, 18@19c; Western & Northern section best marks, 17@17½c; other sections inferior quality 13@16c.

177 Chambers St. DAVID W. LEWIS.

1899 the Greatest of "Alpha" Disc Years.

For eight years past every year has been an "Alpha disc year in the sale of cream separators, their success being greater from year to year and greatest of all in 1899.

Beginning with a relatively small sale in 1890, the superiority of the "Alpha" disc system was so great as to achieve instant success. The sale in 1891 was double that of 1890, and the sale of "Alpha" disc machines has thus continued to virtually double itself from year to year, in the Factory and Dairy sizes combined.

The recognized supremacy of the "Alpha" disc system is now so great in Factory separators that the purchase of De Laval machines in 1899 has been almost universal, exceeding 95 per cent of the total sales in the West, and 85 per cent in the East. In the Farm or dairy sizes of machines the users of such separators have not yet come to so well understand the differences between separators, but are rapidly acquiring this knowledge from practical experience, and the same percentages nearly hold good, and within another year or two will undoubtedly do so.

Users of separators—whether big or little—have come to understand that **The "Alpha" Discs are literally the heart and soul of a perfect cream separator** and that the all around efficiency and general practicability of the "Alpha" disc machine is simply unapproachable by anything else that can be put together in the shape of a cream separator, regardless of price, clap-trap claims of would-be competitors and every other conceivable consideration.

The differences in principle and construction between the "Alpha" and other separators are fully illustrated and made plain to every one in the De Laval catalogues—Creamery or Dairy—which may be readily had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Jerseys For Sale—Two cows, one two-year-old, one yearling, and one heifer calf and two bull calves, all registered in Cattle Club record, and choicely bred. B. F. WYMAN, Sycamore, Ill.

For Sale—My herd of 32 grade Holstein cows, all of my own raising, and bred from choice milking Durham cows. Age from 5 to 8 years. Average weight about eleven hundred pounds. Received for milk an average of $60.00 per cow last year. Bred to freshen the last week in September and during October. Will give more milk the coming year, as all are mature and freshen earlier. Milk tests from 3.6% to 4.10%, All easy milkers. No kickers or steppers. Bred to a fine Durham bull. Price $60.00 each. Herd located at city limits of Dixon, Ill. Correspond with A. G. JUDD, Warren, Ohio. 31-3

For Sale—Cheap for cash. Beautiful country home. Six miles from Nashville Tenn. On good pike. 120 acres. Especially adapted for dairying. Address "P," Glencliff, Tenn.

Experienced man, married, Swiss, wants position on stock or dairy farm. Good recommendations. Address P. O. Box 171, Monticello, Wis. 31-tf

Wanted—Position as helper in creamery. One year's experience. Box 90, Poynette, Wis.

Do you want to correspond with an old New York butter and cheese maker. Twenty-five years experience. Can make fancy goods. Address F. M., care HOARD'S DAIRYMAN.

I will give $10 to any one getting me a good dairy farmer for my place. Rent or shares. Carries 30 to 40 cows. I furnish half. Milk nets $1 per hundred year round and $180 per month. G. M., Box 167, Waukesha, Wis.

Wanted—A Jersey herdsman with great experience, who is a No. 1 feeder and milker and gilt-edge buttermaker, is seeking employment. Good references and by myself. Address THOS. ARKELL, Dodson, Mo.

Tamworths, ready to wean, $10 each, or $12.50 delivered. Hermanville Farm, P. E. I., Canada 32-52

Wanted—A practical and reliable dairyman to take charge of my dairy farm, and will rent for a term of years to right party. Farm has all the modern improvements, consisting of 2 silos, stone floors (700 yds.), system of waterworks, brick creamery and a private market for all the butter at 25c in Sioux City. Cream separator and a market for cream. My farm of 200 acres lies 6¾ miles south of Sioux City, on the Missouri bottom lands. We have two cottages for help and can handle 40 cows with ease. I wish to rent as my children are too small to assist me in care of farm. A. J. WESTFALL, Sergeants Bluffs, Iowa. 30-2

Guernseys at Auction—I will sell at Public Auction on my farm near Fort Atkinson, Wis., on September 20th, commencing at 10 a. m., 32 head of high grade and registered Guernseys, consisting of 4 registered cows, 8 high grade cows, 10 two-year-old high grades, half coming fresh this fall, 10 grade calves from 1 month to 11 months old, 1 registered bull calf 6 months old, Springer Jr., No. 3926, the head of this herd, will also be sold. This is an excellent lot of well bred grades and full bloods and offers exceptional chance to secure good stock. GEO. D. TELFER. 30-2

Wanted—A thoroughly competent and experienced man to work on a dairy farm. Must understand care and feeding of dairy cows. Also must understand steam and care of separator and all modern dairy utensils. Graduate of some dairy school perferred. For particulars address A. J. DAUGHERTY, Streator, Ill. 29-tf

For Sale—2nd hand U. S. cream separator, No. 5. G. W. SHAW, Allen's Falls, N. Y. 30-2

Wanted—Married man to take charge of 25 cow dairy. S. READ, Bristol, Tenn. 30-2

Wanted—A position by a first-class buttermaker and creamery manager. Twenty years' experience. Best of references. Married. Address C., care HOARD'S DAIRYMAN. 30-2

Wanted—A competent person, with about $1,500, to buy an interest in and run an established dairy, adjoining the city of Baird, Texas. Interest to be only in live stock and dairy outfit and not in the land, of which there is 1000 acres, 200 acres in cultivation and 800 acres pasture, all of which will be rented reasonably. All improvements necessary for first-class dairy. Spring, spring-house, 400-ton silo, barns, corrals, etc. Regular sale for creamery butter, 25c year round; milk 20c per gal. No other dairy. Address at once. W. C. POWELL, Baird, Tex. 29-3

The Best Shooting—The shooting in Iowa, Minnesota and South Dakota this year promises to be very good as the rainfall in all these states was abundant. The best localities for chicken and duck shooting are on and tributary to the lines of the Chicago, Milwaukee & St. Paul Railway. A copy of a recent publication issued by the passenger department of that road can be had on application to Geo. H. Heafford, General Passenger Agent, Chicago, Ill., and enclosing three cents in stamps for postage. 31-2

Excursion Tickets to Walworth County Fair at Elkhorn, Wis., via the North-Western Line, will be sold at reduced rates, September 18 to 22, inclusive, limited to September 23. Apply to agents Chicago & North-Western R'y.

For County Fair, Madison, Wis., the North-Western Line will sell excursion tickets at reduced rates, September 18 to 22, inclusive, limited to September 23, inclusive. Apply to agents Chicago & North-Western R'y.

INFORMATION WANTED.

It is impossible to get too much information regarding the breeding and testing of the dairy cow. Every year brings a new lot of dairymen, and, also, a new crop of calves, which should be fed, milked and bred in a manner to give the largest returns. In many cases the returns will be satisfactory; others, through want of the right kind of knowledge, have not made the success which they anticipated. From both classes much valuable information can be derived; to know where and how one has failed is as valuable, as to know why another was successful. We shall be glad, therefore, if a number of the readers of the DAIRYMAN, and the larger the better, would send us answers to the following questions, taking care to give their failures as well as successes:

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions. Do not worry about the style or grammar of your statement. Answer each question by number, and state your experience.

New York Farm and Diary Notes.

How One Dairyman Succeeded.

ED. HOARD'S DAIRYMAN—Some dairymen fail because they do not adapt their methods of farming to the conditions which surround them. In this locality there are farms which grow good grass for pasture, but the land is too wet, or too steep, or too stony to be easily cultivated. To practice successfully the plan of silage, clover, and grain farming, the soil must be easily tillable.

I know one farmer who has made considerable money on a small farm. For many years he has kept a small dairy, ten or fifteen cows I think, and with his plan of farming he certainly has been successful. His farm of about seventy acres lies along a stream in one of the fertile valleys in this section of country.

There are so many springs of water on his farm that much of the land is naturally moist, and the meadows and pastures are productive without any work being done on them. He does not plow his land except an acre or two each year for growing family vegetables, or grain to feed his horse. Nearly all the manure is used for top-dressing the meadows. As he plows but little, he has but little work to do on his farm. In fact about all the work he has done for years is to take care of his cows, and has hired his haying done, for he is now an old man, and able to do but little work. His haying is done very early, and sometimes he is nearly through haying in June, so his hay is the very best quality. Having such good hay, and milking his cows mostly in the summer, he buys but little grain.

He makes butter at home, and makes it only during the summer season. His cows are what I think can be called thoroughbred natives. For many years he has raised the calves from his best cows, until he has bred a herd of cows that average three hundred pounds of butter a year per cow. He keeps no hogs, and raises but two or three calves a year, and feeds nearly all the skim milk to the cows all summer, with a very little grain in it. Every day he carries out a large pailful of skim milk to each cow, and throws a handful of grain in the milk. By doing this, he easily induces all the cows to drink the milk.

If this farmer keeps only ten cows, and makes three hundred pounds of butter from a cow, he makes in a season 3,000 pounds. He makes excellent butter, which I think he can generally sell for twenty cents per pound as the average price for the season. This gives him an income of $600; $100 hires his haying done, buys the little grain he feeds, and pays the running expenses of his little farm. He gets $500 a year for doing chores, milking and feeding his cows. He and his wife require but little for their simple and plain living, and for years this farmer has been laying up money, until he has a good sum at interest, and a competence for his old age.

It will be noticed that the main essentials in his success, have been good cows, a naturally good grass farm, early cut hay, and feeding the skim milk with a little grain to the cows all summer. His farm is so wet and stony, that if he had tried to till it he would have made a mistake, and probably would have made a failure in his business.

A FINE FARMING COUNTRY.

I recently drove through the Ouleout valley, and some observations made along the way may interest your readers. The Ouleout is one of the largest branches of the Susquehanna river in Delaware county; rising in the northern part of the county, in the town of Meredith, it flows through the towns of Franklin and Sidney, and empties into the Susquehanna river near Unadilla. Leaving the Susquehanna river at Unadilla, the road along the Ouleout is so good as to make driving a pleasure. The flats along the stream produce large crops of hay and grain, and the excellent pastures on the hill-sides and the springs which furnish an abundance of the best water, makes this country so well adapted to dairying, which is the main business of the farmers.

In this valley we find some of the best bred herds of Jersey and Guernsey cattle. A farmer remarked to me that their cattle had become so famous that China and the Philippines were asking for Delaware county Jerseys.

The crops in this valley were unusually good. A large hay crop has been stored in good order. Oats were a good crop, yielding on some farms fifty-five bushels per acre. There are many silos here, and the ensilage corn has made a large growth. A large crop of potatoes will be harvested, and low prices are expected. One farmer had been feeding oats and peas to his cows for some time, and his method of growing them, being somewhat unusual, may be of interest.

Unlike most farmers, he does not sow Canada peas, but the marrowfats, or some variety which makes a large growth of vines. These are sown very early in the spring, on rich ground, and plowed in three or four inches deep. Two weeks later the oats are sown and harrowed in.

In this way he obtains a larger growth and more fodder than with the usual way of sowing Canada peas with oats. This farmer owned a fine herd of Jersey's, used a separator, and made butter at home. He could make more money in this way, than by selling milk to the creameries.

The breed of cattle which is now the most favorably regarded in this section of country is the Guernseys. The Guernsey cow as she is bred by these dairymen, seems to possess all the desirable qualities. If the farmer sells milk to the creamery by measure or weight, she gives the quantity of milk which makes her profitable. If he sells milk where he is paid for it according to the butter-fat it contains, the Guernsey is also profitable, for no breed except the Jerseys give milk richer in butter-fat. The Guernsey is thought to possess all the desirable qualities of the Jerseys, while she is larger, stronger, and a more hardy breed.

W. J.

Delaware Co, N. Y.

Col. Robert Ingersoll on "Clover."

The recent death of Col. Ingersoll recalls the beautiful and witty response he made in sending a letter of regret to the Clover Club of Philadelphia:

"A wonderful thing is clover. It makes me think of honey and cream, that is to say, industry and contentment; that is to say, the happy bees in perfumed fields, and at the cottage gate, old Bos, the bountiful, chewing satisfaction's cud, in that blessed twilight that, like a benediction, falls between all toil and sleep.

This clover makes me dream of happy hours, of childhood's rosy cheeks, of dimpled babes, of loving wives and honest men, of springs and brooks and violets, and all there is of painless joy and peaceful human life. A wonderful word is clover. Drop the "c" and you have the happiest of mankind. Take away the "c" and "r" alone and you have the only thing that makes a heaven of this dull and barren earth. Cut off the "r" alone and there remains a warm, deceitful bud that sweetens the breath and keeps the peace in countless homes whose masters frequent clubs. After all, Bottom was right: "Good hay, sweet hay, hath no fellow.'"

Crops for Poultry.

Profitable poultry raising depends, mainly, upon a liberal supply of eggs in winter. Among the desirable or really essential foods for producing eggs in winter are "greens." A daily supply of some kind of green food in winter, in connection with the regular allowance of other food, adds the proper material for the so-called balanced ration. It is not generally understood what an important relation pasturage bears to success in poultry raising. It may be noticed how quickly a flock of hens confined to a yard, will completely denude it of all herbage. Though many notice this, they afterwards wonder why the hens cease to be as productive on the bare yards. Hens will pasture as close as sheep. The very best natural pasturage for poultry, is a well established sod, where native grasses abound, interspersed freely with white clover. A first-class cow pasturage is an ideal place for a poultry pasture.

On farms where business attention is given to poultry, it will pay well to put in crops for both summer pasture and winter use. Good judgment will enable the farmer to readily supply the demands of his flock, and in doing so to greatly increase the ready money income of his farm. Alfalfa is destined soon to be one of the leading crops for poultry pasture. Its wonderful recuperative powers prove it to be just the plant for the purpose. It can be cut several times during a season, for hay making. Poultry can be turned on it, and when it has been eaten down pretty close they may be removed, and the alfalfa will soon be growing again with its usual vigor. This may be repeated the entire season.

Another crop which will become a favorite for pasture raising is rape. The immense quantity that can be grown on an acre will make rape a great favorite, especially where there are bare poultry yards. The large rape leaves are just the "greens" to supply yarded fowls with, and they seem to relish it just as much as they usually do the early cabbage heads they find growing in the gardens. Where it can be had convenient to the poultry yard, crimson clover should be seeded in August, or during the last working of the corn. This will afford a most excellent pasture during the winter, when there is no snow on the ground. This crop will also be highly beneficial to turn under in the spring, to be followed with any crop.

Among the crops desirable for winter feeding when nothing outside is available are rutabagas, mangel wurtzels and turnips. Any of these are good to feed for greens, and can also be boiled, mashed and mixed with the regular allowance of morning mixed food.

Perhaps in the near future there will be regular silos for preserving green cut clover for poultry feeding. It is doubtful, however, whether ensilage, if it has to be fed in the fermenting stage, would prove a safe or desirable food for poultry. Properly cured, cut quite green, clover cut fine and packed dry in bags, will, in time, become a standard product on the markets for poultry.

The sooner farmers recognize the fact that poultry raising should be followed on the same line that dairying is—giving food and care to secure result—the sooner will they begin to reap their share of profits and become competitors with practical poultry raisers. The idea that "anything is good enough for hogs or chickens," is a mistaken one that has anchored many a farmer on the wrong side of the road to profitable farming. Nothing can be attained without effort, and the more practical and intelligent the efforts the greater the success.—G. O. BROWN in *Baltimore Sun.*



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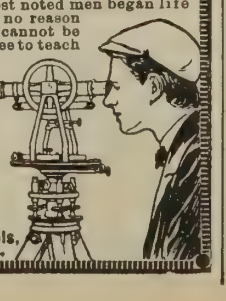
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TEN YEARS OF EVOLUTION

— IN —

Dairy Cream Separators

A pertinent illustration of ten years of development, betterment and practical cheapening of the De Laval "Baby" Cream Separators.

STYLE.	1890.	1891.	1896.	1898.	1900.
"Hollow-Bowl" Baby No. 1.	Cap. 150 lbs. Price, $125.–	Cap. 150 lbs. Price, $100.–	Cap. 150 lbs. Price, $75.–	Cap. 150 lbs. Price, $50.–	Cap. 150 lbs. Price, $50.–
Old-Style Humming-Bird.	....	....	Cap. 175 lbs. Price, $65.–	Cap. 175 lbs. Price, $50.–	Cap. 175 lbs. Price, $50.–
Crank Humming-Bird.	....	....	....	Cap. 200 lbs. Price, $65.–	Cap. 225 lbs. Price, $65.–
"Alpha" Baby No. 1.	....	....	Cap. 250 lbs. Price, $90.–	Cap. 300 lbs. Price, $100.–	Cap. 325 lbs. Price, $100.–
"Alpha" Baby No. 2.	....	Cap. 275 lbs. Price, $125.–	Cap. 350 lbs. Price, $125.–	Cap. 400 lbs. Price, $125.–	Cap. 450 lbs. Price, $125.–
"Alpha" Baby No. 3.	....	Cap. 600 lbs. Price, $200.–	Cap. 675 lbs. Price, $200.–	Cap. 750 lbs. Price, $200.–	Cap. 850 lbs. Price, $200.–
"Alpha" Dairy-Turbine.	....	....	Cap. 700 lbs. Price, $225.–	Cap. 750 lbs. Price, $225.–	Cap. 850 lbs. Price, $225.–

(Cap. means separating capacity in lbs. of milk per hour.)

The chart scarcely begins to make plain the actual extent of the practical cheapening of the De Laval machines without further explanation, unless one may have been familiar with the gradual betterment of the machines.

The fairest and most striking illustration of the decade of combined improvement and cheapening of the machines to the separator buyer is to take the "Hollow-Bowl" No. 1 of 1890, which was the first of the "Baby" machines (and given such trade-mark name at the time because it was veritably the "baby" of the separator family and considered a marvel in separator construction), and compare it with the improved "Alpha" disc Baby No. 2 of to-day, *which is its actual counter-part.* The modern "Baby" No. 2 is built to-day upon exactly the same constructural lines as the old No. 1 of 1890. The frames are the same in size, the bowls are of equivalent exterior size, and the necessary speed and essential operating power are exactly the same. The comparison is a direct one.

Note the difference: The "Baby" No. 1 of 1890 had a capacity of 150 lbs. at $125.—. The "Baby" No. 2 of to-day has a capacity of 450 lbs. (*just three times as much*) at the same price. Or take it another way and note the $125.— No. 1 machines of 1890, reduced to $50.— to-day, and without a market even at such much reduced price.

But the comparison only begins in capacity and price. Just as the capacity is three times greater so is the efficiency of the "Alpha" disc machine of to-day three times greater than that of the old "hollow-bowl" one in thoroughness of separation, in permissible variation of separation conditions, and in general practicability. And again in mechanical construction the difference is just as great, both as regards the "hollow-bowl" machine of 1890 as well as the earlier "Alpha" machines of the first few years. Larger and better supply cans, covers and various helpful attachments have naturally developed. Renewable bearings have been made where there was merely the frame casting. Brass and phosphor-bronze bearings have taken the place of cast-iron ones. The best of adjustable sight-feed oil cups have taken the place of plain brass wick-feeding ones. The latest devised and patented radial spring top-bearing has replaced the rubber-ring style of such bearing. Substantial supporting iron stools are now a part of the machine, where no stool at all was furnished before. Gears and spindles are protected by shields, and every device added that years of practical use has suggested. The frames are symmetrically designed, and every feature of mechanical construction has become the best that twenty years of experience can devise or money can make it. The finish is japanned enamel, with handsome decorations. The test of every part in every machine and finally of the assembled machine itself is thorough and complete, with the best possible facilities for such work.

Of course most of these improvements have been possible only through the invention and further development of the Alpha "disc" process of separation, used exclusively in the De Laval machines, and the "Alpha" disc system is the keystone of all modern separator improvements—the very heart and soul of the perfect cream separator.

For complete details, cuts and general descriptive information relative to centrifugal separation generally, and the Improved "Alpha" Baby Separators particularly, see the De Laval "Dairy" catalogue, a copy of which may be had for the asking.

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The Babcock Test: Its Origin, Use and Manipulation.

ED. HOARD'S DAIRYMAN:—A wonderful advance has been made in the science and art of dairy practice during the past twenty-five years. This is in a great measure due to the invention and use of improved dairy machinery. Among these many inventions, none save the cream separator has proved of greater moment to those interested in the many phases of dairy husbandry than the Babcock test.

The specific use of this machine is to determine the amount of fat present in the several products of the dairy. It was long since recognized that the amount of fat present in the milk, whether for home consumption or the manufacture of butter and cheese, was a just measure of its value. At that time it was only possible to discover the per cent of fat present in milk, etc., by means of expensive and complicated chemical analyses. It is thus apparent that there was an urgent demand for a machine simple in operation, and that would quickly and economically determine the actual fat present in dairy products. After many futile efforts on the part of other investigators, Dr. Babcock, chemist of the Wisconsin Experiment Station, succeeded in perfecting a test having the desirable requisites.

The necessity for the use of such a test on every farm where dairying or dairy products are of any moment, will be quickly apparent to any student of the dairy situation. In Tennessee this need is particularly urgent. Nature has endowed our state with those physiographical conditions essential for the successful conduct of dairy enterprises. The present cry is for greater diversification. Surely here is a chance. Our state is annually spending hundreds of thousands of dollars in purchasing the adulterated and cast-off products that our sister states desire to put off on us at exorbitant prices, while the great and profitable dairy industry we should possess, remains practically undeveloped. Should any one be pessimistic regarding the virtue of dairy enterprises it will only be necessary to call to their attention the marvelous progress witnessed in those states of the Union where these interests are predominant. Surely, we in Tennessee, possessed of a more salubrious climate and a greater variety of cheaper food products, can emulate their example with profit to our souls.

Let us now investigate why we should use the Babcock test more generally on the farm and in what way it will aid in the upbuilding of our dairy interests.

1. Cows vary as to the cost of keep.

2. Cows vary as to the amount of milk and butter yielded.

3. Cows vary as to the length of lactation periods.

4. Cows vary as to the value of a specific purpose.

It is thus necessary to keep a record of the milk and fat yielded by every cow in the herd, so that the unprofitable ones may be disposed of before they leaven the whole lump. It is undoubtedly true that many failures in dairying are the result of ignorance of the individual merit of the several cows composing the herd. Those who desire to learn more on this subject are recommended to write to the Tennessee Experiment Station, and secure a copy of Bulletin No. 47, bearing on this and related subjects of interest to dairymen. In reviewing some of the records of our cows I find the following examples that will satisfactorily illustrate some of the points considered in the previous discussion:

No. 317, a Holstein grade, weighing 903.5 pounds, produced 7,007 pounds of milk, worth $175.17, at 2½c per pound, or 327 pounds of butter, worth $81.75, at twenty-five cents per pound, in one lactation period of 273 days; while 405, a Jersey grade, under similar conditions as to food and treatment, and weighing 857.7 pounds, made 7,764 pounds of milk, worth $194.10, or 371.4 pounds of butter, worth $92.85, a difference of $18.93 for milk and $11.10 for butter in favor of the latter cow.

Again, in the cases of 545 and 438, the former gave milk worth $108.42, and butter valued at $56.92; the latter, milk worth $141.60, and butter valued at $54.52; while 115 and 323 yielded milk worth $81.42 and $81.85, and butter valued at $38.95 and $52.52, respectively.

With a herd of eighteen cows, the lactation periods ranged between 195 and 427 days; the average daily milk yield from 10.4 to 26 pounds; the per cent of fat in the milk from 117 to 371.4 pounds, and the average daily yield of butter from .51 to 1.24 pounds. The differences between the maximum and minimum yield per cow, were in the case of milk, 4,762 pounds, or a money value of $119.05. When butter is considered the difference is seen to be 254.4 pounds, representing a money value of $63.60.

These statements demonstrate why a record of the dairy herd is essential to success. A record may be easily and cheaply kept by the use of a pair of scales and a Babcock tester. The outlay entailed will be doubly repaid in the economy of feeding secured, and the accurate knowledge ascertained regarding the individual merit of every animal composing the herd. The test as described further on may be secured from any dairy supply company. The cost varies from $2.50 to $50.00, according to the size and style of machine purchased.

Below are appended a set of explanatory rules governing the operation of the test that will enable anyone studying them to successfully handle it:

1. The bottles used in the test should be made of annealed glass and should contain, when filled to the neck, not less than 40 c. c.

2. The scale on the neck of the milk bottle reads as high as 10%. Five divisions equal one per cent and each division equals two-tenths of a per cent.

3. All bottles used must be numbered, corresponding with the ear tag number of the cow. When buying bottles see that there is a "ground" area on the shoulder of the bottle for marking on with an ordinary lead pencil.

4. The measuring pipette should have a wide opening at the bottom end and when filled to the mark contain exactly 17.6 c. c., or eighteen grams. The shaft of the pipette above the mark should be long. There will then be little danger of drawing the substances to be measured, into the mouth.

5. The machines should make from 600 to 1,500 revolutions per minute, according to the size and style used.

a. Three styles of machines are manufactured, namely:

1. Hand.
2. Belt or friction.
3. Steam turbines.

b. The hand testers require the highest speed; the friction about 800 to 1,000, and the turbine 600 to 700 revolutions per minute.

c. The speed of the turbine is determined by an indicator. The speed of the other styles must be calculated from the diameter of the gearing wheels.

d. Where much testing is to be done, the turbine is the best as it gives uniform speed, maintains the fat in a liquid state, requires the least labor, and gives the most accurate returns. When twenty to forty or more cows are to be tested regularly, the turbine should be used and for less than twenty, the other styles will answer very well.

6. Commercial sulphuric acid having a specific gravity of 1.82 to 1.83 is required.

This acid should be kept in tightly stoppered bottles to prevent the absorption of moisture from the air which weakens it. It must be handled with the greatest care as it destroys clothing and burns the skin very severely. To counteract its effects dip the part in cold water or neutralize by the use of ammonia. The action of the acid is

a. To cut the curd.
b. To liberate the fat.
c. To raise the temperature.
d. To act on the milk sugar and color it a golden brown.

7. It takes just 17. 5 c. c. of acid having a specific gravity of 1.82 to 1.83 to dissolve the curd and liberate the fat of normal milk. When skim milk, buttermilk, etc., are tested by means of the old style bottles, a double charge of acid is required. As whey contains but little curdy matter, use less acid with it. Many convenient devices are now made for quickly and accurately measuring the amount of acid. Of these the "combined" acid bottle is probably the most convenient. An acid jar with a mark on the side is commonly used. The amount of acid required to give a clear test, will vary with the temperature of the milk and acid, (both should be at a temperature of 70° to 75° F.), the temperature of the room, etc. In cold weather use a little more acid, and in warm not quite so much may be needed. If there are white specks in the fat column, the acid is too weak—use a little more or warm the milk; if black specks are present use less (the acid is too strong and chars the fat) or else cool the milk. Never tamper with the acid.

8. Water, having a temperature of 150° to 170° F., should be used for filling the bottles up to the 8% mark. If the fat column becomes chilled, it will be necessary to set the bottles in a pan of hot water to liquify the fat before the reading can be made.

9. It is necessary that a representative sample of the milk be secured for making the test.

a. This may be done by pouring the milk from one vessel to another, gently but rapidly, several times, so as not to make froth or

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There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
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78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and will be sold CHEAP.
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Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa. 224

The Lone Tree Jerseys
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio

foam, and quickly measure out the desired amount.

b. The above method must be followed when sampling cream, skim milk, buttermilk, or the separator bowl slop.

c. Sour products, partially churned milk or dried cream, can not be accurately sampled.

d. It is absolutely necessary that the samples be uniform in size from each milking, or an aliquot portion of the product to be tested.

10. The sample to be tested must be accurately measured because of the small portion taken.

11. When the acid is added to the milk, incline the bottle and the pipette so as to allow the air to escape. This will prevent "bubbling over" the mouth of the bottle.

a. The same caution must be observed in putting the milk, etc., into the bottles.

b. The mouth of the pipette should just rest inside that of the test bottle.

12. Mix the acid and milk thoroughly by means of a rotary motion. See that the mouth of the test bottle is pointing away from the face.

13. The bottles should be whirled as soon as the mixing is completed and continue for five minutes. An even number of bottles must always be whirled at the same time.

a. The Babcock test is a small centrifugal machine, i. e., throwing or pulling away from the center.

b. The specific gravity of milk fat, when compared with unity, is .93; of the water of milk 1; of the solids of milk, other than the fat, 1.6; of ordinary mixed cows' milk, 1.03; and of the acid used in making the test, 1.82 to 1.83.

c. The above makes it clear then, why rapid whirling in a centrifugal machine causes the substances, other than the fat, to sink to the bottom of the test bottle, and the fat to float on top, and which, on the addition of warm water rises up into the neck of the bottle and can be easily read off on the scale.

14. At the expiration of five minutes, fill the bottom to the zero mark with water, as already directed, and whirl again for three minutes. Then fill to the 8% mark and whirl again for two minutes. The fat should be read at a temperature of 140° to 170° F.

15. In making the reading, hold the bottle perpendicularly on a level with the eye. The readings are made from the highest to the lowest levels of the fat columns.

16. Owing to the small amount of fat in skim milk, buttermilk and whey, special bottles holding twice the usual amount, or 35.2 c. c. are used. Ten divisions on the scale of these bottles represents one per cent.

Two other styles of bottles are now made for testing the above products, namely, the Ohlsen's and Wagner's. They have double necks and are so finely graduated that even traces of fat can be detected. Only a single sample of milk and a single charge of acid are used, but they are too expensive yet for common use.

17. To test cream, use 18 c. c. and a special bottle with a wide neck graduated to read 30%.

a. Cream containing over 30% of fat may be tested by taking 9 c. c. of cream, adding 9 c. c. of water and proceeding as for ordinary milk, or 6.04 c. c. of cream may be taken and two (12.08 c. c.) charges of water. In the former instance multiply the fat by 2 and in the latter by 3.

18. To test condensed milk, weigh 8 grams into a test bottle, add 10 c. c. of water and proceed as for whole milk. To obtain the per cent of fat, multiply the reading by 18 and divide by 8.

19. To test cheese, secure a finely divided sample by mixing portions from near the edges and the middle. Weigh 5 grams into a test bottle and add 12 to 15 c. c. of hot water, shake, cool, and proceed as previously directed. The per cent of fat is found by multiplying by 18 and dividing by 5.

20. The composite test now so commonly used is made just the same as with whole milk. By means of this test much labor and expense are saved as in the case of large herds and in cheese and butter factories it is only necessary to test from once a week to once a month. Pint or quart jars with adjustable tops are used for holding the samples. Into each one is placed a corrosive sublimate tablet, varying in size with the length of time the sample is to be kept. After mixing the products to be sampled as already directed, measure out a fluid ounce from each milking and put in the above described jars. Keep the jars in a cool place and shake gently on the addition of each fresh sample. Do not churn the samples by too violent agitation. As corrosive sublimate is a deadly poison great care must be exercised in making the test and washing the bottles. Do not wash them in connection with any other dairy utensils and be especially careful about the disposal of the waste products.

21. Only pure well or rain water should be used for filling the bottles, etc. Rain water is preferable as it contains comparatively little mineral water. Mineral water, especially lime, causes foam on the top of the sample and renders an accurate reading impossible.

22. Testing should be done quickly and quietly as the accuracy of the results depend upon the skill and thoroughness with which the operator does his work.

23. As soon as the reading is made the contents of the bottles should be emptied in a crock kept for that purpose and thrown out on the ground where no animals can reach it. This waste will corrode tin piping and wash sinks, etc. It is well to bear this in mind.

24. To wash the test bottles and sample jars, first rinse out with hot water several times. This water is conveniently supplied from the tank used to fill the bottles when making the test. If the fat does not readily clear from the bottle use a little sal soda. If the bottles become black or cloudy add a few drops of sulphuric acid. If this does not prove successful put a few shot in the bottle and cork and shake thoroughly. A bottle is clean when the glass is clear and there is no greasy feeling to the touch.

25. A proper sample is a clear yellowish brown liquid oil or butter fat.

ANDREW M. SOULE, Agriculturist.
University of Tennessee.

WHAT THE FLIES CAUSE.

Two Million Gallons of Milk Short Every Day.

Yes, two million gallons of milk more could be made in the United States daily than is made, if it were not for the little pestiferous flies. Bosh! some will say who read this; but let us see—figures don't lie, no never. There are in round numbers 8,000,000 cows in the United States being milked at the present time, and no one of experience will say but what each cow, on the average would give a quart more milk per day if it was not for her being tormented by the flies. We thus find we would have 8,000,000 quarts or 2,000,000 gallons, worth at the present price of milk wholesale, $170,000, as a daily loss to the farmers who are keeping cows for dairy purposes. These figures are enormous. Let us bring this down a little finer; yes, bring it right down to the farmer who only keeps five or ten cows. Ten quarts of milk short means a loss of twenty cents daily, or $6 per month. True it would not break a farmer down, but it is the little leaks on the farm that does in the end produce a sheriff sale. And this is one of them; and it becomes each and everyone, no matter what their line of business, to stop the little leaks. We are living in an age when this must be done, or the business will go to the wall sooner or later. But what about the fly leak? How stop it? Yes, stop it, and do it cheaply and with no great outlay of strength. There are a great many elements that are safe to handle, and their cost is but little, that will either kill flies outright, or when properly used, keep flies from tormenting cattle scarcely at all. Common kerosene will actually kill some of the flies if they are drenched with it. Crude petroleum is better, for the reason that it is not as volatile and will last longer when applied to the cow. But better still is a mixture of equal parts of fish oil and crude petroleum. Any of the carbolic sheep dips that are prepared and put on the market, when diluted with an equal amount of water, and applied as hereafter directed, will practically keep the flies from doing any serious damage. Also will the various agents put up as fly preventives and sold to the general public. They will not, any of them, do all that is sometimes claimed they will do. This is no idle theory of mine, but I am giving the results of personal experimentation of the elements I speak of. It is idle to talk that any remedy can be put on the animal once per week, that will keep the flies away; yet that remedy may be a good one when properly used. Kerosene is good, as I said before, but it is unsafe to pour it on or apply with a brush, as its irritating properties injure the animal; again, it too soon evaporates and when applied to a cow and when she is turned in the pasture, it is gone in an hour's time. It is, however, a grand element to use in the stable to kill flies outright with. The cow comes in covered with flies; with a small tin, zinc or copper spray pump (the tin ones only costing from 50 to 75 cents), spray the cow. These pumps will throw a fine spray from two to three feet in diameter and the spray is thrown so quickly and so fine is it that even the flies can't get away from it in large numbers, and a large number will be so drenched that they will soon go to a flies' hereafter; and there is no danger of enough kerosene getting on the cow to injure her at all. But I much prefer any of the other preparations spoken of, for they last so much longer and will as effectually kill a fly when it touches them. The expense in either case is trifling, even if the patent kill-flies or shoo-flies are used, when applied as a spray, and I firmly believe that it is the only true way to apply any of them. A teaspoonful will effectually put a spray drop on every hair of a cow, and can be put on with a pump in less than thirty seconds, when the cows are in the stable. It will thus be seen that a gallon costing $1 will do an immense amount of spraying if used every morning. This is what I have done, and the result is in one week's time I have reduced the number of flies in my cow stable over one-half. The milking is done in comfort to the milker, and when the cows are turned to pasture there is scarcely a switch of the tail or stamp of the foot. Now, all this was the result of thoroughly spraying the animal every morning with one of the carbolic sheep dips, reduced one-half with water. When I say thorough I mean simply enough to make the hair just moist, not drenched nor wet enough to moisten the skin. Applied in this way a teaspoonful will do it all. Don't use a sprinkling pot nor a brush; nor think you can just as well apply it in some other way, for you can't do it. But get the pump and do it just as I advise, and you will kill off half the flies and prevent the balance doing you or your cattle any harm. Yes, I use it on my horses to some extent. But when driven in the dust it sticks to the hair. That is the objection, so I spray it on the legs and use nets on the body.—*Practical Farmer.*

LADY BAKER

Is the sixth highest butter cow in Holstein history. Her butter record is 34 lbs 6oz in seven days, the second largest record of the breed in the advanced registry. Her milk record is 773¼ lbs. in one day. Lady Baker sold for $800 at Mr. Wales auction sale, held at Chicago in 1889. Valley Mead Farm is in a position to give the blood of this great cow from her only son Judge Baker, who sold for $600 to Colo. A grandson of Lady Baker, called Sir Natsey Baker, stands at head of herd.

VALLEY MEAD FARM, Monticello, Wis.

JERSEYS.

Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

104 Holsteins For Sale.

Young Bulls and Heifers by the richly bred **Royal Paul.** Prices right for quality. Show animals, all ages, bred for butter makers.
DELLHURST FARM, Mentor, Ohio.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale.
W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY CATTLE

SHETLAND PONIES.

Old Homestead Herd,

Of PERRY, OHIO.

Was Champion at O., Ill., and In. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock For Sale. Inspection invited. Will make a representative exhibit at the Ohio, Wis., Ind and Ill. State Fairs this fall L. V. ARTELL, Perry, Lake Co., O.

Riverside Guernseys,

CHAMPION Herd

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE

GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



FINE BLOODED Cattle, Sheep, Hogs, Poultry, Sporting Dogs. Send stamps for catalogue, 150 engravings. N. P. BOYER & CO., Coatesville, Pa.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Northern New York Pencillings.

Summer Drouth and Cow Feed.—Corn Crop in Northern New York.—New York Fairs and Dairy Products.—New Silo Hints.

ED. HOARD'S DAIRYMAN:—At this writing, September 1st, a light rain is falling, but the outlook is not promising. Not enough has yet fallen to more than lay the dust, and the chances are that old Sol will hold the boards in another hot "season" before he reaches the meridian to-day. Less than half an inch of rain has fallen here since July 15th; the mercury meanwhile, or since August 1st, being encamped close to the 90° outposts.

The effect on the milk yield has been terribly destructive, it having fallen off nearly one-half from the flush.

Our best dairymen are feeding their cows hay and grain, and those having silos are feeding the corn that ought to have found asylum therein. Other dairymen are allowing their cows to shirk for themselves, and are saving the remnant of their corn crop, if one may so call it, for winter feeding.

For the first time in more than two decades, old Ellisburgh's corn crop will be nearly a total failure. There are, here and there, a few fields which promise a half crop or more, but they were planted early, say, May 10th. But those farmers, who begin plowing before the frost is out of the ground, but do not plant till the middle of June, are drowned in the soup, as are those farmers, who plowed their early mown meadows, and planted corn thereon. Such corn will never reach the silk stage, and much of it will not tassel, even. But they took their chances, which were "agin" them, from the beginning of July, almost.

All indications pointed to a dry season at that time, and if those farmers had left their meadows unplowed, many of them would have yielded a fair crop of aftermath, that would have now been ready for the mower. Indeed, many of those early mown meadows that were left unplowed, now show nearly, or quite, a ton to the acre; and this, if cut and secured at once, will make excellent hay.

The Jefferson County fair closes to-day. The crowds have been large so far, and, as this is "Roosevelt Day," his excellency being booked for a talk from the grand stand, many people will go, despite the unfavorable weather outlook. But, like the majority of our fairs, now-a-days, many of its exhibits are minus; trotting races, fakirs, and other so-called "attractions," having taken the places of the old time exhibits.

The show of dairy stock was small, while that of dairy products, i.e., butter and cheese, was not worthy the name. Less than a dozen cheese, and not more than as many packages of butter were in place in the department allotted to the dairy, in the general purpose building. What a travesty for this great dairy county, with its 50,000 cows.

In 1896, this county had 110 cheese factories, and fourteen others at which butter, or both butter and cheese were made. These 124 factories produced, that year, 342,102 pounds of butter and 10,629,009 pounds of cheese, the most cheese of any county in the state; St. Lawrence County, with nearly or quite 20,000 more cows, producing 10,059,008 pounds of cheese; but while Jefferson County factories produced but 342,102 pounds of butter, those of St. Lawrence turned out 5,953,616 pounds, showing that the butter dairy cuts but little ice in *this* county, and that mostly in winter.

In view of this showing, there ought to have been an exhibit of at least 100 boxes of cheese, and fully as many packages of butter, at the fair, instead of the two abortions there seen. But, so long as the premiums offered are so insignificant as not to warrant the expense of making an exhibit, should one be so fortunate as to win a prize, no exhibit worth the name, will be made at our fair.

Of course, the high price of both butter and cheese has taken the merchantable goods nearly all out of the county; but there ought to have been a cheese or two left at each factory for exhibition purposes at the fair. They would have sold in the local markets or on the fair grounds, for more than they did on the board of trade. So long, however, as the bulk of the gate receipts go to the "hoss trot" sharks and the proprietors of fake attractions, no better exhibits of dairy products will be seen on the grounds, and it is only a question of time, should the present policy obtain, when none at all will be in place.

There was a prize offered for the milk containing the most butter fat from three cows of different breeds, for two days. There were three entries, and August 30–31 were the days selected. There were three competing herds, viz., J. F. Converse & Co's, Woodville Ayrshires, and Smather & Sons, Henderson, and J.W. Overton & Sons Belleville Holsteins. Following is the score:

Converse & Co.'s Ayrshires, 115 pounds of milk, 3.3% fat; Mather's Holsteins, 130 pounds milk, 3.5% fat; Overton's Holsteins, 111 pounds of milk, 3.7% fat.

TOTAL POUNDS FAT.

Converse	3.795
Mather & Sons	4.55
Overton & Son	4.10

	Specific Gravity.	*Total Solids.*
Converse	1.0304	12.00
Mathers	1.0301	12.08
Overton	1.0298	12.24

VALUE PER 100 POUNDS FOR BUTTER AT 20 CENTS PER POUND

Converse	7.59c
Mathers	8.05c
Overton	3.51c

FOR CHEESE, AT 10 CENTS PER POUND, PER 100 POUNDS MILK.

Converse	8.91
Mathers	9.45
Overton	9.99

Mr. W. E. Griffith's name was added to the report, as inspector. No details as to feed or cost, etc., were given; only results as above.

There were three herds of Jerseys, one of Short-horns, one of Ayrshires, two of grade Ayrshires, one of grade Devons, one thoroughbred and one grade Guernsey, one Holstein and one thoroughbred and one grade Brown Swiss. There was also an exhibit of oxen and one of fat cattle. Mr. Henry Van Dreser, the noted expert and judge of dairy cattle, and high on the farmer's institute roll of fame, presided as judge. He also adjudged the very large and excellent exhibit of poultry, a part of which was from the state of Delaware.

It was the feature of the fair, being the only really full exhibit in any department of farm stock.

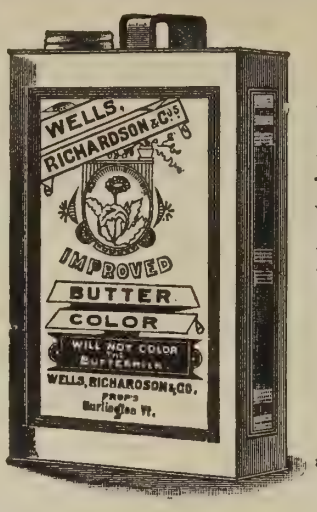
Before the advent of the long drouth, preparations were made and material purchased for the building of a half dozen silos in the vicinity of Belleville, and others were in contemplation. Those built are of the round form and of "stave" status. Mr. W. R. Walch, of Belleville, claims a new modus for the stave silo. He uses for 15 feet diameter, four 4×6 pieces; the others are 2×6, best pine, brought to a thickness, planed on one side and grooved and tongued on a bevel.

The 4×6 pieces are also grooved, so as to have the stave tongues come fair, thus making the inside of the silo perfectly smooth, and leaving an outside projection of the posts or 4×6 pieces, of four inches. Through these, at proper intervals, round ⅝ rods are run, being hooked where the joints come and tightened with a nut at one end only.

As many of these round rod hoops may be used as are needed, and may be tightened or relaxed at any time. The four posts are placed equal distance from each other, and, as everything comes from the mill, all fitted. One of this form of silo is easily and rapidly set up, while the cost, at the price charged here for material, is but $90 for a silo of 150 tons capacity.

The roof may be of the form and material to suit one's means and tastes, and the doors placed conveniently apart, as in other forms of silos.

How many generations will come and go, ere this silo problem is satisfactorily solved to every body concerned? During the last nine



The BEST Is the Cheapest.

Wells Richardson & Co's Improved Butter Color

Can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT and NEVER becoming RANCID. It is for sale by all first-class dealers.

The Kind that has no Mud

COAL TAR BUTTER COLOR

Is prohibited by law in Austria as detrimental to the public health. Over one-half the butter in America is colored with coal tar dye. Do you want to know how to test it? Send to us for the material for making the test and we will mail it to you free of charge.

Thatcher's Orange Butter Color

Is a pure vegetable color, free from deleterious substance. It gives butter

THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

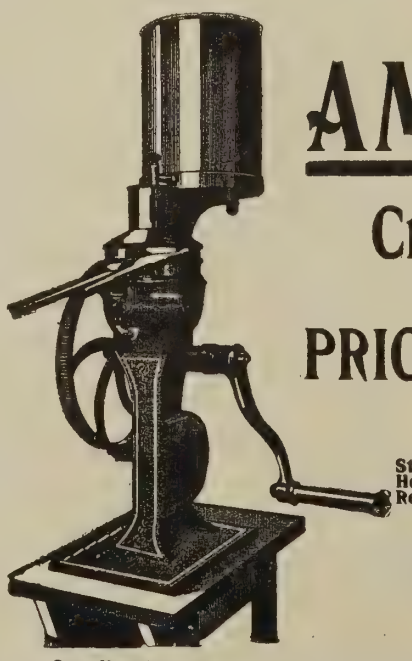
THATCHER MANUFACTURING CO., - Potsdam, N. Y.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Valve of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.



THE AMERICAN Cream Separator

PRICE - - - $65

Still at the Head, Receiving First Premium and Diploma At the ST. LOUIS FAIR, as the BEST CREAM SEPARATOR For FARM USE. . . .

Send for Descriptive Catalogue.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

American Separator Co., Box 1023, BAINBRIDGE, N. Y.

Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use

Eureka Harness Oil

on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

Made by STANDARD OIL CO.

Cross Road Farmers



Those who live at the intersection of two roads can make money weighing stock, hay, etc., for others. Write for Special Offer on

OSGOOD Scales

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winters I have heard silo and silage talk "to beat the band," and had thought that the subject had about been talked to death.

I was off on my figures, as I find that hardly any two silage feeders agree as to when to cut and how best to store it. One man says: "Don't cover silage at all; begin feeding it the next day after the pit is full." Another man says: "Cover it; sow oats on the top of the silage, wet down the mass, and allow the oats to grow and form an air tight blanket." Another man says: "Shred the stalks; they make better silage than do cut stalks." Another man says: "Don't cut or shred the stalks; put them in whole." One man says: "Cut the corn just as it begins to glaze." Another one says: "Wait till it is ripe enough to cut for grain, then wet down the silage thoroughly, when it goes into the pit." One man says: "Pick off half the ears if there are more than one hundred bushels per acre." Another man says: "Don't you do it; put all in; feed less, and balance it with clover hay and bran," and so on to the end.

I incline to the belief that one should cut the corn, if every crop is to be fed on the farm, when it has its greatest value, and which is, according to the Cornell report, when it has arrived at the glazing stage.

I have heard John Gould and other experts say, and have read in bulletins the statement, that a stalk of corn containing one well developed and fully grown ear, had a unit feeding value of fifty-five for the stalk, as against forty-five for the ear, and that 60% of that stalk value was below the ear, which was as much as to say, save that part of the stalk, sure.

It is the part we see going to waste on every farm, where corn fodder is fed in the old way. But you cannot afford such a luxury. Save it all, by cutting when in the glazing stage, and covering it up air tight in the silo. As a rule, I think this plan is followed by our dairymen of longest experience in feeding silage. But here comes Mr. Fred Greendy, who writes this in *Farm and Fireside*: "The lower end of the stalk contains so little nutriment, that it is not worth handling; therefore, it is advisable to cut, at least, a foot above the ground, and if the growth is rank and the stalk large and heavy, I would cut eighteen to twenty-four inches above the ground. By doing so, one gets all the stalk that is of value for feed, while he leaves the hard woody part in the field."

This advice is for those farmers who cut their corn, shock and husk it in the old way, and feed the grain and stalks separately; but what advice it is. He says: "These long stumps can be smashed down with a heavy pole when the ground is frozen, and turned under next spring." That pole smashing, and eighteen to twenty-four-inch cut above the ground, are new features I have never heard advanced before. Have you?

Belleville, N. Y. C. W. JENNINGS.

OLEO AND BUTTER.

Writing on the question of the ten-cent tax on colored oleomargarine the Cincinnati *Tribune* says:

A movement is on foot to have a tax of ten cents a pound placed upon colored oleomargarine. The advocates of the bill claim that the revenues of the government would be materially increased. The opponents of the bill claim that it would simply legalize a fraud.

Uncolored oleomargarine now pays a tax of two cents a pound, and is a legitimate article of commerce in every state. As the uncolored has no resemblance to butter, the dairy interests pay but little attention to it. Their interests are not affected. But as to colored oleomargarine, its sale is prohibited in thirty-one states, to wit: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, South Carolina, Georgia, Alabama, Tennessee, Kentucky, Ohio, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Colorado, Utah, California and Washington. In these states the prohibition was put on to protect the farmers and dairy interests, and to guarantee pure butter to consumers. Any law passed by Congress, that places a tax upon colored oleomargarine, recognizes that product as legitimate, and, it is claimed, nullifies the prohibitive laws of all of these states.

It would seem that a tax of ten cents a pound should be sufficiently protective to the dairy interests, but they fear not. In another way, though, they can be fully protected.

If the law is so framed that the manufacturers are required to pack every pound of oleomargarine in a wrapper of certain kind, bearing the ten-cent stamp, stamped in large letters "oleomargarine," and that the goods should not be sold, except in that form, just as smoking tobacco is sold, the farmers would have no occasion to complain. Then every purchaser would know just what he is getting, and the rival of butter would be compelled to make its fight with its face exposed.

On the other hand, let us hope that the substitute for butter will compel every farmer's wife to study the way to make good dairy butter. The trouble now is not the price of butter, but the quality. Good dairy butter is worth as much as creamery, and some sells at higher prices. But in the grass season the markets of big cities are absolutely burdened with tons upon tons of dairy butter, that sells at prices ranging from ten cents or less, to fifteen cents, when, if it were properly made and packed, it would sell at prices not materially lower than good creamery. The law to tax oleomargarine will not hurt the farmer who makes good butter. It will help him, and, if it creates good butter makers of others, all will gain by the tax.

The *Tribune* is wrong in its assumption that uncolored oleomargarine, alone, is now taxed two cents a pound. The tax law pays no attention to the fact whether it is colored or not, but taxes it the same in both conditions. Therefore, the *Tribune's* argument that taxing the colored article two cents a pound would "recognize that product as legitimate," and nullify all the laws of the states which prohibits its sale in colored form, falls to the ground of its own weight. The United States taxes the present article, colored or uncolored, two cents a pound. The United States Supreme Court has upheld the right of the states to forbid the sale of oleomargarine in the yellow color of butter.

A tax of two cents or ten cents is the same in principle, and the latter would be just as constitutional, from a national stand point, as the former.

The United States government possesses the right of unlimited taxation of any article. It has the right to tax to extinction, as was done with the State Banks.

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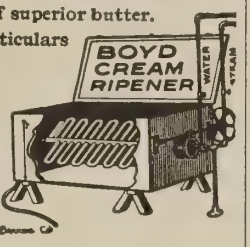


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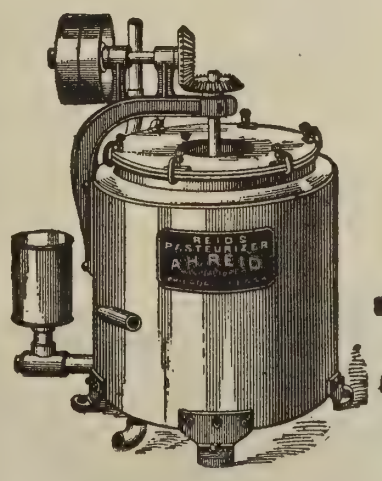
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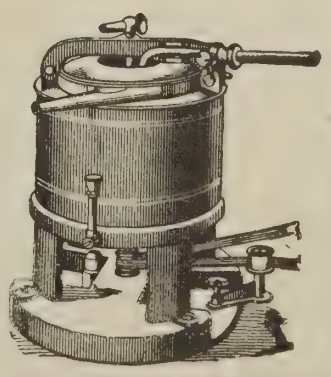
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WELL FIRED.

In its "Fired at Random" shots the Creamery Journal says: "There are still a surprising number of creameries that do not use the Babcock test, and pay for milk by the hundred. Such creameries are on a par with farms where sharp sticks are used for plows."

It is amazing how contentedly a great lot of men go along year after year, doing business in the most wasteful, unprofitable and slip shod manner. When Gabriel blows his trumpet it is extremely doubtful if they will hear it, having never heard of it.

SCIENTIFIC PRODUCTION OF MILK.

Modern Methods of Caring for it.—Growing Business at Eight Cents Per Quart.

Persons riding in the electric cars from Boston to Norumbega Park have noticed a large, new barn on the right, soon after crossing the Newton line. But those who passed without stopping, can have little idea of the character of the business carried on here, even though told that it is a milk farm. I have visited many milk farms, but never one that equaled "Wauwinet Farm" in magnitude and character of product, and though it has been noticed before in the *New England Farmer*, a description of it will bear repetition for the valuable hints.

The owner, Mr. Geo. H. Ellis, is a Boston printer and publisher doing a large and successful business. From a boy he has had a strong leaning towards rural life, and like many other business men, has a firmer faith in farming when intelligently managed, than many farmers have, who know no other occupation. Mr. Ellis began his farming operations here eight years ago with a herd of four cows. Besides supplying his own family with dairy products, he sold sixteen quarts of milk a day to neighboring families. Without any advertising or soliciting trade, sales have increased till at present 1,600 quarts of milk and twenty-five quarts of cream are made and sold daily to customers in the vicinity.

To produce this, over two hundred and fifty cows are kept, mostly Jerseys and Jersey grades, with a sprinkling of Guernseys. The best calves are raised, so that the entire herd numbers about three hundred animals. Eight hundred acres of land are used in furnishing food for the herd, part of the land being leased. On the home farm of twenty-five acres, is scarcely more than an exercise yard for the animals in pleasant weather. Here stall-feeding or the "soiling" system is a necessity, but on the other two farms, one five miles away, and the other twice that distance or more, there are some pasture lands, mostly on the latter where the dry cows and young stock are kept.

These long distances materially increase the cost of production, but Mr. Ellis reduces it as much as possible. All cows in full flow are kept at the home farm, those drying off at the one five miles away. When manure is hauled from the home farm, fodder is hauled back, so men and teams work both ways. The same economy is practiced in changing cows from one farm to another. When half a dozen at the home farm are past full flow, they are loaded upon a large van and drawn to the middle farm, where they are exchanged for the same number of dry ones, which are carried to the remoter farm, and there exchanged for a load of those that are fresh in milk, or soon to be so. These are brought back to the home farm, the trip being made in a day.

There are three barns at the home farm, the largest being a one-story building, without cellar, 127 feet long by 85 feet wide. Nearly one hundred cows are kept here, each in a pen 7×9 feet without floor, and with no arrangement for tying. About four inches of sand are spread evenly over the earth, and upon this a good layer of sawdust or shavings. The cows are fed in hinged troughs, which, when not in use are turned up outside the pen so they never become soiled. Water is within reach of each animal at all times. The daily droppings, together with what bedding is unfit for further use, are collected daily in an iron cart, which is drawn upon a platform, where it can be dumped into a four horse wagon. When this is filled it is hauled to fields where needed, the return trip, as previously stated, being with a load of fodder.

At present, sweet corn stalks, from which the ears have been sold, on farms of neighbors, is the principal coarse food, all being run through an ensilage cutter.

Green rye, wheat, and peas and oats grown together are liberally fed in the early part of the season, but green corn stalks form the base of the summer feeding. In winter, each cow gets about thirty-five pounds of ensilage, and at times this is also fed in summer. There are several large silos on the different farms, built of plank staves, part of them without roof or floor, other than the earth in its natural condition. Mr. Ellis finds that the contents keep as well as in more expensive silos. Eight to ten pounds of mixed grain, always dry, is fed daily to each cow.

The most remarkable feature of the establishment is the way the milk is handled. The cows are kept clean by clean bedding and daily grooming. Each milker milks fifteen cows and when milking wears a suit of white duck. The milk of each cow is weighed and the weight recorded. It is then carried to a room at the end of the stable enclosed with fly screen sides; inside an attendant stands to strain the milk which runs through a short pipe into the cooling and bottling room adjoining. This arrangement takes the milk out of the stable air as fast as drawn. In the bottling room it is run over a combined aerator and cooler, made of corrugated copper sheets through which is forced a continuous stream of cold brine from a refrigerating machine. Less than a minute is required for changing the temperature of milk from 96° to 36° F. It would be possible to force the brine through fast enough to freeze the milk. Indeed frost constantly stands on the pipes for carrying the brine.

As the milk falls from the cooler it passes through fine strainer cloth into a tin-lined copper tank on rollers.

Under the tank is a table upon which bottles are placed close together in rows of eight and as the tank is moved along the bottles are filled, a row at a time, through automatic valves with scarcely a drop of milk wasted. The bottles are sealed with paper caps that will not absorb moisture or allow leakage.

A 13-horse power gasoline engine not only runs the machinery in the refrigerating plant but also a ten horse power dynamo which furnishes electric light for the buildings in the home farm and a seven-horse power motor used in cutting ensilage and other fodder. Formerly the cutting was done by horse power but now the treadmill is used only for exercising the bulls, a practice that tends to keep them healthy and quiet in disposition.

Sixteen to twenty horses are required to do the teaming and about forty men have their names on the monthly pay roll. The milking begins at four o'clock in the morning and at three in the afternoon, and occupies about two hours. Four low down wagons are used for delivering the milk. The delivery is made morning and afternoon, some customers receiving their supply within an hour after it is drawn from the cow.

The price received is eight cents a quart and the demand has required a continuous increase in the size of the herd. Though eight cents is more than customers had been paying to other milkmen, yet the amount taken has increased, showing that an intelligent public would use more milk than at present if the quality were such as to give full confidence in it. Mr. Ellis does not believe that it is necessary to pasteurize milk if it is properly made from healthy cows, is promptly aerated and cooled, and then delivered in perfectly clean bottles.

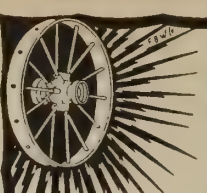
One of his neighbors doing business in Boston recently took his family into the country for a vacation, where he had presumed that good milk for an infant would be easily procurable. The child not doing well on the country milk the father ordered a supply to be sent daily from Wauwinet farm, and though a day old when used it had restored the baby to its accustomed health.

With this large investment of capital and great running expenses, it seemed not an impertinent question to ask if it paid. The reply was: "I cannot expect much profit this year with such a drought as we have had, acres and acres of peas, oats and other crops unable to grow for lack of moisture in the soil." Much food that it was expected would be grown on the farm will have to be purchased. Doubtless some of the neighbors suppose that Mr. Ellis is farming for fun, but he says there is no fun in it for him unless it does pay. He is aware that making milk at going rates has not been satisfactory to producers generally, and that the system is not without its faults, some of which he has eliminated in his own practice. One of the greatest wastes in the business is in the cost of selling, even in villages where farmers peddle their own milk. There is too much running across one another's route, often every milkman in town going through each street to accommodate only a few families. Mr. Ellis' milk has become so popular that he is able in some cases to supply every family on a street. His trade is quite compact, the farthest customer being scarcely four miles away in a territory taking from him milk and cream equivalent to 1,800 quarts of milk a day.

Mr. Ellis believes that there is a brighter day ahead for stock husbandry, that beef making is again to become profitable in the east and that it will be entered into by farmers at some distance from the large markets so that the nearby farmers will have a better demand for milk. The public is also becoming more particular about its milk supply and if a high quality can be guaranteed, will be willing to pay a better price. His experience at Wauwinet farm bears out this belief.—*New England Farmer.*

Feeding Skim Milk to Cows.

Upon the experiment station side, there is very little data in regard to feeding skim milk to cows. There are many dairymen who make a practice of giving all their spare skim milk, and buttermilk as well, to the cows, and claim good results therefrom. In one hundred pounds of skim milk there are about three and one-fourth pounds of casein, one-half pound of albumen, four and three-fourths pounds of sugar, three-fourths pounds of ash



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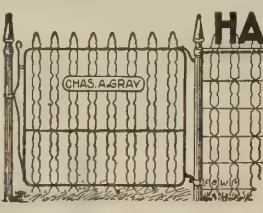
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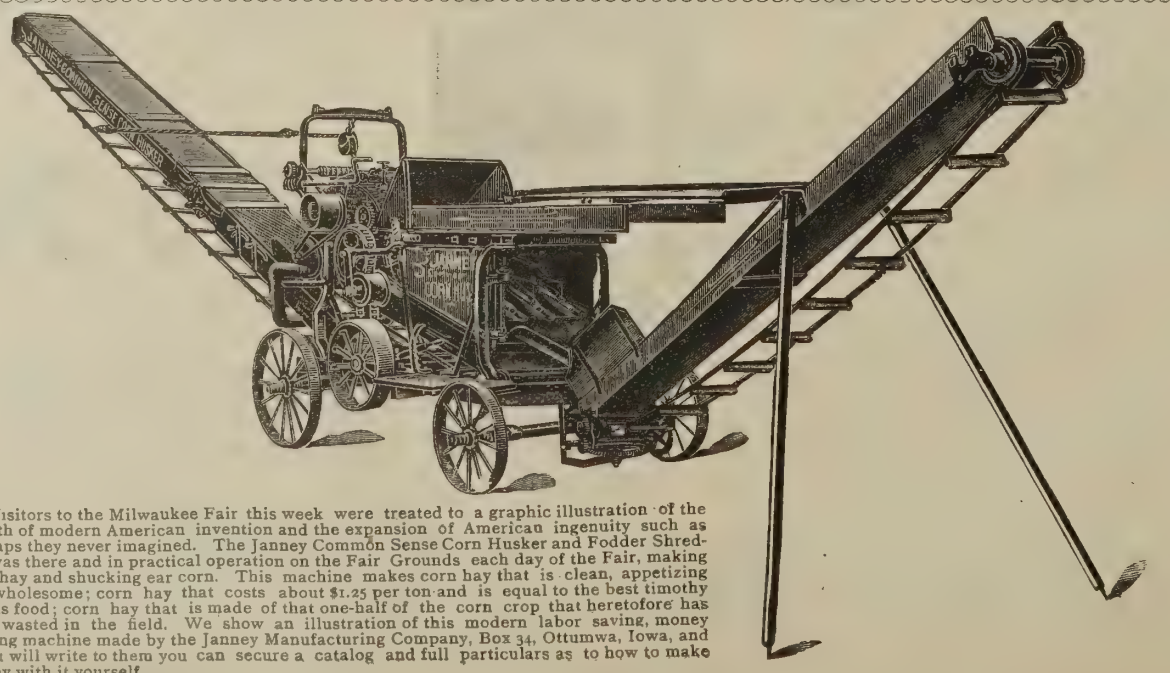
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Visitors to the Milwaukee Fair this week were treated to a graphic illustration of the growth of modern American invention and the expansion of American ingenuity such as perhaps they never imagined. The Janney Common Sense Corn Husker and Fodder Shredder was there and in practical operation on the Fair Grounds each day of the Fair, making corn hay and shucking ear corn. This machine makes corn hay that is clean, appetizing and wholesome; corn hay that costs about $1.25 per ton and is equal to the best timothy hay as food; corn hay that is made of that one-half of the corn crop that heretofore has been wasted in the field. We show an illustration of this modern labor saving, money making machine made by the Janney Manufacturing Company, Box 34, Ottumwa, Iowa, and if you will write to them you can secure a catalog and full particulars as to how to make money with it yourself.

and a quantity of fat varying from one-tenth to one-fourth of a pound. This amount of average skim milk contains about 9¼ pounds of digestible food nutrients, of which about four pounds are protein and the remainder carbohydrates and fat.

The nutritive ratio is 1 to 2, or about the same as that of gluten meal, buckwheat, middlings, or malt sprouts. The above quantity of skim milk contains nearly the same amount of digestible nutrients as ten pounds of gluten meal or thirteen pounds of buckwheat middlings or fifteen pounds of malt sprouts. Since skim milk is so highly nitrogenous, it can well be fed to narrow the nutritive ratio of a ration in the same way as either of the above feeds.

Just how much can be fed advantageously depends largely upon the animal, since some will digest it rapidly, while others will not. Some dairymen find that it does not agree with some of their cows, when fed sweet, but if fed after it has become a little sour, they have no difficulty. For this reason, they mix it with their buttermilk, and feed the two together. The same thing is found true in the human family—some people cannot digest sweet milk easily, while with buttermilk, where the development of acid has progressed for a time, they have no trouble whatever. I would not advise feeding, at first, more than fifty pounds per head daily, which would be an ordinary pailful, twice a day. From the figures given above, it will be seen that this quantity contains about five pounds of dry food substance, and is equivalent in food nutrients to five pounds of gluten meal, six and one-half pounds of buckwheat middlings, or seven and one-half pounds of malt sprouts. I have named these feeds because they have about the same nutritive ratio as skim milk. Comparison could be made with the other food nutrients in other grains, but as the nutritive ratio is different, the comparison might be misleading. Bearing in mind the amount of actual food in skim milk, the feeder can then make up the remainder of his ration from any feeds at his command. I would suggest, however, that wheat bran always be fed in order to counteract any possible constipating effect of the milk. And if this effect is found troublesome, it would be well to feed a little oil meal, say one-half pound or so daily. Let the cows drink the milk as they would water, and feed the grain dry.—*Rural New Yorker.*

IN HOT WEATHER.

How to Take Care of the Chicks That are Hatched In July and August.

Years ago I decided it did not pay to have chicks hatched in July and August, and I still think it does not, unless you have good shady runs for them. By placing their coops under the wide spreading branches of a large apple tree, and after they are a week old giving them the run of the orchard as soon as the dew is gone, I find they thrive well. For two weeks I feed them five times a day, giving fresh water each time. After that time they are fed three times and are furnished larger water vessels, care being taken to keep them always in the shade. Shade and fresh water are two things fowls or chicks must have in hot weather if they thrive. I have a fine lot of sturdy fellows now, and thriftier chicks I never saw. We are cultivating part of the orchard, and it makes an ideal place for July chicks.

For early hatches we placed the brooders on a dry, grassy knoll east of the house, where they get the benefit of the first rays of Old Sol, and indeed on to his last. We surrounded each brooder with a low net wire fence and had no trouble with them wandering away from their home. We taught them a call by repeating it every time we fed them, and now since the fence is removed they come from far and from near at the rap, tap, tap, upon the tin vessel I always carry with me.

Even in early spring the sun occasionally shines so hot that the chicks need shade other than provided by the brooders. We made low sheds, and they enjoyed being under them when the sun shone hot and on top when they wanted a sunning.

I intend having chicks hatch each month and raising them with the mother hen. Let me remind others who will do the same to select a cool, shady place for biddie to spend her three weeks of exile in. I find nothing better than the A coop in some secluded nook where the sun can never find her, unless she has found such a place for herself, where she has had no help in filling her nest.

If so, I think it better to remove the eggs as laid and keep them in a cool place, turning them over every day until she decides she has labored long enough, when I reward her with a clean, fresh nest and fifteen of the finest eggs obtainable. I set her in faith and am not disappointed.

Let me again remind you to look well to the comfort of the yarded fowls. See that they have plenty of pure, fresh water in clean vessels. Dig up the soil deep and mellow in the shade, where they can cool their heated bodies by rolling and wallowing. Place nests in out of the way corners, where biddie will imagine she is hidden. If half the yard is in grass, give them the waste from the garden—mustard, lettuce, radishes, onion tops and an occasional basket of weeds—and see how they will enjoy the change.—Mrs. A. B. B., in *Reliable Poultry Journal.*

CONCERNING OUR ADVERTISERS.

On another page of this issue will be found the advertisements of the Wilmington Wheel Co., of Wilmington, Del. As will be observed from the ad, these people are manufacturers of all kinds of buggy, carriage and light and heavy wagon wheels. They sell these wheels direct to the user at a very low cash price and give a positive guarantee of quality. They have long been known to the public as manufacturers of honest goods and are famous for fair dealing. Write them for circulars, prices, etc.

J. F. EGERTON, of Footville, Wis., starts an ad. this week in the DAIRYMAN of his excellent herd of Jerseys, and in a letter he has the following to say concerning them:

"The herd consists of about forty head of registered Jerseys, is headed by Toltec's Signal 29501, a descendant of the best Tennessee blood, and Signal's Recorder 45885, a product of the very best Combination and Tennessee blood.

The females are all from the best blood, including Tormenter, Signal, Combination, Omaha and Pedro.

Among the aged cows are Baby Ryan, 17 lbs., 8 ozs.; Carrie Gold, 16 lbs., 8 ozs.; Big Bargain, 16 lbs., 4 ozs.; Toltia, 15 lbs., 8 ozs.; Cymbelina, 14 lbs., 13 ozs., and many others capable of making good tests.

No cows are used for breeding that will not make 14 pounds per week and none but good ones are for sale."

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

NYMPHOMANIA.

I have a very good registered Jersey cow; I can't get her in calf. She takes the bull every three weeks and she has kept on that for nearly a year. P. H.

Duluth, Minn.

ANSWER.

Yes, stop all service and get the best advertised emmenogogue medicine. Read ads. in DAIRYMAN. These medicines are the best and cheapest, better than any form I can recommend in prescription, as they are delicate and difficult in safe compounding.

GARGET.

I have a very fine Jersey cow whose calf is two months old. When she first came in she was in a very delicate condition, would not eat without I gave her a dose of medicine first. The left side of her udder stayed swollen and gave very little milk, and that she did give, was lumpy and thick (almost green). The right side of her udder stayed all right for sometime, but for about two weeks it is worse than the other.

East Atlantic, Ga. C. O. S.

ANSWER.

Immediate full dose of physic such as you think she can stand, not more. After this, give sixty grains of iodide of potassa each morning for twenty to thirty days in a little cold water, a small drench. Rub the hard parts, only, of the udder with strong camphorated spirits, six parts, and common turpentine, two parts, only. Rub hard twice the first day, then once a day for two days, then every third day. I don't believe such a cow, as you describe, is fit to propogate from, nor do I think she is in any way, a cow to keep for any purpose. She is a scrofulous subject of the worst type and to me worthless.

SYMPTOMS OF TUBERCULOSIS.

What are the symptoms by which a common farmer can know tuberculosis? Will a cow that is affected with tuberculosis continue to give a large mess of rich milk? Is tuberculosis very contagious? J. B. J.

Elwood, Neb.

ANSWER.

Staring coat, cough, small tumors upon the extremities, swelled points, lameness in one or more legs, or all of them, a sunken countenance, watery, weak looking eyes. Of course no poor cow has all of these, but these are all symptoms variously developed. Tuberculosis is dangerously contagious always, and in various ways. Some do milk well, much too well, for the community using milk.

OPHTHALMIA.

I have several of my yearlings and two-year-old heifers, also my registered Jersey bull troubled with a disease affecting the eyeball. It first came with a watery substance running from the eye, then the eyeball covered over with a yellowish, white, opaque covering, looking like matter inside, causing blindness. The most of them only affected in one eye, but the bull and one yearling are blind in both eyes. On the advice of our local physician, I used calomel and sugar pounded together in mortar, in equal quantities by measure, and blew it into the eye each day. W. W. C.

Fredericksburg, Texas.

ANSWER.

You have clearly, specific ophthalmia. This in your case is infectious to all intents and purposes. Separate all the affected at once, and keep them so for a while. The calomel and sugar was a bad application indeed. Water extract of opium four ounces, tincture of arsenic four ounces, water two ounces. Squeeze some of this into the eye; pull up the upper lid and squeeze into the lower lid. Physic all of the patients; four ounces for one-year-old, six ounces for two-year-old. Repeat if needed. This is as per head of this column, and of much importance for good. To be repeated if needed in five days. Keep in shady place constantly.

DROPSY—DIFFICULTY IN PASSING WATER.

I have a Jersey cow which had a small swelling in the rear part of udder; commenced about four weeks ago, and the swelling increased very rapidly until the third or fourth day when her udder was four times its natural size. And as she had a large udder naturally it seemed it would burst. I sent for the local veterinary; he came and examined her and left some medicine. I followed his instructions but the cow kept growing worse. After about six days the swelling left one side of the udder and pushed forward onto her body in front and on the left side of the udder and body. In about ten days her body was nearly twice its natural size. The swelling being on the left side and underneath the body extending to the fore leg and shoulder and up the side nearly to the back bone. After about two weeks she laid down and could not get up, and I thought she would surely die, so I opened her with my jack knife, making a gash about one and a half inches long just in front of the udder. Nearly a wash tub full of bloody water run out and in two hours there was no swelling and the cow got up and went to eating grass, and has been getting better ever since, except her skin is rough and scaly and she seems stiff in her hind parts and is very thin and weak. The water kept dripping from the wound for ten days.

I have a two-year-old heifer giving milk. She has trouble passing water at different times all summer. She can only pass stream size of a straw. What can I do for her? Her hair looks rough and she is quite thin, otherwise seems to be all right. J. E. A.

Stillwater, Minn.

ANSWER.

You are to blame, or more properly, the veterinary surgeon. Had you thoroughly purged the cow, she would have escaped the dropsy, no doubt. It may swell up again, if so, thoroughly physic and repeat as may be needed.

No. 2. The heifer has some sort of obstruction in channel somewhere; an exploration can alone tell where and how. Get a truly posted veterinary surgeon.

Horse Owners! Use GOMBAULT'S Caustic Balsam

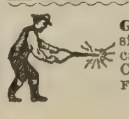


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Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

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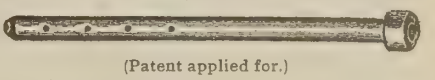
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DR. WM. HORNE, Janesville, Wis.

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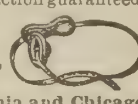
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FACTS REGARDING "OLEO."

Ninety-nine Per Cent of Users Think They Have Butter.

The *Philadelphia Times* has the following: Philadelphians eat 40,000 pounds of oleomargarine weekly.

That amount feeds 80,000 persons, and ninety nine of every one hundred think they are eating butter.

The weekly profits from the retail sales of oleo are $4,000.

There are 150 merchants in this city who pay the special government tax of $48 to sell the beef-fat substitute for butter. The average profits to each are over $26 weekly.

These facts were used by lawyer Luther S. Kaufmann, representing the Pure Butter Protective Association, in his appeal to the Retail Grocers' Association to aid in the prosecution of violators of the oleo law. Incidentally Mr. Kaufmann said that one merchant who was arrested last week, admitted that he had a regular weekly sale of 2,700 pounds which meant $270 profit. The progress of the work of prosecution, by which it is believed that the number of oleo merchants has been greatly diminished, and the output cut down from 100,000 to 40,000 pounds, was briefly told by Mr. Kaufmann.

The Pure Butter Protective Association will continue the war against those merchants who are retailing oleo in unstamped wrappers as butter, and at a price a few cents lower than the price of good butter.

The agents of the association, who have been working throughout the city, have made 250 purchases of oleo from various dealers. Of these only three or four packages bore the stamp as required by the state law. All dealers who sold the unmarked packages, Mr. Kaufmann said, would be prosecuted. In every case where it can be accomplished, the merchants will be charged with a violation of the federal law, owing to the greater severity of the punishment which may be imposed when a conviction is secured. The penalty is a fine not exceeding $1,000 and imprisonment not exceeding two years. The penalty under the state law is fixed at $100 fine in the first offense and $150 fine or sixty days' imprisonment in the second offense.

The Value of Grit as a Food Adjunct.

What part does grit play in the digestive organs of the fowl? Open a few fowls while food is being digested, and see for yourself. There is the gizzard, with its tough inner lining and its outworks of strong, tough, and thick muscle; this muscle is so disposed that there can be no mistaking its purpose. The gizzard is a mill, a grinding machine—and what does it grind with? The walls are roughened, to be sure, but these corrugations of tough membrane are not sufficient in themselves to cut and grind whole grain even if it has been somewhat softened by the digestive fluids. The grain will not cut grain, and surely will not render green stuffs fine enough to become soluble in the digestive fluids of the intestines, beyond the gizzard. The grinding must be done by good, hard, sharp stone—grit—and nature has taught the fowl to supply itself with millstones for this powerful little mill to grind its grist with. When this mill first was invented, and pressed into service, it is not probable that the owners thereof had many messes of soft food.

The soft foods we now give our poultry are for the most part made of finely ground stuffs, and are partially digested by cooking, and the fluid used in mixing. The gizzard can hardly bring any amount of grinding to bear on such foods; but more probably devotes itself to mixing it with the other foods, and passing it along to the several feet of digestive apparatus through which the food must pass through before the waste is voided.

That grit is absolutely essential to the proper digestion of hard grains is easily proved. Shut a fowl up where she cannot possibly get any grit, feed her on nothing but hard grain, and in a short period (depending on how well she was supplied when imprisoned, and on the vigor of the bird) you will find that she will show a distaste for her food, and later on she will develop a pronounced case of indigestion. A fowl so penned, and fed on soft food, will hold out longer, and may not show any ill effects until she succumbs to overfatness. Or, when your fowls are cooped for winter, and the pens are fairly free of gravel or any kind of grit, feed them almost wholly on hard grain, and supply them no grit—then when you note a letup in the appetites, go out and fill up the grit and hell box. Until you have tried it, you cannot appreciate grit, or how a fowl is capable of holding of it. You will note a picking up in the appetite immediately following the filling of the grit box.

The prime importance of grit is its grinding and cutting power; but grits containing some percentage of lime and iron probably part with a portion of their constituents to the food carriers of the body, though the bulk of the worn grit proves insoluble, and is voided.

There is no period in a fowl's life when it can do well without grit of some sort. It should be mixed with the first food a chick gets, and thereafter should be always accessible. It is essential that the grit be fairly hard, but should not be so hard that it will wear smooth. The grit that does not wear smooth (as glass and marbles will), but always presents a rough, cutting surface, is the best. Oyster shell is a valuable and necessary adjunct to grit; you need both.—*Success With Poultry.*



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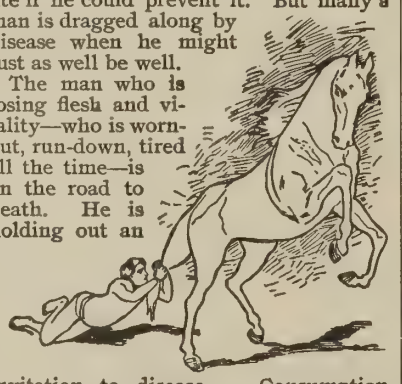
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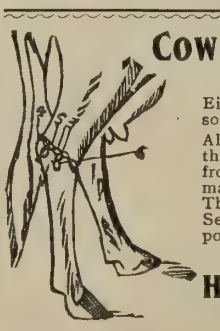
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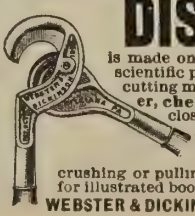
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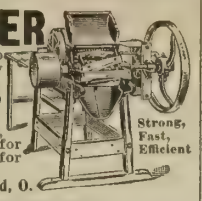
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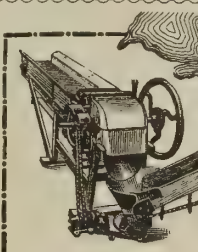
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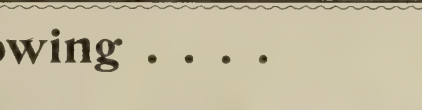




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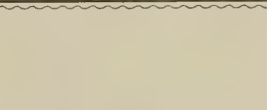
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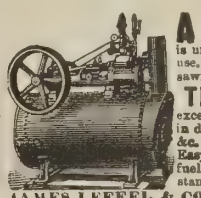
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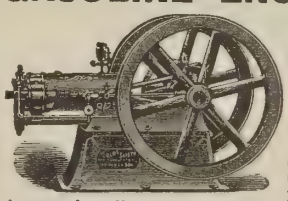
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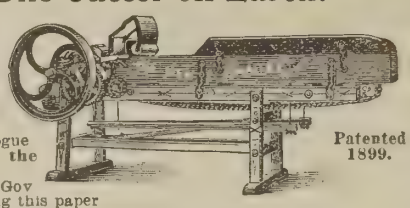
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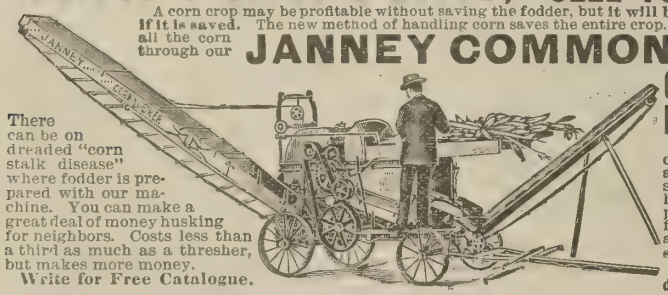
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A corn crop may be profitable without saving the fodder, but it will be twice as profitable if it is saved. The new method of handling corn saves the entire crop. The new way is to run all the corn through our

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There can be no dreaded "corn stalk disease" where fodder is prepared with our machine. You can make a great deal of money husking for neighbors. Costs less than a third as much as a thresher, but makes more money.

Write for Free Catalogue.

It husks out all of the corn clean, and shreds all the fodder at the same time. Makes clean, healthful food, as the patented screen in the feed elevator takes out all the **dust, dirt, smut, etc.**

Go to your nearest dealer and see one.

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WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

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MAKE ONLY SWEET ENSILAGE



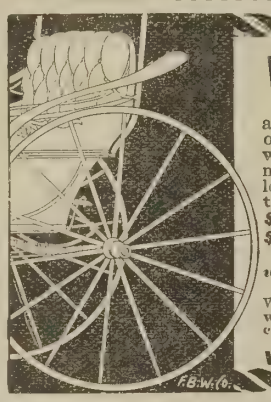
Ever since the ensilage system has been introduced in this country it has been the ambition and effort of silosists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste.

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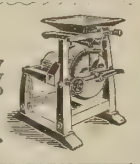
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costs much less than that, and can be used successfully **every day in the year.** It will earn the interest on the money every day it is used. Spreads all kinds of fine and coarse manure, wood ashes, lime, salt, etc. Spreads broadcast or drills in the row. We make a special drilling attachment for this machine, which is of unusual value to tobacco and cotton planters and southern truck farmers. Splendid new catalogue FREE. Tells all about it.

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for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

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This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00

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UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
Guaranteed the Purest, Cheapest and Best in the Market.
100 FIRST CLASS PRIZES
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

EVERY MONTH A PAYING MONTH.

Nine out of ten creamerymen cannot say this of their business; there are always some months in the year when their business does not pay, and it is these dull months which make the creameryman grow gray headed.

There is a way to make every month a paying month, have you ever thought what it is? What is it that makes a dull month in the creamery business? Shortage of milk, is it not? The manufacturing expense is nearly as great in making five tubs of butter as in making ten, but the profit on the latter is twice as much.

A number of creamerymen have hit upon a plan which insures a good supply of cream every day, and while some days are better than others, the results are such that every month returns a nice profit to the creameryman's pocket. The plan is this: Place Farm Separators with patrons too far distant to make the hauling of milk practicable and with others who will not send their milk to the factory because they havn't a large amount, but who would send their cream if some one would call for it.

This is no theory, as the plan is proving a success wherever tried and every creameryman who will test it can increase his profits from three to five dollars a day under the most ordinary conditions. Three dollars a day means over a thousand dollars difference in a year's business and there are not many who would knowingly let a thousand dollars slip through their fingers.

We will explain the plan more fully to any creameryman who will write us. We know it will pay you to investigate. It requires no additional capital; we will look after that, and all you need furnish is the necessary "push" in placing machines.

This is no "friendship" affair, it's just a question of whether you want to make money or not. We leave it with you to answer.

The Sharples Company,

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WE WANT TO MAKE YOU PRICES ON

Cream Separators, Combined Churns and Engines,
Cream Vats, Butter Workers, Tanks,
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The Quality of Cream.

This is a matter which bears a much more important and direct relation to creamery results than is generally supposed. Other conditions being equal, that cream which is smoothest, freest from bitter froth, where the fat globules have not been broken by coming in forcible contact with inside bowl complications, etc., will produce the most butter of infinitely superior flavor. This smoothness is essentially a requirement of commercial cream. A little testimony in point follows:



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Dear Sir: It is now one year since we put in the No. 25 Tubular Separator. It has not cost one cent for repairs and runs just the same as when first put in. It does fine work and gives the best of satisfaction. The ease with which we can change from light to heavy cream makes it of especial value to us, for we ship three grades of cream, and must therefore make both light and heavy cream most every day. When we need more separators we will buy only Tubulars. Thanking you for your courtesy in the past,

Respectfully,
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John Hart is one of the Greater New York's best known milk handlers He handles large quantities of commercial cream which must be smooth and uniform to suit his trade.

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fully answers this requirement as it will yours, without regard to whether you use it for the above purpose, in the creamery or for clarifying and purifying milk for custom sale, condensing, etc., etc.

The cleanest of rapid skimmers. The simplest in construction. The most durable and economical. The product is unexcelled. Sold on their merits. One on trial if you want it.

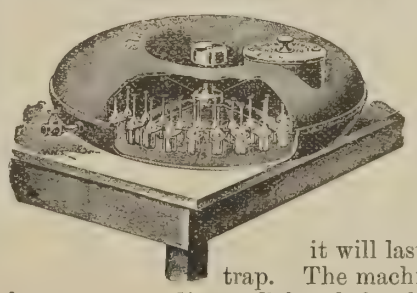
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ALDERNEY BUTTER COLOR
Gives Natural June Tint. Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
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Vibration Means Waste.



If your rattle-trap Babcock tester is not doing accurate work, then try the

STANDARD Babcock Tester

it will last for years and it is not a rattle-trap. The machine is fitted with solid cast iron frame, uses ordinary Babcock bottles and is **supplied with the famous Glass Eye Speed Indicator.** Farrington and Woll's new book on Milk Testing with each machine.

We are prepared to repair all separators, and have the most experienced men for this work.

Send for Catalog No. 61 **Elgin Manufacturing Co. Elgin, Ill.**

At This Season of the Year



The preservation of milk demands that it be cooled in some manner. With the

Champion Milk Cooler

it may be **Cooled and Aerated in one Process.** The Aeration removes all unpleasant oders from the milk. The cooling reduces the temperature quickly so that the keeping quality of the milk will be much improved.

The **Champion Cooler** can be used with ice, cold well water or running water. There is no other cooler so convenient and so effectual.

No Dairyman can afford to be without one of these coolers. The price brings them within the reach of all. Write for booklet, "Milk and its Care," which tells all about them.

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AT PHILADELPHIA, PA.

For the advancement of American Manufacture and the extension of Export Trade; opens September 14th and closes November 30th, 1899.

This will be the most elaborate and extensive exposition of its kind ever held in our country. The exporting of Dairy Products is one of the largest items of American Commerce, and we intend to be "Right in Line."

We will exhibit a Model Milk Distributing Plant, exhibiting in actual operation our Mechanical Refrigerating Plant, Potts Pasteurizer, De Laval Separator, Bottle Filler, Ideal Steam Turbine, and new Acme Belt Bottle Washer, Sterilizing Oven, Disbrow Churn, etc., etc. In fact, exhibit the most complete collection of Modern, Up-to-date Apparatus for handling Pasteurized Milk for retail trade.

It would pay you to take advantage of the cheap Railroad Excursions, and visit this exhibit and become acquainted with the modern process of handling milk.

We should be glad to have you write us at Philadelphia, care of the National Export Exposition. We will have representatives there to give you any information in regard to any apparatus necessary for such a plant.

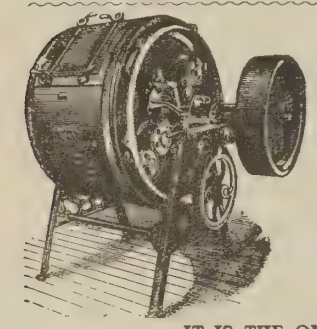
Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,

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Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

We are General Agents for Hansen's and W. & R. Butter Color.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

JOHN JAMISON,

ESTABLISHED 50 YEARS.

Butter, Cheese, Eggs, Poultry.

Water and Market Streets - - - PHILADELPHIA, PA.

I reach every outlet and have a constantly increasing trade. REFERENCES; Dun and Bradstreets; Corn Exchange Bank, Philadelphia.

DAIRY AND STOCK FARMERS

Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

Star Milk Cooler Co.,

ARCHITECTS, CONTRACTORS and

SANITARY DAIRY ENGINEERS.

HIGH GRADE WORK ONLY. **Haddonfield, N. J.**

Send for Catalogue of Sanitary Dairy Apparatus.

PRINT BUTTER Should be wrapped in . . . GOOD **Parchment**

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"PURIFINE"

A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

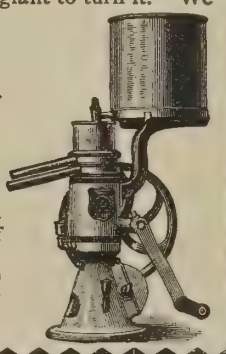
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A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

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. HOME ON THE HUDSON .

is one of the most delightful spots on the historic river. "Ellerslie Farm" is one of the most complete establishments of its kind in the world. The delicacy of "Ellerslie" butter has attracted many a purchaser, and dairymen will be interested to know that all the products of this celebrated dairy are flavored with

RHINECLIFF, N. Y., Sept. 12, 1898.

DIAMOND CRYSTAL SALT CO.:

Gentlemen:—I am very much pleased with your salt. At first I thought the flakes were a little coarse; but they dissolve very quickly. They are all separate from each other so that I can easily apply the salt with the hand without sifting. I don't have to take a hammer along to get Diamond Crystal out of the barrel as I had to do with some salts.

HARRY E. STEVENS, Dairyman of "Ellerslie."

RHINECLIFF, N. Y., Aug. 15, 1899.

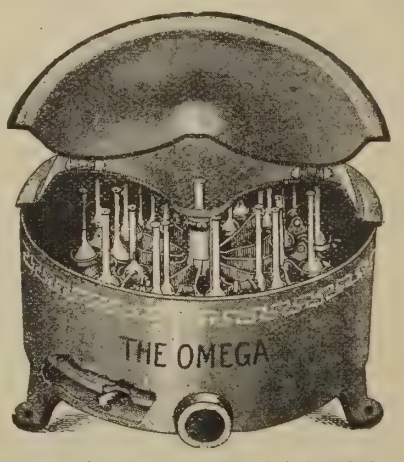
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Sidney Centre, N. Y.

Dear Sir:—Please send us a barrel of Diamond Crystal Salt and charge same to C. H. Royce, our Superintendent. We find your salt the very best, and I am speaking well of it to those who inquire.

Yours respectfully,
HARRY E. STEVENS, Dairyman of "Ellerslie."

Diamond Crystal Salt.

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.



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ALL IRON AND BRASS, MADE BY

A. H. BARBER MFG. CO.,

CHICAGO, ILL.

Builders of CREAMERY and REFRIGERATING MACHINERY.

SEND FOR CATALOGUE.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

A BILL is before the English Parliament, with good prospect of its becoming a law, which effectually prohibits the coloring oleomargarine in the yellow color of butter, or mixing it, in any quantity whatever, with butter that is offered for sale. Gradually the eyes of the civilized world are becoming opened to a true conception of what an unmitigated fraud oleomargarine is, and how much fraud and deceit its makers and sellers use in forcing it on to the consumer.

HOW THE FRAUD WORKS.

In a private letter written us by Mr. C. M. Sanders, of Penfield, Georgia, he gives some idea how the oleomargarine fraud makes its way in the cities of the south. He states that he has recently made a canvass of the city of Augusta, and he finds that more than one-half of the stuff *sold as butter* is oleomargarine. At Savannah he was told that seventy-five per cent of the sales was oleomargarine. This consumption of the stuff, let it be understood, is brought about by fraud and deceit, deceiving the final consumer with the pretense that he is getting butter. The same is true all over the world. The sale and consumption of oleomargarine is based every where on deception. And we have newspapers, lawyers, doctors, chemists and courts, in some instances, lending themselves to the perpetuation of this fraud.

Pigs Weak in Back.

ED. HOARD'S DAIRYMAN:—Please give me the reason for my young hogs getting weak behind. They will sit down quite often when eating, as well as other times, and then it will wear off for a spell, and in a few days be the same. They are always in a clean, dry place. W. S. P.

Cambridge.

ANSWERED BY THEODORE LEWIS.

Your pigs are affected with paralysis. Had you stated the age and weight of pigs, and what you are feeding and how much, a more definite answer could be made. In your case, cold and damp sleeping places has not added to the cause, but undoubtedly want of exercise, with high feeding of some one kind of food, causing indigestion. Constipation as a rule is the forerunner, followed eventually by diarrhœa.

I find as a rule, here in the west, in dairy districts, that when milk is plenty, the excessive feeding of milk is a cause. This is especially true where buttermilk can be obtained at nominal prices, and is fed to excess without addition of grain, and often without pasture and exercise, causing, of course, in time, indgestion, and the result is paralysis. Dr. D. McIntosh, in his work on diseases of swine, recommends the following, which has been used with good results to the writer's knowledge:

In the early stages of the disease, give the pig one ounce of castor oil, (of course use judgment, as to the size and age of your pigs) and one or two drops of croton oil in it. As soon as the physic operates, give eight or ten grains of iodide of potassium, three times a day in drinking water.

If the animal will not take it in the drinking water, put it in a little water and give it with a spoon. In three days if the animal is not improved, give it from two to three drops of the fluid extract of nux vomica, and from ten to fifteen drops of oil of gaultheria (wintergreen) in a tablespoonful of sweet oil three times a day.

Rub the back and loins with an irritating liniment, daily. The writer has used turpentine, pure and simple, with good effect. Of course, if the pigs recover, begin feeding gradually on an easily digested ration.





GENERAL-PURPOSE COWS.

Property of A. J. JUDD, Warren, Ohio. (See letter on page 638)

A Word of Encouragement to the Hoard's Dairyman.—Something about Washington.

ED. HOARD'S DAIRYMAN:—I have been intending to write you for sometime, but owing to illness have neglected to do so.

I am much pleased to get and distribute your subscription cards for the DAIRYMAN. It helps my neighbors, by spreading a ray of dairy knowledge throughout the country. As a result, I expect to see better dairy stock, better dairy farms and better profit.

Your fight against the oleomargarine combine and milk adulterators and frauds of all kinds is a noble one. You should have the earnest support of every farmer and consumer of milk and butter in the land. Let every state legislature and the National Congress pass laws which will cramp these frauds into a close corner. That done, the manufacturer or seller of such swindles will speedily find themselves in prison. Then these public frauds and destroyers of the health of innocent children can be suppressed.

I think the state of Washington an ideal dairy country. We have plenty of cold water, the year round, and an abundance of green grass, nine months in the year; still there are thousands of pounds of butter and cheese shipped in here from California and the east every year.

This place would be a good point to start a creamery, for the milk of three to five hundred cows can be obtained. All it needs is some one with a knowledge of the business and a little capital. The market is good and growing better. If you know of such a man, refer him to me. Long live the DAIRYMAN. CHAS. ZIMMERLE.

Everett, Wash.

What a Creamery Does.

There are four creameries contiguous to Ackley, Ia., and the *World* of that place says of the benefit to a community of a creamery:

The operation of a well conducted creamery, in a community where it was before unknown, works a revolution in all directions on the farm. It lightens the labors of the wife and daughter; it secures a month's certain cash income; it restores impoverished acres; it means more and better pigs, more and better calves; a more equal distribution of farm work all the year round. It will do more for a community than a new railroad, and will, without fail, lift a chattel mortgage and down-at-the-heel grain raiser into a plane of independence and comfort, while it, and what naturally grows out of such a system of agriculture, will vitalize his depleted soil, and in a few years double its productive capacity. This is neither theorizing, nor fanciful speculation, but a plain statement of cause and effect. It has been done and is being done all over the west.

Dairy Work in the Maritime Provinces.

ED. HOARD'S DAIRYMAN:—It was the writer's privilege to visit a number of factories in the last few days and surprise became monotonous to find the large amount of milk taken daily at these factories. Nearly all the factories that I visited were taxed to their full capacity. In fact many of them could not receive Monday morning's milk at all, not having conveniences to handle so large an amount as would be delivered on Monday morning, so that as a general thing Monday morning's milk, or rather Saturday night's and Sunday morning's milk, was kept at home.

In many cases plans are matured to enlarge the factories, and what is very funny, factories when being built caused a great deal of adverse comment on account of their large size. There are fully twenty-five per cent more patrons sending their milk to the factories in these provinces this year than ever before, and what is more, the heresy of selling the farm by the bushel, as has been, is quickly being dissipated, and will soon be a thing of the past. In fact, a man now known to be farming that way—growing grain for sale—is looked upon with contempt, as an enemy to civilization, a menace to his community, a soil robber and a harsh parent to his family and to his posterity.

Farmers never had more reason than now to feel jubilant. The crops—every one of the staples—promise to be the best for ten years. The hay crop was an immense one and has been made in good condition. Agricultural products of all kinds were not so high for years. Beef cattle and sheep are in brisk demand. Hogs of the right quality are worth $5.50. Cheese has reached the ten-cent notch and butter is worth twenty cents. There is an immense root crop—turnips and mangels—and a very la ge area.

This with the big hay crop, the large amount of oat straw and the splendid crops of wheat, barley and oats will enable farmers to feed their animals much better than they ever did, and send them to market in top condition. It will enable them to carry on winter dairying next winter on a much more gigantic scale than ever before. Manifestly this is a period of prosperity for the farmer, and the prosperity of the farmer will reflect on many other classes of industry. The last year of the century will certainly be a phenomenal one for the agricultural class.

At the last board meeting at Charlottetown, Prince Edward Island, nine and fifteen-sixteenths was realized for some cheese. Several sales at ten cents had been made by private sale. I have been told by some factory managers that the board here received offers of eleven cents for September cheese. It is eight years since such prices for cheese prevailed in the Maritime provinces, as are now being obtained. I hear there is talk of several new factories going up in different parts next year. J. A. M.

THE shipments of oleomargarine from San Francisco to Honolulu have been over 70,000 pounds a month some of the time the present summer.

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Coming Events.

Georgia Dairymen's Association, Grantville, Ga., Oct. 12, 13, 1899.

Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.

From Vancouver Island.

A Scotsman's Letter—The Climate and Products Described—Ration Formula Wanted—Feeds are Expensive, but Butter Brings a Good Price.

ED. HOARD'S DAIRYMAN:—I have here a herd of some fifteen grade Jerseys, and I would like you to send me a ration. We have a mild winter here with a lot of wet, but seldom cold weather. Green grass grows on the open hill ranges all winter, and the cows are out grazing every day, except when it is very wet or snow on the ground. Now, I have orchard grass hay, with some clover and rye grass, plenty of oat straw, and a green bite on the hill pasture all winter. We buy the following feeds in town: Middlings per ton, $25 to $27; bran per ton, $20 to $25; ground feed, $25 to $30. Kindly advise me how to mix a ration for each cow. I have a warm, comfortable and convenient barn, with hay and other feed all under one roof. We churn once a week, and we get thirty cents per pound for our butter all the year round. I have a separator and feed skim milk to calves and pigs. We have a registered Jersey bull in the district.

They say dairying doesn't pay here, but I read HOARD'S DAIRYMAN and I'm trying my level best, as a Scotsman will, patiently and persistently, to make my cows pay. We can't farm without a barn full of cows, and I hope to make the cows board me and my family, besides keeping up the fertility of my farm. I don't bother you often, and I shall be glad to hear from you. I have distributed a lot of your cards among my neighbors. By and by I will let you know how dairying pays on Vancouver Island. J. D. Reid.

Victoria, B. C.

Letters like the foregoing give us renewed faith and courage. It is worth a good deal of patient care and study to win such generous commendation from such a source, and we tender sincerest thanks to Mr. Reid for his congratulations and complimentary words. And there are others—so many that we cannot mention them—to whom we are similarly indebted, and we take this opportunity to assure them individually and collectively that their kind and generous words are highly prized.

Mr. Reid is certainly very fortunate in many respects, and we see no reason why he should not be able to make his cows return him a substantial profit every year, provided he takes proper care, as we are confident he will, to weed out the poorer cows from year to year. To this end, he ought to keep a daily record of the milk yielded by each cow and test the same at least twice a month. Such a record will assuredly change his opinion more or less as to which are the better cows. Many a good cow, good in a long run, has been sacrificed because she could not keep abreast of some other cow for a week or a month, although able to show a decided lead in ten months. Commence the record at once and keep it up.

In the matter of a ration, we incline to the opinion that some general suggestions will be more valuable than a specific formula. The climatic conditions reported will be quite certain to produce grass and hay, not at all in accord with the general average of our feeding tables. It is much to be regretted that some of the by-products containing more protein are not available—such for instance as gluten meal. In the absence of these, we would mix the bran and middlings in about equal amounts by weight and feed an average of, say, one pound for each 100 lbs. of live weight. The record above suggested will serve as a guide to point out the cows that should have more than this average, and also those who cannot profitable utilize so much. In other words, feed for results and be governed by results. Cows have their limits of profitable production, depending partly upon inherent quality and partly upon the stage of lactation. It is not a question of the feed required for maintenance, but of the capacity of the cow under existing conditions to eat more than this and make milk of it. The more she will eat and thus use, the greater profit will she yield. One cow may have double the capacity in this respect of some other cow, and it would not be good sense to feed each the same amount.

In addition to the allowance of grain, give simply all the hay each cow will eat with relish, and not more. Remember also that a little salt every day helps in the digestion and assimilation of the feed and particularly of the protein, which is the indispensable element in milk making.

That report about dairying on Vancouver Island will be most welcome.

THE DAIRY EXHIBIT AT WISCONSIN STATE FAIR.

The Dairy show at the Wisconsin State Fair was of excellent quality this year. Many noted breeders of dairy cattle showed fine specimens from their individual herds, and judging from the crowds that surrounded them, even the city people are beginning to take more than a passing interest in the dairy cow and do not attend the fair solely for the horse racing and side show attractions.

The Jersey, Guernsey and Holstein breeds were well represented, with some Ayrshires and Brown Swiss. As is natural, Wisconsin animals made up the larger part of the exhibit, but several noted herds from outside of the state were present, notably the Hood Farm Herd and the exhibit of H. M. Higinbotham, of Chicago, and J. E. Robbins, of Greensburg, Ind., among the Jerseys. The Holsteins showed herds from Iowa, Illinois and Nebraska, as well as Wisconsin.

The awards were as follows:

CLASS 16. Red Polled—Andrew Bros., Cedarville, O., first on bull 3 years or over, bull 1 year and under 2, bull calf, cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf, four animals either sex, two animals either sex under 4; second on bull calf, cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf, first on champion bull under 2 years, first on champion cow, first on junior bull.

CLASS 19. Holstein—W. B. Barney, Hampton, Ia., first on bull 2 years or over, second on bull calf, first and third on cow 3 years or over, first on heifer 2 years and under 3, third on heifer 1 year and under 2, first and second on heifer calf, first on four animals of either sex, second and third on two animals of either sex, first on champion bull and champion cow 2 years and over. Rusk Bros., North Greenfield, Wis., second on bull 2 years or over, second and third on bull 1 year and under 2, third on bull calf, second on heifer 2 years and under 3, first on heifer 1 year and under 2, second on four animals of either sex, first on two animals of either sex, and first on junior champion heifer under 2 years. T. Two & Sons, Winnebago, Ill., third on bull 3 years and over, first on junior champion bull under 2 years, first on bull 1 year and under 2. McCall, Collegeville, Neb., first on bull 2 years and under 3, second on cow 3 years and over, third on heifer 2 years and under 3, second on heifer 1 year and under 2, third on heifer calf, third on four animals of either sex. J. N. Chappel, Kearney, Neb., first on bull calf.

CLASS 23. Ayrshire—Edward Finn, Fort Atkinson, Wis., awarded all premiums on bull 2 years or over, bull 2 years and under 3, bull 1 year and under 2, bull calf, cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf.

CLASS 21. Jersey—Hood Farm, Lowell, Mass., first on bull 3 years old or over, bull 1 year and under 2, cow 3 years old or over, champion cow 2 years or over, junior champion cow; second on bull 2 years old and under 3, bull calf, heifer 1 year and under 2, heifer calf; third on bull 1 year and under 2, cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf. J. E. Robbins, Greensburg, Ind., first on bull 2 years and under 3, bull calf, heifer 1 year and under 2, heifer calf; second on bull 3 years or over, cow 3 years or over, heifer 2 years and under 3, four animals of either sex under 4 years, the get of one sire; also first and second on two animals of either sex under 4 years, the product of one cow, champion bull 2 years or over and junior champion bull under 2 years. H. M. Higinbotham, Chicago, first on exhibition herd of four animals of either sex under 4 years, the get of one sire, on heifer 2 years and under 3, second on bull 3 years old or over, bull 1 year and under 2, third on bull calf.

CLASS 20. Guernseys—Bulls 3 years or over: F. W. Tratt, Whitewater, first; L. B. Axtell, Perry, O., second; A. J. Philips, West Salem, third. Bulls 2 years and under 3: L. B. Axtell, first; A. J. Philips, second; F. W. Tratt, third. Bulls 1 year and under 2: G. C. Hill & Son, Rosendale, first; L. B. Axtell, second and third. Bull calf: A. J. Phillips, first; F. W. Tratt, second and third. Cow 3 years and over: A. J. Phllips, first, second and third. Heifer 2 years and under 3: A. J. Phillips, first; F. W. Tratt, second and third. Heifer 2 years and under 3: A. J. Philips, first; F. W. Tratt, second and third. Heifer calf: A. J. Philips, first; F. W. Tratt, second and third. Exhibitors' herds, four animals of either sex under 4 years, the get of one sire: F. W. Tratt, first and third; A. J. Philips, second. Two animals of either sex under 4 years, produce of one cow: A. J. Philips, first; F. W. Tratt, second. Champion bull 2 years or over: F. W. Tratt. Champion cow 2 years or over, A. J. Philips. Junior champion bull under 2 years: Hill & Son. Heifer under 2 years: F. W. Tratt.

CLASS 22. Brown Swiss—E. M. Barton, Hillsdale, Ill., first on bull 3 years or over, bull 1 year, bull calf, cow 3 years or over, heifer 2 years and under 3; second on bull 2 years and under 3, cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf; third on bull 1 year and under 2, bull calf. C. E. Cook & Son, Huntley, Ill., first on bull 2 years and under 3, heifer 1 year and uuder 2, heifer calf; second on bull 1 year and under 2; third on cow 3 years or over, heifer 2 years and under 3, heifer 1 year and under 2, heifer calf.

A fine exhibition of dairy products was made and the awards and scores were by the following judges:

Superintendent, J. W. Thomas, Anson; judge of the butter, S. E. Davis, Chicago; judge of the cheese, Henry Bamford, Plymouth.

Class 110, Creamery Butter — Arcadia Creamery Company, Arcadia, Wis., 96; B. Andrae, Stearns, Wis., 94; A. F. Aspinwall, Deerfield, 90½; F. W. Ashman, Sandusky, Wis., 96; Balsam Lake Creamery Company, Lykens, Wis., 94¾; D. Bleuer, Omro, 95½; W. E. Blumenstein, Sullivan, 95½; P. Bjewegaard, Barwig, Wis., 93¼; R. M. Bussard, Poynette, 95; J. F. Brady, Deerfield, Minn., 94; Cleveland Creamery Company, Cleveland, Wis., 96½; W. H. Cockerills, Cedarburg, 92¾; Ole Esker, Cook Valley, 97; Albert Erickson, Volga, 98; J. O. Enger, Merrillan, 96; C. H. Golden, Rome, 96; J. O. Gibson, Urne, Wis., 95¾; K. Gibson, Misha Mokwa, 94; H. Harmenson, Scandinavia, 96½; A. High, Berlin, 93½; W. R. Holcomb, Oak Hill, 91¾; Frank Ivey, Mineral Point, 97⅞; G. E. Gorden, Amherst, 95½; Walter Judevine, Gratiot, 97½; C. M. Kates, Custer, 96½; Koepsell, Lewiston, 98½; M. J. Lathrop, Logansville, 97¾; H. A. Landt, Cashton, 97¼; Henry Larson Company, Dodgeville, 97; E. B. Melindy, Sheboygan Falls, 96¾; F. E. McCormick, Towerville, 97; James Moore, Albion, 98½; C. H. Marsh, Janesville, 93¾; M. Michels, Garnett, 95; J. E. Noyes, Grantsburg, 91; George Nelson, New Sweden, Minn., 93; C. L. Passmore, Iola, 94½; E. A. Paddock, Tibbets, 93½; J. T. Parsis, Berlin, 91¼; Kate F. Peffer, Pewaukee, 96¼; S. S. Sorenson, Alpha, Minn., 95; George Sampson, Sharon, Wis., 95; O. P. Strum, Falan, 93; G. Strussi, Cuba City, 96; W. A. Voight, Naugart, Wis., 95½; James Van Duser, Hebron, 94¾; D. A. Sheldon, Lake Mills, 91; Stiles & Drake, Lake Mills, 91½; J. N. Wigginton, Hustler, 97; L. O. Wahler, York, 97; W. R. Wigginton, Milton, 97.

The average for *fifty-one* exhibits is over *ninety-five* points.

Dairy butter—Burwood Stock farm, Milwaukee, 92¾; Lizzie Buskirk, Oak Hill, 90½; F. Bolder, Salem, 93¼; Mrs. T. W. Curtis, Poynette, 93; W. R. Holcomb, Oak Hill, 91¾; Walter Little, Janesville, 89½; H. T. Leach, North Brookfield, Mass., 96; Owen Bros., Portage, 91; W. F. Pilgrim, West Granville, 88¼; J. L. Ross, Lake Geneva, 90½; G. G. Snyder, Pleasant Prairie, 93;¾ A. B. Steidley, Carlinville, Ill., 92½; A. P. Stafford, Fox Lake, 94½; Chas. Thorp, Burnett, 91½; D. A. Sheldon, Lake Mills, 93; Stiles & Drake, 92½; W. E. Wright, North Brookfield, Mass , 89.

Print butter—W. E. Blumenstein, Sullivan, 94½; Mrs. T. W. Curtis, Poynette, 94; W. Hermanson, Scandinavia, 97; J. E. Jorden, Amherst, 97¼; M. Michel, Garnett, 91½; E. A. Paddock, Tibbet, 95; Kate F. Peffer, Pewaukee, 97½; James Van Busen, Hebron, 97; D. A. Sheldon, Lake Mills, 95; Drake & Stiles, Lake Mills, 94; J. N. Wiginton, Hustler, 94; W. R. Wiginton, Milton, 96.

Granulated butter—Kate Peffer, Pewaukee, first; William Peffer, Pewaukee, second; Burwood Stock farm, Milwaukee, third.

CLASS III—Cheddar Factory Cheese—E. G. Hodges, Union, 90; P. H. Kasper, Nicholson, 94; John McColedy, West Lima, 95; Hugh Nesbitt, Woodstock, 95; Wm. Nesbitt, Hub City, 95; N. Simon, Neenah, 92; H. E. Thompson, Neenah, 97; C. Ulrich, Orihula, 92; John Voigt, Orihula, 98; W. Zwicky, Vandyne, 94.

Flats and Daisy Cheese—H. S. Beyer, Denmark, 90; Cleveland Creamery Co., Cleveland, Wis., 92; R. Conrad, Edwards, 95; T. D. Coswell, Sabin, 95; Owen Failey, Lawrenceville, 92; E. G. Hodges, Union, 91; O. A. Kielsmeier, Hika, Wis., 90; Hugh Nesbitt, Woodstock, 92; Wm. Nesbitt, Hub City, 96; E. C. Pingle, Chilton, 96; Albert Smith, Farmer, 91; F. C. Sarnger, Lark, 97; Neenah Cold Storage Company, Neenah 92; C. Ulrich, Orihula, 95; John Vogt, 94; Joseph Voigt, Orihula, 93; Edward Wrinsch, St. Wendell, 95; W. Zwricky, Vandyne, 95.

Young American Cheese—R. Conrad, Edwards, 93; E. G. Hodge, Union, 90; O. A. Kielsmeier, 90; Hugh Nesbitt, Woodstock 91; W. Pauwan, Chilton, 92; John Voigt, Orihula, 93; William Zwicky, Vandyne, 94.

Brick Cheese—H. Bilgrien, Iron Ridge, 94; La Crosse Cheese & Butter Company, La Crosse, 99; Fred Moses, Tell, 97; W. Strum, Coon Valley, 98; Casper Anderegg, Lisel, 95.

Swiss Cheese—H. Bilgrien, Iron Ridge, 96; E. C. Wenger, Monroe, 97.

Water for Calves.

(Press Bulletin.)

In order to determine how much water the herd of thirteen calves at the Kansas Agricultural College would drink, the water given them for a week was weighed, and put in a barrel with an attachment for letting it out as fast as needed. In the seven days, the thirteen calves drank 868 pounds of water, or an average of eight pounds a day. The weather during this time was warm for the first three days, and cooler the last four days. In addition, the calves got an average of fourteen pounds of skim milk, besides grain and hay.

The calves drank several times a day, not much at a time, but often. I noticed several

times, that they took only one or two swallows. Oftentimes they would take a few mouthfuls of grain, go and get two or three sups of water, then back to their grain again. Even after their ration of milk, they would take a few swallows of water.

This experiment shows that calves need water in addition to their milk ration; it also shows that they like it often, and not so much at a time. Always see that it is fresh and clean. J. A. CONOVER.

Kansas Experiment Station.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

NUTRITIVE VALUE OF CORN SILAGE AND ALFALFA HAY.

Will you be kind enough to tell me what the nutritive value of corn ensilage is, compared with alfalfa hay, i. e., what number of pounds of ensilage would be equal to one hundred pounds of alfalfa, feeding value?

Denver, Col. F. J. B.

It is almost impossible to make an instructive comparison between these two feeds, because they differ so radically in composition. The following table shows the average content of digestible nutrients in one hundred pounds of each:

	Alfalfa Hay.	*Corn Silage.*
Protein	11.0 lbs.	1.3 lbs.
Carbohydrates	39.6 lbs.	14.0 lbs.
Ether Extract (fat)	1.2 lbs.	0.7 lbs.

Protein is the only element from which lean meat (muscle) and the casein of milk can be made. The carbohydrates and fat furnish the fuel for maintaining the temperature of the body and supplying the energy to keep the animal economy in motion. Protein can be made use of for the same purpose, and is estimated to be equal in this respect to the carbohydrates. The ether extract (fat) has a value about 2.25 times greater than either. For merely nutritive purposes, therefore, alfalfa hay is about three times as valuable as corn silage, but a combination of the two would be much better than either alone.

SILOING DRY CORN.

I would like to have your opinion in regard to filling a silo with well eared, dried fodder corn. I have been informed that dry fodder would not keep in an air tight silo.

Bowers, Wis. O. P. C.

We have never tried siloing dry corn; others have, and report a fair measure of success. But it must be thoroughly and evenly wetted as it goes into the silo. For this purpose, put a keg on the cutter or elsewhere, so arranged that a suitable stream of water will fall on the corn at the foot of the carrier.

On the whole, we do not feel warranted in recommending the practice of putting well cured corn into the silo, and this more especially to those who have not had considerable silo experience and are able to judge as to amount of water required.

A VERMONT RATION.

Having been a trial subscriber to your journal for the past five months, and liking it very much, I remit $1.00 for my subscription for one year.

Please send a balanced ration for my cows, mostly fresh, weight about 800 pounds, consisting of mixed hay, corn fodder, corn meal at $17, bran at $18, gluten feed at $23.

My milk goes to a creamery which furnishes cream only. G. W. E.

Bradford, Vt.

Prices for feed seem to be very high, and we fear the middlemen are levying too much royalty, either in the way of excessive profits or too many of them. As a rule, we believe in patronizing home or near by merchants, but there are times which demand going more directly to the sources of supply. Try corresponding with some of the dealers in feed, who advertise in our columns.

Meantime, we do not see how one could expect to do much better with the feeds and prices named, than to adopt something like the following:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
12 lbs. mixed hay	11.30	.58	4.75	.19
8 lbs. corn stover	4.76	.13	3.23	.06
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.82	1.94	.16
Total	23.27	2.03	11.46	.53

SILAGE HEATS.

We filled in due season last fall. Was ten days filling silo 10×14×22 feet inside. Corn was green and wet when put in; was kept level and well tread during the time.

Opened the seventeenth of December, 1898, and fed once a day till May 8th, 1899. In April we first noticed it being warm, although it was in fine shape, and cattle doing fine on it. At the last of feeding, it was very warm. We put on 125 pails of water, covered with about four inches of sawdust, and gave that a thorough drenching; and left it till July 1st. When we opened it again, none was spoiled; on top it was cool and in fine condition. For two or three days back it has begun to warm up fully as much as before. There is now about six feet in depth. What will be the result to fill on top of what we don't feed.

Would you advise wetting down before filling on top of it? W. L. P.

Cambridge, Vt.

W. L. P. sends two inquiries on one piece of paper, and the result is that while one is being answered by an expert in swine husbandry, the other fails to reach the proper desk to receive an early answer.

The silage heats because the oxygen in the air gets to it, but there was an excess of moisture. If the top of the silage had been kept covered so as to exclude the air, there would have been much less heat. Let the new corn be put in above the old silage, but do not add any more water.

EFFECT OF PUMPKIN SEEDS ON FLOW OF MILK.

A subscriber, at Fowler, Indiana, asks whether feeding the seeds with pumpkins will tend to decrease flow of milk. We can only say in reply that there is a popular belief that such results follow, but there does not appear to be any scientific foundation for it. More than this, we have known many dairymen who feed pumpkins freely without removing the seeds and have never noticed any shrinkage in the milk flow.

HOLSTEIN CATTLE FOR BUTTER PRODUCTION.

A. D. H., Baraboo, Wisconsin, asks whether we consider the Holstein-Friesian a first-class breed of cattle for butter production. The records which have been published in this paper, from time to time, show beyond the possibility of successful contradiction, that Holstein-Friesians are "a first-class breed of cattle for butter production."

CROPS FOR EARLY GREEN FEED AND SOILING.

As I do not want to pasture my cows next season, but soil same, will you kindly advise what to put in on corn ground this fall to make early green feed in the spring, after which I will plant peas and oats. Thirty acres of flat pasture land only gave me thirty to forty days feed the past season, and I cannot afford it. Can you suggest any thing better than the following: Twelve acres rye now; early in spring as possible six acres peas and oats, thirty days later six acres peas and oats, thirty days later six acres peas and oats where the rye was, and the balance peas and oats. I also usually have plenty of ensilage left to feed during the summer; will use the last to-day that was put in 375 days ago. E. H. M.

Oswego, N. Y.

Rye furnishes the earliest green feed in the spring, but unfortunately does not last very long. Winter wheat comes a little later, and does not mature so rapidly, but has the disadvantage of killing out very easily in winter if not protected by snow or mulching. Oats and barley, especially the latter, may be sown very early and pastured for a time, and then turned under for a later crop.

We suggest trying some cow peas or soja beans in the corn next year, to be cut into the silo with the corn and thus add to the protein.

Feeding silage 375 days after it was put into the pit ought to set some people to thinking how they can checkmate the drouth.

BOOKS ON FEEDING AND DAIRY MANAGEMENT.

In reply to a Tennessee reader who is soon to take charge of a herd of thirty cows and is desirous of learning more about feeding and managing these cows and caring for their product, we do not hesitate to recommend him to purchase Prof Henry's book on Feeds and Feeding, which costs $2. and Gurler's American Dairying, at $1. For the accommodation of our readers we keep these books on sale, although we prefer to send them out as premiums for club lists of subscribers, as per advertisement on pages 643 and 644.

If it is not convenient to get the subscribers, the books will be sent on receipt of the publisher's price as above.

Prof. Henry's book contains the feeding tables inquired for.

MILKING QUERIES FROM OREGON.

Would like answers to the following questions:

1. Do you consider the practice of milking with the back of the thumb against the teat pressing the thumb knuckle against it, injurious. Is that method likely to secure the best flow of milk.

2. Would you consider a cow well milked when one to two gills of milk could be secured five minutes after milking.

3. Would excessive wetting the teats with milk be allowed in a well conducted dairy.

Yamhill Co. Ore. JESSE EDWARDS.

No. 1. We do not think the way of milking above described is to be commended, although we have personally known a few first-class milkers who followed it. They were women, and it was, perhaps, almost a necessity with them. There is no good reason why a man should practice such a method of milking, as there is positively no advantage in it and the chances for injury to the teats are much increased.

2. Cows differ in this respect. If not more than a gill of milk was obtained, we should say the cow was well milked. If much more than that we would personally milk the cow a few times so as to be sure whether the cow or the milker was at fault.

3. No wetting of teats whatever is allowed in a well conducted dairy, except to wash them when necessary, and then they should be wiped dry before milking is commenced.

SILAGE GETS COLD.

Enclosed find one dollar for your paper for 1899. If you can, without too much trouble, I would like you to answer the following questions: Three years ago I built a square silo 12×12, 30 feet high, inch boards matched and two in thickness. First year my corn went in a bit too green; second year same, on account of hail and frost; last year filled it with Leaming corn, ripe enough to put in shock—corn that run over one hundred bushels per acre. My silage after using off the top ten feet, got cold. If you can give me the cause and a remedy, I will fill again, if not, I will give up in despair. I have the corners cut off and my silage keeps well, but cannot feed much on account of it being cold and hurts my cows in cold weather. Have no paper between boards. Would it help to reline it? H. R. D.

Homer City, Pa.

A lining of paper would doubtless help somewhat in retaining the heat, but we beg H. R. D. not to "give up in despair" because the silage gets cold. If the silage keeps well he may depend that whether cold or warm, it is a good feed and will not injure his cows. If they did not do well there was some other cause contributing thereto.

It will help very materially to retain the heat to keep the silage covered with straw, canvas or boards.

FEEDING FOR CREAM.

I am making cream for the creamery. Will you please give me a grain ration that will produce cream, and also keep a cow in a healthy condition and not force her. I am now feeding Quaker Dairy Food and bran. Your paper has excited my interest in sensible feeding. G. R. H.

Bristol Ferry, R. I.

The old proverb is that "well begun is half done." When one has really had his interest enlisted in regard to sensible feeding, he certainly is well along on the way to the desired goal. *Sensible* feeding implies something more than the mere measuring out of specific quantities of hay and grain, and placing same within reach of the cow. Compounding a balanced ration does not embrace the whole art of feeding. For one thing, the sensible feeder will watch his cows much as a mother watches her children, and at the first appearance of a disordered appetite, will look about for a corrective. Some mothers will resort at once to the medicine chest, while others will look somewhat more carefully after the diet. In these days, and especially in all mild cases, the latter method is considered the wiser practice, both in the home and in the cow stable.

The analogy we have attempted does not stop with simply regulating the diet for the purpose of correcting physical ailments. It should never be forgotten by the sensible feeder that the cow is a mother and that milk giving is purely a maternal function. Outside of very narrow limits, it is quite impossible to change the character or quality of the milk by change of diet, and this especially with regard to its proportion of fat. Some cows are born to give milk containing five per cent of fat and some to give milk containing only three per cent of fat, and, feed as one may, neither cow can be made to yield four per cent milk. By withholding feed or not furnishing feed containing the milk-making elements, we can reduce the quantity of milk yielded and thus reduce the total yield of fat; and conversely, by increasing the feed or by combining feeds in proper proportions we cause the cow to give a greater quantity of milk, and thus, and only thus, can we appreciably increase the total yield of fat, or cream.

Coming then to the specific question submitted we have to say that the kind and amount of grain to be fed will depend upon the character of the cow, and the length of time the cow has been milking and the character and quality of the roughage With plenty of clover hay, the Quaker Dairy Food and bran will be very likely to suffice, but if the roughage is largely timothy hay and corn stover, we should be disposed to use some linseed oil meal, cotton seed meal, gluten feed or gluten meal. With neither silage nor roots, our preference would include at least some of the linseed oil meal, notwithstanding the exorbitant prices at which it is quoted.

Quaker Dairy Food is a new name to us and we are unable to find its analysis. Quaker Oat Feed has been on the market for some years and approximates bran in quality.

The following suggestion will show the trend of our thought.

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. timothy hay	17.36	.56	8.68	.28
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. linseed oil meal	1.82	.59	.65	.14
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	24.54	2.39	11.21	.72

If it would cost appreciably less, three pounds of gluten feed might be substituted for the two pounds of cotton seed meal, and if half the hay was clover, take out one pound of the cotton seed meal or one and a half gluten feed.

HAIRY VETCH.

This is a plant that is causing considerable attention from dairy farmers. It is an annual and belongs to the valuable family of legumes, and is classed in its effect on milk production with red clover, alfalfa, peas and other legumes. In the opinion of many who have tried it in various portions of the North it is perfectly hardy. A recent publication issued by the Department of Agriculture at Washington, has the following to say on this plant:

"This annual leguminous plant is a native of Western Asia. It has been cultivated for about fifty years in some parts of Europe, especially Southern Russia, Germany and France, and was introduced in this country for the first time about 1847 under the name of Siberian vetch. Excellent reports as to its drought-resisting qualities and its adaptability to our climate have been received from Washington, Nebraska, Georgia, New Mexico, South Dakota, Minnesota, Montana and Pennsylvania. Hairy vetch may be sown in autumn from about the middle of August to the middle of September, or in the spring from the latter part of April to the middle of May. If the seed is sown in drills in the latter part of August, the crop should be cultivated several times. It will furnish some forage in autumn, and where the winter is not too severe will start to grow again in the spring, thus producing forage in late autumn and early spring, at the two periods when it is most needed."

THE COW AS A MANUFACTURER.

What She Does With Her Food.

HOW SHE BEATS HER BROTHER STEER.

The term manufacturer is used here in an illustrative way, and is correctly applied in the sense that the cow manufactures milk solids out of hay and grain or other raw materials. How many readers of the *Rural New-Yorker* fully appreciate the wonderful transforming power of the bovine mother, which was given to her primarily that she might feed her young, and which man's skill in breeding has developed far beyond the needs of its original purpose? While I was at the Maine Experiment Station, we carried on a study of several dairy breeds. Among the animals which were tested, was a little Jersey cow, Agnes, weighing about 870 pounds. She was neither remarkable nor unusual, but was simply a high type animal, of which we have in this country many equally as good. I take her as an illustration of what a cow can do, simply because we measured her work, and I can refer to her performance without danger of error, and as one that is attainable by first-class animals.

Between September 13, 1888, and September 18, 1890, Agnes gave 13,080 pounds of milk, containing 1,975 pounds of solids, or 6,540 pounds of milk per year, containing 987 pounds of solids. Taken as a simple statement, this production seems scarcely worth comment. Let us look at it in the light of comparison. As stated, this cow weighed about 870 pounds. She was rather lean, and her tissues undoubtedly contained as large a proportion of water as Lawes & Gilbert's "well-fed ox," so that the dry matter in her entire body would not be over 295 pounds. It is clear then that Agnes manufactured in a single year milk solids equivalent in weight to the dry matter in the bodies of at least 3.4 cows of her size and composition.

It is also interesting to note how this little cow's productive capacity measured up to that of her brother steer. In 1895, the Maine Experiment Station analyzed the entire bodies, (skin excepted) of two steers, weighing alive 1,300 pounds and 1,280 pounds. These animals were about thirty-three months old. It was found that their bodies contained 475 pounds and 449.6 pounds of solids, an average of 462 pounds. This puts the steer in a rather bad plight as a manufacturer, for it shows that it took him 2¾ years to construct as large a quantity of animal solids as the cow produced in about 5 3-5 months. But the case is even worse than this, for milk solids are wholly edible, whereas only 58.3 per cent of the dry matter of these steers' bodies was found to be so. This being true, and edible milk solids having about five-sixths the energy value of edible beef solids, the cow accomplished as much in one day, towards supplying the human family with motive power, as the growing steer did in 8½ days. Assuming that it cost half as much to feed the steer from calfhood to the age of three years as did the cow for the same length of time, the food cost of beef as human food was, in the cases cited, four times that of milk. It seems, then, that as a transmuter of "the grass of the field" into a high-grade animal food for human consumption the cow and the steer are not in the same class.

FUEL AND FOOD.

All manufacturers operating machinery find it necessary to use fuel in order to obtain motive power, and our cow is no exception to this rule. There were many days when Agnes ate approximately 15.5 pounds of digestible dry matter and gave twenty pounds of 15.5 per cent milk. Some of this food was returned in the milk solids, but the larger part was burned as a source of energy to run the cow's machinery and keep her body up to its normal temperature.

We measure the energy of food by a heat unit, which we call a calorie, this representing the heat necessary to warm one pound of water though four degrees Fahrenheit. In terms of work, this heat is equivalent to 1.53 foot tons, or the raising of 1.53 tons to the height of one foot. The available energy in Agnes's daily food amounted to 30,000 calories, or over 45,000 foot tons. The energy of the daily milk solids was about 8,000 calories, leaving 22,000 calories to be used to run the manufacturing machinery, and furnish body heat. Dr. Armsby and others have found that a 1,000-pound steer, doing no work and making no growth, needs a daily energy equal to 13,000 calories, and doubtless, our cow, under similar conditions, when not giving milk, would need no more. This leaves 9,000 calories to be charged up against the specific effort of milk secretion. In other words, the work of producing milk after allowing for milk solids and the usual wear and tear of the body, requires the combustion of three-tenths of the nutrients digested from an ordinary milk ration.

MILK VERSUS BEEF.

The greater food cost of beef over milk works itself out in commercial conditions. When the New York city millionaire buys hygienic milk for his growing boys and girls (if he happens to have any), at eight cents per quart, and tenderloin steak for himself at twenty-five cents per pound, he pays from twenty-five to twenty-six cents for a pound of edible milk solids, and not far from sixty-one cents for a pound of edible beef solids or in proportion to the energy of the two foods, practically twice as much for the beef, as for the milk solids. The same general relation holds in our villages where milk sells for five cents and decent steak for fifteen to eighteen cents. Milk is unquestionably the cheapest high-class animal food which the market offers. This is a truth not generally appreciated by the public. To the rich, it is not an important matter, but to our laboring classes, in restricted or moderate circumstances, it is. Yet how often we find a mechanic's wife priding herself on her economy in purchasing but little milk, and then freely patronizing the butcher's cart at current prices. Even the families of the farmers who produce the milk, often use it as an article of diet in very limited quantities.

Certainly a cow is an economical accessory to every family where one may be kept conveniently. As a rule, the cost of food and care is less than the cost of milk from the peddler's cart, and for this reason, any mechanic who can do so will practice economy in keeping a good cow, especially when he can dispose of his surplus milk to his neighbors.

THE RAW MATERIAL.

It is worth while to inquire what relation there is between the raw materials used by the cow for the production of milk and by the steer for growth. The elaborate experiments of Lawes & Gilbert and others have taught us that, so far as animal fat is concerned, the steer can build it from the cheapest and most abundant class of materials which the farmer produces, viz., the carbohydrates. For many years the source of milk fat was in doubt, most agricultural chemists inclining to the view that it was formed either from the food fat or protein, or both. Now we are warranted in the statement that the steer has the cow at no disadvantage, for it appears that she is able to make twenty-five cent butter from the same raw materials that the steer uses in producing five-cent suet. There is still a general agreement that, so far as muscular tissue and casein are concerned, they have a common origin in the food proteids.

Now how shall we care for this wonderful food maker? First, we should treat her kindly, even with a touch of affection, for she will respond with affection, and will yield willingly her daily tribute to a considerate master. She has a sensitive nervous system—the better the cow, the more highly strung. The man or boy who kicks her should be made to blush with shame, for he is not a fit companion, much less a proper caretaker of this friendly brute. We must feed her well, not too well, but enough. Let us keep her quarters neat, clean and comfortable, and give her sunlight and pure air. We must not tie her by the head all winter long, with no chance for exercise, but we should allow her to tone up her physical condition by a judicious amount of liberty. It is time to put our foot upon the fad of giving cows no winter exercise, especially those that are to be mothers of future cows. If we do all these things, and then our cows do not do their share to help feed and support us, it will be because we own the wrong ones.—W. H. JORDAN, in *Rural New-Yorker*.

THE Illinois Jersey Cattle Club will hold its annual meeting in the Assembly room of the Dome Building on the State Fair grounds in Springfield, September 26th, at 4 p. m. Not only members of the club, but all Illinois breeders of Jerseys are invited to be present.

Crimson Clover.

Crimson Clover (*Trifolium incarnatum* L.), also known as scarlet clover, German clover, Italian clover, and carnation clover, is an annual plant, native to southern Europe and has long been cultivated as a forage crop in the warmer portions of that country. It is an erect, tufted plant, one to two feet high, with soft-hairy stems and leaves, and usually bright scarlet flowers in elongated heads. The root system is well developed and penetrates deeply into the soil and the plant is a vigorous grower. The seed is larger than that of red clover, oval in shape, bright reddish-yellow when fresh (paler in the white-flowered variety) and has a highly polished surface. The plants stool freely, many stems arising from a single root.

Several varieties are recognized in Europe, distinguished chiefly by the color of the flowers and the time required by the plants to reach maturity. Very little attention has been paid to these different varieties in this country. A white-flowered variety is sometimes seen on the market, but as a general rule only one sort is recognized by seedsmen and this is usually sold under the name of crimson clover.

CONDITIONS OF GROWTH.

Crimson clover will not stand severe freezing although it is one of the so called "winter annuals" and under favorable conditions makes much of its growth during the cool, moist weather of fall, winter and early spring. Its strong growing roots enable it to secure nourishment in many soils so poor and thin that red clover would fail entirely. While requiring a warm climate, it will not endure severe drouth. It thrives best on rich, rather sandy loams; but, when the conditions of moisture and temperature are favorable, it gives good results on light sandy soils as well as on clays if they are not too stiff and cold.

Crimson clover has come into prominence in this country within comparatively recent years. It can hardly be regarded as a successful crop outside of the region from New Jersey west to the Alleghany Mountains and south to eastern Tennessee and Texas. True, good yields are often obtained in other sections, but cannot be depended upon year after year. In the middle and south Atlantic States this clover is one of the best crops that can be grown for forage and soil renovation. It has given good results in many portions of the Gulf states but many failures are also reported. In the colder sections of the country this clover is sometimes successfully grown as a summer crop but it usually winter-kills badly when sown in the autumn. At the experiment stations in Rhode Island, New York, Ohio, Michigan, Illinois, South Dakota, Nebraska, and other states in the North and West, the general results of tests show that it is too tender for the climate and is less valuable than red clover. From results recently obtained at the Alabama Experiment Station it seems very likely that in many cases, especially in the South, failures with this crop are to be attributed to the absence from the soil of the tubercle-forming organisms which are necessary for the proper appropriation of nitrogen by the plant.

These organisms being supplied to the soil, excellent crops were obtained where without them the result was a failure.

PREPARATION OF SOIL.

There are many ways of preparing the soil for this crop, depending largely upon the purpose for which it is intended. Little if any fertilizer is needed, except what may be used in connection with the clover to prepare the land for the next crop in the rotation. On very poor, worn-out soils it is usually a good plan to give a moderate application of phosphate and potash. When crimson clover follows a cultivated crop like corn, no preparation is necessary other than that of the cultivation of the corn or other crop. When the clover follows a crop of small grain it is usually necessary to plow the land and this should be done just before the time for sowing the seed. Cloddy land should be well pulverized before seeding. A fine seed bed is essential to uniform germination.

SEEDING.

It is extremely important that a farmer should sow none but *fresh* seed. It is an easy matter to test the germinating power of the seed; it requires but a very short time and is well worth the while of every farmer intending to sow in any quantity. Good fresh seed should germinate ninety to ninety-five per cent and under the proper conditions the sprouting should take place within three days. American seed has given much better results than the imported, on account of its greater vitality. The amount of seed sown per acre varies from ten to twenty pounds, depending largely upon the character of the soil and the use to which the crop is to be put. Rarely a smaller quantity may be used. The common practice is to use about twelve or fifteen pounds.

The seed may be sown broadcast or with a drill. The former is the most common in practice, perhaps largely from the fact that the clover is so often sown on land already occupied by corn, potatoes or some other crop. The seed is often sown by hand, sometimes from horseback, but better results will usually be secured by the use of some machine like the Cahoon broadcast seeder.

Throughout the middle Atlantic states and the South generally, crimson clover may be sown any time from July fifteenth to September fifteenth, and if the moisture conditions are favorable it may be sown still later in the Gulf states. As a rule the best results are obtained from seed sown in July and August. The seed may also be sown in the spring, but, except in the colder northern states or for some special purpose, the results are much less satisfactory. In the North, spring sowing is necessary if this crop is grown at all. It may sometimes be grown to advan-

"To Err is Human."

But to err all the time is criminal or idiotic. Don't continue the mistake of neglecting your blood. When impurities manifest themselves in eruptions or when disordered conditions of stomach, kidneys, liver or bowels appear, take Hood's Sarsaparilla. It will make pure, live blood, and put you in good health.

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67 Main St., Cortland, N. Y.

tage in this section as a temporary crop in place of red clover.

Some farmers do not cover the seed at all; but many failures have resulted from this method, attributed by some to heavy rains immediately after the seed is sown but more likely due to the exposure of the tender, unprotected plants to the hot summer sun. When its use is practicable, the roller s an excellent implement for covering the seed. It presses the seed into the soil and insures uniform germination. A light harrow or a brush drag may also be used.

HARVESTING.

Crimson clover may be harvested in the same way as common red clover. It is sometimes difficult to cure properly, as it is ready to cut at a time when wet weather is likely to interfere. It may be cut for hay as soon as it comes into bloom and should never be cut for this purpose later than when it is in full bloom. The hairs upon the calyx of the flowers become hard and stiff as the plant matures and are likely to prove troublesome to animals eating hay, forming "hair balls" in the stomachs of the animals, which sometime cause death. When harvested for the seed, cutting should take place as soon as ripeness has been reached to avoid loss through shattering. It is also well to thrash the crop or put it under cover as soon as it is dry, as heavy rains may injure the seed by causing it to sprout in the head.

Under average conditions, from eight to fifteen tons of green, or one and one-half to three tons of cured forage may be obtained from an acre of crimson clover. Very poor soil or drouth may result in a lighter yield, while as high as twenty tons are reported under favorable conditions. The yield of seed per acre usually ranges from eight to twelve or fifteen bushels.

FOR HAY.

When cut in proper season and well cured, the hay is, if anything, superior to that of red clover, having much the same chemical composition and a somewhat higher percentage of digestibility. It is relished by all kinds of stock, and is very highly prized for feeding to animals that are required to do heavy work. Its nutritive ratio varies from 1:3.5 to 1:4.

FOR SOILING.

Crimson clover is an excellent crop for this purpose. It is ready for use some time before red clover, and at a time when there are few other forage crops at hand. It is particularly valuable for this purpose on dairy farms. In experiments made at the New Jersey station, nearly one and one-half tons per acre of digestible food, valued at twenty-five dollars were secured. A ton of crimson clover, in proper condition for soiling, contains about 325 pounds of dry matter, of which about five and one-half pounds of crude fat, fifty of crude protein, and 150 of carbohydrates are digestible. Rape is sometimes sown with the clover when a soiling crop is desired, and the resulting forage is excellent.

FOR PASTURAGE.

This crop readily lends itself to use for pasturage, especially in the early spring. It may be used alone or in connection with winter rye or rape. At the New Jersey Experiment Station it was estimated that an acre of crimson clover, six inches high, contained "sufficient food to properly nourish twelve cows for one week."

FOR SILAGE.

This is one of the best of the clovers for use in the silo. The yield of forage is large, is easily handled, and it makes a better quality of ensilage than most other legumes commonly grown for this purpose. The silage is especially valuable for feeding dairy stock.

FOR GREEN MANURE.

This is one of the most important uses to which this crop can be put. Its season of growth is such that it can be used without in any way interfering with the production of the primary crop of grain or vegetables, and it affords a large amount of fertilizing material. The herbage is heavy, the roots are abundantly produced and penetrate deeply into the soil, and together these form a large amount of vegetable mold, exerting a benficial effect on the physical condition of the soil as well as adding much nitrogen, and other valuable elements of plant food to the surface soil, where it will be available to corn, wheat and other crops, It is estimated that the average crop of crimson clover is worth from $15 to $30 per acre for the fertilizing value of the nitrogen alone. An important advantage which crimson clover has over cow peas as a fertilizer, lies in the fact that it decays more readily, and is less likely to "burn" the soil when a heavy crop is turned under. Another advantage arises from the possibility of producing the crop of clover between the time of harvesting the regular crop of one season and the planting of the next. It may often be used along with cow peas to good advantage, the cow peas being used as a summer crop and followed by the clover for the winter.

AS A SOIL COVER.

In many sections of the country, especially where the soil "leaches out" or washes badly, it is imperative to have the land covered with vegetation during the time it is not occupied with the primary crop, particularly during periods of heavy rains. Crimson clover is particularly well adapted to use as a cover crop. It may be sown in corn, tobacco, potatoes, cow peas, sorghum, and many other crops after the last cultivation, and, when these are removed, will come on and occupy the land during the fall, winter, and early spring and may be pastured off or plowed under in time for the planting of the next crop. It is an excellent cover crop for use in orchards, where it is also one of the best of sources of nitrogen for the trees. Crimson clover in the orchard reduces the amount of cultivation necessary to keep the weeds in check, and if the crop is not needed for fertilizing the soil, it can be cut for hay, soiling, or silage. The roots and stubble left on the ground from a crop of clover, cut when in full bloom at the New Jersey station, contained nearly forty pounds of nitrogen, over ten of phosphoric acid and over fourteen of potash per acre. When the crop is allowed to mature, the potash in the roots and stubble is increased, but the nitrogen and phosphoric acid is reduced. This crop can be used in connection with small fruits as well as with peaches, pears and apples.

SUMMARY.

1. Crimson clover is an annual, not adapted to use in permanent meadows and pastures, and too tender for successful general cultivation outside of the Middle and South Atlantic and Gulf States. It thrives best in warm moist loams of at least moderate fertility and makes most of its growth in the fall and early spring.

2. The seed should be sown in late summer or early autumn (July 15th to September 15th), at the rate of from ten to twenty pounds per acre on a well prepared seed bed. It may be sown alone or with other crops, a frequent practice being to sow with corn, potatoes and like crops at or after the last cultivation. The seed may also be sown in the spring, but the results are not as satisfactory as when sown as above stated.

3. Crimson clover has a high feeding and fertilizing value, and is one of the best crops that can be grown in short rotations for forage and soil renovation, lending itself readily to use for hay, pasturage, soiling, silage, green manure, and as a soil cover to prevent leaching and washing.

4. The crop should be cut for hay at or before full bloom, and for seed as soon as ripe; in the latter case it should be threshed or put under cover as soon as dry.—*Bulletin U. S. Department of Agriculture.*

Influence of First Mating.

The *London Live Stock Journal* thus refers to the results of a series of experiments begun to ascertain whether the first impregnation influences the progeny of a female, when bred to a different sire:

"A most interesting feature of the Edinburgh show was the collection of zebra hybrids exhibited as extra stock by Prof. Coccar Ewart. The sire of most of these animals, the zebra Matope, a nine-year-old, was on view, but as might be expected, the chief center of interest was his hybrid offspring. Among these was Romulus, the first hybrid ever produced by crossing an ordinary mare with a Burchell zebra, and he stands twelve hands, two and one-half inches at the shoulder, and is broken to saddle and harness. The dam of Romulus was also in view, she being a West Highland pony. Her first foal was Romulus; then came one by a gray Arab, and her third is by a pony of her own breed and color, and showed at birth faint markings, as did her second on the hind quarters, but it is mentioned that other foals of the sire Loch Corrie do the same, but there are no traces of the zebra hoofs, mane, or tail. Then came Nora, a Shetland pony, which in 1895, had a bay foal, by a Shetland sire, which was richly striped; in 1897, she bred a hybrid; in 1898 a foal by a Welsh pony, of which the foal was an exact likeness, and this year a hybrid. They prove that the stock of Nora are not influenced by a previous sire."

Previous reported tests, in the case of hogs, are exactly contrary to the results obtained in the instances referred to. We note also, that both Agassiz and Darwin, who made very close and long-continued investigations, believed that "later impregnations do not efface that first impression." It is a very interesting question for breeders, and we do not believe the instances mentioned above settle the matter. There will have to be more and broader experiments.

How Old She Looks

Poor clothes cannot make you look old. Even pale cheeks won't do it.

Your household cares may be heavy and disappointments may be deep, but they cannot make you look old.

One thing does it and never fails.

It is impossible to look young with the color of seventy years in your hair.

Ayer's Hair Vigor

permanently postpones the tell-tale signs of age. Used according to directions it gradually brings back the color of youth. At fifty your hair may look as it did at fifteen. It thickens the hair also; stops it from falling out; and cleanses the scalp from dandruff. Shall we send you our book on the Hair and its Diseases?

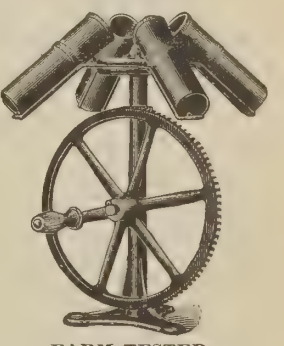
The Best Advice Free.

If you do not obtain all the benefits you expected from the use of the Vigor, write the doctor about it. Probably there is some difficulty with your general system which may be easily removed. Address, DR. J. C. AYER, Lowell, Mass.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Rural Free Delivery of Mail.

How to Secure It.

ED. HOARD'S DAIRYMAN:—We are anxious to secure a free rural delivery route from Brillion to Wayside, but find it difficult to get influence to bear on the right officials. Who would be the proper ones to bring influence to bear on? Any information would be thankfully received. This is a thickly settled country, but it is back from the railroad, and free delivery would make it seem less so. MARTIN O'BRIEN.

Kasson, Wis.

Rural free delivery of mail is being established in a few localities by way of experiment and to gather statistics for presentation to Congress. The conditions precedent to the establishment of such a route are, that it shall traverse a section of country where there are comparatively good roads at all seasons of the year; that it shall be from eighteen to twenty-five miles in circuit, and shall not involve travelling over any considerable part of the distance a second time;that there shall be not less than about 150 families living on the route or within a mile of it; and that they shall be largely of that class who would appreciate and patronize such service. Creameries, cheese factories and school houses on the route, which the people, or their children, visit every day, or frequently, and could thus get their mail, are additional favorable features.

As a rule, the member of Congress from the district in which the proposed route is located,is the proper person to apply to. In the case of this particular inquiry, this would be Hon. James H. Davidson, of Oshkosh, and, in order that he may act intelligently, there should be a petition prepared setting forth the facts and bearing the signatures of people interested in the project, and especially of such as are representative citizens. This petition should also be accompanied with a map or sketch of the proposed route, showing the cross roads and location of dwellings, school houses, etc. It is not necessary that this map should be elaborate or absolutely correct in all its details, but it should show in a general and fairly accurate manner all the main features of the locality.

We write somewhat advisedly on this matter, having been concerned recently in securing the establishment of a Rural Free Delivery Route from Fort Atkinson, service on which was commenced on Monday of the present week.

From a Dairyman Student.

ED. HOARD'S DAIRYMAN:—Although keeping only two cows, I can say that the DAIRYMAN has helped me to obey the injunction, "Be thou diligent to know the state of thy flocks and look well to thy herds." (Prov. 27: 23.) Our cows have done unusually well, not only because they are good cows, but also because their keeper is a HOARD'S DAIRYMAN reader. Ever since we received the DAIRYMAN, others in the neighborhood have commenced taking through our solicitations. For a fly cure for the cows, we are now using shoo-fly pretty successfully. I believe dairying to be one of the few *honest* trades in the world. We are well pleased and satisfied with the Jerseys; we have no trouble in selling their milk, for those that care more for quality than cost are among our customers. We keep our cows clean, the barn clean, and do not believe in allowing milch cows to become fat (or thin either.) We are also strict as to quietness at milking time. The pasture here seems to be giving out under the scorching rays of the sun, but we continue to feed good mess of grain, hay (and corn stalks when on hand) at night. Thanking you for all your helpful information, RAY C. TUTTLE.

South Englewood, Ill.

Price of Milk at Elgin Condensing Factories.

ED. HOARD'S DAIRYMAN:—The Gail-Borden Condensing Company contracted for milk this morning for the ensuing six months, for its factories at Elgin, Carpentersville, Algonquin and Belvidere. A small advance was made in the price offered the farmers, and the patrons were certainly disappointed, as they had reason to expect more. However, the company had no trouble in securing the necessary supply, as the dairymen had no alternative. They have their herds on their hands, and all of the facilities required by the condensing company. Some declare that they will go out of the business as soon as they can arrange matters without too great loss, while others are still hopeful for better conditions in the future.

The company pays $1.25 per hundred pounds for the months of October, November, December, January and February, and $1.10 for March. This is an average of $1.22½. The price for the corresponding months of last year average $1.15.

The Elgin Butter Company contracted for its supply of milk to-day at 11 cents a gallon for October, November and December and ten cents for January, February and March, an average of 10½ cents. This price many of the dairymen consider better than that offered by the condensing company.

Elgin, Ill., H. C. B.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter aggregated 3,600 pounds. All bids were at 22½ cents. Eighteen hundred pounds were sold at 22½ cents and the balance was withdrawn, with the price offered.

There was but one sale:

Factory.	*Pounds.*	*Price.*
Sun Prairie.....	1,800	22½c.

The sales for the corresponding week of the three preceding years were as follows:

Sept. 19, '98, 8,640 lbs. of butter sold at 20c.
Sept. 20, '97, 9,720 lbs. of butter sold at 20c.
Sept. 21, '96, 48,300 lbs. of butter sold at 14@15c.

The New York market Monday was reported firm at 23 cents. H. C. B.

Elgin, Ill., Sept. 18, 1899.

A SAMPLE OF HOW OLEO IS SOLD IN CHICAGO.

Clerk at Randolph Market Persists in an Attempt to Deceive a Woman.

Last Monday the writer met Mr. F. E. Lonas, one of the Illinois Dairy Union's attorneys, and suggested to him that inasmuch as he is trying the oleomargarine cases he should see how the fraud is perpetrated in Chicago. Being near Randolph street, it was decided to visit the store of C. E. Horrie, known as the "Randolph Market," at 72 Randolph street.

In this store is a fine display of oleomarine prints, shown in the original boxes, the internal revenue regulations forbidding its sale otherwise. So far as could be observed there was not a sign of butter in the place.

Upon a large placard near the door was a sign reading:

"ALL GRADES OF
OLEOMARGARINE 12½c."

Then was marked prices of dairy butter, 15c; Wisconsin creamery, 18c; and "Fancy Elgin, 20c." While we were looking around a woman came in and asked:

"Have you any nice dairy butter?"

"Yes ma'm," promptly replied the salesman.

"Let me see it," she said.

Going to a box of oleomargarine packed in rolls, he brought out a roll. Evidently she was on the lookout for deception, for she asked:

"Is this butter?"

"It's the 'real thing,' madam, was his misleading reply.

"What's it worth?" she asked again.

"Fifteen cents a pound."

And he went to the counter to wrap it up.

"That's oleomargarine, madam," I said to the lady. "He's trying to fool you."

She was indignant in a minute.

Going over to where he had started to wrap it up, she asked:

"Is that oleomargarine?"

"You can taste it for yourself," he replied holding the roll out to her.

"But I don't want it if it's oleomargarine," she protested, "no matter how it tastes."

"Well," replied the clerk, who was beginning to get a little rattled, "can't you tell by sampling it whether you want it or not?"

"I don't want oleomargarine," she indignantly protested, whereupon she left the store as mad as a wet hen, and the clerk took the roll back to the box and put it away.

Meantime I had been recognized by one of the head salesmen, who had been putting up some meat in the back part of the market. He saw what was going on and vainly endeavored to call the clerk away from his customer, but the young man couldn't understand him and persisted upon waiting upon the woman.

Following the indignant woman across the street the writer presented his card and informed her that the proprietors of this place were being prosecuted and that they were swindling their trade generally as they attempted to swindle her.

"I hope you will send them to the penitentiary," she cried, and her eyes fairly blazed with indignation. "All such people ought to be behind the bars."

The scheme of the Randolph Market's owners in displaying a sign advertising all grades of oleomargarine at twelve and one-half cents per pound is a ruse to lead the public to believe that the higher priced goods are pure butter. In fact, "Fancy Elgin Butter" is advertised at twenty cents, and is a well known brand of oleomargarine.

The fact of the place having been made notorious, by the prosecution of its proprietors by the Illinois Dairy Union, has made this ruse necessary in order to keep the wool pulled over the eyes of the public.—*Chicago Produce.*

Condimental Food.

(Press Bulletin.)

The State Experiment Station has recently received for examination, a sample of "Horse and Cattle Food," manufactured by the Rochester Horse and Cattle Food Company, of Rochester, N. Y. It is offered for sale in Pennsylvania at the rate of 14 7-12 cents per pound in twelve-pound lots, and at eight and one-half cents per pound in lots of 200 lbs. It has a dark color, bitter saline taste and somewhat aromatic odor; the microscope reveals numerous particles of charred material and wheat starch grains. Its composition is not very different, as regards the materials for which concentrated feeds are bought, from that of a mixture of equal parts of winter wheat bran and Buffalo gluten feed.

	Horse and Cattle Food.	*Mixed Wheat Bran and Gluten Feed.*
	Per Cent.	Per Cent.
Moisture.....	8.8	10.1
Ash.....	11.3	2.9
Protein.....	14.2	17.3
Crude fiber.....	12.8	7.5
Nitrogen-free extract (starch etc.).....	44.3	53.9
Fat.....	8.6	8.3
	100.0	100.0

For practical purposes, the latter mixture is about as good a food as the "Horse and Cattle Food," and with winter bran in bulk at Pittsburg costing $15.50 to $17 per ton, and gluten feed in bulk, costing $16.50 at Buffalo, the cost of the mixture would be about one cent per pound. The added condiments have little medicinal value and well animals, it has been found by repeated careful experiment, utilize no more, if as much, of their food when condiments are added.

Penn. Exp. Station. WM. FREAR.

How the Danes Keep up the Quality of their Butter.

Dr. Eichloff, the German government expert at the experimental laboratory, in Keil, who has just completed a journey in Denmark—made to investigate dairying—in a long article to the official German dairy paper, asks the question, "How is it that the butter in the Danish Dairies is so very seldom faulty?" and gives the following as the reason:

1. In Denmark the dairy farmers take the greatest possible care that the milking is done with as much cleanliness as possible, also that the milk is cooled and stored carefully, so that the creamery receives a perfectly faultless material to work with.

2. In the Danish creameries the most scrupulous cleanliness is observed, both as regards the creamery itself, its surroundings, vessels and utensils.

3. In the Danish creameries all cream intended for churning is pasteurized.

4. The pasteurized cream is cooled to the lowest possible temperature.

5. The Danish buttermaker considers it of greatest importance that the ripening milk is sound, and that it gets strongly pasteurized.

6. In Danish creameries lactic ferment is always used for ripening the cream.

It is especially the first two reasons I ask you to make notice of, as I observe that you in the last number of the *Farm and Dairy* have referred to an article published in England, entitled "The Truth About Danish Dairying," which article stated that the Danish creameries were not kept clean.

I may also mention that at the time of the publication of this article the Danish dairy farmers were not satisfied until a commission was appointed in England to visit Denmark and investigate and report as to the veracity of the statements contained in this article.

Needless to say that the commission returned, reporting that no creameries could possibly be kept cleaner than the Danish.—L. W. MARCKER, in *Farm and Dairy.*

The Intent of the Ten Cent Tax.

There probably never was a law framed which some people did not misconstrue, and, perhaps, with the best of intentions. It is impossible to write a rule which all men will interpret correctly, owing, in part, to the individuality of the man. One man thinks the weather is pleasant, and another is sure it is "beastly." This is illustrated in the oleomargarine discussion which is now taking place.

While all honest men concede that oleo should be sold for what it really is and for nothing else, a few understand that the proposed ten cent tax is designated to be prohibitive, and that it is the same as enacting a law forbidding the making of oleomargarine.

The proposed law does not tax the manufacture of oleomargarine designed to be sold for what it really is, ten cents a pound, or any other sum. It taxes the act of coloring it to resemble butter, so that it can be sold for butter. It does not prohibit the making of oleomargarine, but does prohibit carrying on a fraud. It is designed, not to crush out oleomargarine, but to crush out fraud. Of course, if it is impossible to sell oleomargarine, except by fraud, then the proposed law will suppress oleomargarine, and in that event it ought to. If the opponents of the proposed law really mean what they say—and probably some of them do—that no man should be allowed, dishonestly, to sell oleomargarine as butter, nor should he be prohibited from making oleomargarine, then they really concede the justice of the ten cent tax, and the absolute necessity for that kind of legislation, and they only oppose the

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Company, Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

GOING TO FEED CATTLE



or hogs or both this season? There is no better fence made for surrounding feed lots, barn yards, or the farm in general than THE ADVANCE FENCE. Perfectly smooth, all interwoven, safe for stock. SOLD DIRECT TO FARMERS AT WHOLESALE. Nobody can buy it any cheaper. Write for circulars and special discounts. ADVANCE FENCE CO., 126 Old Street, Peoria, Ill.

CLOSING OUT SALE

OF

Jersey Cattle

KIRKSVILLE, MO.,

OCTOBER 16th, 1899.

The Entire Herd owned by DR. C. E. STILL, consisting of 130 Head, will be sold to the Highest Bidder.

This is the chance of your life to get a bull calf to head your herd; send your bid to the auctioneer if you cannot attend. No postponement on account of weather.

SEND FOR CATALOGUE.

FRED ZIMMERMAN, Manager.

law through misconception of the situation. The proposition is to leave the legitimate manufacture and sale of oleomargarine as free as the making of butter, requiring no more or less than that it be made to show what it really is, and so be sold for what it really is. It is dishonest to color with intent to deceive the purchaser and make him think it is butter, and this is the feature, which, in all justice, ought to be prohibited, and the feature which the ten cent tax is intended to prohibit.—*Creamery Journal.*

DAIRY MARKETS.

ELGIN, Ill., Sept. 18—Sixty tubs offered, thirty withdrawn, thirty sold, 22½c; official market firm, at 22½c.

CHICAGO, Ill., Sept. 18—Creamery, extra, 22c; firsts, 19@20c: seconds, 15½@16½c; dairies, selections, 17c; No. 1, 15c; No. 2 14c; extra ladle, 13½@14c.

Cheese—Full cream, Twins, new, good to choice, 10¾@11c; young America, 11@11½c; Swiss, 9½@11½c Limburger, 8@9¼c; brick, 9@10½c.

Eggs—Fresh, at mark, cases returned, sold at 13@13½c loss off; cases returned 15½c.

Bran—In moderate demand and sold at $11.50 @12.50 per ton.

Cattle—The general cattle market was weak and 10c lower. A few of the choicest natives sold steady, but no strictly prime beeves were offered. The best on sale sold at $6.45, against $6.70, the top last week for prime steers. Most of the native steers sold at $5 40@6.25 or 60@75c higher than a year ago. Corn-fed Western steers sold at $4.65 @6.40; grass Westerns, $4.25@5.25 for steers and $3.65@4.70 for cows and heifers. Straight Texas steers sold at $3.60@4.10. About 7,500 grass Westerns and 1,000 Texas cattle numbered among the receipts. Native butchers' stock generally sold 10c lower Feeding cattle sold a shade lower, largely at $4.00@4.45.

MILWAUKEE, Wis., Sept. 18—Butter—Creamery, fancy prints, per lb 22½c; extras, 22½c; firsts, 21@22c: seconds 20@21c; imitations, 19@20c. Dairy, selections, 17@18c; lines, 16@17c. Market remains steady; receipts, 11,770 lbs. and all descriptions salable.

Cheese—American full cream, new choice to fancy, 10½@11c; brick, new, choice, 10@10½c: Limburger, new, choice, 9½@10c; Swiss, new, drum 11@11½c; block, 11@11½c; No. 2, 9½@10c. Market strong and trade fair; receipts 11,390 lbs.

Eggs—Fresh, per doz, 15c, loss off, cases returned. Market unchanged: receipts 308 cases.

MUSCODA, Wis., Sept. 18—The offerings on the Lone Rock and Muscoda Dairy Board of Trade were 1,240 boxes Twins; all sold at 10¾c.

PLYMOUTH, Wis., Sept. 12—Sales, 925 Twins at 10¼c, 200 Twins at 10⅝c, 25 Americas at 10⅝c.

BERLIN, Wis., Sept. 9—The sales reported were 354 boxes Twins at 10c. The offerings were by six factories.

MANITOWOC, Wis., Sept. 13—Offerings of cheese at the Dairy Board of Trade to-day were 900 boxes Daisies, 150 boxes Twins, 950 boxes Young Americas. All offerings were sold, Daisies and Twins at 10 cents. Young Americas at 10¼ cents.

FOND DU LAC, Wis., Sept. 18—Offerings, 625 Twins and 500 Daisies; market active at 10½c for Twins.

SHEBOYGAN FALLS, Wis., Sept. 13—The usual number of factory men offered 1,293 boxes of cheese on the call board to-day, and all except 279 boxes were sold as follows: 375 cases Young Americas at 10⅝c; 175 at 10½c; 74 Twins at 10¾c, and 390 Daisies at 10⅝c. Market quiet.

NEW YORK, Sept. 18—Butter—Creamery, western extras, 23c; firsts, 21½@22c; state extras, 23c; firsts, 21@22c.

Cheese—State, full cream, small, colored, fancy, 11⅛@11¾c; white. 11¼@11½c; large, colored, 11¼c; white, 11c,

Eggs—State, Pennsylvania and western, 18½ @20c.

CANTON, N. Y., Sept. 11—There were 1,800 cheese sold here Saturday at 11@11½c and 900 tubs of butter at 22c.

FULTON, N. Y., Sept. 11—Today 17 factories were represented on the board. Large cheese sold at 11c; small at 11¼c.

OGDENSBURG, N. Y., Sept. 11—1,200 boxes of cheese were offered. A bid of 11c resulted in no sales, but later on the street all were sold at this price.

NORWICH, N. Y., Sept. 11—The sales of cheese were: 160 boxes of large colored at 11½c; 460 boxes of small colored at 11¼c; 511 boxes small white at 11c; 163 boxes small colored skims, at 10½c. Sales of butter were 25 packages of creamery at 21c and 30 packages of dairy at 19c.

WATERTOWN, N. Y., Sept. 9—70 boxes large white were sold at 11¾c. On the curb the sales were 1,246 boxes of large white at 11@11¾c; 300 Twins at 11⅜@11¾c. Buyers, as a rule, refused all cheese at over 11c. About all the purchases were made by Canadians.

LITTLE FALLS, N. Y., Sept. 11—For the first time in several weeks, there was no advance in the price. The sales were 1294 lots, 5,193 boxes, at 10¾@11c. The sales of butter were very light.

UTICA, N. Y., Sept. 11—In view of higher prices in New York, sellers on the Utica board today anticipated a slight advance. Buyers of large colored, however, were inclined to be conservative.

Following is a list of sales: Lots, 135; boxes, 9,525; prices, 10¾@11¼c.

The transactions on Sept. 13, 1897, were 4,954 boxes with the ruling price 9c. The transactions on Sept. 12, 1898, were 5,578 boxes with 6¾c the ruling price.

The butter market showed an increase. The sales were: 10 packages at 21½c; 18 packages at 22c; 83 packages at 23c. The quotations for prints is possibly a fraction over 25c.

PHILADELPHIA, Pa., Sept. 18—Butter—Solid-packed separator creamery, extra, 23c; firsts, 21 @22c: seconds, 18@20c; imitation creamery, extra, 18c; firsts, 16c; seconds, 14c; ladle-packed, extra, 16c; firsts, 15c; seconds, 14c; print butter, creamery, extra, 24c; firsts, 23c; seconds, 19@20c.

Eggs—Pennsylvania and nearby, 18c; western, 17½@18c; southwestern, 16@17c; southern, 16c.

BALTIMORE, Md., Sept. 18—Butter—Market firm; creamery separator, extra, 23@24c; extra first, 22@23c; first, 21c; creamery, imitation, extra, 19@20c; ladle, extra, 18c; western, store-packed, 13½@14c.

Eggs—Market firm; strictly fresh stock, 16½ @17c.

ST. LOUIS, Mo., Sept. 18—Butter—Firm; creamery, 19@23c; dairy, 14@18c.

Eggs—Steady; 14c.

BOSTON, Sept. 18—Butter—Creamery, extra, 23½c; western, extra, 22c; dairy extra, 20@21c; imitation creamery, 15@17c; western ladle, 15½c; print creamery, 23c.

Eggs—Fancy nearby, 24c; choice fresh, 19@20c; Michigan extra, 18c; western, 17½c; fair to good, 16@17c.

KANSAS CITY, Mo., Sept. 18—Butter—Creamery, 21c; dairy, 16c.

Eggs—Fresh, 13½c.

CINCINNATI, O., Sept. 18—Butter—Firm, 23c,

Eggs—Firm, higher; 14c.

Cheese—Good to prime Ohio Flat, 11@11¼c,

NEW ORLEANS, La., Sept. 18—Butter—High grade creamery, 24c; storage, 21c; demand good; stocks moderate.

Eggs—16c.

Cheese—Cream cheese, 12c.

WASHINGTON, D. C., Sept. 18—Butter—Market firm. Extras, 23½c; firsts, 22c; seconds, 20c; imitations 18c.

NEWARK, N. J., Sept. 18—Butter—Market steady 23c for fancy creamery. Receipts more liberal.

Latest quotations for fancy creamery:—Buffalo, 22c; St. Paul, 22c; Minneapolis, 22c; Detroit, 23c.

NEW YORK MARKET.

NEW YORK, Sept. 16—Butter—Receipts for the week, 32,623 packages. Exports for the week, 1,397 packages.

Our market was advanced to 25c early in the week, and extra fresh creamery makes were quick taken at this price, and at the close are scarce and wanted. Trade in all other grades, however, was slow, and buyers taking only enough to supply their immediate wants. Holders of butter are firm and believe that present prices will be maintained if not advanced later. We quote:

Creamery, extra, 23c; medium, 21@22c; poor, 18@19c. Dairy, extra, 21@22c; medium, 17@18c; poor, 15@16c. Ladle, extra, 16@16½c; medium, 15@15½c; poor, 13@14.

Cheese—Receipts for the week, 31,831 boxes. Exports for the week, 4,676 boxes.

Quiet markets both here and in the interior of the state. Receivers and factory men are firm and refuse to accept lower prices. We quote:

Full cream, large, extra, 11¼c; medium, 10½@11c; poor, 8@9c; small, extra, 11¼@11¾c; medium, 10½@11c; poor, 8@10c. Part skimmed, extra, 10@10½c; medium, 8@9c; poor, 6@7c. Skimmed cheese, 6@7c.

Eggs—Receipts for the week, 52,571 cases.

The market continues strong for strictly fresh stock and prices are advanced full 1c per dozen since our last. We quote:

New York and Pennsylvania, best marks, per dozen, 19@20c; northern and western, 18@18½c; ordinary marks, 14@17c.

177 Chambers St, DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Sept. 14—Butter—The receipts of separator creameries this week, although limited almost, if not absolutely, to the regular shipments, mostly on contract, from the high grade districts, for distribution among the consumptive demand, have been ample for all wants, and perhaps at the close there may remain a few parcels over, as every effort to anticipate the inevitable marking up of prices, with goods that are not burdened with the last flighty advance, it resisted, and with as much spirit as would be evinced against the enforcement of some galling ex post facto law. In order to relieve the shock of advancing figures somewhat, there always are, fortunately for the receivers, here and there, mildly defective parcels with which some slight liberties can be taken; and thus good comes from evil, and by the following week the buyers have grown accustomed to the high sounding figures. Gathered cream products are still in lighter supply than demand, but the grading generally is lower; many of the favorite marks that throughout the summer showed a steadiness of grade that was at once a surprise and satisfaction, and which pushed some of the separators for place, have suddenly grown very faulty, and are neglected by a class of traders, who, much against their custom, prefer freezer stock ladles at even higher prices. Imitation and ladles are very scarce. Exporters have no fresh orders, and it is not at all likely that they will receive any for fresh goods; it would be in order for some of the liberal shipments of August to find their way back here for a market, as our English cousins have a way of working our markets to their profit, and this is true of more commodities than butter. Store packed is in light receipt and good demand, but the quality is so poor that no higher prices can be reported.

Creamery Separator, extras, 25c; firsts, 22½@22c; seconds, 19@20c. Creamery, Gathered Cream, extras, 20@21c; firsts, 18½@19c; seconds, 18c. Creamery, Ohio extras, 20@21c; firsts, 18¾@19c; seconds, 18c. Creamery Imitation, firsts, 16½@17c seconds, 15@16c. Iowa & N. W. Ladle, firsts, 15@16c; seconds, 14c. Ohio & Indiana Ladle, firsts, 15@16c; seconds, 14c. Ohio Storepacked, firsts, 13c; seconds, 12@12½c. W. Va., firsts, 13c; seconds, 12@12½c. Creamery Blocks (2 lb.) extras, 24½@25c; firsts, 23@24c; seconds, 21@22c. Creamery Prints (½ lb.), extras 24½@25c; firsts, 23@24c; seconds, 21@22c. Md., Va. & Penna. Prints, extras, 20c: firsts, 19c; seconds, 17@18c.

Eggs—Eggs continue in light receipt. All receipts of choice stock are sold promptly on arrival. The demand is active for good to choice stock. Our market is in good shape, and firm at 16½@11c.

Western Md. & Penna., per dozen, 17c; Eastern Shore (Md. & Va.), 16½@17c; Virginia, 16½c; Western & W. Va., 16½c; Southern, 15½@16c

Cheese—Receipts of cheese fair; demand good; market firm.

N. Y. State—Cheddars, fine, 12@12¼c; choice, 11½@11¾c; fair, 10½@10¾c. Flats, fine, 12¼@12½c; choice, 11¾@12c; fair, 10¾@11¼c; Small fine, 12½@13c; choice, 11¾@12¼c; fair, 10¾@11½c. Ohio—Flate, fine, 11½@12c; choice, 10¾@11½c; fair, 10@10½c; Picnic, fine, 11¾@12¼c; choice, 11@11½c; fair, 10½@10¾c. Swiss cheese, fine 12@13c; choice, 11@11½c; fair, 10@10½c:

LIVERPOOL, Sept. 18—Butter—Finest United States, 95s; good 72s.

Cheese—American finest white, 22s; American finest colored, 23s 6d.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale Cheap—Two U. S. Separators No. 1 B., and one Reid, capacity 2000 lbs. E. M. MATHEWS, Poy Sippi, Wis, 32-2

Buff Jersey wants a good milker at once. Dane, Swede, or German preferred. Address "BUFF JERSEY," Monmouth, Ill.

"ALPHA - DE LAVAL" TRAVELING REPRESENTATIVES WANTED

Believing that 1900 will be the greatest year in the history of the dairy business, and knowing that the 1900 sale of "Alpha–De Laval" separators will be more nearly universal than ever before, as there is every reason why it should be, we shall add some ten or more men to our 1900 corps of traveling representatives within the next six months.

Candidates for these positions will be considered meanwhile and applications are now invited. A De Laval representative must possess a clean record as to personal character; have a thorough knowledge of both farm and factory dairying methods, preferably acquired through practical experience; possess the mechanical aptitude essential to quickly becoming a separator expert; be endowed with the natural energy and aggressiveness constituting good salesmanship, and be physically capable of the hardest kind of hard work, as the De Laval organization has no time for anything else.

Please let applications state the full name, age, and address of the applicant; salary at present earned and salary expected; character of present employment and with whom; previous experience in creamery or dairy work; Experiment Station or Dairy School practice, if any; experience as a salesman, if any, and degree of success achieved; together with such general qualifications as may suggest themselves to the applicant, including references offered. Also whether the applicant may expect to be in New York or Chicago in some other connection before December 1st.

It is naturally desirable, of course, that the applicant possess a practical knowledge of separators. This is necessarily the case in the selection of representatives for creamery or power machine work. It is not imperative in dairy machine representation, however, where the applicant may have had experience in the handling or sale of agricultural machinery, or the establishing of agencies for same.

Please let any letter of application relate to such subject only, that it may be separately filed for consideration in this respect alone.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.

GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.

BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Wanted—First-class cheese maker to make American cheese. Will furnish good house. Maker must give good references. Address, JAS. MOLZAHN, Watertown, Wis. 32-2

Wanted—A situation as manager in a private dairy, by a first-class, up to date dairyman. A thoroughly competent and reliable man. Seventeen years' experience. Two years in the South. First class references. Address, DAIRY MANAGER, Landers, Floyd Co., Ga. 32-2.

For Sale—An excellent dairy farm with all stock and dairy and farming implements. For full particulars address Box 205, Tallahassee, Florida.

For Sale—Milk, butter and egg business, near Pittsburgh, Pa. Town of 25,000. Handle 250 gallons daily. Own building 40x40, four horses and wagons, boiler, engine, etc. Doing $1,200 per month, clearing $300. A modern plant. If sold by Oct. 15th, $3,000. Write G. W. L., 1616 Bayard St., Allegheny, Pa.

Farm For Sale—400 acres in garden spot of Iowa, adjoining Britt, a town of 1,600. Farm well improved; large barns, grove, flowing well. Adapted to dairying and stock raising. Cheese factory on farm, operated two seasons. Will sell at a decided bargain before Oct. 15th. Write for particulars. GEO. P. HARDWICK, Britt, Iowa. 32-3

S. W Evans, Danville, Wis., will sell at public auction on his farm near Danville, Sept. 25th a number of head of full blooded Holstein cattle Chester White hogs, horses, farm implements, etc. Write for full particulars.

Wanted—A position by a first-class buttermaker and creamery manager. Twenty years' experience. Best of references. Married. Address C. care HOARD'S DAIRYMAN.

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

For Sale—The proprietor of a choice herd of grade Jersey cows will sell 21 head. Address Dr. N. D. THOMAS, Decatur, Mich. 32-3

For Sale—My herd of 32 grade Holstein cows all of my own raising, and bred from choice milking Durham cows. Age from 5 to 8 years. Average weight about eleven hundred pounds. Received for milk an average of $60.00 per cow last year. Bred to freshen the last week in September and during October. Will give more milk the coming year, as all are mature and freshen earlier. Milk tests from 3.6% to 4.10%. All easy milkers. No kickers or steppers. Bred to a fine Durham bull. Price $60.00 each. Herd located at city limits of Dixon, Ill. Correspond with A. G. JUDD, Warren, Ohio. 31-3

Wanted—A practical and reliable dairyman to take charge of my dairy farm, and will rent for a term of years to right party. Farm has all the modern improvements, consisting of 2 silos, stone floors (700 yds.), system of waterworks, brick creamery and a private market for all the butter at 25c in Sioux City. Cream separator and a market for cream. My farm of 200 acres lies 6¾ miles south of Sioux City, on the Missouri bottom lands. We have two cottages for help and can handle 40 cows with ease. I wish to rent as my children are too small to assist me in care of farm. A. J. WESTFALL, Sergeants Bluffs, Iowa. 30-4

To Save Doctors' Bills use "Garland" Stoves and Ranges.

For Sale—Cheap for cash. Beautiful country home. Six miles from Nashville Tenn. On good pike. 120 acres. Especially adapted for dairying. Address "P," Glencliff, Tenn.

Experienced man, married, Swiss, wants position on stock or dairy farm. Good recommendations. Address P. O. Box 171, Monticello, Wis. 31-tf

Excursion Tickets to Mystic Workers Picnic at Harvard Ill., Via the North-Western Line will be sold at reduced rates, within 75-mile radius, September 25 and 26, limited to September 27. Apply to agents Chicago & North-Western Railway.

Excursion Tickets to County Fair at Baraboo, Wis., via the North-Western Line, will be sold at reduced rates September 25 to 29, inclusive, limited to September 30. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to County Fair at Jefferson, Wis., Via the North-Western Line will be sold at reduced rates, September 25 to 29, inclusive, limited to September 30. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Fall Festivities at Chicago, Via the North-Western Line, will be sold at reduced rates, from all stations, October 2 to 10. inclusive, limited to October 14. Apply to agents Chicago & North-Western R'y. 32-sp

Excursion Tickets to County Fair at Beaver Dam, Wis., Via the North-Western Line, will be sold at reduced rates from Fort Atkinson to Minnesota Junction, September 25 to 29 inclusive, limited to September 30. Apply to agents Chicago & North-Western R'y.

The Best Shooting—The shooting in Iowa, Minnesota and South Dakota this year promises to be very good as the rainfall in all these states was abundant. The best localities for chicken and duck shooting are on and tributary to the lines of the Chicago, Milwaukee & St. Paul Railway. A copy of a recent publication issued by the passenger department of that road can be had on application to Geo. H. Heafford, General Passenger Agent, Chicago, Ill., and enclosing three cents in stamps for postage. 31-2

Non-Territorial Expansion means paying rent for a poor farm. Now is the time to secure a good farm on the line of the Chicago, Milwaukee & St. Paul Railway in Marinette County, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure soft water, land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. ROLLINS, Land Agent, 161 La Salle St., Chicago, Ill. 32.3

Excursion Tickets to Milwaukee Industrial Exposition, to be held September 2 to October 7, via the North-Western Line, will be sold at reduced rates from all stations in Wisconsin and Michigan. For rates, dates of sale, limits, etc., apply to agents Chicago & North-Western R'y. 30-sp

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 32-sp

INFORMATION WANTED.

It is impossible to get too much information regarding the breeding and testing of the dairy cow. Every year brings a new lot of dairymen, and, also, a new crop of calves, which should be fed, milked and bred in a manner to give the largest returns. In many cases the returns will be satisfactory; others, through want of the right kind of knowledge, have not made the success which they anticipated. From both classes much valuable information can be derived; to know where and how one has failed is as valuable, as to know why another was successful. We shall be glad, therefore, if a number of the readers of the DAIRYMAN, and the larger the better, would send us answers to the following questions, taking care to give their failures as well as successes:

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions. Do not worry about the style or grammar of your statement. Answer each question by number, and state your experience.

A General-Purpose Cow.

How a Dairyman Looks at It.

ED. HOARD'S DAIRYMAN:—I chanced a few days since, to visit the "dairy herd" on one of the finest farms that we eastern people can afford to visit. Owned by two brothers who are millionaires, and superintended by a salaried man, I thought I might get a pointer or two—and I did.

I have always had doubts as to what was meant by a general-purpose cow, but the cows on this dairy farm, having just been brought in for milking, enabled me to get some idea. Three men milked the cows, some butter cows evidently, some beef cows evidently, but one cow, that I enclose a sketch of just the hind quarters, puzzled me a little at first.

A gentleman was going through the stables with me, and as we came to her I stopped and, as I ought not to have done, being only a visitor, said that if that cow were given me, I would not take her home.

Just then a young man that was about beginning his milking came along, and said: "That cow you are looking at isn't good for nothing."



I wondered a bit why the high salaried superintendent came to allow her to be kept on such a farm, but noticing that of the herd of fifty cows, most were general-purpose cows, I thought this cow must have some good points. I puzzled over the matter for some days after I got home, trying to think what "general-purpose" that cow was kept for.

At last it came to me. She was a racer. Great Scot! How that cow could run! With her long, gaunt hind quarters, unimpeded by an udder that counted, she could distance a cow good for nothing but to make a pound and a half or two pounds of butter per day, in a quarter of a mile.

From my standpoint, being simply a butter maker, I was right in saying that I would not take her as a gift, but millionaires can afford to keep general-purpose cows, and a sprinkling of running stock is proper.

For the benefit of all advocates of general-purpose cows, I wish to state that I can locate this cow, and I think she can be bought reasonably, or I will undertake to match her against any two-pound-a-day butter cow any where, from one to ten miles, and bet my farm against a jew's harp, on her winning.

Even money, I will back her against anybody's general-purpose cow; for although I am more than sixty years old, and have in a limited way, traveled, I never saw her equal in build for speed. Here is a chance for advocates of the general-purpose cows, to show their sand if they have any; for the editor of the DAIRYMAN knows me, and knows that I would not joke, even with a general-purpose cow man. R. S. HINMAN.

New Haven Co., Conn.

A CHICAGO CLERK'S STORY.

Says the Higher Class of Trade is the Principal Victim and the Volume of the Fraud is Immense.

The secretary of the Illinois Dairy Union last week received the following letter from an experienced clerk, which throws a good deal of light upon the oleomargarine traffic of Chicago.

The writer desires his name withheld, but it is in the possession of the Dairy Union, and there is no doubt as to the truth of the statements he makes:

CHICAGO, Aug. 30, 1899.

MR. C. Y. KNIGHT.—DEAR SIR:—I am an interested reader of your crusade against the dealers who are selling oleomargarine for butter, but think I can find flaws in your mode of procedure. I do not think there is a man in Chicago today who is better posted in the methods the grocers use to impose on their trade, than I am.

Instead of going after the butter stores down town and trying to stop them, why do you not strike at the root of the evil and stop the retail grocers, I mean those of the better class? It is very simple, for if their customers even dreamed that they sold them butterine for butter they might as well close up their stores.

During the past twenty-two years I think I have worked in nearly every first-class grocery in Chicago, and I can truthfully say that eight out of every ten have been, and are still, selling butterine for pure butter.

To better illustrate it I will cite you an instance: I recently was employed in one of the largest groceries and markets on one of the most prominent streets of the city and the class of trade we catered to was Chicago's finest. In fact, for the distance of one mile the volume of business done by the grocer and meat trade exceeds that of any other part of Chicago.

Well, in the store in which I was employed we would take in in cash from $450 to $600 on Saturdays alone, and during the time I was employed there we never sold one pound of butter, for we never had it in the house to sell. We clerks would talk among ourselves about it and would often compare notes with other clerks, and to satisfy myself, I made quite a canvass of all the stores in the mile and found only one that did not impose on its trade. Last winter I was employed in a very fashionable market and grocery and catered to a very swell trade. They had a great butter trade and sold to some of Chicago's leading families, such as merchants, bankers, board of trade men. They never bought a pound of butter in their lives. It was all butterine. They had a dispute with one of their clerks and discharged him while I was there. He expected it beforehand and had a young man come in and buy a pound of butter, intending that if they would discharge him to inform on them when he was discharged. He took the young man and another witness to the sale down to the Rand-McNally building, gave the inspectors the butterine and explained circumstances to them of how it was bought and of how long they were selling butterine for butter and how much they sold daily. Well, they told him they would analyze it and send for him when they wanted him. That was all the satisfaction he ever got. I don't say that he deserved any, but the next day a messenger called and in my presence told the firm the whole story and told them to be more careful in the future and that it was fixed all right for this time. I had at one time, and that is not long ago, a list of seventy of the leading stores in one district of the city that were selling butterine to every one of their customers, for butter. I also worked for ———, on Randolph street, and the class of trade that patronizes the down town stores know as well as you or I do what they are buying. Every one of these know they are getting butterine. It is the fashionable grocery trade that caters to the best families that you want to get after. They dare not be exposed. It would break them up in business. They would lose their entire trade, and while you are about it, why not get after those creameries in Chicago that wholesale, from wagons, butter to the grocery trade and mix in butterine with their butter? I know of one firm that would add to every sixty pounds of creamery twenty pounds of butterine and would sell as high as 100 tubs daily. I have also seen grocers take four and six forty-pound tubs of butterine at a time and scratch the revenue stamps off the tubs and place them on the counter and mark up "No. 1 Elgin Creamery" at a cent or half cent below the market.—*Chicago Produce.*

Judging Stock at Indiana Fair Grounds.

ED. HOARD'S DAIRYMAN:—The members of the Indiana State Dairy Association, and all dairymen interested in having better dairy cows, are invited to assemble on the Indiana State Fair Grounds, Indianapolis, Friday forenoon, Sept. 22, 1899, in the vicinity of the dairy cattle barns or judging ring, probably about ten o'clock.

The occasion is for educational work in stock judging.

Arrangements are nearly completed for one or two short talks on the conformation of the dairy cow, these to be followed by questions and discussion of these points.

Several dairy animals will be used for illustration and discussion.

It is impossible for the dairymen of our state to attend the special courses in stock judging, feeding, etc., at Purdue, but this will give an opportunity for some practical observations and exchange of ideas.

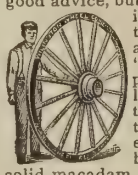
More detailed information will be posted at the Dairy Building.

H. E. VAN NORMAN.

Illustration.

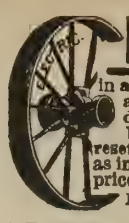
EXPENSE FOR REPAIRS.

"Keep everything in repair" is, undoubtedly, good advice, but there are conditions under which it may lose its force. For instance, take the question of the ordinary and everywhere prevalent spring "road making," where a lot of people congregate along the public highways, and "half work" out their highway taxes. The money thus expended is worse than wasted, and if it were devoted to the building of a certain amount of solid macadam each year, the roads would soon show a degree of permanency that would eliminate, almost entirely, this expensive element of repair. So it is with anything requiring repair; up to a certain point in cost, repairing may be profitable, but beyond a given point, it is positive expense. It often happens that it costs more to repair an article than it does to replace it with a new one. A case in point:



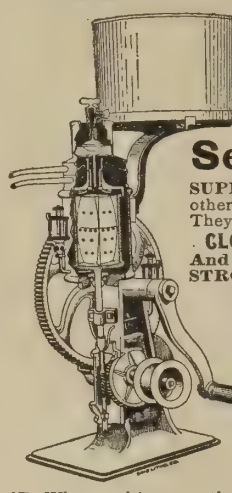
Suppose your buggy, carriage, wagon, etc., breaks down; it is presumed that the wheels have given way, for that is where a vehicle generally shows its first weakness. Perhaps the wheels need filling—needs new spokes; if to this is added the expense of new rims, and, perhaps, new tires, or, at least, the cutting and resetting of the old ones, the expense will soon equal or exceed the price of a new set of wheels.

We notice that the Wilmington Wheel Co., of Wilmington, Delaware, make a point of this fact in their ad. which appears elsewhere in this paper. We think the point is well taken, and while we appreciate and desire to encourage the disposition of keeping things in repair, we caution care on the expense connected therewith. Certainly it is better to buy a set of new wheels, if the expense of repairing the old ones approaches anything like nearly the price of the new ones. Write these people at any rate, against the time when you may need new wheels. They make a superior wheel, and sell them direct to the user at a low price for cash.



METAL WHEELS

in all sizes and varieties, to fit any axle. They last forever. Either direct or stagger spoke. Can't break down; can't dry out; no resetting of tires. Good in dry weather as in wet weather. Send for catalog & prices. ELECTRIC WHEEL CO., Box 130 QUINCY, ILL.



Eclipse Cream Separators

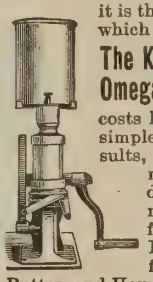
SUPERIORITY over any other make Guaranteed. They are CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted. Catalogue FREE.

C. L. Chapman Separator Works, ERIE, - PA.

When writing mention HOARD'S DAIRYMAN.

If You Know

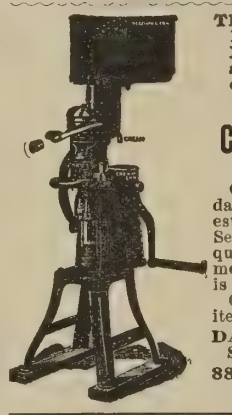
the value of a good separator, it is then only a question of which one you should buy.



The Kneeland Omega Cream Separator

costs less than any other, is simple, durable, perfect in results, guaranteed right, or money back. What more do you want? It's a money maker for every farmer. Agents wanted. Everybody, send for our free book on "Good Butter, and How to Make It." Address,

The Kneeland Crystal Creamery Co., 42 Concord St., Lansing, Mich.



The Simplicity, Durability, Perfect Separation, and Convenience of Operation of the DAVIS Cream Separator Are Perfect.

Creameries as well as dairy farmers are interested in the Davis Cream Separator, as the gain in quantity and improvement in quality of butter is wonderful.

Correspondence solicited. Agents wanted.

DAVIS CREAM SEPARATOR CO. 88-92 W. Jackson St., CHICAGO, ILL.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG, Box 135, Aurora, Ill.



Cow Hopple

For Kicking Cows.

Either from habit or from sore teats. Price 50c.

Also have a Wart Cure that will remove warts from horses, cows' teats or man. Price 25 and 50c. The goods are warranted. Sent Postage Paid. Send postal card for circulars

Agents Wanted.

Henry Bassett, Salem, New Jersey.



It's easy to haul a big load up a big hill if you grease the wagon wheels with MICA Axle Grease

Get a box and learn why it's the best grease ever put on an axle. Sold everywhere. Made by STANDARD OIL CO.

PAGE

THE MILK MAID'S DELIGHT

is our 9 wire 50 inch Cow Fence. It holds cows. PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

. . . ALWAYS IN THE LEAD AND NOW BETTER THAN EVER. . . .

1900 or "New Century"

STYLES, CAPACITIES AND PRICES

OF THE LATEST IMPROVED

United States Cream Separators

DAIRY OR FARM SIZES.

OUR connection with the United States Cream Separator commenced in January, 1891, as sole licensee. The separator at that time excelled in capacity and thoroughness of separation every separator on the market. So much so that competitors who thought they "owned the earth" were thrown into a terrible state of excitement, as they had flattered themselves that no one could make a separator but themselves, and were astonished beyond measure to find that they were excelled. Then they began to "howl" infringement and warned every farmer against buying anything but theirs and published the opinions of four firms of lawyers that every other separator did infringe, and in divers ways attempted to prevent dairy farmers from purchasing the separators of greater capacity and better skimmers.

This did not work and the United States Circuit Court later rendered a decision against them. This proved they were trying to hold trade by methods they were not entitled to. They found that dairymen relied upon the merits of the separators and not on any scares or false claims on patents.

As the United States Separator excelled they must do something to equal it if possible, and so were forced to put upon the market their "disc" machines later in 1891. This date is proved by their circular "Ten Years of Evolution."

We purchased the patents of the "triple current" United States Separators and commenced their manufacture in January, 1894.

We never manufactured hollow bowls and therefore have none to list or sell.

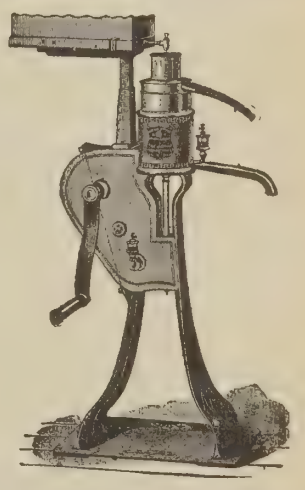
Our competitors did not put their full list of "disc" machines, as shown by their circular "Ten Years of Evolution" on the market until in their efforts to solve the "problem" of catching up with the United States, they were compelled to do so in 1896, but in this did not succeed and still continued to make the hollow bowl.

In their circular above referred to they admit it has been a difficult task. We quote their words, viz.:—"It has been a problem with the De Laval makers for several years how best to so convincingly demonstrate the all-around greater merit of the 'Alpha' machines."

The "triple current" United States was manufactured and put upon the market in 1894. Capacity was increased in 1896, again in 1898, and has been kept ahead of all competitors.

In thoroughness of separation the United States has always excelled.

In construction it is much superior to any others, as can readily be seen by examination. The **gears have all been enclosed** since the spring of 1894, as all machines and circulars show. In this particular the United States is ahead and always has been. For proof of this compare our would-be competitors' machines and circulars of 1895, 1896, 1897, 1898, and 1899, with ours of same years.



The United States **have high frames** except the Midget No. 7, and have had for five years. For proof, compare machines and circulars as above stated. Our "would-be competitors" advertise in their "20th Century Circular" as follows:—"Substantial supporting iron stools are now a part of the machine where no stool at all was furnished before." Showing that the United States is five years ahead in this particular.

They say further in same circular, "Gears and Spindles are protected by shields and every device added that years of practical use has suggested." Proving again that the United States is five years ahead in this line and that our would-be competitors have been compelled, as they admit, to attempt to copy our improvements. Examine the machines and every one will see that the United States is still far ahead.

The United States has used **bronze bearings** for five years.

The United States has used **steel neck bearing** in place of rubber for three years.

Every one of the points **enumerated as new** in the "20th Century" circular of our "would-be competitors" has been used in a more perfect state in the United States Separator for from two to five years, which proves beyond successful contradiction that **THE IMPROVED UNITED STATES LEADS** and others attempt to follow in its path.

The Improved United States has always given larger capacity considering price than its "would-be competitors" and will continue to do so. Notice our

Capacities and Prices for 1900 or "New Century" Separators:

No. 9, capacity 150 to 175 lbs. per hour, - Price $ 50 00		**No. 7, capacity 275 to 300 lbs. per hour, - Price $ 85 00**	
No. 8, " 225 to 250 " " - - " 65 00		**No. 6, " 350 to 400 " " - - " 100 00**	
No. 5, capacity 450 to 500 lbs. per hour, - Price $ 125 00			

We submit that the United States Separator has given the dairymen more for their money than any others and has always kept ahead in improvements and is therefore entitled to the position it occupies of being **first in their estimation and patronage.**

VERMONT FARM MACHINE COMPANY,

Bellows Falls, Vermont.

A Manly and Satisfactory Disavowal.

Miller and Sibley Justify the Confidence Earned by Many Years of Honorable Business Dealings.

It has been an open secret for some days, that the Miller and Sibley herd of Jerseys at the recent Toronto Fair and Exposition were "jockeyed" by one of the employes that were caring for them. An erroneous scale of points and a falacious method of judgment, whereby enlarged udders are given undue weight and prominence, was the temptation which led this super-serviceable employe to commit the offence which caused his employers such heavy financial loss and deep humiliation.

It is fortunate that this loss fell upon parties not unable to bear it, but still more fortunate that the owners of the herd can disavow all connection with or knowledge of the dastardly attempt to win honors by trickery or deceit, and have a reputation that fully confirms such disavowals.

The following letter, written under date of September 15th, to the President of the Toronto Fair and Exposition, is fully self-explanatory:

DEAR SIR:—We were informed, yesterday, by a gentleman who said he had read it in the daily papers, that one of our employes at your recent fair was charged with having forced the milk back into the udders of some of our cows, and that in consequence thereof, six of them were poisoned and died. We hardly need to say that this news came to us as a great surprise and shock, and that it was only after the employe in question had made a full statement and confession to us that we could believe such an act to have been possible. Although the cows that died were among the best we ever bred, or owned, or saw, and although it would have taken some thousands of dollars to have purchased them from us, yet we are glad that the tricky experiment resulted just as it did, and killed them all. We want no prizes, honors or successes of any sort unless we are justly entitled to them. For over a score of years we have been laboring zealously for the improvement of certain breeds of domestic animals. This is not the place, and we are not in the mood to dwell upon the successes we have achieved, but it may be pertinent in this connection to refer briefly to a few points, viz., that we have spared neither pains nor expense to bring our Jersey herd to the highest possible standard of excellence, that we bought the best animals obtainable for foundation stock; that we were the pioneer Jersey breeders to introduce voluntarily the crucial tuberculin test, and that from the outset we have insisted most strenuously on the importance of constitution and milking capacity, and by every means known to hygienic science have striven to attain these ends.

Without boasting, we think we may be allowed to say that by these means and by fair dealing we have gained an honorable reputation which we highly prize. Our Jersey animals were a source of pleasure and pride to us. Whether the business was successful from a pecuniary standpoint was always a matter of minor consideration. In view of all these facts, the thoughtless trick of our over anxious employe, which we hardly need say was unauthorized, unknown, and even unsuspected by either of the proprietors or by the manager, has humiliated us most keenly. We would never give our sanction to any unfair practices, even if we could be assured that they would never injure our cattle and never be discovered.

While the unwarranted and costly experiment of our employe, with the cows, would not, we presume, invalidate the awards to the males and females not in milk, yet we prefer under the circumstances not to receive any premiums whatever on our exhibit this year.

We shall give this letter to the live stock press of the country and request its wide publicity. This we believe due to your Association, as well as to our own good name.

Thanking you and your officials for your courteous treatment, we remain,

Signed. CHARLES MILLER. JOSEPH C. SIBLEY. } Props. E. H. SIBLEY, Manager.

Northern New York Pencillings.

Summer Cheese Prices in New York.—Colored Cheese.—Butter Color and Jersey Butter.—The All-Purpose Cow.—Butter and Cheese Awards.

ED. HOARD'S DAIRYMAN:—Cheese sold on the Watertown Board of Trade, to-day, the 10th, for eleven cents, "a quarter off" from last week's figures, as was expected, and the chances are more than even for another quarter drop next week; although the make at the factories, owing to the continued drouth, will steadily decline. The best authorities, however, say that neither the export nor home markets have justified the extreme high prices paid during the past month. The belief is that much of the August cheese has gone to the cold storage "man," when the making season is practically over.

Possibly, but it is not said that the extreme high price has decreased consumption to a large extent; especially, among the poor and middle classes in the cities. They have substituted something else for cheese, just as they are finding some other food to replace beef which the high price is putting beyond their reach.

Those salesmen representing nearly two thousand boxes of cheese on the Watertown market, who wanted twelve cents last week, or no sale, may now charge up the loss to their experience. Some men never seem to know the market value of anything they have to sell; and, when their product begins to advance in price, seem to believe that it will continue *ad infinitum*. When a salesman refuses the prices offered last week, in view of the conditions of the market, and prefers to "hold" his cheese for a still further "rise," he ought not to kick at his failure to realize, but his patron constituents ought to "kick" him out and elect one in his place having sufficient brains for the position.

But, what a fraud this colored cheese is anyway! Here is the cable's talk yesterday: "New York, Sept. 9th, white, fifty-three shillings; colored, fifty-four and one-half shillings." These prices reduced to United States 16 to 1, mean a difference of about thirty-six cents per hundred pounds, in favor of the colored product. Now, if this coloring deception had not been practiced, the consumers would not have been imposed upon and compelled to not only pay an advanced price for their cheese, but to eat a poorer quality, colored to imitate Jersey cheese and to hide dirt, just as they do when they buy uncolored Jersey butter or that eminating from any other breed of bovines.

Bah! what a contemptible, barefaced humbug it is this twaddle of the *Jersey Bulletin's* about artificially colored butter; and its pretense that all Jersey butter is always naturally colored enough, and that no other breed, with, perhaps, the exception of the Guernseys, of which there are but a few thousand in the country, and whose product does not influence the market to any extent, does this little thing.

If, however, we did not see its idiotic utterances copied by some papers that pretend to a modicum of intelligence and a knowledge of the market conditions, it would not pay the expense of writing and printing a word of denial. But infectious disease will spread if given an opportunity, whether from contamination with a sick Vanderbilt or a poor "Joe" of Tom All Alones. Hence these remarks.

Last fall, one day, I asked a well known Jersey breeder of northern New York to tell me about it. How do you market your butter, I asked? "Most of it goes to private families in the village here and in the country adjacent. We have contract prices, which are, as a rule, considerably above those of the New York markets," was the reply. But you have a surplus, at times, do you not? How do you market that, and what prices do you receive? "It goes to New York at the same prices as the best creamery is sold for here." Do you get any more for it because it is thoroughbred Jersey butter, when sold on the Board of Trade? "As a rule, no; sometimes we have received a fraction more than was paid for best creamery, but it did not amount to much of a sum."

Do you color your butter in summer, when the drouth has browned and burned up the pasture grass, and you are short of succulent soiling foods, or in winter, when the cows are on dry foods and silage? "Always; neither my herd or anybody's else will color their butter, especially in winter, sufficient to satisfy the demands of the market. We have individual cows, however, that will nearly do it, but the whole herd will not."

But, you know that the *Jersey Bulletin* pretends that all Jersey cows will color their butter enough, and that the market would accept it just as quickly, were it not colored artificially at all; just as soon at the tastes of the consumers were educated up to the proper standpoint. Then why do you, having a high-toned herd of registered Jerseys, color your butter in winter?

"We color our butter because the market says 'color it or else keep it at home'. The *Jersey Bulletin* man knows more about the quality of fine colored old rye, than he does about uncolored butter in our great markets. You ought not to quote him."

Last winter, while attending the institutes, I interviewed a dozen dairymen, a number of whom kept Jerseys, and not a man among them, a Guernsey dairyman included, could I find, who was not coloring his butter; and while in Albany recently, I visited a com-

FOUR SOLID COLOR BULL CALVES out of tested Dams, and sired by Diploma's Combination, sire of two tested cows. Also a few heifers for sale. J. E. TYRRELL, Marysville, O.

JERSEYS. Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

Registered Jerseys. Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

FOR SALE BULL CALVES Of St. Lambert, Pedro and Combination strains. Some extra fine ones at farmers' prices. GEO. A. BUCKSTAFF, Oshkosh, Wis.

PROSPECT HILL JERSEY HERD. WISCONSIN PRIZE HERD. Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED. F. H. SCRIBNER, Rosendale, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall. JOS. T. HOOPES, Bynum, Md.

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Introduce Milking Jersey Stock INTO YOUR HERD by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book." FILSTON FARM, Glencoe, Md.

There's plenty of Jersey blood NOT AS GOOD as that of **Old PEDRO 3187.** There is NONE ANY BETTER. I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams. W. F. McSPARRAN, - - Furniss, Pa.

ARDEN HERD OF **JERSEYS.** JOLIET, ILL. H. N. HIGINBOTHAM, Prop. J. D. THOMPSON, Supt. FRED STORY, Herdsman. Pedro's Handsome Prince, No. 42794. Sixteen Tested Cows in Herd. Young Stock for Sale. Write for Particulars.

ALBION JERSEY HERD is headed by **Pedro's Prince Phillis 42298,** An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187. R. C. GREEN, Albion, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

W. R. THOMAS, Bellmore, Ind., Breeder of Jersey Cattle Stock for sale. Write for prices. Correspondence solicited.

High-Class JERSEYS The blood of Combination. (Sire of 25 in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted. H. C. TAYLOR, Orfordville, Wis.

Dry Weather here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our BEST COWS and HEIFERS. Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting Jerseys to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

FOR SALE! DOUBLE GRANDSON OF **Exile of St. Lambert 13657** 78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and will be sold CHEAP. P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS. This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere. SOME CHOICELY BRED **Bull Calves** out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS. Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons. **224** First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special lit rature sent if this paper is mentioned. No animalesold for less than $100. Lowest price for quality. fEvery animal tuberculin tested before sale, i desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. Franklin, Venango Co., Pa. **224**

The Lone Tree Jerseys THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners. **Introduce Fresh Island Blood Into Your Herd.** SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey. Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

Butter Bred Bull Calf, 10 MOS. OLD, a Little White. Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio

mission house and asked if uncolored butter was handled, and, if so, if the price for it was the same as for colored butter. The reply was: "We do not handle any uncolored butter, and so far as we know, no one is foolish enough to ship white winter, or white summer butter, either, to this market. If one were to do that, it would have to go to the bakeries, no matter how fine its other qualities. The consumers of butter here, have not yet been educated up to the point where uncolored butter is preferable to that having a June tint. When they do reach that scale, if ever, we shall probably deal in uncolored butter, provided there are enough demands for it to pay us for handling it; not before."

A groceryman whom I interviewed, said in reply to my question: "Do you handle uncolored butter? If so, is there a demand for it, and is the price the same as for colored butter?"

"No, sir. We could not sell uncolored butter at all, for what it was really worth. Rich people would not have it on their tables, while the poor people would think we were foisting lard onto them and would kick on sight of it."

Do not the consumers know that butter is artificially colored during the winter season?

"As a rule, all intelligent buyers do, but there are some poor people who never saw a cow milked nor know how butter is made, who do not, but they would be the first to kick were we to offer them uncolored butter, at any time. In fact, it would be hard work to induce them to taste it. We could not make them believe that we were offering butter at all, but some kind of white grease instead. There are some high grade buyers, however, who say at times, 'That package is all right except it has been colored a little too much.' But why do you ask? Are you a dealer who proposes handling uncolored butter?"

No, sir. I am merely a newspaper man, looking after facts connected with the butter markets.

"What paper do you represent?"

"HOARD'S DAIRYMAN."

"Oh, yes, we have that and find it a valuable exponent of high class dairying. I suppose, however, that not many farmers take it."

Oh, yes, they do, that is, the best element among the dairymen do, and there is a long list of men in other professions who take and read it. There are merchants, lawyers, manufacturers and even farm laborers who read it each week.

It goes into nearly every county in the United States, while its foreign "edition" is very large, its clientage extending to Australia, the Sandwich Islands, South America, Europe and even to South Africa, as you will observe if you scan its correspondence columns closely, from time to time.

But I wished to interview you more particularly on this butter color question, because of the assertion of the *Jersey Bulletin* that only butter of inferior quality was colored and for the purpose of hiding dirt and imitating Jersey butter which, it pretends to believe, is never artificially colored.

"The *Jersey Bulletin*! Where is it printed? I never heard of it. But, no matter, if it does not know that all butter that comes to our great markets in winter, is more or less artificially colored and that if it were not, it would have to go for cooking butter, it does not know much about the butter markets in this state and is not worth mentioning as an authority."

"It is the only paper I ever heard of that pretends that butter is colored to hide filth and inferior quality and its editor must be either a chump or else has a lot of gullible readers. Glad to have met a representative of the DAIRYMAN. If there is anything I can do for you, command me."

On page 637, *Rural New Yorker* of Sept. ninth, is an article by Dr. W. H. Jordan, of the New York Experiment Station, which should be kept in type on the standing galley of every thoroughbred dairy paper to be reprinted once a month, and I hope to see it in the DAIRYMAN. There are facts and figures given there that ought to silence all the pop guns that the dual or all-purpose cow writers and editors are firing, and which show clearly that beef and milk cannot hibernate under the same skin and make a success of it. One or the other must go, nor stand not on the order of their going. They can't dwell together there in harmony, nor for the betterment of the granger who owns and milks the bovine. Let him choose which he will have—butter or suet, and it were best that he reads and ponders well the doctor's article before he invests his shekels, else he may make a mistake, because when it has been proven that a good cow can make twenty-five cent butter and more of it from the same raw materials that a steer uses in making five-cent suet, there is no room left for "argerin" as to which is the most profitable to produce suet or butter.

The figures which the doctor presents also show that, even with the western cheap land, cheap corn, cheap pasture, and other cheap cattle foods, man must have the best of thoroughbred beef type and care for them carefully and well, to be able to enter the lists for profit, when the special-purpose dairy cow confronts him in the markets. The plea put forth by the *Breeders Gazette* "David" of *Farm* and *Fireside*, McLean Smith and others, for the all-purpose cow, falls flat when assailed by such a man as is Dr. Jordan. If the all-purpose cow is "no good" for a dairyman in New York or Wisconsin, surely she is not wanted on the great ranges or in the fields of the grain raisers of Iowa.

If those western men want beef let them plant and cultivate beef; if butter, it were better to plant butter seed of some true type, then cultivate and care for as Dr. Jordan advises. He should also sell his dog and invest the proceeds in bran, as H. E. Cook, of Denmark, N. Y., says he has done. A lazy hired man, accompanied by an ambitious "dog" will give a herd of dairy cows more exercise than they really need, especially when the hour is late and the hired man wants the milking off his hands, and himself on his wheel.

The awards for butter and cheese at the state fair, which closed at Syracuse, yesterday, again places northern New York well at the front, particularly in the cheese department, Lewis County again capturing a large per cent of the prizes, with Jefferson, a close second. St. Lawrence, either did not enter the cheese list, or else the tryer found her product different, as but few awards went there. The score above 94 points, follows:

ST. LAWRENCE COUNTY.

C. E. Giffen, Depeyster, 97½; Westley Reed, Depeyster, 97½; A. W. Overacker, Gouverneur, 98; I. Phillips, North Hammond, 96; Rhodes Babcock, Rassie, 98½.

JEFFERSON COUNTY.

Fred Ferguson, Redwood, 98; Hugh Kirkland, Redwood, 96: Frank Dallinger, Omar, 98½; Mather Brothers, Belleville, 98; A. E. Gove, Pamelia, 96½; F. P. Dunnaway, East Rodman, 100; Ray F. Dunnaway, East Rodman, 97; A. E. Helmer, Evans Mills, 95½; C. B. Still, Theresa, 95; Ferd Carris, Omar, 99; Levi Snell, Depanville, 98½; Oscar Northrup, Depanville, 97½; D. Walrath, Evans Mills, 97; L. B. Gibbs, North Wilna, 96; C. O'Brien, Theresa, 96½.

HOME TRADE—LEWIS COUNTY.

C. Claus, Constableville, 94½; E. G. Graves, Lowville, 99; Mrs. J. M. Graves, Lowville, 99; B. Graves, Lowville, 97½; M. E. Fitch, Lowville, 98; F. Loucks, Lowville, 95; W. H Fitch, Lowville, 98; J. E. Knapp, Deer River, 97; W. J. Webb, East Martinsburg. 98; J. E. Murphy, Montague, 95½; E. C. Gowdey, West Martinsburg, 98; B. M. Graves, Copenhagen, 98; W. E. York Harrisburg, 94½; Mrs. W. A. Wheeler, Harrisburg, 96.

LEWIS COUNTY.

H. E. Cook, Denmark, 96½; E. J. Graves, Lowville, 97; Mrs. E. J. Graves, Lowville, 97; J. H. Searl, Lowville, 96½; Charles Pierce, Lowville, 96½; B. Graves, Lowville, 98: M. E. Searl, Lowville, 99; M. E. Fitch, Lowville, 99; W. H. Fitch, Lowville 97; George Searl, Lowville, 99; N. Keifer, Kirchnerville, 98½; C. Claus, Constableville, 95½; M. Hierley, Constableville, 96; W. J. Webb, East Martinsburg, 98½; F. C. Goudy, West Martinsburg, 96½; J. E. Murphey, Montague, 95; B. M. Graves, Copenhagen, 100; J. K. Fuller, Copenhagen, 97; Chandler Merze, Croghan, 98½; W. E. Gork, Harrisburg, 96.

JEFFERSON COUNTY.

Wm. Flath, Philadelphia, 97; F. P. Dunnaway, East Rodman, 96; Ray F. Dunnaway, East Rodman, 97; A. E. Helmen, Evans Mills, 99; Silas Bretts, Watertown, 99; L. B. Gibbs, North Wilna, 99½; L. S. Pitkin, Lorraine, 96½; George B. McMullin, East Hounsfield, 94½; F. X. Baumert, Antwerp, 97.

SMALL FANCIES.

H. E. Cook, Denmark, 98½; J. H. Searl, Lowville, 96½; C. Pierce, Lowville, 95; W. S. Keyes, Oxbow, 98; C. Hungerford, Oxbow, 96.

PHILADELPHIA CREAM.

F. X. Baumert, Antwerp, 100.

SAGE.

J. H. Searl, Lowville, 96; B. Graves, Lowville, 98; P. C. Parkinson, Watertown, 94½; C. B. Wilson, Philadelphia, 99.

It will be observed that a very large per cent of the awards went to "Little Lewis;" moreover, that the scores were very high, indeed, higher on the average, than ever before, and that Lowville is entitled to the cake, in fact several of them, but that is because W. Brown Richardson is encamped in that outpost. C. W. JENNINGS.

Bellville, N. Y.

Some Oregon Dairy Items.

ED. HOARD'S DAIRYMAN:—About one year ago, we began agitating the dairy interest in this community. A creamery was started with private capital, and has had sufficient patronage to keep it running since.

I have been living in this, the Willamette, valley, for nineteen years. Had never considered it especially adapted to dairying. Along the coast country, west of the coast mountains, has grown famous for its dairies. Tillamook cheese and butter has gained a reputation. Many have grown wealthy in the business, while we, in this beautiful valley have been giving our attention to wheat and fruit. Good as they are, dairying is far better. We have an ideal dairy country, soil and climate considered. Clover grows to perfection. Vetches grow spontaneous wherever the seed falls. Corn grows fine, when given the proper care. Only early varieties will properly mature. I have corn now that I am sure will make twenty tons of ensilage to the acre. Last year more than one hundred thousand dollars was sent east of the Rocky mountains for cheese and butter, for this northern country alone. We can make butter and cheese here in Oregon cheaper than it can be made in Illinois, by the help of God, and your valuable paper, which is such a welcome visitor, and the favorable conditions with which we are surrounded.

You will hear again from us on this line. We are now milking fourteen cows, (Jerseys, of course). Building a barn for twenty-six head; cement floor with pits to save the liquid manure; and a silo. JESSE EDWARDS.

Yamhill Co., Oregon.

DE KOL'S BUTTER BOY No. 19210. Son of the great DeKol, and Royal Paul No. 22979. Combining the blood of Pauline Paul, Pietertje 2nd, Koningen Van Friesland 5th and DeKol in one sire, head our choice herd of over 100 Holsteins. Sons ready for service, and heavy milking cows bred to them, for sale. Write now to **Dellhurst Farms,** Mentor, O.

LADY BAKER

Is the sixth highest butter cow in Holstein history. Her butter record is 34 lbs 6oz in seven days, the second largest record of the breed in the advanced registry. Her milk record is 773¼ lbs. in one day. Lady Baker sold for $800 at Mr. Wales auction sale, held at Chicago in 1889. Valley Mead Farm is in a position to give the blood of this great cow from her only son Judge Baker, who sold for $600 to Colo. A grandson of Lady Baker, called Sir Natsey Baker, stands at head of herd.

VALLEY MEAD FARM, Monticello, Wis.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.

Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale. C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**



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Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis

130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY CATTLE

SHETLAND PONIES.

Old Homestead Herd,

Of PERRY, OHIO,

Was Champion at O., Ill., and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock For Sale. Inspection invited. Will make a representative exhibit at the Ohio, Wis., Ind and Ill. State Fairs this fall. L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys,

CHAMPION Herd

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.

GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** **Farm Supt., Madison, N. J.**

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898.

Some Choice Young Stock For Sale.

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AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages forsale, R. G. STEACY. Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Is She a Delusion?

The General-Purpose Cow.

ED. HOARD'S DAIRYMAN:—I have been a student of your paper ever since I knew of its existence. I have derived a great deal of pleasure and profit from it. I do not think there is a paper published on the face of the earth that has as varied a lot of contributors as HOARD'S DAIRYMAN:—so varied in fact that one needs to be a close student of human nature to distinguish between those who are writing from theory without practice and those who are giving genuine information, derived from personal experience on a scale large enough to be profitable.

I learned early that I must frequently read between the lines, as many writers leave out the little details that really make the success of the undertaking they tell us about. To illustrate my meaning, one man will give his method of producing a certain crop and its results and forget to say on what kind of soil he was working. As a result, some one tried the same method on a different soil and made a bad failure.

Another, and a dairyman, told how he saved labor by only cleaning out his cow stable twice a week, and while in Colorado last month I saw the fellow that read it and thought he could save time and labor by moving the stable once a year.

I suggested to him that he build his hay stack through the middle of the barn and move his stanchions once a week. He replied: "By gum, I'll do it and I will write the other fellow and tell him I am two points ahead of him now. Say, Mister, stay a week with me and perhaps you can give me another pointer." Now, I have been greatly interested in the many articles written against the general-purpose cow. So many, in fact, that it has become dangerous or exceedingly unpopular for any one to say a word in her defense. Mr. Shaw was brave enough to write some good articles in her defense last winter and from the way some of your contributors jumped upon him, one would think he had committed an unpardonable sin.

I have been boiling over for some time with a desire to come to this much abused animal's rescue, but have been waiting to develop a herd that I could challenge the whole company of special purpose advocates with, and prove from start to finish that the minority can be right sometimes. I will say, I think I have the herd all right, but an unexpected ukase recently issued by the Anglo-Swiss Condensed Milk Co., prevents my issuing the challenge and demonstrating results.

The ukase states that May 1st, 1900, they will refuse to receive any milk from Holstein cows, or cows bearing Holstein markings. As a result, I must sacrifice the results obtained from years of careful breeding. I commenced farming when twenty-two years old, without any previous experience, on a farm of 210 acres.

As the interest and taxes amounted to over $1,000 per year, I discovered in the course of a couple of years that the variable prices of general farm crops made it impossible to be sure of any certain income, and as the outgo was a certainty, I began to look around for a certain way to keep the sheriff and mortgages at a respectable distance.

I decided that the general-purpose cow should be my sheet anchor and main sail. I rented 150 acres of land adjoining mine and a dairy of forty-five general-purpose cows, with an established milk route in the city of Dixon. Now, Mr. Editor, if you could see and realize what the general-purpose cow has done for me and others, as plainly as I see it, you would have a standing reward of a thousand dollars printed in great primer type, on the front page of your paper, for the conviction of any person guilty of defaming the general-purpose cow.

Why do I make that bold statement? Because she has lifted out of debt more farmers, sixteen to one, than the special purpose cows. She has done it in the past ages, and will do it for many more to come. First, she is vastly more numerous and will be for generations to come. Second, her dual qualities are being improved. Do her critics ever stop to think how much easier it is to raise a general-purpose herd, from 4,000-pound producers to 6,000-pound producers, than it is to raise a herd of specials a like amount? I did not realize it until I tried it. Now, if there are fifty general-purpose cows to one special purpose cow, and only twenty-five of the fifty belong to the progressive farmers, and are being improved, you must admit she is adding to our wealth vastly more each year than the other class.

For the first few years a fat cow was worth more than a milch cow; so I rode around the neighbors and picked out their best fresh cows, stuffed them with corn meal and hay, and in four or five months had a very desirable fat cow and not much milk; of course the butcher got her. I had got her best flow of milk and a profit from it, and another profit from her beef, and my ship sailed toward prosperity fast; but along comes the condensing factory. Everybody rushes into it, cows double in price, and all picked up or kept for miles around.

A black cloud suddenly darkens my horizon, for what will I do at the end of the next six months with a lot of fat cows on hand, and numerous customers clamoring for milk?

In the midst of my dilemma, a star appeared in the firmament, in the shape of a man—an agent for Thatcher's system of milk bottles and supplies. He just wanted to sell me bottles and milk pails, etc. I told him to get right out, that I was going out of business in a few months for want of milk.

He looked over my herd and remarked, "Well, Mr. Judd, I haven't seen as fine a herd in my travels, from the Atlantic to the Pacific, outside of a show ring." There they stood, forty-five great, fat, slick, shining, general-purpose cows. He asked what I fed them, and I said, just plenty of corn meal and timothy hay. (Used an eight quart milk pan for a dipper in those days, for I was always in a hurry you know.) Well he said if I would put one-third bran and one-third oats with it I would get a better flow of milk, and they would not get so fat.

Then he asked me if I read HOARD'S DAIRYMAN, and I replied I never heard of him. (I was just out of a law office and had been interested in Cooley on Torts and Gould's Pleadings, and had not run up against HOARD'S DAIRYMAN or our good friend John Gould). But it set me to thinking, and I soon got acquainted with the paper and balanced rations and improved breeding, and I went into the stable, and apologized to my cows for the many caked udders I had inflicted upon them, and a prayer for forgiveness from the noble animals I had sent into the great hereafter through the milk fever and slaughter house routes.

A car load of bran went into my barn immediately, and bran, oats, and corn meal was their ration. A field of clover and timothy furnished abundance of nice hay for winter, and corn fodder helped out the dry pastures in summer, and I had milk galore. A hundred and twenty-five dollar bull from a milking strain of Durhams furnished the supply of calves that made fresh cows, and did not have to scour the country for fifteen or twenty miles to get a fresh cow.

By this time I was taking nearly all the agricultural and dairy papers published, and studying them nights (had to work day times) and getting experiment station bulletins and books and studying breeds, and visited the best dairies in the country, and finally decided I could increase the milk flow of my herd most and quickest by selecting out twenty of my best young cows and cross them with a thoroughbred Holstein, depending upon the Holstein to increase the quantity and the Durham to retain the quality of the milk, and a medium tendency to retain the easy keeping quality of the Durham and cover up the slab sidedness of the Holstein.

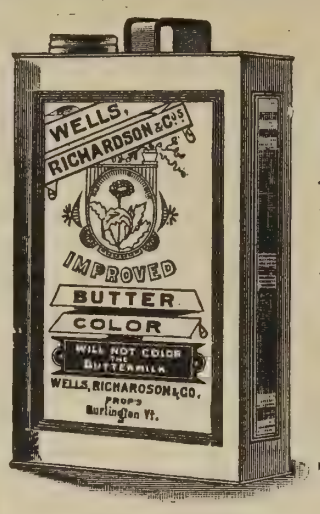
It resulted in the most complete success imaginable. I had forty head, all marked black and white, that test in butter fat as high as any herd in the factory, and I expected this year to show the largest milk yield of any similar number in the country.

Now, after years of such breeding and weeding and the building up of such a herd free from kickers, steppers or hard milkers,

There is a right chimney for every lamp. The Index gives you its Number.

Your dealer should have it.

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Wells Richardson & Co's Improved Butter Color

Can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT and NEVER becoming RANCID. It is for sale by all first-class dealers.

The Kind that has no Mud

COAL TAR BUTTER COLOR

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THE DELIGHTFUL JUNE TINT

So well known among users of high grade butter. It is healthful. For sample bottle send to

THATCHER MANUFACTURING CO., - Potsdam, N. Y.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

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Scott's Perfect Swinging And Self Closing Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT, 211 Beach Street, Bridgeport, Conn.

with the milk yield doubled, the testing of each individual satisfactory, absolutely healthy, raised on and wonted to the farm, gentle as kittens and handsome in form and color and such profit producers that the debt on the farm has long since disappeared and peace and plenty make life worth the living. I say under such circumstances is it any wonder it makes me sick to think of having to sell them to appease the distaste of a corporation that sees fit to condemn a whole class of individuals because some few members of that great class have not tested up to their idea of a proper standard.

Right here I will say, that owing to the opening of the condensing factory and the Henderson shoe factory about the same time, and taking in about 1000 young men and women, it drained our farms of help both out doors and in the house so that I gave up my city delivery and became a patron of the factory, as I could get along with less help.

Now in conclusion, Mr. Editor, do you wonder that I love and praise the general-purpose cow when I have had such a profitable experience with her? Then, when I see her lifting other young men all around me into homes on beautiful farms, costing a hundred dollars per acre, and paying for rubber tired surries and their family's dressing and living in style equal to the aristocracy of the cities, I am doubly convinced.

When we all know that she is doing it, not only around Dixon, but around Elgin and Fort Atkinson, in fact around every big city, is it wise or advisable to go to such extremes as many of your writers do in condeming the general purpose cow and advising the young beginner to undertake the rearing of a special dairy cow?

As I got able, I experimented along special lines and convinced myself that the improvement is so slow and failures so much more common in the thoroughbred families, on account of the high tension to which they are already pitched, that nine times out of ten the young farmer will make a failure instead of a success.

I will save you lots of printing and manuscript reading by warning those that have made up their mind to reply to this that I have not used the term *scrub* cow. I understand a general-purpose cow to be one that gives milk enough to pay a profit and can be disposed of at any time by a little extra feeding for beef, and that at a profit; that a special purpose cow is one bred so strongly in certain lines that it practically eliminates all other characteristics and can produce only milk or only beef at a profit. That a scrub is one that has no predominating tendency and is a failure for both milk and beef.

Warren, Ohio. A. G. JUDD.

Corn Hay.

About fifteen years ago at the meeting of the Iowa Improved Stock Breeders' Association at Atlantic, Professor Sanborn, then of Missouri, startled the breeders with an estimate of the amount of food that was wasted every year, by the failure of the farmers to fully utilize their corn fodder. While intelligent farmers realized the extent of this waste, there was apparently, then, no help for it. At the then current prices of labor and corn, it did not seem possible for the average farmer to do anything better, than to husk out his corn, and let the cattle get what they could. Where the farmer had a small acreage and a considerable number of cattle, he could afford to cut and utilize it, but we believed then, and we believe now, that the large farmer did the then best thing, in allowing the cattle the range of his fields during the fall and winter to gather up the missed corn, and the husks and blades that remained on the stalk. Fifteen years have made great changes, and have almost entirely reversed the situation. The corn harvester has appeared since then, and done away with the old-fashioned corn knife, and the sore arms and scratched faces that were inevitable in harvesting corn in the old way. The corn shredder has come in and enabled the farmer to utilize, to a greater extent than ever before, the product after it is harvested. Meanwhile the prairies have been plowed up, first-class prairie hay is becoming scarce, and is destined in the near future to give place to corn hay, as good a feed as the best prairie hay, and better than the average, and equal in every respect to timothy hay. In less than ten years from now, corn will take the place as horse and cow feed of both timothy and prairie hay in all the states of the west, and in many of the states of the east as well, thus furnishing a market for the heretofore largely wasted product of the Iowa corn fields, according to the scientists about forty per cent of the feeding value of the entire crop. It has only been in the last few months that we have felt safe in speaking with this degree of confidence. An article in the *Farmer* of August 25th, written last winter, reflects our views on the subject at that time. We have given the subject a good deal of attention of late, and we now feel quite positive, that with the improved shredders, such for example, as the Janney, the problem has at last been solved. Briefly stated, the situation is this:

With the corn harvester, corn can be put in shock as cheaply as it can be husked on the stalk, and with a great deal less labor and more solid comfort. This is a great step in advance. Only two questions now remain; one, the cost of reducing this corn fodder to corn hay, and the other, the best method of keeping the hay until it is required for use. It is claimed for the Janney shredder, that, and we speak of this as a typical improved shredder, ten acres of corn fodder can be husked and converted into hay in one day, and the force required is as follows:

Two men to feed the machine, working in hour shifts, the second man oiling the machine and seeing that everything is in order while he is resting, one man at the engine, and a boy to haul water. These are the machine men. The number of men and teams required to deliver the fodder at the machine, and to stack or mow the hay, depends on the distance it has to be hauled, and the amount of fodder per acre on the field, and therefore, cannot be reduced to a close calculation. Estimating, therefore, the cost of running the machine, including the delivery of the corn fodder, at $12.00 per day, which we believe to be a very liberal estimate, and reducing the estimate to eight acres instead of ten, it is simply a question whether eight tons of corn are worth $12.00. We do not credit the machine with the husking, because we have balanced the husking against the cutting up of the corn. It is safe to say that the corn hay of eight acres of good corn is worth to any farmer, who is feeding good cattle, at least, $30.

We do not blame a practical farmer for abandoning a shredder if it can handle only three or four acres a day. In this case the corn hay or shredded fodder has cost about all that it is worth, but if from six to eight acres can be handled at an expense of not exceeding $12 per day, then the farmer has a clear profit in sight and he should not hesitate to invest in an improved shredder, do away with about half his meadows, increase his acreage of corn, and depend upon his corn fields for the supply of winter forage for his cattle.

The second difficulty and the one that has given us a great deal of concern is that of keeping the fodder in its best state. Corn fodder will keep anywhere if it does not contain more than twenty-five per cent of moisture and is not packed tightly in bays more than thirty feet deep. It will take fire by spontaneous combustion under the same conditions in which clover hay will burn. Seasons sometimes occur in which it is difficult to get corn hay with less than forty per cent of moisture. Under these conditions it is not safe to store away in very large quantities. The way of solving this problem is in the first place to wait until the corn is in condition to be shredded, and if it cannot be had in first-class condition then to stack it in small stacks and cover over with hay, straw or perhaps better than anything else, sorghum sown for forage. We believe by this method it is entirely practicable in any season to secure all the corn fodder in the shape of corn hay in the very best condition and add about forty per cent to the actual value of the corn fields.

We wish our readers to give this very careful attention. We have never before spoken so confidently on this point, but we believe that now we are on safe ground, and if our readers will investigate it as carefully as we have done we believe they will come to the same conclusion. We believe it is safe now for men who own threshing machines to invest in shredders and after the harvest is over convert the corn fodder into corn hay. We believe it is safe for the large farmer to invest in a corn shredder himself and for three or four neighbors to join together, invest in a shredder, and convert their corn fodder into corn hay, commencing as soon as the corn is fit to husk and shredding as needed up until the first of February. The shredding should be done as early as possible as corn fodder wastes largely through exposure during the winter. As intimated heretofore, we believe that the baler will in time follow the shredder, and that the Iowa corn fields will supply the Iowa cities, Chicago, and St. Louis, as well, with the best winter feed for horses and cattle that they have ever been furnished, in the shape of corn hay free from dust and free from foul seeds. There will be fewer heavy horses in the West when the corn harvester, corn shredder, and corn baler do their perfect work.—*Wallace's Farmer.*

The World Cannot Show Its Equal

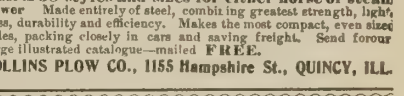


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that the best results in feeding stock of any kind are attained with ground feed. **To grind feed** most successfully requires
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They have largest possible capacity with minimum power. Crush and grind **corn, husk cob and all,** and all small grain singly or mixed. Have self-sharpening plates. **Free**—Catalog I.
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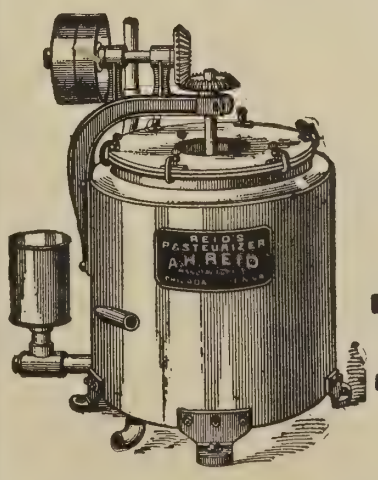


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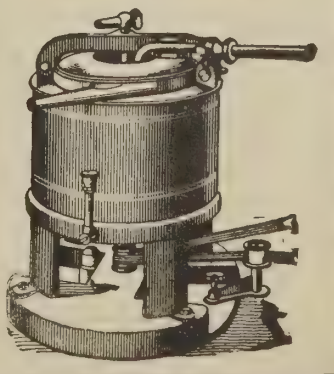
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Mr. Wheaton's Canadian Dairy Notes.

Canadian Fairs.

ED. HOARD'S DAIRYMAN:—The fall fair season is always an important one in Canada. Nearly every citizen, in the older provinces especially, makes it his business to attend some one of the leading exhibitions which take place this month. This is as it should be. A fair, properly managed, is of great educational value. Even if the special attractions and proverbial side shows are much in evidence, there is always enough shown of the products of the country and of the improvement in live stock, agricultural machinery, etc , to make a visit to the fall fair of value to every farmer.

At the leading fairs here the dairy exhibit is always an important feature, and as it should be in this country, interests a great many people. The display of cheese and butter is always an attractive one, and of late years that of dairy appliances, and cheese factory and creamery equipment has become an important feature.

At the Toronto Industrial Fair, this year, which opened on August 29th and closed Sept. 9th, there was, perhaps, the largest display of dairy products and dairy machinery that has ever been seen at a Canadian Fair. There were 400 boxes of cheese shown, or 100 boxes more than last year. The exhibit of creamery butter was also an excellent one, both in quantity and quality, while that of dairy butter was twenty-five per cent larger than last year, with the quality away ahead.

Mr. A. F. MacLaren, of Imperial cheese fame, judged the cheese, and pronounced it the best lot of cheese he had seen judged at Toronto. (He has acted as judge for several years). There was a more even and better flavor and the whole exhibit was suggestive of the marked improvement that has taken place in the quality of Canadian cheese, this season. Last year's exhibit was very much lacking in flavor, while this season's exhibit, on the whole, rather excelled in that regard. Several new names were noticed among the prize winners, in both the cheese and butter classes, thus indicating that new men are coming to the front in the improvement of quality.

CHEESE AWARDS.

Section 1.—Best four factory cheese. June and July make (colored)—1. W. A McLaren, Avening; 2. W. J. Atkinson, Kintore; 3. Wm. Colbert, Lavender; 4. Thos. Stevens, Proton Station; 5. W. A. Bell, Pine River; 6. M. Knechtel, Dorchester Station.

Section 2.—Best four cheese, June and July make (white)—1. M. Knechtel; 2. Miss M. Morrison, Newry; 3. R. D. Thompson, Springford; 4. W. A. McLaren; 5. M. Morrison, Harriston; 6. E. Millson, Lakelet.

Section 3.—Best three factory cheese, August make (colored)—1. M. Knechtel; 2 R. Elliott, Dunrobin; 3. Miss M. Morrison; 4. Wm. Colbert; 5. W. A. Bell; 6. W. A. McLaren.

Section 4.—Best three factory cheese, August make (white)—1. J. W. Clarrige, Glen Huron; 2. Miss M. Morrison; 3. J S. Isard, Williscroft; 4. R. Elliott; 5. Wm. Colbert; 6. J. L. Thomson, Hawksville.

Special prizes given by R. & J. Ransford Salt Co.—1. F. E. Kline, Lakefield; 2. J. S. Isard; 3. J. S. Thompson; 4. T. B. Sellars, Laurel.

Gold medal given by the Windsor Salt Co.—N. S. McLaughlin, Henfryn, Ont.

BUTTER AWARDS.

Section 7.—Best two tubs or boxes creamery butter—1. I. Wenger, Ayton; 2. J. C. Bell, Winchelsea; 3. James Ireland, Beachville; 4. F. J. Sleightholm, Strathroy; 5. Wm. Osborne, Alliston; 6. Wm. Hope, Palermo.

Section 8—Best seventy-five pounds creamery butter in pound rolls or prints—1. J. C. Bell; 2. I. Wenger; 3. George Balkwell; 4. John Malcolm, Sheffield; 5. James Ireland; 6. F. J. Sleightholm.

Section 9.—Best sixty pounds creamery butter in packages containing not more than ten pounds each—1. Wm. Halliday, Chesley; 2. I. Wenger; 3. F. Sleightholm; 4. J. C. Bell; 5. John Ballantyne.

Section 10.—Best two tubs made in any farm dairy—1. A. C. Hutton, Brampton; 2. J. M. Dolson, Alloa; 3. J. D. Malcolm, Sheffield; 4. Mrs. M. Burk, Bowmanville; 5. Mrs. T. McKay, Hamilton, 6. A. Lake, Ranchton.

Section 11.—Best two firkins, crocks, or tubs made at any farm dairy—1. J. A. Dolson; 2. J. D. Malcolm; 3. A. Elliott & Son, Galt; 4. Wm. Whitelaw, Meaford; 5. Miss Hunter, Rockton; 6. Mrs. Burk.

Section 12.—Best basket one pound prints or rolls made at any farm dairy—1. Henry Berry, Elmwood; 2. A. Hutton, Brampton; 3. J. D. Malcolm; 4. S. Hunter, Beamsville; 5. Wm. Willis, Newmarket; 6. T. W. Stevens, Aurora.

Special prize.—American cream separator valued at seventy-five dollars, given by Richardson & Webster—Mrs. M. Burk, Bowmanville.

Special Windsor Salt Co. Prize—Mrs. Dolson.

The display of dairy appliances was indeed a fine one, and was indicative of the growing demand there is in this country for up-to-date dairy machinery. Half a dozen different makes of separators were shown, and what may be interesting to the readers of the DAIRYMAN, a good proportion of these were separators made in Canada.

An interesting and what was more important, a great educational feature of the dairy department, was the butter making competition. From the first to the last it proved a great success and should be classed as one of the special drawing cards. Large crowds, both of farmers and dairymen, as well as people living in the cities, watched the process from beginning to end—the former to learn new improved methods, and the latter to find out how the good butter they have before them every day, is made.

The contest lasted four days. There were two sections, one for makers in creameries and graduates of the dairy schools, and the other for makers in any farm dairy. There were eight competitors in the former class, and seven in the latter, five of whom were ladies. This meant that seven or eight churns were in operation at the same time. The creamery men made in the forenoon, and the dairy farm makers in the afternoon.

The competitors in each class were given the same amount and the same kind of cream, ripened for churning, and each one was required to make his or her share of cream into butter made into pound prints, and wrapped in parchment paper, ready for market, and to leave the churn and appliances used ready for work again. From eight to ten pounds of butter was made by each one at a making, and as each competitor had to make up four different lots of butter, a pretty exhaustive test of his skill and workmanship was had.

In awarding the prizes, the quantity and quality of the butter was taken into account, as well as the time of the churning, cleanliness, etc. The butter was kept in cold storage, till after the contest, before being judged. H. H. Dean, professor of Dairy Husbandry, Ontario Agricultural College, and J. W. Hart, Superintendent of the Kingston Dairy School, acted as judges.

All the competitors were Canadian makers, though the contest was open to Americans. This butter making feature has undoubtedly come to stay, and another year, perhaps, better inducements may be offered to induce makers from your side of the line to compete. The following is the list of prize winners:

Section 17—Dairy School students and creamerymen—1st, Wm. Elliott, Galt; 2nd, R. Furguson, Chesley; 3rd, J. D. Malcomb, Sheffield; 4th, J. B. Anderson and D. J. McCarthy, Guelph (prize divided equally between them.)

Section 18—Makers in any farm dairy—1st, Miss Christina Stewart, Hampstead; 2nd, M. Stonehouse, Markham; 3rd, Miss Fanny Berry, Elmwood; 4th, George Rice, Currie's Crossing.

The milk test, which is always an annual occurrence at the Toronto Fair, is losing somewhat in interest, owing largely to the fact that no change has been made in the method of awarding the prizes for several years back, the results being based upon the total solids produced in forty-eight hours. The test would have greater educational value and interest, if more time were taken, and the food consumed considered in making up the results. The following tabulated statement shows the results of this year's test:

Rank.	Name of Cow.	Breed.	Owner.	Address.	Pounds of milk given in 48 hrs.	Pounds of butter fat in 48 hrs.	Total Solids in 48 hours.
1	Daisy Banks	Holstein	Rettie Bros.	Norwich	126½	3.064	13.994
2	Inka Sylvia	Holstein	C. J. Gilroy	Glen Buell	128½	3.373	13.507
3	Highland Cornelia	Holstein	Rettie Bros.	Norwich	129½	2.746	13.398
4	Queen de Kol 2nd	Holstein	G. W. Clemons	St George	120¼	2.939	12.632
5	Princess Lida	Holstein	C. M. Keeler	Greenbush	116	2.821	12.530
6	Juanita	Holstein	C. J. Gilroy	Glen Buell	111½	2.750	12.226
7	Nellie Gray	Ayrshire	N. Dyment	Clappison's Corners	114¼	2.960	12.219

The exhibit of dairy cattle all through was a grand one. The Jerseys were out in larger force than usual, some of the leading American breeders being present, including Miller & Sibley and the Hood Farm. We are sorry to state, however, that the manager for Miller & Sibley had brought his employers into disrepute by his action in manipulating the udders of some of his cows in order to gain favor in the prize ring. His action caused the loss of several valuable cows, and the exhibition association has since withheld the prize money won by the herd, and prohibited the herd from exhibiting at the industrial fair for one year. This is the first instance of this kind that has come to light at any Canadian show, and it is to be hoped that it will be the last.

The Ayrshires and Holsteins always make a good showing at this fair, and this season was no exception to the rule.

The dairy exhibit at the Western Fair, which took place at London, Ont., last week, (Sept. 16), was not as large as usual, though the quality was well up to the standard of this season. This fair is right in the center of what is the oldest dairy district in Canada, and it is somewhat surprising that the number of exhibits is falling off. The reason seems to be found in local causes, which may disappear in a year or two.

The expansion that has taken place in our export butter trade, this season so far, is really astonishing. The total shipments from Montreal, from May 1st to Sept. 15th, are valued at $3,360,000, as compared with $1,100,000 for the same period last year, showing an increase of 300 per cent. By way of comparison, it may be interesting, also, to note that for the same period the shipments from the United States were valued at $972,350, as against $467,000 for the same time last year, an increase of over 100 per cent.

Though the severe drouth in England and on the continent, may have something to do with this unprecedented export demand, yet it does not account for it all. Canadian creamery butter has undoubtedly obtained a place in Great Britian that it has never had before, and as a first-class brand is becoming a staple article in many districts. Cable reports generally continue good, though showing a little weakening for other than fancy brands.

The market on this side is somewhat quieter and prices have dropped about a cent during the past ten days. At the decline, however, more business is being done. The excitement in New York, where butter advanced 1¼ cents during the past week may have some effect here if it continues. From 20½ to 21½ cents are the quotations at Montreal, and though they are less than could have been had ten days ago, they are high enough to make the creamery butter business a very profitable one for the producer

The cheese markets last week took a decided slump, and factorymen who, ten days ago, could have got 11¾ and 12 cents for August, have now to be content with 10½ to 10¾ cents. This decline in values was not unexpected. Prices have been forced too high for summer goods, and they were bound to go back before long, though there is a shortage in the supply. The high prices caused a falling off in consumption. The situation is, however, strong, and at present values there is big money in the business for the farmer. It is to be hoped that the experience of the past week or two will teach them to accept a good offer when they get it.

J. W. WHEATON.

Toronto, Canada.

Jerseys at the Iowa State Fair.

ED. HOARD'S DAIRYMAN:—Thinking that perhaps you could use a report of the results of the Jersey show at the Iowa State fair, I append the following:

The winning exhibitors at the Iowa state fair in the Jersey classes were;

Mr. J. E. Robbins, of Greensburg, Ind; Mr. H. G. McMillan, Rock Rapids, Iowa, and Mr. J. N. Taylor, of Oskaloosa, Iowa.

The judging was done by D. W. Howie,



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The MICHIGAN FARMER will be sent EVERY WEEK to January 1st for only 15 cents. It is a large 20-page native Farm, Stock and Home Journal. Is liberally illustrated and TELLS HOW TO MAKE THE FARM PAY. This low offer is made to introduce the paper to new readers and will positively stop Jan'y 1st, unless renewed. CASH PRIZES ARE OFFERED TO SUBSCRIBERS for short practical articles. Address,
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Jr., of Elm Grove, Wisconsin, who placed the ribbons as follows:

BULLS THREE YEARS AND OVER.

1st. Robbins, on Czar Coomassic.
2nd. Mc Millan, on Triple Combination.
3rd. Taylor, on Saint Helier Exile.

BULLS BETWEEN TWO AND THREE YEARS.

1st. Robbins, on Emanon.
2nd. McMillan, on Rufa of Chestnutwood.
3rd. Robbins, on Keller.

BULLS BETWEEN ONE AND TWO YEARS.

1st. Robbins, on Venture's Lad.
2nd. McMillan, on History.
3rd. Taylor, on Fashion's Signal.

BULL CALVES.

1st. Robbins, on Silverine.
2nd. McMillan, on Trustee's Diploma.
3rd. Taylor, on Linn Grove's Sampson.

COWS OVER THREE YEARS.

1st. Robbins, on Jersey Venture.
2nd. Robbins, on Pearl Pensee.
3rd. McMillan, on Fransept.

COWS BETWEEN TWO AND THREE YEARS.

1st. Robbins, on La France Pogis 3rd.
2nd. McMillan, on Chirp's Prize.
3rd. Robbins, on Etheleel Khedive 3rd.

COWS BETWEEN ONE AND TWO YEARS.

1st. Robbins, on Stella's Robin.
2nd. McMillan, on Trustee's Helen.
3rd. Robbins, on Etheleel Khedive 4th.

CALVES.

1st. Robbins, on Calanette's Pogis 3rd.
2nd. Robbins, on Ida's Belle.
3rd. McMillan, on Chirp's Canary.

EXHIBITORS HERD.

1st. Robbins, on Czar Coomassie, Jersey Venture, La France Pogis 3rd, Stella's Robin, Calanette's Pogis 3rd.

2nd. Robbins, on Emanon, Pearl Pensee, Etheleel Khedive 3rd, Etheleel Khedive 4th, and Ida's Belle.

3rd. McMillan, on Rufa of Chestnutwood, Transept, Chirp's Canary, Chirp's Prize and Trustee's Helen.

BREEDER'S YOUNG HERD.

1st. Robbins, on Venture's Lad, Stella's Robin, Etheleel Khedive 3d, Calanette's Pogis 3rd and Ida Belle.

2nd. McMillan, on History, Trustee's Helen, Combination Pansy, Paulina's Nana and Chirp's Canary.

3rd. Taylor, on Fashion's Signal, Nell's Flossie, Violet's Princy, Handsome Dolly, Dorca's Fanny.

GET OF SIRE.

1st. Robbin, on the get of Ida's Roiter of St. Lambert 10th.

2d. McMillan, on the get of Trustee.

3d. Taylor, on the get of Roiter's Ben Hur.

PRODUCE OF COW.

1st, Robbins on the get of Etheleel Khedive.

2nd, Taylor on the get of Callie Marie.

3d. McMillan, on the get of Transept.

SWEEPSTAKES.

Bull over two years—Robbins Czar, Coomassie.

Bull under two years—Robbins—Venture's Lad.

Cow over two years, Robbins, Jersey Venture.

Cow under two years,—Robbins, Stella's Robin.

Robbins also won the sweepstakes open to all dairy breeds. He showed Venture's Lad, Jersey Venture, Pearl Pensee, LaFrance Pogis 3rd, Catano's Grace M.

Ames, Iowa. D. W. HOWIE, JR.

Green Bone—Its Value as an Egg Food.

By green bone we mean bones fresh from the butcher, with the adhering gristle, meat, etc. Every meat shop has a great deal of this waste material, which is unfit for market, and which finds its way to some soap factory, or is thrown to the hogs. Sometimes there will be several large pieces of meat which the butcher cannot sell. These pieces add a great value to the bones.

Then on the farm there are a great number of joints and pieces of waste meat and bone which are thrown to the dogs and cats, which ought to be put to better use.

Green bones contain the natural juices as well as the adhering substances. This makes it superior to the bones that have laid on the ground for years and lost all the natural juices or animal matter. Dry bone, when fed to the hens, is insoluble, and only acts as a grit. There may be some of the mineral matter digested, but it is a very small amount. Green bone, however, having the animal matter in it, is quite soluble and easily assimilated by the digestive organs of the fowl. So it is plain that green bones are not only superior to dry bones in having the natural juices and adhering substances, but also in being more soluble and capable of having the mineral matter digested. It is well to remember that it is not what a hen eats that makes eggs and flesh, but what she is able to digest and assimilate. It is an easy matter, since the introduction of the bone cutter, to prepare green bone and meat for the hens. Green bone cannot be ground, but must be cut A good cutter can now be purchased for five dollars and upwards. Some are made for steam power, and are used on the large poultry farms. For hens it is not necessary to cut it so very fine, but for the chicks it should be cut as fine as possible.

The value of green bone lies in its well proportioned and numerous constituents, which are just what is needed by the hen to produce eggs. In it we have lime for the shell, mineral matter for the yolk, and albumen for the white. It is as near an all round food as any one food can be. There is only one objection to it, and that is it is somewhat concentrated. If hens are fed on it entirely, they will eat too much; hence it is necessary to feed it in connection with some bulky food, such as clover or bran. A good method of feeding is to give about a handful to two or three hens three times a week, but all depends upon the conditions to which the fowls are subjected. If they have a good range with plenty of grass and bugs, they will need but little, if any; but if they are confined, it is well to feed it quite liberally. Too much meat or green bone will cause bowel disease, and should be fed carefully. The green bone or beef scraps can usually be obtained at the meat shops for the mere asking, but some dealers will ask a small sum for them. The price, however, will be so small, as a rule, that they will be a great deal cheaper than wheat or corn. Not until you have tried them can you realize the value that green bone is to the poultryman. It is a fine preventive of leg weakness, which is said to be caused by a lack of mineral matter in the bones of the chick.—*Inland Poultry Journal.*

CONCERNING OUR ADVERTISERS.

The Electric Wheel Co., whose several lines of goods are familiar to our readers, are out this season with a new feed grinder. Their card appears on another page. Any who intend buying a feed grinder, will please write the Electric Wheel Company for special catalogue, and mention HOARD'S DAIRYMAN.

THE well known dehorning clipper favorably known by many cattle owners, and for the past ten years manufactured, sold and exported by H. H. Brown Mfg. Co., Decatur, Ill., is advertised in our columns. Every hardware dealer should keep them in stock. If any will not supply our readers they can get them at the above named factory on application.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

CORRECTION—On page 621, third column, under answer to ophthalmia, seventh line, instead of "tincture of *arsenic*," read tincture of *arnica*, four ounces.

EATING HEMLOCK.

What effect will the eating of wild hemlock or cow bane have on cows. Have had some abort and some sick, we think from eating it. If the hemlock caused abortion, would it be safe to breed them again? Is about four weeks too soon?

Hibbetts, Ohio. B. C.

ANSWER.

Unless the cows ate a large quantity, I don't think the abortions were so caused. A liberal amount would produce nausea and sickness, no doubt, and might cause abortion, etc. It is always wrong to breed aborting cows, until they have been prepared by a proper medical treatment, and then in not less than three to four months; four is best.

LUMP JAW.

I have a cow that has lump jaw. Will you tell me through your paper what to do for her? N. L. E.

Milk Creek, Wis.

ANSWER.

Actinomycosis—lumpy jaw—is an incurable disease. All attempts at a cure is a waste of time and money, and if ever you could permanently heal up the abscess or disperse the tumor, the result would be a propagation of this terrible disease. No animal with this disease is fit to breed from. The milk and flesh from all such subjects, are dangerous as food for any kind of mammal. The only way of stamping out this and similar diseases is to kill them off and burn them, or bury very deep. I never recommend medication.

LUMP ON THROAT—SORE THROAT.

I have a cow four years old that has a lump on right side of neck next to throat; seems to be between skin and bone, and seems loose; it is about the size a goose egg. What can I do for same. My cattle have been troubled with sore throat right in between jaw bones. J. G. M.

Milford, Ohio.

ANSWER.

No. 1. Indolent tumor. It is quite safe to open this, downward, then dissect it out, sew it up, and leave a hole at the bottom. Dress with compound tincture of myrrh and aloes, liberally, by injecting with a small syringe to the very bottom. A qualified professional man is the best to do this, although the operation is by no means a difficult or dangerous one.

No. 2. Cut off the hair close and rub in Gombault's Caustic Balsam daily until you have a blister, then keep covered with hog's lard for a while.

HARD MILKING.—POLYPUS OF NOSE.

One of my cows is a hard milker, very rich and valuable, is now in full flow. I have a cow that for the last three summers has had a disorder that affects the nostrils. Her breathing is hard and causes considerable noise, nostrils sore, sometimes a little blood shows inside and there is constantly some matter. In winter it entirely disappears, at least it does not affect her to all appearances. J. O. B.

Smith's Grove, Ky.

ANSWER.

1. You require a dilating plug. Read ads in the DAIRYMAN.

2. You have here a clear case of polypus, I think. I can't doctor her by correspondence; such a condition requires and must have a personal examination by an expert. He alone can properly diagnose the case and apply the proper remedy.

WARTS.

I have a young Jersey bull that is getting quite warty. We are feeding him three quarts of oat chop, bran and cotton seed, twice a day. He is growing splendidly, is now nine months old. C. T. B.

Texas.

ANSWER.

Warts come because they come. As the wind bloweth where it listeth, so warts do come because they also list. Touch each wart with butter of antimony, two or three times a day for a while, or alternate this with nitric acid. Don't touch anything but the warts. If any of the warts are prominent, having a neck, strangulate them by tight ligature, until they drop off, then lightly touch as above.

SCROFULA.

My cow has on her right front leg, commencing at the hoof and extending up to her shoulder on the outside, something that looks like a large vein, and there are bunches on it about the size of a hazel nut, two to three inches apart, and I opened two of them and found a lot of yellow pus in them. The cow seems to be healthy, eats good, feeds good, gives a good flow of milk; came in six weeks ago. A SUBSCRIBER.

Baraboo, Wis.

ANSWER.

If there is no known accident as a cause, then the cow is of a scrofulous diathesis. If accident, and the tumors are ready, open them largely, and dress with compound tincture of myrrh and aloes; inject liberally and to the bottom of each tumor.

If scrofula, I would not breed from her, as thus the disease is propagated. A serious thing, and to be avoided as much as possible.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

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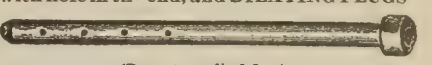
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CURES EVERY TIME. Breeders will save their best cows by having this remedy on hand for instant use. Necessary apparatus, medicine and full directions for treatment of two cases mailed for $2.
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ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
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Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
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(Patent applied for.)
My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
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Will be sent as a premium for
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Premium on Milk.

Patron Gains Thirty-one Per Cent Profit from Babcock Test.

There are two creameries near here which are frequently compared and contrasted. Both are good creameries, and both sell their butter at a premium above the highest quotations. Both paid sixty-five cents per hundred for average May milk.

One of these creameries pays by the test and the other by the hundred. That is, in one milk is tested and the money divided according to the amount of butterfat contained. In the other all milk is paid for alike regardless of richness.

One has a large patronage and the other only a medium patronage. The one with large patronage ought to manufacture more economically than the one with a much smaller quantity of milk, and unquestionably it does. How, then, could the smaller creamery pay the same average price per hundred as the large one? Undoubtedly the test helps out in this. There is no inducement to keep skim milk cows if the milk is tested. The milk at both creameries is good, but where the milk is tested the natural tendency is toward richer milk. One farmer who was a patron of the creamery paying by weight changed farms and delivers his milk to the other paying by test, and he received eighty-five cents per hundred. Had he remained he would have received but sixty-five cents and the other twenty cents belonging to him would have been paid to some fellow with thin milk. Now eighty-five cents is just about thirty-one per cent more than sixty-five cents. As a matter of fact, he received thirty-one per cent more than the average at his own creamery. He was paid a trifle more for ten pounds of his milk than thirteen pounds of average milk brought. His herd is a full blood Jersey herd and the steer calves are no good except for veal. If he wants a steer calf he buys it, and cheaper than he can raise it, taking into consideration the diminished milk value from steer calf cows. There is another side to this. Where milk is not tested, and the cows are crammed with feed the year round and replaced with fresh cows as fast as they are broken down for milk, a big milk and butter fat yield per cow can be secured by careful selection of the cows. But the average cow with average care and the milk hauled to the average creamery gives only average results, and there is nothing to be proud of in average results. The good farmer always beats the average.—*Waverly Republican*, Iowa.

Water Logged Butter.

The Minnesota Dairy Commissioner has seized about forty tubs of the so-called new process butter.

The process does increase the weight, but not of butter. The chemist has found after baffling attempts, what makes it. The increased weight is mostly water. The normal proportion of water in butter is twelve to fifteen per cent. Specimens of this process butter run as high as forty-five to fifty-five per cent in water. The man who buys it is paying for half water.

The chemical that has such an affinity for water is said to be chromate of lead, a substance that is considered far from wholesome. If a man got enough of it to say so it would be poisonous.

The process purports not only to increase the weight but to preserve the butter. It does. The specimens are found to contain boracic acid, which is a perfect preservative, killing all the microbes, even to those that help digestion in a fellow's insides. It isn't good for a man to have his insides embalmed while he is still alive.

The New York dairymen are struggling with some of the same product and have not been able so far to account for the mischief. Of the forty tubs seized in Minnesota, something like twenty are supposed to come from North Dakota. One consignment was stopped in Minneapolis and the commission man, to avoid prosecution, returned it all. Now some of the same butter has turned up in St. Paul. This time it will be destroyed.

The department will try to stop that business entirely. The butter makers, not knowing the nature of the transaction, are hardly to be blamed for being tempted. The Chicago compounders offer for $5 "the secret," and so much for the powder, to increase the yield of butter half as much again and improve the quality. What guileless dairyman would not gladly seize such an opportunity?

Transfers of Guernsey Cattle From August 15 to 31, 1899.

BULLS.

Dom Pedro H. 6142, M. M. & E. J. Hollinsworth to Joseph K. Walton, Taylorsville, Pa.
Duke's Pride 6145, Wm. H. Caldwell to Roger N. Francis, Elmwood, Conn.
Daphne's Son 6187, King Edgar 6188, Imp. Royal Sovereign 6153, Westview Lad 6152, Benjamin Heartz to McMillan & Dawson, Charlottetown, P. E. I.
Duke of Buskirks 6157, J. H. Hunter to King & Pratt, Buskirks, N. Y.
Don Fester 6131, Walter Cutting to John E. Calhoun, Cornwall Bridge, Conn.
En Bon Espoir Jr. 5308, Franklin S. Kendall to Egbert A. Thompson, Alexandria, Va.
El Chatto 5973, C. R. Bridgeman to L. G. Moon, Stanley, Wis.
Edrow of Westbury 6159, Est. J. P. Hiller to E. S. Thomas, Groton, Conn.
Fairlight 2nd's Prince 6170, L. P. Morton to Howard Willets, White Plains, N. Y.
Hillis 6136, P. C. Billings to Charles Mann, Dean's Corners, N. Y.
Ingram 6147, Byron Akin to Robert C. Pruyn, North Creek, N. Y.
Irkson 5964, L. P. Morton to F. W. Tillinghast, Providence, R. I.
Iriston of Ellerslie 6172, L. P. Morton to Smith Knapp, Stanfordville, N. Y.
Ironton of Ellerslie 6171, L. P. Morton to Wm. H. Brown, Maine, N. Y.
Isaac of Ellerslie 5960, L. P. Morton to Wm. Anderson, Mount Lebanon, N. Y.
Jewel of Ellerslie 6164, L. P. Morton to H. A. & A. S. Bartholomew, Whitehall, N. Y.
Lulu's Royal 5959, F. B. Buckley to Morehouse Brothers, Ballston, N. Y.
Mandamon 4716, Howard B. Tuttle to Robert Scoville, Chapinville, Conn.
Main Stay of Belvan Heights 5804, Charles B. Case to H. A. C. Taylor, Newport. R. I.
Mt. Gretna's Excbange 6162, S. C. Heisey to Wm Lindsay & Son, Elizabeth, N. J.
Prince of Chesterbrook 2nd 5807, A. J. Cassatt to C. A. Groff, Chester Valley, Pa.
Prince of Chesterbrook 2nd 5807, Chas. A. Groff to Manly Drennen. Elkton, Md.
Proctor of Sunnyside 6000, C. Hildreth Reeves to M. M. & E. J. Hollingsworth, Landenburg, Pa.
Prince of Genesee 6138, B. F. Nutting to C. P. Gillam, Byron, N. Y.
Quern's Deacon 6137 John E. Loveren to Wm. C Hills, Antrim, N. H.
Quintilla's Son 6144, Washita's Gloria 5690, Louis Cabot to S. C. Heald, Greenville, N. H.
Royal Gypsie 6146. F. B. Buckley to Frank Pratt, North Easton, N. Y.
Sampson of Quinton 6154, John K. Costill to Jonas H. Lounsbury, Salem, N. J.
Stamboul's Son 6155, J. J. Bush to N. E. Smith, Harford Mills, N. Y.
Stella's Deputy 6160, James Boyd to J. P. Welsh, Bloomsburg, Pa.
Sultan of Windermere 6180, Dr. F. E. Green to James Day, Moultonboro, N. H.
Squire of Maple Lawn 6182, Edward Sharpless to Joshua Sharpless, London Grove, Pa.

cows.

Amy S. 5th 11947, Aaron Gay to Joseph Cole, Harmony, R. I.
Anna M. 2nd 10540, Christ Muth to Edward Fullmer, Stratford, Wis.
Annetta of Tilton 4480, Hephzibah 9070, Little Jewel 7517, Petite's Pride 7030, Est. A. H. Colby to Mrs. E. L. Colby, Tilton, N. H.
Imp. Beauty of the Maresquet 9476, Imp. Beauty of the Salines 9468, Imp. Daphne of the Villette 9471, Imp. Dolly of the Vrangue 9475, Golden Wheat Sheaf 11991, Imp. Jessie King 9470, Imp. Jessie of Grandes Capelles 9469, Imp. Lady Lear 9473, Lady Lear's Beauty 11990, Imp. Pretty Dairy Maid of Rose Farm 9474, Imp. Primrose Taylor 9477, Benjamin Heartz to McMillan & Dawson, Charlottetown, P. E. I
Bertha of Genesee 11931, B. F. Nutting to C. P. Gillam, Byron, N. Y.
Crimson Clover of Sunnyside 11672, Endeavor of Sunnyside 11674, Hope of Sunnyside 11954, Katie Did of Sunnyside 11675, Tostevina's Alice 10485, Tostevina's Lillian 11985, C. Hildreth Reeves to M. M. & E. J. Hollingsworth, Landenburg, Pa.
Coe's Pride of Riverside 11946, James Forsyth to Nat Wallis, Fitchburg, Mass.
Dereham's Princess 10239, Wm. Butler & Son to George W. Beebe, Agassiz, B. C.
Daisy G. 11845, Kitty J. 11843, Pina 11618, A. J. Snyder to P. F. Hamilton, Cochranville, Pa.
Duke's Martha 11994, Edward C. Damon to Robert & Herbert Scoville, Chapinville, Conn.
Ewarda 11685, Lolita of Darlington 11606, C. R. Bridgman to L. E. Moon, Stanley, Wis.
Estelle of Riverside 11934, Madam Tully of Riverside 11945, Puff's Cosette 9689, James Forsyth to Gillett & Watkins, Lima, N. Y.
Frida of Riverside 11933, Lynda of Riverside 11932, James Forsyth to Frank Coso, Hallsville, N. Y.
Imp. Fairlight 2nd 8656, L. P. Morton to Howard Willetts, White Plains, N. Y.
Hawarden's Fille des Ruettes 8549, James Forsyth to Chas. Mallory, N. Y.
Hilo of Ellerslie 11597, L. P. Morton to H. A. & A. S. Bartholomew, Whitehall, N. Y.
Idario 11967, L. P. Morton to R. G. Van Valzah, Springfield, Oregon,
Lady Akin 11707, Byron Akin to Frank Pratt, North Easton, N. Y.
Lady Winnipesaukee 11975, Dr. F. E. Greene to Dr. George E. Fuller, Monson, Mass.
Lady Hunt 11941, Darius Hunt to F. B. Buckley, Valley Falls, N. Y.
Lady Hunt 11941, F. B. Buckley to Herrington & Co., Valley Falls, N. Y.
Landenburg's Supreme 10192, Edward Sharpless to Joshua Sharpless, London Grove, Pa,
Lorita 11678, F. W. Davidson to Mrs. J. Wyman Jones, Bolton, Mass.
Miss Dorothy 11929, Wm. D. Halsey to Samuel W. Squires, Water Mill, N. Y.
Orange Rosie, 10290, Royal Maid 10301, F. B. Buckley to Robert C. Pruyn, North Creek, N. Y.
Riverside's Gwendoline 10760, James Forsyth to D. S. Batsford, Locke, N. Y.
Swatara Princess 11956, James Boyd to J. P. Welsh, Bloomsburg, Pa.
Villetts Gem's Rose 11969, L. P. Morton to James B. Councilman, Mount Wilson, Md.

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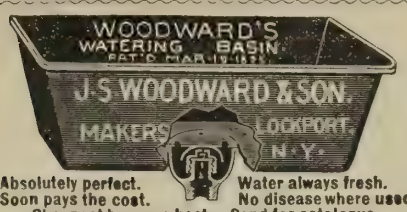
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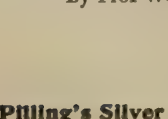
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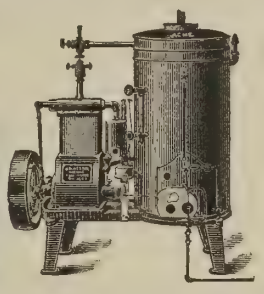


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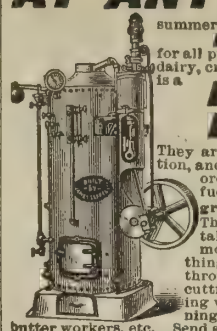
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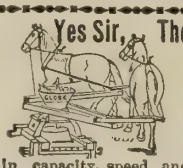
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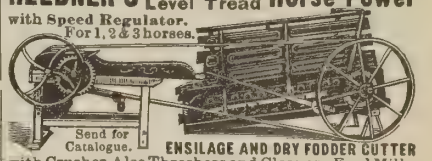
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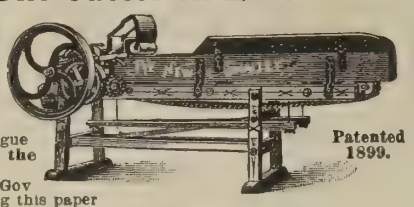
Pilling's Silver Milking Tube, One New Subscriber or **$ 0.40** | **Moore Bros'. Safety Milking Instrument,** Three Subscribers or **$ 1.00**

The NEW Smalley

The Most Up-to-date Silo Cutter on Earth.

SMALLEY CUTTERS For 1899

are more complete than ever before. They will be furnished, if desired, with Patent Automatic Self-Feed, **increasing capacity greatly and diminishing labor of feeding nearly ONE HALF. Four sizes, Nos. 16, 18, 20 and 26.**



Patented 1899.

If your dealer don t handle them. write for 99 Catalogue and get **SPECIAL Introduction PRICES on the SMALLEY LINE COMPLETE.**

"YANKEE SILO SENSE" —our latest Silo booklet, ex-Gov Hoard s Latest Views—mailed free to any one naming this paper

SMALLEY MFG. COMPANY, Sole Makers, MANITOWOC, WIS.

MAKE ONLY SWEET ENSILAGE



Ever since the ensilage system has been introduced in this country it has been the ambition and effort of siloists to ***produce sweet ensilage.*** The making of sweet ensilage depends principally upon two things—***1st.*** the use of a well matured crop and ***2nd.*** upon low fermentation. Granting the maturity of the crop, shredded ensilage makes the sweetest ensilage. The reasons are, that shredded material is of a nature that makes it pack much more closely in the silo. That means exclusion of air; there can be no extreme fermentation and consequent development of acid without the free action of the air. ***Shredded ensilage possesses other advantages in addition to its sweetness:—*** it is eaten with great avidity by animals, being a long, soft substance and free from any sharp angles and corners to cut or lacerate the mouth and gums; it is therefore fed with less waste.

The best way to Shred Ensilage is with the

St. Albans Ensilage and Fodder Shredder.

It is the Original Shredding Machine and all other so-called shredders are merely imitations of this one. ***It will certainly pay you*** to look into the merits of this proposition and machine before buying. We mail free a pamphlet on the subject.

ST. ALBANS FOUNDRY CO., ST. ALBANS, VT.

SAVE THE WHOLE CORN CROP

A corn crop may be profitable without saving the fodder, but **it will be twice as profitable if it is saved.** The new method of handling corn saves the entire crop. The new way is to run all the corn through our

JANNEY COMMON SENSE Corn Husker and Fodder Shredder

There can be on dreaded "corn stalk disease" where fodder is prepared with our machine. You can make a great deal of money husking for neighbors. Costs less than a third as much as a thresher, but makes more money.

Write for Free Catalogue.

It husks out all of the corn clean, and shreds all the fodder at the same time. Makes clean, healthful food, as the patented screen in the feed elevator takes out all the **dust, dirt, smut.** etc.

Go to your nearest dealer and see one.

JANNEY MANFG. CO., Box 29, OTTUMWA, IOWA.



GRIND YOUR GRAIN AT HOME

and save the toll. You have the horses, we have the power and mill. Thousands of the

PEERLESS MILLS

are now in use. They work FAST, FINE, EASY. Make family meal or feed. **Agents Wanted Everywhere.** Circulars, prices, &c., free.

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Feed Cutters

Powers, Grinders, Presses, Shellers, Rollers, Cider Mills, Plows, Buggies, Wagons, Harness and thousands of other articles at factory prices.

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Nine inch knife. $15.10
Ten " " hand 18 40
Ten " " power 21.20

JOHN DORSCH & SONS, 223 Wells St., Milwaukee, Wis.

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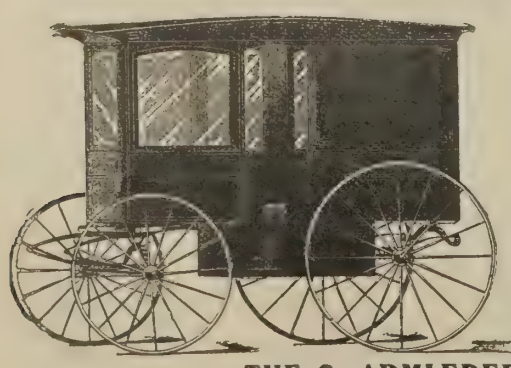
Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES FROM GROUND to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,
Sole Manufacturers.
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A Perfect Milk Wagon

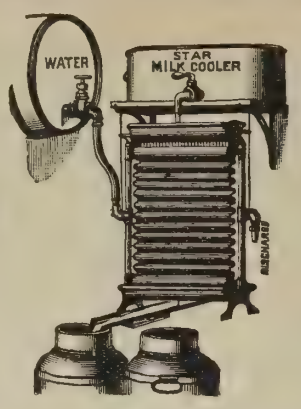


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WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

Write us for our Catalogue, which fully illustrates and describes this wagon and 10 other styles.

THE O. ARMLEDER CO., Cincinnati, Ohio.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

If you would like to know the reason why, send for 1899 Catalogue of Sanitary Dairy Apparatus.

To be had for the asking.

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Is it **CHANCE,** is it **GOOD LUCK,** or is it **MERIT** that has enabled the patrons of

GENESEE SALT

for five years in succession to win the SWEEPSTAKES PREMIUM of the NATIONAL CREAMERY BUTTERMAKERS ASSOCIATION? Certainly they were good buttermakers, but perhaps the Salt had some little to do with the result. The winners were as follows:

In 1895.....F. G. OLTROGGE
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In 1897..... H. N. MILLER
In 1898.....S. HAUGDAHL
In 1899.....R. T. MCCOLL

Study your own interests, use **GENESEE SALT,** and write to our General Western Salesman, Mr. F. A. TRIPP. 34 Clark Street, Chicago. Or address

Yours truly,

THE GENESEE SALT COMPANY, New York.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

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THE NEW BOOK Feeds and Feeding

By Prof. W. A. HENRY,

Wisconsin Experiment Station.

This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00

Four Yearly Subscribers at $1.00 Each ($4) Will Secure It as a Premium.

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Of This Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book.

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., SEPTEMBER 29, 1899. NUMBER 33

University of Ill

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J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
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DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,
Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

From Butter Maker To Producer.

We believe it to be the fact that every butter maker who intends to continue in the creamery business is looking forward to the time when the factory he operates will be his own property. This is a commendable ambition, and we propose making it possible for every live, energetic butter maker who reads this to realize his hopes in a very easy manner. Wouldn't you like to own a flourishing little factory, thoroughly up-to-date in every particular, and doing a nice, profitable business right from the start? We think you would, and if you have the right sort of material in you we will back you up in a plan which will enable you to secure such a factory with practically no investment at all on your part. We want to see the butter makers do well; we want to see them make more money, and we know the plan we have in mind will bring this about in less time than any other legitimate proposition which will be submitted to them. Being manufacturers we can offer exceptional inducements to our customers as well as to those about to engage in the creamery business. We want to hear from you and to make you prices on our line of

Cream Separators,	Combined Churns and	Boilers and Engines,
Milk Testers,	Butter Workers,	Milk Cans,
Churns,	Milk Vats,	Cream Carriers,
Butter Workers,	Cream Vats,	Pumps, Pipe,

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The Sharples Company,
Canal & Washington Sts., - CHICAGO, ILL.

The Tubular -- East and West

As an evidenee of what a perfect separator will do under widely varying natural conditions, we publish here two letters from users who are at opposite ends of the country. The reader will observe that there was but a few days difference between the dates of these reports, but there was a wide difference in conditions. In one instance the most vigorous of winter conditions pertained, while in the other case February was practically summer. Notwithstanding these wide differences, the results were in each case practically the same. Could there be any better evidence of the superiority of the Tubular Separator than these voluntary endorsements? These are but a few of the many cases of a similar kind where the variations in conditions are greater even than these.



ENON VALLEY, Pa., Feb. 17, 1899.
Dear Sir: Am well satisfied with the Tubular Machine, she runs steadily and smoothly. I think she is very well constructed. We receive at the present time 3500 lbs. of milk daily, run it through the Tubular machine in ninety (90) minutes, use forty-five (45) lbs. of steam, revolutions 23,000. Skim milk test from new milk, .002; milk 12 hours old, .004: cream test from 30 to 35 per cent; cream in good condition. If you wish my opinion any time later on, I will be glad to answer any questions.
Yours truly,
CHRISTIAN RUCHTI.

NICARIO, CAL., Feb. 5, 1899,
Dear Sir: Everything is running nicely now, Tubular is doing daisy work. I have been skimming right along at .025 to .03 since you left. Revolutions 22,000, temp. 78 degrees Fahr., capacity 2800 to 3,000 lbs per hour. If any one wants a recommendation of the Tubular I am with you. I like it better every day. It takes me just ten minutes to clean it up, and it is done nicely too.
Yours truly,
A. J. COMPTON.

Sharples Tubular Separators earn such encomiums of praise wherever they are in use. In addition to its large capacity, ability as a close skimmer, being easy to clean, etc., remember that—It is a safe machine—absolutely "burst proof." It has large actual and reserve capacity. It is economical in power, oil and repairs. It makes the smoothest and most churnable cream. It increases the yield of butter and makes better butter. It is built on honor and sold on its merits. Read, meditate, and then

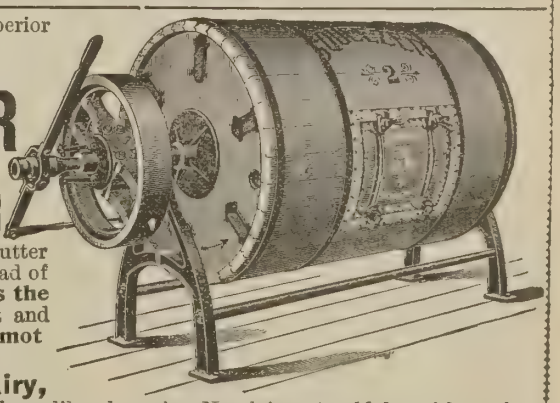
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BRANCHES—Toledo, Ohio. Omaha, Neb.
Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.



ALDERNEY BUTTER COLOR
Gives Natural June Tint. Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

The Machine that will Build a Butter Trade.
Because it will make a superior quality of butter.
THE **SQUEEZER** COMBINED **CHURN AND WORKER**
squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is



Made for the Dairy,
and is easily operated and readily cleaned. No dairy should be without it.
Will do Exhaustive Churning at any Temperature.
We are prepared to repair all cream separators and employ highly skilled men for this work.
Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

DISBROW



The Original Combined Churn and Butter Worker.

Churns and works the butter on the only true principle. Brings the butter to the working rollers no faster than the rollers can take care of it without rubbing the butter. No solid BALL of butter comes in contact with the rolls to be scraped to pieces by the rolls and made salvy. It is the only combined machine in which butter has been made that scored 100 points.

The manufacturers have never made any claims for it that were not fully proven by actual tests of the machine.

The Disbrow tells its own story and a fair trial is all that is needed to prove its merits.

OWATONNA MFG. CO.,

SOLE MANUFACTURERS. *OWATONNA, MINN.*

Creamery Package Mfg. Co.,

GENERAL SALES AGENTS,

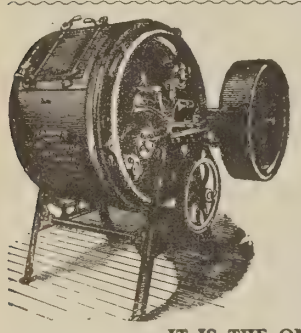
BRANCH HOUSES:— Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

THE DAIRY "VICTOR" Churn.



This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN, Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

TRY A TRIAL | **Only 15 Cents.**

The **MICHIGAN FARMER** will be sent EVERY WEEK to January 1st for only 15 cents. It is a large 20-page native Farm, Stock and Home Journal. Is liberally illustrated and **TELLS HOW TO MAKE THE FARM PAY.** This low offer is made to introduce the paper to new readers and will positively stop Jan'y 1st, unless renewed. CASH PRIZES ARE OFFERED TO SUBSCRIBERS for short practical articles. Address,

MICHIGAN FARMER, DETROIT, MICH.

Dairymen, when Visiting the State Fairs,

BE SURE AND LOOK UP OUR EXHIBIT.

There you will find our representatives who will be pleased to show you

The Improved U. S. Separator

and explain its many points of excellence. Be sure and investigate its merits before purchasing any other make. It is fast being recognized as the best for every day use.



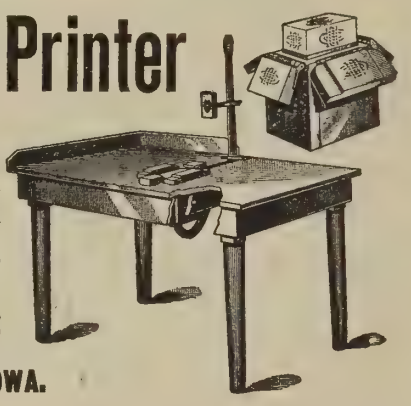
The U. S. the Queen of Separators.

MIDDLEBURGH, N. Y., August 10, 1899.
About a year ago I desired to purchase a separator, and naturally I examined very thoroughly the different ones advertised. Becoming convinced that the Improved U. S. was the best, I accordingly purchased one, and a full trial for over a year has proven the wisdom of my choice. It is the most perfect in construction, skims perfectly clean, runs so easily that a child can operate it, and, in fact, is the acme of perfection. It is the queen of separators, and it affords me great pleasure to forward this unsolicited testimonial.
J. E. YOUNG.

Should you be unable to attend your Fair or fail to find our exhibit, drop us a postal to that effect and we will send you our latest illustrated pamphlets.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

Self Gauging "All Over" Printer



The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.

The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

making it a most desirable printer for large dairies or creameries. Write us at once for descriptive circular and price list.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

Worcester Salt

Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

The GENESEE SALT COMPANY,

Through their **EDUCATIONAL CHEESE CONTEST** held in Chicago in October, will distribute to cheese makers who are regular users of Genesee Factory Filled Cheese Salt, **$150.00** as follows:

CLASS 1—American Cheddars and Flats.
1st $20.00
2nd 10.00

CLASS 2—Twins and Young Americas.
1st $20.00
2nd 10.00

CLASS 3—Edam, Pineapple and all Spec'l Shapes.
1st $15.00
2nd 5.00

CLASS 4—Brick and Block (Domestic.)
1st $10.00
2nd 5.00

CLASS 5—Swiss (Domestic.)
1st $10.00
2nd 5.00

CLASS 6—Best Box of Limburger, Brie, Club or other Fancy Cheese.
1st $10.00

Write to F. A. TRIPP, 34 Clark St., Chicago, for ENTRY BLANKS, or

THE GENESEE SALT COMPANY, New York.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

A COUPLE OF WISCONSIN JERSEYS.

The illustrations on this page are of a Jersey bull and cow owned at Footville, Wisconsin, and whether regard be had to their form or their breeding, they are worthy to stand in any company.

Toltec's Signal would not score very high by any "official" scale of points. He does not have a level back, a masculine head or well developed thighs, but is in fact a "cowy" bull in every aspect, and it is no surprise to us to read that he already has five daughters with records above fifteen pounds of butter in seven days—one with first calf reaching fifteen pounds, three and one-half ounces, and one with second calf, eighteen pounds, four ounces. He gets this form and potency from his sire Toltec, a son of the great Tormentor and the greater Oonan, and his dam, Signalda's Rosebud, a grand-daughter of the imperial Signal. He is a good illustration of the maxim that blood will tell.

The cow is a Wisconsin product, bred by Gen. George E. Bryant, of Madison, one of the earliest Jersey breeders in this state. She has a record of 17 lbs., 8 oz., and two daughters in the 14-lb. list. Through her sire she traces to Gold Basis, Gilderoy, and old Noble, names that appear very frequently in the pedigrees of famous cows; her dam was the daughter of Omaha, a half-brother of Oonan, and a bull that for the advantages offered him ranks second to no Jersey sire in America. Nobody could make the mistake of judging her to be other than a great cow. In the hands of some breeder who would dare to feed her to the limit of her great capacity there is no question but what she could exceed twenty pounds in seven days, and this comes very near reaching the limit.



TOLTECS SIGNAL, A. J. C. C., 29501.
Property of J. F. EGERTON, Footville, Wis.



BABY RYAN, A. J. C. C., 42139.
Property of J. F. EGERTON, Footville, Wis.

New York Farm and Dairy Notes.

Observations at the Fairs.

ED. HOARD'S DAIRYMAN:—I have attended several fairs in my vicinity, and some notes taken on the live stock and dairy implements may have some interest for your readers. If I may be allowed to first digress from strictly dairy matters, I wish to tell something about the attractions at some of the fairs which I have attended. I have attended only one fair which was strictly an agricultural fair. The others were run on the "circus plan," i. e., attractions were provided to draw the crows which had but little interest in agricultural matters.

It is a fact that the fairs where the vulgar side-show, the fakir, and the gambler, were a part of the attractions, drew the largest crowds, and I suppose from a financial standpoint were the greatest successes. When attending these fairs, I cannot help but feel that there are other considerations than the financial, i. e., the educational and moral value which they have for the people. How often have I seen the hired man who works hard on the farm for fifteen or twenty dollars a month spend a month's wages in one day at the fairs. He was tempted to try his skill in some game of chance with a gambler or sharper, with the result that he lost his money.

Besides the professional gamblers, there are many other catch-penny affairs on most fair grounds. It certainly does not encourage economy and habits of saving, to tempt the farmer's boy to throw away the hard-earned money in this way. Of course we want our young people to have a good time and to enjoy a holiday which will give them pleasant recreation and a change from the monotony of farm work, but there is a better way to have a good time than to patronize the gamblers, and the often obscene side shows. In many of these shows the indecency which is witnessed is demoralizing in its influence.

An attraction at one of the fairs this year consisted in erecting a platform thirty feet high over a large tank of water. Horses and other animals were taken to the top of the platform, and forced to jump down into the water. Some of the poor creatures were trembling with fear when they were shoved off the platform into the water, and yet this drew a large crowd all the time and the performers were paid by the fair managers for this performance, and it was widely advertised by them as the great attraction of the fair. Such performances are not congenial to the feeling of cultured, refined and sympathetic people, and they do not draw the class which we desire to see at the fairs.

To say that the fair managers are responsible for the demoralizing influences of these kind of attractions, in that they have deliberately planned them, fully realizing all the evil which may follow, I think is preferring too grave a charge against them. More often, I think, it is because they have not given the matter due consideration, and they have to solve the problem of making the fair a financial success. I think it is a fact, and I know it is true in my locality, that the fairs which have sought for, and sold privileges to these questionable attractions, have not in the end been successful.

I have in mind one fair which for two or three years was run on the "circus plan" which has been discontinued for lack of support. The best people became so disgusted with it that they withdrew their patronage. Another fair which has acquired the reputation of being a "clean fair," and which has become noted for its fine cattle, and the excellency of its exhibits, has the patronage of the best people in its vicinity, and it has been maintained for many years, and there has never been a trouble in regard to its finances.

I think it is the better way for the managers of fairs to cut down the expenses, and the premiums if necessary, until they can be supported, if conducted as purely agricultural fairs, whose purpose it is to educate people along agricultural lines. Let amusements and recreations which have no demoralizing influence be provided. The fairs should be a school for our people, and the amusements should be good music, addresses, athletic exercises, and games, etc. Let the best people in the country demand this, and then we shall get what the fair managers believe the people want.

NOTES ON DAIRY CATTLE.

I have only a little space left for my notes on the types of dairy cows which I saw at the fairs. As most of my readers know, a good place to see the best types of well-bred Jerseys, Guernseys, Ayrshires, Devons, Holsteins, etc., is at a Delaware Co. fair. One Jersey cow was so perfect a type of the breed that I was led to ask the owner some questions. He told me that she was ten years old, and that she had not been dry for eight years. When fresh in milk, with only ordinary feed and care, she easily makes two and one-half pounds of butter per day. This cow was perfectly marked, having the dairy form, the notched backbone, the very large and crooked milk veins, the yellow ears, and long, slim tail. That the owner valued this cow for breeding purposes was evident, for beside her were three or four generations of her progeny, all nearly as perfect as the mother, and all having a milk record nearly equal to hers.

In another stall was a cow of a different type from the little Jersey. This was a Holstein cow which was giving 120 pounds of milk per day. She was a very large cow, probably weighing twice as much as the Jersey mentioned. I presume the milk from this Holstein contained no more butter fat than did the quantity of milk which the Jersey was giving, but she required twice as much food to keep her. Each of these cows was adapted to a special purpose, one the milk seller and cheese maker, and one to the butter maker. Passing along we come to the Ayrshire, the cow which is adapted to picking her living on the rough hillside pasture, where the large Holstein could hardly live, and few breeds have more good qualities. We saw some very fine types of this very handsome breed, the Devons, and I think this one of the reasons why they are still retained in the dairy herd. We also find the Herefords, Galloways, and other noted breeds well represented. W. J.

Delaware Co., N. Y.

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Coming Events.

Georgia Dairymen's Association, Grantville, Ga., Oct. 12, 13, 1899.

Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.

New York State Dairymen's Association, Cortland, N. Y., Dec. 13-15, 1899.

THE GEORGIA DAIRY MEETING.

The Georgia Dairymen's Association is among the youngest of similar organizations in the country, but it is taking hold of the work of dairy education in that state in a vigorous and commendable manner. The coming sixth annual meeting of the Association will be held at Grantville, October 12th and 13th, at which prizes, to the amount of $500, will be offered for the best exhibits of dairy cattle and their products. A very interesting program has also been prepared. The editor of the DAIRYMAN acknowledges the receipt of an invitation to attend the meeting, but engagements in another direction will prevent our acceptance. We are certain, however, that the Georgia dairymen will have a meeting that will prove of great value to their state in the future of its growing dairy interest.

"MINARETS."

Our good friend, Col. Hardin, of Kentucky, makes himself merry in illustrating the old adage that "where ignorance is bliss 'tis folly to be wise"; writing in the *Jersey Bulletin* about the pictures of cows, he refers to a cut of four cows from the herd of Mr. C. A. Sweet, of Buffalo—and we may say in passing, the fact that a cow is in that herd is something more than *prima facie* evidence that she is an excellent cow—and says: "One striking feature of those superb cows condemns them utterly; there are no "minarets" in sight. The pelvic arch "contingent would send all four of them, bag and baggage, to the butcher and turn their butter-saturated carcasses into oleomargarine."

This may be fine writing and well suited to the place where it appears, but it is simply sheer nonesense. A "butter saturated carcass" goes several steps beyond the practice said to be not wholly unknown of injecting cream or pure butter fat into a cow's udder in order to increase her apparent yield, and we are fully persuaded that saturation is unknown in Mr. Sweet's herd.

But quite apart from the colonel's loose writing, we have to say that the "minarets," he so loftily condemns, are very apparent in the picture to which he alludes, and most prominent on the cows with the largest records.

Evidently Col. Hardin would not know a pelvic arch if he saw it.

BAD JUDGING OF JERSEYS IN ENGLAND.

It is evident that the leaven of better and more legitimate ideas of the form of a dairy cow, is working in England as well as the United States. In the London *Live Stock Journal* of July 21st, a correspondent over the signature of "Veritas," complains bitterly of the lack of judgment and dairy like comprehension, which characterized the judging of Jersey bulls at the Royal Show. Particularly does this correspondent comment on the un-Jersey like idea of a "level back," which seems to have corrupted the ideas of the judges. On this point he says:

"Judges have exhibited a want of knowledge of what points a Jersey bull should possess. They appear to have been influenced almost entirely by a "level back," wholly ignoring all the leading points that go to make a Jersey bull which one would wish to breed from. Such important points as "touch," "fineness of bone," "absence of throatiness," "a fine shoulder," "a deep barrel," etc., have been ignored, with the result that coarse, throaty, thick-shouldered, but level-backed, animals have carried away the principal honors."

This "level-back" idea was never a point in dairy conformation. It has crept into the scale of points of all the dairy breeds and is a survival of the old Short-horn type of an animal. Probably the men who placed it in the scale did so because they did not know what else to say about the top line of a dairy animal. Whereas, if they had been close students of the best specimens of their respective breeds, such cows as have given fame and reputation through their performance, they would have seen that not one grand cow in a hundred has a "level back," or a "straight back from the head to the setting on of the tail."

Plain, substantial, common sense, and close, practical observation have not been allowed to have their way in the making of these scales of points for the various dairy breeds.

There ought to be a speedy reformation in this respect and an overhauling of these scales, in order that judgment may be based on the conformation that is the outgrowth of dairy functions, not flesh making.

Not one good judge of a dairy cow in a thousand would dare to buy a cow, with his own money, as a dairy performer, on the lines of judgment laid down in these respective breed scales. When it comes to the judging of bulls the case is still worse. Artificial and unreal notions of what the bull is for, the object of his existence, are allowed to have sway. As we said before, this all comes from the Short-horn, or "general-purpose" ideas, which for so many years governed the ideas of men in regard to dairy cattle.

A CHEESEMAKER'S TESTIMONY.

There so is much skepticism among the average patrons of cheese factories and creameries relative to the practical value to them of a paper like HOARD'S DAIRYMAN, that we are tempted hundreds of times to print some of the strong testimony we receive on that question. We know from a very wide experience that it cannot help but pay any man who keeps cows with a hope of profit, to be a reader of sound dairy literature. We have never seen an instance among thousands, when it did not pay. But cheese factory patrons in particular are hard to interest in their own improvement. As one man said to a neighbor not a great while ago: "I don't see what you want to take HOARD'S DAIRYMAN for, and besides you buy books. Don't you know enough to keep cows and make milk? I don't need anything of that kind to run my dairy with." His neighbor took a good way to answer him. He said: "See here, you have thirty cows. How much milk did you take to the cheese factory this morning?

The first man hung his head a little and finally said, "I believe it was three hundred pounds."

"Well," replied the second man, "I have twenty cows and they have been milked most of them six months, and my receipts this morning were four hundred pounds. Your thirty cows gave ten pounds a piece and my twenty cows gave twenty pounds a piece. That difference of ten pounds per cow I got by reading HOARD'S DAIRYMAN and good books on dairy farming. I get one hundred pounds more milk than you do with ten less cows, and yet you cannot see why I take and read a paper like the DAIRYMAN."

The other day Mr. De Lap, who runs an excellent cheese factory at Medford, Wis., wrote us to say that he would be very glad to help spread the circulation of the DAIRYMAN as it had benefited a number of his patrons very much. As he expresses it; "Now I can talk with these men interestingly on dairy subjects for they are posted, and today one of them told me he was going to buy bran and oil meal for his cows."

It is worth just as much to me as it is to him. Long live HOARD'S DAIRYMAN."

There is the point. A larger understanding of dairy subjects helps both the patron and the factory man. When cheese factory patrons come to understand where the most money lies in their end of the business, they will see that it pays to read a good dairy paper.

A NEW SCHEME FOR CHECKING OLEOMARGARINE.

The Chicago papers report that the Illinois Dairy Union is considering the plan of having retailers put a descriptive and duly copyrighted label on all packages of genuine butter sold by them. No particular brand or grade of butter is to be advertised, the only requirement being that it shall be genuine butter. Poor butter advertises itself, and the label will simply guarantee purity. Of course, no dealer will dare to put such a label on oleomargarine or any other kind of counterfeit butter and the absence of the label will therefore be presumptive evidence that the article is spurious.

It is proposed to have wholesalers and commission men furnish these labels to their customers. The expense will be trifling, probably not more than twenty cents per thousand. It is also proposed to have the labels and their uses freely advertised.

Such a scheme would seem to be not unworthy of trial, but we predict that the oleomargarine promoters would very soon put out something which will be so nearly like these butter labels that only a close examination would detect the difference. The sale of oleomargarine in any considerable amount is possible only by resorting to deception and fraud, and when any set of men commence to cheat and lie they are very apt to keep at it, until they find themselves face to face with prison doors.

A Tasmania Letter and Feeding Inquiry.

ED. HOARD'S DAIRYMAN:—We thank you for your reply to our favor of May 8th, last, and regret the bull was not available, but the distance, we fear, will prevent us dealing in your territory.

One of our clients asks us to obtain, through your valuable paper, a balanced ration from the following products: Greenstuffs at 10s per ton; pea meal at 3s., 3d. per bushel of 60 pounds; pollard at 3£., 15s. per ton; sharps at 4£ per ton; oaten hay at 2£. per ton; cocoanut oil cake at 8s. per cwt.; molasses at 3s., 6d. per cwt.; root crops at 15s. per ton. These with butter bringing in the local market 1s., 2d. per pound.

We may say your paper is read in this far distant (from you) colony with great relish. I give my paper to a Mr. Page, of Ranelagh, who is a keen dairyman, and from him it goes round his district. This will, no doubt, hardly please you from a financial standpoint, but it shows how a good thing is appreciated. Wishing you every success.

Tasmania. MURDOCK BROS.

For the benefit of home readers we may mention that in Tasmania as in England, the hundred weight is 112 pounds, and the ton 2,240 pounds; and that pollard and sharps are other names, respectively, for bran and middlings. It is usual, also, to reckon the pound sterling as equivalent to five dollars in United States currency, although its exact interchangeable equivalent is only $4.87.

Replying to the inquiry, we have to say that without more definite information as to the character of the "green stuff," we cannot submit a complete formula any more than we can when pasturage is relied upon to furnish a part of the daily allowance. In this country the pea meal would be considered the cheapest of the feeds named, but as that is specially deficient in ether extract, (fat) the cocoanut meal, which is rich in fat, although costing nearly $40 per ton, comes in as an excellent supplement. There is not much to choose between the pollard and sharps, so far as value is concerned, but the pea meal and the cocoanut meal are very concentrated feeds, and therefore our choice falls upon the pollard to go with them.

Assuming, therefore, that the "green stuff" is not expected to form the greater part of the ration, we suggest for trial the following daily allowance as an average for each animal in the herd, where it is to be expected that some cows will require more than this, and others less:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
15 lbs. oat hay.....	13.66	.65	6.96	.23
3 lbs. pea meal.....	2.69	.50	1.55	.02
4 lbs. pollard.....	3.52	.50	1.54	.12
2 lbs. cocoanut meal	1.79	.31	.77	.21
Totals.....	21.66	1.96	10.82	.58

There should be added to the above enough material from some source to bring the digestible protein to not less than two and one fourth pounds, and it is quite probable the green stuff and the roots will supply this deficiency.

We have had no experience in this country in feeding molasses to dairy cattle. It might be practicable to add one pound to two pounds to the grain for cows, but if done at all, it should be only in a tentative and limited way at first. Neither molasses nor the cocoanut meal should be fed to bulls kept for service.

We beg to add, partly by the way of justification, in the event that the foregoing suggestions should not prove suited to the conditions existing in far off Tasmania, where they may be so unlike those existing here, that we do not believe in, or advocate feeding by set rules, and in unvarying amounts and combinations. Rather than this, our constant advice is to have the feeder govern himself by the results.

In the present state of knowledge on the subject, the most important matter seems to be to supply the cow with digestible protein We place the minimum at two pounds, and this should be increased, somewhat, in proportion to the ability of the cow to responc in milk. With some cows three pounds would not be too much. After making sure that the cow is receiving sufficient protein, her own appetite is the best measure of the amount of feed required. Give all she will eat, and encourage her to eat as much as

possible. To this end, as well as to aid digestion, let her have a daily allowance of salt—a large tablespoonful is none too much.

We thank the Messrs. Murdock for the kindly mention they make of our efforts to serve our fellow dairymen. Money returns for our labor are by no means undesirable, but these, unaccompanied with assurance that we were returning full value, would not be quite satisfactory. It is far more pleasing to us to know that a single paper is read by a half dozen persons, than it would be to know that a half dozen papers could not find a single reader.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—No butter was offered for sale on Monday's Board of Trade although a bid of 23 cents was made on any lots that might be placed. The quotation committee announced the market firm at 22½ cents.

The sales for the corresponding week of the three preceding years, were as follows:

Sept. 26, '98, 17,100 pounds of butter sold at 20c.
Sept. 27, '97, 5,220 pounds of butter sold at 22c.
Sept. 28, '96, 63,960 pounds of butter sold at 15½c.

The New York market was reported firm at 23 cents. H. C. B.

Elgin, Ill., Sept. 25.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

QUAKER DAIRY FOOD.

Concerning this article an Illinois "Cow Feeder" writes:

Quaker dairy food is a feed made at Cedar Rapids, Iowa, and, perhaps elsewhere, by the American Cereal Co. I would like to see its analysis in your paper. It looks to me like oat hulls, oat clippings and such like refuse, and yet it sells at $12 per ton. It is claimed to be pure oats and some wheat, and of course the "best feed going."

The analysis will come from some of our Experiment Stations in due time. While waiting for that, the facts obtained by dairymen who have fed it will be as welcome as timely.

A FLORIDA RATION.

Kindly give me the best ration out of the following feeds for Jersey cows, ranging in weight from six hundred to one thousand pounds, viz.: Shipped timothy hay, $20 per ton; native crab grass hay, $10; rice bran, $10; wheat bran, $20; cotton seed meal, $20. Would it help the flow of milk any to add to the above ground corn and cob meal? Price of corn, fifty cents per bushel.

Gainesville, Fla. S. L. C.

We should feed neither timothy nor wheat bran at the prices named, but mix rice bran with cotton seed meal, in the proportion of four parts of the former to one part of the latter, both by weight, and feed from six to twelve pounds of this mixture daily and all the native crab grass hay each cow will eat.

FEEDING VALUE OF HUNGARIAN HAY.

What is the value of well cured Hungarian hay, as feed for milch cows? Also what amount would be safe to feed one cow of 1,200 pounds. J. W. H.

Fairfax, Iowa.

We have an impression that a question similar to this was answered not long ago, by saying that Hungarian (or millet) hay ranked about midway in feeding value between clover and timothy hays. The figures for the digestible nutrients in these feed stuffs are as follows:

	Clover hay.	Timothy hay.	Hungarian hay.
Protein	6.8	2.8	4.5
Carbohydrates	35.8	43.4	51.7
Ether extract (fat)	1.7	1.4	1.3

If Hungarian grass is cut early, before the seed forms, and well cured, it makes excellent hay and may be fed *ad libitum*. But if it is allowed to stand until the seed has become even partially matured, much of the virtue of the stalk has gone into the grain, and the latter is so small and hard that neither cow nor horse can masticate it. The result is that not only is a very considerable portion of the nutrients undigested, but the unbroken seeds are liable to lead to irritation and inflammation in the digestive tract. It is claimed also that Hungarian hay when considerably ripened, has a deleterious effect upon the kidneys.

It follows, therefore, that the amount that can be safely fed to a cow will depend upon circumstances.

SILAGE FROM DRY CORN.

Will corn that has been shocked up and well cured make good silage? If so, does it want putting in the same as green corn? I have heard that it wants wetting in the silo; if this is so, how much water should be used? J. H. L.

New York.

A somewhat similar inquiry was answered last week, in a way tending to discourage such practices. We have it from good authority, that a fair quality of silage can be had from well cured corn, but we fail to see any particular gain in so doing.

If the corn is now well cured, we would hold it in this condition and run it through a shredder, or else cut it up pretty fine, dampen sufficiently and leave it in a pile to heat up and soften. It will keep in this condition for several days in winter, and makes a very palatable food.

The same inquirer asks for the capacity of a round silo, twelve feet in diameter and twenty feet high. Such a silo, if well filled, so as to contain, say, eighteen feet in depth of settled silage, will hold not far from thirty-five tons.

AN INDIANA RATION.

What am I to feed at the most profit? My contract price is eighteen cents per pound for butter the whole of the year.

Bran and middlings, mixed as they are in the wheat grain, cost me $12 per ton; oats 19 cents; add grinding, oats cost 23 cents, per bushel; ground oil cake, $30 per ton; clover hay, $6 per ton. Corn, net price 30 cents per bushel. I have no price on gluten feed or cotton seed meal, so if you can figure anything in a ration that I do not have, I am ready to buy it.

The serious dry weather has given feed a boom. How I long for the day to come when I can have a silo the only way for a dairy farmer. I. R.

Treaty, Ind.

We suggest for trial as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. bran, etc.	1.76	.25	1.00	.06
2 lbs. gluten meal	1.84	.41	.97	.09
Total	24.10	11.65	2.28	.63

See advertisements for dealers in gluten feeds, and write for prices. If the corn and cob meal is not available, substitute three pounds of ground corn (corn chop).

FREEZING IN SILOS.

Wm. Bunte, who lives in Taylor county, Wisconsin, has only four cows at present, but we venture the prediction that in less than ten years he will be far ahead of many farmers who now have four times as many cows, and other things in proportion. He has learned that there is a difference in cows and he does not propose to keep or to raise cows that will not pay him a profit. To aid him in obtaining knowledge of the cows to keep, he has a Babcock tester, and the result is that of one of the four cows, he writes: "I send her next month to the butcher; test is too low." He has been using a grade Jersey bull, and the cows to be kept are his get. This grade has done so well, that he is encouraged to buy a full blood, and has dealt with Mr. H. C. Taylor, of Orfordville, getting, of course, something in the Brown Bessie and Merry Maiden line. We surmise the animal is not yet a year old, for he asks about the amount of service that can safely be had from yearlings and older. There is no reason why a well-grown bull may not safely serve ten to fifteen cows before he is two years old, provided they do not come too much in a bunch—never more than one service in ten days. After reaching two years, double this amount of use may be had.

Mr. Bunte also asks about the freezing of the contents of a stave silo. Those who have used this style of silo claim that the frost does not penetrate very far, and that no injury results to the silage.

Write to Prof. E. H. Farrington, Madison, Wis., about having a sample of milk tested at the Dairy School.

POWERS FOR FARM PURPOSES.

S. G. T., of Suldal, Wisconsin, requests us to submit the following question to the readers of HOARD'S DAIRYMAN in order that he may obtain the ideas of practical men in regard thereto. He is keeping from eighteen to twenty cows, and asks which would be the most practical light machine for running a feed cutter and farm separator; a steam engine, gasoline engine or tread power? He also asks whether a two-horse tread power would be too heavy to run a separator.

We are very glad to refer this question to our readers and thereby avoid, in some measure, entire responsibility for specific reply, as well as to give them who will consider it, a chance to realize how difficult (if not impossible) it is to answer such inquires satisfactorily. There are many who can most truthfully say they have found the tread-power quite satisfactory; others who can give similar testimony in regard to steam engines—especially such as use coal oil for fuel; and others, few in number as yet, who think the gasoline engine about as near practical perfection as can be expected. But all this does not answer the specific inquiry as to which is the most practical.

All the same, testimony along these lines will be valuable just as the illustrations in this issue of various cow ties and stalls are valuable, and we shall welcome communications setting forth the practical results which have been obtained.

PRICE FOR MANUFACTURING BUTTER FROM SEPARATED CREAM.

The same inquirer also asks what price is generally charged at creameries for making butter where the cream is skimmed at home.

This will depend upon the amount of cream furnished. Where only here and there a patron sends cream, with the great majority sending milk, the creamery cannot afford to make any reduction as the bother of handling small lots will fully offset the gain. If enough cream was supplied to make it possible to get along with one less separator, one might expect some abatement in the charge.

The writer has used a separator on his farm for years, but pays the same price for making the butter as his neighbors and finds his profit in the improved quality of the skim milk and less expense for hauling.

CALF SCOURS.

What is a good remedy for scours in calves that are from four to eight weeks old?

Cazenovia, N. Y. J. H. S.

Look after the feed, as there is probably something wrong there either in quality or quantity. Indigestion is the most prolific cause of scours, and indigestion is almost always caused by improper feed.

In connection with attention to the feeding, try one of the following remedies:

1. Pulverized charcoal made into a rather firm paste by mixing with molasses; a tablespoonful three times a day, or oftener in bad cases.

In the absence of medicinally prepared charcoal, take any wood coal, pulverize as fine as possible and sift through a coarse cloth or fine seive.

This is also an excellent household remedy for stomach and bowel trouble of any kind.

2. Equal parts tincture of opium, rhubarb, cayenne, essence of peppermint and spirits of camphor; a teaspoonful in a little warm milk three times a day. This is substantially the recipe given by Dr. Squibb, of N. Y., in 1866, as a cholera preventive and diarrhœa cure.

COTTON SEED HULLS AND CLOVER HAY.

Clover hay is worth $14 per ton, cotton seed hulls $4.50 or $5. Can I profitably use some cotton seed hulls in rations for my cows? W. G. S.

Norfolk, Va.

Something will depend upon the other feeds available and their cost. We submit two formulas which will illustrate this and possibly furnish a basis for W. G. S. to draw conclusions from:

NO. 1.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
8 lbs. hulls	7.21	.03	2.65	.14
4 lbs. corn	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals	24.60	2.27	10.78	.78

NO. 2.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
3 lbs. corn	2.67	.24	2.00	.13
3 lbs. bran	2.64	.38	1.16	.09
1 lb. cotton seed meal	.92	.37	.17	.09
Totals	23.17	2.35	10.49	.65

A CALIFORNIA RATION.

Will you please make up a balanced ration for me out of good corn silage, bran, corn meal and good alfalfa hay. A. C. S.

Los Angeles, Cal.

The above presents a combination of feed stuffs not often found, but we believe it will be found to be almost ideal, and we beseech A. C. S. to do some experimenting in order to determine what selections to make and the best proportions to use. We would like to see some of this alfalfa hay finely chaffed and mixed with the silage, equal parts by weight, or again two parts silage to one part chaffed hay and then ground corn mixed with this mixture in such proportion as to allow each cow about eight pounds of corn daily, and all the alfalfa and silage each will eat. In contrast with this, feed the silage and alfalfa (none of it chaffed) separately, using the same amount of corn and mixing it with the silage for feeding. For a third experiment feed the silage and alfalfa as above, but mix bran with the ground corn, equal parts by weight.

Weigh and test the milk each day and keep up each feeding trial not less than ten days and report the results for publication in HOARD'S DAIRYMAN.

The following formula shows our estimate of the probable average amounts that each cow will probably require:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
13 lbs. alfalfa hay	11.91	1.43	5.15	.16
8 lbs. corn	7.12	.63	5.34	.34
Totals	24.31	2.32	13.29	.64

If half bran and half corn was used the figures would be as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Silage and hay as above	17.19	1.69	7.95	.30
4 lbs. corn	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	24.27	2.51	12.16	.59

CRIMSON CLOVER QUESTIONS.

In accordance with the article on Crimson Clover, on page 598, would like to ask if you think it is too late now to sow it in this climate, also will it thrive if sown in the spring?

Decatur, Ill. F. C. B.

See article on crimson clover on page 631 of the DAIRYMAN.

INFORMATION WANTED.

It is impossible to get too much information regarding the breeding and testing of the dairy cow. Every year brings a new lot of dairymen, and, also, a new crop of calves, which should be fed, milked and bred in a manner to give the largest returns. In many cases the returns will be satisfactory; others, through want of the right kind of knowledge, have not made the success which they anticipated. From both classes much valuable information can be derived; to know where and how one has failed is as valuable, as to know why another was successful. We shall be glad, therefore, if a number of the readers of the DAIRYMAN, and the larger the better, would send us answers to the following questions, taking care to give their failures as well as successes:

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions. Do not worry about the style or grammar of your statement. Answer each question by number, and state your experience.

A FOOLISH MILK ORDINANCE.

The rules and regulations formulated by city boards of health for the regulation of the milk supply of cities, frequently contain regulations which could only be made through complete ignorance of a practical knowledge of the dairy and dairy work. The following is a good example of such a foolish regulation, passed by the Board of Health, of Rochester, N. Y.

Section 3.—No person, firm or corporation, shall have in his or its possession for sale, or shall offer for sale in the city of Rochester, any unclean milk, and for the purpose of determining the standard of cleanliness of milk it is hereby declared that in any sample of milk found to contain more than 100,000 bacteria per cubic centimeter, the said milk is declared to be unclean, unfit for use, and dangerous to health. Any person, firm, or corporation violating the provisions of this section shall be subject to a penalty of $50.

When is the determination of the number of bacteria in the sample to be made? Considering that under favorable conditions a new crop of bacteria is formed every twenty minutes, the question is of vital importance to the milk dealer. He *might* bring in milk in the morning which would pass inspection and yet be liable to arrest and fine before he left town. But although such milk might be supplied under the most favorable conditions of cleanliness, yet it would be safe to assert without fear of contradiction, that there is not a milkman in Rochester able to supply milk containing the minimum number of bacteria.

The stables, the cows, and the milkmen, all contribute their share to the bacterial content of the milk pail, and the conditions under which milk of the above purity can be produced, do not exist in a dozen places in this country.

Milk drawn under precautions of great cleanliness, has been found to contain 60 to 100,000 bacteria per cubic centimeter, and the same milk kept in a cool cellar at a temperature of fifty-six degrees for two hours, contained four times as many, and in six hours 435 times as many, or 43,500,000 bacteria per cubic centimeter. Moreover, there are but very few species of bacteria found in milk which are harmful, while many of them are positively beneficial.

What chance has the average milkman to comply with such regulations? Or what possibility is there of the ordinance being enforced? Especially when it is stated that the Rochester milk is from twelve to twenty-four hours old before it reaches the consumer.

It will simply be a dead letter and an excellent example of misplaced enthusiasm on the part of the Rochester Board of Health.

Note and Comment.

What Five Representative Men Said.

ED. HOARD'S DAIRYMAN:—"Another case of lost opportunity," said a hard-headed old farmer this morning. "The lesson finds me unprepared the same as the rest. Here cheese goes, bounding along, better than 'leven cents, and milk at ten cents in early September—something that has not happened before since Grant was president, and such a chance to make money out of a dairy; but, gosh a'mity, you fellows have told us year after year to be ready for a drouth with a lot o' green stuff, last year's silage left over on purpose, etc., but who listened? Think of it! I know of only two men who are prepared, and how they do rake in the money;and the rest of us a lookin' on. These two fellows are a gettin' as much milk as last year. Oversupply aren't worrying them much. Other folks' cows giving next to nothing, and theirs swimming along in the six and seven thousand record notches. Lots of the farmers do not have even water on their farms, now that the nasty old pond holes have gone dry. Lots of dairies have drank the muskrats and mud turtles out of house and home, because it costs too much to dig a well and put up a windmill."

"Different next year? Say, how long have you lived in this country? Every dairyman have all the soiling crops he can feed next year? You see if there is two acres and a quarter more oats and peas, millet and fodder corn set out next spring, than last; or two wells drilled and riggings put up. What will I do? If I was young as I once was, I'd have all the modern dairy fixings, but I am getting old and suppose that,—

"Say! What a tarnal lot of fools there is alive yet. Don't you know it?—That's luck! There goes all of my cows into what little corn Smith has got, and now you can't keep them out of there. This month's milk check will have to go into that soiling crop of Smith's now. Guess I'd better raise an extra crop for 'em to break into next year."

And the old man was gone whistling for dogs, and hollering "whe-y-y-y-y."

***

"I wonder if the everlasting 'goin' to shut down on silage milk in the city *right away*,' is not about over," said a wide awake citizen, who keeps pretty close tab on current affairs. "Do you know that within six miles of you to the north and west, forty silos have been and are being built this fall, and every one of these farmers is shipping milk to Cleveland? And there were over 125 silos in the three towns before these were built. This looks as if the silo had come to stay, and silage milk was not such very bad stuff either.

"I travel about a good deal, and did you know that Northern Ohio had become a land of silos? You come across them in the most unexpected places; men have them that you would never dream of building one. What kind are they building? The majority I should say were square ones with corners clipped, single boarded inside. Some are building stave silos and quite a number are using wire fencing for hoops.

"Looks too as if the fellow with the corn knife would lose his job and have to go and fight the 'Phillips.' There are eight corn harvesters at work in town to-day, all bought this year, and its the same everywhere. Then the self feeding silage cutter. Why down at Broadbrow's to-day, five teams could not bring corn as fast as it would go through that eighteen-inch machine? They never stopped to cut bands at all. Say! the cut silage came down that old 'trowsers leg' from the hopper box, ten bushels a minute, I do believe. But say! it is fun to fill silos now. Ten acres a day. Where's Denman Thompson and his steers now-a-days?."

Kindly, Sammy! hold on and give me the balance of this chapter next week.

***

We met the largest, we think, cheese factory owner in Ohio last evening, and asked him how he was getting along in his twenty factories. "Why prices are running up, and the milk in both amount and quality is running down this fearful dry weather. I can't see why farmers who live by their dairies should not take some sort of interest in their affairs, and see that the promotion of their own interests promotes mine; but not one in ten of them care a —— goose hair about it. Nothing to make ten-cent milk with and care less about the condition of what they do bring. There has got to be some kind of a reform inaugurated in Ohio factories. Cows now are cleaning up old swamp feed because it is a little green, and the tastes we get in milk are a caution. Rotten water raises the deuce. The cows drink it, stand in it, and this filthy stuff gets into the milk in two ways. And another thing, the patrons must draw home whey in their milk cans, and this bad practice spoils lots of milk, and we get all sorts of 'starters' we do not want. I wish the factorymen in Northern Ohio would stand up fair and square and demand three things of their patrons, and not snap up every fellow who is dropped at another factory, for nastiness. The three things are: Patrons must supply cows with clean, pure water and abolish field cavities; cool and aerate milk before coming to the factory; stop drawing whey home in milk cans, and old rusty tinless cans must go. And I guess I might as well put in a fourth clause—something that would stop all skimming and tampering with milk—buy all milk by the Babcock test, and pay a man for just the quality of milk he brings. How do you like this sort of treason in Ohio? We are going to get left worse than we are now unless there is a great reform in cheese making in this section, and you may say —— "

Of course I will, and do it in HOARD'S DAIRYMAN, *verbatim et literatim.*

***

The other day one of the Streighest fellows in the cheese business in the state called me up over the 'phone to say that he thought there needed to be a wake-up among the cheese and butter makers of the state, and at least 300 of them go down to Hunt's Dairy School and take from three to thirty-three months (as the case might require) of instruction, and find out at least how to set a vat of milk, i. e., heat it up, and ripen it as it should be so that the maker could control the curd, rather than have it "run him in."

"We are going to make inducements to all of our makers to have them go to Hunt's school or Wisconsin, as they may choose, the coming winter. We have a lot of good makers, but the scientific why and wherefore of doing it, and the uniformity that would follow such knowledge, would be worth thousands of dollars to us, this year alone. I am ready to indorse a law that a man to run a factory or creamery of any kind, should be a graduate of a No. 1 dairy school, and then pay him wages enough to make it an object to get this education. Oh, I could tell you a sight of stuff about our makers, that would, in the main, be different if they were up to date graduates of a good school."

***

"I am watching with a good deal of interest the effect that the building of so many electric roads out of Cleveland is going to have upon the milk business of that town," said a milk dealer to me recently. "Already there are five of these roads entering the city, each with a mileage of from twenty to sixty miles, and three of these roads run through great dairy localities. The Oberlin Electric runs half its way through a dairy territory, tapping the great Wellington dairy district. The Medina Road, now ready to iron, runs through dairy farms all the way for forty miles, and the A B C road is naturally a milk carrier. East of the city, two roads are all ironed and cars ready to run, both passing through eastern Cuyahoga, and clear across Geauga county, the great dairy center of the Western Reserve, and another road is building across Northern Portage and Trumbull counties, where milk runs galore. All of these electrics run through territory away from the steam ways, and with their cheaper freights and easy delivery to any part of the city, and hourly service, I look to see a great change in the city milk and cream business.

"The way the cream trade is looming up of late, it looks as if a man could cream his milk at home with a separator, send it into the city cheaply by the electrics, feed the milk at home, and change for the better the new factory way of dairying. I see that Haserot is now convinced that the way for him to conduct his proposed condensary, is to locate it near the city where two or three of these electrics "junct" and have the milk sent in on special milk cars. I understand that on the Dodge road now being built, they propose to deliver milk and cream to certain localities. You put a freight stamp on the can, and tag it to any milk depot and they will deliver it. And then the farmer's customer goes to a milk station and gets his can of cream, or milk, without any peddling about it, or any tampering with milk preservatives, or Freezine.

"You mark me, that within the next five years you will see the whole milk trade of Cleveland take a shift, and there will be something less than 986 milk peddlers in the city, and we shall get a much better quality of milk. Of course there is liability of an over supply just as there is now at times, but with these nine electric lines, and the ease that the milk can be handled and cared for at home, and the facility with which it can be put into town when wanted, makes a different matter of it than with the steam roads with their now or never delivery, and the costly and unsatisfactory distribution.

"Now you mark what I say;" and with twirl of his cane and a polite farewell, our prophet and railway friend was soon lost to view but not forgotten, because of this record.

JOHN GOULD.

"What's in a Name?"

Everything when you come to medicines. A sarsaparilla by any other name can never equal Hood's, because of the peculiar combination, proportion and process by which Hood's Sarsaparilla possesses merit peculiar to itself, and by which it cures when all other medicines fail. Cures scrofula, salt rheum, dyspepsia, catarrh, rheumatism, loss of appetite and that tired feeling.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Rule at the World's Fair.

Mr. Gillet's Rejoinder.

ED. HOARD'S DAIRYMAN:—I note your very courteous comment on my former writing, "The Rule at the World's Fair," and trust you will see fit to allow me a few words further on this subject, in that you take the ground in the comments to which I refer, that I am not not justified in my claim that the 80% plan was a rule at this fair for estimating the amount of butter from the fat in the milk.

Upon a still farther investigation of the facts in the matter I am fully convinced that all of my statements were correct and that the DAIRYMAN was technically wrong in conveying the impression that they were untenable.

The evidence that you bring forth to show the error of my claim is taken entirely from tests No. 2 and No. 3. No one has ever claimed that the 80% rule was applied in these tests. No one has ever claimed that the butter reported from these tests was estimated from the fat in the milk. No one has thought of denying that the churn was used in tests No. 2 and 3 at the World's Fair, nor have I any disposition to convey that impression, but I must reiterate, and without juggling with the facts, that in any and all

Who Has The Best Milk?

The man who uses the CHAMPION Milk Cooler Aerator. Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

tests, whenever and wherever the churn was not used the butter was calculated from the fat in the milk, and that 80% was the ratio and the only basis for estimating a pound of butter; that this was the case in tests No. 1 and No. 4, and farther that the butter so estimated in test No. 4, was credited to the heifers at forty cents per pound, there being no butter to score.

In regard to test No. 1 allow me to again quote from Mr. Fuller's report: "No churning was made of the milk during this time, but by taking the quantity of fat ascertained in the milk and multiplying it by 125, we ascertained the quantity of butter that I have credited to the cows as 80% butter, being approximately near the quantity of butter as can be ascertained, except by the churn."

You say "the butter yields reported by Mr. Fuller, were wholly independent of any and all rules etc." If there was no other rule for estimating the butter from the fat in the milk, and the 80% rule was used, the only logical conclusion is that it was a rule at the World's Fair, whether there was any formal adoption of it by the Board of Managers or not. It would appear to me that what was permitted without protest was accepted and established, and it does not occur to me that either Mr. Fuller or Chief Buchanan acted in this matter beyond the limit of their authority.

In any event, in tests No. 1 and No. 4, the only ones where the butter was estimated from the fat in the milk, the 80% rule was the only one used, and farther than this, in test No. 4 the awards were made on the amount of butter calculated on this basis, which gives the Holstein-Friesian Association for purpose of comparison, ample justification for the adoption of the same plan and to maintain that it was a rule at the World's Fair without being censured for making misleading statements. If not, I would ask for an explanation of the language used by Mr. Fuller on page 21 of his report with regard to test No. 4; "The rules were amended by Chief Buchanan, etc." Does he not here allude to this matter as a "rule"?

And inasmuch as you have taken exceptions to statements made in my former communication, permit me to ask if there was any other rule at the World's Fair but the 80% one for estimating the butter directly from the fat in the milk? If so, what was the rule, where and when was it used?

At the time of this fair no one criticised the method of calculating the butter on the eighty per cent basis, and as I have indicated before it was adopted by our association, because it was used at this time and at this fair. I have never before seen it disputed by any authority. I have said that the DAIRYMAN was technically wrong, and this from the fact that you use test number two and num-three to prove your ground. We all know that in these tests the churn was used, and the eighty per cent as here applied was on the fat in the butter. And in this it was no difficult matter to show that the claim of the association is untenable, but if we do not seek to dodge the question, and look the matter up carefully in tests number one and number four we will find only evidence that will substantiate our claim.

To settle this controversy, I am willing to submit the following from tests number one and number four, using only the totals and rest the case by allowing the many readers of the DAIRYMAN to judge for themselves as to the ratio used in estimating the amount of butter reported from these tests. I therefore here submit the totals of fat and estimated butter as credited to the breeds participating.

TEST NO. 1

	Fat in Milk. Lbs.	*Butter Credited. Lbs.*
Jerseys	602.01	752.56
Guernseys	488.42	610.53
Short Horns	436.60	545.75

TEST NO. 4.

	Fat in Milk. Lbs.	*Butter Credited. Lbs.*
Jerseys	155.38	194.226
Short Horns	97.89	122.362

Certainly the eighty per cent method as here applied was not to estimate the fat in the butter because there was no butter made, It was to estimate the amount of butter from the fat in the milk, exactly what is claimed by the Holstein-Friesian fraternity.

W. J. GILLETT.

Rosendale, Wisconsin, Sept. 19, 1899.

There can little profit result from prolonging the discussion about "The Rule at the World's Fair." Mr. Gillett and the DAIRYMAN agree as to the facts, and further controversy would be simply an interminable dispute about words.

It seems very plain to us that the "rule" by which the butter yield of the cows was determined did not permit the addition of twenty-five per cent to the fat in the milk. An exception was made in the case of the twenty-one-days tests of the heifers—although Mr. Fuller says in the paragraph cited by Mr. Gillett that the butter was estimated "on the basis of eighty per cent oil in the butter."

That Mr. Fuller follows a vicious rule, in estimating the possible yield of butter from the milk which was made into cheese or that was given by the heifers, does not in our opinion justify anybody in saying that this was *the* rule at the World's Fair. At most it was only an exception, and Mr. Fuller states explicitly that the credits given by him on this basis are in excess of what could actually be obtained. There is no official record of butter, or estimated butter, for tests numbers one and four, and consequently Mr. Fuller's figures cannot with propriety be said to follow even a rule at the World's Fair. Much less do the facts justify the statement appended to reported tests of Holstein cows, that the amount of butter is estimated in accordance with *the* rule at the World's Fair.

Individuality of the Cow.

We have known farmers to pooh-pooh the idea of studying cow individuality. They said it was not practical in a large herd and was unnecessary; and often they went on wasting grain on some cows and not getting out of others what could be got out of them. Certainly every cow's milk should be tested. There is but one side to that proposition. Whoever does not agree with it is living too far back in the darkness to afford the slightest excuse for a live man to argue with him, and a dead one cannot. But that test does not end the matter. The milk of a cow may test well, but in time that cow will be found taking on fat, and if individuality cuts no figure with her owner, she will continue to convert feed into fat, and her milk yield will become less and less. If the dairyman is watching every individual of his herd, and observing her peculiarities, when he sees this fat-making tendency, he will cut down the cow's ration, and if she still takes on fat, he will send her to the shambles, or sell her to somebody who does not regard the study of individuality as important.

THE LEAN COW.

Another cow may be pouring nearly all her feed and part of herself into the milk pail. It is often said that a cow will first take care of herself before she will make milk out of her feed. She does not always do it. There are cows that seem intent on making milk and nothing else. They utterly neglect to feed their systems, and such cows will become thinner and thinner. If we are watching the individual and observe a cow like that, we will increase the ration and keep on increasing it as long as we can get returns. It is a little trouble—but not so much after all—to vary the rations to suit different cows. The cow that is taking on flesh should have very little, if any, fat forming food. Eliminate the corn meal, or other similiar ingredient from her ration. Feed her wholly or mainly on nitrogenous foods. For the thin cow increase the fat-forming elements.

BURNING UP THE COW.

There must be a reasonable limit, however, in feeding fat-forming feed. Prof. Otis very truly says a true dairy cow, fed on a ration rich in protein and light in carbohydrates, will continue to develop for years, both in ability to consume feed and to yield milk, and properly handled does not reach her highest yield until eight or ten years old, and is then good for from five to eight more years of profitable work. A cow heavily fed on a ration of average composition, greatly deficient in protein and high in carbohydrates, does burn out and will not last long.

THIS YEAR'S FEEDING AND NEXT.

This year's feeding increases next year's yield. A cow high fed this year will give better returns for food consumed next year than one having a light ration now; and the skillful dairyman can, by studying his cow, gradually increase from year to year the amount of feed consumed and the yield of milk produced per pound of feed eaten for a number of years. In this work of developing, the poor cows will reach their limits much earlier than the good ones, and can be fattened and sold.

CALF AND COW.

We fully endorse what Prof. Otis has said. As has often been said, the proper feeding of a calf develops its capacity for being a heavy feeder when it becomes a cow; and a similar method of feeding will increase the capacity of the cow. If the calf is fed largely on concentrated feed, its digestive apparatus is contracted; if it is fed on fat forming food, it contracts the habit of taking on fat. To a lesser degree the cow's digestive functions may be injured by too much concentrated food and not enough roughage or bulk; and it is possible to make her too fat by feeding too much of the carbohydrates.—*Delaware Dairyman.*

Sure Cure for Colds

When the children get their feet wet and take cold give them a hot foot bath, a bowl of hot drink, a dose of Ayer's Cherry Pectoral, and put them to bed. The chances are they will be all right in the morning. Continue the Cherry Pectoral a few days, until all cough has disappeared.

Old coughs are also cured; we mean the coughs of bronchitis, weak throats and irritable lungs. Even the hard coughs of consumption are always made easy and frequently cured by the continued use of

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Every doctor knows that wild cherry bark is the best remedy known to medical science for soothing and healing inflamed throats and lungs.

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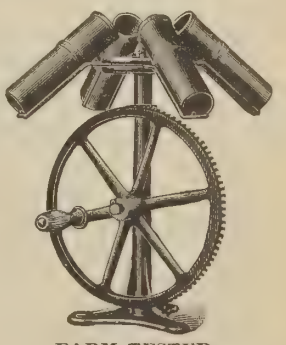
We now have some of the most eminent physicians in the United States. Unusual opportunities and long experience eminently fit them for giving you medical advice. Write freely all the particulars in your case.

Address, Dr. J. C. AYER, Lowell, Mass.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

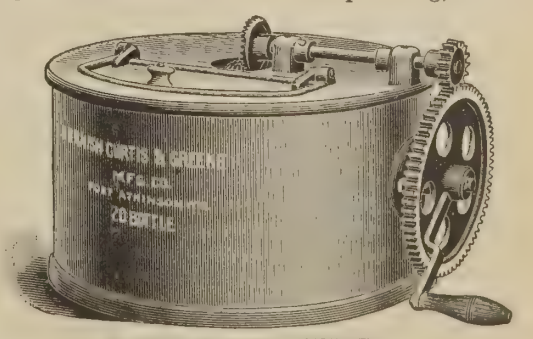
We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



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Agents for — *DE LAVAL ALPHA SEPARATORS.*

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Relative Feeding Values of Oats and Bran.

ED. HOARD'S DAIRYMAN:—In Prof. Henry's chapter on Feeding in the government publication entitled Diseases of Cattle the following figures are given as amount of digestible nutrients in 100 lbs. of bran and oats:

	Bran.	*Oats.*
Protein	12.6	9.1
Carbohydrates	44.1	44.7
Ether extract (fat)	2.9	4.1
Nutritive ratio	1:4.0	1:5.9

In your last number you state that oats are ten per cent more valuable than bran for feed. How can the above analysis and that statement be reconciled?

It seems to a "freshman" just the reverse, or that bran is the more valuable feed; so we seek information from the head-light.

Nashville, Tenn. READER.

We are very much obliged to our Tennessee friend for calling attention to this matter and wish that more and more of our readers would exercise equal scrutiny and call us to book whenever there is an apparent error in what we write. This gives us the opportunity to withdraw from untenable positions, or to explain further—as in the present case—and clear up the seeming error.

We may say, in the first place, that experiments and analysis made since the book referred to was published, have caused some slight modifications in the figures there given.

At the present time the average for the feeds named is given as follows:

	Bran.	*Oats.*
Protein	12.6	9.2
Carobhydrates	38.6	47.3
Ether extract (fat)	3.0	4.2

But even these figures, if no other elements enter into the problem, do not justify the statement that oats are ten per cent better than bran, and, yet in actual trial with milch cows at the Wisconsin Experiment Station this difference was found.

Although the reason for this apparent exception to the rule that figures cannot lie, is not very far to seek, it is not altogether an easy matter to find it, and, when found, to explain it. It will be recalled by many of our readers that HOARD'S DAIRYMAN has quite frequently called attention to the fact that it requires the expenditure of energy to digest food and conversely that it requires food to supply energy. Food-stuffs differ very materially not only in the per cent of total digestibility but quite as much perhaps in the amount of energy required to produce this digestion. Bran is not so easily digested as oats and hence the available digestible nutrients do not run in the same proportion as the total digestible nutrients.

By a most opportune coincidence almost simultaneously with the receipt of the foregoing communication from Tennessee there came to our table a copy of the London *Live Stock Journal* in which this identical question is very fully treated by Dr. M. H. Hayes, a Fellow of the Royal College of Veterinary Surgeons. It is the thirtieth paper on the general subject of Stable Management and Work and in regard to Chemical Analysis as a Guide to the Feeding Value of Foods, he says:

We can draw only general conclusions from chemical analyses of foods; because (1) the respective percentages of the constituents of plants vary greatly according to circumstances which will be presently considered; (2) the nutritive matter of food—bran and hay, for instance, may be so protected by crude fibre and other substances from the action of the digestive juices, that they may lose a large proportion of their feeding value; (3) neither the percentage nor the presence of ferments is indicated by the analysis at our disposal.

FERMENTS IN GRAIN.

We learn from the researches of Horace T. Brown (CHEMICAL SOCIETY'S TRANSACTIONS, 1890, pp. 458-528; and 1892, pp. 352-364) that certain grains contain a greater or less amount of an unorganized ferment (ENZYME) which during digestion, has the power to dissolve the walls of the cells of the grain, and thus to expose their contents to the action of the digestive fluids. The membrane which forms the walls of these cells, is thin, tender, and is composed of nearly pure cellulose. The enzyme in question has no power to attack starch or the crude and more or less lignified fibre of hay, and does not become fully developed in the grain until the grain has become ripe. True ripening of the grain takes place only after more or less of the original moisture of the grain has been given off. The abundant presence of this enzyme in good oats furnishes us with an explanation of the great rapidity with which the contents of the grains become broken up in the early stages of digestion, and confirms the high estimation in which oats are held as a food for horses; for without this enzyme a considerable portion of the flour of the oats would be unaffected by the gastric and pancreatic juices, and would enter the cæcum undigested. "The animal itself, besides affording a favorable temperature, a suitable mixture of fluids, and plenty of mechanical movement, does not contribute to the dissolution of the cell-membrane, which is wholly brought about by the enzyme pre-existent in the grain" This writer (PROCEEDINGS OF THE ROYAL SOCIETY, 63, 1898, page 3) has found that most of this enzyme exists in the inner layer of the husk.

This enzyme of grain, like those animal enzymes, ptyalin and pepsin, is a chemical substance, and is different from the ferments produced by bacteria. According to Gamjee, the activity of enzymes is destroyed by exposure to a temperature of 126 deg. Fahr., which is a fact that probably explains the reason why the feeding value of good oats becomes lessened by the process of kiln-drying or parching. Barley, which either contains very little of this enzyme or is wholly deficient of it, is almost always improved by parching.

Diastase is an unorganized ferment that converts starch into sugar, and thus renders it soluble. It is formed only during germination, as in malting.

Cerealin is an enzyme which occurs in bran, and which was discovered by Mège Mouriès. Its action is similar to that of diastase, but is much slower.

Result of Poor Milk.

A certain class of patrons delude themselves, that their work consists solely of delivering the milk regardless of quality. That they should be held responsible for its condition, is shown by the following from *Chicago Produce*:

In a letter on cleanliness W. J. Kennedy says: In butter one of the most annoying effects of undesirable bacteria is the earlier development of butyric acid and the consequent rancidity of butter. From some experiments made here at the Iowa college creamery, in regard to the keeping qualities of butter made from cream that had been separated from milk, which had been exposed to unfavorable conditions that are so frequently to be met with, and other cream that was free from all undesirable kinds of bacteria, I am firmly convinced that uncleanly conditions are more directly responsible for rancidity in butter than is indicated by any authority that I have read upon that subject. While it is possible by resorting to pasteurization and pure culture starters, to improve the quality of butter made from milk that has been poorly cared for, I think it is admitted that there is no process by which poor milk can be made to produce the very best butter or cheese. We must also bear in mind that while commission merchants purchase the poor butter with reluctance at a lower price than is profitable to the producer, they are eagerly watching for the very best, and will often pay from half a cent to one cent a pound above market quotations to customers who can always supply them with the very finest article.

Paraffin as a Food.

Coleman's Rural World under the heading of "Fraud that is Damnable," prints the following vigorous editorial on the use of paraffin in oleo:

On the eighth page of this issue will be found an article which consumers of butter should read. It tells how some of the makers of oleomargarine are doubling up in their nefarious practices. Not content with making a substitute for butter out of animal fat and selling it for the genuine article, they have searched the world over for means and methods by which their goods can be more cheaply produced, yet retain the appearance of butter so that they can be sold to the uninitiated for butter and at butter prices. This, too, regardless of statute laws which these counterfeiters break with as little compunction of conscience as ever troubled the most hardened criminal. Not only will these miscreants, some of whom pose as philanthropists, rob people of their money by substituting an inferior article for a good one, at the price of the latter whenever possible, but they will undermine and destroy human health by putting into their goods deleterious substances. In the article to which we refer it is shown that not only is water to the extent, sometimes, of thirty-five and forty per cent incorporated in the oleomargarine, but nine and one-half to eleven and one-half per cent paraffin is worked in to give a firm body to the cheap fats and oils which comprise the remainder of the substance. Not satisfied with what can be found on the surface of the earth in the way of refuse animal fats and cheap vegetable oils, they draw from earth's bowels a substance which nature never intended should be used as food, and work this into their product.

What is paraffin? "A colorless, odorless, translucent, waxy, solid mixture of hydrocarbons derived from methane, rich in carbon and indifferent to most reagents. It is contained in bituminous coal and petroleum, from which it is separated by distillation." We quote from a standard authority.

"Indifferent to most reagents." What does that mean? Simply that the most powerful acids, such as are used in the chemical laboratory for making tests, have no effect on this substance. It resists even the tooth of time which can be said of but few substances on this mundane sphere. *Rural World* readers will remember that in 1881 there was set in Central Park, New York, a granite obelisk called Cleopatra's Needle, an Egyptian monument centuries old. It was soon discovered that it was being ruined by the action of the weather, and as a means of preventing the destruction it was, in 1885, given a coating of paraffin, and the statement is made that "the obelisk has since successfully withstood the influence of the atmosphere." Can the stomach of a human being then be expected to digest this substance, even though the makers of oleomargarine say that it is "perfectly wholesome," "just as nutritious as butter," and a lot more that is as false as is their goods?

Paraffin is a bi-product in the refining of crude petroleum, and is produced in immense quantities by the Standard Oil Company. Evidently this monopoly has made a combination with the meat packing combine by which the refuse bi-products of each shall be crammed down the throats of the people they being made to pay a fancy price for the nasty stuff, law or no law. What think you of the business.

Annual Report of Michigan Food Commissioner.

The annual report of the Dairy and Food Commissioner, of Michigan, which has just gone to press, contains a complete record of his department's work for the fiscal year ending June 30, 1899, and is briefly summarized as follows:

"The Commissioner reviews the difficulties with which he was confronted, on taking charge of the Department, owing to the fact that there were no decisions in Michigan touching food questions, and there existed in the state a growing belief that the laws either could not or would not be enforced.

"Technical questions were raised as to the intent and constitutionality of the various statutes, and the department was forced five times to seek final judgment in the Supreme Court of the State.

"As a result, no State in the Union is more strongly fortified to-day than Michigan with questions of food legislation, and food litigation, correctly and authoritatively interpreted.

"Although restricted by a limited inspection force a vigorous prosecution of the work of inspection has been carried on during the year. The stocks of 2,380 dealers carrying food products have been examined, in addition to which 1,190 special investigations were made.

"The butter and milk supplied to guests at 240 hotels and restaurants were examined, and 449 dairies inspected.

"The laboratory report shows 1,050 samples analyzed, and in addition to which valuable research work was carried on.

"Eighty-six cases were prosecuted and were either disposed of or are now pending

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The World's Best
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MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read.... ALUMINUM
'STAY THERE" EAR MARKERS
Can't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog, etc. WILCOX & HARVEY MFG CO. 196 Lake St. CHICAGO, ILL.

CHERRY'S Feed and Litter CARRIER

An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.

Farmers and Land Seekers Grasp this BARGAIN.
I have 240 acres within 20 miles of the Iowa line, 4 miles from Windom, in the rich Des Moines valley, to sell at a sacrifice on account of other business. 200 acres field, 30 acres pasture, rest tame meadow; 2 story house, 16x24 & 14x22; stone cellar, 14x14; horse barn, 16x30; cow barn, 30x42; creamery, 12x12; granary, 14x20; also machine shed, workshop, poultry house, 2 good wells, with windmill well house, farm scales. Apple orchard. 10 acres heavy grove, small fruit, etc.; $6,000 takes it all, with $2 000 down. Don't write, but come at once and see it. THOMAS E. SIME, Windom, Cottonwood Co, Minn.

DOUBLE CAM BRADLEY STEEL HAY PRESS
One horse can operate it. Very easy for two.
NOT A COG NOR CHAIN ABOUT IT.
LOW BRIDGE
Simplest Press Made.
Lifting jack goes with each Press. Powerful—puts full weight into box car. 2 horses draw it on common roads. Tracks with a wagon.
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in every household. It is clean, tasteless and odorless—air, water and acid proof. Get a pound cake of it with a list of its many uses from your druggist or grocer. Sold everywhere. Made by STANDARD OIL CO.

CLOSING OUT SALE
— OF —
Jersey Cattle
KIRKSVILLE, MO.,
OCTOBER 16th, 1899.
The Entire Herd owned by DR. C. E. STILL, consisting of 130 Head, will be sold to the Highest Bidder.
This is the chance of your life to get a bull calf to head your herd; send your bid to the auctioneer if you cannot attend. No postponement on account of weather.
SEND FOR CATALOGUE.
FRED ZIMMERMAN, Manager.

in the various Courts. Twenty-nine examinations were held, in thirteen of which the defendants were bound over to the trial Courts. Fifteen of the cases dismissed were oleomargarine prosecutions on questions of law, which the department now has before the Supreme Court for review.

Twenty-five cases were brought to trial, in twenty of which the defendants were convicted. Three of the cases lost were under a statute requiring the Department to prove the defendant's guilty knowledge, a defect in the statute which has since been remedied by the passage of a new law.

During the year the Department won an important case in the Supreme Court, establishing the fact that the Legislature, under the police powers of the State has power to set up a standard of purity for food products.

The decision has become a leading case in food litigation and is copied widely and cited with approval in other States.

The Commissioner considers conditions more favorable in Michigan ta-day than at any time in the past, but says that scarcely a week goes by but some new method of adulteration is found, but the shrewdness of disdishonest manufacturer keeps pace with the ability to detect and destroy.

He spreaks of the necessity for constant and frequent inspections to checkmate this kind of work and keep dishonest and careless dealers in line, and says the present policy of the Department will be continued and that prosecution will remain the reward for all wilful sales when detected, and will follow in cases which show too glaring want of caution in the purchase of goods.

Butter Shipments.

Mr. Townsend, of the Astoria, Oregon, Creamery, has just finished making the second shipment of butter to Manila. The butter is shipped by Glafke & Company, of Portland, and is packed in one-pound glass jars, with a glass cover, and is hermetically sealed with wax. The outlook for a profitable trade in dairy produce in the Philippines seems to be excellent.

Use of Oleomargarine.

The farming community continues disturbed on the subject of the oleomargarine product. The pure food department of Pennsylvania sets forth that 87,800,000 pounds of this imitation butter were manufactured and sold in the United States during the year ending June thirtieth, last. Calculating the average annual yield of butter per cow at two hundred pounds, so much oleomargarine in the market takes the place of the butter product of 439,000 cows. This is presuming that all who bought oleomargarine would have bought an equal amount of butter, which is not unreasonable, inasmuch as most of the substitute product is retailed as butter. Assuming, then, that so many more cows would be needed to supply the demand for butter if no oleomargarine were made, and that cows are worth thirty dollars apiece, it can be figured out that the farmers' business is curtailed by a loss in profit making capital of $13,170,006. It is calculated that the profits on the manufacture of the amount of oleomargarine given are not less than $10,536,000, of which one-third is secured by the manufacturers and two-thirds by the traders. On butter there is no such great profit as on this compound of lard and tallow, that can hardly be distinguished from it, and would be purchased by comparatively few persons if they knew what they were buying. It is always possible to sell this spurious "butter" a little lower than genuine butter of acceptable flavor. It is plain that so much spurious "butter" never could be sold if it were called by any name indicating its real character, and, if the figures supplied by the Pennsylvania Bureau are trustworthy, there is no escaping the conviction that no laws yet passed have greatly prevented the sale of the compound.—*Boston Herald.*

DAIRY MARKETS.

ELGIN, Ill., Sept. 25—No offerings or sales. Committee reported firm, 22½c.

CHICAGO, Ill., Sept. 25—Butter—Creamery extras, 22½c; firsts, 19@20c; seconds, 15½@16½c; dairies, selections, 19c; No. 1, 16c; No. 2, 15c; extra ladle, 14½@15c.

Cheese—Full cream, Twins, new, good to choice, 10⅞@11¼c; Young Americas, 11@11½c; Swiss, 9½@11¾c; Limburger, 8@9¾c; bricks, 9@10½c.

Eggs—Fresh, at mark, cases returned, sold at 13@14c, loss off; cases returned, 16½c.

Cattle—Native cattle at $6.25@6.75, sold at steady prices, while other natives and, in fact, all other grades of cattle were about 10c lower. The general trade was dull. A load of 1,439-lb. polled Angus steers sold at $6.75 and 20 averaging 1,463 lbs. at $6.65. Most of the native beef steers sold at $5.30@6.10; corn-fed Westerns, $4.75@6.40; distillery-fed steers, 1,250@1,304 lbs., $5.55@5.60; grass Western steers, 980@1,366 lbs., $3.80@4.85; Western cows and heifers, $3.25@4.50; grass Texas steers, $3.20@4; poor to fair native cows, $1.75@2.70; good to fancy cows, $2.80@4.25; poor to choice heifers, $3@4.50; fancy heifers, $5@5.25; bulls, $2.60@4.25; stags, $4.60@5.50; oxen, $3.25@4.50; veal calves, $5@7.25, and feeding cattle, $3.60@4.60.

Bran—Firm, under light offerings, and sold at $12.25 on track, and $11.75 billed through.

MILWAUKEE, Wis., Sept. 25—Butter—Creamery—Fancy prints, per lb., 22½c; extras, 22½c; firsts, 21@22c; seconds, 20@21c; imitations, 19@20c. Dairy—Selections, per lb., 17@18c. Market steady and firm, requirements absorbing all kinds quickly; receipts, 14,639 lbs.

Cheese—American full cream—New, choice to fancy, 10½@11c. Brick—Per lb., choice, 10@10½c. Limburger—New, choice, per lb., 9½@10c. Swiss—Drum, 11@11½c; Block, 11@11½c; No. 2, 9½@10c. Market continues firm and trade fair; receipts, 41,620 lbs.

Eggs—Fresh, per doz., 16c, loss-off cases returned. Market steady and firm for fresh, trade being fairly active; receipts, 387 cases.

FOND DU LAC, Wis., Sept. 25—Offerings 670 Twins and 500 Daisies; market steady at 10⅝c for Twins.

MUSCODA, Wis., Sept. 25—Offerings to-day 1,400 boxes Twins; market active; all sold 10⅝c.

SHEBOYGAN FALLS, Wis., Sept. 20—Fourteen factories offered 1,308 boxes of cheese on the call board to-day and all except 148 boxes were sold as follows: 690 cases Young Americas at 10¾c; 80 Twins at 10⅝c; 65 at 10⅜c; 275 Daisies at 10⅜c, and 50 at 10⅝c.

MANITOWOC, Wis., Sept. 20—Offers of cheese at dairy board to-day were 560 Daisies, 66 Twins, 608 Young Americas. Sales: Daisies and Twins at 10¾c; Young Americas at 10½c.

PLYMOUTH, Wis., Sept. 19—Sales to-day 1,275 Twins at 10⅝c and 1,315 Americas at 10¾c. Market active.

HILBERT, Wis., Sept. 16—The sales on the call board to-day were 159 cases Young Americas at 10¼c.

SEYMOUR, Wis., Sept. 13—The sales on the dairy board to-day were 491 Twins at 10c and 343 Daisies at 10½c.

BRILLION, Wis., Sept. 15—Cheese—Cheese market, today: 1,700 Daisies at 10c; 845; Flats at 10c; 670 Young Americas at 10¼c.

ST. LOUIS, Mo., Sept. 25—Butter—Firmer; creamery, 19@24c; dairy, 15@20c.
Eggs—Firm; 14½c.

KANSAS CITY, Mo., Sept. 25—Butter—Creamery, 21c; dairy, 16c.
Eggs—Fresh, 15c.

CINCINNATI, O., Sept. 25—Butter—Quiet; 23c.
Cheese—Firm; good to prime Ohio flat, 11½c.
Eggs—Firm; 15c.

PHILADELPHIA, Pa., Sept. 25—Creamery 23c; prints, 24c. Market firm.

WASHINGTON, D. C., Sept. 24—Butter—Market firm. Extras, 23½c; first, 22c; choice imitations, 18c.

NEW ORLEANS, La., Sept. 25—Butter—Market firm at 24c; ladles active and scarce, 14@16c.
Cheese—Cream cheese 12c; skims, 7@9c.
Eggs—17c.

NEWARK, N. J., Sept. 25—Butter—Steady, 23c for strictly fancy Elgin only. Receipts fair.

BALTIMORE, Md., Sept. 25—Butter—Market firm. Creamery, separator, extra, 24@25c; extra first, 22@23c; creamery first, 21c; creamery, imitation, extra, 19@20c; ladle, extra, 18c.

Eggs—Market firm. Strictly fresh stock, 16½@17c.

BOSTON, Sept. 25—Butter—Creamery, extra, 23½c; western extra, 22c; dairy extra, 21c; imitation creamery, 16@17c; western ladle, 15@16c; print creamery, 24c; box creamery, 23c.

Eggs—Fancy near by, 24@25c; choice fresh, 20c; Michigan extra, 19c; western, 17@18c; fair to good, 16½c.

NEW YORK, Sept. 25—Butter—Creamery, Western, extras, 23c; firsts, 21@22c; state, extras, 23c; firsts, 21@22c.

Cheese—State, full cream, small, colored, fancy, 11¼@11½c; white, 11¼@11⅜c; large, colored, 11c; white, 10¾c.

Eggs—State, Pennsylvania, and Western, 20@18c.

UTICA, N. Y., Sept. 18—The only sale officially reported on the board to-day was one lot of 80 boxes of small white cheese at 11¼c. There were 30 lots, aggregating 2,225 boxes, reported to have been consigned. There was something of a boom in the butter market. The following sales were reported: 31 packages at 22c; 7 packages at 23c; 130 packages at 23½c; 67 cases of 1-pound and 5-pound prints at 25c.

LITTLE FALLS, N. Y., Sept. 18—Cheese weak with sales of 4,387 boxes at 10¾@11c, chiefly at 11c. With such good prices for cheese there is little inducement for dairymen to make butter, and the offerings here continue to be very light. A few sales of creamery and dairy were made at 22c.

WATERTOWN, N. Y., Sept. 17—Cheese—The cheese market here, yesterday, was very dull. Sales were few. Prices ranged from 10¼@10½c. It is very dry, and cows all have to depend on feed outside the pastures.

FULTON, N. Y., Sept. 18—Cheese—There were no sales made here today. Contracted cheese only were moved.

OGDENSBURG, N. Y., Sept. 18—Cheese—There were 977 boxes cheese offered here, Saturday. A bid of 10⅝c resulted in no sales on the board, but later on the street some cheese were sold at 10½@10¾c.

NORWICH, N. Y., Sept. 18—Cheese—The sales of cheese on the board, Saturday, were: 700 boxes of small colored at 11c; 200 boxes of small white at 10¾c; 200 boxes of skims at 9c. There were no sales of large cheese. A considerable number of sellers held out for 11¾c.

CANTON, N. Y., Sept 18—Cheese—There were 1,600 boxes cheese sold here, Saturday, at 11c.

Butter—800 packages of butter sold at 23c.

BALTIMORE MARKET.

BALTIMORE, September 21.—Butter.—Although the receipts of separator creamery fresh from the primary points this week have been lighter than usual at this season, and less than last week, yet there seems to be enough for immediate wants; the fact is that the position taken by the cutters is against the advance, and whether their stand is well or ill taken, if the consumers are content with the cold storage and other grades and varieties for a while, the shrinkage of milk from this or that cause in the gilt edge districts will cause us no distress. The grading is fair on an average, but the mottles and the mold are again noticeable; mottles alone in some marks, mold alone in others and mold and mottles in still others; proper care and labor would preclude both defects and make the receiver's lot, if not a happy one, at least less miserable, for it is extremely wearing to have to explain the why and wherefore so many times in the several seasons. There have been fair receipts of gathered cream makes as regards quantity, but the grading is lower than at any time since the cows went to graze this year; those mischievous m's aforementioned are herewi h also to be found, but in the superlative degree, along with another one of the same genus, to wit: "marbled;" nevertheless, when the mold is mown and the price of extra separators skillfully displayed such moral suasion proves irresistable and the recipts are disposed of effectually. The southern buyers now in the city are active in the pursuit of imitation creameries and ladles in thirty pound tubs, but prefer Record tins even to the extent of paying a slight premium over wooden thirties of the same grade; orders from the south have been liberal, but limited to Record tins in a majority of cases. Receipts of store packed are very light, and there is a good demand for all grades. Roll in good condition is inquired for and would sell at 14 to 15 cents.

Creamery Separator, extras, 23; firsts, 21½@22; seconds, 19@20. Creamery Gathered Cream, extras, 20@21; firsts, 18½@19; seconds, 18. Creamery, Ohio, extras, 20@21; firsts, 18½@19; seconds, 18. Creamery imitation, firsts, 16½@17; seconds, 15@16. Iowa & N. W. Ladle, firsts, 15@16; seconds, 14. Ohio & Indiana Ladle; firsts, 15@16; seconds 14. Ohio Storepacked, firsts 13½@14; seconds 12½@13. W. Va. Storepacked; firsts, 13½@14; seconds, 12½@13. Creamery Blocks, (2lb.), extras, 24½@25; firsts 23@24; seconds, 21@22. Creamery Prints (½lb.), extras, 24½@25 firsts 23@24; seconds, 21@22. Md., Va. & Penna. Prints, extras, 20; firsts, 19; seconds, 17@18.

Cheese.—Receipts of cheese fair; demand very good; market firm.

N. Y. State—Cheddars, fine, 12@12¼; choice, 11½@13¾; fair, 10½@10¾. Flats, fine, 12¼@12½; choice, 11¾@12; fair, 10¾@11½; Small, fine, 12½@13; choice, 11¾@12¼; fair, 10¾@11½. Ohio—Flats, fine, 11½@12; choice, 10¾@11½; fair, 10@10½. Picnic, fine, 11¾@12¼; choice, 11@11½; fair, 10½@10¾. Skims, 9@9¼; choice, 8@8½; fair, 7@8.

Eggs.—The supply of strictly fresh eggs is very light, and for this kind the demand is active at steady prices. Held and other eggs of irregular quality are not so eagerly sought after, and have to be sold on their merits. The market on all choice to fancy eggs is firm at 17 cents.

Latest quotations for fancy creamery; Buffalo 23c; St. Paul, 22c; Minneapolis, 22c; Detroit, 23c.

LIVERPOOL, Sept. 25—Butter—Finest United States, 95s; good, 72s.

Cheese—American finest white, 52s 6d; American finest colored, 54s.

"ALPHA - DE LAVAL" TRAVELING REPRESENTATIVES WANTED

Believing that 1900 will be the greatest year in the history of the dairy business, and knowing that the 1900 sales of "Alpha–De Laval" separators will be more nearly universal than ever before, as there is every reason why it should be, we shall add some ten or more men to our 1900 corps of traveling representatives within the next six months.

Candidates for these positions will be considered meanwhile and applications are now invited. A De Laval representative must possess a clean record as to personal character; have a thorough knowledge of both farm and factory dairying methods, preferably acquired through practical experience; possess the mechanical aptitude essential to quickly becoming a separator expert; be endowed with the natural energy and aggressiveness constituting good salesmanship, and be physically capable of the hardest kind of hard work, as the De Laval organization has no time for anything else.

Please let applications state the full name, age, and address of the applicant; salary at present earned and salary expected; character of present employment and with whom; previous experience in creamery or dairy work; Experiment Station or Dairy School practice, if any; experience as a salesman, if any, and degree of success achieved; together with such general qualifications as may suggest themselves to the applicant, including references offered. Also whether the applicant may expect to be in New York or Chicago in some other connection before December 1st.

It is naturally desirable, of course, that the applicant possess a practical knowledge of separators. This is necessarily the case in the selection of representatives for creamery or power machine work. It is not imperative in dairy machine representation, however, where the applicant may have had experience in the handling or sale of agricultural machinery, or the establishing of agencies for same.

Please let any letter of application relate to such subject only, that it may be separately filed for consideration in this respect alone.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Practical farmer and dairyman to rent good farm in Southern Minnesota. Also good single man to work on stock farm. Must understand care of stock; Address "H," care HOARD'S DAIRYMAN. 33-3

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis.

Wanted—Experienced butter and cheese maker. One that thoroughly understands his business. References required. State wages expected. Address, D. HART, Del Rio, Val Verde Co., Texas. 33-3

Excursion Rates to Dewey Day Celebration, Washington, D. C., Via the North-Western line, from all stations. Excursion tickets to be sold September 29 and 30, and only for trains arriving at Chicago September 30 and October 1. Apply to agents for full particulars.

Wanted—First-class cheese maker to make American cheese. Will furnish good house. Maker must give good references. Address, JAS. MOLZAHN, Watertown, Wis. 32-2

Wanted—A situation as manager in a private dairy, by a first-class, up to date dairyman. A thoroughly competent and reliable man. Seventeen years' experience. Two years in the South. First class references. Address, DAIRY MANAGER, Landers, Floyd Co., Ga. 32-2.

Farm For Sale—400 acres in garden spot of Iowa, adjoining Britt, a town of 1,600. Farm well improved; large barns, grove, flowing well. Adapted to dairying and stock raising. Cheese factory on farm, operated two seasons. Will sell at a decided bargain before Oct. 15th. Write for particulars. GEO. P. HARDWICK, Britt, Iowa, 32-3

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

For Sale—The proprietor of a choice herd of grade Jersey cows will sell 21 head. Address Dr. N. D. THOMAS, Decatur, Mich. 32-3

Wanted—A practical and reliable dairyman to take charge of my dairy farm, and will rent for a term of years to right party. Farm has all the modern improvements, consisting of 2 silos, stone floors (700 yds.), system of waterworks, brick creamery and a private market for all the butter at 25c in Sioux City. Cream separator and a market for cream. My farm of 200 acres lies 6¾ miles south of Sioux City, on the Missouri bottom lands. We have two cottages for help and can handle 40 cows with ease. I wish to rent as my children are too small to assist me in care of farm. A. J. WESTFALL, Sergeants Bluffs, Iowa. 30-4

For Sale Cheap—Two U. S. Separators No. 1 B., and one Reid, capacity 2000 lbs. E. M. MATHEWS, Poy Sippi, Wis, 32-2

Excursion Tickets to Fall Festivities at Chicago, Via the North-Western Line, will be sold at reduced rates, from all stations, October 2 to 12, inclusive, limited to October 14. Apply to agents Chicago & North-Western R'y. 32-3

Non-Territorial Expansion means paying rent for a poor farm. Now is the time to secure a good farm on the line of the Chicago, Milwaukee & St. Paul Railway in Marinette County, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure soft water, land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. ROLLINS, Land Agent, 161 La Salle St., Chicago, Ill. 32-3

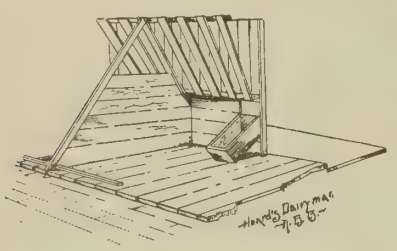
COW TIES AND STALLS.

In answer to repeated inquiries as to which is the best stall and tie for cows, we give herewith illustrations and short descriptions of some that have proven themselves satisfactory and popular. It is asking too much to expect us to pronounce final judgment as to which is the best or to express any preference. There are "many men of many minds" and it does not follow that because we use or prefer one style of stall or tie that our next door neighbor would come to the same conclusion. The illustrations show the features peculiar to each and would seem to be sufficient to enable any one to select something that will please him. Each has some merit peculiar to itself and all are decided improvements over the rigid stanchion.

Some of them have patented devices and the right to use them must be obtained. Several are made at factories and sold outright. Others must be made on the premises or elsewhere to order. The matter which follows does not contain any concealed advertisements but it is but fair to ourselves and to all concerned to say that several of the devices are advertised in our columns and other things being equal we would be gratified to have our readers patronize these parties, and in writing to them mention the fact that their advertisements were read in HOARD'S DAIRYMAN. Advertisers are anxious to know what papers bring them inquiries and sales, and the paper is anxious that advertisers should know that the money they spend brings them satisfactory returns.

It will be noticed that some of the devices illustrated do not show partitions between adjoining cows. We believe partitions are an important and much neglected feature and should be adopted in every stable, regardless of the manner of fastening or restraining the animals. The danger of cows stepping on one another and especially of injuring teats and udders is altogether too possible to be safely ignored and to go into a stable and find a cow standing with another on either side lying down suggests that the standing cow is not as comfortable as she would like to be. And comfort is a condition precedent to profit.

Our first illustration is of the so-called Model Stall, and shows a single stall with one side entirely removed. It may be as narrow

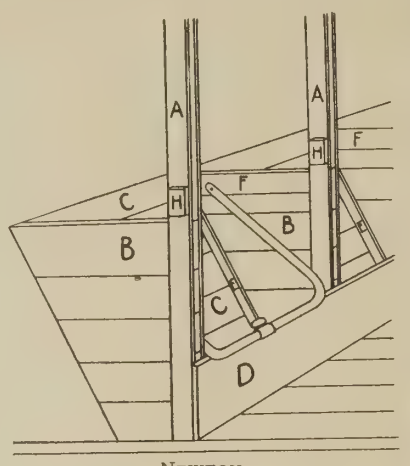


MODEL.

as one pleases, but the width and length should be proportioned to the size of the occupant. We do not consider three and one-half feet any too much room for the cow of average size. The construction of this stall is such that when standing, the rack in front forces her back a few inches so that all droppings fall well to the rear. The bar across the stall at the rear, should be fastened to the floor just in front of the hind feet when standing with her head to the rack. This bar serves the double purpose of retaining the bedding in place and of encouraging the cow to move forward when about to lie down, bringing her head under the projecting rack. The bottom of this rack should be from thirty-five to forty inches above the floor. A shallow manger may extend across the full width of the stall in place of the slanting box shown in the engraving.

The cow is fastened with a halter about the head—and instead of removing the head piece every time the cow is to be loosened, attach a stout safety snap to the end of the rope and snap this into the ring under the throat, letting the cow wear the head piece all the time.

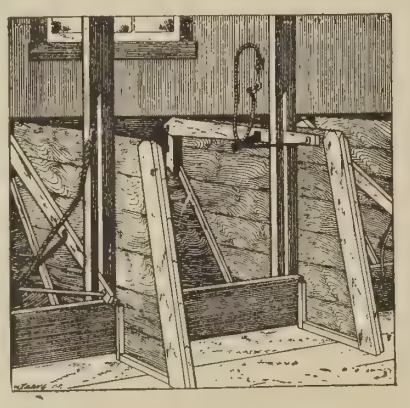
The two illustrations which follow are intended to promote cleanliness by methods not entirely dissimilar from that employed in the Model Stall. The device employed for this purpose in the Newton tie (E. C. Newton Co., Batavia, Ill.,) is a light, bent,



NEWTON.

wooden frame, the sides extending to the front of the manger and securely fastened there by bolts at about the height of the cow's throat. In the center of the third side there is a swivel to which the neck chain is fastened. It is very easy to see that this arrangement forces the cow back when standing and compels her to move forward to lie down. It is also equally plain that the cow has the fullest liberty to move her head in any direction.

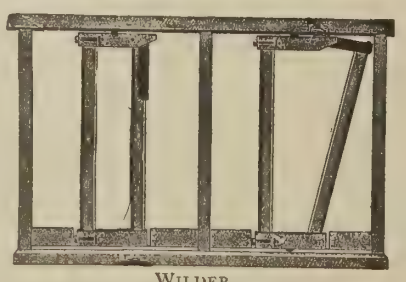
The Williard Knapp tie (Willard Knapp & Co., Cortland, N. Y.) works upon much the same principle, but employs a different device. In place of the bent rim or bail, a



KNAPP.

single arm extends from the front of the manger to its rear and there passes through a slotted upright. An angle iron is fastened to this arm and the neck chain or rope is firmly attached to it. There is complete freedom of the head, whether standing or lying down, and in the latter position the cow has but little opportunity for becoming soiled with the droppings. The claims made for these ties are that they promote both comfort and cleanliness and do not sacrifice safety.

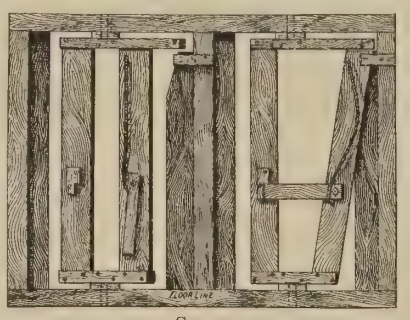
The Wilder Adjustable Swing Stanchion (J. K. Wilder & Sons, Monroe, Mich.) has a patented steel latch which the manufacturers



WILDER.

claim not only insures absolute security but is so constructed and adjusted that when the stanchion is open it cannot be turned out of place. There can be no question that the swinging stanchion obviates most of the objections urged against the old fashioned rigid stanchions. The Wilder form of this class of fastening has the merit of great simplicity, as there are no combinations to get out of order or delicate parts to wear out. The illustration shows the method of construction and operation very completely.

The manufacturer of the Scott Stanchion (B. C. Scott, Bridgeport, Conn.) calls it the Perfect swinging and self-closing cow stanchion. We certainly have no data at hand warranting us to dispute this claim, although it is somewhat contrary to our habit of mind to admit that anything is beyond the possibility of improvement. This stanchion differs from the foregoing principally in the so-called self-closing attachment. The opening of the stanchion to release the cow raises a cross latch which locks the swinging bar back, but when the cow comes in place again and puts her head down to feed, her neck releases this cross-latch and the bar springs back and is automatically locked fast.

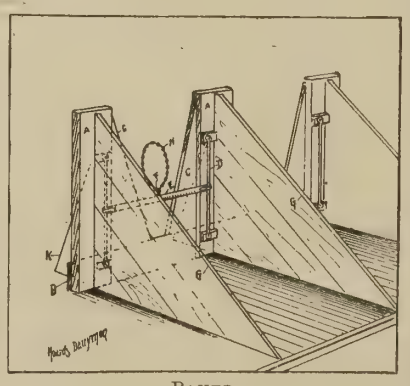


SCOTT.

Mr. Scott prints in his circular some comments regarding the effect of confusion and irritating treatment upon the yield of milk which are so truthful and pertiment that we reproduce them here.

The yield of milk is largely increased by avoiding irritating treatment by hurrying hands. Every kick and blow lessens the yield of milk, according to the temperament of the cow. The best milkers are often the most excitable. Fighting and violence also have a bad effect on the milk yield. Large milkers, good stock, fine bred cows, are more susceptible to violence and excitement than rough stock of low value or low milk yield. The "master" cows are not often the best milkers; they enter the stable first when the door is opened, and if not fastened at once they interfere with the peaceable entrance of their betters, and a period of hooking, shouting, kicks and cuffs ensues, just at milking time, with the worst possible influence on the milk yield, and her permanent milk secreting power. Bewildered and abused by man and beast, the cow discounts her present milk yield.

The next illustration is reproduced from HOARD'S DAIRYMAN of June 26, 1896, and is there called the Baker stall and tie, because we were indebted to Mr. A. D. Baker, of New York, for the plan and following description.



BAKER.

A A are two pieces of 2×4, (wider stuff may be used if a wider stall is desired) three feet and eight inches long, fastened to the floor; B is a board, eight inches wide, nailed to uprights, to make back side of manger; C C are two pieces, made by cutting a twelve inch board diagonally, fastened to the edges of the uprights, to hold them rigidly in place and form a V-shaped opening into the manger; D D are two three-eighth inch iron rods, two feet long, with holes through the flattened ends to receive one-quarter inch bolts, and set out one-half inch by blocks; E is a light, tough piece of wood, fastened to D and D, by heavy band iron bent in shape of a long U, with two holes for rivets to fasten same to ends of wooden rod. Instead of this band iron, one may use the irons that go in the heads of harness traces next to the hames, heat, spread and rivet to the rod.

F is a swivel connecting the chain or rope H, that encircles the cow's neck, with a ring on the rod E. G G are the partitions running back from the uprights A A as shown, bracing them and separating the cows so that they cannot injure each other's teats or udders.

The floor can be made any length required. I use two thickness of inch boards, instead of two inch plank, and lay them so as to break joints, thus preventing any leakage of liquids.

There is no patent on this tie or stall, and if any one cannot understand how to build and use from the foregoing directions, I will try to explain further.

(We have taken the liberty to add to Mr. Baker's sketch and directions the piece K in front of the uprights, to still further brace them, and to prevent cows from stealing hay or grain from each other. This piece should be made like the pieces C C, by ripping a twelve inch board or plank diagonally, from corner to corner.

The dotted lines in the cut represent the parts which are supposed to be hidden from view by the partitions.)

The stalls which follow are in effect pens. The cow is not tied or fastened by the head, but once in her allotted quarters, is kept there by a bar or rope or chain running from one side of the stall to the other. This has proved a perfectly safe method of restraining the animal, provided the stall is not wide enough to allow her to turn around.

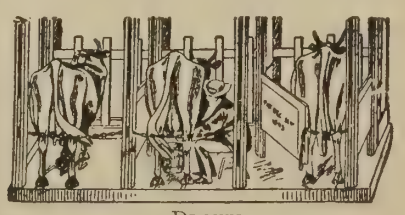
So far as we know, the Bidwell Stall (Porter Bidwell, patentee and manufacturer, McGregor, Iowa,) was the pioneer in this direction, and there are many people using this stall today who claim that the various modifications in the other styles are not improvements. The illustration, although on a greatly reduced scale, shows the general features of construction and the way it is used. There is a rack and manger (adjustable for cows of various sizes) in front,



BIDWELL.

separate for each animal, and a solid partition about half the way back. On the end of this solid partition there is a gate, which swings open to let the cows out, and closes and fastens on the posts in the rear. Whenever it is necessary for an attendant to enter the stall, he opens the gate part way, and by so doing crowds the next cow over, more or less, giving plenty of room for milking, or any other purpose. If necessary, this gate can be fastened back, and whether opened or closed, protects the milker from the feet and tail of the cow at his back.

The Drown Stall, (the Drown Cow Stall Co., Madison, Wis.,) is, in many respects, not essentially different. The details of construction have been varied somewhat, especially by introducing a swinging rack which is intended to give the cow a little



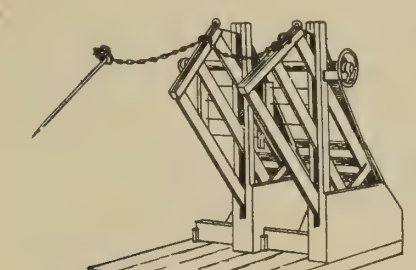
DROWN.

more space for getting up; the partitions are adjusted and operated differently. Parties who have used this stall tell us that they consider them as near perfection as any thing can be made. As we said in the beginning, it is not for us to pronounce on the respective merits of these stalls, or explain in detail the claims of each. If more particular information is wanted, write to the manufacturers.

We can only say that if the experience and conclusions of others afford a just basis for judgment, one's choice cannot lead him astray.

Mr. Charles Thorp, of Dodge county, Wisconsin, is not only a successful farmer, dairyman and institute conductor, but a successful designer and builder of many labor saving devices and conveniences in and about his farm, creamery, stables and other buildings.

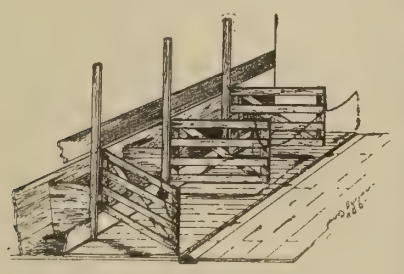
The illustration herewith shows a stall which he designed and described in HOARD'S DAIRYMAN about two years ago. As will be observed, he dispenses with the rear posts and instead of having his partitions swing, he raises them up by a roller just over the cow's heads. This roller may be of any length, running across ten or twelve stalls, if necessary, and raising all the partitions at one time. By detaching the rope from one



THORP.

or more partitions, they may be left in place, when the others are raised. He overcomes some of the objections to mangers, by making them removable. Both the front and the rear, instead of being nailed fast, pass in between cleats and may be taken out for cleaning as often as may be desired. The slots in the uprights are two inches wide, and as the gates or partitions are made of inch lumber, there is plenty of play for the rear to swing back and forth as the cow moves, or to admit the milker.

The last in our series of illustrations represents a stall that has not yet received a name. The drawing from which the illustration was made was taken by the artist in the stable of Mr. L. M. Roberts, in Fort Atkinson, and is a very faithful representation of three adjoining stalls, each three and one-half feet wide. The stall on the right has the end of the stable for one of its sides, and a chain runs from that to the first swinging partition, which is made of four four-inch slats, and a brace and ends of similiar material as shown. These partitions are hung to 2×4 posts by common T hinges, so put on that the gates swing either way



with equal liberty. The posts are set with a slight slant to the rear, and as a consequence the gates or partitions, when not fastened back, rest at right angles with the mangers. A board, twelve inches wide, is nailed to the front of these posts, just above the gates, which prevents the cow from rising up so as to get over the manger. The illustration shows these mangers, but they are not a necessary part of the scheme. If one prefers an open feeding place, a bar placed in front answers the purpose of keeping the cow in place. The partitions swing about twelve inches above the floor.

There are other and much more expensive stalls in some stables. Some of them are made of iron, both for durability, and to insure against infection. Some of them, notably those at the Wisconsin Experiment Station barn, embody practically the same principles that appear in the stalls herewith illustrated. Mr. Gurler has iron stalls in his barn, but at present prices for iron it is not to be expected that many farmers will care to indulge in such stalls.

May we not reasonably indulge the hope that these illustrations will suffice to give our readers some useful and timely suggestions on this by no means unimportant subject of cow stalls and ties. We plead with all to respect the rights of patentees and manufacturers. If your choice falls upon one of their devices, do as you would wish to be done by. So far as we know, all these stalls and fastenings are sold at as moderate prices as the cost of labor and material will warrant, and one is sure to get a better product than a novice can turn out. On the contrary, if one prefers to try one of the others, study the situation, measure your cows and use sound judgment in adapting means to ends.

THE dairyman who has a summer silo is right in it; his milk supply is not falling off as is his neighbor's, and the prices of butter and milk are advancing rapidly. How many men are going to take this year's lesson to heart and provide green feed for summer use in the future.

Remedy for Cow Pox.

ED. HOARD'S DAIRYMAN:—Tell F. M. S. to use new soft soap for cow pox; it will surely cure it, and the quickest of anything I have used. It will also cure prairie itch on children. C. B. BOOTH.

Warkworth, Ont.

Frozen Ensilage.

It has been generally supposed that the freezing of the ensilage in winter would injure it for summer feeding. During the past winter, we had occasion to examine ensilage which was stored in a stave silo erected out of doors, with no protection whatever to keep the ensilage from freezing, except that afforded by the staves, which were two inches thick. The ensilage was frozen around the outside of the silo to a depth of about six inches. This ensilage was not fed out until June, and that which had been frozen, kept just as well as that which had not been frozen, and was apparently not injured in the least by the freezing. It thaws out slowly away from the air, and without the presence of oxygen, there is no possible chance for it to decay or spoil. So with the construction of the stave silos, we are led to believe that no protection whatever is needed to keep the ensilage from freezing.

For winter feeding, of course, the ensilage would not be fed while frozen, but each day when the material is thrown from the silo, if that which is frozen is mixed with the warm ensilage from the center of the silo, in a few hours, the whole mass will be in good condition for feeding. The silo should have a place on every dairy farm, and ensilage should be provided for both winter and summer feeding.—L. A. CLINTON, *Rural New-Yorker.*

Good Prices for Pork.

Five-cent hogs are here. The man who predicted this price, is now honored as a prophet. The market has been steadily tending upward, with the inevitable declines that accompany such an advance, until this high figure was reached on Monday for an especially attractive load. This is the highest price paid since August of 1895. The upward movement has been stoutly opposed by buyers and in the face of sluggish provision markets, it has seemed strange that they have not been able to exert more influence. The explanation lies in the great growth of the trade in fresh pork. Mechanics are more generally employed than for years past and wages are steadily rising, so that consumption of fresh meats has been materially augmented the past few months. Moreover, another factor in the problem is the improvement in refrigerating facilities and the consequent expansion of the trade in fresh pork. The demand from the South for the salted meats, long in favor there, is remarkably small and this, doubtless, affects the provision market unfavorably, but shipments of fresh pork more than compensate for the loss in the demand for salted products. Whether hogs can remain at their present prices if the huge promised corn crop safely matures, is a question, but if they do, the farmer will, more than ever, have occasion to be grateful to the hog as the mortgage lifter.—*Breeder's Gazette.*

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio

Stock Feeders,



Dairymen and Farmers who know from experience that grinding saves fully half the grain; that ground feed is easiest digested and assimilated and that its feeding saves nervous force and energy should *look into the merits of these*

Scientific GRINDING MILLS.

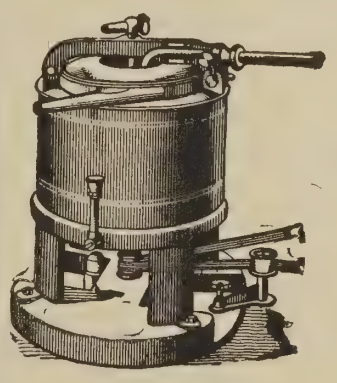
They crush and grind ear corn, and all small grains singly or mixed. This style, plain sweep mill. We also have other styles plain and geared mills for horse, steam and other suitable power. Before buying a grinding mill of any kind send for our FREE catalogue I.

The Foos Mfg. Co., Springfield, Ohio.

GALVANIZED STEEL **OKAY TANKS**

GUARANTEED NOT TO BURST

Can't Leak or Rust. Made any size or shape **Made only by us** and **sold** you **direct** from our factory at lowest wholesale prices. Catalog Free. C. E. Banta Mfg. Co., Box 874 E, Chicago, Ill.



The REID LONG SPINDLE Separator

STANDS EVERY TEST.

The Reid Long Spindle Separator has been subjected to every possible test, under all conditions, and the results have proven that, for rapid and close skimming, for ease of regulation and economy of operation, it is as nearly scientifically and mechanically perfect as a separator can be.

Read This Statement

from an experienced and well-known New York Creameryman:

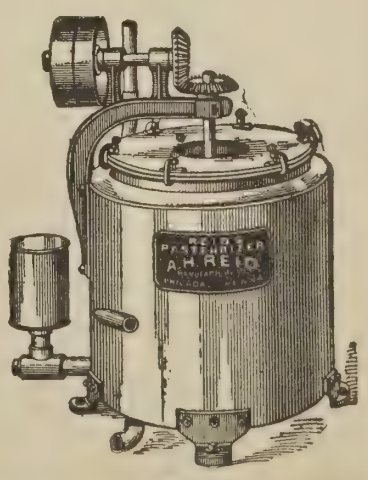
RED HOOK, New York, July 29th, 1899.

I have just completed a test of the machinery in the Medusa Creamery, under the supervision of a person competent to do this work with the following results, which I must frankly say, are entirely satisfactory:

When skimming 2,715 lbs. of milk per hour at a temperature of 85 degrees, making 32½ per cent cream, the skim milk showed a loss of .02 of 1 per cent.

When skimming 2,805 lbs. of milk per hour at a temperature of 156 degrees, making 32½ per cent cream, the skim milk showed a loss of .01 of 1 per cent.

We feel confident that the Reid Separator will skim 3,000 lbs. or more per hour and do equally as good work. D. W. WILBUR, (Medusa Creamery Co.)



Write for the Reid Long Spindle Separator book and descriptive circular of the **REID PASTEURIZER.**

A. H. REID,

30th and MARKET STS., PHILADELPHIA, PA.
and CEDAR RAPIDS, IOWA.

The Suspicions and Prejudices of Creamery Patrons.

[By G. W. PRIEST, of Meriden, read before the Farmers' Institute, Meriden, Kansas.]

Ever since man commenced to do business, the man in business has been reproached and maligned by the man out of business, and with whom he does business, either through jealously, suspicion or prejudice.

Ever since man commenced to sell the products of his farm by weight or measure, this everlasting howl of somebody trying to beat and cheat him has been in the air.

The business man under suspicion may be the best friend he has on earth, and would rather give him a dollar than cheat him out of a nickle, yet the fact that he buys cattle and hogs, or corn and wheat, or sells sugar and coffee, makes him a suspicious character in the eyes of a great many people who sell him their products, or from him buy their supplies.

Exchange places and put the farmer in the store and the merchant on the farm, and in the eyes of these same people their characters change at the same time. The merchant as a farmer will, of course, become honest, and the farmer as a merchant will forthwith go to cheating his neighbor farmers.

Now, while this is true, generally speaking of the man in business and the men who do business with him, some kinds of business are much more subject to suspicions than others, and never since the days of Adam has there been a business around which clusters so many suspicions and prejudices as the creamery business of today. This is partly accounted for from the fact that creameries do business on a different principle than any other business institution. It is the only business institution on earth that buys your goods without telling you what it will give you for them.

Suppose I go to my neighbor to buy his fat cattle and hogs. I tell him I will buy his stuff, and ship it, and after paying the expense of shipping, I will take out my profit and give him all the balance. He would probably want to know how much profit I would want, but of course that would be none of his business.

He shouldn't let such small things as that trouble him, for I surely would take enough. I take my eggs to the store and ask the merchant what he will pay for eggs. He says, "I don't know, but I will take your eggs and handle them, and after paying the expense of handling them, and a profit for me I will give you the balance." Now how many cattle and hogs do you think I could buy, and how many eggs do you suppose that merchant would get? And yet that is the very principle upon which creameries do business. They say: Bring us your milk. We will make butter out of it. We will sell the butter and after taking out all the expense of making and handling it, and a profit for us we will give you the balance. How magnanimous!

Now the patron don't know whether those profits mean one per cent a month or ten per cent a month on the money invested in business, or whether it will amount to $100 a month or $1,000 a month. He does and can know nothing about it. He has no way to protect himself.

The old maxim: "It takes two to make a bargain" is not in it. It is a clear case of one making a bargain. But while this is true of the creamery and its business, the imaginations and suspicions of the patron are something wonderful. And they will continue and increase, and grow worse until creameries commence doing business on a principle alike equitable to themselves and their patrons.

The Babcock machine, the creamery scales, and the men who run those machines, come in for the most of the calumnies.

Your cows don't give as much milk to-day as yesterday and, of course, the milk-weigher cheated you. To-morrow your milk weighs more than it ever did without any apparent difference in cows or pasture, which, of course, is all right. The next day it don't weigh so much and you are cheated again, and so on until the end of the month, the milk-weigher being responsible for all the shortage in your weights. You forget that cows are fickle and don't give the same amount of milk each day.

Take two cows on same feed, running together in same pasture and exactly the same care; one will give less milk to-day than yesterday and the other more. To-morrow or next day on same conditions, perhaps that will be changed to exactly the opposite in milk yield. Now what causes it? Why will cows be so fickle? I think they do that to give their owner a good chance to cuss the creamery, especially the weigher.

I try to reason with you— I tell you that milk-weigher is not a bad fellow—never was known to do anything very bad and certainly would have no interest in trying to beat you and I. But you say to me that John Smith, or some other one of the directors or the manager or owner could easily fix him. He could give him five dollars a month extra to take something off of each man's milk. Now let us figure a little. The creamery here at Meriden has about two hundred patrons—then that milk-weigher would have to cheat two hundred different people each and every day. There are thirty days in the month. Thirty times two hundred would be six thousand—Holy Moses! What a thief ! ! Steal six thousand times a month and do all that for five dollars. In other words he would have to steal twelve times for a cent. Every one of you in this audience think for a minute and then calmly and honestly think how many men there are in this neighborhood who could be bought to do such a wholesale business of stealing from their neighbors, for somebody else, at the rate of twelve steals for a cent.

Let me tell you that creamery owners don't have to hire somebody to steal for them. After the butter is all sold, and after the first of the month, they figure up the expenses of running. They foot up the amount of their receipts for butter and everything else sold for the preceding month. They substract the expenses from the whole amount of money taken in, and that leaves the profit for the creamery and the pay for the patron's milk.

Now then the creamery company takes out of that pile what they want, or think they dare take, and they divide the balance among us fellows and call it pay for our milk. Now I would like to know what a creamery man would want to steal from us for, in our test or our weight, when he can take all he wants without stealing it.

Then there is the test business—where is the eye that hath not seen and the ear that hath not heard of the iniquities of the Babcock test? It is probably the least understood, and the most abused piece of machinery in the land—but the abuse of the Babcock machine is nothing compared to the abuse showered upon the man who does the testing, or takes or prepares the samples for testing. People can't understand why, under same conditions, so far as they know, and with same cows, their milk should vary four or five points in a month. In some of our large creameries one man does the testing at all the different plants, a man who has no interest in the business, and, of course, no interest in trying to cheat you and I. Yes, but says one, "That man is all right, but the samples are doctored before that man gets them."

Now, who would doctor them? And echo answers "Who!" I have already showed you that the managers and owners of creameries didn't need to do that kind of business, because they could get it easier and without stealing it. The fact is, there are so many things capable of affecting our milk, things that we don't see and can't know, together with our ignorance of the working of the machine, that it is no wonder that we are ofttimes surprised at our test. But the same cause that will make a cow give a quart or two less milk today than yesterday, will probably affect the quality of the milk equally as much as the quantity.

But there is this difference. We can see difference in the quantity when our cows fail to give the usual amount, but we cannot see the difference in the quality and cannot know anything about it, until revealed by the Babcock test.

Scarcity of water—and that means poor, hot, muddy water—extremely hot weather when the cows will stand in the shade and fight flies from nine or ten o'clock in the morning to four or five o'clock in the afternoon—all these will certainly affect the quantity as well as the quality of the milk and hence show a low test. Anything that affects the nervous system of a cow will affect her milk. But creamery companies are frequently to blame for many of these suspicions. They sometimes put a man to weigh in milk whom the patrons have no confidence before he commences his job. They are not always blameless in the selection of a manager and other officers. But the thing that makes the cow man maddest, is for him to find out that little creameries around the big creamery where he sells his milk gave about a cent a pound more for butter fat in May, one-half cent more in June, and one or two cents more for July

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ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Grandsons **Brown Bessie,** champion butter cow at the World's Fair, and **Diploma,** sire of 50 in the list, including **Merry Maiden.** These calves have white markings, and are offered at **farmers' prices** if taken quickly. Also three good cows in calf to **Recorder,** son of **Brown Bessie.**
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here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
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Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
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SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
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Butter Bred Bull Calf, 10 MOS. OLD, a Little White.
Very handsome . . . Send For Pedigree. **$50.** J. P. BRADBURY Pomeroy, Ohio

than his creamery paid for same months.

In that event you bet he needs a safety valve—he knows the more milk the creamery gets the cheaper they can make the butter. It takes a certain amount of milk to pay running expenses, and after that the more milk they get the more money they make, and the more they can pay for the milk. Now, when a big creamery, getting fifteen to twenty thousand pounds a day pays less than a little creamery getting five or six thousand pounds a day, there is certainly a colored gentleman in the wood pile, and I would not blame a patron of that big creamery if he would call a meeting of his neighbors and devise ways and means to make the atmosphere in the immediate neighborhood of that creamery pretty warm.

How Man Improves Cow's Milk.

A writer in the *Rural New-Yorker* tells of a visit recently made to a laboratory in New York City, in which milk is specially prepared for the use of infants and invalids. The retail price of the improved milk is twenty-five cents per quart. The writer says that no doubt there are thousands of farmers within shipping distance of New York who are glad to obtain ten per cent of this price. But this is "Modified Milk"—modified, manipulated and made over by human skill so that the cow that first gave it to the world would hardly recognize it. The farmer will claim that the old cow knows her business well enough, and that no two-legged milk handler can improve on her product. Some of the doctors and the babies in New York think otherwise, and their desire has led to the great demand for modified or made-over milk. I recently went through the plant of the Walker-Gordon Laboratory and saw how the milk was handled.

It is true that a healthy cow understands her business. The milk she produces was designed by nature to nourish her calf. Man steps in and takes the calf away, and says that the milk is a perfect food for humans. So it is for those whose digestive powers are equal to those of the calf. Children and adults as well are not alike in their ability to digest even so simple a food as milk. The calf itself is brought up on a "modified milk." The cream is taken off, and the skim milk forms the basis for the calf's food. The fat taken in the cream is supplied in the form of linseed meal, egg, boiled oat meal, or even "oleo" oil, until the little thing has a stomach strong enough to dispose of rougher products. The calf is a master at the business of digesting milk. We are glad to take his stomach to make rennet for our cheese making.

Our little human calves, if fond young parents will excuse the expression, vary greatly in their digestive ability. Some of them have a hard struggle for life at best. With some of them the foundations for dyspepsia are laid before they can talk about them. At the Walker-Gordon Laboratory is a chart hung on the wall with the following table:

		Per cent fat.	Milk sugar.	Protein
1	week.	2	5	0.75
2	weeks.	2½	6	1
3	"	3	6	1
4-6	"	3½	6½	1
6-8	"	3½	6½	1½
8-16	"	4	7	1½
16-24	"	4	7	2
24-32	"	4	7	2
32-36	"	4	7	2¼
36-40	"	4	6½	2½
40-44	"	4	5	3
44-48	"	4	4½	3½
48-52	"	4	4½	4

That is the doctor's estimate of the way a child should be fed for the first year of its life. At birth, the child is to be fed a three-per-cent solution of milk sugar in water. This is for the first twenty-four hours. Then for the first week two per cent of fat are added, and a little protein. The milk is changed thereafter as shown in the table. The ration is one ounce per day at the beginning, and nine ounces per day at the end. It is quite evident that they do not expect the child to become very muscular during the first few weeks of his life. The protein is nicely regulated to suit the time when the child would creep or walk.

Human milk varies greatly in composition, and is more susceptible to changes which affect the infant than any other. It is slightly alkaline, while cow's milk is acid. It is probable that some children are but poorly nourished by the milk of their mothers, or that of an ordinary wet nurse. Doctors boldly claim that the "theoretical milk" described in the table and carefully prepared, is better and safer for the child than the ordinary human milk. The business of the Walker-Gordon Laboratory is to mix this milk accurately and distribute it

It costs about $180 per year to feed a child on this theoretical milk. This may seem like a great price to those who may be said to feed a child on odds and ends; yet there are plenty of people in the great cities who consider this a small price to pay for a little human life.

How is the milk modified? They start with the skim milk from which the fat has all been removed. There is no way of extracting the protein or muscle-makers from the milk. There is no way either of adding to the proportion of protein except by slowly evaporating the skim milk. The protein in milk is the most soluble form of that substance—more digestible than the white of an egg or beef tea. Nothing can be added to take its place. In some forms of kidney disease a special form of milk rich in protein is found useful, but about four per cent is the highest ordinarily required. Of course, milk sugar can be added by dissolving it in water and pouring it into the milk.

The methods of modifying the milk are very simple, yet effective. A number of large glass jars, which we may call auxiliary cows, are hung on a stout frame. At the lower end of each of these glass cows is a rubber tube, which may be "milked" about like the rubber "teat" on a Small's calf feeder. These glass cows vary much more in the quality of their yield than Jersey and Holstein cows. One contains skim milk, another distilled water, another pure cream of standard strength, another a definite solution of milk sugar, and another lime water.

Milking these glass cows is a simple operation. The milk is handled in glass tubes, or bottles, which are accurately graded or marked. Suppose the child is nine months old. A certain marked quantity is put in the bottle, then enough of the sugared water to fill up to another mark is milked in, and so on with cream, lime water or distilled water, until the limit is reached. Then the tube is filled with absorbent cotton, and put, with others, in a wicker basket, which is put into cold water, awaiting delivery to the customer.

Smothering Weeds in Waste Places.

There is an old saw which says that "Satan finds some mischief still for idle hands to do." This principle has its counterpart in the vegetable kingdom, and there is no doubt weeds are largely spread through the agency of waste lands. We do not mean by this the prairie lands which have never yet been broken. These are engaged in grass growing and are comparatively innocent in the matter of weed propagation. Patches of land which have been broken, or where for some other reason the sod has been killed and then left vacant, are the offenders. Nature abhors a vacuum, and such places soon become active breeding places for weeds. Any observer will notice that a large number of these are to be found around most of our towns, along the roadways, and on a good many farms, and the spreading of seed from these patches must be great. The writer has now in his mind a town where a patch of Canada thistles has secured a footing, and which, despite the request of one or more farmers, has been left almost alone—and this, too, in a district where this plot of thistles is almost, if not the only one.

In the Manitoba Noxious Weeds Bulletin, Rev. W. A. Burnham offers the following very sensible observations and suggestions in regard to this matter:

"There are many instances on record of low-growing, tender plants being used to choke out plants which seemed to defy destruction in other ways. * * *

From observations made during the past few years in the province, the writer is persuaded the same principle may be applied to our roads, railway grades and waste places in both town and country.

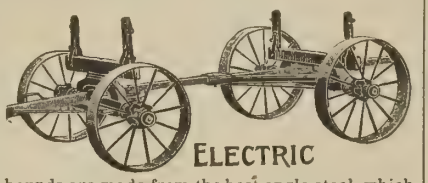
"The plant suggested for this purpose is the common white or Dutch clover. It is possessed of great vitality, grows easily from seed, is proof against our severest frosts, spreads rapidly and is very persistent in its growth. As an illustration of what it may accomplish may be noted certain streets in Winnipeg and West Selkirk, where it has killed out every weed. From the latter town it has been carried along the ditches to the Red river, in the lower reaches of which it has in many places asserted itself above all other vegetation on the river bank.

"The suggestion is therefore made that municipalities, railway corporations and individuals be encouraged to make trials of this new method of fighting weeds in places where cultivation is impossible. A few dollars spent in seed scattered along roads, railway grades, or waste places, would, I am convinced, soon lead to a wonderful reduction in the annual cost of destroying weeds. It would have the further advantage of providing pasturage upon land now worse than useless, of binding the surface of grades, and of blotting out patches of unsightly weeds which are such eyesores in our towns."

Action has been taken, we believe, in a few places to follow this suggestion, but still it has not been taken hold of generally. As to the hardiness of the plant, the writer can say that he has seen it growing in all sorts of places from the Red river to the Rocky Mountains. Its smothering habits are well known, and there are thousands of spots in Manitoba and the Northwest Territores which raised weeds this year, to which this suggestion would apply.—*Northwest Farmer.*

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SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale. W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians. Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 5 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis



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High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

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DE KOL 2nd Is the world's four-year-old, and greatest officially tested butter cow in Holstein history, Her record a four years old is 33 lbs. 6 oz. butter in 7 days; at 11 years, 26 lbs. 9 oz. in 7 days, official test. De Kol 2d won the Register Butter Cup, valued at $200. Valley Mead Farm is in a position to give the blood of this unrivaled butter cow, through her greatest and only son in the west, called De Kol 2d's Alban. His daughter holds the world's official test for one day in America, viz., 4 83 lbs. FOR SALE—Young bulls, grandsons of De Kol 2d. Valley Mead Farm, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form The herd contains seven daughters of Sir Nether land Soldene Clothilde, No. 18390, H. F. H. B the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**



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130 Holsteins. First prize herd at Trans-Mississippi Exposition at Omaha. 1st and 2nd on aged cows and 1st. on two-year-old heifer in the seven day butter test, open to all breeds at same Exposition. Three cows in this herd have produced the most butter in seven days of any cows ever officially tested. A score of others nearly as good. Our richest bred bull calves are taken young. Sons of De Kol 2d and Netherland Hengerveld head the herd. Animals of both sex and any age for sale. Write stating just what you want. HENRY STEVENS & SONS, Lacona, Oswego Co., N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

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1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

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GUERNSEYS! 84 Cows averaged 399 lbs. of Butter each in 1898. . .

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Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Comments and Queries from Robinswood Farm.

Limitations to the Usefulness of the Silo.—Mixed Ensilage.—Microbic Causation of Scours and Milk Fever and Preventive Treatment.—Skim Milk and its Best Disposition.

ED. HOARD'S DAIRYMAN:—The season for filling the silo has come again. We have a good corn crop to help out the deficient hay crop. Last fall we top-dressed an old sod with one ton of hard wood ashes to the acre. During the winter we hauled on ten cords of manure to the acre. At planting time we drilled in three hundred pounds of superphosphate to the acre, along with the seed. This land was run down, not having been cultivated within the memory of any one on the farm—only hay taken off of it continually for forty years at least. It had got down to about a quarter ton production to the acre, and held at that.

What the yield of this crop will be I cannot tell, but it is a heavy crop; there are from four to eight stalks to the hill, and most all heavily eared. Probably there will be as great a weight of ears as of stover. This will make rich silage, sufficiently concentrated so far as carbohydrates are concerned. If it shall prove practical to silo soja beans with corn and thus store a balanced food for convenient feeding, it will be a great thing.

But I find advice coming from some of the stations that this is not good practice. Why is this? Does the soja bean make good hay? To pull, stack and thresh the soja plant and grind the beans means much expense, as well as a loss of unrelishable bean straw. In some localities this bean will not mature. Will some one give the reasons for not siloing soja beans with corn?

It is a question whether the small farmer, working single handed, should silo his corn crop. He is out interest on cost of the silo, repairs and cash outlay for help in putting in the crop. With northern grown corn there is little loss in feeding the fine stalked stover, and the cattle relish cob meal. I feel sure that well cured and stored fine stover and cob meal would prove a more healthful food than ensilage. If a man only grows a small corn crop, and has the time to put into husking and the other work incident to the dry harvesting and feeding the crop, it does not seem worth while to put in a silo. But if a farmer is going into the business for all it is worth, I do not see how he can afford not to have a silo for at least a part of his crop, as a matter of furnishing variety in feed, as well as of convenient handling in harvesting and feeding the crop, if for no other reason.

The important thing is to grow lots of corn, and to grow protein crops to balance the feed with, it if possible. It is the practice of some of our farmers to pull off some of the ears from the ensilage corn, allowing it to lie on the ground until convenient to collect and husk it and using the husks for bedding. What is the general opinion as to the economy of this practice? Of course the dry cob meal gives variety to the feed. Do the advantages of the practice overbalance the cost?

Have any decisive experiments been made to demonstrate the relative amounts of digestible nutrition in a large variety of corn, like Leaming, in comparison with a smaller early maturing and more condensed variety, which matures readily in these northern districts? I am going on the theory that by growing the latter variety, we get as much nourishment to the acre, and do not have to handle as much water and woody fibre in harvesting, exercise greater economy in storage room, and are able to put a more concentrated food into the cow. If I am wrong in this idea, I would be glad to know of it.

This drouthy season goes far to confirm the opinion that the dairymen should not place over much dependence on his pastures, for the nourishing of his cows. Consider the pastures as highly valuable for exercising grounds; if they hold out for feed, well and good, but no one ought to place entire dependence on them. In the future, I shall endeavor to keep a full supply of forage on hand for summer feed. With us, I imagine the dried grasses and legumes will prove the most practical source of food for this purpose. On easily cultivatible lands, the siloed corn crop stands easily first for this purpose.

I am experimenting a little with broad leaf rape, as a late soiling crop, but can see that it cannot compare with corn in economy of production and cost of feeding. Does rape give milk an objectionable flavor? If not, a moderate use of it for variety's sake might be well. It certainly produces an abundant crop at a season when the labor for its feeding is available, and the grass crop deficient.

It would be well if some of the experiment stations should definitely determine the cash value of concentrated protein balancing feed, and of concentrates in general in comparison with balanced roughage crops. I may be wrong in concluding that the butter farmer cannot afford to buy concentrates, either to balance his feed or to increase his product, and if I am wrong I should like to have it shown. But when I refer to my last winter's experience and look over the experiment station tabulations, see the sum total of the cost of butter production per pound, note the amount of concentrates fed to get the large production, and figure the amounts of digestible nourishment in both the concentrates and in the roughage, I cannot help believing that there is loss in feeding boughten concentrates.

If a farmer produces them himself and feeds them, that may be a good market for them. I am not sure but that if a farmer is buying fertility for his farm, it may pay him to buy cotton seed meal at even $25 per ton; but it would seem much cheaper to buy potash and phosphoric acid in excess and grow nitrogen collecting feeds. The nourishment in clover hay can be produced very much more cheaply than that in cotton seed meal bought in our locality, and in its production, exercise a much more profitable influencing effect in fertilizing the farm, even if it is not so condensed a protein feed.

We have had our first death from scours. The calf was dropped while no one was present, and had a good time sucking before it was taken away. It died the second day, and acted and died as if it had an overwhelming dose of ptomaine poison, which (apparently) paralyzed its nerve centers, and which was followed by so profuse a diarrhœa that it was quickly carried off. The mother was a strong healthy cow, and the calf was apparently strong and healthy for several hours after birth. Its sire was the same as served all the herd and a thoroughbred Jersey. The next cow that calved was milked just before it dropped its calf, and there was no scours in that case.

If the first calf did not die from the poison generated in the milk of the dam by bacteria, what was the cause of its death? Certainly not from over feeding in this case. Did it die from bacteria poisoning generated in the uterus of the dam? It does not look that way. It is safe to believe that a specific germ may be a principal cause of abortion in cows, just as the germ of syphilis is the most frequent cause of abortion in the human female. But it is reasonable to believe that milk poisoned by bacteria in the milk ducts of the dam is a prominent cause of fatal scours in the calf; that general systemic poisoning by bacterial ptomaines is the cause of death from so-called milk fever in the cow.

This hypothesis is corroborated by certain facts. While the calf is growing in the uterus, a large amount of nervous energy and blood supply is directed to that organ. Coincidently with the function of reproduction, the nerve centers are also undergoing an increase in development and power of function. But when the calf and placenta are cast out of the uterus and that organ undergoes involution, the highly developed and active nerve centers, which are also directly connected by large nerve trunks with the udder and send out their influence, it goes largely to the udder.

This is followed by a largely increased flow of blood to the udder; and before much milk can be formed or drawn away by the calf or by man, admirable conditions are furnished for the growth of bacteria in the milk ducts and glandular tissue, and for the general systemic absorption of the poisonous products of such bacterial growth.

If this theory is correct, it would seem to be good practice to milk the cow before calving, so as to get out as much of the bac-

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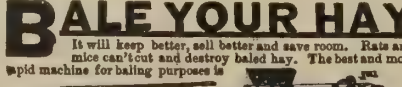
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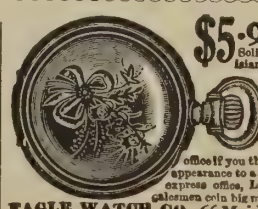
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teria and their poisonous products from the udder as may be possible. I have given orders to adopt this practice in my herd and not to give the colostrum to the calf. I see no reason why it would not be safer to give the new born calf milk from some other cow than that of its dam, and if practical, it would be better to allow the calf to suck a foster mother. Even with the best of care, hand feeding puts more bacteria into the calf than it would be likely to get in sucking. Do cows that do not go dry have milk fever?

Hand feeding of calves does not seem a very rational proceeding in this day of low cost butter fat. If veal is the object, more of it can be got if the milk is drawn directly from the udder by the calf, while if the calf is to be raised for milking purposes, it gets a better start in life if it has whole milk for a time at least. From a theoretical point of view it does not seem good practice to feed such an embyro cow skim milk. From the point of view of the breeder who does not care a rap what the history of the animal is after he pockets its selling price, and who seeks early maturity, this is a fine practice, but for the farmer who wants to keep a cow through many years of milk production, an early maturity that is secured at the cost of an undeveloped alimentary tract, is a delusion and a snare.

Concentrated and easily digestible food will make a fine, quick growth on the young animal, but an animal that has got to digest a large amount of crude, bulky fodder during its working life, to be a profit to its owner, ought to be given bulky food very early in life, and not too easily digestible. If we were working for two-year-old beef it would be a different matter.

Of course, a properly balanced ration is of vast importance in securing the correct development of the young heifer, and a narrow ration, rich in protein, is desirable, but where practical it would seem better to have the protein fed in a less concentrated form than in skim milk, though if bulkiness in the ration is secured by the carbohydrates, the feeding of skim milk is an economy, if not the best practice.

What do the authorities say in this matter? Enough protein to secure a milk producing tendency is desired, but more than enough is wasteful, as protein is too expensive a food to generate heat and energy. The good milk cow—the cow that will live many years of profitable existence, has not only got to have an inbred tendency to produce milk through an evolved milk forming apparatus, but it has also got to have a highly developed digestive apparatus as a preliminary condition.

What is the best disposition to make of skim milk, especially taking into consideration the difficulty of securing it from the separator station in a sufficiently unchanged condition? The hog is usually the most convenient means of utilizing it, but it would seem that when pork is bringing only five cents a pound, while butter is bringing from fifteen to twenty cents per pound, it would be better to feed it to the cow and help balance the ration, especially as protein foods are so expensive to raise or to purchase. Cannot the DAIRYMAN bring more experience in this line to light? Is it difficult to get the cows to drink ordinary separated milk? Would it be well to sterilize the skim milk at the creamery with perhaps a preliminary addition of lime water or soda, to neutralize acids formed and prevent coagulation? The method of coagulating with rennet or mixing the cheesy matter with other matters seems quite a bother.

Perhaps it would be well to quickly and thoroughly ferment it with yeast and turn the milk sugar into alcohol and thus secure a comparatively harmless form of preserved milk. The loss of carbohydrates would not amount to much, and fermented milk in the form of Koumyss or other named medicinal preparations is a very digestible form of nutriment for invalids. Why not for cows,—especially for mature cows and for those past their digestable prime?

Alcohol is a mighty dangerous and unbalanced food for human beings and in health always does some physical harm, but it would lose its dangers when fed to a creature which would not know how to make it and has no money to buy it. Possibly some of the chemical preservatives which merely coagulate and harden the protoplasm of bacteria and of the milk, and which thus render it difficult of digestion for infants and other human beings, might not prove objectionable in the case of milk cows. Why should not the experiment stations investigate the value of skim milk when fed to cows and devise a practical method of doing so?

J. M. W. KITCHEN, M. D.

New Hampshire.

Notes on the Proper Handling of Barnyard Manure.

In those portions of the manure which are accessible to the air one class of bacteria live and breed in enormous numbers. They feed on the oxygen of the air and the nitrogenous portion of the manure and in their excrements give off large quantities of nitrates, the latter being the direct products of the oxidation of nitrogenous organic matter anywhere, whether in the bodies of these bacteria or not. These nitrates, being very soluble in water, drain down into the interior of the manure heap, just as they drain through the soil. But instead of all going off in the drainage water and becoming lost, as they often do in the soil, they are chiefly lost by an entirely different process.

In the interior of the heap, shut away from the air, these nitrates fall prey to another class of bacteria known as "nitrate destroyers." They completely undo the work of the other bacteria, or "nitrate formers." The "nitrate destroyers" live on the non-nitrogenous constituents of the straw and leaves and the oxygen of the nitrates. This liberates the nitrogen in the form of gas, which escapes into the air and is lost to the farmer. The process also consumes the nitrogenous portion, which is chiefly the remainder of the litter. It is formed into water and carbonic acid gas, which escape into the air and thus diminish the bulk of the pile. While the "nitrate formers" live near the surface of the manure and require air for their work, the "nitrate destroyers" live from the air and do not need it. They are dependent, however, on food of a certain kind and must have plenty of it, otherwise they become inactive and can do no damage, though millions of them may exist in the interior of the manure pile. One of their principal foods, the non-nitrogenous material of the litter, they cannot use as food until it has been made soluble by a third class of bacteria, which causes the rotting of the litter. Nitrates are also indispensable for their nourishment. If, therefore, they are deprived of either one of these constituents of their diet, they either die or at least become harmless.

The work of the "nitrate formers" is beneficial. It converts organic nitrogen into nitrate, a most available form of plant food. Half rotted manure contains nitrogen largely in this form. The work of "nitrate destroyers" is destructive. It removes the soluble nitrates from the manure. It converts half rotted manure into well rotted manure. In this way the different effects produced by manure in its three different conditions are explained. The nitrogen in fresh manure is largely organic and not immediately available It therefore has a slower and less effect than half rotted manure. The nitrogen in half rotted manure is largely in the form of nitrates, and this is available. The nitrogen in well rotted manure has all been converted into nitrate also and was once available, but has subsequently been lost in the air. This is why the well rotted condition is the least valuable of the three.

In handling manure, the farmer should strive to place it at the disposition of the growing crop just at that moment when the most nitrate has been formed and before any has been destroyed. The most favorable conditions are obtained when fresh manure is packed as tightly as possible away from the air and kept in that condition till half rotted and then plowed under just before planting or sowing. Under these circumstances, although the third class of bacteria have in the rotting of the litter made soluble food of one kind for the "nitrate destroyers," the latter have been deprived of their other necessary food, the nitrates, for none could be formed in the tightly packed mass, and they have remained harmless. But the heap has become half rotted without them. After the manure is plowed in, the "nitrogen formers," now having plenty of air, rapidly produce nitrates, which are beyond the reach of the destroyers; for by this time all their soluble non-nitrogenous food has been decomposed and has gone into the air, leaving them to die. The growing plants in the meantime absorb the nitrates.

If fresh manure is plowed in directly before seeding, a poor result is obtained, for the nitrates are not formed until after the plants have passed their growing period, and they consequently starve. As might be supposed, winter crops fare better than spring corps with this proceeding. By plowing in fresh manure several months before seeding a much better result is obtained, because the nitrates are on hand and are being formed at the growing period of the crops. Experience has abundantly proved that it is better to plow manure into the soil and allow it to lie there rather than in the pile. Whether it is better to leave manure spread upon the surface of the land, rather than to plow it in or leave it in the pile, depends chiefly on the amount of loss caused by surface drainage.

The foregoing paragraphs are extracted from an article which appears to fill a want—that of inexperienced farmers and practical farmers who have scant time for the literature of their vocation, for a brief, compact and lucid presentation of the manure question. *Bulletin No. 58 of the Hatch (Mass.) Station.*

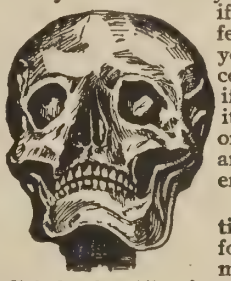
More Fraud.

The inspectors of the State Dairy and Food Commission, says the Minneapolis (Minn.), *Daily Times*, have placed the wedge that will open one of the biggest frauds in the butter business that has been discovered for years. For some time past the commission men have been receiving suspicious butter from country districts, and the matter was reported to the commission last week. A sample was taken to the commission's chemist, and an analysis showed that it was a very poor "process" butter and that it contained preservatives. The result was that a large number of tubs of the stuff were seized in both Minneapolis and St. Paul.

Later it was discovered that the butter contained a mixture manufactured by a Chicago firm, who claim that with its use the weight of butter can be increased one-third. Circulars to that effect have been freely distributed among the country merchants, and apparently a number of them have invested. Members of the commission state that the merchants have evidently been buying the mixture, and using it with their packing stock. It has been ascertained where a large part of the butter seized came from, and it is the intention of the commission to have warrants issued for the arrest of the shippers, as it is a direct violation of the state food laws to manufacture or sell such butter.

CONSUMPTION.

The germs of consumption are everywhere. You may breathe them in with the air, drink them with water, eat them with your food. They are not dangerous if you are in perfect health but if you have a slight cold, or cough, or if you have inherited weak lungs, or if you are weak and run-down generally—look out!



Once consumption gets a strong foothold it is almost impossible to dislodge it. The time to cure it is at the beginning or before it starts. If you are run-down—build yourself up. Make every tissue so strong and well that consumption germs cannot find a foothold. Fill your body with rich, red blood—build up strong, healthy flesh—put your digestive system in perfect order. Don't drag along half dead. You may be well as well as not. The following letter from Mrs. Jennie Dingman, of Van Buren, Kalkaska Co., Mich., will tell you how to do it. She says: "Before I took

Dr. Pierce's Golden Medical Discovery

I was hardly able to do my work at all; had pain in my left side and back, and had headache all the time. I tried your medicine and it helped me. Last spring I had a bad cough; got so bad I had to be in bed all the time. My husband thought I had consumption. We thought we would try Dr. Pierce's Golden Medical Discovery and before I had taken one bottle the cough stopped and I have since had no signs of its returning."

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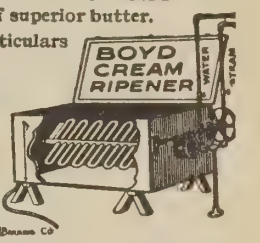
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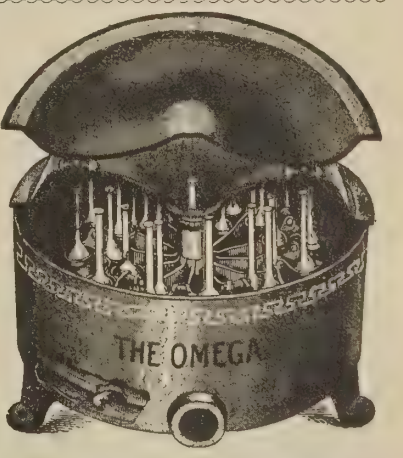


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Official Program of the Farmers' National Congress.

Nineteenth Annual Session, Faneuil Hall, Boston, Mass., Oct. 3-10, 1899.

TUESDAY, OCT. 3RD.

10 A. M.—Congress called to order by the President.
Invocation by Rev. George C. Lorimer, D. D., Tremont Temple, Boston.
Appointment of Committee on Credentials.
Address of Welcome by Hon. Josiah Quincy, Mayor of Boston.
Address of Welcome by His Excellency, Roger Wolcott, Governor of Massachusetts.
Addresses of Welcome by Governors of other New England States, and of New York, are expected.
Address of Welcome in behalf of Boston Chamber of Commerce.
Response by Hon. W. D. Hoard, Fort Atkinson, Wis , President of the Congress.
Response by Hon. J. M. Stahl, Chicago, Ill., Secretary of the Congress.
Response by Hon. W. G. Whitmore, Valley, Neb.
Response by Hon. B. F. Clayton, Indianola, Iowa.
President's Annual Address.
Report of Committee on Credentials.
Recess to 2 p. m.
2 P. M.—Appointment of Committees on Resolutions, Finance, place of holding next meeting, and President's Address.
Address, "The Mission of the Experiment Station, by Dr. Henry H. Goodell, President Massachusetts Agriculture College, Amherst.
Discussion.
Address, "Decline of Farm Lands in the East; Cause and Remedy," by Hon. J. W. Stockwell; Secretary Massachusetts State Board of Agriculture, Boston.
Discussion.
Recess to 8 p. m.
8 P. M.—Introduction of Resolutions.
Address, "Agricultural Progress and Profit," by Hon. Franklin Dye, Secretary New Jersey State Board of Agriculture, Trenton.
Discussion.
Adjournment to 10 a. m. Wednesday.

WEDNESDAY, OCT. 4TH.

10 A. M.—Introduction of Resolutions
Address, "Inventions for Farmers," by Hon. W. B. Powell, Shadeland, Pa.
Discussion.
Address, "The Canadian Department of Agriculture," by Hon. Jas. W. Robertson, Dominion Commissioner of Agriculture, Ottawa.
Discussion.
Recess to 2 p. m.
2 P. M.—Introduction of Resolutions.
Address, "Problems Confronting Farm Life," by Hon. W. S. Delano, Lee Park, Neb.
Discussion.
Address, "Intensive Gardening," by Hon. E. F. Whitstein, Louisville, Ky.
Discussion.
Recess to 8 p. m.
8 P. M.—Introduction of Resolutions.
Address, "The Promotion of the Consumption of American Products in Foreign Countries," by Hon. James Wilson, Secretary of Agriculture, Washington.
Discussion.
Address, "Benefits of the U. S. Weather Bureau to the Farmer," by Prof. Willis L. Moore, Chief of the Weather Bureau, U. S. Department of Agriculture, Washington,
Discussion.
Adjournment to 10 a. m. Thursday.

THURSDAY, OCT. 5TH.

10 A. M.—Introduction of Resolutions.
Address, "Teaching of the Elements of Agriculture in the Common School," by Hon. C. C. James, Deputy Minister of Agriculture for Ontario, Toronto, Canada.
Discussion.
Address, "Railway Transportation," by Hon. L. S. Coffin, Ex-Railway Commissioner, Fort Dodge, Iowa.
Discussion.
Recess to 2 p. m.
2 P. M.—Introduction of Resolutions.
Address, "Fertilizers and Their General Application," by Dr. E. B. Voorhees, Director New Jersey Agricultural Experiment Station, New Brunswick.
Discussion.
Address, "Farming as it Influences and is Influenced," by Dr. E. L. Furness, Furnessville, Ind.
Discussion.
Recess to 8 p. m.
8 P. M.—Evening session devoted to Good Roads. In Charge of Otto Dorner, Milwaukee, Wis.
Adjournment to 10 a. m. Friday.

FRIDAY, OCT. 6TH.

10 A. M.—Introduction of Resolutions.
Reports of Committees.
Address, "The Necessity of Pure Food Legislation," by Hon. H. C. Adams, Dairy and Food Commissioner of Wisconsin, Madison.
Discussion.
Recess to 2 p. m.
2 P. M.—Election of Officers.
Address, "The Western Tenant and his Eastern Landlord," by Hon. H. R. Hilton, Topeka, Kansas.
Discussion.
Address, "Dairying," by B. Walker McKeen, Secretary Maine State Board of Agriculture, Augusta.
Discussion.
Final Report of Committees.
Addresses: Speakers and subjects to be announced.
Recess to 8 p. m.
8 P. M.—Address, "Improved Farming in the South," by Col. T. C. Slaughter, Prosper, Texas.
Adjournment for Excursions.
Final Session at 2 p. m., Tuesday, Oct. 10th.

EXCURSIONS.

To Plymouth Rock, Saturday, Oct. 7th.
Down Boston Harbor, Monday, Oct. 9th.
To Concord and Lexington. To Cape Ann.

RECEPTION.

Reception by Boston Chamber of Commerce.

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Revere House, Bowdoin Square. European plan, $3.00 and upwards per day.
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United States Hotel, Beach, corner Lincoln Street. American plan, $1.50 per day.
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Rate of railroad fares for Delegates and Associate Delegates and friends to and from the Congress, one and one-third. All must procure certificate with every ticket purchased.

A Picnic at Madison.

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MADISON, Wis., Sept. 15, 1899.

DEAR SIR:—Yourself, family and neighbors are invited to attend a *Farmers' Basket Picnic* at the College of Agriculture, University of Wisconsin, Madison, the last week in September.

A one-fare rate will be granted on the Chicago & Northwestern and Chicago, Milwaukee & St. Paul lines for this occasion.

Tickets can be purchased from all points in Wisconsin east, west and south of Madison, Tuesday, September 26th, with return limit of 27th; from all points north and northeast of Madison, as far a LaCrosse, Oshkosh and Ripon on Thursday, September 28th, with return limit of 29th.

The one-fare rate for round trip will be given on all regular trains, and will admit of a one-day lay over if desired.

You are urged to visit the State University and familiarize yourself with the Agricultural College and its work of instruction and experimentation.

Assuring you of a hearty welcome and a busy, instructive day, I am most cordially,

W. A. HENRY,
Dean College of Agriculture.

OBJECTS OF INTEREST.

The new Dairy Barn and Stock Judging Building.
The new Horse Barn and Veterinary Building.
The various breeds of live stock—horses, cows, sheep and swine.
The growing crops.
The Dairy School Building.
The Horticulture-Physics Building, with green houses, laboratories, etc.
The Horticultural Grounds.
Agricultural Hall with chemical and bacteriological laboratories. (At this building visitors will be given a stereopticon exhibition).
Science Hall with its Geological and Biological Museum.
The Machine Shops.
The Armory and Gymnasium.
The great joint Historical-University Library Building.
Professors and assistants will be in attendance to welcome visitors and point out and explain the various objects of interest in the several departments.
Visitors should go by electric car (fare five cents) direct to the University farm and start the tour of inspection from that point.

The Agricultural College, a branch of the State University, is maintained jointly by the U. S. Government and the State of Wisconsin. It embraces:

I. The Experiment Station,
II. The several courses of instruction at the University, and
III. The Farmers' Institutes.

Every progressive Wisconsin farmer should interest himself in his Agricultural College and its work. To do this he should by personal inspection learn what it is, and what it is endeavoring to accomplish.

Vermont Farm Notes.

The Season, Crop Prospect, etc.

ED. HOARD'S DAIRYMAN:—The present season will go on record as one that has been unusually dry over a considerable area of our great country. Its like hardly comes within the remembrance of the oldest inhabitant of New England, in some respects.

Here in Northern Vermont, we have had only one month—July—with an average rainfall; the rest of the season, thus far, the precipitation has been very small, and it will long be remembered as "the dry season."

At this time, September 20th, the crops have been gathered in so they are beyond the effects of drouth or frost, but the greatest present need is water.

Wells and springs have failed in cases unknown before, and many farmers are put to great inconvenience in obtaining water for stock and household purposes. A well or spring that survives this severe ordeal may well be considered a "living fountain," and should be prized accordingly.

Two or three of the supply stations of the well-known Franklin Co. creamery have had to suspend operations for the want of water, and others have to draw it, some from a distance.

Such a time furnishes the best of opportunities for seeking for new sources of water, for if such can be found, they will be of the greatest value on any farm.

A farm that is supplied with living springs, the water of which can be conveyed by force of gravity where wanted, possesses a value that can hardly be computed in dollars and cents. But all are not thus favored, and many farmers either have to go some distance for water, or be at extra expense in getting it to their buildings. There is often much tribulation and discouragement in securing water where artificial means have to be employed for the purpose, and a good deal of watchfulness and care is necessary, that there be no failure from any cause.

The water supply should be carefully looked after before cold weather, as an abundant supply means a good deal in the results from the dairy at any and all seasons of the year.

The crops have been unusually good for so unfavorable a season with the exception of hay, and in many sections this was better than was anticipated in the early part of the season.

Corn was affected to some extent by the continued dry weather, according to location and condition of the soil, but the crop will be of the greatest use in feeding the stock from now on. The amount of corn for fodder now being grown in the Eastern states is increasing from year to year, as its value becomes better known to farmers, and especially dairymen.

The interest in silos and ensilage is steadily increasing and more are being built each year. The large amount of practical information upon this question afforded by the DAIRYMAN should be of the greatest help to farmers interested in this matter, and it may safely be said that much of the present success in this direction is due to its teachings.

Another year's experience in growing and putting the corn crop in the silo, but confirm the belief in the value of this method for

Work for a Farmer's Boy

Thousands of the most noted men began life on the farm. There is no reason why any farmer's boy cannot be successful. We guarantee to teach him by mail **Surveying, Engineering (Locomotive, Electrical or Marine),** and qualify him for a responsible position. Courses in Farm Machinery and all technical branches



BY MAIL

Write for pamphlets.

The International Correspondence Schools,
Box 1242, Scranton, Pa.

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Unless guaranteed analysis is attached to each bag.

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Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
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See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY,
27 Beaver Street, NEW YORK.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

FOR SALE.

Wishing to retire from business, will sell one hundred (100) cows, farm and fixtures, at a bargain. Buildings nearly new, with running water, and the highest price market for all milk raised.

Address **A. B. FARMER,**
Lyons, Somerset Co., N. J.

FOR SALE -- AT HALF PRICE!

Four "United States" FACTORY Cream Separators.

One 3,000 lbs. Belt machine, used only one year. Three brand new 3,000 lbs. Latest Improved Turbine machines; one used about three weeks, another four days, and the third set up but no milk run through it. For particulars, address

WM. L. HAMILTON, Sec. and Treas.,
Fabius Creamery Co,, - FABIUS, N. Y.

It is Easy

for you to detect tuberculosis in your cattle by the use of

Mulford's Tuberculin

No skilled assistance or technical knowledge necessary.

Our Tuberculin, Mallein, Anthrax Vaccine, Black-leg Vaccine, and Pneumonia Antitoxin, are accepted by all veterinarians as the standard of excellence. They are of uniform strength and reliability.

PRICES FOR TUBERCULIN:

2 doses 35c. 10 doses $1.25. 50 doses $4.50.
5 " 75c. 25 " 2.50. 100 " 8.50.

Write for our FREE BOOK containing valuable information to every breeder and dairyman.

H. K. MULFORD COMPANY, Chemists,
416 S. 13th St., Philadelphia.
112-114 Dearborn St., Chicago.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$ 1 50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year	1 65
HOARD'S DAIRYMAN and National Stockman and Farmer, both one year	1 85
HOARD'S DAIRYMAN and Michigan Farmer, both one year	1 50
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HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2 00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1 50
HOARD'S DAIRYMAN and Orange Judd Farmer both one year	1 75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2 25

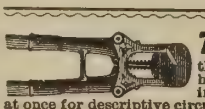
FEED MILLS

We make over 85 sizes and styles of **Buhr Stone Mills,** 2 horse power and up. It has been our specialty for nearly fifty years. A buhr stone mill is the best and only mill suitable for all kinds of grinding on the farm. Easiest kept in order, lasts a lifetime, large capacity, less power.

Get our new book on Mills before you buy. It will pay you.

NORDYKE & MARMON CO., Flour Mill Builders, 25 Day St., Indianapolis, Ind.





THE LOSS OF AN EYE **—terrible calamity.** The tip of a horn often does it in tying up cattle. Cut off the horns quickly and humanely with the ***Keystone DEHORNING Knife*** Cuts on four sides, no crushing or tearing. **Highest Award World's Fair. FULLY GUARANTEED.** Write at once for descriptive circulars, prices, etc.

A. C. BROSIUS, COCHRANVILLE, PENN.

the purpose. We find it decidedly cheaper and more expeditious to thus care for the crop than to harvest, cure, handle and feed in the old way, and it is worth much more.

This year the field corn, after breaking off a portion of the best ears, was cut into the bottom of the silo, and from appearances shall expect it to become excellent silage for another spring's use.

Those who have plenty of fodder corn, ensilage or other crops suitable to feed may consider themselves fortunate, as there is but little else now to be depended upon, aside from what may be obtained from the mowing fields, and these should not be grazed to any extent for the benefit of future crop.

With the decrease of the milk yield, prices are tending upward and those who have cows coming fresh from now on will find the best of inducement to make the most of their opportunities, as it is probable that dairy products will rule high in prices through the coming winter.

Happy should the man be who has his "dish right side up" especially when it rains.

If the the teachings of experience, observation and the up-to-date agricultural literature are properly heeded, farmers will commence now to prepare for another season's crops, and that too on an extended and liberal scale, for: "The hand of the diligent maketh rich," and, "He who by the plow would thrive must either hold, himself, or drive." E. R. TOWLE.

Franklin Co., Vt.

CONCERNING OUR ADVERTISERS.

The Karlen Co., Monticello, make the following report of their recent sales:

ED. HOARD'S DAIRYMAN:—We below give you a list of this year's customers, who have purchased stock here from January until July:

C. H. Stevens, Jefferson, Wis; W. E. Hund, Fayette, Iowa; F. H. Burke, San Francisco, Cal; Edmund Hang, Detroit, Mich.; Peter Hammen, Beechwood, Wis.; S. J. Ogle, Waldo, Wis.; Rudi Benherd, Monroe, Wis.; J. H. Marshall, Cordova, Ill.; F. E. Moses, Emsley, So. Dak.; O. J. Persons, Monticello, Wis.; O. U. Kellogg, Cortland, N. Y.; Henry Walsh, Sheboygan Falls, Wis.

Over twenty head of young stock left Valley Mead farm to go to the above named breeders and dairymen, at an average of about $100 per head. The outlook for well bred Holstein-Friesians is indeed bright. THE KARLEN CO.

Monticello, Wis.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

NYMPHOMANIA.

A fine grade Jersey cow, seven years old, comes in heat every three weeks, fails to breed. C. F. P.

Mitchell Co., Kans.

ANSWER.

Get the advertised remedies seen in the DAIRYMAN, or do as recommended above. You need a powerful sexual sedative and lay her off for three to four seasons after the desire is being restrained or stopped.

HARD MILKING.

I have a heifer, coming four years old, has had three calves, whose teats are so small it takes fifteen minutes to get twelve pounds of milk. Would you advise use of milking tubes? J. P. C.

Henvelton, N. Y.

ANSWER.

Yes, an easy milking tube. Above all, a dilating plug.

LUMP ON NECK.

We have a cow that has got a lump on the side of her neck and on the front part of her shoulder, as big as a two gallon bucket. It came in one day. It does not get any smaller or larger. I can't see any break in the hide where there was a bite or bruise and she is getting lame. It has been four days since we noticed it. I have bathed it with liniment, but does no good. D. S.

Maryville, Mo.

ANSWER.

Bathe the parts affected three times a day with very strong oak bark decoction, tea. To two quarts of the so'ution add a pint and a half of acetic acid. Rub in hard and leave it wet. Liniments are not the thing yet. Give a full dose of physic immediately. I believe you need a personal professional examination by a true expert at once. If the swelling remains, paint over with strong tincture of iodine daily, and give 70 grains of iodide of potassa in two ounces of cold water as a small drench.

COW POX.

I would like to ask what can be done for a cow that has cracks on teats which were small at first but have enlarged till one of them is about an inch in diameter. Does not heal by putting on fresh grease, as such things generally do, but grows worse. Would heal soon were it not disturbed by milking.

New Haven, Vt. J. C. W.

ANSWER.

Bad neglected cow pox. Hand milking is out of the question. Yon need, before doctoring, the lighest and best milking tube to be had. Immediate full dose of physic and repeat, if needed, in five days. Wash the teats with Tilden's Bromo Chloralum, one to eight, of cold water. When dry, carefully rub in twice a day, spermaceti ointment, two ozs, and oil of almonds, two ozs, tincture of myrrh, one dram. Be careful of your hands and other cows. No good doctoring while hand milking.

BLOODY MILK.

We have been milking four good, grade cows, ranging from two to five years of age, since spring, when they were fresh. They all appear in excellent condition, have plenty of pasture, part woods, grain, corn and oats ground, salt and water, but for two months or more they have been giving bloody milk. First one would be very bad, then seem to be better, less blood for a day or two, then another would be worse, and so on; so, one cow does not seem to give any better milk than another. One cow, part Jersey, has had blood come in clots from one teat.

Hartford, Mich. SUBSCRIBER'S WIFE.

ANSWER.

Immediate *full* dose of physic and repeat and *repeat* in six days, if needed. Give each morning two drams of bisulphite of soda, up to six doses. There is a general cause, somewhere, perhaps in the pasture; find and remove the cause, for, if you sell your present stock, the fresh ones will soon become affected by the same cause. After the bisulphite of soda, give two, only, drams of nitre, and one dram of acetate of lead, six doses. Bathe udders in cold water. Milk very gently.

WARTS.

What is the cause of two or three of my cows having their teats covered with warts (on an average of one-eighth of an inch long) when six weeks ago they were entirely free from the same? Will you also let me know the best remedy or method of removal of such? C. T. H.

Summit, New Jersey.

ANSWER.

The cause is hereditary from disposition, chiefly contagious, contact with a warty hand, etc. Wash with hottish water and tar soap, thoroughly; when dry, fix a small piece of sponge to end of a pencil-sized stick; dip into butter of antimony, and touch the warts only, and press and rub a little, as being applied; alternate this with nitric acid, apply twice a day; you can't doctor without a good easy milk tube. No cure can be affected and if milked by hand, which no doubt has spread the warts.

VERMINOUS BRONCHITIS.

We have a disease among calves which local veterinarians cannot give name, cause or relief. In a bunch of one hundred head, from one month to six months old, they have all taken it. The calf droops its head and ears, runs at the mouth and nose a frothy substance, a quick, short cough, and on examination after death the wind pipe and lungs are found full of small, white worms, from two to three inches long, about the size of an ordinary silk thread. R. C. A.

Los Angeles Co., Cal.

ANSWER.

Any veterinary surgeon should be able to diagnose your cases. You have clearly verminous bronchitis, termed hoose, husk, sniffs and many other local and peculiar names. This disease is chiefly contracted in the pastutes, from water, from fodder and all other infected food. Immediate change of place. Separate the affected at once. Keep from pasture during dew or wet. Feed liberally upon all kinds of sound roots, all or any of the oil cakes, grain, oats, etc. Mix equal parts of sulphate of iron, gentian and ginger, four ounces of this to all four months' old calves, oil of turpentine, one tablespoonful shaken up in milk or white of an egg, all the salt they will eat. Burn sulphur in a closed place for a while upon a hot shovel or charcoal fire, as much fumes as they can bear for half an hour or so. Steadily watch them.

TICKS.

I find my entire herd of cattle covered with ticks. What will remove them? Do they injure them in any way? M. L. A.

Greenville, S. C.

ANSWER.

Yes, ticks do injure cows in several ways. Pick them off and burn them. This is tedious to some, but certain, especially in a small herd. Wash thoroughly with tar soap and hottish water. When dry, rub in oil of tar, one oz, pyroligneous acid, twelve ozs, fish oil, twenty-four ozs. To be thoroughly shaken each time of applying.

TO PREPARE COWS FOR SERVICE.

I, like W. H. B., in Sept. number, am having trouble in getting my heifers with calf.

The answer to his inquiry was: "Stop bulling until she is prepared for service." Now, this is not clear to me. I wish to know what course to pursue to prepare cows for service. C. J. M.

Niagara Co., N. Y.

ANSWER.

As above, the best thing is one of the advertised remedies: you will read my reasons for so recommending, or half ounce doses of black haw and one dram of gelsemium, each day, when seemingly needed to keep off bulling for two or three seasons, or one dram of false unicorn instead of the gelsemium. The special remedy is best and is safe, if printed directions are followed carefully, and cheaper, certainly.

FALLING OFF IN MILK.

I have a large Holstein cow that is doing things rather strange to me. She milks from fifteen to sixteen and one-half pounds of milk in the morning, and from twenty-one to twenty-four pounds at night; milked at 5:15 a. m. and 5;45 p. m. Dropped her calf August 22nd. I have been feeding alfalfa twice a day and turning all the cows on barley stubble during the day, and keeping in corral during night. The cows have free access to water, night and day. Until the 7th of September she gave from twenty to twenty-two pounds milk, then she dropped to twenty pounds; on the 8th, twenty-one; 9th, nineteen; 10th, seventeen and one-half; 11th, not weighed.

On August 22nd dropped a heifer calf, and on the evening of August 23rd the calf died. From the time the calf was born, it appeared stupid and lazy; would neither suck, nor could I make it take any milk.

Los Angeles Co., Cal. F. M. W.

ANSWER.

Retention of afterbirth of course caused the decomposed matter. It always does when all or a portion of the placenta is retained. As to the milking, it is all right, all cows, or nearly all, are subject to freaks in milking. The pus did indicate death of the fœtus, and was the result as in retention of the placenta as above stated.

NYMPHOMANIA.

Have a three-year-old cow, calved in June, and has been in season almost ever since. What can be done for her? G. V. T.

Palmyra, Mo.

ANSWER.

Do just as recommended above for C. F.P. No other way to do.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.* **Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., Cleveland O.**

KIDNEY TROUBLE Is a deceptive disease—thousands have it and don't know it. If you want quick results you can make no mistake by using Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists in fifty cent and dollar sizes. Sample bottle by mail free, also pamphlet telling you how to find out if you have kidney trouble.
Address, Dr. Kilmer & Co., Binghampton, N. Y.

MILK FEVER AND GARGET
Schmidt's Treatment Improved.
CURES EVERY TIME. Breeders will save their best cows by having this remedy on hand for instant use. Necessary apparatus, medicine and full directions for treatment of two cases mailed for $2.
Address, **STOCK BREEDERS' CO.,** KNOXVILLE, TENN.

ABORTION!
Retention of Placenta and Failure to Breed.
H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

ROBERTS' ANTI-ABORTION SERUM



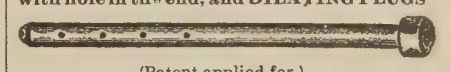
Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**



Trade Mark.

LUMP JAW
Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

Dr. Horne's Anti-Abortient
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)
My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

REDUCE YOUR COAL BILL
BY USING
The No Scale Company's
High Grade Boiler Compound.
Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.**

HARVEY'S ANTI-SUCKING BITS
For Cows and Calves.
A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.
Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for
ONE NEW SUBSCRIBER.

SECRETS OF THE CHEESE FACTORY.

Mr. David Haven, proprietor of a cheese factory at Hartford, Mich., is having an "open meeting" with his patrons in which he makes a frank showing of the economies of the factory business by publishing the following communication in the local paper, "*The Day Spring.*" It is such a clear exposition of business from the factory stand point, we are tempted to print it in full as follows:

EDITOR DAY SPRING:—It has often been said by some on our streets that "we are making altogether too much money," that we ought to charge less for making, etc, etc., while others hoping for our welfare ask, "if we are not getting milk enough this year to pay pretty well?" No one but myself knows how well we are doing, hence I beg space to inform any who may desire to know in regard to some of the secrets of the business.

Our commission for making in June, 1899, was one and one-half cents per pound for 11-658 pounds of cheese, or $174.87. Out of this we paid for

Wood	$ 6.50	
Rennet	5.60	
Color	.70	
Sacking	3.85	
Salt and grease	3.15	
Labor	25.00	
Insurance and taxes	2.50	
Boxes	22.70	
Freight and dray	3.67	
Ice and repairs	4.60	
Wear and tear	4.00	
		$ 82.27
Abbott's milk drawing cost	$37.50	
Patrons paid	26.12	
We paid		11.38
Caloin's milk drawing cost	30.00	
Patrons paid	16.43	
We paid		13.50
Pitcher's milk drawing cost	22,50	
Patrons paid	13.24	
We paid		9.26
Total expense		$ 116.48

Deduct this from commission leaves balance of $57.68 for thirty days' work of twelve hours each.

May and June are practically alike in results. July is poorer as we have to pay the same for drawing and get less milk.

For June we received per day an average of 3727 pounds. If all the cans had been full we would have received 6,700 pounds. Of the entire amount received for the month three wagons named above drew an average of 2309 pounds per day, which cost $90.00.

We charge the patrons eight and ten cents per hundred for drawing, according to location. The patrons paid for the month $55.79, we paid $34.21. The smallest amount paid by any patron for the month was eighty cents and he is kicking because we charged him ten cents per hundred. The largest amount paid by any patron is $3.98 and he says no one can afford to draw for less than ten cents.

We have sixty-five patrons in all, 225 cows giving an average of sixteen and one-half pounds each per day. On an average each cow brought in for her owner for June $3.00. Each patron receives on an average $11.72. The smallest amount paid any patron, $5.96; the largest amount paid any patron, $51.15. The largest amount paid any patron, per cow, is $14.54 for two cows or, $7.27 each—ten cows at this rate would bring their owner $72.70 per month.

Average amount of cheese made a day, 365 lbs.—nine cheese, which shrunk in weight thirty-six pounds in curing. Average price of cheese per pound .0831c; amount of cheese made from each pound of fat, 2.78; price paid for each pound of fat after deducting making, 9c, (price of butter at the store for the month 13c) average amount of fat from each 100 pounds of milk, 3.67 pounds; average price per hundred for milk, 69¾c.

The only object we have in writing the above is to show that the most serious question we have to solve is the question of drawing the milk. The number of cows owned by each person are so few, and the milking season at full flow so short, as well as the patrons being so scattered, that the cost of delivering the milk becomes the most serious problem. The patrons ought to have cows enough so that at eight cents a cwt. the milk drawer could make at least $1 a trip and the Cheese Co., not have to pay anything.

DAVIS HAVEN.

Save The Corn Fodder

For years past we have consistently and persistently urged the larger use of the corn plant, pleading that forage as well as grain be saved and utilized upon the farm. That corn-growers are coming to this view of the situation is evident from the greater general interest in the corn forage question, and each year sees more of the crop put in shock form than ever before. A great instrument to this end has been the corn harvester, which leaves the forage in bundles ready for shocking. The saving in actual cost of these machines for the work done may not be great, but many farmers will perform duties through the aid of machinery which they would neglect were it equally economical to employ hand labor. The corn shock, simple as it is, is the ideal form of placing the stalks for the purpose of ridding them of the excess moisture. Standing on end as the stalks do, with a clear space of some size at the base of the shock the air passes in and upward, carrying the excess moisture with it, so that large shocks can be made with little chance for mildew or decay. Corn forage is useful in feeding all farm animals except the pig. For horses, especially colts, growing animals and those not at hard work, there is no better form of forage, for corn leaves are quite free from dust and full of nutrition. Often this form of forage can take the place of much of the expensive hay which is usually fed to this class of animals. The fattening steer cannot consume much coarse forage of any kind, yet so far as his wants require there is nothing better than corn stalks with their bright leaves. For stock cattle and young things let this forage be liberally supplied in place of the more expensivehay. For dairy cows corn fodder has always ranked high, and this fact should mark its value for other animals without question. When stockmen have come to know how nature disposes of the nutrients in the corn plant he will have a higher appreciation of this forage. Let him first remember, as he has been repeatedly told, that corn is a giant grass, the seeds of which are placed in ear form. We know that timothy and blue grass bear leaves and stems containing much nutrition, even though the seeds are formed in the heads, and no one would think of wasting these portions of the plant merely because seed has been borne. Armsby, of the Pennsylvania Station, some years since, in studying the disposition of nutrients in crops of corn grown for grain, determined the data given below as the average for corn crops grown at four experiment stations:

Digestible Nutrients.	*Ears.*	*Stover.*	*Total Crop.*
	Lbs.	Lbs.	Lbs.
Protein	244	83	327
Carbohydrates	2,301	1,473	3,774
Ether extract	125	125	147
Total	2,670	1,578	4,248
Per cent	63	37	100

We learn from the above that 37 per cent of the total nutrients in the corn crop grown for grain are in the stover or husked stalks, while 63 per cent of the nutrients is in the ears. Farming is now too close a business to allow the corn grower to waste 37 per cent of his crop after he has gone to the expense of producing it. Of course, it will cost something to save the fodder, but even if half its value goes for this expense the percentage loss is still far too great to be ignored. One sometimes hears the excuse given for wasting corn forage that the farmer does not have stock enough to require saving any of this forage. If such is the fact, then the farm operations are out of balance. Such farmers grow either too much corn, have too much land devoted to meadow, or keep too little stock. When a proper balance is secured in these particulars there will be no waste of corn forage. Let the stockman see to it that this balance is reached as early as possible, for one sided farming cannot be profitable. While part of the crop of corn must be husked for the pigs, and while the steers cannot utilize as much forage as grain, the young things and stock cattle, together with the horses and cows, should easily consume all excess in these directions. So far as possible let shock corn be fed in its simple, original form, or at best merely run through the feed-cutter. It is expensive to husk corn and crib it, and nothing is added thereby to its value. An ear of corn surrounded with the husks which nature enveloped it is far more attractive to the steer or cow than is the same ear after it has lain in the corncrib for months subjected to the desiccating influence of the winds and to fouling by rats and mice. An ear of corn fresh from its natural covering of husks is to the ear of corn from the crib, as apples buried in the pit in winter time are to those which have lain in the open air for weeks. There is no comparison in the aroma and flavor of the two. There is a heavy expense attendant upon husking or snapping the corn from the bleaching standing stalks in the late fall; why not expend an equal amount if necessary in cutting and shock the corn a couple of months earlier and thereby saving the forage? The steer and cow will make no charge for doing the husking and enter no complaints at the task assigned them. Enough money has been wasted in husking corn in the west to pay off the National debt many times over. We have now reached a period in the development of our stock interest ann farm management where this great waste of the past should forever cease.—W. A. HENRY, IN *Breeders' Gazette.*

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The Best
Washing Powder.
Cleans Everything from Cellar to Garret.

Better Butter

and more of it—a higher price and more to sell—at least $10 per cow per year added profit—if you use
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Has every good quality of competing machines, besides costing less, running a half easier, being simple, strong and perfect in its work. Every claim guaranteed, or money refunded. No risk in buying one on such terms. Agents wanted. Catalogue and our book "Good Butter, and How to Make It," free. Send for them. Address,
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The standard well drilling machine of America. Strongest, fastest, easiest to handle, and will **make the owner more money** than any other well drill. For full particulars address
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Improvement over Smith's.
Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials.
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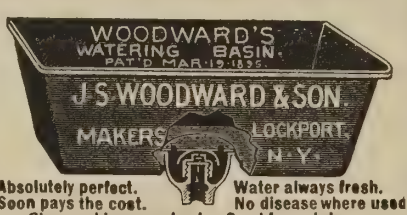

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Cuts 88⅓ % more than regular machine.

Saves 75% in time.

Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

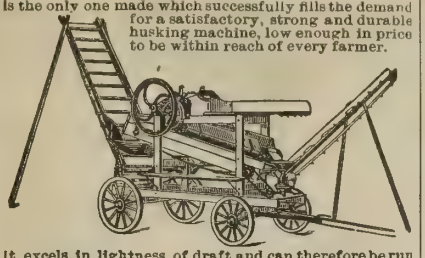
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CRUSH ear corn (with or without shucks) and **GRIND** any kind of small grain **at same time,** mixing in any proportion desired. Conical Shape Grinders.

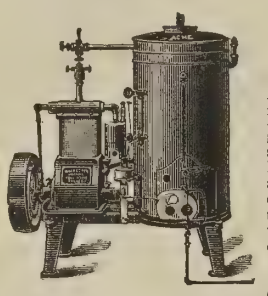
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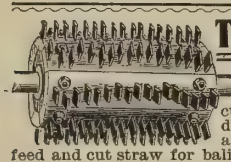
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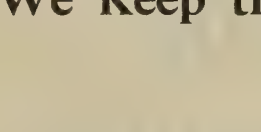
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in a field surrounded by our Rabbit Fence. They don't get in. Send for Catalogue.

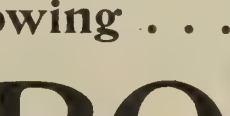
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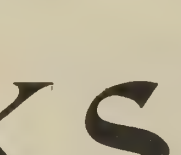
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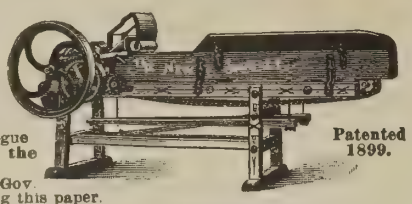
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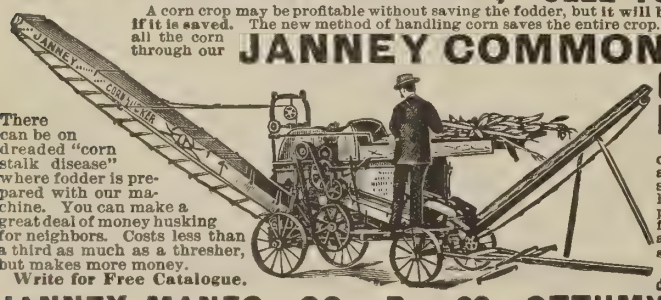
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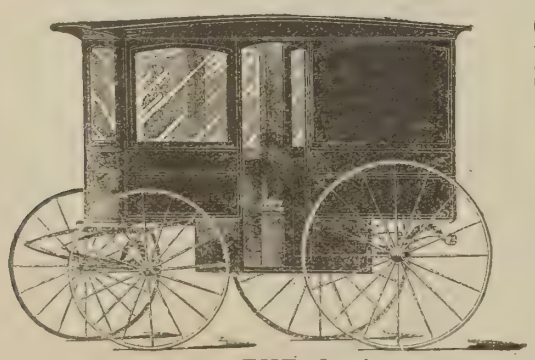
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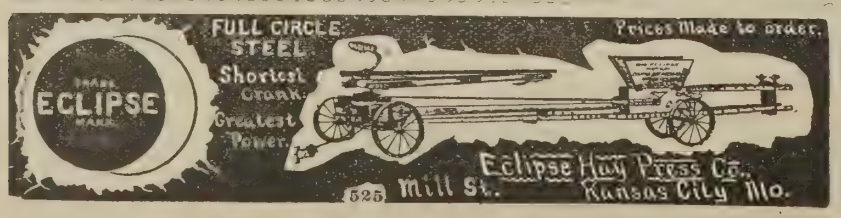


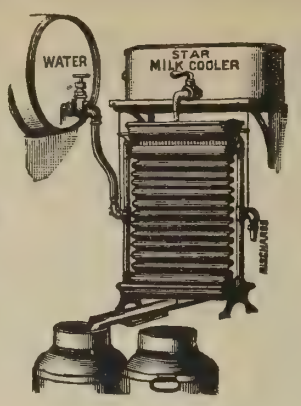
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Devoted to Dairying and Dairy Stock Interests.

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VOLUME XXX. FORT ATKINSON, WIS., OCTOBER 6, 1899. NUMBER 34

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As an evidenee of what a perfect separator will do under widely varying natural conditions, we publish here two letters from users who are at opposite ends of the country The reader will observe that there was but a few days difference between the dates of these reports, but there was a wide difference in conditions. In one instance the most vigorous of winter conditions pertained, while in the other case February was practically summer. Notwithstanding these wide differences, the results were in each case practically the same. Could there be any better evidence of the superiority of the Tubular Separator than these voluntary endorsements? These are but a few of the many cases of a similar kind where the variations in conditions are greater even than these.



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Send for Catalogue No. 46.

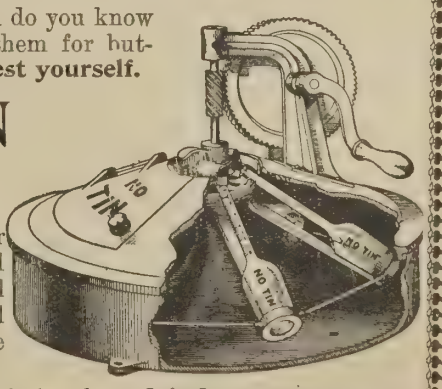
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Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
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Do they pay you a profit, and do you know how much? Have you tested them for butter fat? **You can make the test yourself.**

The NO-TIN Tester



is made in six-bottle size for farmer's use; it is driven by hand and is substantially built. Will last a life-time; fitted with ball bearings, and it does not rattle and does not wear out.

It uses the ordinary Babcock bottle and it does accurate work. Send now for our Catalogue, No. 71.

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THE NEATEST, CHEAPEST AND BEST SMALL BUTTER PACKAGE Ever Made.

...THIS package is the result of years of study and experiment. It is made of waterproof Jute Board, and is lined with the very best quality of parchment, making it CLEAN, TASTELESS and ODORLESS. It is constructed without seams or open joints, being made one solid piece under heavy pressure, hence it is STRONG and NEAT. Owing to the material used it is LIGHT. It has more desirable features than any package on the market. These packages are put up in cases for carrying butter to distant markets or in bulk for local trade.

Write for full information and prices.

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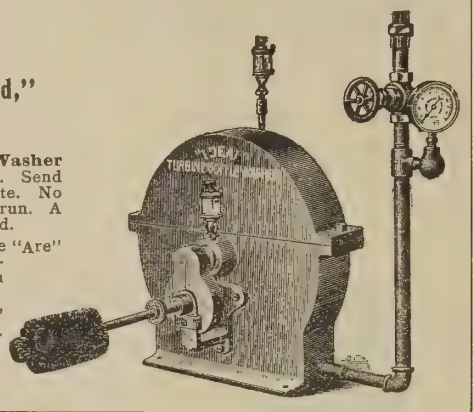
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The POTTS PASTEURIZER belongs to the "Are" class too. It is the only *perfect* Pasteurizer made. Send for circulars of it, which tell you why.

If you are in need of anything "*whatever*" in the Dairy or Milk Dealers' line, write us. *We are sure* to have it.

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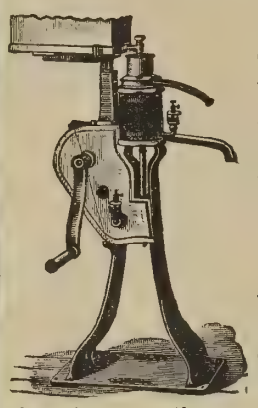
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are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

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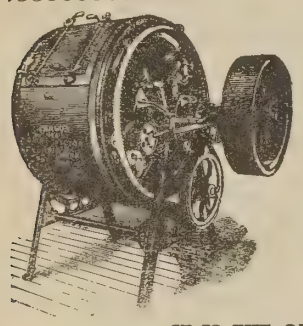
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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after It's work is as complete as the work of the "Factory" Victor Churn which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

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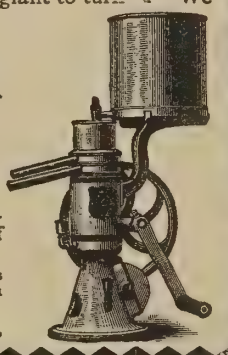
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to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

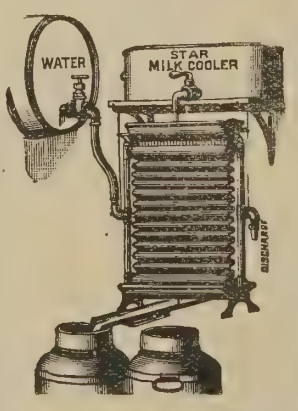
SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.



Star Milk Aerator AND COOLER.

If you have milk worth cooling at all, it is certainly worth while to cool it thoroughly. An efficient Milk Cooler will cool to within two degrees of temperature of water used; the Star does this and also **AERATES.**

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

THE Canadian exports of cheese from Montreal, from May 1 to September 9, aggregated 930,812 boxes as against 748,814 during the corresponding period last year, while the exports of butter were 240,799 packages as against 82,000 in 1898.

AN IMPORTED JERSEY.

The illustrations herewith are of the imported cow Pearl Pensee 122504, and the engravings were made from photographs of the cow herself, and not, as is sometimes the case, from some artist's hand-made picture of the cow. Pearl Pensee was 3d prize cow on the Island in 1896 and her yield at that time, forty-three days after calving, was forty-one pounds and twelve ounces of milk and two pounds, five ounces of butter. In comparing this record with those reported here it should be remembered that the Island pound contains eighteen ounces, and that it is not the fashion there to feed cows with highly concentrated feeds well up to the danger line.

The rear view is given for the double purpose of showing a practically perfect udder and the necessity there is for nature to provide a suitable place and room for such an organ, and to show the relation of the escutcheon to the adjacent parts.

AN INTERESTING ICE-CREAM EXPERIMENT.

The New England Dairy Co. have installed an ice-cream plant in New Haven, Connecticut, where all the mechanical work of stirring and freezing is done by electrical appliances. The business was started at first, with one delivery wagon, but has so increased as to require eleven delivery wagons. Gov. Bradley, president of the company, says: "Judging by this experience, it may be that the by-products of our milk business may become even more profitable than the milk itself, which was what we started in for."

It is stated that Armour & Co., the great meat packers, make more money from the by-products of a steer, than they do from the carcass. The dairy judgment and comprehension of the country has not nearly fathomed the problem of using the by-product of milk in a manner commensurate with its value. This is seen in the wretchedly crude manner in which the skim milk is cared for at the thousands of creameries all over the land, as well as the subsequent judgment with which it is used by the farmers when they receive it.

There is a very large field for profitable study here, which very greatly affects the profits of every man who is keeping cows.

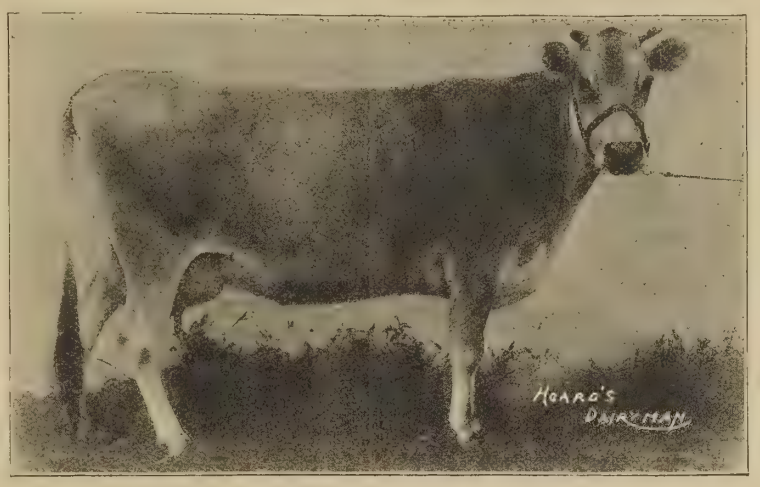
WAKING UP.

The dairy farmers about Elgin have lately been holding meetings to discuss their own business. Most of these farmers supply milk to the condensing factories, others to the creameries. One of the Elgin papers gives the following resume of the situation:

A leading dairyman said this morning that the farmers could not go on much longer as they had the past few years. Milk stated this morning that while in previous years his sales of cows in August had been 300 or more, this year he had not sold 100 so far this month. The farmers, he says, simply refuse to buy.

Most of them have expensive barns arranged for dairying, and it is therefore hard for them to shift around to other kinds of farming, but large numbers are turning their attention in other directions, and as soon as possible they will gradually decrease the dairy business and raise more stock. Of late years those who raised more stock and produce less milk are money ahead.

This summer the farmers who carried their milk to the butter factories and have it made up on the co-operative plan have fared far better than condensing factory patrons, because butter has been high, and besides that, the farmers get the skim milk back.





PEARL PENSEE, (Imp.) 122504, A. J. C. C.

Property of J. C. ROBBINS, Lone Tree Jersey Herd, Greensburg, Indiana.

is bringing eighteen cents per can less than it did several years ago, while feed, hired help, and, in fact, everything the farmer has to buy is much higher.

Of course this has been an exceptionally hard season on account of the drouth, causing the pastures to become bare and cows to dry up. Nearly every farmer in this vicinity has had his milk decreased over half. This with the low prices of milk has made his receipts less than his expenses.

Hundreds of farmers who purchased cows last fall have not been able to pay for them as they expected to do, and the consequence is that they will not be able to increase their dairies this fall as usual, to make a big supply of milk in the winter. Many others who are able to buy more cows and who have big farms and lots of feed, have stated they do not intend to buy a cow unless the prices for milk are made considerably higher by the condensing company.

One of Elgin's prominent cattle buyers This they say, is worth twenty-five cents per hundred pounds. That price has been offered for it. Some farmers say it is worth more to feed to calves, as they are very high at present. Calves six months old bring $15.

The farmers blame butterine largely for the low price of milk. They say that if but half as much butter was produced it would not result in a material increase in price. The breach would simply be filled by butterine. Until the butterine laws are rigidly enforced, milk, they claim, will not bring the price it should.

It will be a most excellent thing if something will stir the Elgin dairymen up to a better study of the uneconomical methods in which they have conducted dairy farming. In the first place they buy most of their cows. Every year buyers range over Wisconsin and Iowa buying up large droves of cows to sell to the Illinois farmers. The class of cows they demand and the way they handle them show plainly that they have not made a close, deep study of true dairy farming. The cow that is wanted is a big, beefy animal that will give some milk, of course. Then they take this cow, feed her a heavy ration of costly feed, much of which is purchased. The object is to fatten the cow and sell her for beef. It stands to reason that such cows are not profitable milkers in the true sense, especially when we consider the heavy expense which must attend them from the Elgin standpoint.

Then besides such a practice does nothing to educate the farmers in the finer and more profitable economies of the business.

The dairy farmer who would make the largest amount of money in a given number of years must adhere to the following principles:

1. He must select cows that produce milk, not beef, at the lowest cost and highest profit.
2. He must be a breeder of such cows.
3. He must study hard how to produce the main portion of the feed on his own farm.
4. He must understand something of the value of skim milk as a food for young animals and he must educate himself in a knowledge of how to handle it.
5. He must be a reader and student of dairy literature; must take deep interest in all these and many more problems connected with the true dairy farming.

It is only a few years ago that we saw over 20,000 pounds of skim milk daily turned into the gutter from one of the Elgin creameries because the farmers who were patrons of the institution did not know or care to know the value of this by-product. The creamery bought the milk and the farmers would not buy back the skim milk even at ten cents a hundred. This state of things evidenced the fact that the men who were representing the farm end of the Elgin dairy interest were not up to date students of true dairy farming.

One of the very first essentials in making a cow pay a profit is that she shall be a dairy cow, not a beef cow; that she shall be fed for milk production on a dairy ration, and not for beef on a fattening ration. Next, that the farmer shall intelligently provide against the period of annual drouth, that comes as certain as death and taxes, every year. There are a few dairy farmers in that Elgin region who have summer silos for this very purpose, but they do not sell milk to the condensaries. With all its boasted fame as a dairy region, there is yet needed in and about Elgin a lot of true dairy education, and all hail this latest move as a sign the farmers there are waking up to such necessity.

Healthy Hogs.

The health of hogs does not depend in any measure on the promiscuous feeding of drugs. If proper attention were given to all the hogs in the country, the makers of cholera cures would have no demand for their medicines. When it is said they live off the ignorance of the public it is but to tell the truth, and it is not saying anything against them or their remedies. These men who have studied hog cholera in all its phases are the first to say that the disease first gets its foothold in filthy pens and yards and from drinking stagnant water. From this start herds that are properly cared for become infected, and, if the season is favorable for the development of the germs of disease, an epidemic of hog cholera follows, that sweeps hogs worth untold thousands.

It cannot be said too many times that hogs are cleanly by nature. They are the only domestic animals that will habitually have a certain place in which to deposit their droppings, keeping the remainder of the range clean, if they are allowed to do so. Give pure water and plenty of green feed during the period of development and hog cholera, if it comes at all, will come from an outside source. Once it has arrived prompt measures to check its ravages should be resorted to and persisted in until the disease is checked.—*Swineherd.*

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Coming Events.

Georgia Dairymen's Association, Grantville, Ga., Oct. 12, 13, 1899.

North Carolina Dairymen's Association, Raleigh, Oct. 17, 1899.

Kansas Dairymen's Association. Manhattan, Nov. 22-24, 1899.

Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.

New York State Dairymen's Association, Cortland, N. Y., Dec. 13-15, 1899.

Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.

Minnesota Dairymen's Association, Le Suer, Dec. 12-14, 1899.

Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.

Tennesee Dairymen's Association, Sweetwater Jan. 25, 1900.

DR. BABCOCK'S work is meeting with deserved recognition wherever dairying is carried on.

The latest instance is in New Zealand, where a Babcock "Shilling Fund" has been started, with the object of testifying their appreciation of the value of the doctor's work.

AN omission occurred in our list of butter scores at the Wisconsin State Fair, in that the name of Byron Snyder, of Clinton, Wisconsin, should have been given, with a score of 93 points. This is not as high as Mr. Snyder's butter usually scores, but just where the judge found it defective is not yet known. Possibly, and as not infrequently happens when a single package is sent by either express or freight, it came in too close proximity with something not conducive to good results. A can of kerosene or other "loud" smelling merchandise, riding a hundred miles in proximity to a package of butter, will have such effect upon the quality of the latter that an expert judge will recognize it.

Effect of Formaldehyde as a Preservative in Milk.

Meat Inspector Schurtz and Dr. L. C. Grosh, health officer of the city of Toledo, O., have lately made some interesting experiments on the effect of the use of formaldehyde.

This is used as a preservative by some dairymen, and traces of it have been detected in several samples of milk. Twenty drops of formaldehyde was placed in a quart of milk and the solution left stand ten days in the sun. At the end of that time the milk showed no signs of souring, although there had been several thunder storms during the period.

The mixture was then tried on six cats. Three of them were killed on short notice by an overdose of formaldehyde, but the experiments on the others were especially interesting. One died eight days after the first dose was given them. In the final, the animal acted as if it had palsy, and a post-mortem examination showed that the intestines and stomach were badly inflamed. The second cat died last night, and an examination is being made on this animal today. The last cat died in such agonies that the meat inspector has changed the diet, and the other cat will not be sacrificed. The experiments thus far go to substantiate the claims made that the use of adulterations and impure milk have a deleterious effect on the health of infants, and has much to do with the heavy death rate from intestinal diseases in small children.

THE MICHIGAN OLEOMARGARINE DECISION.

We have received a copy of the Michigan decision, refusing to issue a peremptory writ of mandamus to compel a Justice of the Peace to issue a warrant on complaint for an alleged violation of an act, whose title reads: "An Act to Prohibit and Prevent Adulteration, Fraud and Deception in the Manufacture and Sale of Articles of Food and Drink."

The facts in the case, as stated in the complaint, are that the Dairy and Food Commissioner of the State went to the defendant's place of business and bought one pound of oleomargarine; that he called for oleomargarine, and that it was sold to him as such, labeled "oleomargarine", and stamped with the seller's name and address. The only point made by the Commissioner is that the oleomargarine was colored, and thereby made to be an imitation of butter.

The complaint was made under the fourth and sixth sub-divisions of Section 3 of the Act, which reads as follows:

An article shall be deemed to be adulterated within the meaning of this Act,

Fourth—If it is an imitation of, or is sold under the name of another article.

Sixth—If it is colored, coated, polished or powdered, whereby damage or inferiority is concealed, or if, by any means, it is made to appear as better, or of greater value than it really is.

A proviso is added to another part of the section to the effect that nothing in the Act shall prevent the coloring of butter.

In discussing the matter, the court says:

The Act charged in the complaint is neither adulteration, fraud nor deception under any definition of these words to be found in any dictionary. Adulteration is "The act of corrupting or debasing; the act of mixing something impure or spurious with something pure or genuine, or an inferior article with a superior one of the same kind.—*Bouv. L. D. 126, Century Dictionary.*

Counsel do not urge that it comes within the words "Fraud" or "deception". Neither is it urged that the article is made to appear of greater value than it really is. It is not claimed that the coloring matter used is in the least deleterious. The law permits its use to color butter, Counsel rely upon People vs. Snowberger, 113 Mich., 86. That case is not in point. The gravamen of the offence there was that the article of food was damaged, inferior, its inferiority concealed, and it was made to appear of greater value than it really was.

This brings us to the only question we need to determine, viz., Is the title to the act broad enough to include the sale complained of? Would any person reading the title to the bill in the legislative journals or elsewhere, suppose that the bill would make criminal an act which in itself was entirely harmless, honest, innocent, and contained no element of wrong doing? Or that it would change the well known definition of a word so as to include within it things which were in no sense akin to it and which could only be included in it by the most arbitrary enactment.

Would a manufacturer of, or dealer in, butter or oleomargarine be notified by the title that the harmless coloring of either was not only to be prohibited, but to be punished by fine or imprisonment or both? There can be but one answer to these questions. When the legislature attempts to change definitions and to make acts criminal which per se are innocent and contain no element of wrong, there must be something in the title to show such purpose or object under section 20, article 4 of the Constiiution. The title contains not even an intimation that an entirely innocent act is to be made a crime. It follows that this part of the act is void.

One's first impressions are, that if the decision is correct, the court places it upon untenable grounds. The statute quoted quite does away with the necessity of referring to dictionaries for a definition of the word adulteration, as it specifically sets forth what shall be deemed adulteration for the purposes of that act. Neither is it easy to see wherein the title is defective. Anyone, except a judge continually searching for reasons to the contrary, would think that every manufacturer of butter or oleomargarine would feel himself warned, when he reads that the legislature is considering a bill to prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink. Evidently the legislature of Michigan had this view, for they take pains to say that butter makers are exempted from the clause relating to color. It is, moreover, a matter of common notoriety, that both butter makers and manufacturers of oleomargarine did take cognizance of this bill at the time, and were fully advised as to its purpose and intended scope.

It, however, occurs to us that there might be less ground for objecting to the disposition made of the case, had the court said, as a matter of fact the complaint does not allege that there was any inferiority concealed—the substance purchased was oleomargarine, and the coloring did not add to or take from its intrinsic merits;—and whatever might happen with other purchasers at other times, in the particular case set out in the complaint, the coloring did not deceive or mislead anybody.

If a case could be had where a dealer had sold colored oleomargarine, and the purchaser had placed it upon his hotel table, and disposed of it to his guests as butter, it is not certain but the court should and could hold the seller as a party to the wrong. Or, if it had been alleged that the defendant was habitually selling colored oleomargarine to whomsoever might apply, and that among the number was one person who did not know that oleomargarine in its natural state was white, or would not have bought had he known that it was colored, then the case might have held. We prohibit the manufacture of oleomargarine, in order to make it impossible for anybody to dispose of it contrary to law, but Michigan laws cannot reach Chicago packing houses. Doubtless, the courts of Michigan would hold that it is unlawful to manufacture colored oleomargarine in Michigan, and that it is also unlawful to sell it to parties who could, if so disposed, resell it as butter. The words—"If it is an imitation of" must be construed as taking the place or performing the function, in one transaction, that would result in some other transaction if "sold under the name of another article."

It is much to be regretted that cases should be brought into court, where the offense charged is so purely technical and non-representative, as to occasion only sympathy for the defendant. In the case under consideration, there was no deception or attempt to deceive; the article delivered was precisely what was called for; the coloring matter used did not conceal any inherent damage or inferiority. If it caused the olemargarine to become an imitation of butter, it was at most a case of wrong without injury, or in law Latin, *damnum absque injuria.* No one would think of recovering in a civil case, under such circumstance, and much less could it be expected to succeed in a criminal prosecution.

The mischief done by the court is not in the actual judgment rendered, but in assigning unsound reasons for it, and pronouncing a wise law void.

Seeking Information.

Cattle Judging at the Wisconsin State Fair.

ED. HOARD'S DAIRYMAN:—My love for all the bovine race led me to attend the Wisconsin State Fair this fall. It has always seemed to me that a fine herd of blooded cows is the most taking ornament that a Wisconsin farm can possess. I feel like encouraging every breeder and urging him to still better results.

An incident at the fair, however, put a great damper on my estimation of the way breeders are encouraged in their work, but as I am not a breeder nor an expert in the dairy line, I would beg HOARD'S DAIRYMAN to give me and a few others a little light on the subject.

On entering barn B, where the Guernseys were kept, we beheld a fine looking man in a heated conversation with a modest youth, formerly of the Experiment Station. The tenor of his talk was against the honesty of the superintendency. He charged him with all kinds of rascality and underhanded meanness, in regard to the judging of the Guernseys. He stated that the first prize had been awarded a cow with one-quarter of her udder gone; and that the third prize had been given to a cow with but two perfect teats.

I asked one of the stable boys to show us the cows and as near as our judgment could bring it we found to our astonishment that the animal which took first honors had one teat almost wholly extinct and another one badly enlarged, while the other above mentioned cow seemed to be as the Ohio breeder said.

Our question to the DAIRYMAN is: Is an animal with a defective body entitled to a place in the show ring? We know that many inferior fairs, county fairs, etc., would not accept such animals for consideration in the awarding of premiums. The Ohioan seems to share this opinion.

We were in time to see the judging of the Holsteins and could not help but admire the way in which the judge handled the animals, how carefully he went over them. It seemed evident that this fine man was well acquainted with the Holstein strain of blood. He seemed the ideal judge.

Will owners of blooded cattle who would fain exhibit at the state fair have to labor under the impression that an animal with a plainly defective udder is entitled to as much right in the show ring as a perfectly faultless one? Will it be a standard to go by in the future? What would the Professors of the Experiment Station's advise? It seems to me that the higher the standard is, the finer the exhibition must be and the ultimate purpose of the fair more resultant, otherwise those who cook the goose will eat it.

Without any reflection on the past let us hope that when the Guernseys are judged next time, it will be under the supervision of a person acquainted with those fine yellow skinned animals and one whose first principle is disinterestedness. JOHN JONES.

We cannot agree with our correspondent's sweeping condemnation of the judging of cattle in the Guernsey class at the late Wisconsin State Fair. On the contrary we believe it is the general verdict, not only that there was an entire absence of favoritism, but that an unusual degree of intelligent discrimination and knowledge was manifested in awarding honors. This is not to say that the judge came to the right conclusion in every instance, or that we should have agreed with his every descision. Those who have had experience in judging stock, know how difficult it is to determine, even to their own satisfaction, which is the better of two cows when both are of superior merit.

As to the claim that first and third places were awarded to cows with defective udders and teats, we can only say that we shall be very glad when bloom and finish, and swollen udders are relegated to their proper place on the score card and elsewhere. There are other points of far more importance. The dairy cow is an intensely practical animal and with her as nowhere else does the may im apply, that handsome is as handson

does. Nicely polished and aesthetically trained horns, artistically plucked tails and the glossy hair that comes from double blanketing for weeks, may sway the judgment of the casual on-looker, who is looking for external beauty, but such things do not deceive the skillful judge. No cow should be condemned, and much less barred, simply because some accident has befallen her, resulting in the loss of a horn, or part of her tail, or one quarter of the udder. Other things being equal, such matters may be allowed to have a determining influence.

Read in this connection, the very sensible article copied this week from *Farming*, one of Canada's best agricultural papers.

And, finally, writing now only for the late Wisconsin State Fair, we say without any reservation, that there is not the least ground for so much as the shadow of a suspicion that the superintendent exercised or attempted to exercise any influence over the judge, or in any way favor one exhibitor above another.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—But 1,800 pounds of butter were offered on Monday's Elgin Board of Trade. Bidding opened at 22½ cents and advanced to 23 cents, but no sales were made. The Quotation Committee declared the market firm at 23½ cents. The market for the corresponding week of the three preceding years were as follows:

Oct. 3, '98, 11,220 lbs. of butter sold at 20 cts.
Oct. 4, '97, 4,800 lbs. of butter sold at 22 cts.
Oct. 5, '96, 20,100 lbs. of butter sold at 16½ cts.

The New York market was reported steady at 24 cents. H. C. B.

Elgin, Ill., Oct. 2, 1899.

Something About Wheat Bran.

What We Lose by Exporting Wheat.

ED. HOARD'S DAIRYMAN:—The United States produces per annum about 600,000,000 bushels of wheat. She consumes and plants about 400,000,000 bushels; she exports about 200,000,000 bushels. Of this last, about 50,000,000 bushels are milled in the United States, the by-products, bran, etc., remaining in this country; the flour exported as such. The 150,000,000 bushels is exported as wheat grain, and the bran of this goes from us to foreign countries.

The 150,000,000 bushels of wheat milled, produces about 20,000,000 barrels of flour and 1,500,000 tons of bran (or by-products of which bran is the most valuable.)

The manufacture of this flour costs, say forty cents a barrel, or $8,000,000 for the 20,000,000 barrels, which cost ought to be kept at home and thereby keep also in addition the bran at home. Why? Because the feeding value of this 1,500,000 tons of bran is from ten to twenty dollars per ton; that is from $15,000,000 to $20,000,000 per annum—call it $20,000,000.

Our agricultural chemists agree that the manurial value of a ton of bran is $12.90; call it $10, then the fertilizing value of this bran is $15,000,000.

Then to recapitulate: $8,000,000 for milling 150,000,000 bushels of grain exported; $20,000,000 stock food value of the bran thereof; $15,000,000 manurial value of same. Thus we lose per annum $43,000,000, and our loss means the positive gain to foreign countries of this amount, to wit, $8,000,000 goes to foreign millers, $35,000,000 to feed the stock of Europe, to help them beat us in the markets of the world, by giving their dairy and other stock the best balanced of food rations, and their soil one of the best balanced fertilizers. (Be it remembered that the by-products of the manufacture of flour is one of our best stock foods and fertilizers.)

Now if the United States would pay one-half of the cost of the manufacture of the 20,000,000 pounds of flour as a bounty, to have this grain milled in the U. S., (or a bounty equal to the whole cost) we would save the $35,000,000 worth of stock food and fertilizer referred to, and our millers, stock raisers, dairymen and farmers at home be all benefited. Moreover, it would only be paying out a little more (or less) than the internal revenue tax we collect as a nation on the manufacture of oleomargerine and filled cheese, as a premium to injure our pure butter and cheese interests, and put us at a disadvantage with foreign countries who do not adulterate and use false brands.

In Canada, they punish criminally for the manufacture or sale of oleo or filled cheese. The present laws of the United States are clearly in the interest of Canada and foreign countries and to the disadvantage of our dairymen, stock raisers and farmers.

San Gabriel, Cal. A. B. CHAPMAN.

A Kentucky Situation.

ED. HOARD'S DAIRYMAN:—My dollar for your paper I think the best investment I ever made.

Please give me balanced ration for 1,000-pound Jersey cows from the following: Our last year's wheat in this section was very low grade, testing fifty-three pounds to fifty-four pounds to the bushel, of which I have 125 bushels and plenty of clover hay. Local prices are: Wheat bran, $14; ground or crushed oats, $22; corn meal, $18. Several Lexington dealers offer various mixtures of cooked and raw cow food, ranging in price from $22 to $28 per ton, and they know no more than I, if it be a balanced ration. In fact, as far as I can learn, very little scientific knowledge, as to cows, is practiced, based on experience or experiment. Generalization of ideas of forefathers, with little study, is the rule here.

Following suggestion in DAIRYMAN, I sowed in June, a small patch of oats and whipoorwill peas mixed, the latter six days previous to former. Excessive dry weather prevented growth. If you know of any other better feed for cows, likely to have shipped here at less cost than prices quoted, please mention and formulate balanced ration. I meant to ask, can I sell wheat to cows and hogs for more than 57 cents per bushel? If so, how. B. H. T., JR.

Donerail, Ky.

That low grade wheat, selling at 57 cents per bushel, would easily come to $20 per ton when ground, and certainly is not superior to good corn chop for feeding purposes. Oats at the price named are fully 40 per cent dearer than bran, while mixed feeds are of such uncertain composition and quality, that we cannot recommend them. There ought to be a foods stuff law in every state, similar to the fertilizer laws, requiring all mixed feeds and by-products to be accompanied by a guaranteed or official analysis and certificate.

From the feeds named we would select about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
6 lbs. bran	5.29	.75	2.32	.18
3 lbs. corn chop	2.67	.24	2.00	.13
Totals	24.90	2.35	11.48	.65

It would be a most excellent plan to have a supply of linseed oil meal in stock, and if not used every day in limited amount, feed some of it from time to time for its beneficent effect upon the digestive tract. There is nothing known to us, that can be given to cows, which comes so near to replacing the fresh grass of summer, or roots, or silage in winter, as a prime quality of linseed oil meal.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	Digestible Nutrients		
	Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

FOR MASSACHUSETTS HOLSTEINS.

If it would not be too much trouble, I would like to have you make for me a ration for my cattle (mostly registered Holstein-Friesian) out of the following named foods: Fine June grass hay mixed with red top, $10 per ton; oat hay cut in the prime state and cured well, $12; cotton seed meal, $24 per ton; linseed, old process, $23 per ton; bran (wheat bran, of course) $19 per ton, and Quaker Oat Feed at $18 to $18.50 per ton.

I make milk for city trade, and sell to a milk peddler at 24 cents per can, taken at the door, and I furnish twenty-five cans a day. My milk tests, on an average for my whole herd, by the Babcock test, from 4.2% to 4.4%. M. M. H.

Sutton, Mass.

We suggest, as an average daily allowance per cow, for the entire herd, the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17.00	.96	8.42	.30
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. oil meal	1.82	.59	.65	.14
1 lb. cotton seed meal	.92	.37	.17	.09
Totals	25.03	2.67	11.56	.71

There is so little to choose between the different kinds of hay named, and between the bran and Quaker Oat Feed, that they may be fed interchangeably, or part of one and part of the other—provided there is no choice as to the quality.

The amount of carbohydrates is a trifle low especially for winter, unless the cows are well housed. We look to the carbohydrates for the material to maintain the body temperature, and unless the stable is reasonably warm, and the cows are kept out of storms and exposure to severe weather, there must be a proportionate increase in the carbohydrates. Nothing would be better for this purpose than a little corn chop.

And withal, for we cannot too often repeat this caution, do not omit the daily allowance of salt and convenient access to water that is at least twenty degrees above the freezing point.

A LOUISIANA RATION.

Please give me ration from following feeds: Cotton seed meal, $16 per ton; wheat bran, (full of shorts) $15; alfalfa, $13; corn meal, $12.50; cotton hulls, $3.50; Texas hay, (prairie) $8. Cows are medium size grade Jerseys.

Shreveport, La. G. W. S.

If the Texas hay was not allowed to get too ripe before cutting and is otherwise of good quality, we should be inclined to use it and cotton seed meal instead of the higher priced alfalfa. In that event the average daily allowance per cow would be about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. prairie hay	13.12	.58	6.27	.21
5 lbs. hulls	4.44	.15	1.65	.09
5 lbs. corn chop	4.45	.40	3.34	.21
3 lbs. cotton seed meal	2.75	1.12	.51	.24
Totals	24.76	2.25	11.77	.75

Mix the hulls with the corn chop and cotton seed meal at feeding so as to give the mass greater bulk.

ORCHARD GRASS—PRESERVATIVES.

Would it be best to seed my farm mostly to orchard grass for hay and pasture, with clover and timothy mixed? Would it be wise to use milk preservatives in milk? Please excuse me for troubling you.

Beaver Co., Pa. G. N. H.

To both of the above inquiries we answer, No. There may be conditions which would justify the seeding of a considerable area to orchard grass, but under no circumstances is it wise, or prudent, or honest, to dope milk with preservatives.

ABORTION.

My dairy herd of twenty-six cows have all aborted with but two exceptions, within sixteen months. I have a regular veterinary (a graduate of their best colleges) in attendance. He does not seem to be able to check it. Will I have to clean my whole herd out? Is it possible for some cows to be immune to abortion? N. B.

Don, Ont.

One ought not to speak too confidently upon this subject, but the writer's experience in his own herd seems to warrant the conclusion that cows do become immune to abortion, and from like experience we feel warranted in giving this inquirer encouragement to believe that by far the greater number of his cows will become regular breeders again.

With a competent veterinarian in charge, it may be presumptuous for us to offer any advice, but the reports which come to this paper indicate that perfect sanitary conditions are more effectual in staying the ravages of this disease than any form of medication. Let there be a thorough cleansing and disinfection of all the stables and their belongings, and for the way of doing this consult the index to the former volumes.

If this inquirer and other readers are not preserving files of the DAIRYMAN, they should commence to do so without further delay.

WHEN IS THE MILK SECRETED?

Is anything definitely known as to how and *when* the milk is secreted in a cow's bag? Is it, just at the time of milking, secreted from the blood? How long after a cow has eaten certain food before it is converted into milk?

Ontario. N. B.

Something is known on this subject, but not everything. It may be said, in the first place, that milk is not secreted in the proper sense of that word, and, in the second place, that it is not formed directly from the blood. There are elements in milk that cannot be found in the blood, but just how and where they are produced is a mystery. What we do know is that there are innumerable cells built up in the udder, and that when these break down milk is elaborated. There are various milk ducts and small cisterns in the udder of the cow, which always contain more or less milk, when the cow is not dry, but their extreme capacity would amount to but a fraction, when compared with the total yield. It is therefore certain that the greater part of the milk, in the condition in which it leaves the udder, is the result of transformations which take place while the milking is in progress.

It is still more difficult to answer the second question. Certain feeds, for example, turnips, will affect the milk very quickly,—in fact, almost instantly, but it is doubtful if this comes from the regular processes of digestion and assimilation. Odors, as we know, are volatile. An onion exposed in a closed room will quickly infect all the atmosphere in that room, and this without suffering any appreciable diminution in form or substance. So some feeds will taint both flesh and milk long before their material substance can be transformed into either.

A PENNSYLVANIA RATION.

I have hay, mostly timothy, $11.00; lots of oat straw, $6.00; corn fodder, after corn is husked, will cut it in two-inch lengths; corn, 40 cents per bushel; oats, 30 cents per bushel. Do our own grinding. I can get feed at prices quoted: bran, $16.00; middlings, $17.00; oil meal O. P., $26.00. Cows average 900 pounds each. G. N. H.

Beaver Co., Penn.

The list of feeds given above runs largely to the carbohydrates, and it will not be an easy matter to arrange a ration formula that will supply the requisite amount of protein. This fact alone makes it impossible to include either the corn or the oats at the prices named. As bran contains fully one-third more protein than oats, it follows that selling the oats at thirty cents per bushel and buying bran at sixteen dollars would be a profitable transaction. From the feeds named we would suggest the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
8 lbs. hay	6.86	.22	3.47	.11
8 lbs. stover	4.76	.14	2.59	.06
5 lbs. straw	4.54	.06	1.93	.04
8 lbs. bran	7.04	1.00	3.09	.24
2 lbs. oil meal	1.82	.59	.65	.14
Totals	25.02	2.01	11.73	.59

It would materially improve this formula to take out four pounds of bran and substitute two pounds of cotton seed meal or three pounds of gluten *meal* or three pounds of buckwheat middlings.

FARMERS' NATIONAL CONGRESS.

[Address of President W. D. HOARD, of Fort Atkinson. Wis., at the 19th Annual Meeting, Faneuil Hall, Boston, Oct. 3, 1899.]

GENTLEMEN OF THE CONGRESS:—It is said that no man is a dutiful son who does not revere the memory of his parents. And so with like pertinency we may say that no American is a complete patriot who does not possess a profound regard for the early history of his country. We are met to-day for the 19th annual meeting of this Congress, on ground and amid scenes sacred in the heart of every true patriot. To each one of us comes a resolve of renewed devotion to our beloved country as we hear the name and gaze on the walls of Faneuil Hall. The name of Boston and this grand old Commonwealth of Massachusetts, with their heroic history, their steadfast adherence since the beginning of the nation to republican ideals of government, their magnificent contributions of intellect and patriotic purpose to the growth of national character, achievement and destiny, all these fill this hour and occasion, with inspiration.

To these hallowed precincts we bring the dignity of the American farm and the ennobling influence of American labor.

There is the stimulus of high resolve in the commingling of such associations and such purpose.

Massachusetts, with its upwards of two and a half millions of people, contains only about one hundred and fifty thousand farmers. Yet no state in the Union has been more loyal to agriculture or more lavish with its means for the promotion of agricultural objects. Its colleges and schools and all the culture they have bestowed; its vast wealth and progressive thought, representing more than two hundred years of thinking and working; in a word its civilization is, after all, but the fruit of human industry, the harvest that is promised always to a union of intellect and labor.

A most healthy sentiment pervades this commonwealth, for we see here the possessors of its largest fortunes and highest scholarship contributing generously of both these great forces to the promotion of agriculture.

The same sound state of sentiment prevails in regard to legislation for the protection of the producer and consumer of food, against adulteration and counterfeiting. It was Massachusetts that first enacted an anti color law in regard to oleomargarine, and she valiantly fought it through to an established victory in the highest court in the land. This law has now been placed on the statute books of thirty-three other states.

These things cheer us greatly, for by them we realize that we are among men and in a state where the farm is honored and its highest evolution hoped for.

THE FARMER AND THE TEACHER.

The principal drawback and hindrance to agricultural thought, profit and progress, is a lack of union and sympathy between scientific theory and the every-day practice of the farm. As yet there is a wide gulf between the teacher of Agricultural Science and the working farmer, and our farmers are especially lacking in appreciation of the great value to them of the scientific teacher. A moment's study of the situation will disclose a reason for this. The farmer knows from hard experience what he knows. He has worked it out with his hands. He may not have used his mind as he ought; may not have seen what science has to give him, but it is because he has had but little time to leave hand work for brain work.

But beyond this is a lack of sureness in his mind of the truth of what the agricultural teacher is saying. He is not sure that the facts which environ him are the same as those which surround the teacher. His isolation on the farm compels him to be independent and self-reliant. He can depend on no one but himself for the soundness of his judgment or a hand to execute it. He thinks that very much of what is done at Experiment Stations, taught at Agricultural Colleges, or related in dairy and farm papers, for instance, is nothing but theory. He cannot see how it is going to help him. And because he does not see he does not accept. Who can blame him? His business is to make a profit out of farm work, be it ever so small. He must earn more than he spends, for very likely there is the interest on the mortgage to satisfy. If he cannot make a margin in any other way, he must do it by hard self denial of many comforts, and still harder work. It is hard on the wife, on the children and on himself, but there is no help for it; he must pay his debts. No wonder, then, that he cannot always see that he can follow the advice outsiders give him. Most men will not act any further than they can see. There needs to be instituted a new order of teaching agriculture in this country, such as is being done in some of the countries of Europe.

The mountain will not, cannot if it would, go to Mahomet. There should be established, at various places in each state, experiment and demonstration farms carried on by men who can correlate both science and practice. The Canadian government, under the wise direction of Prof. Robertson, has solved this problem in one line at least. It has introduced dairying into regions where the industry was unknown, by building cheese factories and creameries, in the latest and most approved form, and placing them in charge of graduates of government dairy schools. These institutions were maintained until the farmers about them had learned the way and method of true practice, when they were absorbed by local capital. In this way the farmers learned that what they are too apt to call "theory" and "book farming" was the essence of practical method

The *Southern Farm Gazette*, in noting the fact that the German farmers import from 4,000,000 to 5,000,000 bushels of corn a week to feed their fattening animals, says:

"It does seem a little strange that German farmers are able to import American corn for hog and cattle food, while Southern farmers claim they cannot afford to raise pork on corn. Where is the difference—in the stock or the feeders?"

The German farmer is a scientific feeder. He is a believer in the balanced ration. He makes large use of his experiment stations. When a little boy, he was taught the elements of agriculture in the primary school. When he became a man he was a reader and student of the science of feeding. If any professor, like Wolfe, had patiently experimented on the feeding question, the German farmer did not sneer at him and call it "all book farming and theory." He reached out after the truth wherever he could find it. As a consequence, he can pay the freight on American corn for 4,000 miles, pay the speculator's profit for it besides, and make money by feeding it. When our American farmers evidence a disposition to respect what science is patiently doing for them, and become more studious and intelligent, they will make more money with their farm animals.

But something must be done to close up this gap between the farmer, and what agricultural science has to offer. The Short Course in the Wisconsin Agricultural College, the Dairy School, the Farm Institutes, the Wisconsin Dairymen's Association, all aided very greatly by the agricultural press, are doing what they can to close this gap in Wisconsin. I speak more particularly of my own state because I am more conversant with the results obtained among the people. These forces are taking hold of our young men, giving them a broader idea of what it means to be a farmer, and how a better study of what science has to give will lighten their labor and increase the profit of that labor. Three great ruling objects control here: To make better farmers, and thus encourage the making of more farmers. Hard, unthinking, unprofitable farming drives the boys away from the farm. The farmer must give his boy a chance to know a little more than he can teach him about farming in these days, or he will leave the farm. The third grand result is the building up of the wealth and agricultural prosperity of the state, which comes as the crowning result of a wiser and more practical union of the farm, the farmer and the teacher of agricultural science.

EDUCATION.

God said: "Let there be light." The average farmer of this country does not yet squarely believe in that principle as an aid to himself and his farm. He has too little sympathy for agricultural schools or for organized methods for a better agricultural education. This is seen in the fact that, as a class, he spends thousands of dollars to educate his children to be lawyers or doctors, where he spends one dollar to especially fit them to be intelligent farmers. This strange indifference to the advantages which a trained use of knowledge imparts, is difficult of explanation. But few farmers believe that there is such a thing as a science of agriculture. The great mass do not believe that the thing we call farming, can be taught to their children from books or schools. The American farmer will admit the necessity of a special intellectual training to be a lawyer, doctor, preacher, editor, merchant, or mechanic, and his sacrifice for the education of his children in everything but farming is without parallel in the history of any other nation. He sees clearly that if his boy is to understand the principles of law, of medicine, of mechanics, or of banking, he must look into books and read there the record of the experience and judgment that have gone before him. That boy's intellect must be trained to discern a principle on the printed page and then, by practice, learn how to apply that principle to produce material results.

Do you suppose that the farmers who swarmed out of New England and New York into Ohio, Michigan, Indiana and the farther west, would have reduced the fertility of their lands as they have done, if they had been taught in the country schools, when boys, the meaning and methods of conserving nitrogen, phosphoric acid and potash, as fertilizing agents?

Is there a farmer here that ever heard those agents of all plant growth mentioned in the studies of his boyhood?

I feel deeply on this great lack of primary farm education. I had to face it in my own young life and the boasted statesmanship of my country has not yet provided conditions much if any better in this direction than those which obtained fifty years ago.

The difference between successful and unsuccessful men in all callings is not luck, but rather judgment and energy. Good judgment is an act of the mind, and one must have a mind well stored with sound knowledge, and well trained to use it, in order to exercise the best judgment. I see a ray of hope in the fact that this great national body of farmers have come to see the tremendous importance of this question. I hope you will include it every year in your programmes until discussion is crystalized into action all over the nation.

Ideas govern. Wrong ideas or lack of right ideas govern just as rigidly as the best of ideas. Good sound thought, correct ideas of theory and practice must take the place of unsound ones, or there can be no improvement in the productiveness and profit of our soil or animals.

When we see a man farming in a wasteful way, or with animals unfitted to his purpose, we know conclusively that that man lacks right ideas of his business.

The outcome of the labor of his hands will depend not on the strength of the hands, but upon the soundness of the ideas which govern the hands.

This is seen and demonstrated in every community of farmers in the world.

For instance, dairy farming is essentially a work of ideas. It is largely governed by forces and conditions which have sprung into being in the last 30 years. The creamery, the cheese factory, the centrifugal separator, the silo, and refrigerator transportation, are among these new forces. They are being adopted all over the world, and the result must inevitably be to reduce the market price of dairy products. If the American dairy farmer will use his brains, will study and post himself, and imbibe the ideas of better soil management, better ideas of feeding, and improve the dairy quality of his cattle, he can keep ahead of the tide, and so, by reducing the cost of his product, continue to make a good living profit.

The American farmer can produce milk cheaper, if he will, than any farmer on earth. Yet the farmer of Holland, with land that is worth from $180 to $500 per acre, produces milk at less cost per gallon than the average American farmer. The Dutch farmer is a hard student of all the latest and best ideas in economical production. He sends his sons and daughters to the dairy schools, and so keeps himself in touch with all better ideas. The average yearly value of the product of the Dutch cows is $75, which is 50 per cent greater than in England or the United States. What is true in this respect of specific dairy farming is no less true of every other branch of agriculture.

CO-OPERATION.

The vast extent to which the organization of trusts has attained, means simply that the men who represent these varied interests have learned to co-operate for mutual benefit. Like every other social power and privilege it can be carried to an extent where it amounts to a conspiracy against the general welfare. When that time comes the people will cope with it successfully. The American people have never been enslaved and they never will be.

But there is a hint in all this combining that is going on, that the farmers should take to heart. Except in dairying, and to a small extent in fruit growing, this great lesson is utterly unheeded. Every creamery and cheese factory could easily be made the means of a larger and more beneficial use of co-operative economics. In France over 600,000 farmers are members of supply associations through which they buy fertilizers, implements, blooded stock and sell their produce. Co-operation for the farmer does not mean the formation of some gigantic stock concern which will end in a game of "freeze out." Every instinct of reason and experience bids us avoid such schemes as we would the plague. But in the broader sense and logic of their necessities, and not the necessity of some promoter, farmers should study co-operation.

"One Year's Seeding, Nine Years' Weeding."

Neglected impurities in your blood will sow seeds of disease of which you may never get rid. If your blood is even the least bit impure, do not delay, but take Hood's Sarsaparilla at once. In this course there is safety; in delay there is danger.

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Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

PRESERVATION OF THE FARM.

As farmers we need to be constantly agitated from the standpoint of maintaining the fertility of our soil by the wisest administration of the forces at our command. It has been stated, with how much accuracy I cannot say, that the decline in the values of farm lands in the last thirty years in the State of New York alone, has reached the enormous sum of over *one billion of dollars*. The same condition applies to the farming lands, in greater or less proportion, from Indiana eastward to the Atlantic coast. The loss in agricultural wealth to the nation, arising from this condition, is almost beyond calculation. The only increase in either population or wealth, in the territory named, has been in the cities and villages. In the country there has been a manifest decline in the productivity of the farm, and the pride and ambition of the farmer. Two causes, in my opinion, have conspired to this lamentable result. (1) The drainage to the city of the best mental elements of the farm. Mind always goes before matter. (2) A corresponding and consequential drainage in the same direction of the productive elements of the farm. Fertility has been sold out of the soil by the bushel and by the ton.

In the great middle west a different condition exists, which, up to the present time, has arrested this great current of waste and destruction to a certain extent. As fast as the sons of American born farmers have abandoned the old farm there has come in a farmer from Germany or other countries in Europe. This European farmer possesses two valuable traits of mind and training: (1) His home government has taken pains to give him in the primary schools, some education at least, in the elements of agricultural science. He has been severely trained by practice in the art of soil preservation. He is a careful, pains-taking husbandman. (2) His sons have an ambition to become farmers. The father is on the lookout for farms near his own for his children. This creates a demand for farms, because first there is a farmer.

The agricultural mind of this country must come to a better comprehension than it has had of this chain of causes for the decline or enrichment of a country. We must settle down practically and hard, to the conclusion that we must commence with the child if we are going to make good farmers, for without good farmers the country will soon go to destruction. There is the highest statesmanship and love of country involved in this question. It should engage the earnest attention of the educational and political forces of the nation.

PRESERVATION OF POLITICAL INDEPENDENCE.

For our own sake as farmers, and for the sake of our country, we need to be constantly agitated and aroused in another direction. There is larger need than ever in our nation's history for the old time resolute independence of character and political judgment which once characterized the American farmer. Fifty years ago the present corrupt party boss, with his assessment of corporations and control of legislation would not have stood

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for a moment before the courageous farm judgment of the country.

To-day this political merchant, who trades in the temple on the political and material fortunes of his fellows, has fastened octopus like on the nation and exercises a most dangerous power in state and national legislatures

The sentiment of the farming classes is no longer regarded by the political boss with the wholesome dread that ought to exist. This is largely due to a serious decline among farmers of individual independence of political thought and action, a substitution of mere party for patriotic standards of judgment.

A corrupt and debauching spirit of commercialism pervades our political atmosphere and poisons the fountains of law, liberty and progress. I would not advocate the formation of an agricultural party to correct this evil, for I do not believe that any man should administer his political duty in this country according to the trade he follows, the race he belongs to, or the religion he professes. But I do hope to see the farmers stand forth as strongly as they did of yore, the terror of corrupt politicians and the hope of honest government everywhere. This can only be brought about by a sturdy refusal to follow the lead of corrupt party leaders, in all parties.

It is largely through this submergence of the political influence of the farming classes that the present unfair and offensive systems of taxation exist.

Property is property. Taxation should be based on the dollar's worth of property, no matter how it is invested. That which the law recognizes as property and defends as property, should be taxed as property, according to its value. A general violation of this principal is producing wide spread demoralization and discontent in society. Men who pretend to be men in everything else, coolly become perjurers in order to save a few dollars in taxes.

The final effect may be comprehended in this question: If a man will swear falsely to cheat the public, how long will it be before he will perjure himself to rob his neighbor?

Let me suggest a partial remedy, at least: After the assessor has completed his work, and a month before the final review, let it be required by law that the personal property list shall be published and placed before the public eye. There is great moral force in publicity. As farmers especially we should create public sentiment in favor of such laws, for a very large proportion of the property of the country escapes taxation.

This Congress meets annually to discuss questions which, in its judgment bear with vital force on the well being of the agricultural classes. Its first and chiefest concern should be to arouse the minds of farmers to a broader understanding of how they may help themselves. We should do what we can here to arouse a wide spread public sentiment in favor of specific legislation, both state and national, against the counterfeiting of human food. We must demand this in the interest of the consumer as well as the producer. The general government has no police power. That is reserved for the states. But the general government has unlimited power of taxation. It exercised that power to the extinguishment of the state banks. It exercises the same power in many of its tariff schedules. Every farmer in the land should, in my opinion, demand of his representative in Congress that adulterated and counterfeit foods be subjected to a national tax sufficient to drive the same out of existence. It is fair and just to demand of the law making power of this government that the American farm, with its product of pure and honest human food, shall not be driven from its rightful market by fraud and deceit. You can do the cause of agriculture no greater service than by uniting all the force you have individually and collectively for the accomplishment of this purpose.

Northern New York Pencillings.

New York Drouth and Small Milk Receipts.—Price of Cheese.—Cheese and Meat.—Beef and Milk as Foods.—The New York Oleo Cases.—Silos and Silage.—Wheat Yields.——Frozen Silage.

ED. HOARD'S DAIRYMAN:—The long drouth, eight weeks, was broken yesterday, the 18th, when we had a copious shower. Showers also fell last night, and one is now on this morning. But it is too late in the season to benefit anyone, except, so far as it makes fall plowing more easy, lays the dust that was very deep in the roads, and quenches, in part at least, the numerous forest fires that have been burning, for weeks, in Northern New York. The weather is mild, and should the frost delay its advent a week or two, for which all are praying, the pastures may freshen a little, thus increasing the milk flow somewhat; but it is so late that, should the grass start, the frosts will soon nip it.

All the cheese makers say that the milk receipts at the factories were never so low at this time of the year—less than fifty per cent of the amount received at the June flush—so that, when this difference in milk yield is considered, although cheese is about two cents per pound higher than it was last year at this time, the patrons of the factories do not carry home any larger checks than they did at that time.

At the meeting of the Watertown Produce Exchange, last Saturday, the 16th, there were 4,639 boxes of cheese offered, but only 2,587 were sold, the ruling price of which was 10½ cents, fully a cent and a quarter lower than at the meeting two weeks before. Our factory, as well as nearly all the others in town, sold; but as will be seen, about one-half of the salesmen refused to sell. Perhaps they have done the right thing, but the indications are for lower prices yet.

Indeed, it was expected by some, that last week's ruling would be ten cents, but the buyers saw that no cheese could be bought for that price, so squeezed the price up to 10½ cents.

With the cable quoting the same figure it did two weeks ago, it was very evident the sellers were in no mood to withstand another half cent drop.

If, however, next Saturday's ruling is not down to ten cents, some of us will find ourselves mistaken, although the decrease in the milk yield must necessarily continue. What with no pasture, scarcely, and in many of them no water but a surplus of the fly pests, it is little wonder that the milk flow has fallen to an October 15th figure, and that salesmen should demand, as a result, still higher figures for their cheese. But they should consider one vital point, which is, that no matter how curtailed the production of cheese is, or may be by reason of the drouth, and a shortage of green foods, when the price reaches a certain figure some people will stop buying it, although, at even a higher figure, it may be more profitable as a food than is beef or some other meats at present prices, and which they do not refuse to buy every day. This will always be the condition until consumers are educated up to a higher level, by being shown the superior food value of milk over these meat foods.

Just as long as they do not know that a pound of good, full cream cheese, costing say, fifteen cents, contains more nutritive value than does two pounds of beef steak at the same price, or higher, they will refuse the cheese and buy the meat. They seem to consider cheese, not as a really necessary food, but as a luxury instead, to be indulged in only by the rich, and as a necessity on hotel tables and in high toned restaurants.

When I took that Ellisburgh cow census, I ate dinner in forty farm houses, but I saw cheese on four tables only, while roast beef or some other kind of fresh meat was found on nearly every one.

It is a "campaign of education" that needs to be made and fought to a finish, and the first battle should be fought in the farmer's institutes. There is too much "balanced ration" for the farm animal, and not enough for the human animal on the farm and elsewhere.

This work of educating the people, in this direction was inaugurated at the institutes last winter by Director Dawby, and is to be continued the coming winter. Miss Anna Barrows, one of the editors of the *American Kitchen Magazine*, a lady from Washington, D. C., and our own Jimmie Rice, of Yorktown, New York, each gave lectures devoted to the human food problems, illustrated by charts, as well as in real cookery on the stage.

Mr. Rice had four large charts on which were the figures showing what one may buy for one dollar, as well as the difference in the nutritive value of the foods we eat. All the cereals, vegetables, native and foreign fruits, milk, butter, the different varieties of cheese, fish, oysters, meats, fowls, eggs, etc., were included in the whole, furnishing the material for a very instructive and entertaining hour's lecture, which, when possible, was always given at the evening session. In it was always shown and clearly pointed out, the superior value, and the advantage which milk and cheese have over all flesh foods.

In a recent issue of the *Rural New-Yorker*, Dr. Jordan, of the Geneva Experiment Station, has an article bearing on this food problem in which he says:

"The great cost of beef over milk, works itself out in commercial conditions. When the New York millionaire buys hygenic milk for his growing boys and girls—if he happens to have any—at eight cents a quart, and tenderloin steak for himself at 25 cents per pound, he pays 25 to 26 cents a pound for edible milk solids, and not far from 61 cents for a pound of edible beef solids, or, in proportion to the energy value of the two foods, practically twice as much for the beef, as for the milk solids. The same general relation holds in our villages where milk sells for five cents, and decent steak for 15 to 18 cents.

Milk is unquestionably the cheapest high-class food which the market offers. This is a truth not generally appreciated by the pub-

Have You Been Sick?

Perhaps you have had the grippe or a hard cold. You may be recovering from malaria or a slow fever; or possibly some of the children are just getting over the measles or whooping cough.

Are you recovering as fast as you should? Has not your old trouble left your blood full of impurities? And isn't this the reason you keep so poorly? Don't delay recovery longer but

Take

Ayer's Sarsaparilla

It will remove all impurities from your blood. It is also a tonic of immense value. Give nature a little help at this time. Aid her by removing all the products of disease from your blood.

If your bowels are not just right, Ayer's Pills will make them so. Send for our book on Diet in Constipation.

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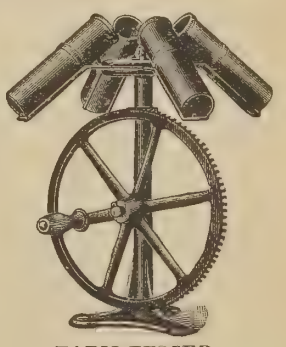
We have the exclusive services of some of the most eminent physicians in the United States. Write freely and receive a prompt reply, without cost.

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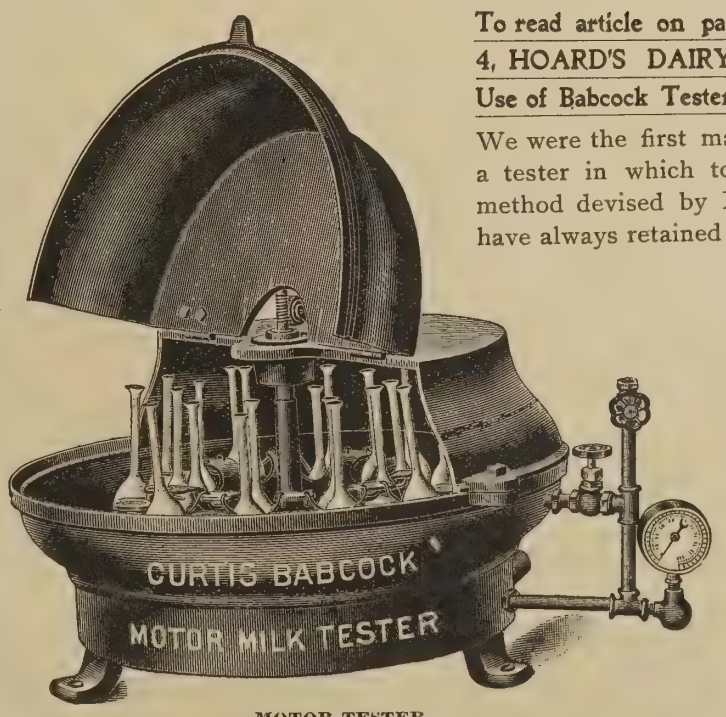
Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

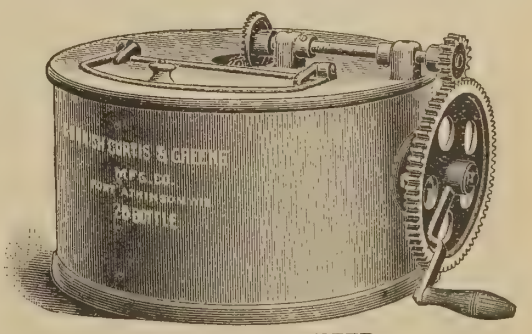
We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



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CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for — *DE LAVAL ALPHA SEPARATORS.*

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

lic. To the rich it is not an important matter, but to our laboring classes in restricted or moderate circumstances, it is. Yet how often we find a mechanic's wife priding herself on her economy in purchasing but little milk, and then freely patronizing the butcher's cart at current prices. Even the families of the farmers who produce milk, often use it as an article of diet in very limited quantities."

There are farmers having large dairies in this town, now that four per cent milk is worth $1.20 per 100 pounds, on whose table a pitcher of milk is seldom seen, and scarcely enough is retained to color the coffee or tea. Yet they do not hesitate to indulge in the use of high priced meats, fruits and all the delicacies found in the markets.

When some of those who eat beef steak and drink beer are shown the error of their ways, and are made to see the superior food value of milk, over the other foods they consume, more of it in the form of cheese will be eaten. When that day arrives, we shall see cheese selling at profitable prices for the dairymen, just as it is now, owing to a short s pply.

The department of agriculture has decided to go for Armour's scalp, and will fight to a finish the oleo business. Commissioner Weiting has got up steam, and opened the throttle for the purpose of securing that $1,500,000 for violation of the anti-hogbutter laws of this state. A hearing was to have been held last week Tuesday at Watertown, before Judge Watts, who has been appointed referee. But an adjournment, by stipulation of counsel, who was not ready, was taken. The New York Central, West Shore and Delaware and Hudson railroads were subpœnaed to attend, and to produce their books for the purpose of ascertaining the shipments of hog butter by Armour & Co. into this state. No doubt the company will put up a big fight, as $1,500,000 is quite a "bundle" to play for, and it may be "many moons," and a number of "great suns" ere a finale is reached.

It is hoped, however, that Armour will have to go down deeply in his trousers, and be forced to settle, since the highest court has said that he repeatedly violated a constitutional statute. That being the case, and the number of violations of the law, amounting to that sum in fines, the gang should be made to put that up in lucre, instead of being let off for a beggardly $20,000, as was proposed by former Commissioner Schraub. "Let him pay his debts and come out," was the remark which that white-haired patriarch, Casby, made to Panks, when the incarceration of Arthur Clennam, in the old Marshalsea prison, for debts contracted, and which he could not pay, was up for discussion between those two worthies. Now let Armour & Company pay that little $1,500,000, provided they have the shekels.

Mr. Wieting has a very large blood microbe in both eyes and proposes to use it for the purpose of ascertaining the financial status of the Chicago hog butter patriots, and for forcing them to "pay their debts and come out;" and he'll do it too, unless the company buys up the high court, and prevails upon it to reverse its former decision. One can't most always tell what some of these high muck-a-muck judges will do now-a-days, as witness the reversal of a former decision, duly "handed down" by a certain judge of the U. S. A. highest court, and which so benefited the Vanderbilts, Rockfellers, Russel Sages, Goulds (not John), Hetty Greens, and some others, that they were enabled to shirk the payment of an income tax to help along this expansion scheme of ours now on, and which, but for that "Just Judge (?)" might have landed the whole gang in the poor house. It is not best to crow too much till after we have heard from the judges, and are safely out of the wilderness.

The silos are all completed, and most of them have been filled. Several of the round pattern are numbered among the new ones, one of them, Mr. W. R. Green's, having its fill of summer silage. It is the only summer silo, so far in town, but more will follow another year. Mr. Green has two silos well filled, and a five-acre surplus of corn besides. His crop was a success, because it was not only planted early, but well fertilized and cultivated. During the hot days of August, he kept the cultivator doing constant duty, and has now reaped his reward. It pays to keep the cultivator "teeth hot," as Prof. Roberts is wont to remark, when the terrible hot, dry, mid-summer days come. Mr. Green did that, but there are a whole lot of farmers who did nothing of the kind. Result: No corn. I saw four fields on one road, in a five-mile drive, one day last week, that have not been visited by a cultivator this season. We could see the tassels of the stunted corn stalks, standing on tip-toe and peering over the quack grass and weeds at us as we drove by, and we almost expected to hear them cry out: "Save us or we perish."

One of those fields is on a farm on which a silo was built three or four years since, but, if it is to be filled this year, more quack and weeds than corn, will go into it, unless the owner imports a corn crop. On another farm, where there is also a silo, the owner has abandoned it, seemingly, and has cut and put up his corn in very large shocks in the field. His silage venture, however, has, as a rule, owing to a defective silo, and other natural causes, been a failure, so it is not at all a surprise that he has abandoned his silo and embarked in the big shock make shift. And yet, the influence of such a man is more or less bad, from the fact that there are so many farmers, who are constantly looking for proof that the silo is an impracticable affair, and who, when they find a man who has abandoned it, no matter from what cause, are sure to magnify it at a great rate, and say: "We told you it was a humbug, now go and see for yourselves." And yet, new silos are going up on every hand, and more are to follow, but they are and will be on the farms of practical, up-to-date dairymen.

Speaking of the tub or stave silo and the liability of its contents to freeze, and thereby be greatly injured, Mr. L. A. Clinton, writing in the *Rural New-Yorker*, recently says: "It has generally been supposed that the freezing of ensilage in winter would injure it for summer feeding. During the past winter, we had occasion to examine ensilage which was stored in a stave silo, erected out of doors, with no protection whatever to keep the ensilage from freezing, except that afforded by the staves, which were two inches thick. The ensilage was frozen around the outside to the depth of six inches. This ensilage was not fed out until June, and that which had been frozen kept just as well as that which had not been frozen, and was, apparently, not injured in the least by the freezing. It thaws out slowly, when away from the air, and, without the presence of oxygen, there is no possible chance for it to decay or spoil. So, with the construction of these stave silos, we are led to believe that no protection whatever is needed to keep the ensilage from freezing.

For winter feeding, of course, the ensilage would not be fed while frozen, but, each day when the material is thrown from the silo, if that which is frozen is mixed with the warm ensilage from the center of the silo, in a few hours the whole mass will be in good condition for feeding. The silo should have a place on every dairy farm, and ensilage should be provided for both winter and summer feeding."

If Mr. Clinton is right in what he says, another problem is solved, *i. e.* how to prevent silage from freezing in the out door stave silo.

Several of these stave silos have been put up here and filled recently, and one man has enclosed his in a square building. Another man thought to so secure his, but, upon my showing him Mr. Clinton's article, decided not to do it. Had the other dairyman been a reader of the *Rural*, he would have been at least $25 to $30 ahead, saved by not enclosing his silo. Perhaps, however, it may pay to put a building around one, as a protection against the violent spring and early fall winds which lake Ontario so often dishes up for us. C. W. JENNINGS.

Belleville, N. Y.

The Escutcheon Theory.—Further Light Wanted.

ED. HOARD'S DAIRYMAN:—It is not many years since the escutcheon of a cow was considered one of the most important marks of a cow's value. In the last five years or so it seems gradually to have lost the importance it once possessed, until now one seldom sees anything about it in any of the dairy papers.

The opinion of most cattle judges seems to be that, while the escutcheon may indicate the milking qualities of a cow, there are other more evident signs that are safer to follow.

I have seen and bought a good many cows in the last five years, and I have never failed to observe the form and size of the escutcheon. The result is that I have come to the conclusion that it is a point of considerable value as an indication of a cow's capacity. I agree most heartily with the general principles which the editor so often expounds as to the dairy points of a cow, and I should probably hesitate to sacrifice any of these points to the escutcheon, but I believe I have seldom seen a cow with a perfect escutcheon that was not an excellent milker.

I should like to have this matter discussed by the readers of HOARD'S DAIRYMAN who have decided views for or against the escutcheon theory F. G. H.

Brookline, Mass.

A Note of Warning from the Indiana Experiment Station.

Upon the announcement of the United States Department of Agriculture that it had achieved success in the treatment and prevention of hog cholera by the new serum, it was predicted by the Veterinarian of the Indiana Station, that commercial firms would soon produce a "serum," and claim it to have all the merits of that produced by the Government. Neither experimental work or experience is necessary for cholera-cure firms to claim success. Recently, we have been informed that such firms are operating in Indiana, and as a result cholera is following in their path, and the disease being introduced into herds when it had not previously been in the neighborhood. The Indiana Station desires to learn of the success or failure of the hog cholera serum treatment in every locality in which it has been tried, and also of all outbreaks of disease which may have followed serum treatment, and we solicit correspondence upon the subject.

Reports have also been received that agents of cholera medicines in White, Warren, Pulaski and Fulton counties, claim authority to sell goods recommended by the Station, and agents in Marshall and Kosciusko counties claim to be agents of the State Board of Agriculture. All agents making such claims in any part of the state are frauds and should be prosecuted.

A. W. BITTING, Veterinarian.

Frauds by Dealers and Breeders.

The quickness with which commercial cunning catches up scientific methods, and uses them not only against science, but against society (for which science exists), is shown by a fact that has recently come to light. It is known that after an injection with tuberculin, cattle will not show a second fever reaction within a period of several weeks. In order to deceive inspectors and buyers, many breeders and dealers have been practicing the injections weekly prior to those of the buyers and inspectors, so that there is no fever reaction when the real test should show the existence in the animals of tuberculosis. This is really more infamous than the purchase of the testimonials by bribery from supposed reputable bacteriologists and experts, or the downright forgery of such testimonials—things that have more than once been proved. The law should make short shrift for such scoundrels. Another iniquity recently came to light by means of a blunder which brought quick and deserved retribution, but which also suggests an inquiry as to the possible number of instances in which bad results are hidden by a better technic. At a great agricultural fair a large number of valuable Jersey cows suddenly died while in the exhibition grounds. Investigation proved that to give a false appearance of "large bags," milk in quantity had been injected into the glands. The maladroits had failed to sterilize the milk, and the cows succumbed to septicemia.—*Philadelphia Medical Journal.*

DAIRY MARKETS.

ELGIN, Ill., Oct, 2.—Thirty tubs offered; no sales; committee reported firm 23½c.

CHICAGO, Ill., Oct. 2.—Butter—Slow sale; creamery, extra, 22½c; cold storage creameries, 20½@21c; firsts, 19@20c; seconds, 15½@16½c; imitation creameries, fresh, from unsalted butter, 15@16c; dairies, extra (Cooley's) 19c; firsts, including Cooley's 16c; seconds, 15c; ladles, 14@15c; packing stock, 13½@14c.

Cheese—Firm; full cream Cheddars, 11½@11¾c; Twins, 19⅞@11¾c; Young America, 11¾c; Swiss, 11@11½c; Limburger, 9@9¼c; Brick, 10@10½c.

Eggs—Steady; strictly fresh per doz, cases returned, loss off, 16½c; ice-house, 14½@15½c: seconds, $2.40@3.00 per case; checks, $2.00@2.25 per case.

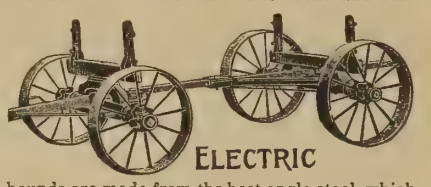
Cattle—The better grades of native beef cattle and grass westerns ruled strong to 10c higher, with other grades generally steady. Trade was active and an early clearance was made. A load of 1,648-lb. Short-horns sold at $7, or 10c above the previous top of the year. Five loads averaging 1,361@1,469 lbs. sold at $6.80. Most of the beef cattle sold at $5.50@6.30 with common at $4.50@4.75. Corn fed westerns sold at $4.90@6.25; grass western steers $3.90@4.80; grass western cows and heifers $3.10@4.45; grass Texas steers 1,107 lbs. $4; bulk of native cows $2.50@3.25; bulk of heifers $3.40@4.25; bulls, principally $3@3.75; stags $4.35@5.20; veal calves $4.50@6.75, and feeding cattle $3.10@4.75.

MILWAUKEE, Wis, Oct. 2—Butter—Creamery, fancy prints per pound 22½c; extras, 22½c; firsts, 21@22c, seconds, 20@21c; imitations, 19@20c; Dairy—selections, 17@18c; lines, 16@17c; ladles, 15@16c. Market unchanged and active, particularly for dairies; receipts 11,704 pounds.

Cheese—American Full Cream, new, choice to fancy 11@11½c. Brick, new, choice, 11@11½c; Limburger, new, choice, 10@10½c; Swiss, new drum, choice, 12@12½c; new block, choice, 12@

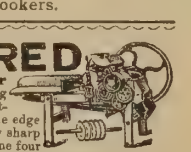
BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear



hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs, anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers.

CUT AND SHRED with the WOLVERINE Cutter and Shredder. Knives and cutting bar selected oil tempered tool steel. Cutting bar has 4 cutting edges; when one edge dulls simply turn it over and get a new sharp edge; that makes the life of this machine four times greater than the old style. Shredder head made of saw steel. Interchangeable with knife head. Safety fly wheel. Stop feed lever. Adjustable knife and shredder head. Made in 13 sizes. Largest cuts a ton in 5 minutes. Swivel Carrier.



SNAPPING ROLLS to snap off the ears, are furnished on three sizes of shredders without any extra cost.

RUNS EASIER, cuts faster, lasts longer than any other machine made. Prices low. We have no agents.

TRY THEM—if not as we say, return them at our expense.

GRINDING MILLS 63 kinds of Sweep, Belt and Geared Mills for 2 to 25 H. P. for grinding ear corn and all other grain fine or coarse. Price sweep mills, $14.50 and up.

CORN SHELLERS 19 sizes and kinds for hand or power. Hand sheller 90c; 1-hole sheller with pulley for hand or power $5.50; self-feed sheller shells 500 bu. a day.

POWERS 1-h Tread, with governor, $58. 2-h $77. 3-h $103. 2-h Sweep, $24.90; 4-h $34.75; 6-h $36.95; 8-h $51.25

A full line Feed Cookers, Bobs, Cutters, Blankets, Robes. Send for FREE fall catalogue giving latest prices.

Marvin Smith Co., 55 N. Jefferson St., C-18, Chicago, Ill.

9 CORDS IN 10 HOURS



BY ONE MAN, with the FOLDING SAWING MACHINE. It saws down trees. Folds like a pocketknife. Saws any kind of timber on any kind of ground. One man can saw MORE timber with it than 2 men in any other way, and do it EASIER. 163,000 in use. Send for FREE illustrated catalogue showing latest IMPROVEMENTS and testimonials from thousands. First order secures agency. Address FOLDING SAWING MACHINE CO., 55-57-59 No. Jefferson St., H-28, Chicago, Ill.

Pat Oct. 6, 1896.

Anti-Septic Basin FOR STOCK.



Porcelain lined, pure and clean. No filthy valves, no splashing over, no rust. Thousands in use. Round bottom and proper depth.

D. H. BAUSMAN,

Bausman, (Lanc. Co.) Pa.

Manufact'r Water Wheels, Tanks, Pig Troughs, Poultry Troughs, Etc.

FOR SALE

The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms, two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

H. A. DAVIS,

631 Pa. Ave. N. W., Washington, D. C.

12¼c; new block No. 2,10@10¼c. Market strong; receipts 21,570 pounds; trade fair.

Eggs—Fresh, per doz. 16½c; loss-off cases returned. Market firm, receipts 309 cases.

FOND DU LAC, Wis, Oct. 2.—Offerings 635 Twins and 580 Dairies; market active at 11½c for Twins and 11¾c for Daisies.

PLYMOUTH, Wis., Sept. 26—Sales to-day 1,225 Twins at 10¾c and 1,335 Americas at 11c. Market active.

BRILLION, Wis., Sept. 22—Sales of cheese to-day, 1,800 Daisies at 10½c; 850 Flats at 10½c; 510 Young Americas at 10¾c.

MUSCODA, Wis., Oct. 2.—Offerings on the Board to-day were 1,300 Twins; market active and all sold at 11c.

HILBERT, Wis., Sept. 23—The following sales of cheese were made to-day: 110 cases Young Americas at 11⅛c and 100 Daisies at 10¼c.

APPLETON, Wis., Sept. 21—The offerings to-day were 220 Cheddars and 324 Twins. Bids on Cheddars, 10⅞c; Twins, 10¾c. Sales 165 Twins at 10¾c.

HORTONVILLE, Wis., Sept. 21—Offerings were 160 Cheddars and 1,165 Twins. Sales: 123 Cheddars at 10¾c; 180 Twins at 10⅞c; and 729 Twins at 10¾c. Ruling prices: Cheddars, 10¾c; Twins, 10¾c.

SHEBOYGAN FALLS, Wis. Sept. 27—Seventeen factories offered 1,442 boxes of cheese on the call board to-day, and all were sold as follows: Seven hundred and sixty cases Young Americas at 11¼c; 107 Twins at 10⅞c; 175 Daisies at 11⅜c; 100 at 11¼c; 100 at 11⅛c; 200 at 11. Market active.

MANITOWOC, Wis., Sept. 27—Offerings on the Dairy Board of Trade to-day were 850 boxes Daisies, 175 boxes Twins, 700 boxes Young Americas. All offering of Daisies and Twins sold at 10½c; Young Americas at 10¾c.

NEW YORK, Oct. 2.—Butter—24c for western creamery; 21@22c for state dairy, half firkin tubs finest.

Cheese—11¾c for State, large, full cream, colored fancy.

Eggs—20c for western first, loss off.

FULTON, N. Y., Sept. 25—To-day 17 factories were represented with 1,035 boxes of cheese. Large sold at 11c and small at 11¼c.

CANTON, N. Y., Sept. 25—Saturday 1,900 boxes of cheese were sold here at 11¼c and 800 tubs of butter at 23c.

OGDENSBURG, N. Y., Sept. 25—On the board Saturday 1,427 boxes were offered. A bid of 11½c resulted in no sales, but later on the street sales were made at this price.

NORWICH, N. Y., Sept. 25—The sales were 300 boxes of small colored creams at 10¾c; 160 boxes of white creams at 10¾c and 432 boxes of skims at 9c. Creamery butter sold for 22c and dairy at 20c.

WATERTOWN, N. Y., Sept. 25—The sales of only three lots, 150 boxes, were reported, these going at 11c. On the curb the sales were: Large white, 175 boxes, at 11½c; 300 boxes at 11¼c; 890 boxes at 11⅜c, and 2,745 boxes at 11½c; Twins, 190, at 11½@11¾c.

UTICA, N. Y., Sept. 25—The market was fairly active, with the tone a little firmer. The sales were not very large, from 11⅛@11½c. The shortage in milk supply continues.

Following is a list of sales as officially reported: Lots, 106; boxes, 8,329; price 10¾@11½c.

The transactions on Sept. 27, 1897, were 8,208 boxes with 8⅝c the ruling price. The transactions on Sept. 26, 1898, were 6,238 boxes with 8c as the ruling price.

The butter market was fairly strong. The sales were 17 packages at 22c; 90 packages at 23c; 25 cases of 1-pound prints at 25c; 35 cases of 5-pound prints at 25c.

LITTLE FALLS, N. Y., Sept 25—The market gave some indications of a firmer condition which it is believed will still further improve.

The sales were 4,276 boxes at 10¾c@11c, nearly all going at 11c.

Light sales of butter are made, generally at 22c for a prime article. In a few exceptional cases it is reported that 23c has been paid.

PHILADELPHIA, Pa., Oct. 2—Butter—Solid packed, separator creamery, extra, 23c; creamery, firsts, 21@23c; seconds, 18@20c; imitation creamery, extra, 19c; firsts, 16c; seconds, 14c; ladle packed, extra, 16c; firsts, 15c: seconds, 14c. Print Butter—Creamery, extra, 24c; firsts, 23c; seconds, 19@20c.

Eggs—Pennsylvania and nearby, 19@19½c; Southern, 17c; Southwestern, 18c. Western, 19c.

BALTIMORE, Md., Oct. 2—Butter—Market firm; creamery, separator, extra, 24@25c; extra, firsts, 23@24c; creamery firsts, 22@23c; creamery imitation, extra, 19@20c; ladle, extra, 17@18c; Western store-packed, 13½@14c.

Eggs—Market firm; strictly fresh stock, 16½@17c.

ST. LOUIS, Mo., Oct. 2—Butter—Steady; creamery, 19@23c; dairy, 15@18c.

Eggs—Steady; 15c.

KANSAS CITY, Mo., Oct. 2—Butter—Creamery, 19@21c; dairy, 16c.

Eggs—Fresh, 15c.

CINCINNATI, O., Oct. 5—Butter—Dull.

Cheese—Firm; good to prime Ohio flat, 11½c.

Eggs—Steady; 15c.

BOSTON, Oct. 2.—Butter—Creamery extra, 23½c; western extra, 23c; dairy extra, 21c; imitation creamery, 16@17c; western ladle, 15½c; print creamery, 24½c; box creamery, 23½c.

Eggs—Fancy near by 25c; choice fresh 20@21c; Michigan extra, 19c; western 18½c; fair to good 16@17c.

WASHINGTON, D. C., Oct. 2.—Market firm; extras, 24c; choice firsts, 24o: fine imitations, 19c.

NEW ORLEANS, La., Oct. 2.—Butter firm; fine creamery scarce, 24c; prospects higher; ladles active.

Eggs—17@18c.

NEWARK, N. J., Oct. 2.—Market steady; 24c for strictly Elgin only.

Latest quotations for fancy creamery: Buffalo, 23c; St. Paul, 22c; Minneapolis, 22c, Detroit, 23c.

NEW YORK MARKET.

NEW YORK, Sept. 29—Butter—Receipts for the week were estimated at 25,885 packages.

Exports for the week were estimated at 2,988 packages.

Arrivals of fine, fresh creamery makes just barely supplied the demand; regular business transactions were interrupted by Holiday observances. The first half of the week, there was a hurried succession of small trading, and the last half of the week business was entirely suspended.

The trade are using more natural colored butter than they used to; it has a growing preference among buyers. We quote:

Creamery, extra, 23c; medium, 20@21c; poor, 16@18c. Dairy, extra, 22c; medium, 18@20c; poor, 15@16c. Ladle, extra, 16½c; medium, 15@15½c; poor, 14@14½c.

Cheese—Receipts for the week were estimated at 23,686 boxes.

Exports for the week were estimated at 9,475 boxes.

There is a firm, strong market well sustained by export demand and clearing sales of everything offered at going rates. The trade are laying by cheese for their winter wants which more or less limits the offerings, and altogether the market closes firm. We quote:

Full cream, large, extra, 11½@11¾c; medium, 10½@11c; poor, 8@9c. Full cream, small, extra, 11¾@12c; medium, 10½@11c; poor, 8@9c. Part skimmed, extra, 10@10½c; medium, 8@9c; poor, 6@7c. Skimmed cheese, poor, 4@7c.

Eggs—Receipts for this week were estimated at 52,610 cases.

There is a quick demand for all fresh laid stock and even refrigerator goods well held are in request as high as 18c. We quote:

State & Pennsylvania, per doz., 20@21c; Western, fancy marks, per doz., 20c; Western, regular packings, per doz., 19@20c. DAVID LEWIS & Co.
177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, Sept. 28—Butter—The receipts of separator creamery this week have been about equal to the demand, and that has been practically limited to the consumption here and, in contiguous cities and towns; it is fully expected that if the weather settles, and the temperature remains cool, that the orders will materially increase, and then unless there is a corresponding gain in milk at the creameries regularly contributing to this market, there will be further requisitions upon the freezers, and they contain some very high grade goods, and seem to be an ever present aid in time of need, especially after the enhanced values have driven off the foreign trade, as is now the case; by-the-by, continuing our thoughts for a moment in the freezers and on the lines of butter therein contained, the question presents itself: Who will want it when the Australian and New Zealand surplus stocks flood the English and continental markets next month? Just at this writing, much of the stored creamery is of the qualities that closely compete with the gathered cream products of present make, and the grading of much of the latter is so low, that the well saved goods, though not fine when put into the freezers for their salvation, appear much better by comparison, and better even than when they were stored. Imitation creameries, both fresh and storage stock, is very scarce, and in good demand. Ladle packed goods are in very light receipt; all grades are wanted. The receipts of store packed also, are unusually light, and there is quite a lively competion among buyers for the limited quantity on arrival. There is more inquiry for rolls, and a disposition on the part of the market house trade, to pay prices in excess of quotations; we think 16c a very conservative price.

Creamery Separator, extras, 23c; firsts, 21½@22c; seconds, 19@20c. Gathered Cream, extras, 20@21c; firsts 18½@19c; seconds, 18c. Ohio, extras, 20@21c; firsts, 18½@19c; seconds, 18c. Imitation, firsts, 16½@17c; seconds, 15@16c. Iowa & N W. Ladle, firsts, 15@16c; seconds, 14c. Ohio & Indiana Ladle, firsts, 15@16c; seconds, 14c. Ohio Storepacked, firsts, 13½@14c: seconds, 12½@13c. W. Va., firsts, 13½@14c: seconds, 12½@13c. Creamery Blocks (2 lbs.) extras, 24½@25c; firsts, 23@24c; seconds, 21@22c. Prints, (½ lb.) extras, 24½@25c; firsts, 23@24c; seconds, 21@22c. Md. Va. & Penn Prints, extras, 20c; firsts, 19c. seconds, 17@18c.

Cheese—Receipts fair; demand active; market firm.

N. Y. State Cheddars, fine, 12@12¼c; choice, 11½@11¾c; fair, 10½@10¾c. Flats, fine, 12¼@12½c; choice, 11¾@12c; fair, 10¾@11½c. Small, fine, 12½@13c; choice, 11¾@12½c; fair, 10¾@11½c. Ohio Flats, fine, 11¾@12c; choice, 10¾@11½c; fair, 10@10½c. Picnic, fine, 11¾@12¼c; choice, 11@11½c; fair, 10½@10¾c. Swiss Cheese fine, 12@13c; choice, 11@11½c; fair, 10@10½c.

Eggs—Under continued light receipts of all strictly fresh eggs, and an active demand, our market rules firm and strong at 16½@17c. We advise liberal shipments, as you will find with the fair grading in our market, that our prices will compare favorably with our sister markets.
301 Exchange Place. G. M. LAMB & Bro.

LIVERPOOL, Oct. 2.—Butter—Finest United States, 95s; good, 72s.

Cheese—American finest white, 52s 6d; American finest colored, 54s.

MANCHESTER, Eng., Sept. 23:—The Danish official quotation has been again advanced four kroner. This price covers faultless quality on which the quotation is based. Premiums are not infrequently paid for the best dairies, as however, all free on board butter is shipped as faultless—whether it actually be so or not—the rise will cover all butters invoiced direct. In the United States extra creamery is now about three cents higher than last year at this time. The higher price now is justified by the lighter make reported from about all points and the general prosperity of business everywhere in the United States. In Great Britain the colder weather reaching to chilliness has improved qualities and consumption, and a brisk trade has been done during the week. Some small arrivals of Australians have reached London, mostly old and partly new seasons make. The best quality has realized 118s to 120s. Manchester received 4,080 casks of Danish and Swedish last Tuesday, being 263 casks less than the previous week. They changed hands at from 128s to 130s. Contract dairies full price. Irish creameries realized 116s to 125s, Finnish 116s to 118s, with Canadian s 110s to 112s. Irish firkin butter meets with a good steady demand at steadily advancing prices. Higher figures will be easily made next Tuesday. The market is quite bare and absolutely cleared of choicest qualities. 17,291 cases of Danish and Swedish are notified for this coming week's arrival, being 252 more, whilst Finnish total 1,346 casks or 417 casks less. Finland shipped for last week 1,804 casks to England and 2,085 to Denmark. A good steady demand for margarines and mixtures, consequent upon high butter prices. DOWDALL BROTHERS.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wnnted—First-class hand separator for 10 to 15 cows. Must be in good order and cheap. C. C. McDERMID, Battle Creek, Mich.

Wanted—Position by an experienced butter maker. A. R. EPPERSON, Frankfort, N. Y.

A situation is wanted by a butter and cheese maker of twelve years' experience. A 1 references as to character and capability. For further information address W. W. BURGETT, Long Point, Ill. 34-2

Experienced buttermaker (Danish), 33 years old, wants position in a creamery or on a dairy farm. Four years' experience in the old country and at present buttermaker at Eagle Valley Creamery, Edwards, Colo. Can take care of stock. For particulars address, MARIMIS FRANDSEER, Edwards, Eagle Co., Colo. 34-2

To have health and happiness use "Garland" Stoves and Ranges.

Wanted—A dairyman who would like to come south to take charge of a first-class dairy. Address "E," Glenraven P. O., Tenn. 34-3

A Baby De Laval Separator No. 3, capacity 600 lbs. an hour, 30-gal. churn, butter worker, 6-bottle Babcock tester, shafting, pulleys, belts, etc. Price $100.00. Separator good as new and cost $200.00. E. R. BALSLEY, Troy, Wal. Co., Wis. 34-tf

Wanted—Man and wife (German or Swede preferred) to do the general work on a dairy farm. Address "M," care of HOARD'S DAIRYMAN, Fort Atkinson, Wis.

Wanted—Practical farmer and dairyman to rent good farm in Southern Minnesota. Also good single man to work on stock farm. Must understand care of stock. Address "H," care HOARD'S DAIRYMAN. 33-3

Wanted—Experienced butter and cheese maker. One that thoroughly understands his business. References required. State wages expected. Address, D. HART, Del Rio, Val Verde Co., Texas. 33-3

Farm For Sale—400 acres in garden spot of Iowa, adjoining Britt, a town of 1,600. Farm well improved; large barns, grove, flowing well. Adapted to dairying and stock raising. Cheese factory on farm, operated two seasons. Will sell at a decided bargain before Oct. 15th. Write for particulars. GEO. P. HARDWICK, Britt, Iowa. 32-3

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

For Sale—The proprietor of a choice herd of grade Jersey cows will sell 21 head. Address Dr. N. D. THOMAS, Decatur, Mich. 32-3

Excursion Tickets to Fall Festivities at Chicago, Via the North-Western Line, will be sold at reduced rates, from all stations, October 2 to 12, inclusive, limited to October 14. Apply to agents Chicago & North-Western R'y. 32-3

Non-Territorial Expansion means paying rent for a poor farm. Now is the time to secure a good farm on the line of the Chicago, Milwaukee & St. Paul Railway in Marinette County, Wisconsin, where the crops are of the best, work plenty, fine markets, excellent climate, pure soft water, land sold cheap and on long time. Why rent a farm when you can buy one for less than you pay for rent? Address C. E. ROLLINS, Land Agent, 161 La Salle St., Chicago, Ill. 32.3

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates, from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

To California, via the Midland Route.—Every Friday night, at 10:35 p. m., a through Tourist Car for San Francisco, carrying first and second-class passengers, leaves the Chicago, Milwaukee & St Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City), for all points in Colorado, Utah, Nevada and California. The Tourist Car berth rate from Chicago to San Francisco is only $6.00, and the sleeping car berths should be reserved a few days in advance of departure of train. Through tickets and sleeping car accommodations can be secured from any agent in the east, or by applying at the Chicago, Milwaukee & St Paul Depot or City Ticket Offices in Chicago. Send for our free illustrated California folders. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill. 29-sp

Prosperity is here.—Anyone who doubts it can be convinced by visiting any of the towns in western Iowa or Minnesota on the new lines of the Chicago & North-Western Railway. People in the immediate vicinity of these towns are quick to see the advantage and are already in advance of the railroad, building stores, residences, elevators, lumber offices, etc., etc., but there is room for more. The country is splendid, and will in all cases amply support all lines of business and trade, and in the most of the towns the best locations are still open. Lots in any of these towns cannot help but be safe and paying investments, as they are still on the market at the original low prices. For particulars address, J. F. Cleveland, Land Commissioner, Chicago & North-Western Railway, Company, Chicago. 34-2

Half Rates to Portland, Ore., Seattle and Tacoma, Wash., Via the North-Western Line. Excursion tickets will be sold at one fare for round trip from all stations, October 12 to 15, inclusive, limited to November 16, 1899, account of W. C. T. U. Convention at Seattle. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y. 34-2

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All Knit "BALL-BAND" WOOL BOOTS, are the best.



They are the most comfortable and will wear twice as long as others. "Ball-Band" Socks and Rubbers are the same high quality as the All-knit Boots. They have superior features not found in others. Be sure that the trade-mark "Ball-Band" is on every pair. There are more imitations and counterfeits this season than ever before. We make all our own rubbers and are not connected in any way with any Trust. Insist upon getting "Ball-Band" goods from your dealer and take no others said to be "As good as," etc. Mishawaka Woolen Mfg. Co., Mishawaka, Ind.



Prepare for Winter.

Now is the time to think about keeping your stock warm during the coming winter. Before cold weather sets in look over your out buildings and see if there are any leaky roofs, any shingles or clapboards coming off, or any cracks that need stopping up to make the buildings warm.

It is poor economy to have cows and horses sleep cold in the winter, and every farmer knows how much more profiable hens are, and how much faster the chickens grow if they are kept warm.

If you will accept a suggestion from us, of which the editor of this paper will approve, you can fix up your old outbuildings, prevent leaky roofs, make warm your sheds, barns, hen houses, hot beds or green houses at very little expense.

Go to your nearest hardware dealer and get a roll of **Neponset Red Rope Roofing,** which is made for any outside covering, and is



postively water-proof, wind-proof, and frost-proof. There are five hundred square feet in each roll, and it will only cost you $5.00 including the necessary nails and tin caps.

Don't confound **Neponset Roofing** with common tar paper, which, when exposed to the weather will crack, crumble and quickly rot away.

Tar paper was all right for your grandfathers, but in this age of advancement a covering which is very much more durable and economical is required, and that is **Neponset.** It takes the place of shingles or clapboards on outhouses, and back-plaster in dwellings. Any one can put it on and it will last for years.

If you would like to have a sample of this Roofing and full particulars before you buy, send a postal card to **F. W. Bird & Son, East Walpole, Mass.,** and they will send it to you by return mail free.

INFORMATION WANTED.

It is impossible to get too much information regarding the breeding and testing of the dairy cow. Every year brings a new lot of dairymen, and, also, a new crop of calves, which should be fed, milked and bred in a manner to give the largest returns. In many cases the returns will be satisfactory; others, through want of the right kind of knowledge, have not made the success which they anticipated. From both classes much valuable information can be derived; to know where and how one has failed is as valuable, as to know why another was successful. We shall be glad, therefore, if a number of the readers of the DAIRYMAN, and the larger the better, would send us answers to the following questions, taking care to give their failures as well as successes:

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head, and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions. Do not worry about the style or grammar of your statement. Answer each question by number, and state your experience.

Seasonable Notes From Michigan.

Drouth—Poor Butter—Oleo Law in Michigan—Tuberculin Testing—Keeping up the Cows—Feeding.

ED. HOARD'S DAIRYMAN:—Since my last writing to your paper Michigan has passed through a very severe drouth, although I am happy to be able to record that rain has now quite generally fallen over the entire state.

August was a most trying month for dairymen as well as for farmers generally. Not only did pastures become burned past all vestige of green, but wells and creeks dried up so that in many localities water had to be hauled for miles, not only for stock but for household purposes.

As a result, milk became exceedingly scarce, butter went up with a bound to twenty-two cents a pound (where it stands at the present time with little or no chance of decline) and milk at retail advanced one cent per quart. At creameries and cheese factories the amount of milk delivered dwindled to surprisingly small quantity per cow. In fact, this drouth has cost farmers thousands of dollars in diminished yields of late crops and dairy products. Corn never promised better than the early part of the season, yet even that cared for best suffered, and the ears did not develop as they would otherwise have done. Fruit was also injured and most of the apples, pears, etc., fell to the ground long before maturity.

Butter has commanded better prices here this year than it has in a long time. At no time has dairy butter fallen below a shilling a pound, whereas some seasons it has brought as low as ten cents, and even less during the flush of May and June. Eggs, too, have been higher than usual. In fact, the season so far as prices are concerned, has been one to make the farmer's wife rejoice, for out of her butter and eggs she has made a better profit than usual.

In a grocery store the other day I saw a lady buying butter,—or rather she was trying to find some which she wanted to buy. The price was twenty-two cents which certainly ought to entitle one to a pretty good article. There were a number of specimens of good flavor and color, but so salted as to render it about impossible to eat. There was none in the store which combined good flavor, color and a proper amount of salt. I like butter that is pretty well salted myself, but we draw the line at the point where it will grit between the teeth. We want it all to dissolve when acted upon by the moisture of the butter globules.

The recent action of the Supreme Court of Michigan in knocking out the principal part of the oleomargarine law of 1897, shows once again how difficult it is to make a law that will stand law. The Court held that there was a defect in the title to the act prohibiting the sale of colored oleomargarine. Food Commissioner Grosvenor had entered complaint against a dealer at Ann Arbor for selling oleomargarine colored to imitate butter. Now the Supreme Court says that until the Legislature formulates a title that shall be broad enough to include the sale of the stuff, when colored with harmless matter, its power to prohibit, is inoperative. The wording is: "To prevent adulteration, fraud and deception in the manufacture and sale of articles of food and drink." This decision is counted as a victory for the oleo men.

Tuberculin testing is getting to be quite common now-a-days. The retail milk men are beginning to realize the importance of this and we now have at least one wagon on the streets of our county town which bears a placard; Milk from Tuberculin Tested Cows. Surely the time must speedily come when all milk offered for sale can be thus guaranteed. It is no more than the milk buying public has a right to demand.

While it may be true that direct contagion to man by reason of using milk or meat from tuberculous cattle has not been incontestibly established, still it is not pleasant to consider the matter in the light of a possibility. Every precaution should be taken to prevent anything of the kind.

The cows ought to be in the stable every night now. They will give more milk if kept from contact with the ground these frosty nights.

It pays to keep all our stock comfortable, and it is a poor policy to leave calves or milch cows out in bleak fall winds or storms of rain and sleet.

When a man shivers with cold he is not comfortable, neither is an animal. Cows and calves are particularly sensitive to cold, as also are colts and horses. The merciful man is merciful to his beast. It is not merciful to leave stock out in cold winds and storms late in the autumn, as is frequently done. It requires so little labor to put them under shelter.

See that all the stables are in readiness for use in ample season. Then when a cold storm comes on, as is so frequently the case at this season, it will be an easy matter to run them in.

Shrinkage in milk will be a certain result of exposure to cold rains. Often cows are allowed to roam barren pastures late in the fall when they might far better be in the barn. There is nothing gained, rather actual loss is involved, when cows are expected to forage for a living on frost bitten and scanty herbage.

I very much doubt if it pays to "scrimp" the food of any animal, or human being either. Surely milch cows and growing stock, as well as sows suckling pigs, or brood mares with colts at side, need plenty of good nourishing food. The man who withholds this is guilty of gross neglect, not to say cruelty, the results of which will certainly be visited upon himself in the end.

W. C. ROCKWOOD.

Importance of Ventilation.

ED. HOARD'S DAIRYMAN:—I enclose you with this, a letter from one of your subscribers, Mr. A. E. Rundell, which contains some very valuable statements, illustrating the importance of ventilation of cow stables, and I hope you will print it for the benefit of other readers. F. H. KING.

Madison, Wis.

Your favor of 19th inst., relating to ventilation of my barn, is at hand. One year ago I built an addition to my basement barn, the size being 48×52 feet, and will accommodate eleven horses and twenty-five cows. In the horse department there is ten feet between floors, and nine feet where the cows stand.

In providing for ventilation, your suggestions were carried out so far as convenient. I purchased twenty-two tubes of galvanized iron, four inches in diameter and four feet long, with elbow at each end. Those tubes were built in the stone wall, with lower elbow opening out, and upper end inward.

Near the center of the barn we have a ventilator and hay chute combined, about 3½ feet square and forty feet long—opening into cupola on ridge of barn roof. The lower end of chute is located between two cows; the sides of chute next the cows are boarded up close; two narrow doors on each side, reaching within eighteen inches of the floor, closes the other two sides of chute.

One cold day in early winter, the stable being filled with stock, doors and windows all closed, I was at work making and hanging ventilator doors. I had been at work but a short time, before I felt sick at the stomach, and with difficulty kept from vomiting. I left my work to attend to other chores, and had been in the open air but a few minutes when those disagreeable feelings disappeared. The next morning upon resuming my work on the ventilator, those nauseating feelings returned. I then saw the benefits of ventilation, for I realized all the foul odor of the stable was coming my way and passing up the ventilator.

Several times during the winter, I stood in the ventilator shaft, and found the air very foul. In order to keep the stable sufficiently warm during cold weather, we found it necessary to close some of those fresh air tubes. Once during a very cold spell, we closed all the tubes, and a strong draft came down the ventilator.

The front of the manger, each side of the ventilator, is boarded up close, 2½ feet above the floor. One of the cows standing next to the ventilator was of a bulky tendency, and was nearly dry by spring. The other cow freshened in September; gave a large amount of milk until midwinter, when she suddenly refused to eat much, and dropped off fully two-thirds in her milk supply.

We attributed this to over feeding. After a time she regained her appetite, but did not regain her former flow of milk. She recently calved again, and is now doing well. I have wondered if the cows standing near the ventilator might not be affected by the foul air moving from all parts of the stable toward the ventilator shaft.

The air in our stable, except near the ventilator shaft, is always quite pure. I hope farmers, especially dairymen, will profit by your suggestions, and properly ventilate the dwelling place of their herds.

Our silo is giving the best of satisfaction. If I can give you any further information I shall be pleased to do so. Thanking you for past favors, I am yours truly.

Grant Co., Wis. A. E. RUNDELL.

A Remedy for Rats.

ED. HOARD'S DAIRYMAN:—I notice in your valuable paper that C. S. Stillman, of Middlesex Co, Mass., asks for a remedy to get rid of rats on his premises.

The best method, I have found, and it has proved to be successful with me, is to mix corn meal and plaster of Paris together, about one-third plaster of Paris. The rats will eat the corn meal, also some of the dry plaster. As they pick the corn meal out, add a little more meal to it, and mix it together, put it in shallow dishes and set it around in different places. Also have some water convenient for them to drink. And in three or four days he will not be troubled with rats. A good feature of the mixture is, it is not poisonous to other larger animals. I have had some of my cows clean the dishes sometimes, and it did not hurt them in the least.

Dodge Co, Wis. THOMAS STEELE.

A Low Wagon at a Low Price.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Company, Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

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Our Tuberculin, Mallein, Anthrax Vaccine, Black-leg Vaccine, and Pneumonia Antitoxin, are accepted by all veterinarians as the standard of excellence. They are of uniform strength and reliability.

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2 doses	35c.	10 doses	$1.25.
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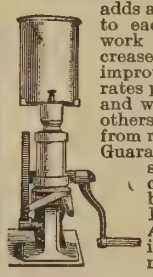
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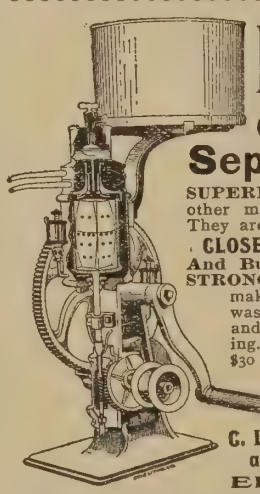
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SUPERIORITY over any other make Guaranteed. They are

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And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

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our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO.,
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(ADMIRAL DEWEY AND THE OLYMPIA.)

But Peace also hath her victories, and the deeds of the valorous Admiral suggest some feats of the De Laval Cream Separators in their sphere of usefulness.

Just as Dewey on that glorious May morning revolutionized the map of the world, so the invention of the De Laval separators revolutionized modern dairying.

Just as the shots that broke the backbone of Spanish oppression reverberated around the world, establishing enduring respect for the American flag in every civilized country, so has the fame and prestige of the De Laval separators become equally wide in helping to establish prosperity in every dairying community throughout the world.

Just as the peerless Dewey and his superior fighting machines swept everything before them at Manila, so the peerless "Alpha" De Laval separators—through their superiority in every feature of separator practicability—have overwhelmed everything else in the separation of cream from milk.

Invention and industry, indeed, have their triumphs and leave their impress upon human progress as well as the lordlier strife of war.

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PHILADELPHIA.

Oleomargarine and the Consumer.

ED. HOARD'S DAIRYMAN:—I am not now a subscriber to your paper for I have had no personal interest in cattle for many years, but after closing out all interest in cows I ordered your paper to my tenant succeeding to the dairy cattle business and renting the farm. I have "promoted" for your paper in a few other instances. So I do not appear before you with my personality now, as I am at present only a quiet, retired citizen. In lieu of my personality you may notice a subject.

In your just war against oleomargarine, butterine, etc, you and other similar journals make this the main cause: That the manufacturers of said stuff can impose upon dealers and thus cheat and defraud them of their money, and you wish laws which will protect the purse of the traders, by having packages stamped so and so.

Now to protect these shopmen from getting this stuff in their hands at a price above its real value by having it put to them as butter, seems to be the main object of the war, and if the shop-keepers be not imposed upon by the manufacturers the object of the war will have been accomplished.

After that is done, it will be perfectly right for all who keep public houses, hotels, restaurants and boarding houses to buy the stuff as it is from the dealers; both so far will be clear of fraud on either part. The dairyman would be protected, likewise the groceryman, and the last buyer, the hotel or boarding-house-keeper. But, there is a greater injury than these tradesmen's money involved and which the special journals seem to be indifferent about.

Do you think the thousands of men, women and children, who eat and live at such houses, should go unprotected and be imposed upon by the landlords and landladies setting this stuff before them for butter?

If the margarine is nasty, bad and unhealthy, it is greatly more important to prevent it being fed at all to people, than saving shop keepers from being defrauded, for they are far more able to protect themselves commercially than the consumers at the table; to these is where harm, hurt and fraud is finally done, if the stuff is bad and unfit food.

Yet it seems the journals' contention is to protect mainly, buttermakers and dealers, and the money, and not the health of consumers, who cannot often tell or know the fraud they have eaten.

The journals of the country should take a higher stand than aiming at protecting the pockets of dairymen, grocers and landlords, if they be allowed then to impose upon unknowing men, women and children at their tables.

Can't you pitch your axe so as to reach the bottom root of the evil?

All city boards of health jump on a milkman if milk below the standard is found in his wagon. Although it may be pure milk, he will be fined and his milk thrown away. Beautiful consistency this, isn't it?

After paying a $50 fine, the milkman walks from the city court room and as he can't get back home to dinner, goes to a restaurant or boarding house, and there has set before him to eat, butterine. This will cultivate his patriotism. Will it? An example to practice high Christianity, being smitten on one cheek, to find a hand ready to strike upon the other, and secure it or not attack it.

Nashville, Tenn. AN IDEA.

Our correspondent has struck the key note to the situation, and if he had continued his reading of HOARD'S DAIRYMAN, he could not have failed to observe that it at least had been instant and consistent in keeping this phase of the subject at the front.

It is no protection to the great mass of consumers that the package is labeled oleomargarine—there is no such substance as *butterine*, and the use of such a word is in itself an attempt to deceive and defraud—or that the dealers have signs posted about their premises.

The effort which is to be made at the coming session of congress, to have all colored oleomargarine taxed ten cents per pound, is primarily in the interest and for the protection of the consumer. It is expected that a tax of this amount will serve to make it inexpedient for manufacturers or dealers or boarding-house keepers to attempt to deceive by serving oleomargarine when butter is wanted. They do it now and get butter prices for it, thereby reaping a fraudulent profit. With the tax imposed there will be less incentive to do this, and when the incentive to deceive is removed, it is reasonable to expect there will be less deception.

We are by no means indifferent to the benefit which will naturally accrue to dairymen when relieved of this unfair and fraudulent competition. If there was no law against counterfeits and frauds anywhere or on any subjects, what chance would honest men have? The dairymen do not demand class legislation, but simply the protection which every government owes to its every citizen—the right to have their products defended by law against the lying and cheating of the vendors of counterfeits.

Under the interpretations put upon the federal constitution by courts it seems impossible for the states to do this. They can, indeed, forbid the making of oleomargarine within their own boundaries, but a man may make it in a neighboring state and ship where he pleases. Thirty-three states have passed laws prohibiting the sale of colored oleomargarine, but despite these laws the manufacture and sale of oleomargarine is rapidly increasing. If Congress does not provide some protection and relief there will simply be a revolution, not with gun and sword, but with that more mighty weapon, the ballot. Consumer and producer alike are interested and they will combine to drive into retirement and disgrace the men and the parties who fail to give them protection.

Existing laws, as currently interpreted by courts, protect a few manufacturers and dealers in oleomargarine, but leave the people absolutely defenseless. This is class legislation of the worst kind and there must some remedy be found.

Exhibiting and Judging Live Stock.

Now that the smoke of the battle has cleared away and the strife in the show ring for 1899 is over, it may be well to enter into the retrospective a little and find out just where we are at. The contests in nearly all classes of live stock at this year's shows have been very keenly contested, more so than for several years back, especially in the cattle, sheep and swine classes. So much so has this been the case that the most despicable practices have been resorted to, in a couple of instances, in order to gain favor in the prize ring. And, indeed, we may well ask: "Where are we at?"

The contemptible action of the manager of the Miller & Sibley herd, and apparently of those in charge of the herd of a prominent Canadian breeder, in forcing back the milk into the udders of their Jersey cows before taking them before the judges at the Toronto Fair, cannot be too strongly condemned. When exhibitors at any show resort to such practices they should be prohibited from ever entering a show ring—at least until they have learned that honesty in the show ring is just as necessary and is as much looked for as in any business transaction.

The action of the Industrial Fair Board, in withholding the prize money won by the Miller & Sibley herd and in restraining them from exhibiting at the Industrial Fair for one year, will be generally commended. But what seems strange is that no punishment has been meted out to the other breeder implicated. Those responsible for the action referred to in this case were either innocent or guilty. If the latter, why was not the same punishment meted out to the Canadian firm as to the American firm, whose manager admitted the wrong-doing? If the Canadian breeder was totally innocent of the charge made against him it is only fair to himself and to the public that the fact should be made known.

It is somewhat strange how this affair is developing. In a letter to the president of the Industrial Fair Association made public last week, Messrs. Miller and Sibley state that they were greatly shocked on learning that one of their employes had resorted to the

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Grandsons **Brown Bessie,** champion butter cow at the World's Fair, and **Diploma,** sire of 50 in the list, including **Merry Maiden.** These calves have white markings, and are offered at **farmers' prices** if taken quickly. Also three good cows in calf to **Recorder,** son of **Brown Bessie.**
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HOOD FARM, Lowell, Mass.

There's plenty of Jersey blood NOT AS GOOD as that of
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There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
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Young Stock for Sale. Write for Particulars.

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Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

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640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Dry Weather
here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
WINTERGREEN HILL FARM CO.,
Scottsville, N. Y.

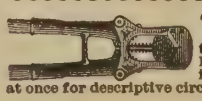
FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert 13657
78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and **will be sold CHEAP.**
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

Closing Out Sale Of CHARTER OAK HERD!
180 Head, pure St. Lamberts.
High per cent ST. LAMBERTS and TORMENTORS,
Oct. 25th and 26th, at Pomeroy, Ohio.
Have sold my lands and must sell my cattle. Send for catalogue.
J. P. BRADBURY. Pomeroy, Ohio


THE LOSS OF AN EYE —terrible calamity. The tip of a horn often does it in tying up cattle. Cut off the horns quickly and humanely with the ***Keystone DEHORNING Knife*** Cuts on four sides, no crushing or tearing. **Highest Award World's Fair. FULLY GUARANTEED.** Write at once for descriptive circulars, prices, etc.
A. C. BROSIUS, COCHRANVILLE, PENN.

practice already referred to, and would forego all prize money, honors and success unless they were justly entitled to them. While we have no desire to question their sincerity in this matter, yet it seems strange that they should have as the manager of their large and valuable herd a person who would stoop to such methods. Their manager is not a novice in the business of managing a Jersey herd, and it is hardly reasonable to suppose that his visit to the Industrial Fair a few weeks ago was the first time when milk had been forced back into the udders of their cows before taking them into the show ring.

This particular instance, to which we have referred at some length, however, suggests a thought that it might be well to consider for a moment. Just how far an exhibitor should go in fitting and fixing his animals for the show ring and how far the judges should be governed by such preparation in awarding prizes is open to question. Is an exhibitor who has a superior animal, constitutionally speaking, to be put down in the prize list because another animal inferior in other ways, but specially fitted for the show, takes the eye of the judge and is placed first? Every one will admit that a certain amount of fitting is necessary not only for the show ring but in order to make an attractive exhibit for visitors, but how far its influence should extend in awarding the prizes is another matter. Certain it is that a well-fitted animal looking sleek and nice, and not a hair turned the wrong way, will take the eye of the judge and unless it has some very glaring defect otherwise will not be passed over carelessly by him.

While we believe that a certain amount of fitting up is necessary, still we are somewhat inclined to the view that of late years there has been a little too much fitting and fixing for the judge's eye rather than for the visitor to the fair. In this we do not think the exhibitor is so much to blame as the judges. If the judges are in any way influenced in making the awards by the finish, or way an animal is fitted for the show, it is quite natural for the exhibitor to cater to this influence, and to strain every point in order to have his animals make a distinct impression upon the judge. While there may be no great objection to this so long as legitimate and fair methods are adopted, yet there is always the temptation to go a little too far along this line. Besides, there is a possibility of an injustice being done to the exhibitor of a superior animal, who may not have the taste or the means at his disposal to fit his animals as the others do. In other words, it may tend to shut out all but the professional exhibitor from the show ring, and to make it very difficult for the ordinary farmer, who becomes possessed of some high-class stock, to get a first place in the prize list.—*Farming*, Canada.

The Kid Glove Part of Dairying.

ED. HOARD'S DAIRYMAN:—A few weeks ago I advertised in your paper for a dairy farmer to take charge of my farm. I noted that I preferred a dairy school graduate and emphasized the fact that I wanted a competent man and a worker as I did the "kid-glove work" myself. Among other letters I received one unsigned from Mechanicsburg, Ohio. I judge it is from a male as I advertised for a man. Here it is, slightly expurgated:

"Dear sir:—I noted your ad. in HOARD'S DAIRYMAN. I would advise you to change the reading of it somewhat. It should read something as follows: Wanted: A full blooded Dutchman. The more ignorant the better. Naturalization not necessary. To work for a —— —— (pardon the expression) who wears canary gloves and smokes mild cigars. Please don't let such advertisements adorn the fair pages of HOARD'S DAIRYMAN. If there is anything on earth disgusting to a man it is to be tyrannized over by a kid gloved boss."

It's strange that a man who could pen such a gem as that, should be so modest as not to sign it. From the fact that he answered the ad. I should judge he was looking for a job. I'm sorry that his fear that I wear gloves or do not smoke strong cigars, has kept him from applying for the place, for I should like to see his own estimate of his qualifications for the place.

But to be serious, Mr. Editor, I relate this incident just to call attention to the difference between farm laborers and workingmen in the cities. I am connected with and share in the management of a factory that employs over 300 hands. These men do the work laid out for them by the owners or boss just as they are told to do it. They do not rebel because the owners direct the work in a manner different than they might do it. They sometimes suggest ways that are improvements and they are immediately adopted. I never heard of a strike in a factory because the boss wore kid gloves or smoked a certain brand of cigars or because the scheme of procedure or plans of laying out work was not in accordance with the ideas of the workmen. Wages, unions and hours of labor, etc., cause the strike.

But it is different on a farm. I became the owner of a small farm about seven years ago. Circumstances made it a dairy farm. I subscribed for farm papers, including HOARD'S DAIRYMAN, and studied them. I hired a farmer and put him on the farm. As I appeared at the farm in my office clothes (without kid gloves or cigars) he concluded that I knew nothing about dairy farming and so insisted on running the farm to suit himself. At the end of the year I settled up with my man and let him go. I was several hundred dollars out of pocket. My second man did not think much more of my agricultural talent than the first one, but we held a session one day in which it was agreed that as I paid all the bills I should be boss. Strange as it may seem we began to do better on the farm. He staid with me three years, and now owns a farm of his own which he is making a dairy farm as fast as his means will permit. He learned how to feed dairy cattle on my farm. Farmer No. 3 came to me from a good dairy farm and readily agreed to follow directions. Incidently I got a lot of valuable information out of him and he is well along in his third year's service with me. He now wishes to start into dairy farming for himself, which was the reason for my ad. for another man.

Almost all our transient help and men hired by the month have had a fine scorn of my "book notions" on dairy farming. But as they were not permanent fixtures I could stand it. I have a forty-acre farm and rent thirty acres and am now getting about $3,000 per year in milk, cream and pork off it. It takes two-thirds of that to pay the help, buy mill-feed and keep up repairs. The balance so far has gone into new buildings and better stock. It was more trouble to get Babcock test, separator, warm water in winter and cold water in summer, the weighing of milk of each cow, balanced rations, cooling of milk, etc., established than it would have been to have revolutionized the manufacturing process in a factory. The same amount of study and care in my manufacturing business would have brought me better returns but not more satisfaction. This is the reason I want it understood I do the "kid glove work." I don't want to go over this ground with a new man. Several of the men who have worked for me on the farm by the day or month and were not satisfactory because they would not look after small matters and details, have gone to work in the factory and do under my direction exactly as they are told. I know no explanation for it unless they think dairy farming is largely guess work and they can guess as well as any one, and they believe manufacturing is a business and is conducted under rules that the owners understand if they do not. Who can account for it?

Oshkosh, Wis. GEO. A. BUCKSTAFF.

A Pleasant Letter to Get.

The following kindly and appreciative letter is received from Mr. F. R. Underwood, LaMiranda, California. We take the liberty of printing the same, for the reason that it bears testimony to our oft repeated assertion that it will richly pay a farmer, who is a keeper of cows to make a study of what the DAIRYMAN has to offer:

ED. HOARD'S DAIRYMAN:—Enclosed you will find my subscription for one year, and in renewing I would say that I never invested a quarter of a dollar that paid me as big interest as when I made the trial of your five months subscription.

I read a great deal, and I never got hold of a paper that took me as long to read through as HOARD'S DAIRYMAN. It is solid from front to back. *It has helped me to more than double the yield of my cows.*



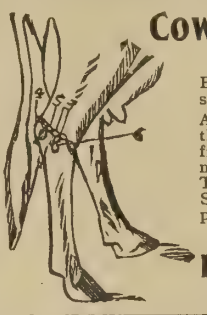
Keep Your Milk Sweet...

By using *TINNED STEEL CANS* Made by the

Buhl Stamping Co.

Our Handbook is mailed free to dairymen who ask for it.

Fur Robes and Coats—We will manufacture them from your cattle and horse hides cheap Samples free. MILFORD ROBE TANNERY, Milford, Ind.



Cow Hopple

For Kicking Cows.

Either from habit or from sore teats. **Price 50c.**

Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars

Agents Wanted.

Henry Bassett,
Salem, New Jersey.

DE KOL'S BUTTER BOY No. 19210. Son of the great DeKol, and Royal Paul No. 22979. Combining the blood of Pauline Paul, Pietertje 2nd, Koningen Van Friesland 5th and DeKol in one sire, head our choice herd of over 100 Holsteins. Sons ready for service, and heavy milking cows bred to them, for sale. Write now to **Delhurst Farms,** Mentor, O.

SHADY NOOK HERD Holstein-Friesians Choice Chester-White Pigs 2 to 3 months old, both sexes, for sale.
W. R. GATES, Ripley, Jefferson Co., Wis.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

DE KOL 2nd
Is the world's four-year-old, and greatest officially tested butter cow in Holstein history, Her record at four years old is 33 lbs. 6 oz. butter in 7 days; at 11 years, 26 lbs. 9 oz. in 7 days, official test. De Kol 2d won the Register Butter Cup, valued at $200. Valley Mead Farm is in a position to give the blood of this unrivaled butter cow, through her greatest and only son in the west, called De Kol 2d's Alban. His daughter holds the world's official test for one day in America, viz., 4.83 lbs. FOR SALE—Young bulls, grand sons of De Kol 2d. Valley Mead Farm, Monticello, Wis

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

CLOSING OUT SALE
The undersigned will sell at public auction, 1½ miles north from Round House, Creston, Iowa, Friday, Oct. 13, 1899, at 10 a. m., the following property:— the entire herd of Holstein Friesian Cattle, 59 head. 19 thoroughbred cows; 3 thoroughbred heifers, two years old; 7 thoroughbred heifers, one year old; 2 thoroughbred calves; 1 thoroughbred bull two years old; 27 high grade cows. These cows have been gathered from such herds as M. E. Moore's, Cameron, Mo., J. H. Coolidge & Son, Galesburg, Ills., Cross Bros., Durand, Ill., W. B. Millard, Omaha, Neb., F. M. Widner, Corning, Ia., and others, and have not and cannot be excelled as milkers. This herd has been headed and bred by Gerben De Vries, No. 16470. H. F. H. B., Bonas King Pietertje, No. 18596, H. F. H. B., Netherland Cain, No. 20827, H. F. H. B., Marquis of Beachwood, No. 1077, W. H. F. H. B. Terms: Ten months on notes with approved security, bearing 6% if paid when due; if not paid when due 8% from date. 3% discount for cash. S. B. PARKS & SON, Owners. Col, JNO. F. RUSSELL, Auctioneer.

MEADOW LAWN HERD Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis

$50 **A BULL CALF,** solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month. 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis.

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

GUERNSEY CATTLE
SHETLAND PONIES.
Old Homestead Herd,
Of PERRY, OHIO,
Was Champion at O., Ill., and Ind. State Fairs, 1898, winning against well-known O., Pa., and N. J. Guernsey show herds. Over twice as much prize money as all competitors combined at above fairs. No better collection in America. Breeding Stock For Sale. Inspection invited. Will make a representative exhibit at the Ohio, Wis., Ind. and Ill. State Fairs this fall. L. V. AXTELL, Perry, Lake Co., O.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy and Live Stock Associations.

ED. HOARD'S DAIRYMAN:—During the past few weeks the executive committee and directors of a number of our agricultural associations met and arranged for future work, among them being the Board of Directors of the three dairy associations of this province.

WESTERN ONTARIO DAIRYMEN.

The directors of the Cheese and Butter Association of Western Ontario met on Sept. 6th, at the Toronto fair grounds. There were present: President Harold Eagle, James Connolly, R. M. Ballantyne, A. F. McLaren, M. P., John Prain, A. Wenger, Geo. E. Goodhand, J. A. James, J. V. Paget and Geo. Hately, Secretary, Brantford, Ont. The principal business transacted was arranging for the next annual convention, which it was decided should be held in the city of Stratford, on January 17th, 18th and 19th next.

In addition to the prominent Canadian speakers to be invited are three Americans, Hon. James Wilson, Secretary of Agriculture, Washington; John Gould, Ohio, and Prof. Farrington, of Wisconsin. If these three gentlemen accept the invitation American agriculture will be well represented at the forthcoming convention.

EASTERN ONTARIO DAIRYMEN.

A meeting of the directors of the Cheese and Butter Association of Eastern Ontario was held in Toronto on Sept. 5th. The following officers were present: D. Derbyshire, President, Brockville, Ont.; R. G. Murphy, Secretary, Elgin, Ont., and Directors P. R. Daly, T. B. Carlow, Jas. B. Whitton, L. L. Gallagher, John R. Dargavel, Edward Kidd, Wm. Eager, Henry Wade and John McTavish. It was decided to hold the next annual convention of this Association at Madoc, Ont., on January 10th, 11th and 12th next. The arrangements for speakers were left over for another meeting.

The Board expressed itself as being in favor of sending an exhibit of Canadian dairy products to the Paris Exposition and detailed arrangements regarding the exhibit were left with the president and secretary.

It was pointed out that the work of the Association was being crippled for the want of sufficient funds to carry it on successfully, and the board accordingly passed a strong resolution, appointing a committee to wait upon the Ontario Minister of Agriculture for the purpose of presenting the claims of the association for a larger grant.

CHEESE AND BUTTER MAKERS.

A new organization was formed in Western Ontario a couple of years ago, consisting only of makers. It is a live and growing organization and is actively engaged in promoting the best interests of the makers and of the dairy industry as well. The directors of this new Association met in London, on Sept. 13th, to arrange for their second annual gathering. There were present: L. B. Millar, President, London; John Brodie, Secretary, Mapleton, and Directors Geo. H. Barr, Geo. Goodhand, James Morrison, T. E. Nimmo and W. W. Brown.

It was decided to hold the next convention in Ingersol, on January 31st and February 1st, next. The program will consist chiefly of addresses and papers by makers, and the discussions will be made as practical as possible. A feature of this gathering will be an exhibit of dairy products, where $150 in cash will be given in prizes for cheese and butter shown.

ONTARIO EXPERIMENTAL UNION.

As the readers of the DAIRYMAN are perhaps aware, this is an organization consisting of ex-students of the Ontario Agricultural College and enterprising farmers and dairymen, who have banded themselves together for the purpose of carrying on experimental work along various lines of farm practice. The dairy experiments form an important part of this work and the results arrived at form a valuable addition to our stock of dairy knowledge.

The Board of Control of this Union met at Toronto, on Sept. 7th, and decided to hold its next annual convention at the Ontario Agricultural College, Guelph, on Dec. 6th, 7th and 8th, next. This will be an interesting gathering, as it will be the 25th anniversary of the Ontario Agricultural College.

POULTRYMEN.

A rather important meeting of poultrymen was held at Toronto on Sept. 8th. The meeting was made up of representatives of the various poultry associations in this province—and their name is legion—and was convened for the purpose of forming some central organization that might be more effective in promoting the poultry industry of this country. One of the chief objects of this new organization will be to form a circuit of poultry shows, so as to prevent any clashing of dates, as has been the rule heretofore.

AMERICAN SHROPSHIRE ASSOCIATION.

And there was another meeting held at Toronto on Sept. 4, that may be of interest to the readers of the DAIRYMAN though not distinctly connected with dairying. This was the meeting of the American Shropshire Registry Association which convened for the first time in Canada. This organization is presided over by the Hon. John Dryden, Minister of Agriculture for Ontario and its secretary is Mr. Mortimer Levering, Lafayette, Ind. That it is in a flourishing condition is shown by the fact that it has a membership of nearly two thousand and the list is increasing at the rate of one hundred to two hundred annually.

LIVE STOCK ASSOCIATION.

Mr. F. W. Hodson, who for a number of years has been the very efficient secretary of the Dominion Cattle, Sheep and Swine Breeders Association, has tendered his resignation to take effect at the end of the year when he assumes the position of Live Stock Commissioner for Canada under the Dominion Government. His new duties will mainly consist in promoting the live stock interests in the various provinces of the Dominion and in further developing inter-provinical trade.

Under Mr. Hodson's secretaryship the association referred to has made rapid progress and to-day is the most active organization of its kind in Canada if not on this continent. A most important work that has been carried on by it during the past two years, chiefly through Mr. Hodson is the shipment of pure bred live stock from Ontario to Manitoba and the other provinces. By this organized effort, breeders have been able to secure less the one-half freight rates from the railways, on their cattle sent through the association's car to the west. Another important work has been the publishing of a monthly list of stock for sale by the members

Wells Richardson & Co.'s Improved Butter Color

THE BEST IS ALWAYS CHEAPEST

"THE KIND THAT HAS NO MUD"

can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT, and NEVER becomes RANCID. It is for sale by All First-class Dealers.

Thatcher's Orange BUTTER COLOR

Has stood the most exacting test for PURITY AND STRENGTH. All coal tar colors are condemned as unfit for use in butter, as being poisonous.

HIGHEST PREMIUM and SWEEPSTAKES

For best butter in Tub and Prints, awarded GEO. W. SISSON, Jr., at N. Y. State Fair of 1899, **Score 99 Points,** colored with **THATCHER'S ORANGE BUTTER COLOR,** strictly vegetable, and admitted by all buttermakers to be *the safest, most valuable and perfect* Butter Color on earth.

Send for Sample and Full Information to

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.

$18,000 To be Given in Cash

On the fifteenth of next April to all agents sending 20 or more subscribers to

The Ladies' Home Journal AND The Saturday Evening Post

One thousand dollars to the agent sending the largest list—$750—$500—$400—and so on.

764 cash awards, together with the general fund of $3000, amounting to $18,000, will be given *in addition* to the agent's commission and the special rebates for large clubs.

Send for full particulars.

Profitable work all winter.

The Curtis Publishing Company, Philadelphia

THE AMERICAN Cream Separator



PRICE - - $65

Still at the head, receiving **First Premium and Diploma** at the St Louis Fair, as the

Best Cream Separator For Farm Use ....

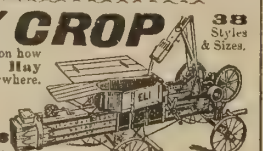
Send For Descriptive Catalogue.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

American Separator Co., Box 1023, BAINBRIDGE, N. Y.

A HAY CROP and its value depends upon how it is marketed. Baled Hay finds a ready market anywhere.

"ELI" Baling Presses make the most even, compact bales. Save freight in loading full cars. Easiest and safest to feed. Feed hole 53x30 inches. They are built to last. Require the minimum of power. Write for FREE illustrated catalogue.



38 Styles & Sizes. Horse and Stm Power.

COLLINS PLOW CO., 1155 Hampshire St., QUINCY, ILL.



Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

WRITE US

Metal Wheel Co.

HAVANA, ILLINOIS

FOR SALE.

Wishing to retire from business, will sell one hundred (100) cows, farm and fixtures, at a bargain. Buildings nearly new, with running water, and the highest price market for all milk raised.

Address A. B. FARMER, Lyons, Somerset Co., N. J.

of the association and sending it to prospective buyers in the other provinces and in the United States.

At a meeting of the directors of this association held on Sept. 6, Mr. A. P. Westervelt, who has been Mr. Hodson's assistant for several years, was appointed to succeed him. With this new officer the association will be able to carry on the same work as they are now doing in the same effective way.

SUPERINTENDENT OF INSTITUTES.

Mr. Hodson also occupied the position of Superintendent of Farmers' Institutes for Ontario which position he has also resigned. A successor has been appointed in the person of Mr. Geo. C. Creelman S. B. A. who will assume his new duties about Dec, 1st. Mr. Creelman is a graduate of the Ontario Agricultural College. After receiving his degree he was appointed on the staff of the Mississippi Agricultural College where he remained as professor of biology for nine years. He served as lecturer on the institute staff of that state during this time and was director of Institutes during 1896 and 1897.

Toronto, Canada. J. W. WHEATON.

Appetizing Rations.

Whatever makes the feed taste better or makes it more enjoyable to the cow, increases its value for milk production. Early cut hay is best for the dairy cow, not only because it contains more protein than that cut late, but because its aroma and flavor make it more palatable to the cow. The appetizing effect from the early cutting and careful curing of all forage crops, increases their feed value for milk production. Freshly harvested and freshly ground grain is the most palatable to the dairy cow and will give best results. Dairymen who grind feed, should grind often, as grain that has lost its freshness is not the best relished by the cow.

Often the dairyman has a large quantity of coarse, rather unpalatable rough fodders, such as corn fodder and over-ripe or slightly damaged hay, which he must feed, and has only a limited quantity of choice roughness to feed with it. In this case, best results can be secured by giving the more palatable roughness in the morning or with the grain night and morning and feeding the poorer roughage as the last feed at night, to be eaten at the cow's pleasure during the night, or else put in racks in the yard for midday meals. Palatable feed in the morning gives a contended cow through the day, and this contentement brings more milk.

When several kinds of feed are given it is usual to throw them together into the manager and let the cow eat at will. This method does not secure the highest milk yield. You do not want your soup and pie served together on the same plate, and neither does the cow like this method of serving her food. If all the feed stuffs for a meal are thrown together, the more palatable are eaten first. In separating and eating these, the others are "mussed" over, and when the cow comes to eat them, they do not taste good and she will not eat enough to produce the greatest milk yield. We like to feed our most palatable roughness and give this just before the milkers go to their meal. When the milkers come back from eating, the cows have finished their first feed, and the less palatable roughness can then be given them. It will not then have been slobbered on, and will be better relished and more of it eaten. This method of feeding requires time and care, but it pays.

If the cows are given their rough feed in racks out of doors, it will pay to put feed in these racks often, so that the feed will be clean and appetizing. Mangers, feed-troughs and racks should be kept clean and fresh from old, soiled feed, both as a matter of health and because the food in a clean manger smells and tastes better.

The dairyman's rule should be to harvest feed in its most palatable form and feed in the most appetizing manner.—*Bulletin 81, Kansas Experiment Station.*

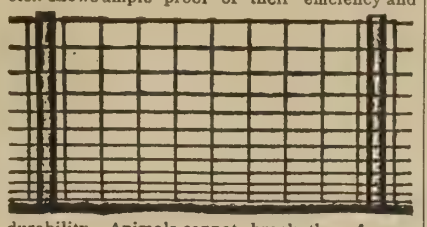
A Sound Statement.

American butter sells for less in the Cuban market, than butter from France, Holland and Denmark. And yet American butter is generally better than that coming from the other countries. The trouble is, that oleomargarine and other imitations are sold in Cuba as American butter. It is precisely the same dishonest methods which have so greatly injured the American butter trade in Europe. When our government stops this fraudulent trade, American butter and cheese will sell again in the markets of the world at prices as high as similar articles from other countries. This dishonest practice, on the part of exporters, not only disgraces the United States, but it takes millions of dollars annually, out of the farmers' pockets, by depreciating the value of their products.—*Philadelphia Press.*

ILLUSTRATION.

The sales of American Field and Hog Fencing thus far in 1899 might be considered marvelous were it not for the intrinsic merits of the fence which are becoming more thoroughly demonstrated every season.

"The fence that fences" is what the manufacturers call them, and investigation of the records made by these fences where they have been properly put up on farms, pastures, fields, orchards, etc., shows ample proof of their efficiency and

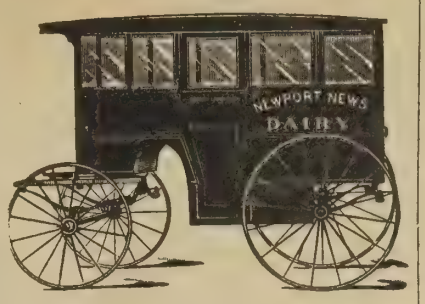


durability. Animals cannot break these fences. Action of cold and heat has no effect upon them and they successfully resist efforts of all kinds to destroy them.

Every rod of the American fence is guaranteed by the manufacturers, the guaranty being based upon intimate and absolute knowledge of just what enters into its construction. The wires are specially made for this purpose of best spring steel and are very heavily galvanized. There is thus a wide difference between the quality of American fences and fences made of ordinary wire, while at the same time the American fences cost no more than cheaper imitations or attempted substitutes.

The American fences are sold by agents in nearly all towns throughout the United States and Canada, but should no agency have yet been placed in your town, the reader of this who desires further information can secure it by addressing the manufacturers, American Steel and Wire Co., Chicago or New York.

The World Cannot Show Its Equal



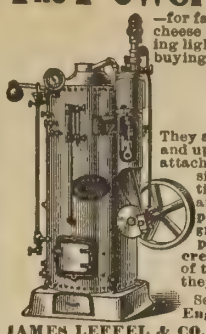
In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio

The Power Question

—for farm use, dairies, creameries, cheese factories—anything requiring light power, is best settled by buying one of these



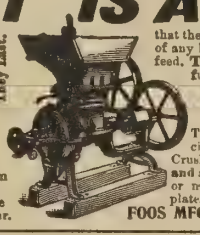
LEFFEL ENGINES.

They are made in both horizontal and upright pattern, with engine attached to boilers. Being very simple and direct in construction they are economic of fuel and **great developers of power.** Best for **cutting and grinding feed, sawing wood, pumping water, separating cream, churning, &c.** Made of the best material throughout they are durable and long lived.

Send stamp for our **Book on Engines and Power.**

JAMES LEFFEL & CO., Box 50, Springfield, O.

IT IS A FACT



that the best results in feeding stock of any kind are attained with ground feed. **To grind feed** most successfully requires

SCIENTIFIC Grinding Mills.

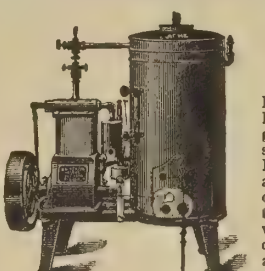
They have largest possible capacity with minimum power. Crush and grind **corn, husk cob and all,** and all small grain singly or mixed. Have self-sharpening plates. **Free**—Catalog 1.

For Steam and Horse Power.

FOOS MFG. CO., Springfield, Ohio

ON THE MARKET TEN YEARS.

The Acme Engine Still LEADS



1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

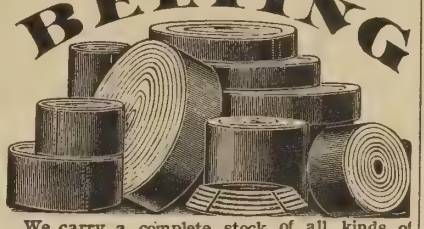
No. 9 Center St., Rochester, New York.

MICA AXLE GREASE lightens the load—shortens the road.

helps the team. Saves wear and expense. Sold everywhere.

MADE BY STANDARD OIL CO.

BELTING



We carry a complete stock of all kinds of **RUBBER and LEATHER BELTING.** We buy our goods at Sheriffs' and Receivers' Sales. Write for **FREE ILLUSTRATED CATALOGUE** No. on Hardware, Pipe, Roofing, Plumbing Material, Wire, Rope, Dry Goods, Clothing, etc., etc.

OUR PRICES are ONE-HALF of OTHERS

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

The YOUNG AERATOR And Cooler



Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG,
Box 135, Aurora, Ill.

LATEST (Newton's Patent.)

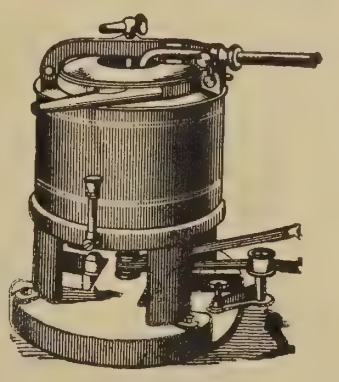


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The REID LONG SPINDLE Separator

STANDS EVERY TEST.

The Reid Long Spindle Separator has been subjected to every possible test, under all conditions, and the results have proven that, for rapid and close skimming, for ease of regulation and economy of operation, it is as nearly scientifically and mechanically perfect as a separator can be.

Read This Statement

from an experienced and well-known New York Creameryman:

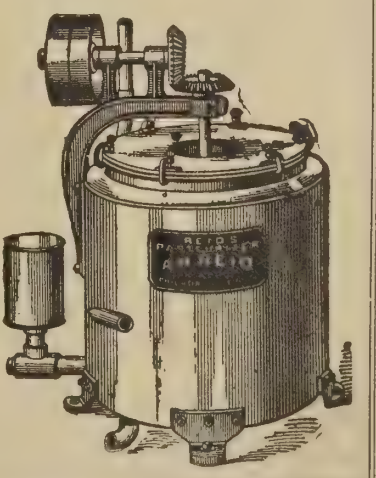
RED HOOK, New York, July 29th, 1899.

I have just completed a test of the machinery in the Medusa Creamery, under the supervision of a person competent to do this work with the following results, which I must frankly say, are entirely satisfactory:

When skimming 2,715 lbs. of milk per hour at a temperature of 85 degrees, making 32½ per cent cream, the skim milk showed a loss of .02 of 1 per cent.

When skimming 2,805 lbs. of milk per hour at a temperature of 156 degrees, making 32½ per cent cream, the skim milk showed a loss of .01 of 1 per cent.

We feel confident that the Reid Separator will skim 3,000 lbs. or more per hour and do equally as good work. D. W. WILBUR, (Medusa Creamery Co.)



Write for the Reid Long Spindle Separator book and descriptive circular of the **REID PASTEURIZER.**

A. H. REID,

30th and MARKET STS., PHILADELPHIA, PA.
and CEDAR RAPIDS, IOWA.

Facts from a Skillful Dairy Farmer.

Uncle John Patterson, the noted dairy farmer of Kirksville, Mo., and ex-president of the Dairy Association of that state, has been made the subject of an extended write-up with illustrations by Ed. J. Chubbuck, in the St. Louis *Globe Democrat*.

Mr. Patterson was a Swede who came to this country but a few years ago with only $100, and unable to speak English. Now he has 700 acres of land, and milks ninety cows. There are some very excellent points in this write-up, for they are instructive in showing how the man himself has worked out the problem of successful dairying:

Mr. Patterson's fine dairy farm is located seven miles east of of the city of Kirksville. At the present time Mr. Patterson is milking ninety cows, making from 350 to 400 pounds of butter a week. This is put up in one-pound prints and sold to one dealer in Kirksville. The local dealer sells every pound of this butter in Kirksville. Aside from the butter, he sells on an average about $5 worth of buttermilk a week, thus making his weekly income from the dairy about $75, or $300 a month. It might be well to add here that Mr. Patterson's cash receipts for the present year will be about as follows:

For butter	$3,500
For buttermilk	300
For cows and young stock	1,000
For hogs	500
Total	$5,300

His expenses for the year will be about as follows:

For help	$1,200
For feed	400
For current expenses	400
Total	$2,000

According to the above figures, his clear profits for the year will be $3,300. This excellent showing is not because he has 700 acres of land, for Mr. Patterson told me that he could make the same amount of money and make it easier, if he had less land. He is now wanting to sell part of his farm.

"Uncle" John, as he is called throughout the state, attends to the feeding of the calves. Into the milk for each calf he stirs a little warm corn meal mush. When asked if he considered the corn meal mush a good feed, he replied that he could not see but what his calves did as well when fed corn meal as when fed oil meal.

In the afternoon "Uncle" John goes after his cows about four o'clock. The men leave the field at 4:30, supper is ready at five and by 5:30 o'clock milking again begins, and by 7:15 all the work about the dairy and stable is done, and every man has the evening to himself.

Mr. Patterson's success as a dairyman is due in great measure to the fact that he thoroughly studies the feed question. "The longer I work with my cows," said he, "the more I study how to secure good feed that is cheap enough. Dry corn, wheat bran and good hay cost too much, and don't produce a large enough flow of milk." Last fall he erected a large stave silo, thirty feet deep and twenty-four feet in diameter, with a capacity of 275 tons. This silo was erected at a cost of $350, but it proved to be such a "money saver" and "milk producer" that he will build another one nearly as large this fall. He is giving the cow pea a thorough trial this year, having some forty-eight acres in peas and ten acres in soy beans. Last fall when he filled his silo, he put in a few loads of corn and then a few loads of peas. The corn and peas were run through a cutter and elevated by means of a carrier to the top of the silo and dropped down and then thoroughly packed in. He fed about one bushel of this feed a day to each cow. He makes the claim that this made the cheapest and best cow feed he ever handled, the cows making better returns during the past winter than ever before.

COST HIM SEVENTY-FIVE DOLLARS.

A Minnesota Merchant Punished for Adulterating Butter.

Another process of making butter half as heavy again has turned up in Wabasha Co., where Inspector McConville, of the State Dairy Department had a county merchant before a justice of the peace, and persuaded him it was best to plead guilty of violating the pure food laws, and stand a fine of seventy-five dollars.

A sample of the preparation has been brought here for analysis, a white powder, consisting mostly of borax apparently. The active ingredient is supposed to be rennet, which makes a cheesy emulsion of the butter fat, and lets it soak up the water, which untreated butter would scorn to do.

The circular explaining to the guileless merchant the method of doubling his profits, begins with the self-evident (?) proposition: "Science has demonstrated the fact that butter is composed of microbes." The rest is equally precise and scientific.—*Winona* (Minn.) *Herald*.

Experiment Station Tests of Holstein-Friesian Cows.

[From June 1 to July 1, 1899.]

Official tests of Holstein-Friesian cows are invariably made by agricultural colleges and experiment stations or by authorities vouched for by them. The age is at the date of calving; the test is forseven consecutive days, commencing at the close of the days from calving; the fat is determined by the Babcock test, and the butter estimated on the basis of 80 per cent of fat to a pound, the rule by which estimates were made at the World's Fair.

Princes of Wayne 7th 28690; age 7 years, 4 months, 17 days; 11 days after calving; milk, 462.6 lbs.; fat, 18.49 lbs.; butter, 23 lbs., 11.8 oz.

Princess of Wayne 7th 29690; age 7 years, 4 months, 17 days; 18 days after calving; milk, 489.5 lbs; fat, 19.06 lbs.; butter, 23 lbs., 13.3 oz.

Princess of Wayne 7th 28690 (net profit test); age 7 years, 4 months, 17 days; milk, 487.9 lbs.; fat, 19.285 lbs.; butter, 24 lbs., 1.7 oz.; net profit, $4.12.

Tirania 3d's Netherland 39008; age 5 years, 7 months, 15 days; 30 days from calving; milk, 397.6 lbs; fat, 15.361 lbs.; butter. 19 lbs., 3.2 oz.

America 2d's Pauline DeKol 37096 (net profit test); age 4 years, 6 months, 28 days; 36 days after calving; milk 500.2 lbs.; fat, 15.343 lbs.; butter, 19 lbs., 2.8 oz.; net profit, $3.16.

Catrina 7th's Pietertje 28203; age 8 years, 2 months, 25 days; 42 days from calving; milk. 448.3 lbs.; fat, 14.449 lbs.; butter, 18 lbs., 1 oz.

Pietertje Hengerveld Lady DeKol 37060; age 5 years, 2 months, 2 days; 26 days after calving; milk, 406.3 lbs.; fat, 13.523 lbs.; butter, 16 lbs., 14.5 oz.

Amarilla's Koningen 11948; age 10 years, 12 days; 123 days after calving; milk, 428 lbs.; fat, 13.16 lbs.; butter, 16 lbs., 7.3 oz.

Korndyke Queen DeKol 41934; age 3 years, 7 months, 20 days; 9 days after calving; milk, 341.8 lbs.; fat, 12,695 lbs.; butter, 15 lbs., 13.9 oz.

Judith W. 5th 22947; age 8 years, 10 months, 27 days; 103 days after calving; milk, 407.4 lbs.; fat, 12.296 lbs.; butter, 15 lbs., 6 oz.

Jannek Netherland Clothilde 31542; age 7 years, 11 days; 56 days after calving; milk, 353.7 lbs.; fat, 12.182 lbs.; butter, 15 lbs., 3.6 oz.

Edith Grace 39445; age 3 years, 10 months, 18 days; 36 days after calving; milk, 429.8 lbs.; fat, 12.171 lbs.; butter, 15 lbs., 3.4 oz.

Snowball Clothilde 37527; age 5 years, 2 months, 15 days; 17 days after calving; milk, 396 lbs.; fat, 13.083 lbs.; butter, 16 lbs., 5.7 oz.

Winana Clothilde 44586; age 2 years, 11 months, 30 days after calving; milk, 387.6 lbs.; fat, 11.859 lbs.; butter, 14 lbs., 13.2 oz.

Rose Zoldusky Pauline 45755; age 3 years, 2 months, 25 days; 10 days after calving; milk, 338.3 lbs.; fat, 11.782 lbs.; butter, 14 lbs., 11.6 oz.

Edith Prescott DeKol 44886; age 2 years, 3 days; 28 days after calving; milk, 319.6 lbs.; fat, 9.448 lbs.; butter 11 lbs., 13 oz.

Amarilla Aaggie Wit 2d 47062; age 2 years, 2 months, 15 days; 8 days after calving; milk, 291.6 lbs.; fat, 8.079 lbs.; butter, 10 lbs, 1.3 oz.

Roxy Pietertje 40731; age 3 years, 5 months, 3 days; 145 days after calving; milk, 293.9 lbs.; fat, 9.436 lbs.; butter, 11 lbs., 12.7 oz.

May Vaughn 42533; age 1 year, 11 months, 10 days; 151 days after calving; milk, 297.4 lb.; fat, 8.745 lbs.; butter, 10 lb., 14.9 oz.

Clothilde Artis Raphaello 43584; age 2 years, 11 days; 59 days after calving; milk, 332 lbs.; fat, 9.754 lbs.; butter, 12 lbs., 3.1 oz.

Korndyke Pietertje DeKol 44873; age 2 yeais, 1 month, 5 days; 18 days after calving; milk, 283 lbs.; fat, 8.455 lbs.; butter, 10 lbs., 9.1 oz.

Fanny Pietertje DeKol 44874; age 2 years, 1 month, 11 days; 18 days after calving; milk, 286.3 lbs.; fat, 8.387 lbs.; butter, 10 lbs., 7.7 oz.

Inka Pietertje DeKol 45017; age 2 years, 22 days; 7 days after calving; milk 254.4 lbs.; fat, 7.784 lbs.; butter, 9 lbs., 11 oz.

Inka Pauline DeKol 45137; age 2 years, 8 days; 15 days after calving; milk, 239 9 lbs; fat, 7.979 lbs.; butter, 9 lbs., 15.6 oz.

Joy of Clothilde 43762; age 2 years, 10 days; 49 days after calving; milk, 321 lbs.; fat 8 399 lbs; butter, 10 lbs., 8 oz.

Duchess Ormsby 3rd Butter Girl; age 1 year, 9 months, 9 days; 16 days after calving; milk, 241.4 lbs.; fat, 7.333 lbs.; butter, 9 lbs., 2.7 oz.

Bell Rose Duchess 47244; age 1 year, 6 months, 8 days; 31 days after calving; milk, 220.1 lbs.; fat, 7.25 lbs.; butter, 9 lbs., 1 oz.

Debora's Inka 2nd 43831; age 1 year, 11 months, 17 days; 41 days after calving; milk, 298.1 lbs.; fat, 7.942 lbs.; butter, 9 lbs., 14.8 oz.

Manor DeKol Belle 46599; age 2 years, 15 days; 66 days after calving; milk, 259.1 lbs.; fat, 8.528 lbs.; butter, 10 lbs., 10 6 oz.

Virginne Pietertje 46887; age 2 years, 5 months, 10 days; 33 days after calving; milk, 279.9 lbs.; fat, 10.154 lbs.; butter, 12 lbs., 11.1 oz.

Heilo Aaggie Johanna 46517; age 2 years, 12 days; 14 days after calving; milk, 255.7 lbs.; fat, 7.589 lbs.; butter, 9 lbs., 7.8 oz.

Wase Parthenea Colanthus 44730; age 2 years, 21 days; 41 days after calving; milk, 252 2 lbs.; fat, 8.032 lbs.; butter, 10 lbs., 9 6 oz.

Elgin Belle 7th 46805; age 1 year, 9 months, 4 days; 10 days after calving; milk, 254.5 lbs.; fat, 7.615 lbs.; butter, 9 lbs., 8.3 oz.

Mutual Wayne DeKol 44492; age 2 years, 1 month, 1 day; 38 days after calving; milk, 257.5 lbs.; fat, 8.169 lbs.; butter, 10 lbs., 3.4 oz.

Carrie Cole 2nd 42313; age 2 years, 7 months, 7 days; 38 days after calving; milk, 326.1 lbs.; fat, 9,087 lbs.; butter, 11 lbs., 5.7 oz.

Midland DeKol Pauline Paul 42722; age 2 years, 6 months, 10 days; 30 days after calving; milk, 235.5 lbs.; fat, 8.448 lbs.; butter, 10 lbs., 9 oz.

Copia 5th's Clothilde Lass 43766; age 1 year, 9 months, 6 days; 30 days after calving; milk, 287.2 lbs.; fat, 8.067 lbs.; butter, 10 lbs., 1 oz.

Winana Beets DeKol 44887; age 2 years; 27 days after calving; milk, 351.7 lbs.; fat, 9.211 lbs.; butter, 11 lbs., 8.2 oz.

Pietertje Tweede 2nd 43823 (second record); age 1 year, 11 months, 17 days; 52 days after calving; milk, 286.1 lbs.; fat, 9.632 lbs.; butter, 12 lbs., .6 oz.

Raschida 43878; age 2 years, 2 months, 2 days; 43 days after calving; milk, 379 lbs.; fat, 10.417 lbs.; butter, 13 lbs., 3 oz.

S. HOXIE.

Superintendent Advanced Registry, Holstein-Friesian Association of America.
Yorkville, N. Y.

Transfers of Guernsey Cattle from September 1 to 15, 1899.

BULLS.

August V. 5924, Chas. Solveson to R. G Van Valzah, Springfield, Oregon.
Bishop Taylor 6201, Collen B. Meirs to Samuel W. Bishop, Wrightstown, N. J.
Cullasa 5584, Geo. C. Hill & Son to Rudolph Kuhlman, Waukesha, Wis.
Duke's White Tip 6198, John Tyler to Samuel Fliteraft, Pittsgrove, N. J.
Hudson's Prize 6202, Frank M. Ross to Andrew Hough, Sanford, Me.
Heffron 5591, Nelson Banning to Frank Jean, Macomb, Mich.
Jaspervlict 6191, L. P. Morton to H. G. Haviland, Glens Falls, N. Y.
Lerch's Joe 6081, G. C. Thomas & Bros. to Anthony Lerch, Geneva. N. Y.
Lord of Seneca 6053, Horace C. Disston to W. Arthur Mitchell, Elkton, Md.
Merritt 5563, Est. A. H. Colby to Mrs. E. L. Colby, Tilton, N. H.
Pride of Chester 5580, Abraham Tiger to J. R Van Blarcom, Mine Hill, N. J.
Success of Avon 2900, Wm. B. Harvey to The Pa. State College, State College, Pa.
St. Andrew's Prince Charley 5564, William Todd to George Morrison, LaChute, Que.
Thorndine 6190, Ezra Michener to J. P. Welsh, Bloomsburg, Pa.
Violet's Duke 4222, E. T. Gill to John C. Higgins, Delaware City, Del.

cows.

Alice in Wonderland 12046, Belle Camille 11282, Lady of Birth 12048, Mrs. E. B. Patterson to C. B. & C. R. Wilkinson, Avondale, Pa.
Arba M. 2d 10541, Lizzie H. 11294, Christ Muth to Helen M. Sweet, Oshkosh, Wis.
Blanca of Avon 12030, Breda Jewel 12031, Clio of Avon 12029, Leto of Avon 12032, E. Lewis Moore to N Sagendorph, Spenser, Mass.
Belle Heartsease 5659. Molly Heartsease 11767, Rose King 11769, D. W. Clark to George E. Stickney, Newburyport, Mass.
Charity H. 8771, Charity 4th's Daughter 7973, Emily H. 8759, Freida of Wyndlawn 7971, Trilby M. 7952, Zena of Green Bank 10587, Wm. B. Harvey to Z. Haines, West Grove, Pa.
Camille's Choice 12049, Tillie Prude 12045, Mrs. E. B. Patterson to James Ramsay, Londonderry, Pa.
Daphne of Tilton 10839, Est. A. H. Colby to Mrs. E. L. Colby, Tilton, N. H.
Daffodil of Penn Manor 12047, Japonica 2nd 4416, Mrs. E. B. Patterson to D. Thompson Mitchell, Union, Del.
Ethella 12012, James Moore to William Walton, Bridgewater, Pa.
Lady Thorne 8503, Mary Marshall 5th 11814, Ezra Michener to J. P. Welsh, Bloomsburg, Pa.
Lady of Seneca 11757, Horace C. Disston to Chas. H. Linville, Baltimore, Md.
Letitia of Green Bank 12011, Craig Biddle to Wm. B. Harvey, West Grove, Pa.
Maid of Makefield 8318, Edward Horne to Thomas S. Michener, Doylestown, Pa.
Necklace 7169, Nuptial 7170, Rhea 2nd 7172, F. E. Perkins to Joseph Cole, Harmony, R. I.
Othello of Troy 8846, Shook Bros. to U. G. Nagle, Kelly Point, Pa.
Ruby of Level Green 6158, James Forsyth to Nat Wallis, M. D., Fitchburg, Mass.
Smiling Waseta 12002, Est. Alexander Scott to I. R. Scott, Ward, Pa.
Seneca Belle 11978, Horace C. Disston to W. Arthur Mitchell, Elkton, Md.
Verily 9947, Walter Cutting to Chas. A. Thompson, Melrose, Conn. WM. H. CALDWELL, Sec. Peterboro, N. H.

ILLUSTRATION.

A NEW ENSILAGE AND FODDER CUTTER.

We are presenting herewith a cut of something entirely new in the line of feed and ensilage cutters. This is a cut of the "Blizzard", which is manufactured by Dick's Agricultural Works, Canton, Ohio.

The "Blizzard" differs from all other machines of its class in the following points: It is built exclusively for power, the cutting knives are attached directly to the fly wheel, which entirely obviates the ordinary cutter head; it is equipped with two sets of knives. one which firsts spilts the feed or fodder and then cuts it off; the knives



work on the gradually increasing or shear plate principle; the fly wheel is a solid disk; perfect and easy in all its adjustments. Cuts a variety of satisfactory lengths, and is unusually strong and well made. The most remarkable feature, however, is the pneumatic attachment or feed carrier. This is a pipe through which is passed a strong current of air sufficient to deliver green or dry feed to any height likely to be required; carries the feed straight up and delivers it at any angle by a system of elbows. Easily adjusted and easy to handle.

These machines are made in several convenient sizes to fit any requirement. Write the manufacturer for catalogue and further information.

There is but one good make of lamp-chimneys — Macbeth — and your dealer knows it.

You want the Index.

Write Macbeth Pittsburgh Pa



BABCOCK MILK TESTER

ALL IRON AND BRASS, MADE BY

A. H. BARBER MFG. CO.,

CHICAGO, ILL.

Builders of CREAMERY and REFRIGERATING MACHINERY.

☞ SEND FOR CATALOGUE.

WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY, 27 Beaver Street, NEW YORK.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for GLUTEN FEED. This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address CHAPIN & CO., Milwaukee.

FOR SALE -- AT HALF PRICE!

Four "United States" FACTORY Cream Separators.

One 3,000 lbs. Belt machine, used only one year. Three brand new 3,000 lbs. Latest Improved Turbine machines; one used about three weeks, another four days, and the third set up but no milk run through it. For particulars, address

WM. L. HAMILTON, Sec. and Treas., Fabius Creamery Co,, - FABIUS, N. Y.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

HOARD'S DAIRYMAN and Ohio Farmer, both one year	$ 1 50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year	1 65
HOARD'S DAIRYMAN and National Stockman and Farmer, both one year	1 85
HOARD'S DAIRYMAN and Michigan Farmer, both one year	1 50
HOARD'S DAIRYMAN and Practical Farmer, both one year	1 65
HOARD'S DAIRYMAN and Farm Journal both one year	1 10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2 00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1 50
HOARD'S DAIRYMAN and Orange Judd Farmer both one year	1 75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2

From Indiana.

A Tornado Overturns an Empty Silo.—Remedy Wanted.—Butter Fat and Butter.

ED. HOARD'S DAIRYMAN:—We built a stave silo this season, used 2×6×24 pine, and a Cornell Bulletin for a guide.

The day before we were to fill it a young tornado twisted its tail in our neighborhood, and our pride was blown over in an adjoining clover field.

However we rebuilt and filled it in less than a week, though the corn was a trifle dry.

We would like information as to best method of anchoring silos, as we don't want to rebuild ours again next summer.

We are young dairymen and this is our first experience with a silo. Of course we like HOARD'S DAIRYMAN next to our Jerseys.

In computing amount of butter from Babcock test, is butter or butter fat taken at 100%?

Would 20 cents for butter be equal to 23⅓ cents for butter fat? A. J. N.

Valley Mills, Ind.

As tornadoes are not annual visitors, and in fact seldom visit one place twice in a decade, it may reasonably be expected that our friend's silo will stay put without anchoring or guys. To make assurance in this case doubly sure, if any device can withstand a tornado, we can think of no better plan than to "guy" the silo with wires, much the same as telegraph and telephone companies stay their poles where a bend is made or a corner is turned. Or take out tornado insurance.

In estimating butter from the test it is wholly immaterial whether one figures by the rules of interest or discount, provided he observes the proper rules. When the fat is given we estimate the butter by adding one-sixth, but when the butter is given we estimate the fat by deducting one-seventh. In other words, six pounds of fat in the milk is considered equivalent to seven pounds of commercial butter, and therefore 23½ cents for butter fat is estimated as being the same as 20 cents for butter, where there is no account made of the cost of manufacturing the fat into butter.

Dairying in the Philippines.

An Australian has recently brought fifty cows from his own country to Manila and started a dairy. He has demand for more milk than he can supply at fifty cents (Mexican) a quart. The first reserve United States hospital pays him a milk bill of $2,000 gold a month.

These were the first cattle, except the water buffalo, ever brought to the Philippines, and the cost of the freight from Australia amounted to twice the value of the animals in the British colony.

The water buffalo, besides supplying the natives with milk, is slaughtered for the meat, but very little is used in the Philippines. They are also the beast of burden and family pet. The children will climb all over the animal, and it is as gentle as a kitten, except when it is very warm and the flies are troublesome, it will take a very sudden notion to run for the nearest river or mud pond, burying itself completely, and wallowing until covered with a coat of black, sticky mud, which serves to keep the flies from torturing it so effectively.

CONCERNING OUR ADVERTISERS.

The advertisement of A. C. Brosius, of Cochraneville, Pa., makes its first appearance in this issue of our paper, for the new season's business. Our readers will remember this gentleman as being the manufacturer of the now famous Dehorning Knife which has been of such great value to stockmen everywhere. This is the dehorner which took highest award at the World's Fair. It differs from all other devices of its class, in the fact that it cuts evenly from four sides at once. This prevents all bruising and crushing of the horn, and constitutes the most humane way of removing the horns. Then, too, it is such a quick and safe way for both man and animal. Write Mr. Brosius for circulars, prices, etc.

The O. S. Kelly Company, of Springfield, Ohio, make their first appearance in this issue for the season of 1899. Their ad. will be found on another page. Our readers will probably recall that the Kelly people are the manufacturers of the reliable Kelly Duplex Grinding Mills. This mill is well and favorably known, and its friends and users are distributed over the entire country. The word "duplex" in the name, applies to the grinding plates, or more properly burrs, which are double, making this mill one of unusual capacity for its size.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

PROBABLY NYMPHOMANIA.

Have a Jersey cow that will be seven years old in January, 1900. Has dropped five calves, last one, March 19, 1899. Was in heat and bred, April 24, 1899. Was not in heat again until July 6. Was bred. Was in heat again Sept. 17 and 27; was not bred either time. The morning of Sept. 22, noticed a discharge, about a pint, the color and consistency of the white of an egg with about a spoonful of something yellow in it. Again, the evening of Sept. 26, same kind and amount of discharge, with a small bit of something white. She has a good appetite, is in good condition, and is giving twenty-five to twenty-seven pounds of milk per day. Is with the herd except when in heat. What is the trouble and a remedy for same.

Bellmore, Ind. W. B. T.

ANSWER.

I think your cow aborted. Isolate this cow and watch her closely, and keep correct account of her symptoms. You have told me the trouble—as to cause, I am at sea. I think she is a nymphomanic, and will need to be treated for that. Be particular as to any kind of discharge, and if there be any, note the kind, and apply again.

SPRAINED ANKLE.

I have a mare that sprained her right, forward ankle last February. It swelled up and she was very lame, but after using a liniment was so I used her through April and May. In June I blistered and gave her rest so that she was lame only after a drive of a few miles. I worked her at haying and on a horse power to churn and separate through July which made her more lame. Since then I have blistered twice and turned her out to pasture, but she has grown worse until now the ankle is twice natural size, hard and the inflammation extends up to the knee.

West Enosburg, Vt. F. F. D.

ANSWER.

Picture yourself working hard with a sprained ankle. Then ask, would you blister your sprained ankle. I think not. Horse power—this was cruel and ruinous. You have fixed for a permanent enlarged leg, I fear. You came to the DAIRYMAN too late, much too late. Make strong oak bark tea decoction, to each quart add half a pint of acetic acid. Rub in some of this daily. After rubbing, soak a sixteen foot strong cotton bandage and wind evenly round the leg. Let it overlap just half and moderately tight. Remove daily.

MAMMITIS.

Heifer twenty-three months, fresh on 14th inst.; took calf to bucket 17th. Fearing spoilt udder on 19th I put five weeks' old calf with her to drain udder once; no apparent trouble till 23rd when near three pints from one quarter was taken appearing like curdled milk and blood, occasionally some stringy for only two milkings. Referred to back numbers in DAIRYMAN and gave on 24th inst. ¾ lb. Epsom salts and daily 1 teaspoonful spirits nitre; kneading with ¼ turpentine, ¾ camphor. That quarter milks free, but in center remains swollen, other quarters clean.

Second case. Cow six years, fresh August 17th. At various times during the day there drops out of udder what looks like white of egg, varies in quantity. P. H., JR.

Donerail, Ky.

ANSWER.

1. When I say nitre I always mean saltpetre. This is twenty times as strong as nitre dulc, viz., sweet spirits of nitre. A teaspoonful is a dose for a baby only; three-quarters of a pound of Epsom salts will not act in such cases; a full pound to one and one-quarter is needed. Give sixty grains of iodide of potassa in a little cold water as a small drench daily for ten to thirty days. Paint over the swelling with strong tincture of iodine daily for awhile.

2. This albuminous milk is the result of injury, I think—perhaps, and likely, hard milking. Change the form of milking; inject Tilden's bromo chloralum one to eight of cold water, inject with a rubber syringe. Do this quite easily. After one syringe full is injected wait a few minutes and then gently squeeze it out, and then inject another half ounce by half ounce syringe; in five minutes again draw this out. Then inject another half ounce and let it remain in; do this until not needed. A full dose of physic will be good; never does harm excepting to emaciated subjects.

NAVICULAR DISEASE.

Have mare lame in front foot, said to be navicular. Would like Dr. Horne to tell me, through the DAIRYMAN, what is best to do. G. K. W.

Toronto, Ont.

ANSWER.

If navicular disease, sell the horse, as there is no cure for confirmed disease of the long pulling and flexor tendons of the horse's foot. I believe I have had as many such patients as any living man. I also believe I have tried all and every conceivable thing for the amelioration of navicular lameness, and *never* a satisfactory result; nerving does stop the lameness for a little while, so as to cheat some poor unfortunate trader or buyer.

BLOODY MILK.

Have a two-year-old heifer that came in last fall. For the past two months she has given bloody milk from one fore quarter. Have given her saltpetre and salts. Is no better. What should I do for it? E. D.

Tunnel City, Wis.

ANSWER.

Repeat full dose of physic, then add acetate of lead (sugar of lead). If full size, give a sparing scruple, one dose each day, for three doses; then wait three days; then give one dose for two days; then again wait five days; then one dose only. Restrict the food for a little while. Rub with compound tincture of iodine, one part; water, three parts. Use an easy milk tube for a while, so as to give rest to structural parts of the udder.

NOT UTERINE CATARRH.

We are especially interested in the veterinary department, and at present have a three-months-old calf that we have not found anything like it described. Just bought it but find it passes something like matter from the urinary organs. If it was older might say it was catarrh of the womb, but don't know what it can be, being so young. Otherwise it is O. K. The odor is offensive, resembling the most aggravated nasal catarrh. M. Bros.

Pheonix, Arizona.

ANSWER.

I entertain no idea of such a thing as uterine catarrh. I am quite satisfied there is some form of ulceration, likely an abcess. This I think is in the neck of the womb, and can be reached by a small hand and arm only, excepting proper instruments in professional hands. I am sorry I can't be definite and of better service to you. But to do this I would need a personal examination.

RETAINED PLACENTA.

I have a cow that gave birth to twin calves September 13th. She was in very good condition, and appeared all right until about twenty-four hours after calving. The afterbirth did not come away. She will not eat scarcely a thing, and is getting very thin. She has had Epsom salts two or three times.

Livermore Falls. A SUBSCRIBER.

ANSWER.

You will need to have someone take away the placenta, what is left of it. This should always be done after a few hours are passed without the afterbirth coming away. Let the cow lie in a slanting position behind. Cut your finger nails close, and insert the hand after it is larded, and bring away all the matter within reach. Hollow your hand so as to hold as much as possible of the putrescent mass. Give her golden seal, one-half ounce; nux vomica, one dram; old whiskey, two ounces; water, three ounces. One dose a day for two days, then one each second day for four days.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

SWAMP-ROOT Is not recommended for everything; but if you have kindey, liver or bladder trouble it will be found just the remedy you need. At druggists in fifty cent and dollar sizes. You may have a sample bottle of this wonderful new discovery by mail free. also pamphlet telling all about it and its great cures Address, Dr. Kilmer & Co., Binghampton, N. Y.

...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure **SCOURS** in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO., 159 Chambers St., New York.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to **H. W. KELLOGG COMPANY, Ripon, Wis.**

Dr. Horne's Anti-Abortient

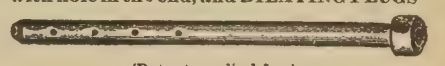
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

Cows barren 3 years



MADE TO BREED.

Book Free. **Moore Brothers,** Albany, N. Y.

Farmers and Land Seekers Grasp this BARGAIN.

I have 240 acres within 20 miles of the Iowa line, 4 miles from Windom, in the rich Des Moines valley, to sell at a sacrifice on account of other business. 200 acres field, 30 acres pasture, rest tame meadow; 2-story house, 16x24 & 14x22; stone cellar, 14x14; horse barn, 16x30; cow barn, 30x42; creamery, 12x12; granary, 14x20; also machine shed, workshop, poultry house, 2 good wells, with windmill well house, farm scales. Apple orchard. 10 acres heavy grove, small fruit, etc.; $6,000 takes it all, with $2 000 down. Don't write, but come at once and see it. THOMAS E. SIME, Windom, Cottonwood Co., Minn.

REDUCE YOUR COAL BILL

BY USING The No Scale Company's High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.**

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for 50 CENTS.
Will be sent as a premium for

ONE NEW SUBSCRIBER.

Maine Feeding Stuffs Law.

The Maine legislature of 1897 enacted a law to regulate the sale and analysis of concentrated commercial feeding stuffs. This was the first law of the kind to be enacted in America, and both because of its novelty, and because the trade has been without local restriction, the bill excited considerable opposition on the part of handlers of grain. The petitions from individual farmers, granges, farmer's clubs, and other agricultural organizations were so numerous that the act became a law without a very large dissenting voice in the legislature.

While the effects of this law were for the most part beneficial to the Maine feeder, neighboring states immediately began to feel the effects in that the inferior goods, which had formerly been evenly distributed were sent to the states other than Maine. While in the winter of 1898 Maine was practically free from low grade cotton seed meals, Massachusetts and particularly Rhode Island were inundated.

Studying the effects of this law in Maine, the Vermont legislature of 1898 enacted a law similar in all respects to the Maine feeding stuffs control, which law went into effect, July, 1899.

The Rhode Island legislature of 1899 adopted similar legislation and a law similar in all essentials to the Maine feeding stuffs law goes into effect in the state of New York, December 1st, 1899.

Thus we find this Maine law, the passage of which was urged so earnestly by the investigators at our Experiment Station, being adopted in all its essential features by our neighboring states. This they were obliged to do in order to save themselves from being the dumping grounds for cotton seed meal that contained an exccss of finely ground hulls and yellow clay; ground mixed feed that held more oat hulls than were necessary to protect the growing kernel; and middlings that were adulterated with mill sweepings and other substances.

The law, as yet, gives the consumer only partial protection. It should be extended so as to include both spring and winter brans. We do not believe that the western farmers are doing such slovenly work that they raise oats with the wheat they intend to market, to the extent that the hulls show plainly in the bran we find in our markets.

The law not only furnishes the cattle feeder protection, but it enables him to select such foods as are rich in the nutrients he wishes to use.

As a rule, our feeders have plenty of home grown fodders that are rich in carbohydrates and fats, but poor in protein, and as a matter of course, they need to purchase protein.

The tags on the feeds in the markets show their composition, and by applying the price the feeder is enabled to decide whether the protein is cheaper in the cotton seed meal, linseed meal, gluten meal or feed flour, and purchase accordingly.

This one feature of the law alone, if it gave no protection whatever, would be worth to the farmer far more than it all costs him, for a knowledge of the composition of the foods he buys, at the time he buys, enables him to buy and feed understandingly without being subjected to the trouble and expense of analyzing every lot of feed he purchases.

This law is being well received by our people and it will be but a short time before they will be as familiar with the tags, and study and apply them to their feeding operations, as they now are with the analyses on the tags on every bag of fertilizer they use.

Just as a knowledge of the composition of commercial fertilizers makes possible their economical purchase and use, so the data furnished by the feed tags, will help to educate the farmer along the lines of economical cattle feeding, as nothing has ever done before; and so we say, extend the law until it shall include every concentrated cattle food in the market and furnish the farmer every possible means for a thorough knowledge of his work.—*Turf, Farm and Home.*

Sifted Wood Ashes for Hogs,

In the *Stockman and Farmer* of June 8th, J. W. P. writes that his sow eats her pigs: We often read of similar cases, and every time some one has a cure. It is generally believed that constipation is the cause; if so, a preventive is better, also cheaper, than a cure. Sows properly kept, fed on mixed feeds, with plenty of exercise, are not liable to be constipated. We have practiced feeding sifted wood ashes in slop, once a day for a week or so before and after farrowing. Feed a large cook spoonful to each matured hog. We also feed a spoonful to each bucketful of slop to growing hogs. It tends to sweeten the stomach and is a very cooling physic. It rids the stomach and intestines of all worms. We think plenty of salt and ashes good for all stock. Horses having free access to it are not liable to colic, and we will almost guarantee a cow against milk fever if we can get her physicked lightly before and after calving with sifted wood ashes. We feed a single handful in a bran mash or in a mixed ground feed dampened. We think it a safer remedy in the average farmer's hands than to use drugs. We also sift them in a meal sieve to make sure of taking out all glass or pins that may happen in, then throw the charcoal out for the hogs to eat.

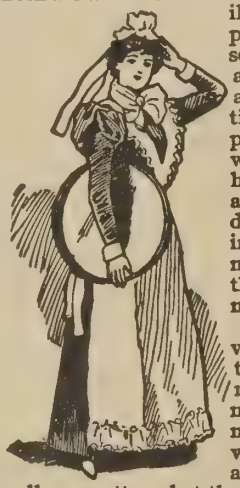
How Milk For City Use is Handled in Denmark.

The Milk Supply Association, of Copenhagen, Denmark, requires each farmer supplying milk to bind himself to inquire and truthfully report every case of infectious disease occurring on his premises or among persons in his employ, the association in return contracting to pay the highest price for such milk, although it is rejected. Every cow on farms supplying milk to the association is carefully examined fortnightly by skilled veterinary surgeons, as are also the stables, food, etc. Inspectors and experienced dairy maids also visit the farms to observe their management, cleanliness and methods of cooling the milk, regarding all of which there are strict regulations. The milk must immediately after milking be cooled to 41 degrees, and must never be allowed to stand in the sun. Food which will flavor the milk disagreeably—such as turnips—must not be used, but carrots and mangels may be fed in small quantities, mixed with large quantities of corn. Stall feeding is not allowed in summer, when cows must be fed in the open air on grass and clover.

On the arrival of the milk in Copenhagen it is at once sampled by experts, its temperature noted, placed in cans surrounded by ice, and the next morning run out into filtration tanks, which have three layers of gravel separated by perforated trays, the upper layer being covered with six thicknesses of fine cloth, the whole being kept in position by a pyramidal framework, which presses down the tin trays. As the milk rises to the tops of the tanks it passes into a large storage receptacle, and thence to the bottling room, where it is bottled or canned, labelled, tied up with a thread, sealed with a leaden stamp seal, and then taken to the carts for distribution, the carts being so constructed as to prevent tampering with the cans, and the milkman being in uniform. The cans are scalded, steamed, and sterilized daily, and the filter boiled in hot water and steamed daily.

WORKING WOMEN.

Women are women after all. Mistress and maid are alike in physical make-up. Both are women. Both are subject to the ills and ailments peculiar to their sex. But the servant seldom gets any consideration. She is expected to do her work even if her head does throb and a dreary, dragging, bearing-down feeling makes her wish that each step might be her last.



Dr. Pierce's Favorite Prescription is made for maid as well as mistress. It makes weak women strong and sick women well, no matter what their station in life. It gives the poor working woman an equal chance with her richer sister and at exactly the same price.

The servant who uses "Favorite Prescription" at a moderate price per bottle is much more likely to get well than her mistress who calls in an expensive, local physician. If she will write plainly to Dr. R. V. Pierce, at Buffalo, N. Y., her case will have the attention of a physician who has cured more women than any one hundred other doctors and who has a record of over thirty years' successful practice. Her letter will be considered strictly confidential, will be promptly answered in a plain envelope, so that prying eyes of others may not get even a hint, and she will have the benefit of the very best medical skill without a cent of charge for it. Thousands of women have written and been cured. And by this method they have avoided the "examinations" and "local treatment" so invariably insisted upon by local practitioners and so abhorrent to every modest woman.



THE STRONG FENCE

Made of large wires, best spring steel, heavily galvanized. Provision made for expansion and contraction, so it is proof against all animals and all changes of weather. As nearly everlasting as anything on earth can be.

AMERICAN FIELD AND HOG FENCE

Sold by our agents everywhere. If you cannot find an agent in your town write direct to

AMERICAN STEEL & WIRE CO., Chicago or New York.

"The Salt That's ALL Salt."

Is a title denoting unequaled purity.

THE

University of Wisconsin

Has analyzed the leading dairy salts of all countries, and given the results in a special bulletin which shows that

Diamond Crystal Salt

is the only salt in the world above 99 per cent. pure.

OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

DIAMOND CRYSTAL SALT COMPANY,
ST. CLAIR, MICH.



IOWA FARMS $2 PER ACRE CASH BALANCE & CROP TIL PAID
J. MULHALL SIOUX CITY, IA

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

IRON PIPE AND FITTINGS

WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

ALL SIZES. WRITE FOR PRICES.

Write for Free Catalogue No. 20 of merchandise for **HOME, FARM AND FIELD--** from Sheriffs' and Receivers' Sales.

Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., **AT HALF PRICE.**

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.



Dana's White Metallic Ear Labels. Stamped with any name or address and consecutive numbers. Adopted by more than forty recording associations and thousands of practical stockmen. Samples free. Agents wanted. Prices reduced.

C. H. DANA, 55 Main Street, WEST LEBANON, N. H.

The Willard Knapp ...Cow Tie...



The LEAST EXPENSIVE, the MOST DURABLE, and the BEST DEVICE for Fastening Cows.

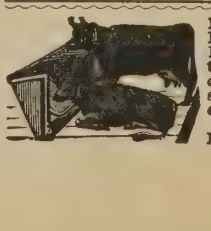
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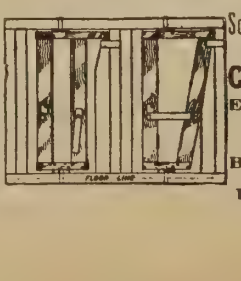


Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
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THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

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Each cow shuts herself in place.

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Live stock waste fully one-half the corn fodder when it is fed to them without previous preparation.

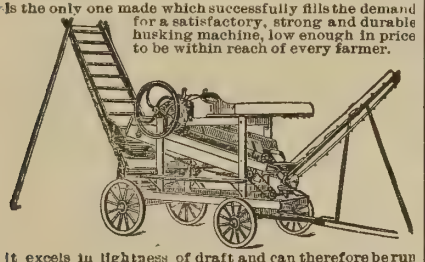
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husks, cuts and shreds the corn, green or dry. **Runs with 3-horse tread or any other power** that will equal or give more. Circulars **free.**

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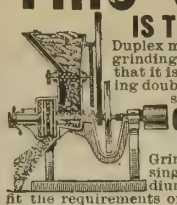
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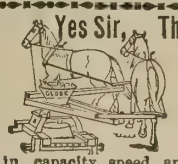
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Duplex means that it has a double set of grinding plates or burrs. That means that it is the **fastest grinder made.**—doing double the work of any mill of similar size. Requires only **light power.**

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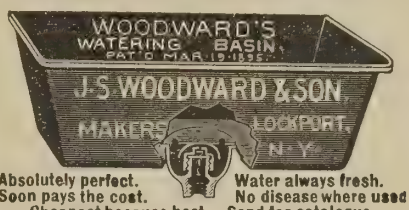
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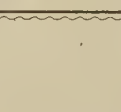
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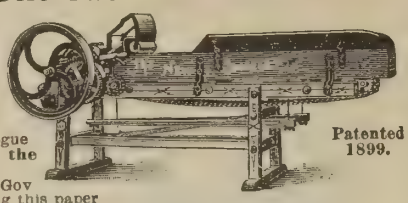
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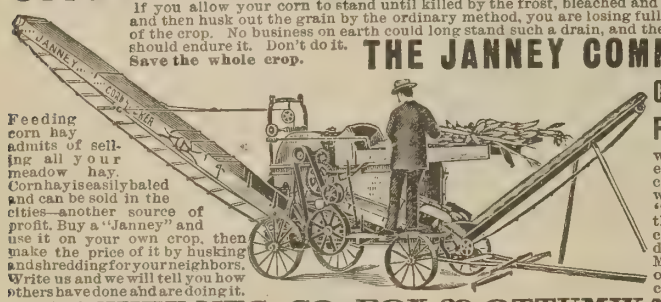
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SAVE THE WHOLE CORN CROP

If you allow your corn to stand until killed by the frost, bleached and faded by rain and snow, and then husk out the grain by the ordinary method, you are losing fully 50 per cent of the value of the crop. No business on earth could long stand such a drain, and there is no reason why you should endure it. Don't do it. Save the whole crop.



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The best way to Shred Ensilage is with the St. Albans Ensilage and Fodder Shredder.

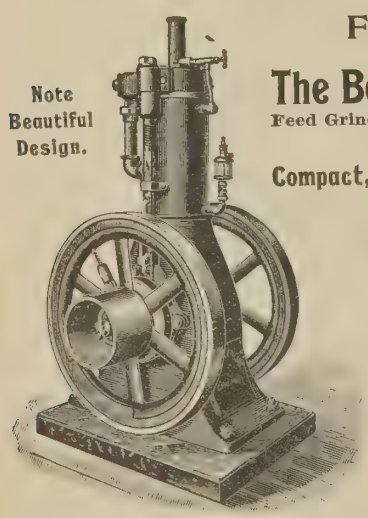
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FOR GAS OR GASOLINE.

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The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

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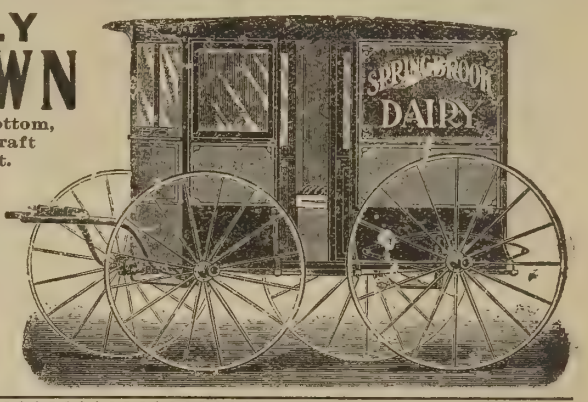
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This book should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00

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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., OCTOBER 13, 1899. NUMBER 35

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UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

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Nos. 28, 30 and 32 Canal St., Chicago,

Just two blocks north of the Union Depot, on the east side of the street, and the second door from the corner of Washington and Canal Sts. Here you will find our offices, our sales room, and our repair shop. We invite you to call and let us quote you prices on our complete line of

CREAM SEPARATORS,

Vats, Churns, Butter Workers, Combined Churns and Butter Workers, Boilers, Tanks, Tread Powers, Feed Cookers, Belting, Pulleys, Piping, Pipe Tools, Etc., Etc.

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SHARPLES TUBULAR SEPARATOR.

If he once does this he has settled for all time, in the most satisfactory and money-saving way, the separator question. This at least is the experience of those who have tried it, in witness whereof we quote the following letter :—



Platteville Cheese and Produce Company,
MANUFACTURERS AND DEALERS IN
FINE CREAMERY BUTTER AND CHEESE.

PLATTEVILLE, WIS., Sept. 3, 1899.
P. M. SHARPLES, West Chester, Pa.

Dear Sir:—I take pleasure to inform you that the No. 25 Tubular Separator which I bought of you on April 15, '99, is doing fine work.

We are skimming from 2,500 to 3,000 lbs. of milk per hour, and it takes a very small amount of steam to run it and it skims down to two one-hundredths. It leaves the cream in a fine, smooth condition and without any foam on it. Our butter has improved fully 10% in flavor and quality since we ran it, and the Tubular will be the only separator we will use after this.

Respectfully yours, F. KROG.

REMEMBER . . .

That it is a hollow bowl.
That it spins on air.
That it requires no repairs.

That it makes only smooth, free from froth cream, that it is a clean skimmer of large capacity, and that it is *absolutely "burst proof"* and safe.

Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.
BRANCHES—Toledo, Ohio. Omaha, Neb.
Dubuque, Ia. San Francisco, Cal.
D. DERBYSHIRE & Co., Brockville, Ont.

P. M. SHARPLES, West Chester, Pa., U. S. A.



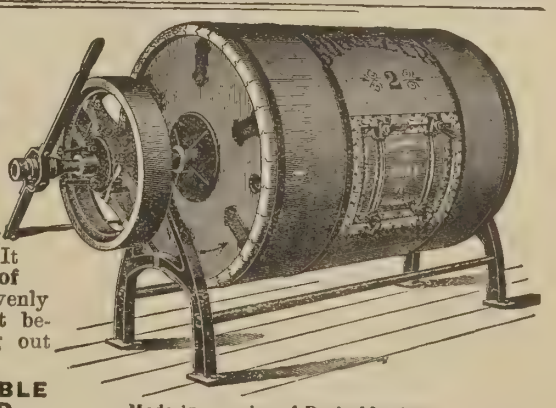
ALDERNEY BUTTER COLOR
Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.
Manufactured by THE HELLER & MERZ CO., Office, 55 Maiden Lane, N. Y.
BRANCHES:—Chicago, 14 No. Clark St.; Boston, 98 Commercial St.; Philadelphia, 109 South 2nd St.

It Does Not Destroy the Grain.

THE SQUEEZER COMBINED CHURN AND WORKER

will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.

IT IS SIMPLE, DURABLE AND EASILY WASHED.

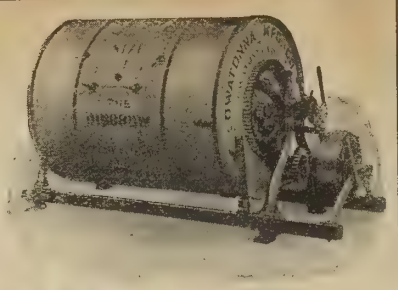


Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.

Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.

Does It Just Happen So



...OR IS...

THE DISBROW

Combined Churn and Butter Worker

More Sure of Producing Fine Butter than Other Churns . . . ?

ANOTHER
First Prize Won
At the Iowa State Fair in 1899, on Butter made in a DISBROW by W. W. Day, of Tripoli, Iowa, score, 98½.

AND STILL ANOTHER
First Prize Won
At the Minnesota State Fair in 1899, on Butter made in a DISBROW by John Friedner, of Strout, Minn., score 98¾.

OWATONNA MFG. CO.,
SOLE MANUFACTURERS. *OWATONNA, MINN.*

Creamery Package Mfg. Co.,

GENERAL SALES AGENTS,

BRANCH HOUSES:— Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

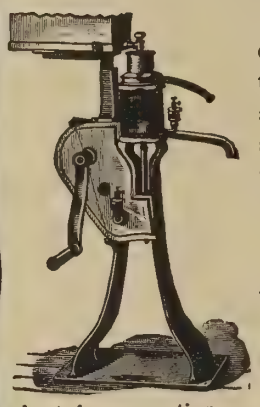
We are General Agents for Hansen's and W. & R. Butter Color.

The Reasons for the Superiority of the

Improved United States Separators

are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

The rapid increase in sales is phenomenal. None can truthfully boast of such a record.

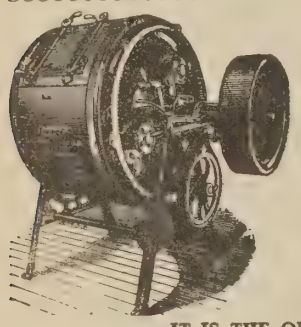
VERMONT FARM MACHINE CO., Bellows Falls, Vt.

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

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THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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Self Gauging "All Over" Printer



The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.

The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

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"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.

Worcester Salt

Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

TRY A TRIAL — **Only 15 Cents.**

The MICHIGAN FARMER will be sent **EVERY WEEK** to January 1st for only 15 cents. It is a large 20-page native Farm, Stock and Home Journal. Is liberally illustrated and **TELLS HOW TO MAKE THE FARM PAY.** This low offer is made to introduce the paper to new readers and will positively stop Jan'y 1st, unless renewed. **$45 CASH PRIZES ARE OFFERED TO SUBSCRIBERS** for short practical articles. Address,
MICHIGAN FARMER, DETROIT, MICH.



1c a Pound WILL BE ADDED TO THE **Value of Butter** by the use of our Cultures at this season.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin Street, CHARLESTOWN, MASS.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

IN view of the increased value of dairy products the Mohawk Condensed Milk Company, of St. Johnsville, N. Y., has divided a bonus of $3,000 among its patrons and promised them an advance over the contract price of milk.

ABOUT two million cases of condensed milk are manufactured in the United States yearly, more than half of which is consumed at home. The remainder of the output is exported. Japan, China, India and the Sandwich Islands are large consumers of American condensed milk, and the foreign demand is constantly growing.

MR. W. P. BISSELL, of Oneida, Iowa, sends us a photograph of his two-year-old Holstein heifer, from which the illustration on this page is made, and writes as follows:

She was two years old the 27th of last April, calved the 31st day of March, and made 10.13 pounds of butter from 259 3-16 pounds milk, *on grass alone.* Her name is Grace Pietertje Pauline DeKol, No. 42845, Holstein-Friesian Herd Book, sired by Paul Beets DeKol, dam, Aaggie Grace 2nd Pietertje,—Mr. Henry Stevens' great show cow, winning first and sweepstakes at all places shown last season; also second in butter test, at Omaha, with an official butter record of twenty-three pounds, eight ounces butter in seven days, and 100 pounds milk in twenty-four hours. The picture was made same day heifer calved, and is poorly executed, but you can get the outlines of the animal, and comments would be acceptable.

The picture is indeed a poor one and the "posing" probably does the heifer injustice, but it serves to confirm the reported seven days' test, because in so many particulars it shows the true and necessary dairy form.

Perhaps the most notable thing about this animal is the absence of all the "points" required for a typical beef animal. The top and bottom lines are neither straight nor parallel, the back bone is too prominent, the neck too thin, and the rump too pointed. These things do not necessarily indicate a first-class dairy animal, but they do promise that the surplus food eaten will not go primarily to the production of flesh. The primary condition for profitable dairy production is the ability to eat, store and digest a much greater amount of feed than is necessary for simple bodily maintenance, for all profit comes from this source. It will require not far from nine pounds of digestible nutrients, per day, to keep up the animal structure of this heifer. Every pound in excess of this, which is digested and assimilated, will go either to supplying the waste occasioned by exercise, by cold or heat or flies or excitement of any kind, and to producing meat or milk. It follows that the large, deep barrel is a good sign, because it indicates great storage and digestive capacity. The rising pelvic arch, the high arching flank, and the thin thighs indicate that the animal was designed to carry a generous udder, and has the necessary equipment for supplying such an udder with the material for keeping it at work. The illustration does not show as much of an incurving thigh, as we would like to see. This may be due partly to the retreating rump, and partly to the position in which the cow stands.

A PRACTICAL OBJECT LESSON.

In the Dairy Hall, at the recent Minnesota State Fair, were hung the pictures of two cows. One of the cows gave last year 9,111 pounds of milk, which made 493 pounds of butter at a cost of 4.27 cents a pound. The other one gave 4,099 pounds of milk, which produced 197 pounds of butter, or thirty-seven pounds more than the average yearly product of the cows of the state. This cow's butter cost 10.85 cents a pound. These two cows belong to the state farm herd. The latter is a typical "general-purpose" cow in the amount she earns. The first cow produced over 100 per cent more than the other. Is not the lesson a plain and valuable one for any farmer to learn who keeps cows?



GRACE PIETERTJE PAULINE DE KOL 42845, H. F. H. B.

Property of W. P. BISSELL, Oneida, Iowa,

THE CHEESE QUESTION.

HOARD'S DAIRYMAN publishes an article advocating cheese as a substitute for meat, and tries to show that if cooks gave more attention to cheese for their prepared dishes, they could produce with it the equivalent, if not the superior, to meat dishes in both nutritive and appetizing qualities, and to the great advantage of cheese in the matter of cost. The *Hotel Monthly* believes that cheese is greatly neglected as an article of every-day food, but the fault lies with the dairymen. If they would produce a better article of cheese than they now do, and combine to keep out of the market the nasty, unwholesome stuff that masquerades as cheese, they will gain their point to make cheese popular. It will not take long to educate the public to a habit of cheese eating, if only they can buy it with the assurance that it is clean, free from artificial coloring and adulterants and genuinely wholesome.—*The Hotel Monthly.*

Some of the above statements are pertinent and some are not so. For instance, it is always pertinent to advise better quality in cheese or other foods, for good quality promotes consumption, and bad quality retards it. But it is not true that the dairymen are to blame for the hotel not having good cheese. The cheese is used too young, half the time before it has developed a cheese taste, and while it is tough and indigestible. The grocers to-day are more to blame than any other set of men for the poor quality of cheese. They will not show the enterprise to buy up a number of good, green cheese at a time, and fit up a curing room, where the goods can be kept at an even temperature, of say, sixty-five degrees, daily looked after, turned and greased. Of course they must have cheese constantly on hand, but they make no effort to sell cheese that has become cheese.

In the winter there is no difficulty in procuring good, well cured cheese, for it has been kept long enough after cheese making has stopped in the fall to be cured to an eatable condition. If hotel men will devote a little individual enterprise to this matter, they can have good cheese for their guests.

Wisconsin cheese is clean, free of adulterants, and the coloring matter, when used, is clean and wholesome. But no cheese on earth is fit to use in its young, immature state, and this essential feature of cheese-making, selling and eating seems to have escaped public attention.

THE STARTER IN CHEESE MAKING.

Undoubtedly there is a place for the "starter" in cheese making, but it requires the highest degree of discretion to make proper use of it. It is like the razor, useful and safe in the hands of an expert, but dangerous when used by the ignorant and careless. Indeed, the starter is so frequently misused, and to the detriment of the quality of the cheese, that not a few buyers strongly oppose it. Mr. DeLand, of Sheboygan, is of this number, and it must be confessed that the opinion of a man with his experience, both as a maker and dealer, is entitled to the highest respect.

Recent reports from cheese instructors give several instances where makers are seriously impairing the quality of their cheese by using too much starter. For example, writing under date of September 29th., instructor Baer says: "At this time of the year, when milk comes in unmatured and cold, makers are apt to use a heavy starter, to hasten the ripening process. When this is practiced, the cheese invariably cure out with a weak, pasty body, color mottled, or cut to a dull, white shade."

The day before at another factory, he reports the maker using five per cent of lactic acid starter, and says this was, at least, four times as much as the milk would stand.

At still another factory, which he visited September 30th, the maker was using a starter with more discretion, and without any bad results as yet.

And so we say to cheese makers, if you use the starter at all, be sure that it is perfect in quality, and remember that too little is infinitely better than too much. Better give an extra hour's time to the curd than cut down the quality of your goods.

A GOOD DEAL TO LEARN YET.

Just as long as there exists this wide difference in the profits per cow between different dairymen in the same neighborhood, and patrons very likely of the same creamery or cheese factory, so long will there be plenty of missionary work for the practical dairy paper, and all other agencies of a better dairy education. One of our neighbors pithily expressed it to us the other day as we were attending an auction.

"Fifteen years ago," he said, "you would not see the farmers bidding forty to sixty dollars for a first-class grade Jersey, Guernsey or Holstein cow, as you see them here to-day. It has taken lots of talking and reading and much experience for these men to become the keen discerning dairymen they are now. When I see how many of them, however, are from ten to twenty dollars behind in the profit per cow what other men are right along side of them, I think there is a good deal to learn yet."

MORE EVIDENCE AGAINST THE AVERAGE COW.

Mr. John B. Conner, chief of the Indiana Bureau of Statistics, has published a report of the production of milk and butter in that state for the past year. From every source it was possible to obtain knowledge, he discusses the final conclusion that the 492,680 cows of the state have produced 15,126,758 gallons of milk more than was produced last year. The average number of pounds of butter to each cow, however, is between sixty-two and sixty-three. It is said that a "good cow" ought to produce between 200 and 300 pounds of butter in a year. Less butter was made this year than last year. This fact, as shown by the reports, Mr. Conner thinks, shows that Indiana is sending out vast quantities of milk to large cities like Chicago. This is further corroborated by the fact that the counties near these cities show a great production of milk and small production of butter.

How much longer shall this wasteful sort of a cow continue to punish the farmers of Indiana, before they wake up to the fact? She evidently has them well hypnotized at the present time.

Cooling Cream With Ice.

When the judges were scoring the butter entered in the last contest conducted by the Genessee Salt Company, they found several tubs containing a flavor, which they said, one would find in a stagnant pond. They didn't know how the flavor got into the butter, and so did not attempt to tell the makers of the butter how to correct this fault. The latter were told, however, of the nature of the flavor, and were advised to make thorough search for its cause. Recently, during a visit of a Chicago dealer to the country, he received what he considers the correct explanation of this stagnant pond flavor. A butter maker upon whom he called, was telling of another butter maker in his county, who had sent for him to come to the factory, and assist in a search for the cause of a flavor that was injurying the creamery's butter, and destroying its reputation. "I went," said the butter maker, "and when I reached the other creamery, I was told that the commission house receiving the butter was complaining of a very pronounced flavor in the butter resembling the odor that comes from a stagnant pond. I broke a piece of some ice in the creamery, and from the taste I got when I put the ice into my mouth, I concluded immediately that I had found the source of the trouble. I asked the butter maker where he got his ice, and was told that it had been taken from a nearby pond. I then asked if he was using ice in his cream, and when he replied in the affirmative, I was sure my conclusion was correct. There was that taste of stagnant water in the ice, and, of course, when the ice was put into the cream the bad flavor was communicated to the butter. Now the butter maker is not permitting his cream to come in contact with the ice, and is having no more complaint from the commission house about bad flavor.—*Chicago Produce.*

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Coming Events.

Kansas Dairymen's Association. Manhattan, Nov. 22-24, 1899.
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
New York State Dairymen's Association, Cortland, New York., Dec. 13-15. 1899.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11. 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.

REMITTANCES RECEIVED—NAMES OMITTED.

We are receiving quite a number of "coin-card subscriptions," where the sender omits to give either his name or address, and, therefore, fails to receive the paper according to expectation.

If any reader of HOARD'S DAIRYMAN, knows of an instance where the paper fails to arrive in two weeks after remittance is posted, it will be considered as a distinct favor, if he will promptly notify us.

HOW CAN IT BE DONE?

A great many farmers are skeptical as to the practicability of teaching the elements of agriculture to their children in the common schools. They will comment on the question somewhat in this wise:

"How can you teach my boy how to plow or sow or reap or milk, in the district school? All I know about farming I had to learn by doing the work of farming on a farm."

Their very idea of the matter shows a lack of comprehension, to start with. It is not all of farming to know how to do the work of the farm. There is a vast deal of knowledge and judgment that must come in play besides the work. There is a *science* in farming as well as in other things. And nowadays this science is discussed in books and papers constantly. Every successful farmer must learn somehow and somewhere of the science of soil management, the science of cultivation of crops, of the science of live stock breeding, feeding and management. He must study the *how* and *why* somewhere, or else he is no farmer, no matter how well he can handle the tools. To study the *how* and *why*, in other words the right theory of farming in its many branches is what constitutes the science of farming. The foundation elements of this science is what we hope to see taught to every farmer's boy and girl in the common schools.

There is not a farmer in the land but must see how greatly it would have helped him, as a farmer, if he could have been intelligently taught in his childhood the scientific meaning of the elements of agriculture. When he came to do the work of farming everything would have had a wider and deeper meaning. When he picked up his farm paper or any of the books which treat of farming, how much more easily would he understand the meaning of the terms used, if he had been taught their meaning when a child.

There is a science of numbers called arithmetic. Every man knows how important it is for the farmer to know how to reckon in figures. In order that he may use arithmetic to his own advantage when he comes to be a man, he is taught the theory of numbers when a child. He trains his mind to see figures and handle them. It is the principles of arithmetic that his mind is trained in. When he comes to be a man and farmer, all this training shows in better accuracy, better judgment, quicker adjustment of himself and his fortune. No man will say that he would have made a better hand at arithmetic if he had never studied the principles of arithmetic when a boy in school. On the contrary, we see all around us farmers who are weak in figures, who cannot reckon out their own true interests, all because they did not study figures or the principles of numbers, when young. How many thousands of creamery patrons there are to-day who cannot figure their own percentage of milk and butter in the general pool, because when a boy they did not study percentage in the arithmetic.

They find themselves barred out at many places and denied their store of useful knowledge because when they were young they did not receive the education they should. Running all through this business of farming are principles just as much as we find them in arithmetic. It will prove a big advantage to us in after life, if, when we are young, we can be taught the meaning and effect of some of those principles.

It will help us greatly when we read books and papers that treat of these principles and their effects, if we recognize and understand the meaning of the terms used to describe those principles.

The place to begin teaching the farmer's boy and girl the science of agriculture is in the district school. With the right kind of a text book, well illustrated, one that will help teach itself, they can learn a vast deal concerning the why of that they see worked out every day on the farm. This cannot but add to their interest in farm life. It becomes something more than mere drudgery. Then, beside, they will see the greater certainty of a better profit on the labor expended when that work is done with an intelligent understanding of what it means. Men and boys do their work with much greater zest and cheerfulness, when the brain is enlisted in an understanding of the reason of things.

We are glad to note that the State of Wisconsin has made agriculture one of the prescribed studies in its Normal Schools, and it will not be many years before ability to teach the rudiments and terminology of agriculture will be required as one of the conditions for obtaining a teacher's certificate.

MILK PRESERVATIVES.

Those manufacturers who are sending out their poisonous milk compounds, have a way of assuring the milk producer that it is entirely harmless, and some go as far as to say that their stuff will aid digestion. This is all humbug, and is said in order to make a sale. Dairymen cannot afford to cast aside the teachings of honest men of science on this point.

There are certain chemists who sell themselves for money to all sorts of fraud and counterfeit mixture, but we do not call them men of science. Take, for instance, the words of that eminent bacteriologist, Dr. H. L. Russell, whose contributions have been running through the DAIRYMAN for over a year. On this point (of milk) he said in the DAIRYMAN of August 5th, 1898:

"In a great majority of cases what will kill bacterial protoplasm will, likewise, exert a deleterious effect on human protoplasm, particularly when used systematically, and in quantities that are often recommended. The true nature of such chemicals *is not usually made known*. No one would, willingly, prefer to have the milk he used drugged in such a manner, if he knew it, particularly if he was going to use it with young children, whose systems are much more sensitive toward the action of drugs than adults."

Dr. Russell uses the word "protoplasm." Webster explains this word as follows:

"The viscid and more or less granular material of vegetable and animal cells, possessed of vital properties by which the processes of nutrition, secretion and growth go forward; the so-called "physical basis" of life."

In plain words, any chemical that will destroy the bacteria in milk, and prevent its souring, will, if taken into the stomach, injure digestion. This fact is proved, not only by scientific physiological reasoning, but facts of experience attest it as well.

No true farmer and dairyman will be dishonest and criminal enough to poison the milk he serves to his customers. If he is a true dairyman, he will have a conscience in his work, an honest standard of cleanliness, whereby he can keep the milk he sells pure and wholesome for food. The more he strives to work out on this honest, cleanly line, the better will his milk suit his customers.

More than this, no man has any business to sell milk, and be ignorant of the effect of his own action on that milk. He has no excuse for ignorance. Knowledge is abundant all around him and it is cheap.

The law is strong and specific against using chemicals in milk.

The milkman can know the law if he desires. In many cases he does not desire to. He is after money, whether it is honest or dishonest.

His ignorance in such cases is a crime against society. It is an old maxim in law that "ignorance of the law is no excuse for disobeying the law."

That maxim ought to be enforced in these days of cheap and easily procured knowledge when "he that runs,"—even,—"may read."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

OAT FEED AND BREWERS GRAINS.

We wish some information regarding this oat feed. Dealers are pushing the sale of it here, at $14.50 per ton. Think it can be bought in car lots for $13. What is its feeding value for milch cows; also, what is the analysis of wet brewers grains?

We thank you for the article in a recent issue of your valuable paper, concerning our learned Board of Health, of Rochester. Think if they received a copy they might repeal their ordinance and apologize to the milkmen of Rochester. S. B.

Brighton, N. Y.

Bulletin 56 of the Hatch Experiment Station, (Mass.) issued November, 1898, after giving analysis of several samples of different "brands" of oat feed, says:

"Oat feeds, as is well known, consist of the residue from the oat meal mills. They are liable to show wide fluctuations in feeding value. Oat feeds average about 46 per cent hulls and 54 per cent of fine material. Quaker Oat Feed runs fairly constant in composition. Farmers are cautioned against purchasing oat feeds not *marked or guaranteed*. Many of the analyses given above show only five to seven per cent of protein. Such feeds have a *very inferior feeding value*, and are not worth over one-half as much as corn meal."

Quaker Oat Feed averages, in these analyses, 10.11 per cent protein, and 3.21 per cent fat. Brewers grains (wet) average 3.9 per cent protein, 9.3 per cent carbohydrates, and 1.4 per cent fat.

IS THIS A FRAUD?

Mr. Thomas Sharpless, of Pennsylvania, sends us a circular of the Antizyme Company, of Ohio, setting forth the merits (?) of Antizyme. According to this circular, the preparation has innumerable good qualities and no bad ones. We quote from the list as follows:

"1. As it prevents the development of diseased germs, it promotes good health."

"2. By arresting fermentation, it produces more cream and holds it longer, insuring a better butter product."

"3. It prevents milk and cream from souring, and butter from becoming rancid."

These are not all, but enough and possibly more than enough, and Mr. Sharpless appends the searching inquiry: *Is this a fraud?*

As we know nothing whatever about "antizyme" except what the circular states, it would be rather presumptuous for us to return a direct answer to the question, either in the affirmative or negative. We may say, however, that we have no confidence whatever in the claims advanced in its behalf, and in the light of the testimony of reputable and disinterested scientists we do not see how any honest dairyman can use any preparation for which such claims are made.

HARVEY'S ANTI-SUCKING BIT.

Kindly tell me can a cow eat and drink when wearing the Harvey Anti-sucking bit, or has it to be removed to feed. G. K. W.

Toronto.

We have not had occasion to use this article and therefore cannot speak from experience. It is reported to us that the bit does not seriously interfere with either eating or drinking, and, we are sorry to say, it has not proven effective to prevent self-sucking in some extreme cases.

FROM A NORTH DAKOTA MILKMAN.—RECEIPTS PER COW OVER ONE HUNDRED DOLLARS.—HOW SHALL HE FEED.

I did think I knew something about feeding cows, but I don't know what to do now, and would be pleased if you can help me out.

I have oat hay and wild slough hay. Ground oats are worth twenty-five cents per bu.; bran, twelve dollars per ton; shorts, thirteen dollars per ton; oil meal, one dollar per cwt. I sometimes get wheat screenings, forty cents per cwt., but it is not always the same, sometimes it's nothing but weed seed.

For roots, I have mangels, sugar beets, carrots, and rutabagas; would like to know how I can feed such for milk.

Cows have been doing very well until lately. One gave ten thousand pounds of milk last year, and they were all doing better this year than last, until lately. I have sold between eleven and twelve hundred dollars worth of milk in the last nine months from ten cows. I always have trouble in the fall;

am afraid the silo would freeze up in this country; the ground freezes eight feet deep.

Do you think the frosted grass in the pasture would hurt the cows?

Would be thankful if you could suggest something that will help me.

Condo, N. D. G. L. M.

This inquirer knows that wild slough grass hay is not first-class material for milk making. Neverthless if one has it and cannot sell it, more or less of it must be fed. He also knows notwithstanding his disclaimer, how to feed and manage cows under all conditions, otherwise he could not secure the returns he reports. He appears to be one of that increasing number of cow keepers, who are more inquisitive the more they know.

Situated as he is, we should feed about as follows, or at least try it for a time and change as results seem to indicate:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. oat hay	9.11	.43	4.64	.15
6 lbs. bran	5.29	.75	2.32	.18
4 lbs. ground oats	3.56	.37	1.89	.17
2 lbs. oil meal	1.82	.59	.65	.10
25 lbs. roots	1.82	.22	1.10	.02
Totals	21.60	2.36	10.60	.62

Add to the above all the slough hay the cows will eat.

We do not, as a rule, recommend oil meal with either silage or roots, but in this case oil meal furnishes protein for less money than any of the other feeds named.

We should not hesitate to build a silo any where in North Dakota. Frosted grass is of little account, and probably does more harm than good.

DOES IT PAY TO HUSK AND GRIND CORN.

Is it best to cut your corn before husking and then feed the whole product, or husk it, then cut the stalks, grind the corn and feed with bran? In other words, is the gain made in grinding equal to the time of husking and grinding, as compared with feeding the whole product run through a feed cutter?.

F. S. H.

Freeborn Co., Minn.

It is quite impossible to give a specific answer to this inquiry because of the ever changing conditions and circumstances. There is inevitably some waste in feeding whole corn, as many of the kernels pass through wholly unbroken. When corn is very cheap, and especially if hogs can be utilized to recover this waste, it certainly will not pay to husk and grind. On the contrary, when corn is high in price and there is no way to save the waste—and especially when the corn gets to be exceedingly dry and flinty—it may pay to husk, and instead of grinding let the ears soak in water until the kernels are materially softened. This looks like a "big job," but some of our friends have tried it, for both cows and hogs, and feel sure that it pays, especially as it is much less trouble than at first appears.

REMEDY FOR COW POX.

Please inform J. C. W., of Vermont, that the quickest and simplest remedy for cow pox is to wash the teats two or three times a day with a solution of one-half an ounce of hyposulphite of soda in a pint of water. A cheap, quick and effective remedy. Also wet his hands with above before milking.

Owego, N. Y. E. H. MILLER.

PASTEURIZING SKIM MILK.

The creamery to which my milk goes receives only once each day—in the morning, and the first patron to arrive, unless willing to wait a long time, must take milk separated the day before which, always very sour, is little better than whey. Now, is it not both possible and practicable for a creamery operating separators by steam to connect pipes with the separated milk vat and heat (pasteurize) it to such a degree as to preserve sweet until the following day? B.

Potsdam, N. Y.

Undoubtedly it is both possible and practicable for a creamery to pasteurize the skim milk, and in our opinion this will be the rule in the not distant future. This is one of the best ways to prevent the spread of tuberculosis and will also do much towards suppressing the scourge of calf cholera. It is practiced at several of the Kansas creameries now where the raising of calves is of almost as much importance as the making of butter.

Will not some of our Kansas readers tell how it is done and the results.

NOTHING BUT CORN STOVER FOR ROUGHAGE.

I have been one of your six months subscribers and am so much pleased that I enclose one dollar for renewal. I also would be very glad for some help on that ever present and important question—feeding. Hay was a very short crop and I have nothing but corn fodder. Bran is $14; oats, twenty-five cents per bushel; linseed $30 per ton; gluten meal, $18 per ton. What and how much of these can I feed at a profit with butter at about tweny cents.

Holland, Mich. C. H. H.

Well cured corn stover makes pretty good roughage. It is not as good as clover hay, or as first-class timothy. It is best prepared by "shredding." This may be done by running it through the cylinder of a common threshing machine, with the concave well lowered or entirely removed. This is not as good as a regular shredder, but much better than nothing. If neither machine is available, use a cutting box (this is what we do) and cut enough at one time to last several days. Dampen it more or less, as may be necessary, and leave it in a heap to heat and soften. A daily allowance of twenty-five pounds of stover with five pounds of bran and four pounds of gluten meal will make a very satisfactory ration. This amount of grain will cost only ten cents and ought to afford a fair profit with even average cows when butter sells at twenty cents. With better cows add some oil meal and note results.

QUESTIONS ABOUT NORTHERN WISCONSIN.

1. Is northern Wisconsin adapted to dairying, and would you advise a man to go there?

2. Is the climate not too cold for one raised here in Iowa?

3. Do you know of a good locality, or is there good land in all counties?

4. Would you prefer it to the far south? Land is too high in price here, $75 to $80 per acre. I wish to go where I can buy for from $5.00 to $10.00 F. W. L. S.

Long Grove, Iowa.

1. Many portions of northern Wisconsin are splendidly adapted to dairying—none better in all the world—but it is not our province to advise anyone to locate there in preference to other sections of the country.

2. The climate is not considered severe by those who reside there, whether they formerly lived in Iowa or further south.

3. There is no county, to our knowledge, that does not contain large areas of good land.

4. Every climate and country has its advantages and disadvantages. If a resident of Iowa or Wisconsin should incline to go to the far south, we know of no considerations that could be properly urged to dissuade him from doing so, although we might be well enough satisfied here. This matter of selecting a home involves so many purely personal preferences, that what determines one's choice would have little weight with another.

MILKING SHORT HORNS.—WHERE CAN THEY BE HAD?

Can you give me the address of a herd of good milking strain of Short-horns? They used to claim such a thing and some of them did do pretty well, so I thought. It seems hard to get just the thing for a special-purpose herd. E. A. T.

Fulda, Minn.

We have some doubt whether there is in the United States or Canada to-day any such thing as a milking strain of Short-horns. That there are some very excellent cows in this breed is most certain, and that there are still more excellent cows in which Short-horn blood predominates, does not admit of controversy, but if there is any breeder af Short-horns who makes dairy ability, and much less dairy form, a factor in his scheme of breeding we have never chanced to hear of him. If he exists, he is not seeking dairymen for customers; he does not advertise his stock or report what successive generations have done in the way of producing milk and butter. We do indeed hear, now and then, of some cow that makes a good record, but not of any bulls that are distinguished for a line of milking heifers, and it takes both cows and bulls, and then closely related, to make a "strain."

It goes without saying that our ignorance does not prove the non-existence of a milking strain of Short-horns, but it suggests at least that such animals are not very plentiful. There is certainly a demand for such a class of cattle—but whether founded on sound reasoning is another question—and the man who can furnish young Short-horn bulls with a pedigree tracing through sire and dam to cows with records of twelve pounds or more of butter in seven days, has a bonanza, and he ought to have the enterprise to work it, by letting the dairy farmers of the land know that he has such stock.

WITH PLENTY OF GOOD SILAGE.

Thanking you very much for the answer in the article on Crimson Clover, page 649, I would like to bother you for a balanced ration from the following feeds, as there has been none that would quite fit my need:

First, plenty of silage (in splendid shape); second, plenty of good clover and oat and pea hay; third, cotton seed meal, $20 per ton; fourth, bran, $13; fifth, corn, 30c per bu. Have our own mill.

Decatur, Ill. F. C. B.

We feel very confident that the following, as an average daily allowance, will prove very satisfactory:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6.27	.27	3.39	.21
10 lbs. hay	8.47	.68	3.58	.17
2 lbs. cotton seed meal	1.84	.74	.34	.18
8 lbs. corn and cob meal	7.12	.51	5.04	.28
Totals	23.70	2.20	12.35	.84

We have omitted bran from the formula because it is relatively the most expensive of the feeds named at the prices stated, and is not specially needed as a diluent for the other grain feeds, provided they are fed in connection with the silage night and morning. For some of the larger milkers two to three pounds of bran would probably make a profitable addition. Or a half pound of cotton seed meal may be added. We have also specified corn and cob meal on the assumption that the mill will do this sort of grinding. If it will not do this, but only grinds shelled corn, making what is known as corn chop, we would advise feeding six pounds of the corn and two pounds of bran in place of the eight pounds of corn and cob meal. There is no great difference probably in the varieties of hay named, so far as chemical analyses can determine, and they may be fed interchangeably. More or less silage may be fed. If there is enough to carry over a good supply for next summer's drouth we would feed so as to secure this most desirable end, reducing the winter allowance if necessary by five to ten pounds. On the other hand if the amount on hand is ample for both winter and summer the allowance may be increased by five to ten pounds—in either case increasing or decreasing the allowance of hay tocorrespond. While we specify a given amount in order to get approximate figures, the true rule is to feed each cow all the roughage she will eat with relish, be the same more or less.

Give a scant tablespoonful of salt with each feed of grain.

AN INDIANA RATION.

Please give me a ration formula from corn fodder, bran, and corn meal; also for the fodder, bran, meal and oil meal. I have been feeding a peck of bran and half gallon of meal, besides the fodder. I would like also to know how much salt you think it is advisable to give cows, and how often? Also, would you mix all of the above ration ingredients together, with water, and let same stand a little time?

Some men may "know it all," but to a beginner, the DAIRYMAN is certainly invaluable. H. H.

Indiana.

With only corn stover for roughage we do not think it expedient to try to get along without the oil meal, and hence we submit only one formula, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn stover	14.90	.43	8.10	.18
6 lbs. bran	5.29	.75	2.32	.18
3 lbs corn chop	2.67	.24	2.00	.13
2 lbs. oil meal	1.82	.59	.65	.10
Totals	24.68	2.01	13.07	.59

We are impressed with the conviction that this inquirer would do well to investigate the gluten feed question and try five pounds of that in place of the corn chop and oil meal.

Chop the corn stover and dampen it sufficently to cause it to warm up considerably in twelve to twenty-four hours, and in feeding, mix the grain allowance with a part of this chopped fodder. This will not only make the fodder more appetizing but will materially assist in causing more perfect digestion of the grain. There is great loss in the aggregate in concentrated grain feeds passing off through the bowels undigested, from the fact that as usually fed they lie in a semi-solid mass, not easily acted upon by the digesting fluids.

The more general practice is to give cows salt twice a week, but it is much better if given daily, and still better if mixed with each meal. In the latter case a small tablespoonful will suffice.

AN IOWA RATION.

Please formulate for me a ration from the following materials: Corn silage, clover hay, corn fodder, wheat one-fourth and oats three-fourths. Can buy bran at $12, and oil meal at $23. I want to use as much ensilage and the grain mixture as possible, and clover hay not over six pounds per day. I have, also, corn, barley and oats which will sell respectively at 25, 30, and 19 cents.

I appreciate the DAIRYMAN very much, and especially the columns devoted to these inquiries. B. P. N.

Cresco, Iowa.

To solve this problem, we take first the items that are to be used about to the maximum, and ascertain what they will furnish, as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6 27	.27	3.39	.21
6 lbs. clover hay	5.08	.41	2.15	.10
10 lbs. corn stover	5.97	.17	3.24	.07
6 lbs. grain mixture	5.35	.57	3.17	.22
Totals	22.67	1.42	11.95	.60

This leaves us more deficient in protein than in the other elements, and we must, therefore, look for some feed relatively high in protein. We can get this protein for less money in bran than in any of the other feeds named—unless it be the oil meal. Adding two pounds bran and two pounds oil meal, we get the following figures:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Totals as above	22.67	1 42	11.95	.60
2 lbs. bran	1.76	.25	.77	.06
2 lbs. oil meal	1.82	59	.65	.10
Totals	26.25	2.26	13.37	.76

So far as nutrients and efficiency are concerned, we could scarcely expect to improve on this as an average for a herd. The further question is that of expense.

There are starch and glucose factories in Iowa, that have large quantities of gluten feed to sell. Some of this finds its way to Wisconsin and much further east, and is considered an excellent and cheap feed for milch cows. Four pounds of this gluten feed would be just about equivalent to the two pounds of bran and two pounds oil meal, and if it costs less we should advise trying it.

A FIELD MEETING OF CONNECTICUT DAIRYMEN.

The second field meeting of the Connecticut Dairymen's Association was held September 6th, at the farm of Elbert Manchester, near Bristol. About one hundred gathered on the farm of Mr. Manchester, and the morning was spent in looking over the dairy establishment, and also the farm of S. D. Newell, near by. Dinner was served under a large tree about 2 o'clock. J. B. Noble, the State Dairy Commissioner, delivered an interesting address, in which he gave those present considerable advice from a professional standpoint. H. G. Manchester, a dairyman from Winsted, was the next speaker. His theme was, "Abandoning the Farm," and he said, farming could be made to be a paying vocation, if its followers would keep abreast of the times. "Silos and Double Cropping" was ably discussed by J. L. Gerrish, of New Hampshire. Prof. Mayo, of Storrs Agricultural School, was the last speaker.

We like this idea of summer meetings of dairymen, and the practice could be very profitably copied by the associations of other states. No better work was ever done by any state association, than that of the New York Dairymen's Association a few years ago, in its traveling Butter Schools.

A STRIKE AMONG DAIRY FARMERS.

The farmers of Putnam and Dutchess counties in New York, who have, for years, supplied the Borden Condensed Milk Co., at its factories at Brewster, Wassaic and Millerton, have, eighty per cent of them, refused to accept the prices offered by the company.

During the past summer the producers, and there are fully 500 of them, have received little more than 50 cents a can, or 1½ cents a quart net for their milk.

During the past ten months the farmers have been organizing, and yesterday when the company made its offers for the next six months, and presented contracts for the producers to sign, they refused the offers made, which were $1.33 a hundred pounds for six months. The farmers demanded $1.40.

The producers say the prices paid have been so small for six years that many farmers today have trouble in making both ends meet; in fact, seven-tenths of them have their farms mortgaged.

It will be useless for the New York farmers to contend against the Borden Co. unless they go practically at work to provide themselves with an outlet for their milk. This they can do, if they choose, by organizing co-operative creameries for every 1,000 cows. These farmers will find if they do this that the value of the butter, and the skim milk fed to pigs and calves, together with increasing fertility of farms, will pay them better than selling milk to the condensaries. The farmers in Wisconsin, Illinois, Iowa and Minnesota, who follow that style of dairying, are not putting mortgages on their farms. On the contrary they are lifting the mortgages.

A FAR FETCHED COMPARISON.

Take a quarter horse, measure off a hundred yards and send him at the top of his speed, under whip and spur, over the measured space, note the time in which he covers it; then figure out how long it would take him to make a mile at that rate; then offer that result, as a track record, to any jockey club. The result will be an explosion, accompanied by sulphurous language as to your lack of horse sense. There is not a turf man in the world that would not pronounce such a proposition an absurdity, nay, worse, a fraud in its very essence. Yet such a proposition would not be a particle more absurd, not a bit more fraud, than is the attempt to make a butter record for a cow on a thimbleful of milk, run through a Babcock machine.—*Jersey Bulletin.*

In the mind of the *Jersey Bulletin* cows are divided into two classes, the Jersey and "others." By some occult method of reasoning, he has decided that testing a Jersey cow with the churn is a sacred and mystic rite that has become like unto the laws of the Medes and Persians, which altereth not. Consequently, in view of the proposal of other methods which would result in pulling down the churn from its high seat, as the arbitrator of the cow and her butter production, we have the quotation at the head of this article. It matters not to the *Bulletin* that all the great commercial products of the world are tested in just such methods; that Rockefeller buys millions of gallons of oil by the analyses of a sample; that sugar, iron, coal, ores and products innumerable are bought and sold by such tests as the *Bulletin* so scornfully rejects as unworthy of the mythical sacred animal which it represents. The comparison of the horse at full speed and a spoonful of milk taken as a sample for analyses, is so far fetched that it is ludicrous. The cow has accomplished her work and the milk is the result. It is resting peacefully in the pail; the fat is not making a speed burst against time, and to say that such milk cannot be sampled and its per cent of fat determined merely shows mental strabismus, on the part of the *Bulletin* editor.

AMERICAN BUTTER IN CUBA.

The dairy industry has two powerful enemies to fight: Ignorance and Dishonesty. Through ignorance, bad butter, cheese and milk are produced, and that hurts the consumption fearfully. Whatever hurts consumption injures the producer, for it turns his product back onto him. Dishonesty is everywhere. The cheat and swindler, the man who is trying to get something for nothing, is continually with us.

Therefore, it is a constant hand to hand fight with these two enemies to keep the dairy industry from being overwhelmed.

The Milwaukee *Sentinel* has the following sound utterance to make on the American butter trade in Cuba:

The statement that American butter sells in Cuba at from $20 to $40 Spanish gold per hundred weight, while Danish, Holland and French butter sells at from $40 to $60 per huudred pounds, casts a reflection on our butter exporters that it should be their duty to remove. Secretary of Agriculture Wilson says that it is probable that the export of oleomargarine has caused the Cubans to be suspicious of American butter. Whatever may be the reason, it is extremely likely that they have sufficient cause for preferring European butter to that sent from this country. It would be natural for them to buy American butter, because the supply comes from a source so much nearer to them, and because their preference is likely to be for American goods, providing the quality and the price are satisfactory. When they are willing to pay considerably more for European butter, it is direct evidence that there is something the matter with our butter.

One would think that our experience in the British market, where we formerly sold our dairy products very extensively, ought to have taught exporters of such products a lesson. We lost the advantage we had obtained in the British market, solely on account of the dishonesty of some of our exporters in selling adulterated articles, such as filled cheese. The British public having lost confidence in the genuineness of our dairy products, we suffered a great decline in our exports of this kind. Doubtless the same class of men are responsible for the discrimination against American butter in Cuba. They thought they had found a dumping ground for the inferior stuff they had failed to place in other countries. But the Cubans, like other people, do not take to frauds. This experience shows once more that honest trade methods are required in every country to promote our commercial relations. It never pays to put an inferior article on any market, if one is seeking to develop trade.

We need to preach plain, old-fashioned honesty more than we do in all our creameries and cheese factories. There are too many farmers who are ready to cheat all their neighbors by sending dirty milk, or by watering and skimming, and lastly, by robbing them of their share of the skim milk.

Then comes the dishonest manufacturer who makes "process butter," and the dishonest dealer who ruins the best markets by counterfeit and low grade products.

Is it any wonder that the great fraud oleomargarine should thrive apace, when the people themselves are fairly honeycombed with dishonesty, and are so ready to wink at any fraudulent scheme that will make money?

New York Farm and Dairy Notes.

The Fall Care of the Dairy Cattle.

ED. HOARD'S DAIRYMAN:—It may seem too much like an "old chestnut" to again take up the old subject of providing suitable shelter and food for the cattle when the cold weather comes in the fall, but like the minister who repeated a sermon several times because his people had not begun to practice what he preached, it may be well for the agricultural papers to keep on teaching along this line, for as one goes over the country he sees that there is still need of reformation.

Dairymen make a great mistake when they allow their cows to lie out of doors nights during the cold and stormy weather we usually have in October and November. Now is the time when the cows need extra care and food. The price of milk and butter is advancing at this time of the year, and we cannot afford the loss in the shrinkage of milk that comes from exposure and the lack of the right kind of food. The shrinkage of milk is not entirely regained by extra feeding later, and because of the loss of flesh the cows are not in as good condition for winter.

When the cow is exposed to a temperature which is below that which is the most favorable for her that she may make the most milk with the consumption of the least food, the only way that she can maintain the normal temperature of the body, is to burn the carbon in the body, or in her food. The animal that is left out of doors in cold weather, with nothing to eat but the frosted grass, must consume the fat in her body to maintain her normal temperature. I have seen cattle that had become fat during the summer, lose a good part of it by exposure to cold and storm during the late fall. It certainly is not good economy to allow cattle to become poor in flesh at the beginning of winter, nor to allow the cow to use the food to make heat that would go to make milk when the external conditions are right.

As soon as Oct. 1, the cattle should be stabled nights in the latitude of New York, and given suitable food. I would feed ensilage, or dry corn fodder cut with the ensilage cutter, and balanced with a little bran and cotton seed meal, if the price was not too high, or good clover hay, and would try to make use of the products of the farm that are adapted to feeding the cows at this time of the year.

APPLES AND POTATOES FOR THE CATTLE.

In my locality we have a very large crop of apples. The crop is so large that quantities are being sold for cider apples at prices ranging from five to ten cents per bushel. This price just about pays the grower for his time picking the apples and drawing them to the car. It is a question which some are considering, whether it is more profitable to sell these apples, or feed them to the cows. Writing from experience and observation, I would feed the surplus apples on the farm, especially the sweet apples that could not be sold for a fair price, to the cows.

On our farm, when we had large crops of apples, we usually fed a part of them to the cows. The gain in milk was small, but the cows were kept in better condition by feeding apples. Nearly all animals like apples, and I believe they are healthier for having them. I would not feed more than six to eight quarts of apples per day to a cow, and for the cow giving milk it is better to feed them with grain. Apples are over ninety per cent water, and the remainder is mostly carbohydrates. Although apples contain comparatively little of the milk producing, or flesh making material, they help to keep the cows in good condition, and I prefer to feed them than take them to the cider mill, or sell them for five cents per bushel to the cider maker.

We have also a very large crop of potatoes, and the price now is but twenty-five cents per bushel. The price is so low that many farmers are considering whether it is more profitable to feed them to the cows or to sell them. From what I know about feeding potatoes to cows I would prefer to sell them and buy grain. A few potatoes are good to keep the cows in health, but they will not take the place of grain. Some farmers have told me that they have fed their cows giving milk about all the potatoes they would eat, and the milk was but little increased, and the cows grew poor all the time. Potatoes are nearly all starch, or carbon, and so are of little use except when fed with a food rich in protein. An animal can live and thrive on the proteins, but they cannot live on the carbohydrates alone, and we see why, the potatoes being an ill-balanced food, the cows grow poor when fed mostly on potatoes. Where one does not have ensilage, such succulent foods as apples, potatoes, and roots may be needed to keep the cattle healthy, and I would prefer to feed them in moderate quantities, than to let them waste, or sell them for a price that did not pay for marketing them.

W. J.

Delaware Co., N. Y.

"A Good Name At Home

Is a Tower of Strength Abroad." This truth has been perfectly verified by the history of Hood's Sarsaparilla, which effected its first cures in Lowell, Mass., where it is made and where it still has a larger sale than all other blood purifiers. Its fame and cures and sales have spread abroad all over the world, and it is universally recognized as the best blood medicine money can buy.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Pennsylvania Farmer's Son and the Dairy School.

ED. HOARD'S DAIRYMAN:—The greatest and most important feature of American agriculture for the past fifteen years, has been the development of the dairy industry. Most important in its development has been the influence of carefully trained, scientific minds whose energies have been spent in perfecting apparatus and in discovering the principles which underlie the art of manufacturing the many products from milk as a raw material.

These principles of manufacture have been so simplified that they are available to nearly every one who seeks to master them. A great deal of this valuable information has been and is being disseminated by the agricultural press and by the farmers' institutes, but in no place can it be so advantageously given as in the Dairy School, where every appliance is at hand to illustrate principles, and where principles are at once applied practically.

Creamery owners are looking more and more for men to operate and to superintend their plants who have enjoyed the advantages of a dairy school, and are willing to pay large salaries for the knowledge and skill so acquired. For example, a few years ago, a young man who had been working on a farm for twenty-five dollars per month and boarding himself, spent fifty dollars in taking a course in our Dairy School; the following creamery season, he obtained a creamery at forty-five dollars per month and house rent. The next year this was increased to fifty dollars per month, the next to fifty-five dollars per month. He then secured another position along the same line for seven hundred and twenty dollars per year and recently he took a position as head buttermaker with a large firm and the salary he commands is nine hundred dollars per year.

Another of our Dairy School men is head buttermaker for a creamery supplying a fancy butter trade in New York; his butter sells for from forty to sixty cents per pound,

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

and his salary is twelve hundred dollars per year and is constantly increasing.

In 1897, a young man who had seen but one creamery in his life before he saw the Dairy School creamery, took a dairy school training, after which he secured a small creamery for one season. He was eminently successful and at the end of the year was employed as buttermaker by a company who sold all their butter for sixty cents per pound. At the end of two years, he was recommended and received the appointment as general superintendent ot a number of creameries at a salary of $960 per year.

Still another, a member of last year's class, has charge of, so far as the writer is informed, the largest creamery in the State, handling as high as seventy thousand pounds of milk in a day. His employer has publicly stated that he considers that he has the best buttermaker in the state.

A great many of our dairy school students have positions as managers of creameries and are earning good salaries, higher salaries than almost any other calling, requiring the same amount of capital and time for preparation, would command.

This is what the Dairy School has done and is doing for some of the Pennsylvania farmers' sons, and we are all proud of the records these young men have made.

The next session of the Dairy School will begin January 4, 1900, and plans are being made to make the most complete and thorough course yet given. Beside the regular work in the handling of market milk, buttermaking, icecream making, machinery, bookkeeping, etc., it is intended to give a course in the manufacture of dried curd which is attracting the attention of so many creameries now as offering a very profitable manner of disposing of the skim milk.

The course is rapidly filling and those intending to avail themselves of its advantages should apply for admission at once.

Pa. Dairy School. H. HAYWARD.

The Value of Humus in Cultivated Crops.

All fertile virgin soils contain humus, that is, decayed vegetable matter in large amounts. Some soils—such as swampy or peaty—contain this substance in excess, but as a rule no well-drained, cultivated soil contains too much humus. Humus is to the soil what the fly wheel is to an engine. It takes up and saves surplus power, prevents waste and sudden jerks. Soils poor in humus cake badly, they lose their moisture during dry weather, become overheated during hot weather and quickly lose their heat in cool weather. In fact, such soils act upon growing plants by sudden starts, now one way and now another, with the result of injuring the vitality of the plant which demands steady growth conditions.

Humus makes light soils heavier and more retentive of plant food and moisture. It makes heavy soils lighter and easier to cultivate and prevents "puddling." Humus, too, is the home of soil microbes. Soils devoid of humus are also apt to be devoid of the microbes which transform nitrogen in the soil into compounds suitable for plant food. The immediate and great effect of stable manure upon worn, humus-poor soil is due more to the microbes and the vegetable matter which the manure contains than to the actual plant food it holds.

Any kind of vegetable matter will, by its decay in the soil, form humus. But soft, succulent matter like the stems of clover, vetches and cow peas decay sooner and more quickly form humus than woody twigs or the hard culms of rye or other grasses. When a soil becomes poor in humus the best way to restore it is to plow under a crop of clover, vetches or cow peas grown upon the land itself. Stable manure will also restore the humus if used in large quantities, but as a rule this will cost more than the green crop. In many localities stable manure cannot be had at any price in sufficient quantities. Rye, rape, mustard and other non-leguminous crops are often plowed under to improve worn soil. These will furnish humus, but for the purpose they are far inferior to leguminous plants and only the latter should be used for this purpose. Besides the humus they furnish, legumes supply the soil with nitrogen taken from the atmosphere. Rye, rape and other non-leguminous plants do not. One ton of the following named plants dried into ordinary hay furnishes to the soil when plowed under the following amounts of nitrogen:

Red Clover, 40.5 lbs., equivalent to 250 lbs. nitrate of soda.
Crimson Clover, 41.0 lbs., equivalent to 260 lbs. nitrate of soda.
Alfalfa, 43.8 lbs., equivalent to 270 lbs. nitrate of soda.
Cow Peas, 38.0 lbs., equivalent to 230 lbs. nitrate of soda.

In order to secure a good growth of any legume on a worn soil we must supply the soil with abundance of soluble potash, phosphoric acid and lime. A good fertilizer for any of the above crops is muriate of potash, two hundred pounds; superphosphate, three hundred pounds, per acre. If the land lacks lime apply five hundred to one-thousand pounds. GERALD MCCARTHY, M. S.

North Carolina.

The Duty and Privileges of Creamery Operatives.

Making Butter Not All.

ED. HOARD'S DAIRYMAN:—As I have been a subscriber to your most valuable and interesting paper for a good many years, I take the privilege of offering a little advice to such of my brother tradesmen as have not given the subject a thought. I have operated creameries in various sections of the United States, and find the same trouble everywhere. Although there are notable exceptions, the mass of patrons know too little about dairying, even in its simplest form, and, of course, much less the scientific and modern methods which ought to prevail.

Another and less excusable defect is, that the man who operates the creamery knows next to nothing about the cow, and too often too little of her product. It is natural enough, when the patron comes to the factory and sees the man in charge, to conclude that a man in such a place ought to know something about cows, but how often does it happen that the first question the patron asks leads to disappointment, whereas if the operator had some knowledge of feeding, breeding and care of dairy cows, the patron would have increased confidence in his ability. Then if the operator can visit most of his patrons, and thereby show some interest in their welfare, and as opportnnity offers, submit suggestions about the proper care of the cows, straining and cooling the milk, and various other things, in a friendly way, there will be mutual benefit. The old fashioned way of sticking a threatening note under the can cover, only makes bad matters worse.

By experience, I have found the above plan a very good one, and followed up will put life and interest into any dairy community. I always take pride in having a patron stick his head in the factory window and say, "I tried that suggestion of yours and find it all right."

Where did I get my knowledge? From the HOARD'S DAIRYMAN—the only reliable and up-to-date dairy paper published. Let every butter and cheese maker take the DAIRYMAN, and by a little observation, and the knowledge he obtains from its columns, let him lead his patrons to success.

HAROLD M. CALKLINS.

Washington, D. C.

Testing Cream by Weight.

Since the number of hand separators has increased at home daries, creamery butter makers have occasion to test a considerable number of cream samples, and this has been the source of a great many inquiries during the past few months in regard to cream testing. Evidently factories are now receiving a great deal more cream from their patrons than has formerly been the case. A request was recently made for "a rule for testing fat in cream when testing by weight." In replying to this it is well to make plain the foundation for such a rule. Three things should be remembered. First, the sp. gr of butter fat is assumed to be 0.9, i e., if one volume of water weighs 1 then the same volume of butter fat weighs 0.9. Second, the space occupied by 1 per cent on the neck of a Babcock milk test bottle or on a cream test bottle should be exactly 0.2 c. c. Third, 18 grams of milk or cream must be placed in a test bottle in order to read the result directly from the scale on the neck.

From these three factors, a rule for calculating the test of a certain weight of cream is easily constructed. If 5 grams of cream are weighed into a test bottle, 10 c. c. of water added to it and the test completed in the same way that a sample of milk would be tested, the fat in the neck of the test bottle may fill a space of 6 per cent. This figure does not mean that the cream contained only 6 per cent fat but the butter maker wants to know from these figures how much the cream actually d d test. This he can reason out about as follows: If one per cent space measures 0.2 c.c. and the sp. gr. of butter fat is 0.9 then one per cent spaces weighs 0.9×0.2 equals .18 grams. The butter fat of the test it was found filled a space of 6 per cent and this multiplied by .18 gives 1.08 grams of fat which must have come from the 5 grams of cream originally weighed into the test bottle. All that is necessary to do now is to find what per cent the 1.08 gr. of fat is of the 5 gr. of cream (1.08×100) divided by 5 equals 21.6 per cent, which is the test of the cream. From this demonstration the following rule may be formed: To find the test of a weighed quantity of cream multiply the fat reading by 18 and divide the product by the amount of cream weighed into the test bottle.— E. H. FARRINGTON, in *Farmer's Review*.



Mortgage Lifters

That's what dairymen call our light running hand separators, because they increase the yield of butter about 25 per cent. and improve the quality, which means higher prices. We **guarantee** the



Empire Cream Separator

to run with less power than any other of the same capacity. Skims cleanest in every test.

Six sizes of hand separators, $40 and up.
Illustrated catalogue, *free*. AGENTS WANTED
U. S. Butter Extractor Co., Newark, N. J

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

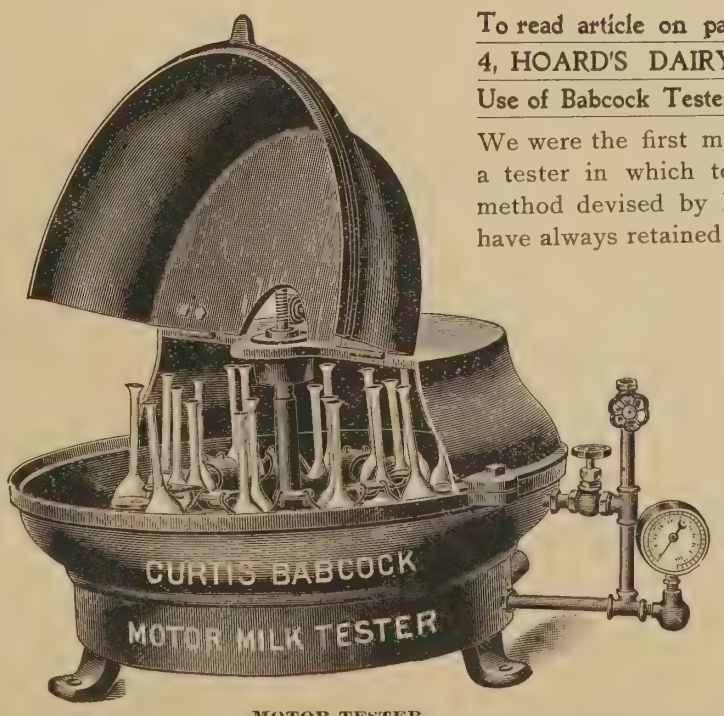
Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

A WELL REARED FAMILY.

Mr. Jesse Bradford, of Baldwin, Mich., is a dairy farmer who has supplied that city with milk for the past twenty years. He is the father of six daughters, who have in turn had charge of the delivery of his milk. All the daughters are now married, the youngest having been wedded a short time since.

The DAIRYMAN is greatly pleased to note such a wholesome training of a family as this instance evinces, and we are sure that every daughter will prove a life-long blessing to the man that showed his good sense in selecting her for a wife.

THE OLEOMARGARINE SITUATION AND WHAT SHOULD BE DONE ABOUT IT.

It is not without both regret and surprise that people have witnessed the degeneracy which has overtaken the *Country Gentleman* —for so many years, and while under the care of the original Tuckers a synonym for all that is honorable in journalism. In those earlier days it could not be made the tool of cliques or politicians or otherwise be swerved to the promotion of unworthy aims. It is yet in many respects a most admirable paper. Its editorials and contributed articles on matters pertaining to farm management and general agriculture are of high order. But when it leaves these subjects and enters the field of legislative dealings with agricultural matters its vision is not clear and in consequence its reasoning is not sound. And as is not unusual in such cases it cannot treat those who do not agree with its conclusions with fairness or courtesy, but with a fatuity which seems to be inseparable from such characters, it ascribes to others the motives which would be most potent with itself.

For example, being inquired of as to what is the oleomargarine situation at present and what it thinks should be done about it, the following reply is given:

The stuff is pretty much out of market in New York; in several other states it runs rampant. As it is practically impossible to sell *white* oleomargarine, producers and consumers of butter everywhere should unite in demanding from Congress such legislation as will permit every state to forbid the selling within its borders of this or any other food substance colored to imitate something else, whether the counterfeit be in original packages or not. This demand is manifestly just and right; and some day it will be made with such emphasis that it cannot be refused. At present, unfortunately, there is a tendency to ask for legislation which will never be accomplished—a tendency fostered in some cases by self-seeking persons who are really as little opposed to oleo as they are to its twin fraud, renovated butter.

It is too much to expect that all persons should agree upon any one plan for meeting the oleomargarine situation, but it ought not to be difficult for those who differ to do so on the merits of the respective propositions.

The plan proposed by the *Country Gentleman* above is not entirely devoid of merit and in the event that nothing better can be secured should be accepted, at least as a temporary makeshift. Some of the objections to it are that it relegates a question about which there should be uniformity of action to the determination of more than forty different legislatures, and will necessitate fighting the matter through a similar number of state supreme courts, and encountering years and years of the delays incident to litigation. Moreover, it will make it necessary for each state, which seeks to enforce such laws, to employ a corps of detectives, chemists, lawyers, commissioners and assistant commissioners, and, worse still, result at last in the prosecution, not of the few original and principal offenders, but of an infinite number of minor offenders, not a few of whom can truthfully plead that they were deceived and duped by parties whom state laws cannot reach.

To suppose a case: Let it be imagined that the editors of the *Country Gentleman* should conclude to open a boarding house in the capital city of the great state of New York, and for reasons satisfactory to themselves should send to Chicago for butter. What would happen? There is something more than a possibility that by accident, if not by design, unless the order was placed in specially competent and honest hands, an occasional tub of oleomargarine would find its way into the shipments and land in the pantry of this Albany boarding house, and from there go to the tables where only pure butter should be found. Of course, those vigilant New York officers would be quick to discover the facts and equally prompt to bring the Messrs. Tucker into court, where fines if not imprisonment would be sure to follow.

Can it be possible that there is not some better way to meet this problem, some method of procedure that shall be more certain, more economical, more expeditious and less liable to work injustice?

Or to be more specific, will not the Davidson Bill, which proposes to put an internal revenue tax of ten cents per pound on all colored oleomargarine, do this? Let a proviso be added, if it shall be deemed necessary, that nothing in that or any other act of congress shall be construed to permit the sale of oleomargarine of any description contrary to or in violation of any state law or municipal regulation.

The machinery for enforcing such a law is already provided; if contested, there will be but one series of courts to go through; absolute uniformity will be secured; the general public, honest dealers as well as consumers, will be protected; the total expenses will be cut down to a merely nominal sum—at least, fully *ninety-five* per cent—and there still remain an effective barrier against extortionate prices for butter.

With so many points in its favor why should the *Country Gentleman* say such "legislation will never be accomplished" or ascribe self-seeking motives to those who are trying to secure it?

How to Make Farm Dairy Cheese.

The ordinary process by which our American cheese is made in factories is not applicable to farm dairy cheese making, because it requires too much time, and is so complicated that it requires years of practice to become sufficiently familiar with the varying conditions in which milk comes to the vat. The various changes that take place in milk nearly all develop in the milk drawn in the evening and kept over until the following morning. So if milk is made into cheese immediately after it is drawn, no difficulty will be experienced, and by employing a simple and short method of manufacture, any one at all accustomed to handling milk can make uniformly a good cheese with the appliances found in any well regulated farm home. The best time to make farm dairy cheese is immediately after milking. First pour the milk from one vessel to another in some locality where the air is pure and fresh, raising the vessel from which the milk is poured high, so the air can pass through the milk and carry off the animal odor. Then pour the milk into the vat, or if you have no vat use a large wash boiler. It is not necessary to use cheese color, but if you desire the cheese to look rich use about a teaspoonful of cheese color to sixteen gallons of milk. To mix in the color take a large dipper, fill it half full of milk, mix the color thoroughly in it and stir it into the milk. Now add rennet extract at the rate of one ounce to a hundred pounds or twelve gallons of milk. The milk should begin to curdle in from ten to twelve minutes. If you use rennet tablets to curdle the milk take one small tablet for every five gallons of milk, or one large tablet to twenty-five gallons of milk. Small tablets are about the size of a dime; large tablets are about the size of a silver quarter of a dollar. The rennet may be procured from any creamery supply house.

To add the rennet if tablets are used, dissolve the required amount in a small quantity of cold water, then pour into the milk. If rennet extract is used mix it in half a dipper of cold water and then pour it into the milk. Great care should be taken not to have the milk at a temperature below eighty-six degrees Farenheit when the rennet is put in, and it should not be above ninety degrees Farenheit. After the rennet is put in the milk stir gently two or three minutes, then let stand until the curd is firm enough to cut. To ascertain when the curd is ready for cutting insert the index finger in the milk at an angle of forty-five degrees until the thumb nail touches the milk, make a slight notch in the curd with the thumb then gently raise the finger; if the curd breaks clean across it without many flakes remaining on the finger it is ready for cutting. A little pratice will soon tell you when is the best time to cut.

For cutting, regular cheese knives are best, one with horizontal blades and one with perpendicular blades. In case it is intended to make only a few cheese, a wire toaster may be used, the wires only about a half an inch apart. First cut lengthwise, then crosswise of the vat or boiler until the curd is cut into cubes about the size of small kernels of corn.

After you have finished, stir the curd gently for about three minutes, then heat slowly to nintey-eight or one hundred degees Farenheit, constantly stirring gently while the curd is being heated; keep the curd at this temperature for about forty minutes. To tell when the curd is sufficiently cooked take a handfull and press it gently, hold for a moment then open the hand and if the curd falls apart it is firm enough. As soon as the curd is sufficiently cooked, draw off the whey and fill the mold by taking a double handful at a time and pressing gently into the mold, continuing until the mold is full and well rounded up. Then take the cheese out of the mold and turn it upside down and replace it. Put on the cover and put to press which may be a simple, old fashioned lever press, described as follows: The lever should be about twelve feet long. We are using a broken wagon tongue and it answers the purpose very well. A pail containing a few cobble stones will answer for the weight. Regular Gouda molds are best, but any tin or wooden receptacle will answer if small holes are made in it for the whey to escape. The cheese should be from eight to ten inches in diameter and about three inches high. Set the box upon which the mold is to be placed about three feet from a wall, post or tree on which a slat is nailed, under which the end of the stick is placed. Put a circular board about six inches in diameter on the mold, on this rest the stick. Do not apply full pressure at first but let the pail hang about half way between the mold and the end of the stick. Let the cheese remain a few hours in the press then take out and dress. To dress a cheese first put it in warm water, take a piece of linen cloth about six inches wide and long enough to go around the cheese and lap over a few inches. Wrap the cloth smoothly around the cheese, folding the edge down over the sides; then put a circular cap on each side—a couple of circular cloths made large enough for a gallon butter jar, will answer—and return to the mold. Put both under the press, moving the pail to the end of the stick. Leave the cheese in the press for about twenty hours, then take out and salt.

The cheese may be either dry salted or brine salted. Brine salting is the better way. Make a solution of salt and water as strong as it can possibly be made; put the cheese in this and sprinkle some salt on the exposed surface. Leave the cheese in this for two and a half days, turning them every twelve hours. For dry salting, rub salt on twice a day for three or four days; then put the cheese on a shelf in the cellar, turning and rubbing them with the palm of the hand every day the first week or two, after that twice a week will suffice. They should occasionally be washed with a cloth dampened in warm water, and if they get a rough rind use a brush and warm water. The temperature best adapted for curing is from fifty-five to sixty-five degrees Farenheit, and the air should be as moist as possible. The cheese will be ready for use in from two to four months. The lighter the cheese is salted the sooner will it be ready for use, and the more the curd is cooked the slower it will be in ripening and the longer it will keep.

T. L. HAECKER.

Minnesota School of Agriculture.

The Recruiting Ground for Veterinarians.

ED. HOARD'S DAIRYMAN:—The relations between the agricultural college and the veterinary college should be close ones, although up to the present time few efforts have been made in that direction. The intelligent, energetic farmer's son with a love for live stock is the best material out of which to make a veterinarian, and as the time is coming when the veterinary colleges are about to open their doors for the coming winter session, a few words of advice to farmer's sons intending to take a veterinary course will not be out of place.

It is essential that the veterinary student should be thoroughly conversant with the normal habits and characteristics, methods of feeding, history, laws of breeding, etc., of live stock; consequently it is readily seen how advantageous it is to the intending veterinarian to have had a course in animal husbandry at one of the leading agricultural colleges. Whether the student intends to go into private practice, municipal or federal government work, the advantage to be derived from an agricultural course will be just the same. Today the veterinarian is often called upon to judge at the fairs and exhibitions and unless trained he cannot fill the bill; the young veternarian without the agricultural training cannot hope to fill the bill. Veterinary practice is not confined to horse ailments, hence, a knowledge of feeding, testing of cattle is desirable and necessary for the country veterinarian. The time at an agricultural college, if a graduate, is not lost, as it is credited to the student at most of the veterinary colleges. For instance, a Short Course graduate of the University of Wisconsin will be allowed one year, at the best veterinary colleges (all three year schools, shorter schools are to a great extent quack making mills). The faculty of the McKillip Veterinary College, Chicago, have recognized the agricultural students and colleges, by offering a $75 scholarship to second year men in the Short Course of the agricultural college at Madison.

To the intending veterinarian I say, there is no need of you going outside your own country for a first-class veterinary education, at least as long as the McKillip college, Chicago; Union of Pennsylvania; New York and American Colleges, New York City, keep their doors open. You may find it cheaper in the beginning and *will find it more expensive* in the long run to graduate from a two year's school. The farmer of mature years,

Just $35.00 buys a richly **butter bred** Registered Jersey Bull calf, Seven months old, solid color, and a **show** calf, inbred to the great cow, Landseer's Fancy. Money refunded if not satisfactory. Address M.A. COVODE, Noblesville, Ind.

POULTRY FOR 1900 How to make it pay better than ever, the contents of our new **POULTRY GUIDE.** Tells a thousand things every hen owner should know. **Treats the whole subject.** 180 new and original illustrations, recipes, poultry houses, etc. **Worth $25, but sent for only 15 cents to pay postage.**



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Printed Parchment Butter Wrappers

Are an established factor in the CREAMERY BUSINESS to-day.

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or his son with an agricultural college education is no willing client of the quack, whether that quack possesses a diploma or not.

A. G. HOPKINS.

Wis. Agr. College, Madison, Wis.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—Today's session of the Elgin Board of Trade was held in the forenoon, on account of the President's visit to Chicago, many of the members desiring to attend the exercises, consequently there was a small attendance and no business. But 1,080 pounds were offered on which 23 cents was bid before it was withdrawn. The quotation committee declared the market firm at 23½ cents.

The sales for the corresponding week of the three preceding years were as follows:

Oct. 10, '98, 7,920 lbs of butter sold at 20 cts.
Oct. 11, '97, 10,200 lbs of butter sold at 22 cts.
Oct. 12, '96, 21,840 lbs of butter sold at 20 cts.

The New York market was reported firm at 24 cents. H. C. B.

Elgin, Ill., Oct. 9, 1899.

Prof. Decker Complimented.

ED. HOARD'S DAIRYMAN:—The following resolutions were unanimously adopted by the Lone Rock and Muscoda Dairy Board at its regular meeting of Oct. 2nd.

Resolved, That we appreciate that the growth of the cheese industry and the success of our Wisconsin cheese factories are due to the persistent and tireless efforts of our capable cheese instructor, Prof. Jno. W. Decker, and we are glad to record this fact and and to express our sincere thanks for his work which has been given so earnestly to the dairy interests of this state.

Resolved, That this board regrets his removal from the force of instructors of our Agricultural College and we fully hope that those in charge may yet see fit to retain his services in the former position which he has so ably filled in the past.

J. FROST, Secy.

The Minnesota Butter and Cheese Makers Will Meet at Owatonna, November 8th and 9th.

The place and date for the holding of the annual session of the Minnesota State Butter and Cheese Makers' Association have been fully decided. The gathering will convene at Owatonna on Wednesday and Thursday, November 8th and 9th. The officers and members of the association are anticipating one of the best meetings in the organization's history. J. K. Bennett, the secretary, at Clinton Falls, Minn., will be glad to give any information desired concerning the meeting.

DAIRY MARKETS.

ELGIN, Ill., Oct. 9.—Eighteen tubs offered; 23c bid; no sales; committee reported steady, 23½c.

CHICAGO, Ill., Oct. 9.—Cattle—The choicest native beef cattle ruled steady and best grass Westerns ruled strong to 10c higher, while other natives were weak to 10c lower, the "pretty good" natives closing fully that much off. A load of 1,582-lb corn-fed Westerns sold at $6.90, with 1,501-lb natives at $6.85. Natives averaging 885@1,520 lbs sold at $4.60@6.75; bulk $5.50@6.25; corn-fed Westerns, 1,160@1,420 lbs, $4.90@6.25; grass Westerns, $4@5, with cows and heifers at $3.60@4.40; Texas steers, $3.75@4.10; native butcher stock, $1.75@5; bulk, $2.75@4; feeding cattle, $3.10@4.75.

Today's recipts are estimated at 5,000 cattle, 23,000 hogs, and 17,000 sheep.

MILWAUKEE, Oct. 9.—Butter—Fancy Prints, per lb, 23½c; extras, 23½c; firsts, 22@23c; seconds, 20@21c; imitations, 19@20c. Dairy—Selections, 18@20c; lines, 16@18c; ladles, 15@18. Market unchanged and quiet, with fair supplies, chiefly cold storage; receipts 9,535 lbs.

Cheese—American full cream, 11½@12c; brick, 11½@12c; Limburger, per lb, 10½@11c; Swiss, drum, 12½@13c; block, 12½@13c; No. 2, 10½@11c. Market firm; receipts 7,960 lbs.

Eggs—Fresh, per doz. 16½c; loss off, cases returned. Market unchanged, with receipts of 130 cases.

FOND DU LAC, Wis., Oct. 9.—Offerings 672 Twins, 480 Daisies; market firm at 12 cents for Twins, and 12⅜@12½ cents for Daisies.

MUSCODA, Wis., Oct. 9.—Offerings Muscoda and Lone Rock Dairy Board of Trade: 700 twins; market active; all sold, 11½ cents.

SHEBOYGAN FALLS, Oct. 4—Cheese—Seventeen factories offered 1,359 boxes of cheese on the call board today, and all except 35 cases Young Americas and 200 Daisies were sold as follows: 260 cases Young Americas, at 12¼c; 285 at 12½c; 35 at 12c; 65 Twins at 12c; 71 at 11⅞c, 395 Daisies at 12c. Market active and firm.

MANITOWOC, Oct. 4—Cheese—Offers of cheese at the dairy board of trade, today, were 850 boxes Daisies, 160 boxes Twins, 725 boxes Young Americas. All Daisies and Twins sold at 11½c; 325 Young Americas at 11½c, 400 at 11¾c.

BRILLION, Wis., Sept. 29—The sales of cheese were 1,800 Daisies at 10¾c; 895 Flats at 10¾c; 450 Young Americas at 11c; 130 Young Americas at 11¼c.

PLYMOUTH, Wis., Oct. 3—Sales to-day 1,370 Twins at 11⅝c and 1,250 Americas at 11¾c. Market strong.

NEW YORK, Oct. 9.—Butter—Creamery, Western, extras, 24c; firsts, 22@23c; state extras, 23½@24c; firsts, 22@23c.

Cheese—State, full cream, small colored, fancy, 12¼@12½c; white, 12@12¼c; large colored, 12c; white, 11¾c.

Eggs—State, Pennsylvania and Western, 20@22c.

CANTON, N. Y., Oct., 2—There were 1,900 boxes of cheese and 800 tubs of butter registered; no butter was sold. Sales of cheese were reported at 11¼c.

FULTON, N. Y. Oct. 2—To-day 18 factories were represented with 1,040 boxes of cheese. Large sold at 11c and small at 11¼c.

OGDENSBURG, N. Y., Oct. 2—There were 849 boxes of cheese offered here Saturday. On the board 11c bid with no sales. On the street 11¼c was bid, but no factoryman would accept this price.

NORWICH, N. Y., Oct. 2—The sales of cheese here Saturday were: Small colored creams, 450 boxes at 11c, and 600 at 11½c; small white creams, 190 boxes, at 11½c; small colored skims, 300 boxes, at 9c, and 600 at 9¾c. The butter market was firm with dairy at 20c and creamery at 22c.

WATERTOWN, N. Y., Oct. 2—The sales of cheese were: Large colored, 1,285 boxes at 11@11¼c, and 320 boxes at 11⅜c@11½c; Twins, 400 at 11¼@11½c; small singles, 100 at 11½c Twin sage, 100 boxes at 12½c. The bulk of ths sales was at 11¼c.

UTICA, N. Y., Oct. 1—The cheese market was very strong and the ruling price for all grades was ½c higher, 4,411 of the 8,456 boxes selling for 11½c as against sales of 6,699 boxes of the 8,329 at 11c last week. The transactions were over 2,400 larger than at the corresponding date last year.

The transactions on Oct. 4, 1897, were 8,495 boxes with the ruling 8⅝c for large and 9c for small. The transactions on Oct. 3, 1898, were 6,020 boxes with the ruling 8c for large and 8⅝c for small.

The butter market to-day was active and the sales were unusually large as follows: 40 packages at 22¼c; 12 packages at 22½c; 27 packages at 23c; 140 packages at 23½c and 17 cases of prints at 25c.

LITTLE FALLS, N. Y., Oct. 2—The market made an upward move to-day, prices being firm at ½c advance over those of last week. While this was hardly expected there appear good reasons for it. Sales here one year ago were 6,453 boxes of cheese, while to-day they amount to only 4,418 boxes. Nearly all these cheese sold to-day at 11½c, only a few lots going at 11c.

CINCINNATI, O., Oct. 9—Butter—Firm; 24½c. Cheese—Firm; good to prime Ohio flat, 12c. Eggs—Firm, higher; 15c.

BOSTON, Oct. 9—Butter—Creamery extra, 24c; western extra, 23c; dairy extra, 22c; imitation creamery, 16@17c; western ladle, 15½c; print creamery, 25½c; box creamery, 24c.

Eggs—Fancy, near by, 26@28c; choice fresh, 21@22c; Michigan, extra, 20c; western, 19c; fair to good, 17c.

NEW ORLEANS, La., Oct. 9—Extra creameries, 24@25c; ladles unchanged.

Cheese—Firm, active. Cream, 13c; skims, 7@9c.

Eggs—Fresh, 18c; storage, 16c.

WASHINGTON, D. C., Oct. 9—Market firm. Extras, 24½c; firsts, 23c.

NEWARK, N. J., Oct. 9—Market firm; 24c for extra Elgin only. Receipts fair.

PHILADELPHIA, Pa., Oct. 9—Butter—Solid packed separator creamery, extra, 24c; creamery, firsts, 23c: seconds, 19@22c; imitation creamery extra, 18c; firsts, 16c; seconds, 14c; ladle-packed, extra, 16c; firsts, 15c; seconds, 14c. Print Butter—Creamery, extra, 24c; firsts, 23c; seconds, 19@20c.

Eggs—Pennsylvania and near by, 19c; Western, 19c; Southwestern, 18c; Southern, 17c.

BALTIMORE, Md., Oct. 9—Butter—Market firm; creamery sepatator, extra, 25@26c; extra firsts, 24c; creamery firsts, 23c; creamery imitation, extra, 19@20c; ladle, extra, 17@18c; Western store packed, 13½@14c; creamery rolls (21-lbs), 24@25c; creamery prints (½-lb), 25@27c.

Eggs—Market firm. Quote strictly fresh stock 17c, as to quality.

ST. LOUIS, Mo., Oct. 9—Butter—steady; creamery, 19@24c; dairy, 14@19c.

Eggs—Steady; 14c.

KANSAS CITY, Mo., Oct. 9—Butter—Creamery, 19@22c; dairy, 16c.

Eggs—Fresh, 14c.

Latest quotations for fancy creamery, Buffalo, 24c; St. Paul, 22½c; Minneapolis, 22½c; Detroit, 24c.

NEW YORK MARKET.

NEW YORK, Oct. 7.—Cheese—Receipts for the week, 39,789 packages. Exports for the week, 7,271 packages. Our market is about the same as last week: sales in the interior of the state were relatively higher than here and most of the trading was of a speculative nature. Exporters are buying some large cheese at 12 cents and probably 12¾ cents for some favorite marks. Some sizes sold to jobbers and retailers at 12 to 12½ cents. Market is closing strong at the close. We quote: Full cream, small, extra, 12½@12¾c; medium, 12@12¼; poor, 9@11c. Full cream, large, extra, 12@12¼c; medium, 11½@11¾; poor, 9@11c. Part skimmed, extra, 10½@11c; medium, 9@10c; poor, 7@8c. Skimmed cheese, poor, 5@6c.

Butter—Receipts for the week, 32,633 packages. Exports for the week, 2,327 packages. There was good healthy trading in all grades of butter and the demand came from all quarters. Fancy fresh creamery was quick taken at 24c with barely enough arriving to go round.

Fine September and October make dairies sold on arrival at 22c and poor to good tubs found buyers at 16 to 20 cents. Fresh ladle goods were less active but receivers are firm and demand full prices. Fine June creameries sold in line at 22c, and under qualities at 20 to 21c. Market closes with light stocks and holders firm. We quote:

Creameries, fresh, extra, 24c; medium, 22@23c; poor, 18@21c. Creameries, June, extra, 22@22½c; medium, 20@21c; poor, 18@19c. Dairies, extra, 22@22½c; medium, 20@21c; poor, 15@18c. Ladle, extra, 16½@17c; medium, 15½@16c; poor, 14@15c.

Eggs—Receipts for the week, 53,580 cases.

Strictly fresh stock selling quick and wanted. Ice house eggs slow and irregular in prices. We quote:

New York and Pennsylvania, finest, per dozen, 21@22c. Western and Northern, finest, per dozen, 20@20½c. Ice house and ordinary marks, per dozen, 16@18c. DAVID W. LEWIS & Co.

177 Chambers St.

BALTIMORE MARKET.

BALTIMORE, Oct. 5—Butter—The majority of the creameries contributing to the receipts in this market of separator butter direct from points of production, have shown a material shrinkage in the quantity of their outputs, so great indeed in a few instances, as to be alarming, but for the quieting fact that the demand has shrunk in the same proportions because of the advanced prices. The business in extras of this variety is almost, if not quite, limited to the distribution of regular weekly receipts of well known and favorite makes, which in turn go into immediate consumption by the classes who are not compelled to resort to lower grades or different varieties as soon as the best gets above their limit. The receipts of gathered cream goods have continued light, with no improvement in grading, but have met with prompt sales because of the conditions above recited and the natural demand. Imitation creameries are in very light receipt and are in great request. Ladle packed butter is also in light receipt and eagerly sought after. June butter has some inquiry, but the transactions have not been heavy the past week, which fact is chargeable to higher figures being asked. There are a few lots of rolls arriving, and the receipts of store packed are very light. Rolls are in active demand, and for the high grades the cutters would pay more than our highest quotations.

Creamery Separator, extras, 24c; firsts, 22½@23c; seconds 20@21c. Creamery Gathered Cream, extras, 21@22c; firsts, 19½@20c; seconds, 19c; Creamery blocks (2 lb) extras, 25½@26c; firsts, 24@25c; seconds, 22@23c; Creamery prints (½lb), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c. Md., Va. & Penna prints, extras, 21c; firsts, 20c; seconds, 18@19c.

Cheese—Receipts light, demand active; market firm with advancing tendency.

N.Y. State—Cheddars, fine, 12¼@12½c; choice 11¾@12c; fair, 10¾@11½c. Flats, fine, 12½@13¾c; choice, 12@12¼c; fair, 11½@12c; Small, fine, 13¾@13½c; choice, 12½@13c; fair, 12@12½c. Ohio—Flats, fine, 12¾@12½c; choice, 11½@12c; fair, 10½@11c. Ohio—Picnic, fine, 12½@13c; choice, 12@12¼c; fair, 11¼@11¾c. Swiss Cheese, fine, 12@12½c: choice, 11½@11¾c; fair, 10½@11c.

Eggs—The receipts of choice fresh eggs continue light, and for this kind there is a quick demand, and for a lot of fancy eggs our quotations could be exceeded; market firm on all good to choice eggs. Owing to the great scarcity of fresh eggs, a great many dealers have had to draw on their cold storage stock to bridge over. All choice marks meet with prompt sale.

Western Md. and Penna. per. doz. 17½c; Eastern Shore (Md. and Va.) per doz. 17c. Virginia, per doz. 17c; Western & W. Va., 17c; Cold Storage per doz. 16@16½c: Southern per. doz. 16c.

301 Exchange Place. G. M. LAMB & BRO.

LIVERPOOL, Oct. 9—Butter—Finest United States, 98s; good, 73s.

Cheese—American finest white, 54s 6d; American finest colored, 56s.

WANTED—AGENTS FOR CREAM SEPARATORS

During the next six months—in conjunction with the introduction of the improved "NEW CENTURY" De Laval Cream Separators—we shall thoroughly reorganize our system of Dairy or "Baby" separator local agencies. Out of 2,000 existing agencies and sub-agencies 1,500 will be changed, and as many additional new ones created. 1900 promises to be the greatest of separator years. Centrifugal separation and clarification must soon become universal. Machines may be sold in every township. The conceded superiority of the "Alpha" De Laval machines should give them 85 per cent. of the total trade. But live aggressive agents are equally essential to getting it. We have the machines and require more good agents. Successful separator agents are confined to no particular class. Applications should give full details.

Mention This Paper In Writing.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO. | GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK. | Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Wanted—A car-load of good milch cows, any breed except Holsteins. Must be fresh or springers. Address, FALICON, Clarksville, Mo.

Wanted—A working manager for a small 20 cow private dairy farm. Knowledge of butter making and general farming required. An active energetic man wanted. ARLINGTON DAIRY, Bangor, Mich.

Married man would like position on dairy farm. Experienced butter maker. References given if desired. Address BOX 375, Plainview, Neb., stating wages.

Wanted—A position by a first-class butter maker and creamery manager. Ten years experience. Best of references. Address Box 492, S haron, Wis.

Wanted—Good reliable man to work in a creamery as second hand. Man with some experience is preferred. Address HIGHLAND CREAMERY CO., Kenwood, Wis.

Wanted—at once. Good milker and all round dairyman at CEDAR HILL JERSEY FARM, Monmouth, Ill.

A situation is wanted by a butter and cheese maker of twelve years' experience. A 1 references as to character and capability. For further information address W. W. BURGETT, Long Point, Ill. 34-2

Experienced buttermaker (Danish), 33 years old, wants position in a creamery or on a dairy farm. Four years' experience in the old country and at present buttermaker at Eagle Valley Creamery, Edwards, Colo. Can take care of stock. For particulars address, MARIMIS FRANDSEER, Edwards, Eagle Co., Colo. 34-2

Wanted—A dairyman who would like to come south to take charge of a first-class dairy. Address "E," Glenraven P. O., Tenn. 34-3

A Baby De Laval Separator No. 3, capacity 600 lbs. an hour, 30-gal. churn, butter worker, 6-bottle Babcock tester, shafting, pulleys, belts, etc. Price $100.00. Separator good as new and cost $200.00. E. R. BALSLEY, Troy, Wal. Co., Wis. 34-tf

Wanted—Practical farmer and dairyman to rent good farm in Southern Minnesota. Also good single man to work on stock farm. Must understand care of stock. Address "H," care HOARD'S DAIRYMAN. 33-3

Wanted—Experienced butter and cheese maker. One that thoroughly understands his business. References required. State wages expected. Address, D. HART, Del Rio, Val Verde Co., Texas. 33-3

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

Prosperity is here.—Anyone who doubts it can be convinced by visiting any of the towns in western Iowa or Minnesota on the new lines of the Chicago & North-Western Railway. People in the immediate vicinity of these towns are quick to see the advantage and are already in advance of the railroad, building stores, residences, elevators, lumber offices, etc., etc., but there is room for more. The country is splendid, and will in all cases amply support all lines of business and trade and in the most of the towns the best locations are still open. Lots in any of these towns cannot help but be safe and paying investments, as they are still on the market at the original low prices. For particulars address, J. F. Cleveland, Land Commissioner, Chicago & North-Western Railway, Company, Chicago. 34-2

Half Rates to Portland, Ore., Seattle and Tacoma, Wash., Via the North-Western Line. Excursion tickets will be sold at one fare for round trip from all stations, October 12 to 15, inclusive, limited to November 16, 1899, account of W. C. T. U. Convention at Seattle. Variable routes, delightful scenery. Apply to agents Chicago & North-Western R'y. 34-2

A DECREASED BUTTER PRODUCT IN MINNESOTA.

The Minnesota Dairy and Food Commission have been investigating the output of butter in that state and report that in their estimation it will be considerably less than last year. In the opinion of the department this is due to the higher prices of grain and beef cattle.

"Farmers are too readily induced to part with cows that are fit for beef."

This fact, no doubt, will lessen the butter product of the state, but the farmers will make more profit after all, if they get rid of all cows that go into beef condition while milking. It is time the farmers saw this point and looked at the question from the standpoint of profit per cow rather than the gross product for the year. As we have often said before, prices would be good for butter or cheese if the cows that made either at a dead loss to their owners, were eliminated from the producing field.

It is the butter that is made at a loss that weighs down the market.

MILK POISONING.

A dirty, unthinking dairyman, who neglected to properly clean his milk cans, produced a serious case of tyrotoxicon poisoning in Knoxville, Tenn., recently. Had the man been as well posted in what pertains to his business, as a man ought to be who is handling milk and the health of customers as well, he would not have brought fear and trembling on all milk consumers in that vicinity. Secretary Coile, of the Knoxville Board of Health, puts the case in the following clear light:

"A great many dairymen do not seem to realize, either through ignorance or not wishing to abide by simple sanitary laws in guarding the health of their customers, that it is absolutely necessary for milk cans to be properly cleaned once each day, and better, each and every time they are used, if it is more than once per day. The cans should not only be rinsed in hot water, but should be boiled. It is absolutely essential that the cans should be cared for in this manner. If they are not, the sediment breeds bacteria and fermentation commences, which results in the poison, just as it did in the case now on hand. Tyrotoxicon is the same poison which is sometimes found in ice cream."

In every instance, this bacterial poison, called tyrotoxicon, is caused by filthy ways of caring for the milk and milk utensils.

The Drouth and Its Lessons.

Alfalfa and Silage.

ED. HOARD'S DAIRYMAN:—The present year of pinching drouth, such as few farmers have ever seen, has done what it can to teach us a lesson, and one that will be worth all it has cost us, if we will but learn it and practice these teachings. The great difficulty with all sorts of people is that they do not observe closely, and if some of them do they fail to make the application.

Let us begin with alfalfa. It is a new crop with us. Most of our farmers do not know it when they see it, and most of them are slow to make a trial of anything new in the crop line, unless an example of its value were thrust into their faces. Sometimes they would not do it then. So there is a call for some preaching.

There is, for instance, a small patch of alfalfa on a farm in western New York, that ought to serve as an object lesson to the entire neighborhood. It is located on one of four corners of a much traveled road, about mid-way between two prosperous villages. All summer long it has been a conspicuous feature of the landscape, for it was green and growing, while literally everything else in the forage line was standing still, or had turned brown and disappeared. The alfalfa was such a refreshing sight in the midst of all its gloomy surroundings, that it was worth a trip to look at it, though it was a small patch, and was more or less hampered by shade trees.

I have some curiosity to learn how the farmer came to sow that plot, but am so well satisfied that it has come somehow from the fact that two members of his family are engaged in professional experiment work in crop raising that I have asked no questions.

Now for some possible results. In spite of the fact that this small piece of ground was about the only one for a wide district that has been at all independent of the dry weather, and has produced a good crop of forage, I am convinced that there will not be any considerable amount of alfalfa sowed in that district, either next year or right away. It is so hard to get such things started. Someone has heard that this sort of clover does not catch as readily as red clover, and someone else hears that it is often slow to produce a full crop, so there is plenty of excuse for letting it alone, and an excuse is quite enough to furnish a reason for not making any sort of new departure in agriculture.

And so the cows go all summer with just enough feed to keep them alive. It has often seemed to be impossible for them to do even that this summer, yet special forage crops are not adopted any more than as if the grass was sure to grow knee high in the pastures every summer. It is a fact that corn is not a certain crop in very dry seasons. I have seen too much of it withered up or standing a foot or two high this summer, unable to grow any further, not to know that. What, then are we to do in dry spells? They will come practically every summer, and though they do not always last for months as the one this summer did, they are sufficient to reduce the flow of milk materially, and then it is hard to bring it up again. Mill feed is very high and scarce, and the silo is not common yet.

Still there is hope that there will be some advantage taken of the situation made so painfully apparent this summer. I hope to see the farmer, especially in regions like this, where land is good and easily cultivated, adopt the plan of partial soiling of his dairy. If the season turns wet the land set aside for pasturage may be enough to furnish feed in plenty, but there will be no safety from poor or dried up pastures, till plans are laid at the outset looking to the probability of need of either silage or green forage for the cows outside of pasturage. If this is not done the old plan will stick to us as it always has done, and the result will still be that the cows will produce little more than half the butter that they should.

With the late advances in the price of cheese, butter and meat, the problem of producing them in quantity is fairly thrust upon us, east as well as west.

Erie Co., N. Y. JOHN CHAMBERLIN.

Judging Guernseys at the Wisconsin State Fair.

Mr. Philips' Answer to John Jones.

ED. HOARD'S DAIRYMAN:—Two articles in your issue of October 6th attracted my special attention, and as I am a party concerned in one of them, I ask space to reply.

I refer first, because I read it first, to the very sensible article on Judging Dairy Cattle, taken from the Canadian paper, *Farming*. I will quote only the last sentence, as it applies to my case in particular. Speaking of fitting animals, it says: "It may tend to shut out all but the professional exhibitor, and make it difficult for a farmer to exhibit even if he has a good animal." That is the exact tendency of milk injecting, bagged udders, greased ears, shaved tails and cows kept inside and blanketed with heavy blankets, while the farmer's cow is in the pasture.

The second article on the same subject, which refers to my cows, though does not mention names, is signed John Jones. That is such a common name that it is hard to locate him.

He was astonished, so he writes, at what he heard the Ohio breeder say; so am I at the statement he makes after examining the cows. He says, the third premium cow (which was old Queen Vashti) he found as stated by the Ohian, with only two perfect teats. Now the truth is I have owned her seven years and much of the time milked her with my own hands and during that time she never had a diseased or imperfect teat and I begin to doubt Jones' judgment. That cow gave twenty-four pounds of 5.8% milk the day before she started for the fair this fall and, as she is due to freshen again December 21st next, is nearly dry now. Did he expect her to be bagged down like another cow in barn B, that the man in charge said had been left for three milkings. I invite any man who believes Jones' yarn to come to my barn and examine both these cows, and I'll meet him at the train and take him there.

Now a word for the first premium cow, Queen of Salem. She has neither an enlarged nor an extinct teat. She came in June 1st on dry feed and it required constant care for forty-eight hours to ward off milk fever. I was with her most of the time night and day, her udder was very large and inflamed and when danger was over and fever left her she gave only about half as much milk out of one front teat as she did out of the others. This never occurred before and we are milking that teat the best we can, for she is a valuable cow and I expect and have the assurance of an old Scotch neighbor that when she comes in again it will be all right. I saw Prof. Carlisle examine it carefully and I believe he judged her conscientiously. Ever since she came in, until she started for the Fair this fall, the tally sheet in the barn shows that she gave from thirty-two to thirty-eight pounds of 5.4% milk, often at night going twenty pounds.

Now without any reflection on Mr. Jones' judgement I wish to call his attention to three facts concerning my cows. First, they were not kept up and blanketed a day the past summer; they run in the pasture Thursday, and Friday were put in the car for St. Paul; they were fed well every day but were not curried nor brushed until they went to the Fair.

Second, my cows were milked as clean night and morning for the four weeks we were out as they are at home.

Third, not one of these cows is for sale.

Can he say the same of the cows he is trying to brace up?

I could say more but will not do it now as what I have said is to simply exonerate the judge from any intended unfairness in the matter.

Not until I knew that Mr Wood, of Mankato, and Prof. Carlisle, of Madison, were to be judges at the Minnesota and Wisconsin fairs, did I consent to exhibit, as I have unbounded confidence in the ability and honesty of both. You can't fool either with big udders swollen with milk that should have been extracted twenty-four hours before. In their judgment the dairy points of the cows, not their unnatural appearances, won the ribbons, and I can truly say I hope the time is near at hand in the line of dairy reform when any man who either himself or by another injects milk into udders, lets cows go without or beyond the regular time of milking, greases or shaves their ears or tails or does any thing to modify or change the normal appearance of his animals, shall be barred from competing in the show ring.

The dairy cow is a machine, and her value, in the estimation of a good judge, is the capacity and ability she has for doing every day business. That's the standard, Mr Jones, we are after.

I will now close, but really I would like a personal letter from Mr. Jones, giving his P. O. address. A. J. PHILIPS.

West Salem, Wis.

Velvet Bean and Beggar Weed.

The temporary destruction of the orange groves, and the introduction of the two invaluable legumes, velvet beans and desmodium (beggarweed,) have changed the order of things. Florida is now really richer in leguminous, soil-enriching crops than the north; she has velvet beans, cow peas and desmodium with the prospect of a winter legume, the vetch, being presently added to the list, so covering all the year.

The velvet bean was known for years as an ornamental, but it is only within the last four or five years that it has come forward as a soil renovator and stock feed. It is a vine; if supported it will grow thirty feet high, but it is usually allowed to run along the ground. On a good soil it will cover the ground with a solid mat of vines six or eight inches deep. It produces large, rich beans, more bushels per acre than corn, twenty-five or thirty bushels being no uncommon yield. They are occasionally slightly sickening to some men, also to a few horses, but this distasteful element will, doubtless, be bred out of them by cultivation. They are very fattening to cattle and hogs. Thousands of acres were planted last spring in South Florida, and nearly all by men who had first experimented, in a small way, and satisfied themselves of the great value of this crop. Many machines have been tried for threshing them, hitherto with only indifferent success; but an inventor in Orange county seems to have devised a satisfactory threshing machine, a two-horse and a four-horse power, and he is, at the present time crowded with orders ahead of his capacity to make them. The cultivation of upland rice has also received a strong impetus in south Florida, and in a few years we shall probably see combined rice and bean threshers travelling about the country.

A good many bean hullers were manufactured at first, the pods being picked by hand; but the pods are so tightly adhesive, that it has been found best to grind them up unshelled. They make the richest feed for cattle, swine and milch cows. I should not be surprised if 30,000 acres of velvet beans are planted in the state next year. In the spring there is such a mass of vegetable matter on the ground that it is a serious task to plow it under, even after it has been cut up with the disk harrow. In a few years, under this course of velvet beans, light sandy land becomes dark colored with humus, and will produce thirty or thirty-five bushels of corn per acre without other fertilizer.

Desmodium is also a leguminous plant, and is often called Florida clover. It yields no grain, but can be cut for hay twice a year, occasionally three times, yielding two tons per acre, which, when properly cured, is as fragrant and as freely eaten by live stock, as red clover hay in the North. The seed needs to be sown thick, in order to reduce

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H. K. MULFORD COMPANY, Chemists,
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the stalks (they will grow seven feet high if standing sparse on good land,) and the crop should be cut green.

We do not deny the poverty of most Florida soils, but here is the point: These legumes, with the help of a slight sprinkling of potash and phosphate, will produce two-thirds as much value in grain feed (beans) per acre as the average northern soil, and more forage, and then a manure crop. This yearly manure crop keeps up the land. Desmodium is self seeding. Velvet beans have to be planted every year, unless left on the ground, beans and all; and they are too valuable for that. An old farmer of the cotton belt, told me he had, for years in succession, raised twenty, twenty-five and thirty bushels of corn per acre, on thin, sandy land, with no fertilizer but desmodium. This comes up after the corn is "snapped," and soon covers the corn stalks out of sight, hiding the cows and horses; and on this rich feed, live stock soon becomes fat and sleek. The small beans falling to the ground in winter, support hundreds of quail.—S. POWERS in *Country Gentleman*.

How to Take Milk Samples.

Vermont Agricultural Experiment Station

(Press Bulletin)

In the interest of Vermont dairymen attention should be called again to the necessity of proper precautions in taking milk or cream samples for analysis. It is a common thing for Vermont creamery patrons, dissatisfied with the test of the milk they deliver, to send a sample to the Experiment Station in order to compare its results with those given out by the creamery. The idea is a good one, but its execution is often faulty. Few people realize how easy it is to take an incorrect milk sample. There is good reason, moreover, to believe that more than one-half of the many hundreds of milk samples sent by farmers every year to the Station are improperly taken and that the results of the tests are misleading. The Station can do no more than test what is sent. By no art of legerdemain can it arrive at a correct test from an incorrect sample. No doubt many creamery managements have been unjustly accused of carelessness, incompetency or worse by patrons who have based their judgment upon the Experiment Station tests, when, as a matter of fact, the trouble lay in the faulty samples furnished to the Station by the complainants.

While mistakes are readily made in this matter, it is not difficult to take a proper sample, if the directions here given be followed. The samples, at least, will not be at fault.

Creamery testing may be best checked, either by halving the creamery sample or duplicating it. When the creamery composite sample is complete and ready for testing, the operator may be asked to furnish one-half of it. The patron should then be certain that the operator thoroughly mixes the sample by pouring; that all the cream from the sides or the jar, covers, etc., is mixed into the milk or cream, and that the halving is done immediately after the last pouring. In lieu of this, the operator may be required, every time he samples at the factory, to furnish a duplicate sample, in a jar controlled by the patron. In this way duplicate composite samples may be made, one held in the control of the operator, and the other in that of the patron; both of which should test closely alike.

If samples be sent to the Experiment Station, Burlington, Vt., for its free analysis, they should be carefully taken. Wide-mouthed jars should be used, which should be filled absolutely full to prevent churning in transit. Express charges should be prepaid, and the name of the party sending should be placed upon the package.

Notes from Tennessee.

Building and Filling a Silo.—Abortion Suspected.—Oleomargarine a Jackall.

ED. HOARD'S DAIRYMAN:—Am very much pleased with the DAIRYMAN. Received some cards from you some time ago; have been very busy and have not used them yet, but think I will.

Have built me a silo and filled it "most full." Put all the corn I had into it. Thought four acres would fill it, but eleven, of fifty bushels to the acre, didn't do it. Somebody in your paper said that a fellow never got one large enough. I thought possibly he was right, he spoke so authoritatively, before I tried it, but I've not got so much confidence in his assertion now.

Mine is fourteen feet in the clear and twenty-four feet deep, and while I don't believe it would hold all the corn made in the county, it still lacks a fourth of being full. I made it of green lumber and had my hoops tight at the start, but had to wait a couple of weeks for my cutter, and the hot sun made them loose; I tightened again, but they were more or less loose when I filled it, and while they tightened up for a while, I am afraid are not tight enough. I think there will be a good deal of loss. My corn was a little over-ripe I expect, though I put in no dry stalks, nor cut it below any dry blades.

But I wanted to ask you about my cows. I am sure I have got that abortion disease among them, and I have got some young heifers that I surely want to save. I have been suspecting it for one or two years, but I feel sure of it now. There would be no good, so far as I can see, of my trying to tell you why I think so.

Sometime ago I saw somewhere a digest of the experiment station of Iowa in which they spoke at length concerning the symptoms and cure and disinfectants.

I thought at the time I'd take special care of it but have lost it, and would write to the Station for a copy, but have forgotten where it is. Could you help me in this without too much trouble? Of course I see those patent remedies advertised in the DAIRYMAN, but I never could do a ny good with such. I guess it's ignorance on my part but that don't remedy the trouble any. I also see one man's experience in disinfecting and thought I would use it in connection with the station exegesis.

Yes, I think you are right in your position in regard to oleomargarine. Let her get out from under our cloak. Pull out those peafowl feathers and being a jackall, parade as a jackall. She has already, cuckoo like, been hatched and nourished at honest folks' expense. Will she never be able to carry her own load? REUBEN C. BURDETTE.

Maple Grove, Tenn.

The Iowa Agricultural Experiment Station is located at Ames, Iowa.

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can never be made a pleasing pastime, but one-half the labor will be saved and the results improved by using Gold Dust Washing Powder.

Send for free booklet—"Golden Rules for Housework."

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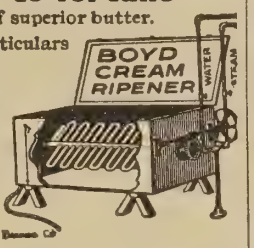


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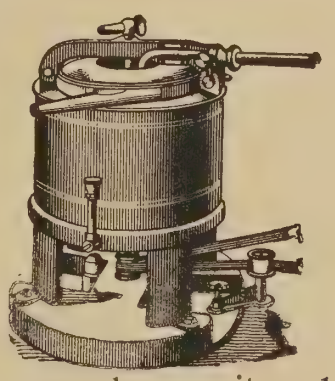
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on the question of pasteurization and want to get down on the right side, look up the record of the Reid Pasteurizer. The successful creamerymen who use it and the prominent buttermen and milk dealers, who sell the product of the cream pasteurized with it, will tell you that pasteurization is immensely successful and profitable when the pasteurizing is done with the

REID PASTEURIZER

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Utility of Records.

[A Paper by CHAS. L. HILL, Rosendale, before the Wisconsin Dairymen's Association, 1899.]

While a few breeders of pure bred dairy cattle have realized the importance of, and have undertaken the keeping of, accurate milk and butter records of their herds, there are very few dairymen who are doing it. The breeder who does not do it, will soon be the exception, as every year more of the dairymen, who are looking for pure bred bulls for use in their herds, wish and ask to know something about dam's milk and butter records; and the breeder who wishes to sell his young bulls in competition with his brother breeders must be able to answer their questions carefully and intelligently.

In years gone by a seven-day butter record was quite generally accepted as the best means at hand to show a cow's value as a producer, but anyone keeping both weekly and yearly records will soon place little value on the weekly tests. I hope you will pardon me, if in this paper I draw for facts quite largely from my own record books.

To show the small value of a weekly record I will give you a few figures: In 1893 and '94 I tested several cows for seven days. Coral made in seven days sixteen pounds of butter, and at the end of the year the books show she had made 430.7 pounds. Primrose made only thirteen pounds in seven days, but made 460 pounds in the year. Mernalette made in seven days eighteen pounds, ten ounces, and her best yearly record was not over 350 pounds, while Snowflake, making thirteen and one-fourth pounds while fresh, made 473 pounds in a year, and Prestoun that never made over twelve pounds, made 441 pounds in the year. Plenty of other records could be quoted, showing the same variation.

From these figures you will readily see that any breeder or dairyman, who wishes to know the individual value of the cows in his herd *must* keep *yearly* records. The breeder who keeps such records is the only one who can breed intelligently. Not long ago I saw the pedigree of a young bull whose dam was a 550-pound cow. The second dam was a 482-pound cow, and the third dame was a 495 pound cow, while the sire's dam was a 608-pound cow, and I certainly believe that it is from sires of this and similar breeding that the best cows of the future are to be bred.

It is only by keeping yearly records that the dairyman and breeder can weed out his poor cows intelligently. He will find that all of his young stock finds much more ready sale if their dams have good yearly records.

If you stop to consider, you will see that if it is important for the breeder to keep records, it is doubly so for the dairyman who keeps only grade cows, for the produce of the pure bred herd annually brings in quite a sum, while the other has only the milk and its products to depend on and so more surely loses if he keeps a poor cow.

In talking with dairymen and urging them to keep yearly records, one will almost come to think that many of them believe that, "In ignorance is bliss." The most common excuse is that it takes too much time. I am sure with scales and record sheet in a convenient place, the weighing of the milk will not take over five minutes per day extra time for each twenty cows, but even allowing eight minutes per day, it would take five days' time of ten hours each, for a year's weighing. If any dairyman will weigh for a year, and then say it hasn't paid him, I should like to go and work for him the five days and see what he and his cows are like.

While for the ordinary dairyman, weighing once a week, or even once or twice a month, will answer the purpose of showing approximately the year's work, there is another very important reason for daily weighings, and it is the keeping track of milkers and the effects of change of care, feed, etc.

One man who weighed all his milk for a year, said it was worth $25 per year to him, and when his man did the weighing it was worth $50.

I find my men every milking talking about one and another cow being up or down in her milk, and it soon puts any man on his mettle to keep his cows up to the highest possible production.

I have here for inspection a sample of the record sheet we use now. They were ruled to order at a cost of two cents each in lots of 300. A sheet of foolscap similarly ruled will answer every purpose at a cost of one-half of a cent. For scales we use a regular milk scale that retails for $5. This scale reads zero with the pail on, and therefore shows the net weight of the milk. A 25-cent spring balance will do the work, but the weight of the pail must be deducted each time.

(NOTE.—The sheet exhibited by Mr. Hill was 17×28 inches, was ruled as indicated in the sample columns below, and contained spaces for keeping the records of 36 cows, being two columns deep and eighteen columns wide. The secretary has inserted dates and titles to the subdivision columns, which are left blank in the original.)

Milk record for month of.....189.....

Day of Month.	Name or Number of Cows.			Name or Number of Cows.		
	A. M.	P. M.	Total.	A. M.	P. M.	Total.
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

At the end of each month the total weight of each cow's milk is copied into a book kept for the purpose. About the middle of each month take a composite sample of four to eight milkings from each cow's milk. Test it with the Babcock test and copy the result in the same book. The pounds of milk produced in a month multiplied by the per cent of fat, as shown by the test of that month, will give that cow's production of fat for that month. The sum of these months' production of fat with one-sixth added, will show the annual production of butter. With this done you are ready to commence your weeding.

However, if you have a cow that you feel sure is not doing as well as usual, try her one more year; or if she is a new comer to the herd, give her two years' trial before condemning her. Now will come the question of what you shall require each cow to do before discharging her. For the breeder I think the day has surely arrived when no mature, pure-bred cow is worthy of a place in a herd, that will not make 300 pounds in a year; or if a heifer with first calf, 180 to 200 pounds. If poorer cows are given a place, no male calves should be raised from them. From the standpoint of the man who expects to breed up a herd, I would not buy a bull from a cow that would not make or promise to make 350 pounds.

For the dairyman, I am not prepared to fix a standard. I think, over the state, the average net price paid farmers for butter at the creamery, for the past year or two, would not be over 14 or 15 cents. A cow making 200 pounds might barely pay for her feed. As the average Wisconsin cow makes not more than 150 to 160 pounds of butter it would seem as if it would have been better if they had never been born.

I used to doubt the accuracy of such state averages until two years ago I heard a man say, who lives only two miles from me, that he thought he would keep track of his cow receipts for a year. He had eleven cows and heifers in milk. They freshened from March to May. He made a little store butter before the cheese factory opened and a little more in the fall before the cows froze up. His total receipts were $88 and a few odd cents for the year. I must confess that here was a man who would probably have derived no benefit from individual cow records.

Don't let another year go by without knowing just what each cow in the herd is doing for you.

DISCUSSION.

Prof. Henry: How many minutes a day do you think it would take to weigh the milk of ten cows and record the weight, Mr. Hill?

Mr. Hill: As I said in my paper, I figured that out for twenty cows, and the men did not know that I was looking at my watch, and I found it would take only five minutes extra time per day. I allowed eight minutes, to be sure, and I found that it figured out altogether five days' work in the year for a herd of twenty cows.

A Member: What breed of cattle do you

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon into a low handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 130 Quincy, Illinois, for their catalogue; which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.



ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.**
R. C. GREEN, Albion, Wis.

FOUR SOLID COLOR BULL CALVES
out of tested Dams, and sired by Diploma's Combination, sire of two tested cows.
Also a few heifers for sale.
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Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

High-Class JERSEYS
The blood of Combination. (Sire of **25** in list) through Brown Bessie, (Champion Butter Cow at World's Fair), and Diploma 16219 sire of 48 in list including Merry Maiden. Young bulls, also cows and heifers bred to Recorder 29239—son of Brown Bessie. Printed pedigrees. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

Hood Farm Jerseys At Hood Farm you can get a Bull deep in the blood of Merry Maiden or Brown Bessie, the Great World's Fair winners. The bull is half the herd and your young stock will have 50 per cent of his blood. Your herd will thus be improved and better profits will be the result. Let us know what you would like. Address, HOOD FARM, Lowell, Mass.

There's plenty of Jersey blood NOT AS GOOD as that of
Old PEDRO 3187.
There is NONE ANY BETTER.
I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HAINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Marquilla's Major 40804.
SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
W. R. THOMAS, Bellmore, Ind.

JERSEYS.
Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

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here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned.
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FOR SALE!
DOUBLE GRANDSON OF
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78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and **will be sold CHEAP.**
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This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. fEvery animal tuberculin tested before sale, i desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

Closing Out Sale Of CHARTER OAK HERD!
180 Head, pure St. Lamberts.
High per cent ST. LAMBERTS and TORMENTORS,
Oct. 25th and 26th, at Pomeroy, Ohio.
Have sold my lands and must sell my cattle. Send for catalogue.
J. P. BRADBURY. Pomeroy, Ohio

consider the best for dairying and butter making particularly?

Mr. Hill: I would rather be excused from answering that question.

A Member: Another question that arises among our dairymen, a good deal, is: Will the cow that tests three per cent milk make as much cheese as the cow that tests four per cent milk?

Prof. Henry: There is an exhibition over in the cheese room which answers that question and tells us that they get more cheese and the dealers will tell us that it is better cheese, from the richer milk up to 4 per cent.

Mr. Hodgson: I think that idea of weighing the milk is profitable in a great many different ways. I think the point with reference to hired men is very valuable. I have followed the business for about twelve years, and the greatest trouble has been, to get the last strippings from the cow, and if they are not thoroughly milked, the best is left, and, consequently, we are the losers. It is the few last strokes that we want; the rest is pretty much consumed in expenses. I have practiced weighing the milk. I do not make butter, nor do I take my products to a creamery. I make cream and send it to Milwaukee. I have a tank on my separator, which weighs eighty pounds with the milk. I take the full can, which holds thirty pounds to the bottom of the glass, and each man that puts in this can, full to the glass, has a tally by the side of the separator, so that every day I know the weight of my milk, and about every week I want to find out how the individual cows are going, so I weigh the milk of the individual cows. I take about a tablespoonful once a week out of each cow's milk for testing, then I find out the average test of my milk. I take forty pounds of milk, perhaps, and if that forty pounds makes 23% cream, that is all right; if it runs more, I turn a little screw in the separator, and make it a little lighter; by so doing I have an even grade of cream. I used to have trouble with the cream occasionally running a little light, or a little heavy, though that didn't happen very often. I find this an important point to a man making cream for shipment, and that it pays to test the cream, and keep it running even.

Secretary Burchard: There were so many points in this paper, that it is impossible to to do them all justice, but there was one which I consider very important, and that was where he showed that a cow which never had been considered a phenomenal cow, never made a great record for a week or a day, or, perhaps for a month, had, in the long run for the year come out ahead. Now, I know from my own experience with my own cows, and I know from observation among my neighbors, that the tendency, all the time, is for us to judge of a cow by the very best performance that she is able to make at any time during the year; when we succeed in getting a cow to give a pailful and a half of milk, and a pound and a half, or two pounds of butter, we gauge our value from that one single thing, whereas, this other cow, which never gives a wonderful mess, and never makes a large amount of butter, and of which we say: "She is a very ordinary cow," will in the long run do the best for us. Now, a cow has a right to be judged by what she can do, not for a day, but from day to day for a year, and there is no other way given under heaven, whereby you can find that out, except by keeping the record right along. Give her credit to-day only for what she does to day, and this week and next week, and next month, and every month for twelve months do the same and then foot it up, and we will find the old fable that we read years ago, of the race between the mud turtle and the rabbit affirmed. The rabbit distanced the mud turtle, of course, in the beginning, but the turtle kept plodding along and got to the goal first, and it is so with many a cow.

Mr. James Smith: I would like to ask what is the cost of a Babcock tester?

The Chairman: They cost all the way from $4 up. A very good one can be bought for $5, and you can pay as much more as you please, according to the size and style of the machine. If you want to be very economical, you can get one for $3 or $3.50 that will test about two bottles, that is, make two tests at a time. The five dollar machine will give you four bottles and some make them for five dollars that contain six or eight bottles. It is a small investment and the best investment that I know of and the greatest benefit derived from it of anything in the way of an invention along dairy lines. No man can afford to run a herd of dairy cows without a Babcock test in the family.

Secretary Burchard: The utility and the value of the Babcock test has been spoken about, but it has not been said that this Babcock test has been given, not only to the people of Wisconsin, but to the people of the world, by the Wisconsin College of Agriculture and Experiment Station, and I undertake to say here and now that the benefits conferred by the Babcock test upon the people of Wisconsin are far, very far, in excess of the cost of the entire Agricultural Department of the State University; that it has proven a profitable investment if they could not show anything else; and when you people hear, as you will hear everywhere, a little bit of criticism; "Well, that is costing a good deal, isn't it? We have paid so many thousands of dollars for that Agricultural Department," just remember that no good thing ever comes without cost. I remember that Dr. Holland says something to the effect that when you undertake to get something without paying for it you generally get cheated.

Now, when you hear these criticisms, just point to this one thing, and that is not all by any means. We will show you here another thing that has come from the Wisconsin Experiment Station, the Wisconsin curd test, and we will have it exemplified before you, whereby any man can take samples of milk and can tell you to a nicety whether they are fit for making cheese or not. But just bring it right down to this one item of the Babcock test, and it can be clearly demonstrated that it has been of more value to the people of Wisconsin than the entire cost of the Agricultural Department of the University.

The Chairman: Your president seconds the motion. That is all right. There is lots of this sound philosphy, you know, that never gets out so people can see it in its true light. I am glad these facts are going on record. This last year the college at Madison, the Dairy Department, gave to this Association two expert cheese makers and we sent them out to give instructions in making cheese, and largely through their efforts a great uniformity in the make of cheese is seen and the record shows that it is bringing about a cent a pound more on the market, and that means about $60,000 more to the state. Canada cheese is bringing a better price than ours, but we are going to try and make better cheese than Canada and get two cents a pound more than we have and make it $120,000. That is one of the positive things in our experience as dairymen that we want to work for and reach.

Prof. Henry: Very nice things have been said here of the Agricultural College by the secretary of this Association. To show how far back things reach and where the roots go to, I want to say that the Wisconsin Dairy School is the outgrowth of the Wisconsin Dairymen's Association. It is that Association that pushed the Agricultural College, with Hiram Smith on the Board of Regents, and it was Hiram Smith on the Board of Regents, backed up by the Wisconsin Dairymen's Association, who said, "We must have a dairy school." It was Charles R. Beach who stood up and said, "That building must be put up this fall," and it was about fourteen weeks after that that the school was practically built and we had one hundred pupils; and every year since then we have turned away pupils. I am asking now that the building be enlarged and I want you to back me up and help that good work along.

The Chairman: I think I can pledge the faithfulness of this Association to hold up the arms of the director while the battle rages at Madison. Don't let them go, Professor; they will give it to you, because we all want it.

Farm Accounts.—Information Wanted.

ED. HOARD'S DAIRYMAN:—I have some 300 acres of farming lands in the state of New York, and would like some of your patrons to give a form and system of keeping farm books or accounts, something simple yet accurate, so that at the end of the year, it can be seen at a glance, just what has been received from all sources, and how the money has been expended, and the different items, as dairy, pork, hens, etc., kept so that it can be seen what each produced and what the cost of production has been, so that it can be seen which is the most profitable. No doubt many of your patrons would be willing to give their form or system, some of which might be of much use to others.

Brooklyn, N. Y. C. D. RUST.

I Can Sell Your Farm no matter where located. Send description and selling price, and learn my successful plan. W. M. OSTRANDER, 1215 Filbert St, Phila., Pa.



Cow Hopple
For Kicking Cows.
Either from habit or from sore teats. **Price 50c.**
Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars
Agents Wanted.
Henry Bassett,
Salem, New Jersey.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis

$50 A BULL CALF, solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month. 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

DE KOL'S BUTTER BOY No. 19210.
Son of the great DeKol, and Royal Paul No, 22979. Combining the blood of Pauline Paul, Pietertje 2nd, Koningen Van Friesland 5th and DeKol in one sire, head our choice herd of over 100 Holsteins. Sons ready for service, and heavy milking cows bred to them, for sale. Write now to **Dellhurst Farms,** Mentor, O.

McGEOCH FARM Holstein-Friesians.
Herd headed by Gem Pietertje Hengerveld Paul De Kol and Johanna Paul Colantha. A few young bulls, 3 to 7 months old for sale at bargain prices. H. B. DAGGET, Mgr., Lake Mills, Wis

MEADOW LAWN HERD Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

DE KOL 2nd
Is the world's four-year-old, and greatest officially tested butter cow in Holstein history. Her record at four years old is 33 lbs. 6 oz. butter in 7 days; at 11 years, 26 lbs. 9 oz. in 7 days, official test. De Kol 2d won the Register Butter Cup, valued at $200. Valley Mead Farm is in a position to give the blood of this unrivaled butter cow, through her greatest and only son in the west, called De Kol 2d's Alban. His daughter holds the world's official test for one day in America, viz., 4.83 lbs. FOR SALE—Young bulls, grand sons of De Kol 2d. Valley Mead Farm, Monticello, Wis

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

ELGIN BELLE.
With the largest daily butter record in the advance registry. Viz: 4 lbs. 10oz., and 31 lbs. 9½ oz in seven days, 100 lbs, 6 oz in 30 days, is another of these famous dairy cows which have been gathered together at Valley Mead Farm. The performance of Elgin Belle for milk and butter both for two years in succession, stands unapproached in the history of dairy cows. Her yield of milk in two years, of over 40,000 lbs., and making the above phenominal tests, will justify the statement. Hoard's Dairyman says: "Elgin Belle is an excellent cow, with few equals and still fewer superiors. Her conformation clearly indicates this." Elgin Belle and two daughters are breeding. **Valley Mead Farm, Monticello, Wis.**

The Best Investment
For you this summer may be a fresh supply of . .
BUHL Tinned Steel Milk Cans.
They do not leak, break or rust, and keep the milk cool and sweet.
Write For Catalogue.





HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Riverside Guernseys, CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

GUERNSEY CATTLE
The Old Homestead Herd has more than duplicated its record of last year, at the Ohio, Ind. and Ill. State Fairs again in 1899, winning not only over two-thirds, but three-fourths of all prize money offered on Guernseys at the above fairs. This herd was not defeated at Wis., as might be your impression from the report of awards, but was withdrawn in the third ring, yearling bulls, on account of what I regarded as an unfair combination on the part of Wisconsin's Judge, Ass't Superintendent and an exhibitor. The Assistant Sup't of Dairy cattle being an exhibitor in his own department, contrary to the Society's printed rules, and receiving on his yearling bull an unmerited award from a judge who was his intimate friend. L. V. AXTELL, Perry, Ohio.

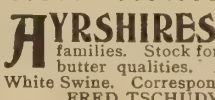
ROSENDALE GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWE, Mechanicsburg, O.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

HAND SEPARATOR DEVELOPMENT.

An Australian Expert Answers Some of the Objections to its More General Use.

Writing to the Australian *Farm and Dairy* upon the subject of private separator development, L. A. McIntyre answers some of the common complaints against the hand separator on the farm, and seeks to show how the troubles which stand in the way of its more general use may be removed.

Mr. McIntyre says that "the payment for cream according to quality is the only sound and honest way to promote the best interests of the dairy farmer, and the more fully it is recognized the more completely will our farmers be educated to understand that without their intelligent co-operation it is impossible to raise the quality of our butter product to that standard of perfection necessary to complete successfully with other nations. This co-operation is not only required where the farmer supplies cream from a private separator, but also where he supplies milk to a skimming station.

"The principal grounds of complaint against private separators have been: First, that a portion of the cream from them has been over-ripe when delivered at the factory, and, secondly, that there is a wide difference in the density of the cream; but each of these faults are remediable, and where they exist are attributable to either a want of knowledge, carelessness, or an absence of cleanliness on the part of the farmer.

"To ensure a sweet cream it is imperative that cleanliness should be strictly observed from the time the milk is drawn from the cow until the cream is delivered at the factory. All animal or vegetable decompositions productive of foul odors, should be removed from proximity to the milking shed and dairy, all vessels and utensils used in connection with the milk and cream thoroughly scalded and rinsed, the cows' teats and udders carefully cleaned before milking, the dairy or separator house kept scrupulously clean, well ventilated, and with the floor so constructed that splashes of milk cannot remain in crevices and thus produce taints.

"Some substances are subject to much more rapid decay than others, and few more liable to early deterioration than milk or cream, especially if it comes in contact with air containing the germs of fermentation. It has been proved that the ferments conveyed to cream in this way are fungi of one kind or another, which have been thrown off by some animal, from vegetable decomposition, or produced by cesspools or manure heaps. At temperatures which suit their propagation these ferments multiply very rapidly, and bring about early destruction, especially in substances rich in nitrogen, such as milk or cream. Cream will also quickly absorb any taint that may be in the air, whether putrefactive or not, and the butter made from it will be more or less injured.

"A common error with private separator owners is to mix the cream at varying degrees of temperature, running the warm cream from one milking direct into the can or vessel containing that from the previous milking. In most instances the cream is extracted immediately after milking, and contains a certain degree of animal heat. It is most important that this heat should be removed as soon as possible, to effect which it should be run over a cooler, or, in the absence of this operation, the can or vessel containing the cream should be placed in a cask or tank of cool water above the height of the cream, and kept at an even temperature until taken for delivery to the factory.

"The second objection raised to cream from private separators, viz., variation in density, is one that affords an easy remedy, especially where it is being sent to any up-to-date factory, which is fitted with vats for cooling and blending. It is generally agreed that cream skimmed so that it will produce from thirty-five to fifty per cent of butter is capable of being churned into a first-class butter, and it should be an easy matter for our factory managers to educate the farmer to regulate his separator to produce a cream between the two above mentioned degrees of density. A few farmers will persist for reasons which, if obvious; are not very sensible—in running their cream very thin; but, if they only considered the loss they were sustaining through the unnecessary quantity of milk left in it, they would effect an alteration. This milk would be worth about one farthing per gallon for feed to calves or pigs. My experience is that the great majority of farmers are anxious to carry out the instructions of factory managers as to the thickness at which cream should be run, and if the managers fail to instruct them the fault is more theirs than the farmer's.

"An opinion has been expressed by some dairy people that the general introduction of pasteurization will kill the private separator, but I am disposed to think such an opinion somewhat premature, as it has been proved that private separator cream can be pasteurized with most satisfactory results, providing it is in a proper condition for being thus treated. In pasteurizing either milk or cream successfully, it is necessary that each should be perfectly sweet. The general application of the system of pasteurization will bring about a compulsory reform both in the delivery of milk and cream that will be generally beneficial.

"In outlying districts, where there may be a number of private separators, a central pasteurizing plant could be placed to which the cream could be taken, and thus the cost of conveying it to the factory would be minimized."

That Cowy Odor.

It is frequently remarked by those who are questioned about their fondness for milk that they do not like it because it has such a cowy odor. Some seem to think this odor is inseparably connected with milk, but this is not the case. The cause of it will be found in filth dropped from the animal's udder and flanks while milking, in nine cases out of ten.

One great fault with the way some people handle milk lies in the carelessness of the milker. For them to brush or in any way clean a cow's udder before sitting down to milk would be considered altogether too much trouble.

"It will all come out when it is strained," they say, and strip away regardless of falling hairs, scruf, or particles of dirt and filth loosened from the flanks in the operation of drawing the milk.

Here is a solution to the cowy flavor which some milk possesses. As a remedy, brush the udder and flanks well before beginning to milk, passing over them a moist cloth or sponge to arrest any loose particles liable to fall after sitting down to the animal. It is best to prevent foreign substances from getting into the milk at all, but it is better if they do get in to remove them as soon as possible rather than let them remain.

"I can't bear to drink the milk we buy," said a lady one day, "there is so much dirt in the bottom of the dish when I pour it out."

There is no excuse for such a condition of things—not the slighest. If the men are not as careful as they should be, all the more is there a necessity for carefulness in straining it. Any woman who contents herself with a wire gauze strainer, no matter how fine it may be, is allowing a great deal of filth to go into the pans or milk cans. It is impossible to avoid this unless a cloth strainer is employed. Of course no one would knowingly be careless in this respect, but it is through thoughtlessness that it is done.

If it is believed that the wire strainer is sufficient, just try three or four thickness of cheese cloth secured to the bottom of the strainer with a hoop or ring. After a pailful of milk has been strained, remove and inspect it. Flannel makes a perfect strainer so far as thorough work goes, but it fulls in the washing and sometimes the milk does not pass through freely.

Where the milk is set in deep cans the strainer usually furnished with them has a tin band or hoop to hold the cloth strainer in place over the bottom. But whatever method may be resorted to, see to it that the milk passes through several thickness of cloth after it has been put through the wire gauze strainer.

These strainer clothes are difficult to keep sweet in hot weather. They are best first rinsed in cold water, then thoroughly washed in that which is luke warm, or a little more, without soap. Borax is a good cleansing agent; so also is salsoda, but beware of soap. It makes any kind of milk things slimy, such is its action upon any thing which has not been thoroughly freed from all trace of milk. Scald the cloth at last and snap it vigorously to free the meshes entirely from any particles which may be lodged therein. Hang in the sunshine to dry whenever possible.

Bleached butter cloth or cheese cloth costs but six cents per yard, so do not try to use a strainer very long, but cut a fresh one Any-

Wells Richardson & Co.'s Improved Butter Color

THE BEST IS ALWAYS CHEAPEST

"THE KIND THAT HAS NO MUD"

can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT, and NEVER becomes RANCID. It is for sale by All First-class Dealers.

Harmless As a Big Red Apple.

Everybody wants and has a right to insist upon pure food. Not only that which is free from adulterants, but especially that which is free from poisonous compounds. Some states have pure food laws which are directed at adulterants. New York has gone them one better and enacted a Butter Color Law, which is directed at the poisonous compounds now being sold as butter color.

Thatcher's Orange Butter Color

is as harmless as an apple. It is composed of perfectly pure and healthful vegetable substances. The highest authority in the United States, Prof. H. W. WILEY, Chemist of the Agricultural Department at Washington, says it is **a harmless preparation of Annatto having high coloring power.** Remember that coal tar and analine dyes are rank poisons and should never be used in coloring butter. Use only Thatcher's and preserve and increase the reputation of your butter, Remember every drop of Thatcher's Orange Butter Color adds to the weight of butter and is guaranteed as represented.

Send for Sample and Full Information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.



THE AMERICAN Cream Separator

PRICE - - $65

Still at the head, receiving **First Premium and Diploma** at the St Louis Fair, as the

Best Cream Separator For Farm Use ....

Send For Descriptive Catalogue.

Canadian Agents:
RICHARDSON & WEBSTER, St. Marys, Ont., and
S. M. BARRE, Winnipeg, Man.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

Preserves

—fruits, jellies, pickles or catsup are more easily, more quickly, more healthfully sealed with Refined Paraffine Wax than by any other method. Dozens of other uses will be found for

Refined Paraffine Wax

in every household. It is clean, tasteless and odorless—air, water and acid proof. Get a pound cake of it with a list of its many uses from your druggist or grocer.
Sold everywhere. Made by
STANDARD OIL CO.



MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read....

ALUMINUM "STAY THERE" EAR MARKERS

Can't pull out, rust out or tear out. Name, address and consecutive numbers on each tag. Free sample, catalog etc. WILCOX & HARVEY MFG. CO. 196 Lake St. CHICAGO, ILL.

FOR SALE.

Wishing to retire from business, will sell one hundred (100) cows, farm and fixtures, at a bargain. Buildings nearly new, with running water, and the highest price market for all milk raised.
Address A. B. FARMER,
Lyons, Somerset Co., N. J.

thing used about milk must be kept perfectly sweet.

And by the way, this is a good time to speak about the care of the wire gauze strainers. How few there are that are kept perfectly clean. After they have been used a while they begin to get clogged.

Shall I tell you how this comes? One cause is pouring hot water over the strainer without first washing it with cold. The hot water cooks the milk and leaves the meshes of the wire clogged as a result. Be sure to rinse with cold water first every time.

If the milk things are not washed immediately after using, rinse them at least, not allowing the milk to dry on them.

If a stiff brush is used in washing, every tiny bit of foreign matter can be removed from the wire. Never put the strainer away until it is perfectly clean, and all the meshes distinctly visible when held to the light.

A yellow deposit is sometimes seen upon the surface of milk pails, strainers, etc. This is caused by washing in hot water before rinsing in that which is cool, The hot water cooks the milk the same as it does in the wire gauze of the strainer, thus forming the deposit noted. When this is visible it is difficult of removal. Perhaps dry salt is as good as anything to use. Scrub vigorously with this; it is an excellent cleansing agent anyway.

Any one can not be too careful in caring for milk things. Utmost cleanliness must be observed in every particular, if best results are to be expected.—*Northwest Pacific Farmer.*

Some Good Thoughts For the Dairymen to Think.

Geo. E. Newell, in the *American Cultivator*, puts several things together in a clear, terse manner as follows:

A good dairy region exists where there are good dairymen.

Well-fed cows do not have to show up pedigree to establish a milk record.

There is more money for the average dairyman in keeping his pasture fences in repair than in looking after political fences.

Talking about farm wages, how much does the average dairyman's wife usually receive?

A "practical dairyman" is one who makes a profit out of his cows.

If your cows shrink in milk yield during stormy weather it shows that you have not given them sufficient protection from the elements.

A cow, like a man, is known by the company she keeps. Don't let her get poor by allowing sheep to eat the grass from under her nose.

You cannot perpetuate good meadows and let cows graze on the rowen.

The maker who uses his or her finger for a thermometer, was never yet known to produce regular supplies of good butter or cheese.

There are other and better ways of encouraging a cow to give down her milk besides kicking her in the ribs.

The most nutritious grass grows on the best-prepared soil.

The man with a well-defined silo usually takes precedence when it comes to a profitable farm and neat, substantial buildings.

The hardest cow to milk is usually left to the hired man.

Carelessness and sour milk go hand in hand.

Greasy, soiled clothing marks a poor buttermaker.

Every year is a good dairy season for some. Why is it not so for all?

The dairyman with the longest head is apt to carry the longest pocket-book.

I never yet saw a profitable cow that was not docile and gentle, and in order to be such she had to have a docile and gentle owner.

A man does not necessarily have to become gray in acquiring the right sort of dairy experience. Some of the best dairymen I have ever seen were vigorous, alert, progressive young men.

How Oleo Displaces Butter.

Few people are aware of the great profit that the oleomargarine manufactures reap, or the competition the farmer must contend with. We take as a basis that there were 87,800,000 pounds of oleomargarine manufactured in the United States last year.

The average amount of butter produced by each cow in the United States is about 200 pounds a year. The amount of oleomargarine displaces 4,309,000 cows, worth at $30 apiece, $12,927,000. This will give some idea of the great loss to the farmers of the United States.

But now let us take the product and make a comparison between the loss of butter and the cost of oleomargarine, and see what a large profit goes into the hands of the manufacturers and dealers in imitation butter. The average wholesale price of oleomargarine is 10 cents per pound. The average price of butter throughout the year is 20 cents per pound. This shows the difference between the average price of these products of 10 cents per pound, but we will add 2 cents to the cost of selling the oleomargarine. This will leave a profit of 8 cents a pound on the 87,800,000, or a net profit to the dealer of $7,024,000 a year.

In looking at the cost of oleomargarine to the manufacturer we find that oleomargarine is composed of lard and tallow, which sells at 5 and 3 cents respectively, or an average of 4 cents a pound for the manufacture of oleomargarine. But we will be liberal to the manufacturer, adding 2 cents a pound to the same for the product when manufactured, which he sells for 10 cents, leaving him a gain of 4 cents a pound; and on 87,800,000 pounds the manufacturer makes the snug sum of $3,512,00. Added to this the $7,024,000 which the retailer makes we find that the oleomargarine business in the United States for one year has brought into the coffers of those engaged in the business the sum of $10,536,000.

From all the data that can be gathered, butter cannot be produced for less than 17 cents a pound during the year. The argument of people in favor of oleomargarine is that it is as good as butter. If it is, why do they not sell it for oleomargarine, and not butter? You will find all the dealers in this product throughout the United States want their oleomargarine colored and put up the same as butter. You cannot find one of them advertising oleomargarine for sale. Their place of business is always known as a butter store, using the words "Pure Dairy Butter."—*Grocery World.*

Testing Purity of Ice.

I am not an "expert" butter maker and I do not feel qualified to dispute Mr. Leighton's views on ripening cream. In fact, I entirely agree with him that impure ice is probably the cause of more bad flavor in butter than any other one cause. Ice should never be put in the cream if, when it is let stand in a cup or dipper until it is melted, the water is not good to drink. One cannot judge of its purity by allowing a piece to melt in the mouth, for the cold dulls the sense of taste so that the bad flavor is not noticed. But the result upon the flavor of the butter will be the same as if the dirty water the ice was cut from, was poured into the cream vat. I think also that if ice is used in the cream at all, it should be broken fine, not larger than walnuts, and the cream stirred frequently if not continuously, till the ice is melted.

Now, boys, I want to hit where someone's head probably is. How many of you have a little microbe breeding cesspool or trap in the creamery? Don't snap out "I haven't," and get mad, but listen. Have you a closed up step built on the floor—that is, floored up underneath? Have you a box of some kind to set your milk scale on or in, where you don't scrub regularly? Is there a knot hole in the floor that lets the slop through to rot and fester on the ground underneath? Are you sure your drain is running freely, and that there is no slop or filth standing around the top of the well and slowly filtering through the curbing into the well? If you are careless, letting any of these things go unattended, you don't deserve to be called a butter maker.

You can make your work a great deal easier and do it more thoroughly if you will devote a little time occasionally to making things handier in the creamery. You live there most of your waking hours, so why not fix everything as handy as possible? Don't let a thing go on in a state that it makes you feel like cussing, if you don't actually do so, every time you use it, just because you can get along tomorrow yet with it. If you intend to hold down your job it is not just tomorrow but months and perhaps years to put up with it. A little work and ingenuity will change the cause of trouble into a source of satisfaction and a saving of labor as well. A little thing like pulling out those unsightly nails in the wall that you don't use and putting them where you have use for them; fixing up a little shelf over the wash sink to put your soap, extra brushes, etc., on, and putting a shelf or table on the left end of your wash sink takes but little time, and will pay for itself every day you work.

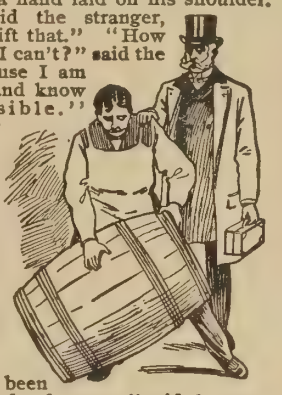
Of course, you are tired when you have to get up at four or five o'clock in the morning and work till afternoon as hard as you can jump, but if you will try to make everything as handy as possible you will be surprised how much easier your work will become, and others will notice that you are, unconsciously perhaps, doing your work more thoroughly. You will have, perhaps, a few minutes more time and you will wipe up that greasy engine and take up those loose bearings that you have been too busy to attend to. Soon you will be interested in your creamery and will stop thinking about how long it is till pay day. Then you will be on the road to success.—JEROME PFLAUM, in *Chicago Produce.*

SEPARATOR CREAM FOR ICE CREAM

We often hear complaints from ice cream manufacturers that they cannot use separator cream successfully for their product. The following from Mr. Harry Boswell, of the Sun set creamery, in Portland, Maine, may prove valuable as giving a few hints for the proper management of such cream for the making of ice cream:

"The milk is taken the first thing, and run through an aerator and the temperature reduced to 40° F., which takes out all the animal heat," he continued, "and then placed in aerated cans and taken to our skimming stations, where it is heated to 70°, prior to being run through the separator. When the cream arrives in Portland, it is again chilled to 40° F., which absolutely purifies it of any impurities which might, by chance, have escaped the separator. You see, we run our separator a thousand revolutions higher than usual, which is an effectual purifier. The next step is to put the cream into the ripening vat, where it is prepared for use in ice cream. This is but a mere outline of our method of handling the ice cream branch of our business.

A man just in the act of lifting a barrel of flour felt a hand laid on his shoulder. "Stop!" said the stranger, "You can't lift that." "How do you know I can't?" said the man. "Because I am a physician, and know it's impossible." "That may be," said the man, "but I know I can," and he stooped and lifted the barrel to his shoulder. "What made you so sure you could do it?" asked the astonished physician. "Because I've been doing it every day for years," said the man.



There are physicians who say in good faith to those whose lungs are worn by disease "It is impossible to help you." And yet thousands of these impossibles have been helped and healed by Dr. R. V. Pierce whose "Golden Medical Discovery" has cured them, when the hollow cheek, the rasping cough, the burning flush, and night-sweats have all pointed to consumption.

Ninety-eight out of every hundred such impossible cases can be cured says Dr. Pierce. What makes him so sure? Because he has been curing just such cases for more than thirty years. "Golden Medical Discovery" is strength to the stomach, life to the lungs, nourishment to the nerves. It makes new blood and the new blood builds a new body—a fit temple of health.

There is nothing just as good as "Golden Medical Discovery," so let no one deceive you into accepting a substitute.

"I beg to state that I have used three bottles of Dr. Pierce's Golden Medical Discovery since my correspondence with you and find great improvement in my case," writes Mr. A. F. Novotny, of New York, N. Y., (Box 1437). "I feel that I am in need of no more medical assistance. When I started to take your medicine I had a regular consumptive cough, of which I was afraid, and every body cautioned and warned me concerning it. I was losing weight rapidly, was very pale and had no appetite whatever. Now my condition is changed entirely. I do not cough at all, have gained eight pounds in weight, have recovered my healthy color, and my appetite is enormous. I can recommend your medicine, as it is a sure cure, no humbug, as are most other patent medicines."

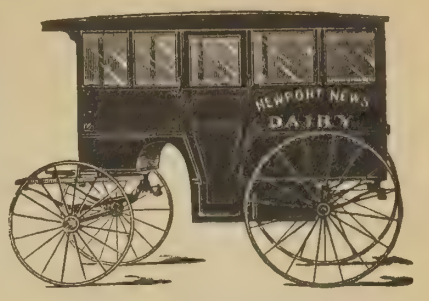
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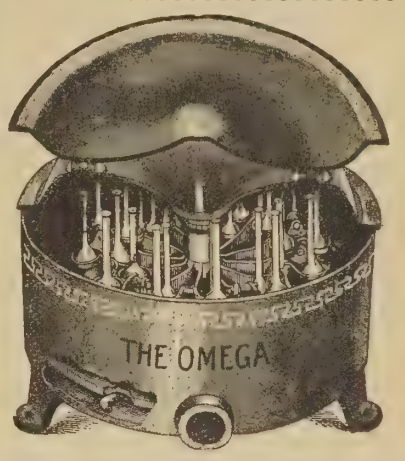
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Concerning That Last Fall's Symposium.

ED. HOARD'S DAIRYMAN:—Last winter, while attending the institute, I interviewed a few dairymen, in connection with the work I was doing, having that list of questions you formulated and sent out, in view. It was impossible to obtain trustworthy and satisfactory answers to all the questions, but enough were obtained, I think, to be of some value to the DAIRYMAN'S family of readers. The matter is such, although somewhat late in appearing, owing to its being mislaid, that it is just as good now as when the interviews were had.

NUMBER ONE.

Hon. D. P. Witter, Richford, Tioga County:—Average number of c ws in the dairy in 1897, fourteen, all of which were heifers, none above four years old, and one-half but two years. Milk went to a creamery. Receipts $50 per cow. The other accounts have not all been properly kept. The cows are grade Jersey and grade Holsteins. The estimated cost of keep was $28 to $30 per cow.

I have no use for dual or all-purpose cows. Mine are special-purpose, which is m lk. My Holsteins have been graded up to nearly full blood. I have not bred from any of the bulls you mention, for milk purposes, so have no records from such.

The constitution of my herd has not been weakened in the least, by breeding. I have never lost "a hoof" of any kind. Not more than five out of fifty heifers will fail to make two-hundred-pound a butter or better, in a year; many of them made good per cents above those figures. I have cows from which I sold $100 worth of milk each, at the creamery, in a year. The average of the herd is seven thousand pounds of milk.

The average butter fat is not far from 3.5%. One heifer four years old, averaged 55½ pounds of milk dai'y in January. I milked one cow till she was thirteen years old. She was giving 11,000 pounds per year.

I have an octagon silo of 100 tons capacity. I use Sibley's Pride of the North corn. Have never fed summer silage. My cows go dry August 1st, and are due to freshen in September and October. I begin feeding silage November 1st, and continue to May 10th to 15th. If I run a summer dairy I would certainly feed summer silage. Wheat bran, gluten and some buckwheat middlings are fed to balance the ration. Never feed corn meal; there is corn enough in the silage. My yield of silage is twelve to fourteen tons per acre, put in the silo at a total cost of $1 to $1.25 per ton. This includes all labor, use of the land and the cost of the fertilizer applied. Food value of silage is two and a half tons equal to one ton of good mixed hay. The cost of putting a ton of mixed hay in my barn will average nearly $3.00; fully $2.50. I grow all the clover I can and feed it twice a day, using about eight pounds per cow. I have 142 acres in my farm.

NUMBER TWO.

H. W. Mann, West Eaton, Madison county:—My herd consists of seventeen grade Holsteins; average yield of milk 6,000 pounds per cow. Milk all shipped to New York. Heifer calves all contracted a year ahead, for raising. Average price not far from $6. Milk ranges from fifty-five cents to $1.00 per hundred pounds. I raised five heifer calves last year. Do not know what the cost of keep per head is. I feed well and liberally and receive a good profit from it, at present prices.

My cows are all special-purpose, which is milk, and are fed grain of some kind every day in the year. I used a thoroughbred Holstein bull to grade up my herd, and now have his daughters in milk. I would not, under any consideration, breed from a Red Poll, Devon, Durham or Swiss bull. Have never bred from a general-purpose bull, so have no records from such. My heifers from Ayrshire stock were not nearly so valuable as my present ones. I am a firm believer in special-purpose cows, keeping none but the best of those I raise, caring for them well and feeding them liberally.

Milk is not Babcocked in this town. I weigh each cow's milk once a month, and have made some private tests. They average about 3.4% fat. Could not give you now the earnings of my herd, but have the figures at home.

(Mr. Mann's record is necessarily incomplete, having given it to me away from home.—*Reporter.*)

NUMBER THREE.

B. C. Cook, Cazenovia, Madison County:—My farm contains one hundred and twenty-two acres, on which I kept eighteen cows last year, and eleven head of young stock. Made butter for private families, which sold for thirty-five cents per pound. There are many city people having cottages near our lake and a large number of residents who take city boarders and who want nothing but the *best* of dairy products. Receipts for butter, including that consumed on the farm, $75; including calves, $85 per cow. Estimated cost of keep not more than $40 per cow. Fed ensilage twice a day and about one ton of hay per cow. No objection was made by our patrons because we fed silage.

I aim to raise as much of the grain foods as possible. Last year I harvested one thousand one hundred bushels, and bought about one hundred dollars worth of bran. I kept twenty-nine cattle and nine horses; no sheep. I pay about five hundred dollars a year for the labor of two men.

I keep none but special-purpose cows—those for butter production. I don't want any general-purpose animals, wagons or farm implements on my place. My herd was a mixed one when I began grading it up. I had Holsteins, Durhams, Galloways and natives. I bought a thoroughbred Guernsey sire and began to grade up the herd. My first increase was spoiled when young, by over feeding, and was made too fat; but the next issue was fully 20% better than the original. I cannot give you all the figures you want, for the reason that I shifted from cheese to butter; then, too, I have no way of really knowing just what the old ones did, because the milk was pooled.

I would not breed my cows to a Red Poll, Durham, Swiss or Devon bull, but would use only full blood Jerseys or Guernseys, and would keep each family separate. One should never, in my opinion, cross the pure breeds, no matter what they are. If I were to start again, I would begin with native cows with no strong blood ties to influence the pure blood which I wished to introduce. I have never bred from any general-purpose, grade or beef sires, and would not under any circumstances. Would sell my herd and go out of the dairy business before I would do that.

My heifers are too young yet for me to estimate the per cent of the increased yield of butter, but I have some young things that are producing a pound of butter per day. As a rule, my cows are not dry more than two months of the year. My preference is to milk a cow 300 days and allow her a rest of sixty-five days. My original herd, I do not think, averaged more than 150 pounds of butter per year. I cannot tell, however, because I made cheese at that time.

NUMBER FOUR.

F. C. Overton, Belleville, Jefferson County:—My herd formerly consisted of forty-five; last year I milked thirty-three. Milk went to the Belleville factory which made both butter and cheese, and was Babcocked. The factory is run every day in the year. Receipts, including calves, $53 per cow. Cost of keep, all told, about $40 each.

I began using a thoroughbred sire in 1888. A large number of the original herd were, practically, thoroughbreds and consisted of Durhams, mainly. There were a few Ayshires, nearly full bloods. About one-half of the present herd is now thoroughbred Holsteins, having purchased an imported sire, "Mary's Charm," at the time we commenced to grade up. The stock came from the herd of Henry Stevens & Sons, Lacona, N. Y. The other half of the herd is high grade Holstein, some as high as seven-eights. We reduced the herd from forty-five to thirty-three, but are receiving as much from the latter as from the former, which is practically one-third more per individual with a less cost of keep, because we now have a silo. Our first cross was fully 20% better than the original. I would not breed to a Red Poll, Swiss, Durham or Devon sire for dairy purposes under any circumstances. Would allow the entire herd to go farrow before I would do such an act.

I do not think I had more than one good cow out of each five, when I used a general-purpose or grade sire, and, when I did get one, I believed she owed it all to her mother.

I have not kept a record of performance of my heifers, but think that 75 to 80% of them will mature into cows, making more than 200 pounds of butter each in a year. My original herd did not give more than 3,500 pounds of milk each. The present one gives nearly 5,000 pounds which will produce fully 250 pounds of butter. The value of skim milk and whey from the dairy, last year, and which was fed to pigs and calves, was not less than $5 per cow.

There are twenty of the herd that drop their calves in late fall and early winter so that, practically, we have sweet, new separator milk eight and a half months of the year. Cheese is made during about three and a half months, and I do not consider the whey item of much account. If sweet, and it be mixed with ground grain, it is worth to me about five cents per hundred pounds to feed to calves.

No matter how good one's cows are, there will be more or less of them each year that must be, for various reasons, disposed of; but good cows are always in good demand, while poor ones go at a discount. As an illustration of this, I will say that I sold, one fall, when fodder was scarce and high in price and cows plentiful and cheap, three cows for $110. The same day a near neighbor sold six out of his herd for $96.

NUMBER FIVE.

C. M. Overton, Belleville:—My herd consists of twenty cows. Milk goes into both butter and cheese, being made up at the Belleville factory. The receipts last year, including calf, were $42 each. Cost of keep $30, and I consider the manure worth fully the cost of caring for the herd. The herd is Holstein, therefore, special-purpose, dairy cows. I have not estimated cost of labor, nor kept full record of it. Our herd was graded up by using a thoroughbred Holstein sire. I would not use a grade, general-purpose or Swiss, Devon, Red Poll or Durham bull. Years ago I used grade and beef type sires, but do not believe that one in ten of the heifers ever made good cows; but I do not believe my Holsteins are quite up to the Durhams in constitutional vigor. The original herd was grade Durhams and natives.

I began grading up my herd in 1890. The cows gave an average of 3,000 pounds each. The present flow is 5,000 pounds, and I am keeping the same number as then, but at less cost, for the reason that I have a silo. My cows are good milkers and are paying a good profit, but I have received more from the sale of milch cows from the herd, in proportion, than for cheese and butter, when average cows were at a much lower price, and I would not entertain for a moment, the thought of going back to the old stock. Last year I received $480 more from eighteen cows than I could have got from common ones. If I were going to change the breed of my herd, I would buy a Jersey. I do not think, however, that the proportional increase in the weight of my calves, over that of the former herd, is much, if any. I raise all of my heifer calves, and have during the last ten years.

I now have fourteen thoroughbred cows, so raise but few grades. Those are from my best grade cows, and which have all the appearances of making good heifers at three years, the age at which they are sold.

The increase in production from my first cross was about 10%, and fully 20% from the second one. The figures are from 3,000 to 5,000 pounds of milk in three crosses.

DR. SMEAD'S OLD COW AGAIN.

In answer to my letter asking for further information concerning his famous old cow



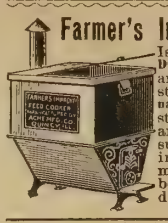
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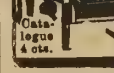
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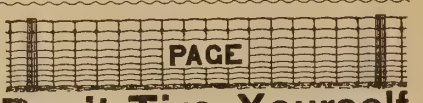
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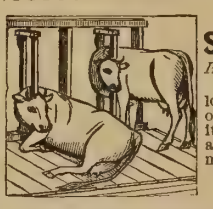
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Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials.

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A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884–'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

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The International Correspondence Schools,
Box 1242, Scranton, Pa.

and her first daughter, Dr. Smead writes: "The old cow is a cross breed, her mother being pure Ayrshire and her sire pure Jersey. In the year, 1896-1897, between calvings, she raised a veal calf, which sold at the age of six weeks for $13, besides producing nearly 7,000 pounds of milk during the year, ranging in butter fat from 4.8% to 5.6%. You can figure yourself, the amount of butter it ought to have made.

In 1897, at my request, my hired man, who is the owner of the old cow's first daughter and which is now over sixteen years old, and three-fourths Ayrshire, kept an account of the butter sold—not made—from her. He has a wife and a son, the latter man grown, in the family. This cow furnished a veal calf, which sold for $10, at four weeks of age; all the milk, cream and butter they needed in the family, and they sold 195½ pounds. Of course, I do not consider this return a phenomenal one, but very fair, especially when we come to consider the age of the cow, nearly fifteen years from the time of dropping her first calf."

Belleville, N. Y. C. W. JENNINGS.

THE SECRET OF DENMARKS SUCCESS..

Professor Marshall of the Michigan Agricultural College, has just returned from a three months' visit to Denmark. He says, after alluding to the high reputation which Danish butter has in England, "the high quality of Denmark's butter is dependent upon:

1. Cleanliness in milking, and in all butter making operations.
2. Pasteurization of the cream, which is, at the present time, practically universal.
3. The rational use of starters.
4. Careful supervision of feeds for milch cows.
5. The adoption of scientific practices in the creameries.
6. The stimulus offered by their butter shows.
7. The favorable location of the country.
8. The absolute control of export trade."

Commenting on this, the *American Cultivator* says:

"That last item we think, is of no small importance, and if the butter and cheese sent from this country, had all been inspected, and the imitations, and ladle packed butter, and filled cheese had been prohibited from exportation, and only the best grades sent out, our dairy products would nowhave a good reputation, fairly won on their merits."

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THE ONLY WAY TO TREAT BLACK-LEG IS TO PREVENT IT.

Black-Leg, known by the various names of Symptomatic Anthrax, Quarter Evil, Black Quarter, etc., is one of the most prevalent and fatal diseases among cattle. Owing to the concentration of the cattle industry, large numbers being herded together, the occurrence of the disease becomes a serious matter, calling for prompt measures.

Black-Leg is a disease caused by germs which multiply rapidly and are very infectious. These germs get into the animal through scratches or wounds in the skin, or through its food or drink. The spores (or seed) of these germs are very hardy. They will live in the dry state for months and possibly years, and can easily be carried from one farm or ranch to another, clinging to the skin or feet of the animals, and so scatter the infection. It is quite possible that the germs are also carried by the water, and so distributed from one ranch or farm to others. They also exist in the soil where an animal that has died of Black-Leg has been buried.

The symptoms of Black-Leg are well known to most cattle raisers. As a rule there is a tumor or swelling of the tissues beneath the skin, usually on the thighs, neck or shoulders. If this tumor be rubbed with the hand, a perculiar cracking noise is heard. This is due to the gas contained the tumor. Animals dead from Black-Leg bloat very rapidly, the skin being stretched until one thinks it must burst. This production of gas is characteristic of Black-Leg.

Some fifteen years ago "Arloing," a scientist, discovered a method of vaccinating against Black-Leg. This method has been extensively used in many countries, and is much the same as vaccination in human beings against Smallpox.

Experiments are constantly being made in the extensive biological laboratories of Parke, Davis & Co., Detroit, Mich., with preventives for Black-Leg in cattle. This house, in addition to being the largest manufacturing pharmacists in the world, have also the most extensive biological laboratory in this or any other country. As it is quite necessary, in order no insure good results in vaccinating your cattle with Black-Leg vaccine to employ the fresh product, it would be a safe guard to specify the make of this well-known American house. They also test every lot on cattle, and find t reliable before a single dose is put on the market.

Park, Davis & Co., for the convenience of th cattle raising communities, have placed their Black-Leg Vaccine on sale at all leading drug stores, and they will supply you with descriptive literature with full directions how to perform the simple operation, etc., free of charge on application.

Now is the time to vaccinate your cattle. Best results are always obtained in the fall and spring of the year.

ABOUT HAY PRESSES.

There are many hay presses on the market, some very good, some just good and others not so good. There are some that cannot do good work in all kinds of material, although doing fairly well when pressing nice hay under best conditions. We call those "not so good." Again there are others which do nice work as long as their complicated mechanism does not break. They stand the work nicely until some extraordinary strain, under unlooked for conditions is too much for their "constitution" and they break, usually just when the user can least spare the time to go to town for broken part. Such are "just good." Then there are the "very good" ones: they are extremely simple, very few working parts, with not a cog or chain about them. They hardly ever, perhaps never, break. They are powerful and put the hay into small compass so that full weight can be put into an ordinary box car; and they press hay, pea vines, shavings, excelsior, or anything else and do it well. Such an one is the Bradley Double Cam All Steel Press, shown in another column of this paper, to which your attention is called.

Attention is invited to the advertisement of the well known "Steam Feed Cooker," manufactured and sold by J. K. Purinton & Co., Des Moines Ia.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

Cow PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

REMOVING PLACENTA.

I have been troubled a good deal by my cows retaining the placenta, and there is no veterinary within fifty miles of me, that I am aware of. Can you give such instructions that will enable any careful person to remove it.

Last year I had a cow to come in heat in the pasture where there was a cow due to calve in two or three weeks, and this cow kept jumping the one in heat, and in two or three days after, she dropped a dead calf. I have had the same thing occur again this fall.

Do you think the cause of the dead calf being dropped before the time, was the cow riding the cow in heat? M.

Florida.

ANSWER.

You ask for a difficult thing. It is like asking for information how to play the piano, etc.

I will do the best I can for you. Within six hours after calving, pare your finger nails closely, cover with *clean* lard up to above the elbows. gather the end of the placenta between the thumb and fore finger of the left hand; then with care, find the other end of the retained placenta, pulling all the while with the right hand, and move the left hand, now expanded, but holding the afterbirth. When you are as far as you can feel, you may pull with both hands steadily, and always waiting for a strain upon the part of the cow. This she always does when the hand and arm is inserted. If the mass breaks in two, pull the first half away, and then feel for the other.

Should you fail in getting the whole, give ounce doses of fluid extract of cotton root in three ounces of water up to three doses only. If any continued discharge, allow the cow to lie in a well slanting position. One dose each day.

Most unquestionably the jumping did the damage. Cows in heat ought not to run with other cows.

POISON FROM EATING FOLIAGE.

We have lost two cows within the last week, of some disease, I know not what.

The first cow taken, a Jersey five years old, was very loose in her bowels, on Thursday, Sept. 21, and fell off in milk, but otherwise showed nothing wrong. Friday morning would eat nothing and gave no milk; was a little dull. I was away all day, came home in the evening and found the cow down suffering great pain, frothing at the mouth and a very high fever. She died shortly after I saw her. She was fresh last December, and was due to calve next November. This morning we found another cow dead. Last evening she gave her usual mess of milk, ate her feed and seemed all right; this morning at day break she was cold. She frothed at the mouth the same as the other one, as we could see, but further than that we know nothing.

The first cow did not swell after death; the last one swelled very tight and bled from the rectum and vagina. The last one was not with calf, and had been milking for eight months.

Crewe, Va. W. F.

ANSWER.

When living and practicing in Mobile, Alabama, I had quite a number of similar cases to yours, from eating the foliage, as above stated, and always in the autumn, when persons were trimming the trees. The symptoms were identical. There are several poisonous shrubs, and other sorts of vegetable poisons in the south, to which the north is quite exempt. I noticed the southerners did not seem to know or care anything about them, and took no care. I have no doubt your cows were poisoned as above.

STIFFNESS IN COWS.

About five weeks ago one of my cows got very stiff all over, and gave no milk scarcely, for about two weeks. I gave her a dose or two of physic, and she got over it. Since then have had four or five others affected the same way, except their mouths and teats got sore, and seem to be harder to manage. One other has gotten well; one has gotten to where she eats well, but is still very stiff, feet sore and legs swollen; all have much fever, bowels generally in good condition; in most of them the actions are a little tight; one case was the reverse, very loose and offensive; she has gotten well. I have physicked each one as they commence to complain, and some of them had as many as four doses. DAIRYMAN.

Virginia.

ANSWER.

It is utterly impossible for me to form a proximate idea of the cause of your cows' trouble. You give good and correct symptoms of several diseases, all or any of which may be the result of several causes, colds, damp, a current of cold air, several kinds of poison, both mineral and vegetable. I have had all the symptoms from cows eating the foliage of the wild orange and the different laurels. These contain a large amount of prussic acid. The best I can do for you, is to see to the cause and remove it. Surely your veterinarian ought to know, if he be a qualified one.

TUBERCULOSIS (?)—LUMP ON JAW.

The young bull, I wrote you of, (p. 119) is in a bad way. The running at the nose and cough persisted all summer. After any slight exertion, as running or climbing a hill, he breathed hard with open mouth and a crackly sound. Still he kept in fair flesh and grew. But a week or so ago he began to grow worse. He ran more copiously at the nose. His cough became worse. He ate little, and became poor rapidly. Now he stands in the barn with hanging head, breathing with a loud sobbing or grunting sound, and evidently with pain and difficulty. He refuses food and water, his nose runs badly and from his open aud foamy mouth the saliva drips continually.

Two-year old Jersey heifer with first calf has lump under point of each jaw bone nearly as large as a fist. Seemed an enlargement of some gland. No pain. One of these becoming soft and evidently full of matter, has been lanced, and discharged much matter. The other seems headed the same way.

Heifer has lumps apparent only to the feel or touch in the lower surface of udder just beneath skin. Lumps are size of hazel nut to size and shape of a large flattened hickory nut. On these presently appears a small scab. Have persisted for some weeks. Are a little, but not much, sore. G. L.

Adams, Wis.

ANSWER.

I don't think your bull worth anything. Can't say, but be careful and cleanse everything.

Second, you have some of the symptoms of cow pox, but you have a much worse condition. You have need of an expert upon the spot, the State Veteriarian is your best resort. He has authority to look into, and control all such suspicious subjects.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

MEN AND WOMEN Kidney trouble preys upon the mind, discourages and lessens ambition: beauty, vigor and cheerfulness soon disappear when the kidneys are out of order or diseased. For pleasing results use Dr. Kilmer's Swamp-Root, the great kidney remedy. At druggists. Sample bottle by mail free, also pamphlet. Address, Dr. Kilmer & Co., Binghamton, N. Y.

...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure **SCOURS** in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO., 159 Chambers St., New York.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to **H. W. KELLOGG COMPANY, Ripon, Wis.**

Dr. Horne's Anti-Abortient

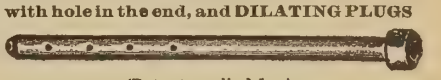
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



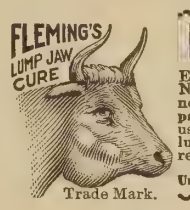
(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.



Trade Mark.

LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

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Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. SWORN testimonials furnished on application. **Dr. D. ROBERTS,** Veterinary Surgeon, Address, **Waukesha, Wis.**

Cows barren 3 years MADE TO BREED.



Book Free. **Moore Brothers,** Albany, N. Y.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for

ONE NEW SUBSCRIBER.

Transforming a Basement Stable into a Hog House.—Cement Floors and How to Build Them.

Mr. F. J. K., of Melvina, Wisconsin, writes for some information and advice in regard to remodeling a basement stable into a hog house, and laying a cement floor. His inquiry was referred to Mr. Theo. Louis who answers as follows:

The objection some people have made that stone walls are unhealthy for hogs may be applicable in measure to other live stock. The reason is plain, as walls are generally built solid. If an air space of from one and one-half to two inches is left in center of walls, and at intervals bound with stones running the whole width, frost will not draw through, and cause the damp conditions which prove, in long and severe winters, harmful.

Another objection is that there are seldom sufficient windows to admit light and sun. A hog house of large size, deprived of sunlight, would lose much of its effectiveness. As you have given no description further than the ground plan, I thought it well to draw you attention to these details that may be of money value in the future. However, you may overcome some of this by well arranged ventilating tubes.

The next objection would be that your pens would have to be arranged on each side of the drive way. If this is twelve feet wide, it would leave room on each side for only three pens for breeding purposes (deducting the wall) respectively 7½ by 13½ feet—large enough for that purpose. Allowing that you succeed in raising on the average seven pigs to the litter, you have forty-two pigs, not counting fall litters. You can arrange the driveway into a cemented feeding floor for that matter, and use it as a driveway just the same.

The next difficulty is that all manure (which will be considerable) must be handled from the drive way, either over the partition, or through the narrow gates over the troughs, as they would naturally be placed there. I have, of course, no conception where you would place swill tubs and feed material to be handy. The question of extra luggage and labor combined is a most serious one, and of itself would most overbalance the warm place you try to obtain.

As far as the question of cement floors being so cold for young pigs is concerned, you can overcome this by bedding two hard wood scantlings two by four, seven feet long, five feet apart, one directly under the fender against the wall or partition, and one of five feet on the open end. Let them extend one inch above the cement floor and fit in inch boards, which may be removed from time to time, during breeding season, to clean out.

The question of drainage and how to arrange for same, is left for you to solve, knowing the situation, but it must be attended to.

Now as to construction of cement floors, I will quote from Mr. Waldo F. Brown, of Ohio:

"First is, use only a good quality of Portland cement, for it only will give satisfaction under all conditions. It will stand the stamping of heavy, rough-shod horses in fly time; will not wet, and will endure a temperature of twenty below zero, as I have proven on my farm. It does cost two or three times as much per barrel as cheap grades can be bought for, but the floor will cost but little if any more, and when it is done you have a job that will give satisfaction for generations

THE FOUNDATION.

The first thing to do is to throw out the earth, and the excavation should be to solid soil. On my soil we dig down about ten inches and fill to within four inches of the top with small stone or gravel, and level it off and tamp solid. Next we fill to within half an inch of top with concrete. This is made by mixing gravel and cement, or part gravel, part broken stone, no piece larger than a hulled walnut, and part sand, will give the best concrete, and with these materials you can use to each barrel of cement five or six of gravel, three of crushed stone, and three of coarse sand, or, if the gravel is sandy, six of it and the same of stone. I use only gravel, as there is no machine for crushing stone in this locality, and use nine of gravel to one of cement. The material for the concrete must be thoroughly mixed. We measure it in a bucket, and build up a heap a foot or more deep, and beginning at one side, we shovel it over four times dry. The mixing cannot be too thorough, as every pebble should be coated with cement, so that it will adhere to its neighbor. The concrete foundation should be one solid rock when it hardens. The fifth time it is shoveled over sprinkle with water so as to thoroughly dampen it, but not so as to make it dripping wet, and now it is ready to be put down. Stake strongly some two-inch pieces at the edge of where the floor is to be made, and with a square and level get them in the right position and wheel the cement and spread it two inches at a time and ram solid. An iron pounder is best, but for a single job you can make a rammer of thick oak plank, three inches thick is best, but two will answer. Saw it eight inches square and bore a hole in the center and put an upright handle to it. The tamping must be well done, so as to leave no cavities, and in order to leave just a half inch of the finishing coat, use a straight edge, with a half inch cut-out at each end, and then as you lay it from one edge piece to the other you can get an exact half inch for the liquid stone.

Portland cement does not set as quickly as cheaper grades, and while I advise putting down the concrete as soon as mixed, if some is standing over night it will not be spoiled, but can be put down in the morning.

LAYING THE SURFACE.

As soon as the frame is filled with concrete, mix the mortar for the topping Coarse, sharp sand gives the strongest floor. I screen the sand out of gravel, from which the concrete is made, using a screen with quarter-inch meshes. Mix in a box, two parts of sand to one of cement, temper thoroughly and spread as soon as mixed, and fill to the top of frame. Turn the straight edge over and level off with it to the top of the frame, and see that the corners and edges are filled and smoothed. Lay the floor in sections about three or four feet wide so that you can easily reach across to trowel and float it smooth. Now carefully remove the edge piece and set it for the next section, using the floor for the straight edge to work on the side finished, and as you lay the second strip be careful to make the union perfect between the last strip laid and the one you are putting down. One barrel of cement, 380 pounds net, will lay one hundred square feet of floor.

Now, Sir, in conclusion, I want to say a word from long experience in hog raising. Hog houses and hog yards are better separated from barns that are used for other live stock. If one wishes to build a hog house of large dimensions, he should set it by itself and with a view to drainage and access to pasture, and the possibility of having fire in it for heating and cooking, without endangering other buildings. He should also provide it with feed room and corn crib and feeding floors attached. All this can be done economically, and have the animals under direct control. With a few good, cheap boards build sheds for feeders, and thereby save considerable labor, vexation of spirit, and building material of all kinds. To construct buildings warm and healthful, is cheap and available now-a-days, and I would think twice before reconstructing the barn.

THEO. LOUIS.

One Thing a Dairyman Cannot Afford to Be Without.

ED. HOARD'S DAIRYMAN:—Your kind invitation to renew my subscription to the DAIRYMAN at hand, and it is with the greatest pleasure that I send you $1.00 to pay for one year from Oct. 6th. Please see that I get the next number, as I do not wish to lose any of them.

I expect to more than double the size of my milking dairy within the next few years, and I consider the knowledge obtained by the reading of your paper, for the past five months, of great value to me in building up my dairy. It has caused me to make a constant study of the cow, and of my cows especially. It has taught me things that I had never dreamed of, that are of the greatest importance to any dairy farmer. I cannot afford to be without your valuable paper.

HERMAN SMITH.

Cattaraugus Co., N. Y.

Dairying in Kansas.

From the dairy statistics of Kansas, returned by assessors and just compiled by Secretary Coburn, of the Board of Agriculture, it is established that the state has this year again advanced in total output and value of her cow products.

The year's aggregate value of butter and cheese made and milk sold for other purposes is $6,643,058, the largest in the history of the state, being 9.8 per cent more than last year and $1,383,306 or 26.3 per cent more than the year before.

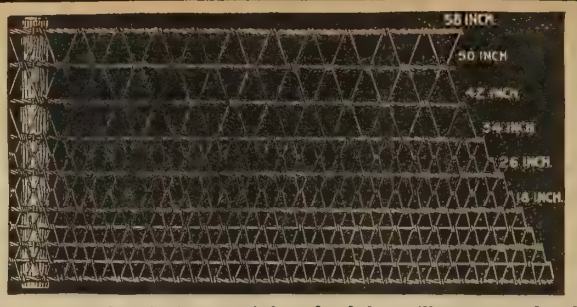
The total quantity of butter reported is 43,757,767 pounds, an increase over last year of 2,306,786 pounds or 5.56 per cent. Of this, 59 per cent or 25,809,112 pounds was made in families and forty-one per cent or 17,948,645 pounds in creameries. The value of the product from families is $2,839,003 and from creameries $3,031,269, making a total for the state of $5,890,272, or 10.71 per cent greater than in 1898. Mitchell county ranks first in the quantity of butter made, producing 2,217,904 pounds, followed by Reno, with 2,075,077; Dickinson 1,835,795; Sedgwick, 1,786,720; and Shawnee, 1,517,918.

The quantity of cheese reported is 1,163,680 pounds, or 255,285 pounds less than last year, and its total value is $104,731. Of the entire quantity produced 17.26 per cent was made in families, and the balance in factories The counties leading in cheese making are Shawnee, Dickinson, Jefferson, Saline, Neosho, the five being credited with a little more than one-half of the total.

The value of milk sold for other purposes than making butter and cheese was $648,054 or 5.22 per cent more than last year, and 11.16 per cent more than the year before.

While many unthinking persons may regard the products of the cow as of small importance, it is interesting to know that their total value is equal to 90 per cent of the output of the rich Kansas zinc mines and their products from Kansas smelters for the same time, and that it would pay the total state, county and township taxes for 1898, or within twelve per cent of the entire expenses of the splendid public school system for two years.

If the value of the large quantities of butter and milk consumed in the homes on the farms was added the grand total would he considerably increased, but unfortunately there is no account taken of that.



HOGS WILL ROOT

but the hog hasn't been bred that will tear up or break through the

ELLWOOD WOVEN FENCE.

Made of hard Bessemer Steel Wires, rust proof, and proof against all attacks of animals, heat or cold, dry or wet, wind or weather. Although the best, the **Ellwood costs but little** and is practically everlasting. Your dealer ought to have it. If he hasn't write for catalogue, etc., to

AMERICAN STEEL & WIRE CO., Chicago or New York.



FAST GRINDING

and perfect grinding is best done with this

Scientific Grinding MILL.

It is double action as both top and bottom plates revolve. Grinds ear corn, all small grains. Supplies power for other purposes at the same time. Other styles 2 to 50 h. p. Before you buy send for our descriptive catalogue, I.

FOOS MFG. CO., Springfield, Ohio.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

PARKE, DAVIS & COMPANY, Detroit, Michigan.

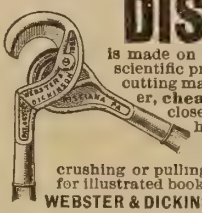
BRANCHES: New York City, Kansas City, Mo., Baltimore, Md., New Orleans, La., Walkerville, Ont., and Montreal, Que.



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Mention HOARD'S DAIRYMAN when writing.

The Improved CONVEX DISHORNER



is made on a different, better, and more scientific principle than any other horn-cutting machine. It is simpler, stronger, **cheaper**; easier to operate, cuts closer and more smoothly, more humane. The only dishorner that cuts all kinds, shapes, and sizes of horns without crushing or pulling them apart. Write at once for illustrated book on dishorning—free.

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WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet. ALL SIZES. WRITE FOR PRICES.

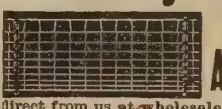
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Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., AT HALF PRICE.

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

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You can buy the



Advance Fence

direct from us at wholesale prices. It's a first-class fence in every way. Write for circulars and prices.

ADVANCE FENCE CO. 126 Old St., Peoria, Ill.

Macbeth's is the only lamp-chimney advertised.

What of that?

It's the only make worth advertising.

Write Macbeth Pittsburgh Pa

ADAM THE FENCE MAN

Makes Woven Wire Fence that "Stands Up." Cannot Sag.



Get his new catalogue. It tells all about The Best Farm Fence Made.

W. J. ADAM, Joliet, Illinois.

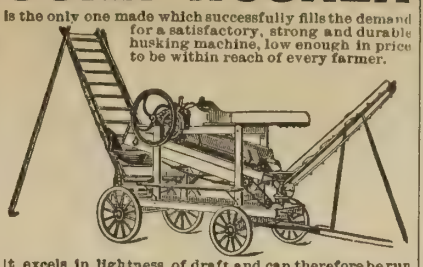
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Then you will need ensilage machinery.
THE ROSS ENSILAGE MACHINERY
is unsurpassed in quality, capacity, durability and ease of operation. Doubles the value of a corn crop. Catalog No. 7 Free.
The E. W. Ross Co. Springfield, O.



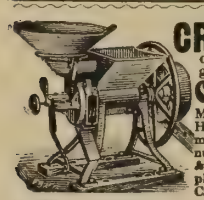
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Cuts 33⅓ % more than regular machine.
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Potash increases stiffness of stalk and plumpness of grain.
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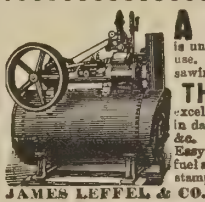

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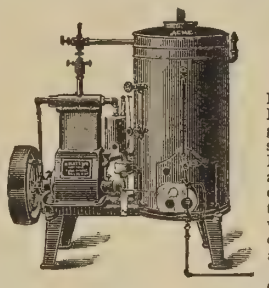

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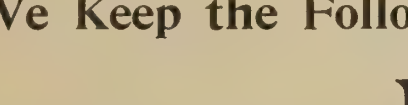
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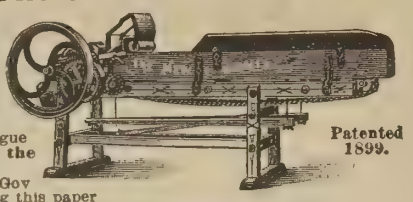
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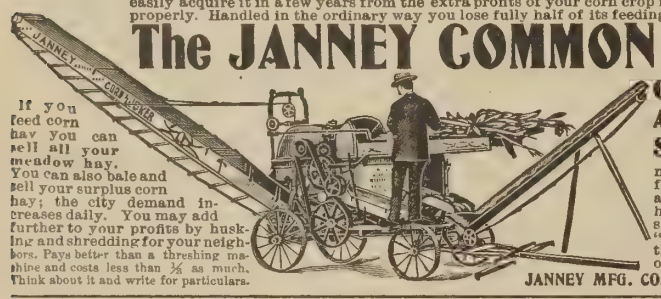
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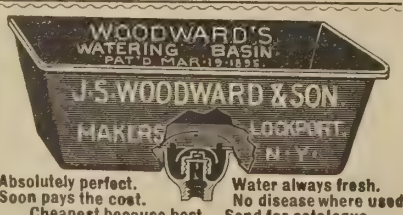
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A Perfect Milk Wagon



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Write to F. A. TRIPP, 34 Clark St., Chicago, for ENTRY BLANKS, or

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"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice, and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book.

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VOLUME XXX. FORT ATKINSON, WIS., OCTOBER 20, 1899. NUMBER 36

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100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for one gallon can. You won't regret it. Manufacturers of **LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc.** Manufactured by

CHR. HANSEN'S LABORATORY, Little Falls, N. Y.

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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**

Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

A Good Time . . . to overhawl your factory and make improvements is in the fall of the year, when the butter output is small as compared with spring and summer. You are not rushed now and have time enough to make your improvements right. However, in order to make sure of doing this work right, you should begin right, and a good start in this direction will be the placing of . . .

A Tubular Separator which, as you may possibly know, is acknowledged by impartial judges to be almost perfection itself in a cream separator. The Tubular has no equal; it excels all other separators in every particular. You will do well to write us for descriptive circular.

The Squeezer Combined Churn and Butter Worker in your factory would also be the right thing in the right place. Your old box churn has served its time and should be replaced with an up-to-date machine like the SQUEEZER. Possibly you have been induced to purchase one of the complicated combinations known as a churn and butter worker, and which were designed before experience had demonstrated what features are essential to the successful operation of such a churn. If you are struggling along with a machine of this kind it will pay you to discard it and get the latest thing out; the only simple and durable combined churn and butter worker; the well-known SQUEEZER.

A Russian Babcock Tester will save you much time and worry. It is always ready for action; always accurate; automatic in its action and the most durable tester made. We can supply you with the best of everything to refit your factory and will be pleased to name prices on our full line of . . . . .

Vats, Churns, Butter Workers, Boilers, Engines, Pumps, Piping, Butter Printers, Milk Cans, etc., etc.

The Sharples Company,

28, 30 and 32 So. Canal St., - CHICAGO, ILL.

I Find that the Tubulars are the "Boys" that can do it, not only in Test but in the Condition it Leaves the Cream in

This is the incontrovertible evidence of a practical creameryman of large experience as is evidenced by his letter given in full below. Like many other creamerymen he bought a large amount of expensive experience before he "got right." Our object in publishing this experience is to warn others against such mistakes. Start right and be right for all time by buying the unequaled, economic and absolutely safe

Sharples Tubular Separators.

BRISTOL, ILLINOIS. Aug. 18, 1899.

The Sharples Company, Chicago, Ill.

Gentlemen: By request of your representative, Mr. S. F. Greene, I will give a synopsis of my experience in creamery work.

In the spring of '95 I purchased a hand separator (De Laval) and 20 gal. churn, for my use in a little dairy of 33 cows. On the morning of July 5th my first patron delivered 75 pounds of milk, which I tallied on the wall, that being my weigh sheet for several weeks. My neighbors commenced coming with their milk, and the handles were soon displaced with wooden pulleys, and a tread power installed to drive the machinery.

In Dec '96 all of this machinery was thrown out and replaced with a steam engin, 150 gal. churn and an Acme separator. On the following June all of this machinery was again displaced by larger, as my old outfit was inadequate to handle the milk received, which was 4000 pounds daily and steadily increasing.

My present factory is equipped with two boilers 90-horse power capacity, 25-horse power engine. Ice plant, No, 7 Barber Combined Churn and Butter Worker, two Sharples Tubular Separators, Skim Milk Weigher, and a complete condensing outfit, and my daily run will average from ten to sixteen thousand pounds of milk.

In closing allow me to say a word for the Tubulars. I have always used Alphas and thought they could not be beaten, but by actual experience I find that the Tubulars are the "boys" that can do it, not only in test but in the condition it leaves the cream. They are very simple and easy to manage, requiring very little oil and steam to run them and their average tests are from two to five one-hundredths.

I have found that you have not over estimated your recommendations for the Tubulars.

Yours respectfully,

FRED G. YOUNG.

We comment further only by saying that the Tubular—Has a hollow bowl, is a close skimmer; has no spindle; it spins on air; it is economical of power, oil and repairs; it is absolutely safe and burst proof.

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ALDERNEY BUTTER COLOR

Gives **Natural June Tint.** Butter colored with it will retain its color when put in cold storage. Try it and be convinced.

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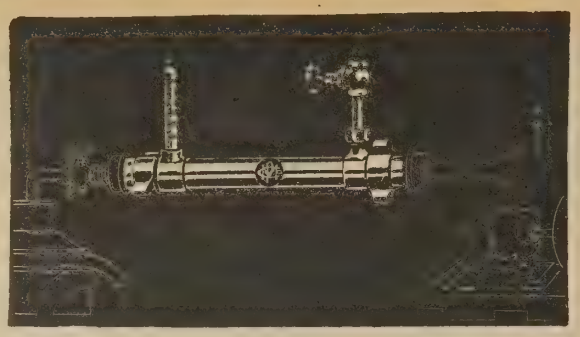
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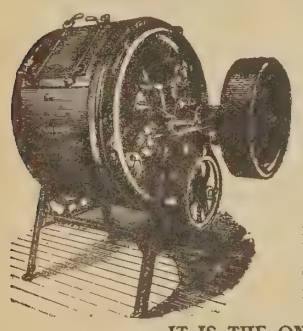
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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
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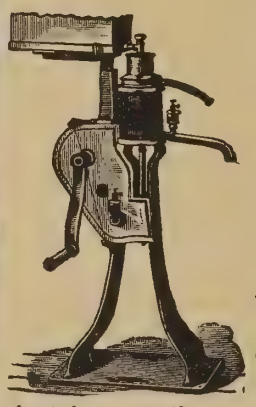
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2nd	5.00
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A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.
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A SUCCESSFUL IOWA DAIRY FARMER.

Mr. W. C. Ballou, of Littleton, Iowa, furnishes a very good illustration of the idea that success with cows can be had everywhere if only the man himself is right in judgment and action.

From the milk of twenty-six cows Mr. Ballou made in 1898, 7,247 pounds of butter, an average of 287½ pounds for each cow. The butter was marketed in Independence at an average price of twenty-one cents per pound, a total of $1,521.87. The average cash earning of each cow was $58.53. In addition to the butter sold, Mr. Ballou has raised twenty-four calves, which would bring the actual value of the products of his herd for the past year up to over $70 per cow.

Some of the neighbors of Mr. Ballou, who are contented with cows that pay less than the cost of their keeping, should interview him as to the cause of the difference between their returns per cow and his.

PRINCESS OF WAYNE 7TH.

It gives us much satisfaction to present herewith a picture, true to life, of the Holstein-Friesian cow, Princess of Wayne 7th, and in connection therewith, the letter of Mr. Hoxie, giving the particulars of her remarkable performance, June 16-22. The reported yield of milk and butter fat is much less than is frequently claimed; indeed, is so modest as to challenge instant credence. Reduced to its equivalent butter, by the rule adopted by the association of American Agricultural Colleges and Experiment Stations, the amount would be only twenty-three and one-half pounds, and yet there was a net profit of 58½ cents per day over the cost of feed consumed. Stated in another way, the food cost of the butter was 6.1 cents, with prices at a fair average for the whole country and a succession of years. Indeed, pasturage, which counts for more than half of the total cost, is rated very high, being over $10 for the season, whereas, in a Cornell *Bulletin*, issued in 1893, 30 cents per week is given as the average for thirteen counties in New York. The price allowed for butter fat, 25 cents per pound, is also well within the limits of moderation.

It may be interesting to give the average daily allowance of feed, with an estimate, from the feeding tables, of the contained nutrients. We get this by dividing the total feed consumed by seven, and have the following results:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
50 lbs. pasture grass (amount estimated)	10.00	1.25	5.10	.25
15 lbs. silage	3.96	.20	2.10	.09
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn meal	3.56	.32	2.67	.22
2 lbs. oil meal	1.82	.59	.65	.10
2 lbs cotton seed meal	1.84	.74	.34	.18
Totals	24.70	3.60	12.40	.96

We have estimated the pasture grass consumed, at the lowest probable amount, and yet find the protein and fat much in excess of the amount given in any of the standards, and the temptation is to conclude that the standards are at fault. We beg to remind all those who may be inclined to this opinion that Prof. Clinton D. Smith, of Michigan, and Prof. Haecker, of Minnesota, have demonstrated that, for cows yielding up to as much as two pounds of butter per day, two and one-fourth pounds of protein in the ration is all-sufficient. We are not justified in saying that such an amount would suffice when the yield is over three pounds of butter per day, but as the farmer will usually be satisfied with the smaller of the above yields, as a regular business for even his best cows, he will not need to supply them with so much protein.

It should be added, in passing, and in justice to Princess of Wayne 7th, that her total grain allowance was much below that sometimes reported in connection with large yields.

With the above facts before us, it remains to inquire whether there is anything in the form of this cow, as shown by her picture, to confirm the theories of HOARD'S DAIRYMAN, or to require their modification? Judged by the record and picture of Princess Wayne 7th, have our teachings been sound? Does this cow have the "dairy form"? Or does she partake more of that "milk and beef form" which appears to be the preference of so many Holstein breeders? In the "Outlines of the Advanced Registery System" these forms are described as follows:

MILK AND BEEF FORM: This is the prevailing or average form of cows of this breed. It describes a cow of the wedge form, with shoulders moderately thick, moderately deep and broad, crops moderately well filled, barrel well rounded, loins and hips broad and full, and quarters straight, wide and full.

MILK FORM: This describes a cow of the wedge form, comparatively light in the shoulders and chest, and comparatively light in the quarters. It is generally accompanied (though not always) with angularity of appearance.

It is to be regretted, of course, that this cow's udder, is not more symmetrical, but the circumstance taken in connection with her record, suggests that possibly we have been accustomed to place too much emphasis on the shape and symmetry of this organ, and this more especially in estimating the value of a cow for purely dairy purposes. Indeed, some of the best judges of cows claim that the udder may be a very misleading indication of the ability of a cow to return a profit at the pail. It is to be said, however, that a fine, well balanced udder is no detriment to a good cow, but adds very decidedly to her appearance and value in the market, and is a point to be striven for by every breeder.



PRINCESS OF WAYNE 7th.

Property of T. G. YEOMANS & SONS, Walworth New York.

Net Profit Tests for Holsteins.

Record of Princess of Wayne 7th.

ED. HOARD'S DAIRYMAN:—At the recent annual meeting of the Holstein-Friesian Association, rules were formulated for making net profit tests. The first test under these rules was made June 16–22 inclusive, of the cow Princess of Wayne, 7th., owned by T. G. Yeomans & Sons, Walworth, N. Y. It was under the supervision of Ass't. Prof. Anderson, of Cornell University. During the seven days of the test the cow consumed 105 pounds ensilage, 28 pounds wheat bran, 28 pounds corn meal, 14 pounds oil meal, 14 pounds cotton seed meal, besides pasturage. The cost of food, per prices fixed by the rules for all sections, (pasturage, 75 cents a week; ensilage, $2 a ton; wheat bran, $10; corn meal, $12; oil meal, $18, and cotton seed meal, $20) was $1.43. She gave 487⅞ pounds milk, containing 19.285 pounds butter fat, the value of which per prices also fixed by the rules (25 cents a pound for butter fat and 15 cents a hundred for skim milk) was $5.52. The net profit is $4.09.

Prof. Anderson tested her for butter fourteen days. During this test she gave 952 1-16 pounds milk, which averaged slightly above 3.94% fat, showing a total fat product of 37.55 pounds, which by the Chicago World's Fair rule, is equivalent to 46 pounds, 15 ounces butter. By the same rule the product during the week of the net profit test is equivalent to 24.1 pounds butter. The highest per cent of fat in the total milk of one day was 4.42, and of one milking 5.4.

At the present time there is a manifest tendency on the part of a class of writers on dairy subjects to deprecate short tests like the above. The special peculiarity, just now, of this tendency is that it comes from those who have been glorifying short tests, for a number of years, made under questionable conditions. That Holstein-Friesian cows are persistent milkers, has been demonstrated by more than a thousand tests, extending from ten months to a full year. The dam of this cow, Princess of Wayne 7th., at eleven years old, made a year's milk record of 29,000 11-16 pounds, and one of her grand dams, at eight years old, a year's record of 1,153 pounds, 15¾ ounces of butter.

Yorkville, N. Y. S. HOXIE,
Sup't. of Advanced Registry.

A Hustler.

ED. HOARD'S DAIRYMAN:—One of the great missions of your paper is to open men's eyes and make them discontented with poor methods, and then make them hustle to do better. This was fully illustrated in the interesting article written by A. G. Judd, page 638. He wields the pen of a ready writer, and his record shows that he was a hustler. He went to work with a herd of general-purpose animals. Why? Because he did not know of anything better. Blackstone nor Cooley on Torts, nor any of the eminent authorities he studied took any pains to enlighten the young man on the difference between a cow that produced 3,000 pounds of milk or one that produced 6,000 or 7,000 pounds. He had studied Dr. Blackstone, but had never sat under the modest teachings of Dr. Babcock, and notwithstanding this disadvantage, with his disposition to work, feed, and hustle, he gradually gained ground, driving the sheriff and interest gatherer to the rear.

Soon more light began to dawn. A man, no doubt, sent from the heaven of better dairying, appeared to him—not in a dream, but in real earnest—and opened his eyes, not by abusing him and saying mean things about his herd. Oh, no! He praised them and said they were sleek and fine—but suggested that he feed bran and take a good dairy paper which were unheard of tidings to him. Being a hustler and not content to remain in the rear, bran began to be received by the car load; he quit sleeping, and worked by day, and read HOARD'S DAIRYMAN at night.

Being a student he soon discovered, by reading, that among the different grades of Short-horns, there was a special dairy class; so, acting according to his new light, he did not buy a common fifty dollar animal but he whacked up $125 for a special dairy bull. Still light in the night continued to pour in, and he read of another special-purpose breed, the Holsteins, bred for hundreds of years for the purpose of producing milk. He bought one, hoping thereby to increase the value of his herd. His own language says, it was the most complete success imaginable. His herd now suits him. He talks of mortgages gone, rubber-tired surries, family well dressed and living in luxury.

No scrub cow or scrub farmer about him! He is a hustler. No young farmer will ever fail who pursues the course he did, and if he ever feels like returning thanks, he should do so for his existence in a land of progress; thank his friend for his timely advice; thank HOARD'S DAIRYMAN for removing the scales from off his eyes so he could see the beauty and profitableness of the special-purpose dairy animal that has wrought such great things for him.

A. J. PHILIPS.

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Coming Events.

Kansas Dairymen's Association, Manhattan, Nov. 22-24, 1899.
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.

THE editor of a prominent New York daily has snatched the following bit from his reservoir of wisdom and sent it on its travels for the benefit of mankind in general and New York in particular: "The hog suffers from chronic indigestion, and like the dog he does not sweat, and consequently is not fit to eat." If the New York editors could only have control of the universe—

THE EFFECT OF DIRTY MILK.

In the mind of a great many careless and indifferent people all this talk about cleanliness in the dairy is sheer nonsense. They happen to have never seen any bad effects from of their own dirtiness, or if they did see it they did not know it. But nevertheless whether they know it or not, dirt is dangerous in milk; dangerous to health, dangerous to flavor, and consequently dangerous to profit. Everyone nearly has heard of cases of poisoning from milk, ice cream, or cheese. This poison is called tyrotoxicon, and belongs to a family of poisons called ptomaines. Prof. Vaughan, of the Michigan University, has studied and traced out the history, character and source of these poisons to a greater degree than any other living man. Consequently what he has found out ought to be of value to any man who knows enough to appreciate knowledge.

Prof. Vaughan found that the almost invariable source of such poison, when found in milk, or the products of milk, was simply filth. The men or women who handled the milk were dirty in their ideas of milk handling and allowed the surroundings to be dirty and the milk utensils to be badly cleaned. Here is one of many cases or facts which will emphasize the value of this preachment for clean work in the dairy.

For some time city physician Nottingham, of Lansing, Mich., has been at work urging those dairymen who supply the city with milk, to take greater pains to keep their stables and utensils clean and sweet.

The other night several families on the east side of the city were poisoned by using the milk which came from one of the dairies which had been ordered cleaned. No doubt the owner of that dairy thought in his wisdom that all this talk about the necesssity of rigid cleanliness was all humbug. Now he stands with a ruined business, all because he would not post himself as to what is the truth. How shall a man know the light, who refuses to open his eyes.

C. P. GOODRICH ON FEEDING COWS.

Let me illustrate how I would feed. Suppose I had mixed hay and corn fodder for roughage and plenty of corn and oats.

I would have for the grain part of the ration ground corn, corn and oats, and bran, one-third each by weight. Now when we come to practice we find that scarcely any two cows can be fed alike. Now cow number one eats up her food readily, her grain food being ten pounds, given in two feeds daily. If I find after feeding her a while that she gives only a moderate mess of milk, but is putting on fat. I would reduce or entirely leave out the corn in her food and replace it with bran, or better still, gluten meal, or perhaps a part cotton seed meal. This would, if she is a cow fit for the dairy, stop the tendency to lay on fat and increase the flow of milk.

Cow number two I feed the regular ten pound ration. She eats it up greedily and gives a large mess of good milk. This is a hint to me, so I increase the ration to twelve pounds; she eats it quickly and gives more milk. I then increase it to fifteen pounds, and she still eats it up readily, and also eats a large amount of coarse fodder. This cow is making a good dairy use of her food, for with every increase in food there is a corresponding increase in milk, but she is all the time losing flesh. What shall I do? This can not long continue. If she is not fed differently she will milk herself down to a skeleton and then the milk flow must of necessity drop off or she cannot live. I will tell you what I will do. I will feed her more corn meal in place of some of the bran. I will change the ration gradually till I get her so that she can hold her own. This cow is a thin dairy cow, such as the dairyman needs to make his business profitable.

Now it will be seen why I say the feeder must become acquainted with his cows in order to make the most profit out of them.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carboky-drates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

COTTON SEED.

Please let me know the value of cotton seed, ground, but not the oil taken out. Is it suitable for feed for dairy cows, and how much should be fed? Which is the cheapest with bran at $9 per ton? G. L.

A good deal of cotton seed is fed to cattle in the south, and in many cases to milch cows. It is not ground, but fed whole, and either roasted, boiled or raw, but which form is the more profitable is still open to question. Carrying, as it does, such a high per cent of oil, the amount that can be used without injury to the cow or her product is somewhat limited and should not exceed four to five pounds. This quantity does not furnish sufficient protein, and for this reason, as well as for other considerations, it is advisable to use some bran or other similar feed in connection with the seed. On the whole we count it about equal to bran in feeding value.

BITTER CREAM—CEMENT FLOORS.

We have trouble with our cream during the winter and late fall months. When fresh from the separator (we use an Alpha Humming Bird) it is very sweet and perfectly satisfactory. In twenty-four hours it will have a very unpleasant, bitter taste, which spoils the cream for market and renders it unfit for butter. The taste is not that of cream kept too warm, but is something I have never encountered before. Change of feed makes no difference. Our cows are healthy, or seem to be, are kept clean, fed well, have a good stable, and are well cared for. Our milk room is for milk and cream only; it is kept scrupulously neat and so are our pans, pails and separator.

Can you tell me what is the trouble, and what to do for it?

Do you advise the use of cement floors in the cow stable.? J. R.

Michigan City, Ind.

The fact that your trouble occurs only during the cold months, points to a low ripening temperature, or keeping your cream too long at a low temperature before ripening.

Bitter cream frequently results from such long keeping in the cold and the remedy is more frequent churning, thus preventing the growth of the bitter producing bacteria.

Or it may be that you have a quick growing, bitter producing bacteria. If so, give all dairy utensils a thorough scalding and washing with boiling water and then obtain from some other dairy some clean, pure flavored, sour skim milk and use this for a starter in your next batch of sweet cream.

If one has plenty of bedding so that the cows can be kept from the chill of the stone floor, and plenty of help to handle the large amount of bedding required, there is nothing better than a cement floor.

As regarding cleanliness and the ease with which the stable can be cared for there is nothing better than a good cement floor, but unless plenty of bedding is at hand, rheumatism and udder troubles more than counterbalance its advantages.

A compromise, whereby the walks, gutters and mangers could be built of cement, with a plank or dirt platform for the cows to stand on would contain all the advantages of a cement floor in cleanliness, with but few if any of its bad points.

WOOD ASHES AS AN ABSORBENT.

In your opinion would wood ashes make a good stable absorbent? SUBSCRIBER.

St. Lawrence Co., N. Y.

We should not like to use wood ashes for this purpose, if for no other reason than that the resulting "lye" would be apt to injure the feet.

AS TO COW PEAS.

Please answer through your paper, the following questions regarding cow peas, and corn for ensilage:

1. How many tons of peas per acre is a fair yield on land that yields fifty bushels of corn?

2. At what stage are peas best for cutting into silo?

3. What objection can there be to cutting into silo alternate loads of corn and peas, thus having a better balanced ration?

4. Will peas and oats drilled together make a good ensilage?

5. Will land planted in peas for several years, and crops all cut off, be increased in fertility by the pea roots and stubble?

6. Is it profitable to use commercial fertilizers in growing peas? C. F. O.

Murfreesboro, Tenn.

As we are out of the cow pea belt our information is second hand, but answering according to our best information and belief, we should say:

1. From six to twelve tons.

2. When the greater part of the seeds are fully formed and have not commenced to ripen.

3. None whatever, provided both crops are at proper stage of maturity. Indeed, it has been suggested that the peas be planted in the corn rows and harvested with the corn.

4. No. The hollow stems of the oat straw contain too much air.

5. This will depend upon the character of the soil, its chemical constituents and the thoroughness of cultivation. As a rule, continuous cropping with one variety of grain is not to be recommended.

6. Only experiments on your own land can determine this question.

DUTCH BELTED CATTLE.

Can you tell me where I can get any Dutch belted cattle in Wisconsin or any states joining Wisconsin? If you know of any breeders I should like to know where they are. D. A.

Melvina, Wis.

We have to confess entire inability to answer this question. In fact, we know of only one small herd of these cattle in Wisconsin and presumably none of them are for sale. As a rule, people, who have cattle to dispose of, advertise through the papers which circulate among their prospective customers. Those who have dairy cattle expect to sell to dairy farmers and would naturally place their advertisements in dairy papers, while those who raise the beef breeds would prefer papers that are especially interesting to men who raise and fatten cattle for the butcher. The fact that no advertisements appear any where is prima facie proof that the owners are not anxious to see or hear from buyers.

A VIRGINIA RATION.

Will you kindly advise me what would be a well balanced ration for our herd of cows, taking into consideration the following feeds, which our market here affords:

Timothy hay (Western) at $15 per ton; clover hay (Western) $12.50; corn meal, $20; ground corn, $10; cotton seed meal, $18; cotton seed hulls (16⅔% meal), $10; corn bran, $8.50; wheat bran, $16.

Our herd consists of about forty-three cows, mostly Jerseys and grades, but we have a few Holsteins (eight in all) with one or two of other breeds; we have only been in the business a short time, and have found it very hard to get a reasonable production, as we haven't a silo, as yet, and cannot get the advantage of silage. Our cows are considered very good ones (around this country) and some of them are very finely bred stock, although many of them are rather small; our herd would probably average in weight 900 pounds, through. We have, up to now, used cotton seed hulls mixed with 16⅔% cotton seed meal, and some wheat and corn bran, and *but little hay*. We have been reading your paper for some time, and have concluded that perhaps we have been using too much of the cotton seed hulls, when it might be better to use hay and other feeds. Please advise us in this connection, and say what you think would increase our milk production, even if it made the cost larger. Up to now our feed bills have averaged about ten cents per day for each cow, and production less than two gallons per cow per diem.

Danville, Va. F. D. Co.

Seventeen pounds of milk for ten cents is not such a bad showing, provided it cannot be improved upon, and that can only be determined by trial. We do not like to condemn that mixed feed without any inspection, but we are always suspicious of all kinds of mixtures, as they afford opportunities for using material that is not up to standard, or for charging an exorbitant profit. If one should buy five tons of hulls for $25, and one ton of meal for $18, and do the mixing himself, he would have a similar feed and

costing him about $3 per ton less. But good corn bran at $8.50 would be cheaper and better than hulls at $5.

We are of the opinion that good cows, if permanent shrinkage for the present period of lactation is not permanently established, ought to have not less than the following daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay....	12.71	1.02	5.36	.26
6 lbs. corn bran.....	5 45	.44	3.59	.28
2 lbs. ground corn..	1.78	.16	1.33	.09
2 lbs. C. S. meal....	1.84	.74	.34	.18
Totals.....	21.78	2 36	10.62	.81

It is true this ration will cost fully fifty per cent more than the other, but it must not be expected to produce fifty per cent more milk. The extra cost is five cents per cow per day, and if it produces six cents worth more of milk, there is a profit of twenty per cent on the extra cost.

SOURCES OF TAINTED CREAM.

I always like to read the DAIRYMAN, and find often just the thing I wanted to know, but there are still some questions in regard to butter making, which remain in the dark. For months we will have no trouble about the flavor of cream and butter, and sometimes it in will be off flavor at once, the cream will smell bad as it turns sour, although we did it the same way as before. We always practice the utmost cleanliness on all utensils, sun them and scald them every day.

I visited a neighboring creamery this spring and the butter maker told me that he always got one-half cent above highest quotations for his butter. Asking him if he was never bothered with bad flavor, he said, no. Looking around his creamery, I thought it was very far from clean. The place where they took out the skim milk was a ghastly sight; walls and everything covered with a layer of dried skim milk, which must produce a bad lot of bacteria, and at the same time the question arose: "If all what we read in HOARD'S DAIRYMAN about dirt is true, how can a butter maker always have fine butter, under such circumstances, and if the butter maker or manager does not practice cleanliness, what must the patrons be?" Is then all our work to be clean and keep clean for nothing? And is all this talk about cleanliness humbug? To look at some creameries, our answer would be yes; but I do not believe we would find such ways of doings at Hoard's creamery; and as long as we practice dairying, we will try to keep things clean, even if our buildings are far from what they should be, if our pocket money would allow it.

SUBSCRIBER.

Nine times out of ten, any trouble with cream in regard to flavor or smell, comes from the wrong kind of bacteria growing in it. In the late summer, when pastures are dry, and nothing remains of the drinking places, but a mud hole with a little stagnant water in it, the cows will wade through the mud to get a little water, and also get rid of the flies. There is nothing that will cause trouble in the cream vat so quickly as a little dried mud from such a slough, getting into the pail of milk.

It starts a fermentation that is prolific in bad smells and off flavored butter. Cleanliness in the dairy is necessary, but it is not all. Look to the other end and see what kind of water your cows are getting; if their food is musty in any way, and if there are any spots or damp places round the stables that can form starting places for the kind of trouble you find in the cream pail. There is always a cause for such things, and the cause is often in the most unexpect ed place. If it is removed, your trouble will go with it.

There is always a relation between the weight of butter sold and the price, and when a poor butter maker gets half a cent above, the total cash returns frequently indicate one-half below.

RATION FOR A LEADVILLE (COLORADO) DAIRY.

Please give me a ration of the following for dairy cows: Bran, $23 per ton; corn chop, $24 per ton; flax meal, $2.25 per hundred; alfalfa hay $9.30 per ton; timothy hay, $14 per ton, and which would you advise, wet or dry bran? C. E. B.

Leadville, Col.

In the event that it is not practicable to chaff any of this hay, bran must be used to dilute or extend the corn chop, as that is too concentrated to be safely or profitably fed by itself. Subject to the proviso that some flax meal should be added, if necessary to keep the bowels in first-class order, we recommend as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa hay.....	18.32	2.20	7.92	.24
4 lbs bran.....	3.52	.50	1.54	.12
4 lbs. corn chop.....	3.56	.32	2.67	.17
Totals.....	25.40	3.02	12.13	.53

Cows should have a stable warm enough to exclude frost but with ventilation so as to insure pure air; and if given water not too cold (56° to 60°) twice daily, feed the bran and chop dry. This is much more cleanly than to feed sloppy messes.

If any cow should seem to want more feed, let her have all the hay she will eat up clean. This is the universal rule, except for those few cases of cows that will gorge themselves.

MILKING MACHINES.—COW PEA HAY.

I think it was about two years ago you had some interesting information about milking machines. I wonder if a good many others besides me may not be wishing to hear something more as to how these machines are getting on. I was especially interested in one reported to have been used for several months by a Mr. Hussey, of Indiana, I believe. This seemed to be a simple suction arrangement.

If you have data, please give me statement of food value (digestible) of cow pea hay. The information at my disposal only gives chemical analysis.

I find the DAIRYMAN invaluable. With my little dairy of seven cows, on five acres of land, it has enabled me to clear about $500, during the last year. But my neighbors do not care to subscribe. They say you are too far north to know anything about our cows, and methods, and feeds. W. T. L.

Williamstown, S. C.

We are sorry to say that the milking machine question is in the same condition that it was two years ago. There have been many reports of their successful use, but still they have not received the endorsement which it would seem would follow success in this line; nor have they been exhibited at fairs nor advertised in the dairy press,—conditions which would indicate a want of practical success in spite ot the good reports. It would thus seem that the milking machine is not yet a practical success.

Cow pea hay contains 89.3 per cent of dry matter and the following digestible nutrients:

	Per Cent.
Protein	10.8
Carbohydrates	38.6
Fat	1.1

FORMS OF CHEDDAR CHEESE.

What is the difference between full cream Twin cheese, American full cream, and Young America? Is it great difference in the making of these three kinds? How many pounds in American full cream, and how many in Young America? In your paper I have seen names of several kinds of cheese: Full cream Twin, American full cream, Young America, Limburger, Brick, Swiss, and Daisies, and all I know the making of is Swiss and Twin cheese. If you can, without too much trouble, I would like you to let me know the difference of the other sorts.

Pigeon Falls, Wis. J. L.

Young Americas, Twins, Daisies, etc., are different names for the same kind of cheese, but in different shape. An American Cheddar (full cream) is a large cheese weighing about sixty pounds. Twins are about one-half as high, but of the same diameter as the above. Young Americas are small Cheddars weighing about ten pounds. Daisies are like Twins only there are three instead of two in a box.

A WISCONSIN RATION.

Please give me a ration for milch cows, averaging 1,100 pounds each, mostly Durham and some Holstein grades. I have marsh hay at $6.00 per ton; fodder corn, field-cured, cut one-quarter inch lengths, at $8.00; oats, ground, $14.25; mangels, $.3.50; and can buy wheat bran at $14.00; oil meal at $25.00; cotton seed meal at $20.00.

Dane Co., Wis. O. F.

Cows of this size, with anything like fair dairy ability, and not too long in milk, will require pretty generous feeding. The following is as little as can be recommended, for a daily allowance, and, doubtless, might be profitably increased for some of the animals:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. marsh hay....	8.84	.24	2.99	.09
10 lbs. fodder corn...	7.10	.37	4.04	.12
20 lbs. mangels.....	1 82	.22	1.08	.02
4 lbs. oats.....	3.56	.37	1.89	.17
3 lbs. bran.....	2.64	.38	1.15	.09
2 lbs. cotton seed meal	1.84	.74	.34	.18
Totals.....	25.80	2.32	11.49	.67

As long as the mangels last there will be no necessity for using the oil meal. When they are gone, use one pound oil meal.

This ration costs at prices named 16¾ cents, and allows but a small margin for profit, unless one has good cows. It will, however, cost fully half this amount to keep the cows when not in milk, and then get no return whatever. Better keep on milking, even though the returns show no profit.

ANTI-ABORSIO.

Where can I get Anti-Aborsio spoken of by H. Van Dresser in the DAIRYMAN? D. I.

Misha Mokwa, Wis.

Consult the advertising columns of the DAIRYMAN, page 701. The manufacturer will supply all needed instructions for use.

TURNIPS FOR MANURE.

What is the analysis of common field turnips? Two years ago we had some turnips freeze, and consequently decayed partially before they were fed out; they were dumped in a pile on a field near the barn, and this season the field was plowed and sowed to millet. This spot where the turnips were, showed ten times the growth of forage that there was any where around it. There were two large brush heaps burnt on the field and those places showed a similar growth that would indicate potash.

Enfield, Mass. G. H. W.

Turnips contain but a small quantity of fertilizers, the average amount being between one and two-tenths of a per cent of nitrogen and 0.8 per cent of ash. They would, however, under the conditions named supply quite an amount of humus to the soil which would act by enabling the soil to hold more water, in a dry time, and at the same time set free some of the latent or locked up fertility of the soil. The above is a good illustration of the necessity of humus and its effect when supplied to the soil.

CAN A HORNLESS BREED OF CATTLE BE CAUSED BY DEHORNING.

Can the horns be bred off of cattle by breaking off the horns of calves, as soon as they appear, for a number of years and breeding from such as have been thus treated for a few generations. I believe it can be done but I have no authority for it.

Waterloo, S. C. J. H. W.

Like our correspondent we do not find any authority for believing that a hornless race of cattle can be bred by removing the horn artificially and we are also inclined to believe it to be impossible. The growth of an organ of the body is caused by something inherent in the body and the removal of the organ itself does not destroy that power. Lamb's tails have been clipped for many generations but the long tail still appears on the young sheep. The same is true of dog's ears, the spurs of game cocks and many other cases where from convenience or fashion parts of the animal body have been removed. In spite of constant removal, the next generation shows the organ in its full development and the operation is repeated with each generation.

Hornless cattle can be and are produced but it has been done by taking advantage of some sport without horns and selecting and breeding from the progeny, and even in such cases there is always a tendency to revert to the horned animal, unless the selection has been kept up sufficiently long to fix the type.

OLDENBURG CATTLE.

Please give us description and value of the Saxony cattle for milk, size and average weight for cows. P. & S.

Yale, Iowa.

There is no breed of cattle to which the title "Saxony" is applied and the only breed of cattle which seems to fill our correspondents request is that known as the "Oldenburg" with the following characteristics. The breed differs from the Friesian in showing a heavier head and stronger horns and narrower buttocks. In weight they approach the Holland breeds. The live weight of the cows will average about 1,200 pounds; oxen from 1,500 to 1,800 pounds. The udder of these cows is largely developed and the yield of milk considerable, reaching as much as 3,000 quarts a year, from well kept animals.

A VIRGINIA FEEDING PROBLEM.

Please formulate me the most economical ration for cows, Jersey grades, for milk. Clover hay, $13.00 per ton; bran, $16 per ton; g ound oats, $20.00 per ton; cotton seed meal, at $22.00 per ton; corn meal, $18.00 per ton; flax seed meal, $26.00 per ton; cotton seed hulls, at $5.00 per ton. Our dairymen are somewhat perplexed to get the right economic ration. I am feeding with excellent results my own family cows, the following: Bran, six pounds; corn meal, two pounds; oat meal, one and a half pounds; cotton seed meal, one pound and a half; clover hay, fifteen pounds. I presume it can be bettered for economy

Norfolk, Va. J. A.

The ration fed by our correspondent is "excellent" in every respect, and especially so for first-class dairy cows, but as intimated is somewhat expensive, costing fully twenty cents. About half of this is paid for the clover hay, and it is quite possible that some changes could be made whereby the cost would be reduced without materially reducing the efficiency of the ration for cows of only fair, average ability. For instance, we might take away the oats entirely and still have sufficient nutrients remain to fully tax the capacity of many cows. It is, of course, pure waste to feed a cow more than she can profitably use, just as it is unprofitable not to feed her to her full working capacity.

It is our judgment that for cows giving less than twenty pounds of milk per day the following would suffice:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay.....	8.47	.68	3.58	.17
5 lbs. hulls.....	4.45	.02	1.65	.09
5 lbs. bran.....	4.41	.63	1.93	.15
2 lbs. corn chop.....	1.78	.16	1.33	.09
2 lbs. C. S. meal.....	1.84	.74	.34	.18
Totals.....	20.95	2.23	8.83	.68

Cost 15¾ cents.

ANTISEPTIC DISCS FOR ABORTION.

There seems to be considerable uncertainty among dairymen regarding "anfiseptic discs" mentioned as a remedy to be used as an injection for abortion. There is no regular formula for these "discs." Each manufacturer uses his own recipe and the "discs" consequently vary widely in composition.

The following solution is used for injecting: Corrrosive sublimate, one dram; alcohol and glycerine, one ounce each; dissolve and add water, one gallon. Use for injecting and washing the parts. The above solution is very poisonous and should be kept in a wooden barrel, and out of the way of animals or children. A much safer mixture is a four per cent solution of creolin. In connection with the above a thorough disinfection and cleaning of the stall and burning of all infected matter should be performed, unless it is wished to find the use of injections a waste of time.

INFORMATION WANTED.

1. Have you tested your herd, by weighing the milk and the Babcock test, to find which were the poor cows?
2. How long did you test, and how many did you reject? (Give the whole number of the herd at the beginning of the test.)
3. Is it much trouble or expense to do this, and what plan did you pursue?
4. Have you ever taken a herd of common cows, placed a registered sire at their head. and so kept up the system, until you brought out of it a herd of grade cows?
5. What was the breed you selected, and how much more butter, cheese or milk did you get from the daughters than the original mothers?
6. Would you advise changing breeds, one after another, or breeding right along in the same line?
7. Have you ever bred the daughters back to their own sires, and if so, what was the effect on the health and dairy capacity of the grand daughters?

NOTE—We want as many short, brief answers to the foregoing, from as many different men as possible. Make the answer to each question short as is possible; simply state the facts, not opinions Do not worry about the style or grammar of your statement Answer each question by number, and state your experience.

1. Have tested my cows, by Babcock test, weighing milk after each milking and making weekly tests and calculations therefrom.

2. Time of continued weekly test: Through full milk giving period. Have six grades, two Jerseys and four Guernseys. Could not reject any.

3. I do not consider it much expense to make these tests, counting the value received therefrom. After each milking, it was thoroughly stirred and samples taken each time and put into a glass receptacle, for the purpose, taking care to have each cow's milk separate by using a number for cow and having a corresponding number for glass can. Was very careful in taking test sample, so for accuracy used two samples for every cow, in the test bottles, until I found it was not necessary.

4. Have raised all my cows, except one. Bred their dams to best bred bulls of their breed—Jersey or Guernsey—in the vicinity, and produced such grades as I have. Have had a registered Guernsey bull at the head of lot one year. I have a preference for Guernseys. I might say that the Guernsey cows I have are bred Gurensey for three generations. The Jerseys are bred only two generations. These I do not cross with the Guernsey.

5. Have found the average gain in the last generation, to be nearly ten per cent in butter.

6. I would never advise any one to change from one breed to another more than once, and then only for the purpose the cow is intended, keeping the breed absolutely pure.

7. Have never bred daughters back to their sires. Besides the above I might say: Two years have passed since I commenced to use a No. 1 DeLaval "Baby" separator, turning the product of these six cows into butter, which my butter maker (my wife) sells in the local market to private families at twenty-five cents a pound the year round.

Mishawaka, Ind. M. E. L.

1. Have been weighing the milk for over three years. Have tested the entire herd with Babcock test twice.

2. Rejected one out of nine, on quantity, after about one and three-fourths years' weighing.

3. Very little trouble. Have an ordinary spring scale hung up just outside the inner entrance to the cow stable. As each cow is finished, the milker steps to the entrance, hangs the pail on the hook of the scale a moment, pours the milk into extra pails sitting handy by, and goes back to work. Ordinarily, each milker enters up his weighings only after finishing milking his cows, deducting in each instance the known weight of the pail. The record is entered in pencil in a cheap blank book kept in a shallow pocket, made by tacking a piece of canvas to the partition wall right by the scale. The several cows' records are kept in horizontal lines opposite their names, and at the end of the week the total of each cow is taken off and filed away for future reference.

4. Yes, grade Jerseys, using a pure bred Jersey sire. Cannot say that the younger stock, raised in this way, are any better than their dams, who were only fairly good. Too much pure bred Jersey stock is raised and sold that has little but its name to recommend it. Probably the same is true of other dairy breed.

5. Answered above.

6. I would recommend sticking to the same breed or family. I should not regard changing from Jersey to Guernsey or vice versa as a change of breed in a broad sense—not such a departure as changing from the Channel Islands family to Holstein or one of the so-called "general-purpose" breed such as the Red Polled cattle.

7. No. EUGENE E. STEVENS.

Lake Co. Ohio

1. Yes.

2. In 1897 I tested occasionally; in 1898 I weighed every milking and tested about twice a month. Eight cows; rejected two.

3. It takes a few minutes longer each milking; the expense is trifling. I have my scales and tally board hanging in the stable near the door, where I pass to empty milk.

4. Yes.

5. Jerseys. Daughters have not come to maturity.

6. Breed in the same line.

7. Yes, but they have not calved yet.

The first cow to go after the test, was the only registered Jersey cow I had. I milked her three years. She had a fine, large udder and was called a splendid cow by all that knew her. I bought her for a foundation cow, took extra care of her, fed her all she would eat of the best I could get and it was a hard pill to swallow to send her to the block, but she would not pay her board.

The next to go was her daughter, which came soon after I got her; claimed to be from a full blood Jersey sire. I milked the heifer two years; she had to go. I have another heifer from the old cow and my sire, that promises well.

After reading HOARD'S DAIRYMAN a while, I bought a grade Jersey cow for fifty dollars. Folks called me a fool (to my back) for paying such a price for that cow. I could get cows that showed more Jersey for half the money. Her test according to the scales and Babcock, was 399.6 pounds butter; she ran in the woods in the summer without grain. Had two heifer calves in the time. Has just dropped another. She has had three pounds of bran a day this summer and will beat her last year's record. Wouldn't I have been a fool to have taken a 200-pound cow as a gift instead of buying this one, my choice of a herd of fifty? Thanks to the DAIRYMAN for pointers. Registered papers won't hurt any cow, but we must have workers in the dairy, or go under. E. W. KELLOGG.

Lincoln Co, Wis.

1 Yes.

2. Tested 8 months. Made a test of each cow twice a month. Number of herd, 24; rejected, 6.

3. Some trouble and expense. Used composite test; think its bett er than testing each day. More than made up for time and expense.

4. For four years.

5. Jerseys. Record shows a gain of a pound and seven-eighths butter over original daughters.

6. Yes; but not one after the other exactly. Have made two crosses on Jersey grades with Holstein bulls. Intend using Jersey bull on last cross.

7. No.

Illinois. SUBSCRIBER

Dairy Straws from Ohio.

Some Special-Purpose Ideas and Facts.

ED. HOARD'S DAIRYMAN:—Attendance at fairs this fall tends to convince one that the beef cattle breeders are in the saddle once more; and true enough they are enjoying a boom in high prices just now. The noise they are making has its bearing upon the masses of stock growers who are being induced to bend every energy toward the production of beef. Some are sacrificing their dairy cows in two ways. First, by selling them off at fair prices to butchers and purchasing beef types for future breeding and chasing the same old delusion of getting butter and beef, but bound to spoil one or both types. The second class are putting beef sires into dairy herds, thereby making a mess of what may have been gained in improvement toward dairy types.

It is only the occasional breeder who stands firm to the one idea of beef, and beef only. It is he that is putting in the sheckles from the double-purpose fellow who is always waiting for an opportunity to rake in money with both hands, by making beef and butter out of the same cow and feed.

Say, boys, you can't blow hot and cold nor can you eat your cake and keep it at the same time.

We have heard of people who could put a quart into a pint bottle, but the statement always sounded a little on the Munchausen order and to be taken with a few grains of salt. There are some breeders of dairy cattle who have need to squeeze a quart of their milk into a pint's capacity, yet they are not flimsy enough in the head to claim that their cattle are beef types, simply because a whole cow will give a little short of a barrel of milk per day.

Occasionally one fellow bobs up who has carried on dairying after the general-purpose idea, who has escaped the sheriff or not availed himself of the bankrupt act. Circumstances have favored him and he would naturally succeed at most anything he might "tackle." He has made some money by tact and economy and is to be respected for it. Nine out of ten men with the same cows would break up, running the gauntlet on the same lines. Take it as a rule each of the nine will favor either beef or butter and just as naturally as water runs down hill, will drift one way or the other to the utter destruction of the opposite type.

The main reason that so many favor the dual-purpose animal is because they have not given both kinds a fair trial singly, hence are not unbiased enough to write or speak rationally upon the merits of either.

Some years ago the writer arrived at the same thing we are writing about and it was impossible to keep from purchasing a sire bred deep into beef lines, and did so, and it only took three generations of breeding to utterly destroy our female progeny as useful dairy cattle, and as beef cattle went down and down in price, we soon let loose the whole lot and began again with the Jersey cow, breeding for butter alone, and the only change we have made since has been for more butter, and if we seek for further change it will be for the same commodity, but always keeping quality right to the front.

It has always seemed strange that breeders cannot argue wisely with themselves, if not with men, that every time they cross their types that the dam or sire transmits fifty per cent either way as the case may be.

If a dairy type cow is crossed with a beef type bull it is well known that her owner is breeding for beef and fifty per cent of that offspring must naturally tend toward the sire. We do not advocate that it will cut down in its dairy tendency fifty per cent because all cows are supposed to give *some milk*; some more, some less. The merits of the case rest here. If the dam has been bred for butter for generations and sire for beef the same period, with same devotion toward each type, the sire is naturally most prepotent and casts at least twenty-five per cent more of his type than the dam can possibly transmit. Thus but a few generations of such breeding is necessary to ruin a herd of dairy cows; yet the progeny resulting from such unwise mating does not come anywhere as near establishing a perfect beef animal as it has in ruining the dairy type.

On the other hand, the breeder of beef cattle who undertakes to drift dairy-ways, uses his best wisdom and buys a dairy type sire, impressed with the idea that the sire is half the herd and by careful selection in a few years becomes the herd himself, branding it perpetually with each generation with a likeness of his own.

Neutral lines are difficult to establish and very hard to maintain. We doubt sometimes if there is such a thing as neutrality. Men claim to be neutral in politics yet we doubt their sincerity, for their talk soon shows a leaning toward one side or other. Such patriots as these are not sought after when governmental policies are to be inaugurated, but rather men who are positive in their purpose and ideas, singled out for one high devoted aim in life. We believe in the man who breeds cattle for a special-purpose and is or has made it a life time study. That man is established.

* * *

Beef has not been selling here at any better prices than dairy products. The unusual demand for cream, starting in as early as latter part of April, kept up prices on butter to a very satisfactory point. The price on a good article of butter did not reach below eighteen cents and from that to twenty-five cents, to September first.

One creamery has been selling its entire output ranging from twenty cents up to thirty cents to date, and will pay its patrons over twenty-five cents net for fat, October fifteenth.

They claim, too, that they are short each week on contracts. Aside from good prices our dairymen have had a fine season of pasture. Unlike most sections, there has been no great shortage in the growth of grass, and those who did complain were in that predicament because they were overstocked but supplemented with plenty of fodder corn.

The only difficulty we encountered was that on our natural pastures the growth was so rank, that when midsummer appeared the grass matured leaving a large quantity of dead blades to be consumed by our cows while pasturing. The cows relish such pasture, yet this kind of forage does not keep up a heavy flow of milk, that is, does not make butter fat.

While they were allowed full access to these pastures, they would not eat fodder to amount to anything, though it was of the best in quality. To overcome the difficulty a heavier grain ration was fed, mostly bran. The quality of butter made from these conditions is always first-class right through the midsummer months, and can be put into market in solid square blocks without ice.

Now to make a comparison with one of our beef fellows. He said to me the other day: "I got twenty-five dollars for a calf that run with the cow since last April, about six months time, and did not have to milk twice a day to get it either." Well, I said, that's pretty good, but let's see what your neighbor says he got out of his best cow—one hundred and thirty-five gallons of cream at forty-seven cents per gallon net, equal to sixty-three dollars and forty-five cents, one heifer calf reared on skim-milk worth twenty-five dollars, besides skim milk left for table use, making a total of eigthy-eight dollars and forty-five cents.

Aside from that his cow is good for one pound of butter each day for at least four

"Uneasy Lies the Head That Wears a Crown."

But such are not the only uneasy heads. Overworked housewives, harassed business men, anxious teachers, ambitious students—all ages and both sexes are uneasy with aches, pains, impure blood, disordered stomachs, deranged kidneys and liver. For all such, Hood's Sarsaparilla is the effective and faultless cure. It infuses fresh life and health into all parts of the body through purified, vitalized and enriched blood. Try it.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmers Handy Wagon that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

months yet to come, while your beef cow will soon shrink up and dry off.

Some how or other when ever I get into a discussion of dairy cattle vs. an all-purpose breed I am reminded of the story about the great show clown, Dan Rice, when he was called a fool by one of his auditors, stopped short and said, "Do you know the difference between you and me?"

"No," said the outsider, "what is it?"

"Why," said Dan, "you are a fool for the want of sense (cents) and I am one because I am paid for it."

Some of us who are wedded to the special dairy cow may be fools, but if we are, it is simply because we are paid for it.

Ohio. GEO. E. SCOTT.

The Virginia State Fair.

ED. HOARD'S DAIRYMAN: — Thinking you would like to have a line from Old Virginia State Fair held here this week, and especially when we had some very fine specimens of dairy cattle, I send you a few items.

In the first place whilst our State Fair cannot move in the same class as your northwestern fairs, yet there is always a great deal of enthusiasm and the energy of the officers make it a success.

This year the big attraction in stock was the magnificent Jerseys from Mr. Vanderbilts "Biltmore Farms." It is the expressed intention of the proprietor to run these farms as an aid and help for the Southern states, hence, Jersey cattle are the main attraction. From the large herd of some 250 animals, a carload was selected, "Golden Lad" blood largely represented. Mr Gentry visited the Islands and bought the best money could buy. This strain is simply wonderful in richness. The cows are reported to test with the Babcock 6½% butter fat, on the average. The cow "Golden Ova" Imp. 127228, sired by Golden Lad, is the finest Jersey it has ever been my luck to see. (I believe you have had a cut of her.) She is made right. It would be very hard to pick a fault with her. She is the perfection looked for but scarcely expected to see by the student of HOARD'S DAIRYMAN; has all the wedge shapes; rare to see a cow so sharply perfect in all these points, whilst her business end is built just right; her bag, large, soft, well placed, well up behind and in front; four well placed teats, milk veins not as large as many large milkers but good size and length. Head is sweetness itself. If I was going to make my ideal of a Jersey cow I would simply point to "Golden Ova" unless I could have her skin a more golden color—that seems to me the only lack.

Her son, Golden Lad's Successor, by her sire Golden Lad, is herself masculined. He is bound to make a show for himself. At first I was inclined to doubt the 6½% butter fat on account of lack of golden skin, but I was assured that it can be substantiated. A dozen fine heifers along this line of breeding testified to their outstanding merits and evidently will repay us to make a visit to Biltmore. Mr. Benninger's show of Holsteins from Pennslyvania hardly were creditable to the breed. But Messrs. Lindsay & Son, of Elizabeth, N. J., had some good Ayrshires, and Mr. Worden's Devons from Ulysses, Pa., made a very creditable show for the dairy. The Hill Top Farm, of Staunton, Va., had some good working Jerseys on exhibition. I. C. W.

Cedar Hill Farm Notes.

A Butter Score—Winter Preparations—Rape as a Cow Feed—Culling the Herd—Capons.

ED. HOARD'S DAIRYMAN:—After being away from the land of skilled butter makers for some years, we thought we would like to know just where we were at, so we packed a pail of butter and sent it to the dairy exhibit at Springfield, during the state fair, to have it passed on by an expert. In time we received the score card; we were cut two and one-half points on flavor, one-half point on grain, perfect on color and salt, making a total score of 97 points. As near as we can learn to date, there were 1,400 entries, and our score let us in with nine others on pro rata purse of $50.

We won first on county exhibit, so we felt that our hand has not lost its cunning from our stay in the south.

Fall is again with us, and we are busy getting things in shape for cold weather. We will use plenty of tarred paper both in cow barn and hen houses. We find it better than any other thing to keep out winds and frost.

We will build a barn to accomodate thirty cows, so that all of our stock may have comfortable quarters. Hay and fodder will be scarce before spring; we have our oat crop in sheaf under roof and during our leisure it will be run through cutter, together with corn fodder. We hope in this way to economize our hay crop, and at the same time keep cows well up in milk flow.

Our past summer's experince with rape as a cow food was so satisfactory that the coming summer we shall devote all lands possible to it; especially will we sow among growing corn that is intended for ensilage, so when corn is removed we can have pasture. Frosts do not injure the plants; all kinds of farm stock are fond of it, and it yields a great amount of food per acre.

We have now reached a point in our herd work that we can begin culling; and with what rejoicing my boys see some of the unprofitable ones go, they are so thoroughly posted with scales, daily milk records and Babcock test, and amount of food consumed, that they know every cow that does not yield a return over cost of keep.

We, as breeders of Jersey cattle, have one rule that would be a great help to many other breeders in keeping up the reputation of their herds; no matter how rich the blood of any cow, if she does not pay us a profit at the pail, we consign her to the butcher instead of selling her to someone as a family cow, or as a part of a herd. All of our bull calves are killed at once; we have none for sale at all. All heifer calves are kept until they are in milk so that we can thoroughly test them. In this way our reputation is not injured by placing poor cows on the market.

We will caponize 100 or more cockerels this week, as an experiment, and if it proves profitable, will go into the business quite largely. The cockerel problem is one that confronts many in the poultry business. They are at all times full of mischief, eat a vast amount of food, and the older and larger they get the less they are worth. In our case we wish to have our table supplied from the male end of our poultry yard, but don't like roosters worth $1.50 per dozen, any better than any other good dairyman.

BUFF JERSEY.

Skim Milk for Hogs.

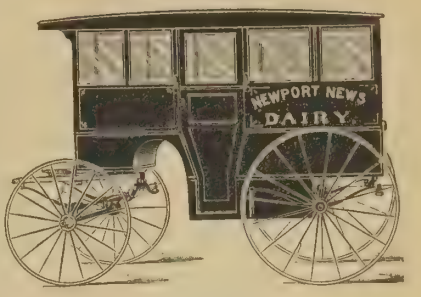
Skim milk should always be used when it is available. It is not only a good flesh producer in itself, but it also makes the ordinary grain feeds more digestible and so adds greatly to their value. While skim milk alone is rarely profitable, from twenty to forty pounds being required to make a pound of meat, when mixed with grain in the proportion of three pounds or less of milk to each pound of grain its value is greatly increased. In a test reported by C. P. Goodrich one bushel of corn produced ten pounds of pork, and one hundred pounds of skim milk produced five pounds of pork, when fed separately. When fed together, however, the mixture produced eighteen pounds of meat, an increase of three pounds due to the mixing. In this case one hundred pounds of skim milk took the place of 44.8 pounds of corn. If the corn was worth twenty-five cents a bushel, the milk was worth 19.6 cents per one hundred pounds; if the corn was worth forty cents, the milk was worth 31.4 cents. Extended tests in the feeding of skim milk have been made at the Utah Station and are these: "The hogs fed on the milk and grain ration made much more rapid gains than either those fed on milk alone or on grain alone. The time required to make one hundred pounds of gain was seventy-nine days for the hogs fed on milk and grain, one hundred and sixteen days for those fed on grain alone, and one hundred and forty-seven days when the feed was milk alone.

The milk and grain lots required 2.58 pounds of digestible matter, the milk fed lots, 2.85 pounds, and the grain fed lots, 3.19 pounds to make one pound of gain in live weight." In this case one hundred pounds of skim milk took the place of 23.2 pounds of grain in the mixture. Work at other stations has given very similar results and has demonstrated that when not more than four pounds of skim milk is used with each pound of grain the milk is worth from fifteen to thirty cents per hundred pounds. The younger and smaller the hogs the higher is the value of milk. For full grown and aged animals it is of less value. It may be taken as a safe rule that it is profitable to pay at least fifteen cents per one hundred pounds of all the skim milk needed to make four times the weight of the grain fed, and where it is impossible to secure enough for all the hogs the available supply should be given to those pigs nearest the weaning age and to sows suckling pigs.—*Blooded Stock.*

The lamp-chimney Index is worth some dollars a year to you — free.

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The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



BABCOCK MILK TESTER

ALL IRON AND BRASS,
MADE BY

A. H. BARBER MFG. CO.,
CHICAGO, ILL.

Builders of CREAMERY and REFRIGERATING MACHINERY.

SEND FOR CATALOGUE.



GOLDOMETOR for locating gold, silver and other minerals. In a pocket case. Also Rods and Spanish Needles. Catalogue, 2 cent stamp. B. G. STAUFFER, Dept. H. D., Harrisburg, Pa.

Be Careful



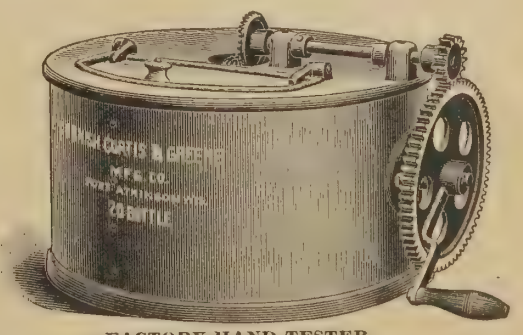
FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

A PHILADELPHIA oleo man has gone to prison for six months and pays a fine of $1,500 for the offense of removing the marks from a package of oleo, so that it could be sold as butter. It is reported that $8,000 was offered as compensation,

The mills of justice are frequently very slow in producing results but in this case they have "ground exceeding fine" and it will be interesting to note if the Chicago oleo men will continue to guarantee protection to their handlers of oleo who sell it for butter

Six months in jail is not a pleasent thing to look forward to especially when the guaranty does not guarantee.

THE SKIM MILK QUESTION.

The dairy school is contemplating the addition of the necessary apparatus for the manufacture of dried curd. This is a by-product of skim milk, and is used largely in the manufacture of paper. A number of the more progressive creameries are utilizing their skim milk in this manner and find it more profitable than any other way of handling this by-product of butter making.—*Pennsylvania Experiment Station Bulletin.*

It would seem that there is much danger of an infant industry being overdone, and a promising source of income receiving a serious set back.

The present outlook is that there is danger of the dried curd business being carried to such an extent as to over supply the market, which will of course, cause a fall in prices below the profitable point, with the usual result of loss to those dairymen, who have put in machinery to manufacture this product, but have not yet secured a regular market for the same.

Treating skim milk in this manner is only obtaining a crude low priced product at best, and not by any means putting it to its best use, which is as a human food.

There is a chance in this line for the experiment stations to do some really valuable work. There is an inexhaustible amount of skim milk to be obtained at low figures, and the little that has been done by foreign chemists in this line has made little if any impression on an exceedingly important subject.

We hear a great deal upon the waste of corn stalks, and many plans and machines are being tried to see if the waste cannot be prevented.

An equal amount of work on the skim milk question cannot but produce valuable results. The field is great and the laborers few.

From an Arkansas Dairyman.

Building a Silo.

ED. HOARD'S DAIRYMAN:—For the benefit of others I will record my experience in building my silo. I commenced to keep cows three years ago,—commenced with three natives, on a rented place.

January 1st, 1898, I purchased a 220-acre farm, assuming a mortgage for $8,500. In February, I built a cow barn 30×34, two stories high, with feed alleys, walk ways, and twenty-seven stalls, with gutters behind cows. In the fall, I built dairy rooms (two) 12×12, concrete cement floors, put down seventy feet, two inch tubular well, force pump, with water connection in both rooms and cow barn.

I purchased from the herd of George Campbell Brown, Spring Hill, Iowa, a thoroughbred bull calf, $65, at three months old, with nine grades at the same time.

I have read HOARD'S DAIRYMAN eagerly for three years, and by its teachings I purchased in spring, 1899, 300-pound latest patent Sharples cream separator, with forty gallon, six-sided, Fennor churn.

In September, I went to woods and cut and hauled to saw mill, enough yellow cypress to make 200 staves, 2×6; 100 pieces, 10 feet long, and 100 pieces, 14 feet long; had them dressed on one side, and both edges, and sized. In making the joint, I put up one fourteen-foot stave, and on top I put ten-foot staves, reversing the lengths every time. I also put up in the circle four pieces 6×6×26, and roofed on them; had my hoop made from ⅝-inch round iron, in four sections, threads eight inches on each end, and extra heavy washers and nuts. I sawed in one end of each stave, and used band iron 1-16×2×6 and it makes nice joint.

The foundation is put down as follows: Excavated to depth of six inches; used 300 brick and one barrel of cement to stand staves on, two layers of brick cemented together in right circle. I erected the silo as per illustration found in HOARD'S DAIRYMAN; am going to put silage on the earth this season and try it and will back up outside and inside with cement.

Have purchased a two horse St. Albans Tread and a ten inch Leslie St. Albans Shedder with thirty feet of carrier; will commence to fill on the 9th inst.

Have twenty-one cows in milk and have secured from Ewell farm, a young bull, Tormentor strain. When I get the silo filled will let you hear from me again.

In 1898, I paid on mortgage assumed $5,200, but as yet have not been able to pay a dollar in '99, as first crop of Irish potatoes showed a loss, and we have yet to harvest our cotton crop and second crop of potatoes.

Have ten acres of corn nicely shocked and ten acres planted in July, yet in fine state to put in silo. W. A. JOHNSON.

Ark.

Notes From the Sigworth Farm.

A Dairy and Truck Farm—A New York Fair.

ED. HOARD'S DAIRYMAN:—Not long since some one in the DAIRYMAN wondered if trucking and dairying could not be profitably worked together. If you will allow me a little space I will tell my brother farmers how I run a truck farm in connection with a ten cow dairy.

We are located six miles from Franklin a city of 10,000 people and the county seat of Venango county, Pa., and nine miles from Oil City of 15,000; the latter city claims to be the greatest manufacturing city of its size in the United States, while at Franklin is located the second largest refinery in the world. The country for miles around those cities is broken and hilly and mostly devoted to producing oil, in fact in the vicinity of Franklin is the only heavy or lubricating oil territory in existence.

This oil is used for greasing machinery, in its crude state, and sells for five times the price of common oil. So our market is never overstocked with good produce and although we make every thing secondary to our Jersey cows, we aim to raise everything our customers need and of good quality and honest weight and measure, and not to have the big potatoes and nicest apples on top of the measure.

A look at my delivery wagon as I start to market on a spring morning would reveal onions, lettuce, radishes, salsify, asparagus, rhubarb, parsnips, potatoes, beets, butter, eggs, butter-milk (as much as twenty gallons of the latter sometimes), smear-case, milk, cream, etc., and most of my load contracted for by regular customers. While by putting boxes round and working it properly (we have 300 hills) we are in the market two week ahead with our rhubarb, and sell $25 to $30 worth per year, and from now until May sell from eight to ten dozen jelly glasses of grated horse-radish per week. The two latter articles we sell mostly through the stores.

We raise all kinds of berries, currants and gooseberries. The Almighty in his infinite wisdom probably could have made a better berry than the strawberry; but I don't think he did, and then it is equally as well at home in the sunny south, or blustering north, and is as easy to grow as a bed of onions or lettuce; and yet how small a proportion of our farmers have any berries, only what wild ones the wife and girls pick out. Bed is so large that we can eat all we want at all times and in all ways, and wife need not yell at us to get out the berry patch.

We used our first mess May 28th, and for four weeks used at least two quarts per day, per kid and adult, making lots of meals on berries, bread and butter, and thus saving a lot of hot work for the women; and we sold fifteen bushels, which, clear of picking, averaged $1.50 per bushel.

I had intended to say a little something about dairying, but want to tell of our Venango County fair, which was held at Oil City, and if there is not enough cow in it for the editor, put it in the great receptacle for the manuscript of budding authors.

To call it an agricultural fair, would be a misnomer, as agriculture cut but a small figure, and of the 35,000 persons in attendance, not one-third paid a visit to the agricultural part. Our county contains some fine herds of dairy cows, and perhaps fifteen creameries and there was not a pound of butter or loaf of bread, and but very little other stuff from the homes of our farmers, on exhibition. There were two samples of corn, six of potatoes, four squash, four pumpkins, and no other garden stuff. Of apples there was a full exhibit; and excepting trotters, no horses of any account, a few cattle, but lots of sheep and hogs.

But the sports claimed the trotting and running races were good; they had all kinds of games, from the catch penny to a huge wheel of fortune, and of shows you could take your choice, from "for men only" to the great moral pantomine of Christ's Suffering. Who is to blame for this? It seems a purely agricultural show will not draw a crowd, and the management must resort to any expedient to get the most twenty-five cents.

Wyattville, Pa. O. C. S.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated but 2,580 pounds but not a bid had been received when the call closed.

The quotation committee declared the market steady at 23½ cents.

The sales for the corresponding week of the three preceding years were as follows:

Oct. 17, '98, 7,500 lbs. of butter sold at 21½c.
Oct. 18, '97, 9,960 lbs. of butter sold at 22c.
Oct. 19, '96, 67,260 lbs. of butter sold at 20c.

The New York market Monday was reported steady at 24 cents. H. C. B.

Elgin, Ill., Oct. 16, 1899.

Memory-Points About Singer Sewing-Machines.

SOLD ON INSTALMENTS. . .
OLD MACHINES EXCHANGED.

We make but one grade of product, admitted to be the best; hence attempts at imitation.

We deal directly with the people, through our own employees all over the world, selling 800,000 machines annually. We do not sell to dealers nor through department stores.

If You Buy a Singer

You get an up-to-date machine, built on honor, to wear a lifetime.

You get it for the lowest price at which such a machine can be furnished.

You will receive careful instruction from a competent teacher at your home.

You can obtain necessary accessories direct from the Company's offices.

You will get prompt attention in any part of the world; our offices are everywhere, and we give careful attention to all customers, no matter where their machines may have been purchased.

You will be dealing with the leading sewing-machine manufacturers in the world, having an unequaled experience and an unrivaled reputation to maintain—the strongest guarantees of excellence and fair dealing.

The Singer Manufacturing Co.

Salesrooms in Every City in the World.

DAIRY MARKETS.

ELGIN, Ill., Oct. 16—Butter—Forty tubs offered; no sales; committee reported steady, 23½c.

CHICAGO, Ill., Oct. 16.—Butter—Creamery, extra, 22c; firsts, 19@20c; seconds, 15½@16½c; dairies, selections, 19c; No. 1, 16c; No. 15c; extra ladle, 14½@15c.

Cheese—Full cream, Twins, new, good to choice, 11¾@12c; Young America, 12@12¼c; Swiss, 10@13c; Limburger, 10@11½c; Bricks, 10@12c.

Eggs—City candled, fresh, cases included 16½c,

Bran—Steady, but quiet, and sold at $13 in sacks on track, and at $12 in bulk, through billed.

Middlings—Sold f. o. b. at $12.50 per ton.

Cattle—The best native and range cattle ruled steady, while other grades were weak to 10c lower. The best cattle received here, 30 head of 1,515-lb. corn-fed Wyoming polled Angus steers, sold at $6.70. The next highest was $6.60, with the bulk of native steers at $5.50@6.20; corn-fed Western averaging 1,087@1,625 lbs. sold at $4.75@6.30; grass Western steers $3.85@5; Western cows and heifers, $3.25@4.25; grass Texas, $3.60@4.30 for steers and $2.65@3.25 for bulls and cows. Good native canning cows sold at $2.50@2.80: fat cows, $3@3.50: good to choice heifers, $3.50@4.75; bulls, $2.50@4.25; stags, $3.50@5.25; calves, $4.50@7.15, and feeding cattle at $3.10@4.70.

MILWAUKEE, Wis., Oct. 16—Butter—Creamery—Fancy prints, per lb., 23½c; extras, 23½c; firsts, 22@23c; seconds, 20@21c; imitations, 19@20c. Dalry, selections, 18@20c; ladles, 15@16c. Market unchanged and quiet with an ample supply and a slow trade.

Cheese—American full cream, new, choice to fancy, 11½@12½c. Brick, 11½@12c Limburger, new, choice, per lb., 11@11½c. Swiss, drum, 12½@13c; block, 12½@13c; No. 2, 10½@11c. Market firm; receipts 1,050 lbs.

Eggs—Fresh, per doz., 16½c, loss-off cases returned. Market quiet and easy; receipts 294 cases.

FOND DU LAC, Wis., Oct. 16—Cheese—Offerings 565 Twins, 730 Daisies; market steady; Twins, 11¾c; Daisies, 12⅛c.

MUSCODA, Wis., Oct 16—Cheese—Offerings today, 1,065 boxes. Market firm; locals, 11½c; carlots, 11⅝c.

BRILLION, Wis., Oct. 13.—On the Brillion dairy market to-day 1,658 boxes of Daisies were sold at 11½c; 800 boxes Flats at 11½c; 625 boxes Young Americas at 11¾c.

SHEBOYGAN FALLS, Wis., Oct. 11.—Sixteen factories offered 1,298 boxes of cheese on the Call Board to-day. The market opened quiet, with bids of 11½c. on all lots. Finally one bid was raised. and then another, creating quite a little strife on a few lots. Sales 145 cases of Young Americas at 12c.; 175 at 11c; 76 Twins at 11¾c.; 140 Daisies at 12¼c.; 175 at 11⅞c., and 100 at 11¾c.

MANITOWOC, Wis., Oct. 11.—Offers of cheese today at Dairy Board of Trade were: 750 boxes of Daisies, 195 boxes of Twins, 650 boxes of Young Americas. All offerings sold at 11¾ c.

HORTONVILLE, Wis., Oct. 5.—Offerings were 334 Cheddars and 726 Twins. Sales: 332 Cheddars at 11⅞c; and 656 Twins at 11⅞c. Ruling price: Cheddars 11⅞c; Twins, 11⅞c. Market active.

PLYMOUTH, Wis., Oct. 10—Cheese—Sales today, 850 Twins at 11⅞c; 380 Twins at 12c, and 1,200 Americans at 11⅞c.

HILBERT, Wis., Oct. 7—Cheese—The sales today were 509 cases Young Americas at 12c.

APPLETON, Wis., Oct. 5—Cheese—The offerings were all sold as follows: 215 Cheddars at 11⅞c; 182 Twins at 11⅞c, and 50 at 12c. Market active.

NEW YORK, Oct. 16.—Butter—Creamery, Western extras, 24c: firsts, 22@23c; state extras, 24c; firsts, 22@23c; state dairy, half-firkin tubs, 22c: receipts, 7,589 packages; prices steady; firsts in good supply.

Cheese—Firm at 11¾@12c for large and small white fancy, and 12@12¼c for colored fancy, large, and 12½@12¾c for small; receipts 2,559 boxes.

Eggs—Quiet at 20½@21c for best state and Pennsylvania; receipts, 9,025 cases.

PHILADELPHIA Pa., Oct. 16.—Butter—Market quiet, but offerings of fancy goods were small, and prices ruled steady; solid-packed creamery, extra, 24c; firsts, 23c; prints, fancy, wholesale, 24c; jobbing, 25@28c.

Eggs—There was a fair demand for fine fresh stock, and prices ruled steady, with small supplies; Pennsylvania and other nearby, fresh, 19c; Western choice, fresh, in free cases, loss off, 18½@19c; fair to good, 17@18c; ice house, 17@18c.

OGDENSBURG, N. Y., Oct. 9.—There were no

sales of cheese on the Board, but on the street 1,821 boxes were sold at 11½c.

FULTON, N. Y., Oct. 9.—To-day 19 factories were represented with 1,130 boxes of cheese. Large sold at 11½c and small at 11¾c.

CANTON, N. Y., Oct. 9.—There were 1,909 boxes of cheese and 828 tubs of butter offered here. There were sales of cheese at 12c, and of butter at 23½c.

WATERTOWN, N Y., Oct. 9.—Cheese—The market was firm. All held for 12c for both large and small. About 1,000 large were sold at 11¾c, while small sold freely at 11¾@12c.

NORWICH, N. Y., Oct. 9.—The sales of cheese were: Small colored creams, 375 boxes at 12c, and 460 boxes at 12¼c; small white creams, 100 boxes at 12c; skims, 500 boxes at from 9½@10½c. There were 40 packages of creamery butter sold at 23c; dairy butter sold at from 21@22c.

BOONEVILLE, N. Y., Oct. 8.—Cheese—The market here on Friday was strong. There were 6,360 boxes sold at 11¾@12½c.

LITTLE FALLS, N. Y., Oct. 9.—Cheese—The market made another stride upwards, and salesmen found no trouble in securing 12c. Most factories are now making very light quantities, and the majority of them will be closed for the season by November 1. The sales to-day are 5,735 boxes, all going at 12c, except 120 at 11½c, and 200 on private terms.

UTICA, N. Y., Oct. 9—Cheese—The cheese market today, showed another advance. This is the first time in five years that cheese has been as high at this stage in the season. The sales aggregated 8,030 boxes, mostly large sizes. Large sizes sold at 11½@11¾c, the former price ruling, while small sizes brought 12@12¼c, the lower price ruling.

The transactions on Oct. 12, 1897, were 8,423 boxes with 8½c as the ruling price. The transactions on Oct. 11, 1898, were 7,206 boxes with 8c as the ruling price.

Butter—The butter market, today, was higher for creamery, as a rule, than last week. The sales were: 16 packages at 22c; 8 packages at 23¼c; 85 packages at 24c; 18 crates of prints at 25c.

BALTIMORE, Md., Oct 16.—Butter—Market firm; creamery separator, extra, 25@26c; extra first, 24c; creamery first, 23c; creamery imitation, extra, 19@20c; ladle extra, 17@18c; Western store-packed, 13½@14c.

Eggs—Market firm; strictly fresh stock, 17@17½c.

BOSTON, Oct. 16—Butter—Creamery, extra, 24c; western, extra, 23c; dairy, extra, 22c; imitation creamery, 16@18c; western ladle, 16½c; print creamery, 24@25c; box creamery, 23@24c.

Eggs—Fancy near by, 28@30c; choice, fresh, 23c; Michigan extra, 21c; western, 19@20c; fair to good, 18@19c.

ST. LOUIS, Mo., Oct. 16—Butter—Steady; creamery, 19@24c; dairy, 14@19c.

Eggs—Steady; 15c.

KANSAS CITY, Mo., Oct. 16—Butter—Creamery, 19@22c; dairy, 16c.

Eggs—Fresh; 14c.

CINCINNATI, Ohio, Oct. 16—Butter—Quiet.

Cheese—Firm; good to prime Ohio flat, 12½c.

Eggs—Easy; 15c.

WASHINGTON, D. C., Oct. 26—Butter—Market firm. Extras 24c; choice firsts, 23c; fine imitations, 19c.

NEWARK, N. J., Oct. 16—Butter—Market quiet, 24c for extra creameries. Receipts fair.

NEW ORLEANS, La., Oct, 16—Butter—Market easier; 24c.

Cheese—Unchanged.

Eggs—Dull; 16c. Weather warm.

Latest quotations for fancy creamery: Buffalo, 24c. St. Paul, 22½c. Minneapolis, 22½. Detroit, 24c.

BALTIMORE MARKET.

BALTIMORE, Oct. 12—Butter—Receipts of fresh creamery direct from western primary points continue light, and about thirty per cent less than was received at this time last year, which shrinkage in volume being but a reflex of the condition at the dairies and in the creameries throughout the west, warrants the advance in prices and the sustaining of the advance on the highest grades, in harmony with the law of supply and demand, restraining as it does, the desire on the part of the distributors to possess themselves of none but the best, and compelling recognition of the redeeming points of much of the weaker grading that, but for the scarcity of extras would fall out of line and straggle along, way into the winter. We think it safe to say that the present is the brightest period in the history of makers of poor butter, but if it results in a relaxation of effort to improve the quality generally, it will be most unfortunate, for the success of the dairy depends upon the ability to compete with producers abroad, and they make quality the prime consideration. Imitation creamery and ladles are very scarce. Roll and store-packed are in light receipt and quick demand.

Creamery Separator, extras, 24c; firsts, 22½@23c; seconds, 20@21c. Creamery Gathered Cream, extras, 21@22c; firsts, 19½@20c; seconds, 19c. Creamery Ohio, extras, 21@22c; firsts, 19½@20c; seconds, 19c. Creamery Imitation, firsts, 17@18c; seconds, 15½@16c. Iowa & N. W. Ladle, firsts, 16@17c, seconds, 15c. Ohio & Indiana Ladle, firsts, 16@17c; seconds, 15c. Ohio Rolls, extras, 17c; firsts, 15@16c; seconds, 14c. W. Va. Rolls, extras, 16c; firsts, 15c; seconds, 14c. Ohio & W. Va. Storep'd, firsts, 15c; seconds, 13@14c Creamery Blocks (2 lbs.), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c. Creamery Prints, (½ lb.), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c; Md., Va. & Penna. Prints, extras, 21c; firsts, 20c; seconds, 18@19c.

Cheese—Receipts light, demand active; market firm with advancing tendency.

N. Y. State—Cheddars, fine, 12½@12¾c; choice, 12@12¼c; fair, 11¼@11¾c. Flats, fine, 13@13¼c; choice, 12½@12¾c; fair, 12@12¼c. Small, fine, 13½@13¾c; choice, 13@13¼c; fair, 12¼@12¾c. Ohio—Flats, fine, 12¾@13c; choice, 12½@12¾c; fair, 11½@12c. Ohio Picnic, fine, 13@13½c; choice, 12½@12¾c; fair, 11¾@12¼c. Swiss Cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—Strictly fresh stock has been in very light receipt, and for this kind the demand is good; some invoices have been coming mixed with held eggs, and had to be sold accordingly; do not mix fresh with held stock if you wish to obtain fresh egg prices; the trade in general much prefer fine marks of cold storage to these so-called fresh; market firm on all good to choice fresh eggs at 17½c. G. M LAMB & BRO.

301 Exchange Place.

LIVERPOOL, Oct. 16—Butter—Finest United States, 98s; good, 73s.

Cheese—American finest white, 54s 6d; American finest colored, 56s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Two Fine Dairy Farms to let on shares on favorable terms to experienced dairymen who can give good references. One contains 320 acres, stocked with high grade dairy cattle. The other contains 400 acres, with or without stock. Also wanted: an experienced hand with dairy cattle. Both farms conveniently located. THOS. H. KELLY, Box 205, Owatonna, Minnesota.

Auction—75 choice high grade Jersey cows, fresh or due soon. Sold to the highest bidder, Thursday, Oct. 26th, on the Fair Grounds, Greenfield, Mass. A chance to buy high class young cows of great dairy capacity in car load lots. Certificate of tuberculin test furnished with each animal. Sale under cover and will be positive. Send for descriptive list to STOUGHTON & BURNHAM, Montague, Mass.

Wanted—An energetic young man with a thorough knowledge of handling milk, to manage a milk depot in a prominent Virginia town, handling about 300 gallons per day. Price and satisfactory references required. Address F. C., care Hoard's Dairyman, Fort Atkinson, Wis.

Does your large farm or dairy pay you? if not, I will put it on a paying basis if given management. Salary one hundred dollars per month. Nothing less considered. Can give best of references. Speak three languages. Address No. 25, Hoard's Dairyman, Ft. Atkinson, Wis.

For Sale— Milk, Butter and Egg business, near Pittsburg, Pa. Town of 25,000. Handle 250 gal. daily. Own building 40 x 40, 4 horses and wagons, boiler, engine, etc. Doing $1200 per month, clearing $300. A modern plant. If sold during October $3000. Write G. W. L., 1616 Bayard St., Alleghany, Pa.

Wanted—Situation as foreman or manager on a first-class dairy farm. Can furnish full references as to ability and character. Address "L" St. Ives Park Farm, Fullerton and 64th Ave's, Chicago, Ill. 36-2

Wanted—Man and wife for dairy. He to drive milk wagon or do general farm work. Must understand separators and the care and feeding of stock. She to assist in dairy and house work. Address Box 75, Dansville, N. Y.

For Sale—very reasonable, two choice reg. H. F. bulls, 16 and 24 months old, gentle, well marked, prepotent sires. T. C. RANKIN, Boston, Pa.

For Sale—Holstein Friesian bull No. 24305, calved Dec. 16, '95, butter bred, weight 1900 lbs., also H. F. bull calf, son of the above, 6 mo. old. Prices reasonable. F. E. LAWSON, Walworth, Wis. 36-2

Wanted—1 bull calf and 2 heifer calves, Guernsey or Ayrshire, under 200 pounds each, weaned, registered, bull no relation to heifers. To ship by express. West of Miss. river preferred. State pedigree, etc. E. M. SANDERS, No. Powder, Oregon,

For Sale—Small fruit and dairy farm, three miles from Springfield, on main road. Best route in city. Milk sells for 25c a gallon. Part cash, balance 5 years time at 6% interest. J. C. MILLER, Springfield, Mo.

To make your wife love you buy "Garland" Stoves and Ranges.

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Wanted—A car-load of good milch cows, any breed except Holsteins. Must be fresh or springers. Address, FALICON, Clarksville, Mo.

Wanted—A working manager for a small 20 cow private dairy farm. Knowledge of butter making and general farming required. An active energetic man wanted. ARLINGTON DAIRY, Bangor, Mich.

Married man would like position on dairy farm. Experienced butter maker. References given if desired. Address BOX 375, Plainview, Neb., stating wages.

Wanted—A dairyman who would like to come south to take charge of a first-class dairy. Address "E," Glenraven P. O., Tenn. 34-3

A Baby De Laval Separator No. 3, capacity 600 lbs. an hour, 30-gal. churn, butter worker, 6-bottle Babcock tester, shafting, pulleys, belts, etc. Price $100.00. Separator good as new and cost $200.00. E. R. BALSLEY, Troy, Wal. Co., Wis. 34-tf

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

Excursion Tickets to Good Roads Convention at Madison, Wis., Via the North-Western line, will be sold at reduced rates, October 26, limited to October 27, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Good Roads Convention at Waukesha, Wis., Via the North-Western Line, will be sold at reduced rates, October 21, limited to October 23. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to Good Roads Convention at Janesville, Wis., Via the North Western Line, will be sold at reduced rates, October 25, limited to October 26. Apply to agents Chicago & North-Western R'y.

Excursion Tickets to the Great American Exposition, to be held at Omaha, Neb., until October 31, 1899. Via the North-Western Line, will be sold at reduced rates. from certain stations on specified dates. For rates, dates of sale and limits of tickets apply to agents Chicago & North-Western Railway. 22-sp

To California, via the Midland Route.—Every Friday night, at 10:35 p. m., a through Tourist Car for San Francisco, carrying first and second-class passengers, leaves the Chicago, Milwaukee & St Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City (with stop-over privileges at Salt Lake City), for all points in Colorado, Utah, Nevada and California. The Tourist Car berth rate from Chicago to San Francisco is only $6.00, and the sleeping car berths should be reserved a few days in advance of departure of train. Through tickets and sleeping car accommodations can be secured from any agent in the east, or by applying at the Chicago, Milwaukee & St Paul Depot or City Ticket Offices in Chicago. Send for our free illustrated California folders. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill. 29-sp

Another Big Creamery Learns Its "Hollow-Bowl" Separator Lesson.

The Fabius Creamery Co., of Fabius, N. Y., is one of the largest in New York State. For four years it had used "hollow-bowl" separators. Like a good many other co-operative creameries otherwise well managed, it paid very little attention to separator representations and supposed that all separators were "about alike." But on finally being induced to make careful comparative test, on top of just having replaced its older "hollow-bowl" machines with brand new ones of the latest type, it finds that it has been throwing away **AT LEAST $1200.– A YEAR** that would, with the use of **"ALPHA"** machines, have gone to its patrons and stockholders. By vote of its directors it has now put in **"ALPHA"** machines and has thrown out the new "hollow-bowl" ones which it is advertising for sale at half-price.

(COPY.) FABIUS, N. Y., Sept. 23, 1899.

THE DE LAVAL SEPARATOR CO.,
New York.

Gentlemen:—For four years we have been using "United States" separators in our creamery. They were giving perfect satisfaction *because we knew of nothing better.* In June last, however, just after we had arranged for the purchase of a new 3000 lbs. "U. S." turbine machine, your representative called and persuaded us to place alongside of it an "Alpha" No. 2 for comparative tests. The "Alpha" machine from the start showed closer skimming than the "U. S.," and in a 30 days' test showed a better average.

When our Directors met to make definite purchase, however, and you people insisted upon full list price for your machine as against the very low figure at which the "U. S" was quoted us, it was not apparent to the majority of our Directors that we would be justified in paying this much higher price for your machines. We not only purchased then the "U. S." machine which was in our factory, but two others, which with the one we had purchased a little more than a year ago made four "U. S." machines.

We were much surprised, when these machines were placed, to find that our *30 h.-p. boiler* would not furnish sufficient steam for their operation, in connection with the regular work about the creamery. We decided, therefore, to give the "Alpha" another trial rather than purchase a larger boiler. This time you placed with us machines of your latest device, which were run alongside of the "U. S." and careful competative tests made. These tests were made by myself and our operator, and I am in a position, therefore, to vouch for their accuracy.

During the last year we handled 9,723,369 lbs. of milk. Our tests proved to us that through closer skimming the "Alpha" machines would have produced for us from such quantity of milk 5,163⅓ lbs. more butter-fat than the "U. S.," which at 18 cts. per lb. would make an additional profit of $929.40. On account of the "Alpha" machines being operated with less power, our coal bill in one year will be reduced $206.53. In addition there is considerable labor saved in handling, on account of the *"Alpha" bowl being more easily and quickly washed*, and on account of its not clogging and its not being necessary therefore to clean it so often. There is a saving also on account of the "Alpha" producing a more churnable cream, which subjects us to less loss of butter fat in the buttermilk.

Taking all of these items into consideration we are convinced that the use of "Alpha" machines will increase the net results to ourselves and patrons *at least $1200.– per year. With such a showing we would not have been justified in continuing the use of the "U. S." machines even though they were presented to us free of cost and kept in repair without charge*, and our alternative was to purchase "Alpha" machines. You may consider this a formal acceptance of your machines, full settlement for which will be handed you within such time as agreed upon.

FABIUS CREAMERY CO.,
W. L. HAMILTON, Sec. and Treas.

The experience of the Fabius Creamery Co. must be simply that of any creamery in which somebody takes enough interest to determine what the differences between separators really amount to, and where this may mean the use of an **"ALPHA"** machine in comparative test we are glad to supply it. It means a sale and a profit to us and **A FIVE TIMES LARGER PROFIT EVERY YEAR** to the creamery making the test.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

"THERE'S MORE IN THE MAN THAN THERE IS IN THE LAND."

(Extract from Address of Col. R. J. Redding, President of Georgia Dairymen's Association.)

"In conclusion it may by said that dairying is like almost any other business in life. You all remember Sidney Lanier's "The Story of Jones of Jones County," of which the first stanza read:

"I knew a man and he lived in Jones,
Which Jones is a county of red hills and stones,
And he lived pretty much by gitting of loans.
And his mules was nothing but skin and bones,
And his hogs was as flat as his corn-bread pones,
And he had 'bout a thousand acres of land."

The succeeding stanzas inform us that "this man," which his name was also Jones, finally sold out "lock, stock and barrel" to a man named Brown, and moved to Texas.

In five or six years this man Jones managed to beg and tramp his way back to "old Georgia," and humbly called at the gate of the fat and lazy and comfortable Brown and was invited to rest his weary bones and partake of Brown's store of juicy spare ribs and back bones and golden-hued butter that had "growed" on the old farm of "red hills and stones." The final couplet represents this man Jones as rising from his burdened chair and overburdened "inwards" and exclaiming:

"That whether men's land was rich or poor.
Thar's more in the man than there was in the land."

ENGLISH JERSEYS VS. ENGLISH SHORTHORNS.

"The butter tests at Tring are again of a remarkable character," says the (London) *Dairy* of September 15th. "The average yield of all Jerseys was one pound, 14 5-10 ounces, and that of all Shorthorns, one pound, 9¾ ounces. The principal results will be seen in the following precis of the details of the experiments. The third column shows the number of pounds of milk given by each class used to produce a pound of butter, This is called the "butter ratio." The last column is also most instructive, for it gives the number of days for which the cattle of each breed actually shown, were in milk. The first column shows the number of animals of each kind exhibited, and the second their average weight per cow;

	Number.	Lbs. average live weight.	Average yield butter.	Average butter ratio. *	Average days in milk.
Shorthorns.	19	1387	1 10 31-38	33.34	60 7-19
Cross-bred.	7	1132	1 9 19-28	34.08	29 4-7
Dutch.....	1	1473	1 8¼	28.61	10
Jerseys.....	45	863	1 14 7-36	18.43	102 29-45

* Number of pounds of milk required to make one pound of butter.
Ten pounds of milk are approximately equal to one gallon."

Here we have the average record of forty-five selected Jerseys competing with nineteen of those much be-praised English, dairy Short-horns, the farmer's ideal dual-purpose cow, according to the logic of Prof. Shaw and J. McLain Smith. The Jerseys weighing not quite two-thirds as much as the Short-horns, and, therefore, requiring only about two-thirds as much food for personal maintenance—a fixed charge from which no profit can be derived—make, practically, 4½ ounces more butter each per day. Let us be on the safe side, and call it an even quarter of a pound, and, disregarding the exceptional persistence of the Jersey as a milker, estimate each cow in milk for three hundred days. This puts the Jersey seventy-five pounds of butter ahead, worth on the average, not less than $15.00, which is certainly not an inadequate offset to the claim of extra value for the Short-horn's calf.

We do not care to argue the case at this time, but submit the evidence to the consideration of practical dairymen, who keep cows for profit.

From A Vancouver Dairyman.

ED. HOARD'S DAIRYMAN:—I was pleased to see my letter in your paper, and I thank you for the information you so kindly supplied, I fear, however, that my letter may have a tendency to create too favorable impression as regard dairying on Vancouver Island. It is not by any means an ideal dairy country. The climate is certainly very mild, and I consider it delightful after my experience of cold winters in the central states. But we have a long dry summer, when the herbage dries up, and few farmers are so well posted in their calling as to provide green food for the cows, while silos are practically unknown.

There is a good deal of natural herbage on the wooded ranges, which turn out beef early for market without extra feeding, and the cows come home well filled up, with extended udders. But the dairy business is only in its infancy, and we have a great deal to learn and unlearn before we can begin to make dairying pay.

In the first place we lack a good breed of cows. With the importation of thoroughbred Jersey bulls, this defect will soon be remedied. Then the price of feeding stuffs is very high, and I see no prospect of its becoming cheaper. We must grow on the farm everything the cow needs. With a fertile soil and good climate, we can raise fine crops of oats, peas, mangels, etc., etc,

Then again our market is not all one could wish. People prefer creamery to ranch butter, the creamery article bringing about ten cents per pound more than ranch butter. And I do not wonder at it. So much bad and inferior butter is sent into Victoria markets, that people lose faith in farming, and naturally turn to the well put up and attractive creamery product. I have seen 200 lbs. of ranch butter in the rear of a grocery in Victoria that was not fit for axle grease. The store keepers take this butter in exchange for provisions. No distinction is made, and it is all placed together in a cupboard or refrigerator. I have had to remonstrate with my grocer for the careless way in which he handled my butter, and I did not wonder at butter becoming unfit to eat when exposed to so many odors.

Can you feel any surprise that customers ask for creamery butter, paying thirty and thirty-five cents per pound, and refusing the ranch butter at twenty-two and one-half and twenty-five cents.

I wish HOARD'S DAIRYMAN was in every household, and that the people would read its instructions. We want cleanliness in the dairy, first of all, then the knowledge essential to the production of a first-class article. I know from experience that people in town *will* buy ranch butter when it is good. I get thirty cents per pound for mine from private customers, and we have seldom been able to supply the demand.

I know farmers who get thirty-five cents, and one farmer who a year or two ago got forty cents per pound for all his butter from sixteen cows, all the year around, and he could not meet the demand. The secret of this butter was its excellence. But so long as farmers attempt dairying in a slipshod manner, keeping cows that wont pay their board, paying little attention to the general rules of cleanliness in the dairy, allowing their cows to pick up a living as best they can and regarding butter day as the bane of the week, so long will we hear the antiquated cry that "dairying don't pay."

I would be sorry if any of your readers inferred from my letter (which I did not expect you to take so much notice of) that B.C. was an ideal dairy county, but I can say this much from my own personal experience that dairy farming does offer a reasonable measure of success when pursued intelligently and industriously. And it is in the power of us all to make the dairy a profitable branch of farming, and a pleasure as well.

Metchasm, B. C. J. D. REID.

Soy Beans.

(Press Bulletin, Kansas Experiment Station.)

There are a number of varieties of soy beans, but the early yellow soy has proved the best. They are erect growing, with from one to six or more stems branching out from near the ground, and reaching a height of from one and one-half to three and one-half feet; seldom falling down, except in very rich, loose land. The branches are thickly studded with pods from the surface of the ground to the top; a single plant having sometimes as many as two hundred pods, containing from one to four beans, the usual number being three. The soy bean is a remarkable drouth-resister, and will do comparatively well on thin land. However, they respond very readily to plenty of moisture and good soil. Being a legume, if the bacteria which produce the tubercles on the roots are present in the soil, they leave the land richer in nitrogen, the same as clover does. The land may be inoculated by getting earth from a field that has the bacteria in the soil, and planting it in the rows with the beans. We used a fertilizer attachment to a hose drill this year, with good success. Planting should not be done until the weather is warm—after corn planting. They will make a fair crop after rye or wheat, if the season is favorable. The ground should be well prepared, and the beans planted near the surface. We plowed the ground last spring, going over what we plowed each day with Campbell's Sub Surface Packer, and planted the beans immediately, with a press drill, stopping holes so as to plant in rows thirty inches apart, and from one to two inches in the row. This required thirty pounds (one-half bushel) to the acre.

They may be cultivated as other crops; keeping the soil in good shape, and the weeds down, is all that is required. We used the spring-tooth cultivator, except in a few places where the weeds obtained a start, on account of the wet weather. The crop can be handled so as it will not be necessary to use the hoe at all. Land that has been lately manured is liable to give trouble, as it is usually weedy.

Until this year the harvesting has been the great problem, but we found that there are machines manufactured for the purpose, and have tried several of them, and found them to be successful; so the harvesting no longer stands in the way. The yellow soy does not shell readily, and so can be let stand until well ripened. We began harvesting when most of the pods had turned brown, and a few of the top leaves were sticking on. The bean harvester has large knives which cut the stems just under the ground, cutting two rows at a time, and throwing them together in a windrow. An ordinary one-horse hay rake will take two of these windrows at a time, and the horse walks between them. We raked and shocked immediately after the harvester, and left them to cure in the shock. Threshing was done in the field with an ordinary separator, using all blank concave, and running no faster than necessary to keep the machine from clogging in the shakers and riddles, so as not to crack the beans.

The following is the cost of production on the College farm this year. The work was conducted as nearly as possible on a commercial basis, the object being to find what could be done on a large scale. The sixty acres from which the following is taken comprises several fields, which vary widely in many respects from good land to very poor, on the whole perhaps below the average of farm land. Labor is computed at $1.25 per day for a man, and $2.50 per day for a man and team. The cost per acre for the various items was as follows: Preparation of land, $1.35; planting $0.30; cultivating, $2.00; hoeing, $0.70, which was confined to a few patches; harvesting, $1.40. The harvesting is considerably above what it will be when the regular harvester is used, but we did not receive the harvester in time to begin, and the old method is much more expensive.

The threshing required four teams and six men, besides the machine force, which was hired at $15.00 per day, board and coal not included. The total expense for threshing the sixty acres, which took four and one-half days, aside from the cost of coal, was $155.25. The yield of the sixty acres was 932 bushels, making the cost of threshing 16 6-10 cents per bushel. The sixty acres of beans averaged fifteen and one-half bushels per acre, making the cost of production 55 cents per bushel or about $8.40 per acre.

Soy beans as a feed take the place of oil or gluten meal and in composition are richer than oil meal. In feeding them to milch cows, fattening cows and hogs, they have given astonishing results. In two experiments carried on last winter in feeding hogs, the addition of one-fifth soy bean meal to kafir corn gave practically double the returns from kafir alone. The ten hogs fed kafir meal alone, during a period of fifty days, ate 2,872½ pounds, and gained 441 pounds; the ten fed kafir meal four-fifths and soy bean meal one-fifth, ate 3,766 pounds of the mixture, gained 866 pounds, and sold for 10 cents more on the hundred than the other lot.

When the beans are let thoroughly ripen in the field the straw is worthless, but if cut and cured while green makes excellent hay. They make excellent hog pasture and are a good crop for soiling.

Results Make Reputation.

Singer Machines, either lock-stitch or chain-stitch, are the successful result of long experience and constant improvements in the endeavor to make nothing but the best sewing-machines for family use. The accomplishment of this result requires six of the largest, best-equipped factories in the world, and the best inventive talent of the age. Twelve thousand workmen are employed in these factories. Experience counts with THE SINGER MANUFACTURING COMPANY. The average term of employment among these workmen exceeds a decade.

Sold on instalments.
Old machines taken in exchange.

The Singer Manufacturing Co.,
"Sewing-Machine Makers for the World."

Packing Dairy Butter.

A problem which puzzles many of our good dairy butter makers to-day, is to put up their butter for market in such a way that it will bring the price it merits.

The style and size of package depends upon the market. Where one is obliged to take their butter to a grocer, the gallon and half-gallon crocks are usually preferred. If one has private customers, it depends wholly upon the quantity used. The gem paper packages are light, substantial and reasonable in price, ranging in size from one to twenty-pound packages. Where you ship to large grocers or commission houses, the sixty-pound white ash tub is desirable. A very good packer for putting the butter in small packages can be made by taking a common wooden potato masher, sandpapering until it is smooth, scalding and cooling. For the tubs one needs a packer, such as those used by creamery butter makers. Before putting butter in crocks, be sure that they have been thoroughly scalded and cooled. Never use crocks which have held anything but good, pure, sweet butter; as lard, yeast, pickles, or in fact, almost anything will affect the glazing of the jar enough to taint the finest of butter, if it is left in a jar any length of time. In packing, only put in small quantities at a time, and press down firmly, so

It is Easy

for you to detect tuberculosis in your cattle by the use of

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No skilled assistance or technical knowledge necessary.

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there will be no pools of brine; continue in this manner until the butter is rounded over the top of jar. Even the top by taking the ends of a piece of twine (which has been wet) in both hands, holding it close against top of jar. With a sawing motion draw across, then holding jar slanting over bowl or churn, carefully lifting the upper edge of butter from jar with ladle, the air will get under the layer, which will drop off, leaving an even surface, which looks much nicer than when smoothed off with a ladle, which is apt to give a salvy appearance.

Place on the top a circle or cap of butter cloth. (These circles may be procured of any dealer in dairy supplies for a few cents per thousand in sizes to fit any package.) On top of cloth put an even layer of nice, clean butter salt, over which sprinkle a little water, and you will have an air tight crust. Cover this with fresh clean manila paper; fasten on by passing twine below rim of jar two or three times and tying with single bow knot. Trim paper evenly from one-half to three-fourths of an inch below twine, and you will have a package which will find ready sale.

Mark your package with name or private mark, always the same, and in a manner which is not easily imitated, as I have known grocers to go so far as to write the name of some good butter maker on a jar of any butter they happen to have, in order to make a sale.

It does not take long for a good butter maker to gain a reputation in the circle where the goods are consumed, and after a few trials the goods are called, by name or mark, and the customer does not find it necessary to have the butter opened for inspection.

If, by accident, you happen to have a poor lot of butter, tell your dealer and let him sell it for its value. Don't run the risk of losing your hard earned reputation of a good butter maker, for the few paltry cents gained by palming off a lot of poor butter under your regular mark. If one has not been fortunate enough to secure regular customers, at a good fair price, and is making a sufficient quantity to ship, it is much less labor, and more satisfactory to send it to some good, reliable commission firm.

Use the best white ash sixty-pound tub, thoroughly washed, scalded and soaked in brine, to prevent mould. Always line with good parchment, which it is also advisable to scald and brine. After the tub is neatly lined, pack and even off same as the jars, turning the parchment (which should be left above top of tub about three-fourths of an inch) over the butter, laying in small pleats, putting the cloth circle over the parchment, and covering with salt. Fasten the cover of tub down with three tins placed at an equal distance apart on the cover.

In fact, do not neglect any little thing, no matter how trifling, which will add to the neatness of the package, as neatness in this respect is just as essential as in the manufacture of the butter, and there we know it is ene of the important factors. Remember, it is the outside of the package which the consumer sees first. I never realized until a short time ago how many good butter makers there were who were careless it this one respect. Perhaps by mentioning one or two cases, the reader will not think that I am a crank on this subject, or,as I have been told, that there was too much red tape about my butter making. While in a grocery store not long ago, an old gentleman came in with fifteen pounds of very nice butter in prints, wrapped in hand towels. The dealer offered him two and one-half cents per pound less than they were giving for butter in crocks. The old gentleman was quite indignant, but was told that they had no place where they could keep print butter free from taint. After the old gentleman went out, being a little curious over the butter, I watched to see what was done with it. The dealer took it from the towel, placed it on a platter, covered it with clean, fresh-looking paper, called an errand boy, and sent it to a hotel near by, remarking to me at the time that Mrs. So and So had left an order for good butter, and was willing to pay a little extra. I knew that he had refused to pay within 2½ cents as much as crock butter was bringing, only a few minutes before. As it takes so little for an excuse to drop on the price, it stands us in hand not to leave any show for the excuse. Never use any cloth about butter, which has the suspicious look of coming from some worn-out garment.

While waiting at the depot, my attention was called to a lot of jars piled on the platform. On inquiry I found they contained butter, which surprised me very much, as out of fifteen or twenty jars not one of them was tied up neatly, and they were to be shipped twenty-five miles. I don't think any of them having paper over the top had anything but newspapers, and on one there was just a thin cloth between the printer's ink and butter. The taste of the ink would, in a short time, permeate the whole jar of butter. Many of them had large, coarse cloths, some even faded-out calico, over the top, and not one of them trimmed off, but corners and ravelings flying as the wind blew them. Please don't think that carelessness is confined to the dairy butter makers. Far from it.

While at the dairy convention last December, judge of our surprise upon lifting the covers of some of the creamery tubs to find the salt fairly black, where a dusty cover had been put on. Others hadn't any salt on the cloth cap, while on many the parchment side lining was left from two or three inches above the edge of tub, on some the covers were put on so that the lining was below the edge of the cover; on others it was crowded down in rolls on top of salt. While many of them were left about three-fourths inch above tub, folded neatly over the edge of the butter, being laid in tiny pleats so that it would set smoothly. Then the cloth cap with an even layer of salt on top. Any butter maker, who has any interest in his work, could see at a glance the difference. —*Ex.*

The Ohio Dairy Exhibit.

ED. HOARD'S DAIRYMAN: — The Ohio State Dairymen's Association appointed a committee of three to arrange for an exhibit of dairy products at its next meeting, which will be held in February at Townshend Hall, Ohio State University, Columbus, Ohio. The committee consists of Prof. Thomas F. Hunt, Ohio State University, Columbus: Elden F. Smith, of the firm of W. B. Smith & Son, Columbus, and F. M. Wilson, Selma, Clark County. This committee has arranged for cash premiums on best 60 lb. tub of butter; on best five one-pound prints of butter; on best full cream American cheese, Cheddar, Flats or Young Americas, and on best Swiss cheese. A special premium of a Jersey calf of either sex has also been offered for the best five one-pound prints of butter made upon the farm, the product of one herd, and it is expected that other special premiums may be offered.

Space has been provided for an exhibit of dairy apparatus and supplies, while machinery and apparatus of the Dairy School will form a part of such exhibit.

THOMAS F. Hunt.
Chairman of Committee.



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They are the most comfortable and will wear twice as long as others. "Ball-Band" Socks and Rubbers are the same high quality as the All-knit Boots. They have superior features not found in others. Be sure that the trade-mark "Ball-Band" is on every pair. There are more imitations and counterfeits this season than ever before. We make all our own rubbers and are not connected in any way with any Trust. Insist upon getting "Ball-Band" goods from your dealer and take no others said to be "As good as," etc. **Mishawaka Woolen Mfg. Co., Mishawaka, Ind.**



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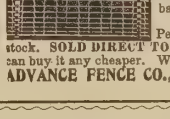
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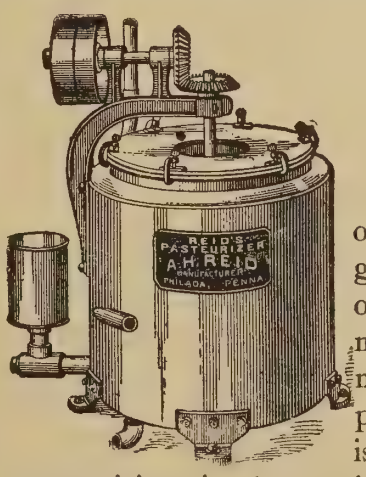


or hogs or both this season? There is no better fence made for surrounding feed lots, barn yards, or the farm in general than

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on the question of pasteurization and want to get down on the right side, look up the record of the Reid Pasteurizer. The successful creamerymen who use it and the prominent buttermen and milk dealers, who sell the product of the cream pasteurized with it, will tell you that pasteurization is immensely successful and profitable when the pasteurizing is done with the

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Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Cows—Want of Records.

ED. HOARD'S DAIRYMAN:—Though we have reason to be proud of our record as producers of a fine quality of butter and cheese and of the extent to which these industries have been developed, yet our dairymen cannot lay claim to very much in the way of definite information regarding the amounts received from individual cows. Even in some of our oldest, and what are considered to be our very best dairy districts, there are very few dairymen who keep an individual record for each cow in their herds.

There are good cows in Canada, as the various milking competitions and the books of our cheese factories and creameries will show, but, then, there are a great many poor ones. We question whether there are not as many cows kept by our dairymen at a loss as there are of those that return a profit. Even this present season this might prove to be the case, if a complete record of all the cows in the country could be secured. With high prices for dairy products of all kinds, a cow ought to be able to show a balance on the right side, if there were any possibility of her doing so, provided, of course, that she were supplied with an abundance of good, wholesome food.

A few years ago we secured from some of the cheese factories in western Ontario some data in regard to the largest and smallest amounts per cow which patrons had received for the season. The figures were simply astounding. Taking some one hundred factories the highest average amount received per cow by any patron for the regular cheese season, was shown to be about thirty dollars (we have not the exact figures at hand just now) and the lowest average amount between nine and ten dollars per cow. In one factory where the highest amount received per cow by any patron for the season, was sixty-five dollars, the lowest amount was some thirty-two dollars, making a difference between the poorest and the best of about thirty-five dollars per cow. This was at one of our best factories, where the making, milk hauling, etc., was put at the lowest possible cost but where the conditions were just the same for one patron as for the other.

These figures give some idea of what a fund of information might be secured, if the books of all our cheese factories and creameries were closely examined, and the returns which each person received per cow, made known. But such information would not be nearly as important as that which every dairyman could obtain, if a yearly record of each individual cow in his herd was kept.

Such a record should include the quantity and quality of milk each cow gives every day as well as the cost of keeping her for a year. If this were done conscientiously and accurately for a year by every one who keeps cows, or at least by every one who is making a business of dairying, what an eye-opener it would be. There would immediately be a large surplus of poor unprofitable cows offered for sale or disposed of in some other way than for milk production.

But why is it not done? It would seem that keeping such a record should be a dairyman's first concern, if he were conducting things in a true business-like manner. If he does not know to a nicety what each of his cows are doing, he cannot so plan things as to make the highest profit out of his business. A record kept for one year alone, we think, would be sufficient to induce many of our dairymen to remodel their herds, and get in some new and better blood.

We may well ask why such records are not kept more generally by our dairymen, if they are of so much importance? Most of them seem to be satisfied with merely guessing at, or a general summing up of results. While something may be learned in this way no definite or practical information can be secured, that can be put to good account in maintaining or securing a dairy herd.

The mere mention of a daily or yearly record of what each cow in a herd does, brings to the minds of many dairymen an immense amount of unnecessary work that will not pay for the time or trouble it involves in accomplishing. While to keep such a record requires considerable attention and some little time we are confident that any expenditure in this direction would be repaid many times over in the amount of definite and accurate knowledge a dairyman would have of his own business that could be put to profitable account in the future.

But if proper plans were made, such a record would not take up so much time and attention as some imagine. Besides, if gone into in the proper spirit, it would become more interesting as the time passed. To one throughly interested in dairying the knowledge of each individual cow to be obtained in this way would make the work a real pleasure. And then what a lot of real satisfaction there would be in knowing just where one was at in his dairy business.

As we have already pointed out, this is one of the things in which the great majority of Canadian dairymen are lacking. Many of them have been going on year after year keeping and milking cows and thinking they were making money out of the business when the balance was still on the wrong side of the profit line. We would like some special effort made to secure more information as to what individual cows in the herd are doing. And to this end it would be money well spent if some of our dairy associations would offer prizes for the best kept record of dairy herds. A hundred of such records containing data as to what each individual cow in the herd had done for a year would form the basis for a most profitable discussion at the annual conventions.

J. W. WHEATON.

Toronto, Canada.

Note and Comment.

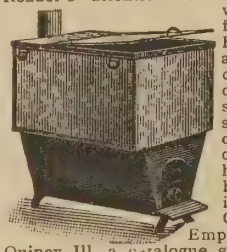
Silos and Silo Filling—Wire Silo Hoops—Summer Feeding of Silage—Frozen Silage—Blankets vs. Shoo-Fly.

ED. HOARD'S DAIRYMAN:—It is wonderful how the silo building keeps up, even as late as this October 7th. Some are building now, and intend to put in their field corn, now standing in the shooks fully three weeks. One man finding his silo little more than half full when settled, now has a husker and shredder at work running the shredded material on top of the silage, wetting it down thoroughly as it goes into the pits. The possibility of results not coming up to expectancy, when these experimental ventures are fed out, is a matter of speculation, but whether it fails, or succeeds, it will be found that silos—all of them—will be filled with fresh cut corn next year, and other things being equal, it is quite as cheap to draw needed moisture from the field in the stalks as to pump it, and sprinkle down the silage for the required amount of moisture.

The men who used wire fence hoops for silos, are much pleased with the venture. A builder who has erected six the past fall, informs me that he has found nothing that equals a wire fence hoop, the torsion of the wire making an ideal "pull." Some builders are getting the No. 9 coiled wire in bundles, and are using it, 10 in a band, three and a half feet in width. This wire is known

Farmers' Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.



$50 A BULL CALF, solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month. 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

Just $35.00 buys a richly **butter bred** Registered Jersey Bull calf, Seven months old, solid color, and a **show** calf, inbred to the great cow, Landseer's Fancy. Money refunded if not satisfactory. Address M.A. COVODE, Noblesville, Ind.

Hood Farm Jerseys Same blood as Merry Maiden. Bull ready for service. Solid color, black points. First class individual. Dropped March 21, 1898. Sire, Chromo, sire of 12 tested cows, half brother of Merry Maiden. Dam, Milly Judd, 14 lbs. 3½ oz., double granddaughter of Diploma, the sire of Merry Maiden. Write for price to HOOD FARM, Lowell, Mass.

ALBION JERSEY HERD is headed by **Pedro's Prince Phillis 42298,** An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.** **R. C. GREEN, Albion, Wis.**

PAIR POLLED JERSEY CALVES. Yearling heifer served Oct. 4, '99. Bull calf born July 22, '99. Price $150.00 f. o. b. Write to **JAMES R. ORR, Cedarville, Ohio.**

FOUR SOLID COLOR BULL CALVES out of tested Dams, and sired by Diploma's Combination, sire of two tested cows. Also a few heifers for sale. **J. E. TYRRELL, Marysville, O.**

Registered Jerseys. Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

St. Lambert **Jerseys,** all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

PROSPECT HILL JERSEY HERD. **WISCONSIN PRIZE HERD.** Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.** **F. H. SCRIBNER, Rosendale, Wis.**

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall. **JOS. T. HOOPES, Bynum, Md.**

Introduce Milking Jersey Stock INTO YOUR HERD by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." **FILSTON FARM, Glencoe, Md.**

Six Good JERSEY COWS In calf to a son of BROWN BESSIE the champion butter cow at the World's Fair, or a son of DIPLOMA—sire of fifty in the list including MERRY MAIDEN—are in my hands to sell at FARMERS PRICES. I fully recommend them. MUST BE SOLD. Send for pedigree and prices. **H. C. TAYLOR, Orfordville, Wis.**

JERSEY BULLS The Iowa Agricultural College offers for sale five good young Jersey bulls of **CONBINATION BREEDING.** These bulls are of good individual merit and from heavy milking ancestry. Old enough for immediate service. Prices reasonable. Address **FARM DEP'T, Iowa Agr'l College, Ames, Ia.**

There's plenty of Jersey blood NOT AS GOOD as that of

Old PEDRO 3187.

There is NONE ANY BETTER.

I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.

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Closing Out Sale! **100 JERSEYS.** **Two of Tennessee's Best Herds. Morgan & Brown and The Woodard Herds Over 40 Tested Cows.** **At Nashville, Tenn., November 9th, 1899.** Including noted cows **Bisson's Belle, Landseer's Fancy 3d, Ethleel 5th, Rioter's Denise 3d, Tormentor's Rexea. Fancy's Pet,** in all over 40 tested cows. Bisson's Landseer and another son of Bisson's Belle, and Oonan's Harry Pogis in bulls. More of the blood of Landseer's Fancy and Bisson's Belle than was ever sold before. Several daughters of Fancy's Harry. COL. GEO. A. BAIN, Auctioneer. Address, for catalogue— **Eugene Smith, Mgr., 155 N. Market St.** Tuberculin tests arranged where laws require.

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J. D. THOMPSON, Supt. FRED STORY, Herdsman.

Pedro's Handsome Prince, No. 42794.

Sixteen Tested Cows in Herd.

Young Stock for Sale. Write for Particulars.

Marquilla's Major 40804. SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price. W. R. THOMAS, Bellmore, Ind.

JERSEYS. **Two Combination Bred Bulls** ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Dry Weather here earlier in the season so reduced our feed that we offer, to reduce numbers, some of our **BEST COWS and HEIFERS.** Some are fresh and others will calve in the fall. Our sale list No. 5 gives short pedigrees and includes recently dropped bull calves, also a yearling fit for light use. It will pay anyone wanting **Jerseys** to send for this list. A postal will bring it and a booklet of the herd, if this paper is mentioned. **WINTERGREEN HILL FARM CO., Scottsville, N. Y.**

FOR SALE! **DOUBLE GRANDSON OF** **Exile of St. Lambert 13657** **78 Tested Daughters**—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and **will be sold CHEAP.** **P. J. COGSWELL, Rochester, N. Y.**

Biltmore Farms' JERSEYS. This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere. **SOME CHOICELY BRED** **Bull Calves** out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to **GEO. F. WESTON, Supt., Biltmore, N. C.**

MILLER & SIBLEYS JERSEYS. Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. fEvery animal tuberculin tested before sale, i desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **Franklin, Venango Co., Pa.** **224**

The Lone Tree Jerseys THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners. **Introduce Fresh Island Blood Into Your Herd.** SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey. Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

Closing Out Sale **Of CHARTER OAK HERD!** **180 Head, pure St. Lamberts.** **High per cent ST. LAMBERTS and TORMENTORS,** **Oct. 25th and 26th, at Pomeroy, Ohio.** Have sold my lands and must sell my cattle. Send for catalogue. **J. P. BRADBURY, Pomeroy, Ohio**

about here as the Frost wire, and sells at about three and one-fourth cents. Two men have hooped their silos with wire rope, which can be bought in odd lengths or second hand, very cheap. The ropes are put through lugs and brought up snug, the same as wire fencing. The fact is that the silo is now going through an era in invention, and possible in the not distant future silo walls will be done away with entirely, and we shall cord up the silage in some way, and keep it from decay, by using some kind of preservative, formalin, Freezine, or like chemical, and there will be little difficulty in getting some M. D. or Big Bug to give it a flaming health endorsement, and cows eating such preserved silage, may not need to have a tuberculin test, to pass a board of health.

***

One of the most level headed farmers in Ohio, is C. G. Williams, most careful and painstaking, and imbued with the spirit of investigation, a man who investigated for ten years to see whether the silo was a good thing to invest in, and then built one and pinned his faith right to it.

In a late *Ohio Farmer* he has given his experience in summer feeding of silage and from it we condense this for HOARD'S DAIRYMAN: Last year Mr. Williams became convinced that summer soiling was in the future part of the dairy economies, and so built another small silo for midsummer feeding. The drouth was not taken into consideration, but was a coincidence. The silo held 100 days' summer feed for the dairy.

With the drouth here, came an almost instant drying of the pastures, and the shrinkage of milk was remarkable. By July 1st, Mr. Williams commenced with a ration of twenty-five pounds a day, continuing it until July 13th. Before commencing to feed silage the shrinkage of milk was five per cent, but at the last date, the cows had not only overcome that, but had made a gain over normal of three and one-half per cent. For the next three weeks the ration was increased to thirty-three pounds, but so fierce was heat, flies, and dry pastures, that the cows fell off 3.3 per cent. Then the ration was increased to fifty pounds of silage, and the gain overcame the shrinkage, and plus 2.7 per cent.

On the 10th of Sept. the silage gave out, and green field corn was substituted—all the cows would eat, yet there was a notable shrinkage of milk, which continued until the silos were opened; but the effect is not yet noticeable owing to the brief time of silage feeding.

Mr. W. noticed that while all of the silage was eaten clean, the green fodder was not, nor would the cows make a full meal of it, without waste, and gathering up the leavings of one day, it amounted to twenty-five per cent of the cut green fodder. During the summer these cows had no grain, and went through the drouth with a full June flow of milk. As the dairy had the range of the pastures—and Mr. W. has fine ones, it is noticed that they would eat fifty pounds of silage a day. As that is a full winter's feed, will anyone please explain why any pasture was needed at all, or how pasture can compare with silage as a cheap summer food?

There is a question of dairy economics to be worked out along this line of pasturage vs. summer silage. We are pretty sure from what testimony we can secure, and our own limited experience with silage in the summer, that there is no way a man can secure so much, or as cheap, and above all so effective a summer soiling crop, as with corn silage put up the fall before, and the possibilities so sure of realization.

***

I note what your own Charley Jennings—may his shadow never be less, or his pencil have a dull point—says about frozen silage, also the opinion of Prof. Clinton, of Cornell. I have always thought the danger of silage freezing over magnified. After more than twelve years' experience with silage I could never find where the silage was frozen when we got down to the supposed place. I found that where there was a cover over the top of the silo, so that there could be no cold air "falling in" from the top, that in our coldest Ohio weather there would be no surface chilling even, of the silage. So after we have fed down far enough to clear our heads a few boards are thrown across the top of the silo, and a load of straw put on so that the interior of the silo seems quite warm, most of the time, from the heat of the warm mass below. If it is as Prof. Clinton supposes, that the silage takes no hurt in freezing or thawing because of the absence of oxygen, it is a valuable thing to know, as hundreds of men go to no little expense in protecting their silos from freezing, and in so doing, it now seems an unnecessary increase of cost without receiving corresponding benefit.

***

We always like to have our "shortkummins" pointed out, and take an interest in all, and any advice which may be tendered to us, so subjoin an extract from a letter received shortly after the item appeared in HOARD'S DAIRYMAN, about "Old Slicker's" blanket to protect her from flies. The letter went on to say: "Why did you not use Shoo-Fly? What use is your blanket? It cost ninety cents and it won't last you one summer, nor can it protect your cow all over, and thirty cents worth of Shoo-Fly would protect her all over, and all summer. The blanket won't keep off ticks, cure sores, or prevent skin diseases, and Shoo-Fly will. "Buff Jersey" and other dairymen use it, and like it. Why don't you?" We plead guilty to all of the above, but ask in all candor what is a fellow to do when his cows are pestered with flies that are so depraved, that the few about the barn will eat two quarts a day of a compound of cod liver oil, turpentine, carbolic acid, pine tar, and sulphuric acid and not phase them a bit. What chance has a cow with such a mild spray as Shoo-Fly, death on flies, or stick-um-fast, sifted upon her between showers? The Ohio fly was not brought up among Quakers, to be scared with an air gun, loaded with soup. The Ohio fly belongs to a Trust, wears gum shoes, has an aluminum extension to his bill, and wears a repellent mackintosh. Solemn facts!

JOHN GOULD.

Ohio.

Cedar Hill Jersey Notes.

Filling the Silo—Creamery Notes.

ED. HOARD'S DAIRYMAN:—We were caught in the midst of our ensilage cutting by a very heavy freeze, but are going right ahead and fill the silo with the frosted corn. Having been south for some years we do not remember just what kind of ensilage frosted corn will make, but to one who did not know it had been frozen he could not see by looking in silo that it was damaged. It looks just as bright and full of sap as one could wish for.

After putting up ensilage for ten or eleven years in all kinds of silos and under all kinds of conditions we have at last reached what we consider perfection in handling the crop. We are no longer troubled by men complaining of the heavy work of handling the loose fodder and the engine whistle does not toot for more corn as of yore. Our corn binder has revolutionized our work, less men, less teams, less work and more corn traveling up the elevator.

I extend thanks to the DAIRYMAN readers who gave me their experience on how to set engine and to connect to cutter. We followed advice given and now have a perfect rig. My engineer in five days run only lost his steam pressure once and that was caused by not cleaning out the flues. Our engine is a horizontal one, sets fifty-five feet straight line from a sixteen inch Ross cutter, and twenty feet to one side of line. We have a twenty foot shaft coupled on engine shaft and pully at other end on which drive belt runs. We have plenty of power both for cutter and creamery.

We have just placed a new separator in creamery room; it is a 20th Century DeLaval No. 3 Baby. We have bolted a pully on the large cog wheel, leaving handle on also so that when we do not have steam we can use handle by throwing off belt. Our skim milk in repeated tests shows 0.1%, which loss we can stand very well.

With thirty-nine cows and heifers in milk we are making thirty-four and one-half and thirty-five pounds of butter daily, with no pasture; are soiling with corn fodder and feeding cotton-seed meal, oats and corn ground together.

***

Prosperous times are all right, but we have found that we are caused many annoyances by them. When we order supplies from a distance we get word that houses are rushed and will fill as soon as possible, then the railroads bring the stuff as soon as cars can be got, and so on. We have wanted a good milker for some time but have not yet succeeded in getting one; every one is busy, no one out of work.

BUFF JERSEY.

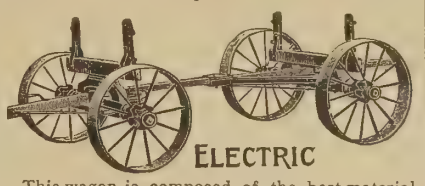
Power for Farm Use.

ED. HOARD'S DAIRYMAN:—Say to S. G. F., of Suldal, Wis., to consider well all he wishes to do with a power, and then adapt the power to the work. We find a one-horse tread power very satisfactory in running separator for twenty-five cows, churning and turning grindstone. Can churn and sharpen any tool adapted to the grindstone at the same time, thus saving much in time. Bull doing the treading gets the much needed exercise. A two-horse tread does the straw and corn cutting, threshing and wood sawing. As any animal, bull, steer, cow or horse can soon be taught to tread the power, we are strongly in favor of its use on the farm.

Rock Reift, N. Y. J. Q. B.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



ELECTRIC

This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy, Ill.

Banner Root Cutters

CUT BEETS, MANGELS, Turnips, Carrots, and all other roots and vegetables for stock feeding. **CUT FINE.**

Choking Impossible.

Run easy, have self feeder, separate dirt from cut feed. Five sizes, hand and power.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

Largest Root Cutter makers in the world. *Catalogue free.*



Cow Hopple

For Kicking Cows.

Either from habit or from sore teats. **Price 50c.**

Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars

Agents Wanted.

Henry Bassett,

Salem, New Jersey.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.

FRED TSCHUDY & SON, Monroe, Wis.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

HERD OF Holsteins For Sale.

Thirty head of registered Holstein-Friesians, all females except the bull at the head of herd, for sale on easy terms on five years' time if desired, with equal annual payments at 5 per cent interest, or will rent herd to responsible and experienced parties. Correspondence solicited.

ALPHEUS M. SMITH,

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Milk Cans...

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WRITE FOR IT

BUHL STAMPING CO., Detroit, Mich.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

I Can Sell Your Farm

no matter where located. Send description and selling price, and learn my successful plan. W. M. OSTRANDER, 1215 Filbert St, Phila., Pa.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis

DE KOL'S BUTTER BOY No. 19210. Son of the great DeKol, and Royal Paul No, 22979. Combining the blood of Pauline Paul, Pietertje 2nd, Koningen Van Friesland 5th and DeKol in one sire, head our choice herd of over 100 Holsteins. Sons ready for service, and heavy milking cows bred to them, for sale. Write now to **Dellhurst Farms,** Mentor, O.

READY NOW

A few cheice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.

C. H. Stevens, Jefferson, Wis.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

The Big 4 at Brookside.

THEIR HOLSTEINS.

Netherland Hengerveld, ..., official test 26.66 lbs,
De Kol 2d..... official test 26.57 lbs,
Belle Korndyke..... official test 25.77 lbs.
Helena Burke..... official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.

HENRY STEVENS & SONS, Lacona, N. Y.

15 CHOICE DAIRY Cows must be sold by November 3d. Five registered Holstein-Friesian cows and ten high grades, ¾ Holstein blood and better. Great producers. Rich breeding. All cows bred to a son of the $1,000 bull Netherland Carl, and almost full brother to the sweepstakes bull at Trans-Mississippi Exposition, 1898. Intelligent dairymen will find them a great bargain at the price they are offered. Write to-day for full particulars. **KARLEN & CO., Monticello, Wis.**

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

Royal Bred Holstein Bull

Dropped May 22, 1899. His sire is out of a daughter of Pauline Paul, the champion butter cow of the world, who gave 18,669 lbs. milk which made 1,153 lbs. butter in one year, by a son of De Kol 2d, who gave, under the supervision of the N. Y. Experiment Station, 83¼ lbs. of milk in one day which made 4.30 lbs. butter, and in seven days, when 11 years old, made 26.57 lbs. of butter. His sire was the First Prize Holstein bull at World's Fair, Chicago, and for four generations he is backed by the greatest prize winner of the breed, both in Europe and America. The blood of the following cows, and many others with great records, also flow in his veins: Oude Empress, 114 lbs. milk in 1 day; Empress, 109 lbs. milk in 1 day; Mandate, 95 lbs. 5 oz; Ondine, 90½ lbs; Colantha, 89 lbs. 12 oz.; De Kol, 89 lbs. If you want individual merit coupled with rich breeding here you have it. **Price $65.00.** Speak quick.

WIS. LIVE STOCK ASSOCIATION, Appleton, Wis.

Cheaper Production of Milk and Butter.

[By C. MARKER, Dairy Superintendent, Calgary, Alberta, in the annual report of the Cheese and Butter Association of Ontario, for 1898.]

In dealing with this subject I fully recognize that it is a very comprehensive one, and that a great many factors should be considered individually, such as proper care and feeding of the dairy stock, etc., in endeavoring to solve a problem which has not, in a great many cases, met with the attention which it deserves from those who are directly interested, namely, the dairy farmers.

Outside of the initial place of milk production—the farm—great strides have been made during the last few years toward reducing the cost of manufacture and increasing the yield of butter, such as:

1. The invention and subsequent improvement of the centrifugal cream separator, which now enables the skilled dairyman to recover ninety-seven per cent to ninety eight per cent of the total quantity of butter fat in the milk, as against the good old way of raising the cream by gravity in the deep set pail or in the shallow pan, only recovering from fifty per cent to ninety per cent of the butter fat, according to the local condition under which the work has to be done. In defence of the latter, or gravity system, we sometimes meet with the statement that the cream separator "robs the calves" of the butter fat which they would otherwise get in the skim milk. Quite true, yet it is generally conceded by successful dairymen, that butter fat is not absolutely essential to the growth and development of young animals, and that we can buy and add to the separator skim milk such feed stuffs as oil cake, flaxseed meal etc., which will answer the same purpose as the ten times more valuable butter fat, when used in the right proportion with the skim milk.

2. The manufacture of butter in creameries, leaving in the hands of one or more skilled operators the work of making a uniformly fine quality of butter which can command the highest price throughout the year, as against the more or less primitive way of home churning by the individual milk producer, with the result that the quality of butter made by each would vary from time to time, owing, generally, to lack of proper facilities, pressure of other work, and inumerable other causes.

3. The introduction of the Babcock milk tester, which enables the careful butter maker to do better work with the cream separator and churn, by testing the skim milk and butter milk, and using it as a guide in making the best use of the facilities and conditions affecting the work which he has at his command.

So much for reducing cost of manufacture. Now, what has been done, or is being done, toward cheapening the cost of producing milk on the farms? Let each dairyman answer for himself.

Assuming that the dairy farmers of Ontario are following up dairying as a business, that is for profit, how many of them know the productive capacity of each individual cow in their herds, even approximately, and how much it costs to produce a pound of butter from each cow? This is a question that should be considered by every dairyman.

The facilities which the creameries in the various districts and the Babcock tester afford the farmers toward solving this problem for themselves, should not be under estimated, and this is the phase of the "cheaper production of milk and butter" to which I wish to refer for a moment or two.

Though I have not at hand any accurate statistics showing the average yield of butter per cow each year in Ontario, I venture to say that there is yet a great deal of room for improvement, and that it is quite possible to increase the yield of the dairy herds throughout by a course of good care, comfortable stabling, judicious feeding, selection and breeding.

This process may be comparatively slow, but it is sure. Not long ago I visited a section in Canada where dairying is carried on through the whole year; the average output of a certain creamery there was 150 pounds of butter per cow for the year, while the yield from one of the best herds averaged 250 pounds per cow. The following table, which I had occasion to compile at the time, shows the variation of yield of the different herds of forty-one patrons who furnished milk to the creamery in question:

9 received	$15.00 to $20.00	per cow for 12	months.
18 received	20.00 to 25.00	per cow for 12	months.
7 received	25.00 to 30.00	per cow for 12	months.
5 received	30.00 to 35.00	per cow for 12	months.
1 received	41.00	per cow for 12	months.
1 received	43.50	per cow for 12	months.

These are practical figures and speak for themselves. The intelligent use of the scales and tester would work wonders in some of these herds in the way of "showing up" the non-paying individuals.

How can we ascertain the value of dairy stock in a more simple and reliable manner than by careful milking, regular systematic weighing and testing of the milk from the individual cows and a carefully kept record of the results? Each point is equally essential to attaining correct information on this important question.

Milking.—These dairymen who decide to adopt this plan of procedure will not forget that milking should be done as nearly as possible at the same hour morning and evening; at any rate, there should be a uniform interval between the morning and evening milking, from one day to another. It goes without saying that the milking should be thoroughly and carefully done in order to get correct samples for testing, bearing in mind that the first portion of the milk, when drawn, may test as low as two per cent of butter fat while the latter part may go as high as seven per cent to eight per cent of butter fat; therefore, by thorough milking we not only obtain a better quality, but also a larger quantity of milk, as the secretion of milk is stimulated by quick and thorough milking.

Weighing.—The milk from each cow, under test, should be weighed, not measured, as soon as it has been drawn morning and evening, at least once a week and on a certain day of each week. The correct weight in pounds and ounces gives more definite information than the very comprehensive terms sometimes used as "A patent pail full twice a day," "A big pail half full at each milking," etc., as the case may be. The weights should be recorded on a slate, blackboard or sheet of paper used for that purpose, opposite the name or number of each cow.

Sampling the milk.—The samples may be kept in tightly corked bottles or jars, labeled with the number or name of each cow under test, written plainly; also "morning milk" or "evening milk" as the case may be, otherwise the samples are likely to get mixed.

A small closed cupboard nailed to the wall in the stable or milking-shed would be the right thing for holding the sample bottles or jars.

As soon as the milk from each cow has been weighed a sample taken with a small tin dipper is put into each respective bottle. A small pinch of powdered "bichromate of potash" is required to preserve the samples from souring until the test is made; this is generally kept in stock at all creameries or cheese factories for use in composite testing of milk sent in by the patrons.

The testing of the samples can be done by any one who is familiar with the working of the Babcock tester; the local creameries and cheese factories can do a great deal toward encouraging the work by testing the samples for their patrons and others who take it up. The butter-makers and cheese-makers will, no doubt, be only too glad to give any information and assistance in their power to assist a movement which, if carried out, can not fail to do a great deal of good all around. When a weekly sample is taken, the composite test may be made once a month,

MICA AXLE GREASE lightens the load—shortens the road.

helps the team. Saves wear and expense. Sold everywhere.

MADE BY STANDARD OIL CO.

Wells Richardson & Co.'s Improved Butter Color

THE BEST IS ALWAYS CHEAPEST

"THE KIND THAT HAS NO MUD"

can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT, and NEVER becomes RANCID. It is for sale by All First-class Dealers.

AN ENEMY TO SOCIETY

That man, or that institution, which will willfully sell adulterants and poisons to the public is an enemy to society and should be so regarded. This practice obtains in a very large degree in many varieties of food, but we are interested principally in protecting the public from poisonous butter colors. We are manufacturing a perfectly pure and harmless butter color

Thatcher's Orange Butter Color.

It imparts that rich "June grass" color and is a purely vegetable compound made from annatto. The man who makes a poisonous color does not publish its contents. He is afraid to. Most poisonous butter colors are made from coal tar and are so called analine dyes. Excellent for coloring cloth, etc., but dangerous and destructive to the human stomach. Don't use them. Use only pure color—Thatcher's—and earn an enviable reputation for the uniform color and purity of your butter. Every drop guaranteed free from any deleterious substance and guaranteed by the manufacturers.

Send for Sample and Full Information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. The Rookery, CHICAGO, ILL.



THE AMERICAN Cream Separator

PRICE - - $65

Still at the head, receiving First Premium and Diploma at the St Louis Fair, as the

Best Cream Separator For Farm Use ....

Send For Descriptive Catalogue.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

American Separator Co., Box 1023, BAINBRIDGE, N. Y.

FOR SALE.

DAIRY—with first-class equipments, established in 1864. Have 75 head butter bred Holsteins ranging from 2 to 7 years, all our own raising, also tuberculin tested. Sell 100 gallons per day. Farm of 300 acres ½ mile from limits. Can be leased at a low rate for a term of years. Situated in Ottumwa, Ia. Population, 25,000.

E. DAGGETT & SONS.

FOR SALE.

Wishing to retire from business, will sell one hundred (100) cows, farm and fixtures, at a bargain. Buildings nearly new, with running water, and the highest price market for all milk raised.

Address A. B. FARMER, Lyons, Somerset Co., N. J.

and yield of butter fat for the month compounded and recorded.

A careful record should be kept of the yield and test of milk from each cow throughout the season; in this way only will it be possible to study the individuality of each cow as a producer. An occasional test or two shows the quality of milk given at that time only, and is of very little practical value as a guide, nor is the test without the weights or vice versa a reliable indication.

The scales and tester should go together, hand in hand, throughout the season, and the results will point out among other things the cows which can be kept for profit as well as those which are a constant source of loss to their keeper.

The matter of selection of cows for breeding purposes will also be rendered comparatively easy. In fact, a thorough knowledge of individuality will give the thoughtful, observing dairyman a large scope for improving his herd from time to time until each animal becomes a source of profit to him. As an eminent writer says: "The interest and pleasure of building up a herd from a few well selected animals is very great, and if the breeder will form an ideal picture in his mind's eye of a perfect animal, and follow it up with patience in spite of disappointments and inevitable drawbacks, though he will not be likely to attain perfection, he will, in due time, be certain to possess a valuable herd profitable to himself."

There is one consideration, however, of which we should not lose sight, namely, that unless the milch cow is well fed and cared for right along, and, as it were, given every opportunity to do good work, not even such otherwise infallible evidence as the scales and the Babcock tester can indicate her capacity for milk and butter production. They simply show the returns she makes for the care and attention she is receiving at the hands of her keeper.

Raising the Dairy Calf.

To make a good cow from a good calf two things must be guarded against, and they are, a lack of food to make a proper growth, and the use of such food as will fatten instead of building up the frame and muscular system. The skim milk fed calf will usually make a better dairy cow than one that is allowed to suckle the old cow, if sufficient pains is taken to give the skim milk at the right time and of a proper temperature, for two reasons; it does not put on so much fat while young, and it does not feel the change so much when the milk is taken away, and it is made to live upon grass or hay. The latter is, however, in part due to the fact that, as the skim milk is thought of little value for other purposes, its use is generally continued until the calf is three or four months old, when it is well able to eat and digest other food, while those who let the calf continue sucking its mother, feel that it is costing too much, and want to wean it at six weeks old, or sooner.

If the calf lays on fat while young, it seems to acquire in some way the peculiarity of the digestive organs changing all the food to fat, and when it becomes a cow it cannot be fed liberally for the purpose of increasing the milk without fattening up at once and giving less milk than before. In this respect at least the overfed calf is likely not to make as good a cow for milk as the one that has been underfed. But the latter is likely to be undersized, and with digestive powers weakened by the course of starvation, and it is only by a long course of judicious and careful feeding that it can be brought to the form it should have had.

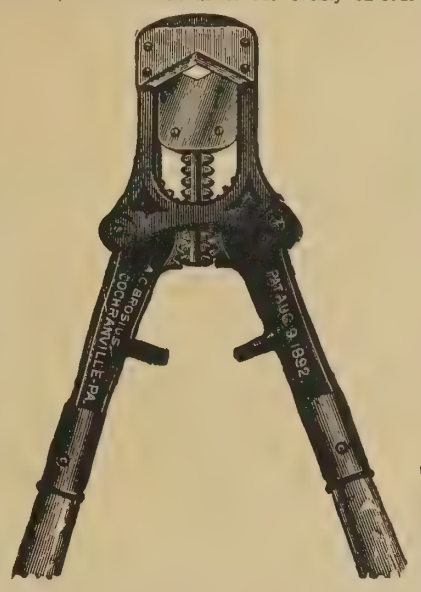
We clip the above from the *American Cultivator*, not as something new, for HOARD'S DAIRYMAN has advocated this doctrine for years, but as indication of the fact that right ideas are becoming more and more popular.

This is the way Professor Robertson, the Commissioner of Agriculture for Canada, describes what he calls a good "business cow:"

"Her power of service will be indicated by certain external points. She should have a large, long udder, of elastic, fine quality; a mellow, movable skin covered with soft, silky hair; a long, large barrel, hooped with flat ribs, broad and wide apart; a broad loin, spreading out into broad, long hind quarters; an open twist, with rather thin hips, and a lean neck of symmetrical length, carrying a clean cut, fine face, with prominent eyes. A cow with these points, has ability to serve a man well if she gets a fair chance. That her calves may have powers equal to or rather better than her own, care should be exercised in their breeding. The best blood of the breed adapted to the farmer's purpose, should be used to enlarge, and not to lessen, the working capacity to be transmitted to her calves."

ILLUSTRATION.

This knife, which has been regularly advertised before our patrons for several years, was invented and is being madufactured by Mr. A. C. Brosius, Cochranville, Pa. Its strongest feature is in the peculiar shape of the cutting edges or blades, which, as will be observed from the cut here shown, are so formed as to cut evenly on four



sides at once. The form of knife, together with the powerful levers, are responsible for a quick, clean cut, obviating entirely the cruel and painful operation of the straight, rotary or shear principle knives, which always result in more or less crushing and bruising of the horn. This was the dehorner that took highest award at the World's Fair at Chicago in competition with the best similar devices then made. Like most good things the Keystone Dehorning Knife has a host of imitators, and the inventor has been obliged, in a number of cases, to proceed by process of the law, to protect himself. As the law makes the purchaser equally guilty with the infringer of the patent, we would advise our patrons to buy only the genuine and original machine in all such cases.

Write the inventor, as above, for catalogue, prices, etc.



The story of love is as old as the world, and as all embracing as the universe. It furnishes the sentiment for all romances—all novels—all plays.

The novelist considers it wholly from the sentimental, intellectual side, but there is another aspect even more important—the physical side. Sentimental love between men and women leads to close physical association—to marriage—to the rearing of children. And so health must be considered. A weak, sickly, head-achey, back-achey woman cannot be a good, helpful wife. She cannot bear healthy, happy children. She cannot give her children the proper care and training.

A sick woman has no right to marry. A sick woman has no right to attempt motherhood.

But no woman need be sick unless afflicted with cancer. There is a sure way for her to regain her health. She need not go to a local doctor and submit to the disagreeable questionings, "examinations" and "local treatments" so invariably insisted upon, and so justly abhorrent to every modest woman.

Dr. R. V. Pierce, of Buffalo, N. Y., has cured more cases of female weakness than any hundred local practitioners. He has proved that diseases distinctly feminine can be cured right in the privacy of home.

Write to him stating your symptoms and an account of your trouble and he will give your case careful, confidential consideration and prescribe for you free of charge.

Mrs. O. N. Fisher, of 1861 Lexington Avenue, New York City, writes: "I had been a sufferer from nervousness with all its symptoms and complications. In the spring of 1897 I began to take Dr. Pierce's Favorite Prescription. Now I am not cross and irritable. I have a good color in my face and have gained ten pounds."



The Fence That Fences

is the fence every fence user is after. For perfect security in the way of a fence, at lowest cost, for a fence that will outlast your lifetime, secure the

AMERICAN FIELD AND HOG FENCE.

Large spring steel wires, heavily galvanized, practically indestructible. Sold by our agents everywhere. If no agent in your town write to

AMERICAN STEEL & WIRE CO., Chicago or New York.

Printed Parchment Butter Wrappers

Are an established factor in the CREAMERY BUSINESS to-day.

Protect your special Brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. **Our STANDARD** weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

A. G. ELLIOT & CO.,

Manufacturers, Importers and Dealers in Paper of Every Description. **Philadelphia, Pa.**

Avoid Fishy Flavors

Wisconsin Agricultural Experiment Station

finds that fishy flavors are "attributable to the action on the butter fat of the chlorides of the alkaline earths in the salt." The station also finds that

Diamond Crystal Salt

contains less than one-fourth of one per cent of these impurities. See Bulletin No. 74.

DIAMOND CRYSTAL SALT CO., - St. Clair, Mich.

SEEDS THE ALBERT DICKINSON CO.

DEALERS IN

GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.

OFFICES. WEST TAYLOR ST., AND THE RIVER, CHICAGO.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY,
27 Beaver Street, NEW YORK.

GLUTEN FEED.

CHAPIN & CO., Milwaukee, Buffalo, Boston, St. Louis. Manufacturers' Agents for **GLUTEN FEED.** This is the best and cheapest milk-producing feed for the money. Contains 26% digestible protein. It keeps sound and sweet. Sold in car lots. Inquire of your grain dealer. Price based on its milk-producing value. For Wisconsin orders address **CHAPIN & CO., Milwaukee.**

Census of Dairy Products.

The attention of dairymen is called to the following circular from the Director of Census for 1900. The value of this work will depend largely upon the amount of information which dairymen and farmers are able to supply to the census enumerators when they call.

Dairying is one of the greatest industries of the country, and deserves that a complete record be made. To assist as much as possible in this work, we request that the readers of the DAIRYMAN, beginning with Jan. 1, 1900, keep an accurate account of the total yield of milk they obtain from their animals, together with the returns from the manufactured product. The other manufacturers of the country will show their importance by imposing columns of figures, and while we know that dairying is of greater value to the country than many more pretentious lines of business, yet it will not take its proper place unless the takers of the census have the help asked for in the following circular:

The law requires the statistics for the Twelfth Census of dairy products (farm and factory) to be taken on separate schedules.

The Division of Agriculture will take the amounts of milk and cream produced and sold, and the amount of money received from their sales; also the quantity and value of all the butter and cheese made on the farm.

On the manufacture schedule will be taken the quantity of butter and cheese made in factories, co-operative and otherwise, together with the quantity and cost of raw materials (milk and cream), cost of labor, capital invested, character and value of plant and machinery, etc., etc.

After the two forms of schedules shall have been returned to the Census Office in Washington, the like statistics of dairy products on each will be consolidated, and thus show, what never heretofore has been shown, the total yield of milk in the United States, and the amounts and values of its several products.

This assertion is based on assumption that the farmers shall furnish to the enumerators, fully and accurately, the information which the schedules may call for.

In some sections the records of cheese factory and creamery operations for the current year are destroyed, agreeably to previous vote of directors or patrons. For 1899 they should vote, instead, to have prepared and preserved for the use of the Census enumerators, who will appear on June 1, 1900, the statistics which the law says shall be gathered.

In many cases a failure to do this will prevent the enumerators from securing any returns, because new managers, or new secreteries, or new boards of control may be in charge on June 1, 1900, who will know nothing of the factory statistics of 1899—and the figures for 1899 are the ones which the law says shall be taken.

Farmers who keep no records of their transactions will find themselves in the same dilemma, on the arrival of the Census enumeraor, as a factory which destroys its records. Therefore, Chief Statistician Powers is appealing to all of them to prepare in writing, while the necessary facts are fresh in mind, such a statement of milk, cream, butter and cheese products as will enable them to reply promptly and accurately to the inquiries which the law says the enumerators must make.

If they shall fail to do this, the statistics of dairy production of their county will be incomplete, and will compare unfavorably with those of counties wherein the returns are more accurate.

Care of Dairy Cows.

[Paper read at the Missouri State Dairy Association by G. M. LAMM, Sedalia, Mo.]

I have divided my subject into two parts, and will treat each part separately:

First Part—Care of dairy cows for their physical comfort.—The amateur in dairying often lavishes money on expensive barns, beautifully painted, and constructed with magnificent proportions; but I have found that comfort can be secured without grand architecture, and even without costly expenditures.

A cow wants a soft, warm bed in winter, clean and fresh, and she cares but little whether her bed be leaves, straw or sawdust. That is left exclusively to the resources of her owner. Her nervous disposition requires protection from extremes in heat and cold.

Her great distended udder will not allow of abuses, or of long journeys at rapid motion, but of tender treatment when drawing the milk and taking her to and from the pasture.

She is taxed to her utmost in loading the milk with every element necessary for a perfect human food, and excitement disturbs and often retards the process of the perfect elaboration of the milk. During rumination and when secreting the milk the cow demands quiet and comfort.

Easy going management and tender and almost affectionate treatment from youth to age, are most conducive to the development of that domesticated nature of the cow which is so much in harmony with our country home life.

The great draughts of pure water, which her wants demand, disturb less the equipoise of the wonder working processes of her stomach when tempered in winter to about 50°.

Her foods are relished best in the absence of the festive fly, but she loves the sunshine and shadow, and is not disturbed by the summer breezes and gentle showers.

In winter she seeks the southern exposure to bask in the sunshine for awhile as though there was healing and restoring properties in its rays for her intricate and heavily taxed nature. In this climate, luxury should always be allowed her, and the dairyman who appreciates the ability and vitality of this noble animal seeks in every way to protect her from inclement weather, muddy barn yards, and the cruelty of every enemy, and give her especially the luxuries, pure air, water and sunshine, which nature affords in abundance.

Second Part—Care of dairy cows for profitable results.—While the kind hearted dairyman loves to see the marked features of docility, gentleness and beauty perfected in every individual cow, and while his heart rejoices to know that they are cared for tenderly by night and by day, yet he also studies the properties of foods, grains and grasses, so as to supply the cravings of their appetite with such food as may give him the largest possible returns.

He mixes the food for his cows with a master's hand, often deeming it necessary to sell the dairy food that he raises on his farm to buy what he needs, in order to give her variety and a well balanced ration. This sometimes insures the largest returns for the least money expended, and he knows, or should know, when a cow has the proper food and a fair chance to do her best.

He harvests his crops at the time when they will do the most good, and then feeds her with a liberal hand.

He avoids the ruinous effects of cows hooking each other by removing the bud of the horn from the calf. This practice has saved the life of many a valuable cow, and more valuable men, and has solved the question of economy of stable building and protection of the weak from the strong. He has his cows come fresh when dairy products will answer best the demands of his market, and saves the waste of over production.

He feeds and milks and salts his cows at regular intervals, because this brings the largest returns, as well as relieves the cow of anxiety. I have seen cows painfully restless because the milker was an hour late. The cow possesses her own devices to get even with negligence and cruelty, and rewards richly every kindness.

The good milker approaches his cow with a kind word, and knows how to press the teat against the palm of his hand with the end of his fingers, so as not to injure the cow or make her feel uncomfortable when yielding her milk.

While I would have the best possible environment for my cows, yet I would not feed too high, or give too fine or too rich foods, for my experience has been that it weakens vitality, and impairs powers to transmit ability to her offspring. She needs from forty to eighty days' rest every year, and will take her rest as a man takes his, on a vacation and good things to eat. To care for a dairy cow properly, or to tell others how to care for her properly, one must know her habits, her capacity, her surroundings, the climate she is kept in, and what special breed she represents. All these may be known; if she is a good cow, he can make of her a valuable acquisition To know these things is to study a living subject of vast importance to every home, community or state.

From the Tennessee Experiment Station.

ED. HOARD'S DAIRYMAN:—A correspondent writes thus: "May I have the pleasure to ask you for bulletin 47. I read an account in the HOARD'S DAIRYMAN, and it suited me, and I learned a good deal out of it. If there is any postage let me know, and what the bulletin will cost."

The bulletins of the Tennessee Experiment Station will be mailed free on application. There seems to be an idea among our farmers that a charge will be made for these bulletins, and this note is simply to notify them that such is not the case, and that when we issue any publications that are of interest to farmers in Tennessee or outside of the state, we will be glad to supply them with a copy until the edition is exhausted.

Knoxville, Tenn. ANDREW M. SOULE.

Skim Milk.

[A Paper read by I. T. DUTTON, before the Farmers' Institute at Portis, Kansas.]

Skim milk seems like a thin subject to discuss before this audience, but we are going to show you that there is money in it, and that makes any subject interesting.

It seems like begging the question on the start, to say that Nature, in the whole new milk furnishes a perfect balanced ration, which we may imitate but cannot excel; and it is wonderful the growth the young animal makes when fed it; but Nature is liberal, not to say prodigal, and now-a-days it won't pay to follow her entirely.

In the good old days before the creamery, when butter was worth five and six cents a pound, made it yourself and hauled it to town and traded it for stuff, it might have paid better to feed the milk to the calf.

But with the coming of the creamery the conditions have changed. Milk has now a value in cold cash, and if we don't look out we will feed more dollars into our calf than we can get out.

Let us figure a little. Butter fat at this station is now worth fifteen cents a pound. It ought to be worth more. (butter in Kansas City brings twenty-one cents a pound.) And it would be worth more if you good people would get a hustle on you, wake up the haulers and send your milk to the creamery.

It has averaged 14.8c since January. It is worth fifteen cents a pound. Four per cent milk, that is milk with four pounds of fat to 100 pounds of milk, is worth sixty cents per 100. A pail of milk weighs twenty pounds, one-fifth of 100, and is worth one-fifth of sixty cents; that is, twelve cents. A pail of milk is worth twelve cents.

A calf will drink a pail of milk a day for three months, or call it 100 days, to figure easier. He won't take that much at first, but will average it for 100 days. That costs us twelve cents a day for 100 days, or $12, and he ought to be fed once a day for another 100 days, which makes $6 more, making him cost at six months, or 200 days, $18. He is a nice calf; coat shining and sleek, and he is fat; he ought to be; he has $18 inside of him.

But that is not all the cost. It costs something to keep a cow. Call the cow worth $35. The interest on the investment is $3.50, and surely it is worth $6.50 to keep a cow a year, making $10 more. Now we are out $18 on the calf and $10 on the cow, making $28 and only the calf to show for it for the cow will dry up as soon as you wean the calf.

And now comes the weaning and now the fun begins! The cow and the calf will get together sometimes, and the air gets full of words not found in the dictionary. Something seems to be happening, and general pandemonium reigns.

Let us yank the calf off his mother, tie him to a post, fix up the fence, and let him stand there while we look after another kind of calf.

We are going to try another plan with this calf. We are going to feed him skim milk, and send her milk to the creamery. Skim milk is worth nominally 15c. per 100 pounds. Nobody has any to sell, and nobody buys, the experiment station giving it a nominal value of 15c. per 100.

We will feed this calf a pailful a day for 100 days. It is worth 3c. a day.

But the separator has taken out the butter-fat, worth 12c., and we must replace it, for we are not going to work against Nature. It

A PECULIAR REMEDY.

Something About the New Discovery for Curing Dyspepsia.

(*From Mich. Christian Advocate.*)

The Rev. F. I. Bell, a highly esteemed minister residing in Weedsport, Cayuga Co., N. Y., in a recent letter writes as follows: "There has never been anything that I have taken that has relieved the Dyspepsia from which I have suffered for ten years except the new remedy called Stuart's Dyspepsia Tablets. Since taking them I have had no distress at all after eating and again after long years can sleep well. Rev. F. I. Bell, Weedsport, N. Y., formerly Idalia, Colo."

Stuart's Dyspepsia Tablets is a remarkable remedy, not only because it is a certain cure for all forms of indigestion, but because it seems to act as thoroughly on old chronic cases of Dyspepsia as well as in mild attacks of indigestion or biliousness. A person has dyspepsia simply because the stomach is overworked, all it wants is a harmless vegetable remedy to digest the food and thus give it the much needed rest.

This is the secret of the success of this peculiar remedy. No matter how weak or how much disordered the digestion may be, Stuart's Dyspepsia Tablets will digest the food whether the stomach works or not. New life and energy is given not only to the stomach but to every organ and nerve in the body.

A trial of this splendid medicine will convince the most skeptical that Dyspepsia and all stomach troubles can be cured. Send for little book on Stomach mailed free by addressing F. A. Stuart Co., Marshall, Mich. So popular has the remedy become that Stuart's Dyspepsia Tablets can now be obtained at any drug store at 50c per package.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

GUERNSEY CATTLE

The Old Homestead Herd has more than duplicated its record of last year, at the Ohio, Ind. and Ill. State Fairs again in 1899, winning not only over two-thirds, but three-fourths of all prize money offered on Guernseys at the above fairs. This herd was not defeated at Wis., as might be your impression from the report of awards, but was withdrawn in the third ring, yearling bulls, on account of what I regarded as an unfair combination on the part of Wisconsin's Judge, Ass't Superintendent and an exhibitor. The Assistant Sup't of Dairy cattle being an exhibitor in his own department, contrary to the Society's printed rules, and receiving on his yearling bull an unmerited award from a judge who was his intimate friend. L. V. AXTELL, Perry, Ohio.

ROSENDALE
GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

Pedigreed Poland Chinas of the BEST feeding strains. Pigs at weaning $5 to $7. Also Mammoth Light Bramah fowls. K. S. HAWK, Mechanicsburg, O.



Pure Bred **Tamworth Pigs**, Bacon curers choice. Pure Bred **Ayrshire Cattle**, largest imported herd in America. Stock all ages for sale, R. G. STEACY.
Box 720 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

would'nt pay. So we take a little oil meal, worth 2c. per pound, and a handful of shelled corn, worth not 3-10 of a cent. A pound of oil meal will last several days. But we will call the whole business worth one cent a day, and mix it in our skim milk to make up for the stuff we sold at 12c.

That makes our feed cost us 4c. a day, and in 100 days makes $4, and another 100 days once a day, $2 more, making $6 the cost of our skim milk calf for six months.

Now we have some more cost, as in the case of the other calf. Our cow costs us for the six months $5. We say six months because she is still in profit—still giving milk worth 60 cents per 100; don't know anything about a calf, and will at least pay for her keep the next six months.

Now we have to figure up our balance on this transaction. We didn't have any balance to figure up on the other calf; we were out $28, and only the calf to show for it. This calf cost us $6; keep of cow and interest, $5; total cost, $11.

But what became of that 12 cent butter we didn't feed the calf?

Why, we sold it to the creamery and got our cash every month on the company's check, good for its face the county over. And how much was it? Twelve cents a day for 200 days, or $24 in cold cash. Take from this our cost, $11, and we have a nice cash balance, $13, and a good calf clear, and he is a good calf. Maybe not so fat or sleek as the other, but he knows more, has plenty of good bone and muscle, and looks able to buck the storms and cold of the coming winter.

The other calf being raised a pet and set back by his weaning, will have all he can do to hold his own, and by the time they are yearlings past you can't tell them apart; if anything, your skim milk calf is ahead.

When we say skim milk we mean the pure stuff, fed warm and sweet.

Not one day cheese, the next whey, the next one-half water, and the next none at all (the hauler forgot our can), but always the same, warm and sweet.

In this shape, with the addition of a little oil meal and shelled corn at nominal cost, we contend that it equals the whole milk as a feed for the growing calf, and it is much more economical.

We have forgotten the pig in our talk, but the same argument holds good in his case.

Analysis teaches us that the separator takes out only the fat, leaving the bone and muscle making ingredients still in the skim milk.

Using a Milking Tube.

The milking tube has a place on every dairy farm, and its place is to use only when it is impossible to milk a cow with the hand. A few years ago, instrument makers advertised them extensively, and some even recommended them for general use in milking any and all cows that were hard milkers, or those that had sore teats. This was a great mistake. Theoretically a milking tube can be passed up a cow's teat, and the milk will run out to some extent. But there was always a little left. The old cow has a little cow sense, and she won't be fooled entirely by any scheme that has thus far been devised by man. She wants to have her udder manipulated to some extent, as the calf would do in drawing the milk, and when this is not done, milk is not manufactured. Much of the milk is made during the time of milking, and unless there is some motion going on about the udder, the old cow practically says: "Nay; there is no one working at my udder to get milk, so I won't make it." This has been the great trouble, not alone with the milk tube, but with all milking machines. The cow kept yielding less and less, until in a few days or weeks, she was dried off.

There is another reason why milking tubes came into disrepute. They were improperly handled; cows' teats are of far different size and length. A milking tube three inches long was frequently run the whole length up a two-inch-long teat; the udder was injured at the base of the teat, and an inflammation followed, which sometimes ruined the udder.

Again, some neglected properly to clean the tube; germs accumulated upon it, which, when they came in contact with the sensitive membrane of the milk channel inflamed it. Dirty hands also handled it, and the tube, although it had once been well cleaned, contained irritating germs when it entered the teat. Nevertheless, the milking tube is sometimes needed, and there is seemingly no way to milk a cow without its use, when she has cow pox, or she has in some manner injured one or more teats, rendering it impossible to draw the milk by the hand. Then is the time, and the only time, that a milking tube should be used, and its use should be stopped just as quick as the emergency of the case will permit. Before using, always dip in a little hot water, then in a little pure olive oil, and carefully insert up the teat, using judgment as to how far it should be inserted. During the time it remains in the teat, with the hand gently rub and squeeze the quarter, thus causing the regular amount of milk to be secreted and brought down into the milk cistern, when it will pass out through the tube. Used when necessary only, and used properly, a milking tube made of silver, or hard rubber, is of great value to use in emergency cases, but for general use, or if carelessly handled, it is worse than useless.—C. D. SMEAD, in *Rural New Yorker*.

CONCERNING OUR ADVERTISERS.

"CLIPPER" WELL DRILLS.

The catalogue of the Loomis "Clipper" Well Drilling Machines, made by Loomis & Nyman, Tiffin, Ohio, will interest every one who has occasion to drill for water, oil, gas or coal, or those who may contemplate entering the business of drilling. The "Clipper" drills have done good work in all kinds of soil and under all conditions and their claims to superiority are backed up by the testimony of successful users of these machines. The makers claim that the "Clipper" is strongest, requires least power, carries the heaviest tools, drills faster, lasts longer and earns more money than any other. Loomis & Nyman make many kinds of drilling machines for use with horse, steam or gasoline power. They will send their catalogue anywhere on request.

There is an advertisment in the DAIRYMAN announcing the annual sale of Jerseys at Nashville, Tenn., Nov. 9th. This sale includes the Morgan & Brown and Woodard herds, and of the animals to be offered at sale we are written as follows:

"Two of Tennessee's best Jersey herds will be disposed of at the closing out sale at Nashville, Tenn., Nov. 9th. The public get the benefit of such dispersal sales, as they know that there is more than culls offered. In this lot will be found more of the blood of Bisson's Bells and Landseer's Fancy than can be found any where. In fact more of Tennessee's famous blood—almost every pedigree is a combination of Lord Harry and Tormentor—that produced Etheel 2nd, 30 lbs. 15 ozs., at 2½ years, the richest officially tested cow.

You will find Tormentor, Fancy's Harry, Lord Harry, Denise's Tormentor and Toltec crossed on such cows as Bisson's Belle, Landseer's Fancy, Ethleel, Oonan and Duchess of Bloomfield, at every glance at the pedigrees of this catalogue.

Such cows as Bisson's Belle, Fancy's Pet, Ethleel 5th, Landseer's Fancy 3rd, Maquilla 4th, and a number of others I could name in this lot could not at any other time be bought at all.

I am sure this sale will attract breeders who have not been buying any cows, as they can find true foundation stock here. The sale will be under shelter and convenient to street cars and I think will attract buyers.

I think I can say without fear of contradiction that such desirable pedigrees as are found in every branch of these charts in the same number of animals were never brought together."

L. V. Axtell, of Perry, Ohio, owner of the "Old Homestead" herd of Guernseys makes explanation of his withdrawal from the third ring at Wisconsin State Fair in his advertisement. The reports of the exhibitors and award of premiums may have left some readers with an impression of the Homestead herd not warranted by the facts. Hence this explanation. This herd bears an excellent reputation and having many animals of much merit that could well stand in any ring to await the judges verdict.

The Freeland Manufacturing Co., of Niles, Mich., make their announcement for the fall and winter seasons in this issue of our paper. Their advertisement will be found on another page. As will be observed from the ad. these people are making a drive on their Galvanized Steel Tank, Feed Cookers, and Tank Heaters.

In commendation of these people we must say, that they show a disposition to deal fairly with the public, as they say in their ad. in bold type, "Shipped subject to inspection." Nobody need buy any of their goods, therefore, without knowing exactly what he is getting. Write them for circulars, prices and terms to agents.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

PARALYSIS.

I have a heifer, two years old, with following syptoms. She reels when she starts to walk and goes sideways as though she was weak in the back; humps her back when she walks and stumbles with front feet; eats very well, but would rather eat old dry grass or leaves or butts of corn stalks than good hay; she does not chew her cud much, and she seems stiff at times; she don't seem to fall off much, but has a staring gaze out of her eyes at times; she has been this way about one week. I gave her salts and saltpetre and it seemed to help her for a little while, but the next day it was as bad as ever. J. C. R.

Mexico, Mo.

ANSWER.

Symptoms being correct, you have a serious case. To me it looks like paralysis of the lumbar process, and it is always a difficult disease to treat, and is also a very intractable one. Give her one dram of pulverized nux vomica each morning for two doses only; rest two days then give half a dram of nux vomica and half an ounce of fluid extract of golden seal, in three ounces of old whiskey and four ounces of water; one dose a day for three days, skip three days, then repeat every third day for two to four doses. Rub the lumbar region hard with oil of cedar two ounces; sulfuric ether, one ounce; oil of origanum, two ounces; fish oil, six ounces; keep tightly stoppered, out of the sun, in a cool place. Shake violently before using each time. Rub hard once a day.

EYE DISEASE.

All my animals had much improved by the time I got your prescription, and had all regained their sight, but one of them, one of the first ones sick, seems to have taken quite a different course to the rest of them. The left eye is quite closed up, and some matter comes from it and it is quite hard and tightly closed; also underneath the skin is a very hard substance, that is not connected with the bone, muscles or skin, and it is gradually increasing in size. In all other respects the cow seems all right, that is she does not moan or show any signs of pain, and eats well. It is impossible to open the eye; it seems as hard as bone, but we bathe it in hot water, and grease it to try to soften. Would be glad to know if I can do more for it, or if it would do any good to use the liniment outside the eye in place of lifting the eyelid and squeezing into the eye as you said.

Fredericksburg, Texas. W. W. C.

ANSWER.

Don't use the liniment outside. It is not for such. I don't think you have a flattering case of cure. I can't justly diagnose your case, as given, but I can say, I am afraid you have a hopeless case. You need a practical man to make a personal examination, *at once*, and act accordingly.

TROUBLE IN BREEDING.

I am having trouble with my cows. They are regular until they are bred, and then they go from four to six weeks before they come in season again. Then they are regular again until bred, and then are irregular. I feed them alfalfa hay, corn fodder, corn meal and bran, salt twice a day. They appear to be healthy. The corn fodder has considerable smut on it. Would that make the trouble? N. S. S.

Gardena, Cal.

ANSWER.

Yes, smut is the agent of many peculiar diseases and deaths. In your case I doubt not, it is the sole cause of trouble. No intelligent man will allow smut to get into any animal's stomach, if he can prevent it.

Horse Owners! Use GOMBAULT'S Caustic Balsam



A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

LUMBER at ONE-HALF PRICE

WE BOUGHT

The Omaha Exposition

and have 12,000,000 feet for sale.

Send us your bill for our estimate

Write for free Illustrated Catalogue No. 20 on general merchandise from Sheriffs and Receivers Sales. Address

Chicago House Wrecking Co. CHICAGO, ILL. OMAHA, NEB.

WHO IS TO BLAME

Women as well as men are made miserable by kidney and bladder trouble. Dr. Kilmer's Swamp-Root, the great remedy, promptly cures. At druggists in fifty cent and dollar sizes. You may have a sample bottle by mail free. also pamphlet telling all about it and its wonderful cures.

Address, Dr. Kilmer & Co., Binghamton, N. Y.

...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure SCOURS in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO.,
159 Chambers St., New York.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

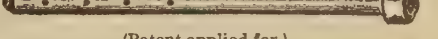
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

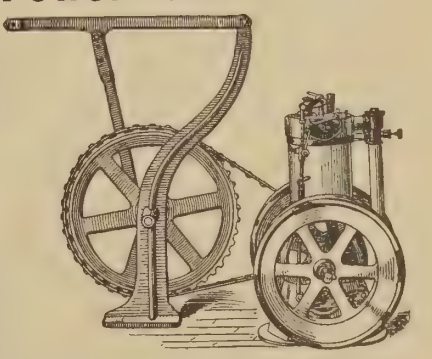
Cows barren 3 years

MADE TO BREED.

Book Free. Moore Brothers, Albany, N. Y.



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THIS cut shows our 1½ H. P. **Gasoline Engine,** used in connection with our Adjustable Pump Jack. Can be used in connection with any ordinary pump. A good gasoline engine is the cheapest and best power for all purposes. Can be used for anything. You don't have to wait for the wind to blow to get results. Write for prices and full information.

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Don't Tire Yourself

hunting after your stock. Use Page 12 wire 58 inch high, Stock and Farm Fence, and take a rest.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

Butter and Cheese Scores at the St. Louis Fair, Oct. 2-7, 1899.

(JOHN MIDDLESTADT, with A. H. BARBER & Co., Chicago, Ill., Judge.)

Entry No.	EXHIBITOR.	Flavor.	Texture.	Color.	Salt.	Packing.	Total Score.
	DAIRY BUTTER.						
1.	R. G. Welford, Red Bud, Ill	41	29	10	10	5	95
2.	A. B. Stiedley, Carlinville, Ill	43	29	10	10	5	97
3.	Nathan King, Deer Park	43	29½	10	10	5	97½
4.	A. J. Watkins, Lawson	42	29½	10	10	5	96½
5.	W. C. Smith, Knox City	39	30	10	10	5	94
	CREAMERY BUTTER.						
27.	R. G. Welford, Red Bud, Ill	40	30	10	10	5	95
28.	Holden Creamery Co., Holden	41½	29½	10	9½	5	95½
30.	C. Moores, Rockford, Minn	43	30	10	10	5	98
31.	C. Roeder, & Co., St Louis	41	30	10	10	5	96
32.	Alma Creamery Co., Alma, Mo	41	30	10	10	5	96
33.	Wien Creamery Association, Wien	42	30	10	10	5	97
34.	J. G. Kurth, Crosby	43	29½	10	10	5	97½
35.	R. T. McCall, Creston, Iowa	41	30	10	10	5	96
36.	A. Ingles, Holden	40	30	10	10	5	95
37.	J. P. Howell, Creston, Iowa	43½	30	10	10	5	98½
38.	G. W. Kelley, Afton, Iowa	40	29½	10	10	5	94½
39.	A. T. Rosch, Trenton, Ill	41	30	8	10	5	94
40.	Oak Hill Creamery Co., Oak Hill, Ill	41	30	10	10	5	96
41.	A. R. Holcomb, Oak Hill, Ill	41	30	9½	10	5	95½
42.	G. A. Bangs, St. Louis	40	29½	9½	10	5	94
43.	G. A. Bangs, St. Louis	40½	29½	9½	10	5	94½
44.	Corder Creamery Co., Corder	41	30	10	10	5	96
45.	Tivy & Eimer, St. Louis	40	29½	10	10	5	94½
46.	Concordia Creamery Co., Concordia	42	30	10	10	5	97
47.	Polster Bros. Creamery, Wright City	40	29½	10	10	5	94½
48.	H. P. Olson, Hutchinson, Minn	44	30	9¾	10	5	98¾
	PRINT BUTTER.						
51.	R. G. Welford, Red Bud, Ill	40	30	9	10	5	94
52.	Holden Creamery Co., Holden	41	30	10	9½	5	95½
53.	Mrs. J. D. Clarkson, Baldwin	38	29½	9½	10	5	92
54.	Wien Creamery Association, Wien	41½	30	10	10	5	96½
55.	J. G. Kurth, Crosby	41¾	30	10	10	5	96¾
58.	Olinger & Sons, Unionville	42	29	10	10	5	96
59.	R. T. McCall, Creston, Iowa	40½	30	10	9½	5	95
60.	J. P. Howell, Creston, Iowa	42	29	10	10	5	96
61.	G. W. Kelly, Afton, Iowa	42½	30	10	10	5	97½
62.	A. B. Stiedley, Carlinville, Ill	41	29	10	10	5	95
63.	Mrs. Nancy Barbee, Creve Coeur	38	30	9	10	5	92
64.	Jas. S. King, Fancy Prairie, Ill	40	30	10	10	5	95
65.	Nathan King, Deer Park	42	30	8	10	5	95
66.	A. J. Watkins, Lawson	42	30	10	10	5	97
67.	Chas. J. Hogan, Wellston	39	29	10	10	5	93
68.	Wells Mansion, Wellston	40	29	10	10	5	94

Entry No.	EXHIBITOR.	Flavor.	Texture.	Style.	Salting.	Color.	Total.
	FLAT CHEESE.						
176.	S. Winzennied, Clyde, Mo	37	26	12	8	10	93
177.	E. G. Hodges, Union, Iowa	38	29	12	8	10	97
178.	S. Uglow, Litchfield, Minn	38	30	12	8	10	98
179.	C. Haldiman, California, Mo	36	27	12	8	9	92
180.	C. Haldiman, California, Mo	37	28	12	8	9½	94½
181.	C. Haldiman, California, Mo	38	28	12	8	9½	95½
	CHEDDAR CHEESE.						
201.	S. Winzennied, Clyde, Mo	38	28	11	8	9	94
203.	E. G. Hodges, Union, Iowa	38½	29	12	8	10	97½
204.	C. Haldiman	38	28	12	8	9	95
	YOUNG AMERICA CHEESE.						
226.	E. G. Hodges	38½	29	12	8	10	97½
227.	C. Haldiman	37	28	11½	8	9	93½
229.	C. Haldiman	37	28	12	8	9	94
	SWISS CHEESE.						
251.	C. Haldiman	37	28	12	8	10	96
252.	C. Haldiman	38	29	12	8	10	97
253.	C. Haldiman	37½	29	12	8	10	96½
	BRICK CHEESE.						
276.	C. Haldiman	37	28	12	8	9½	94½
277.	C. Haldiman	35	28	12	7½	9½	92
278.	C. Haldiman	36	28	12	8	9½	93½

A CALIFORNIA DAIRYWOMAN AND HER HERD OF COWS.

No matter whether it be in Maine or California, when good dairy intelligence and good cows come together, there we see a profitable result. Miss M. D. Eshelman, of Fresno, California, in an address to the Dairy Association of that state, gave the following account of her herd of cows:

The herd made in 1897, an average of 339 pounds of butter. In the present year the herd has averaged 318 pounds, the record being lowered by the fact that seventy-nine heifers came in during the year. These records include every cow that was milked during the period, including cows since turned off for beef. A goodly number of the older cows made over 400 pounds, and a few went over 500 pounds, and our best cow's record in 1897 was 573 pounds of butter and this year she has made 629 pounds.

The success of the ration depends on its palatability, and if it is lacking in this particular carefully balancing it will not make the cows eat enough to increase the milk flow sufficient to cover addititonal expense. Cows are like ourselves in preferring pleasant tasting foods. Rancid butter contains the food elements of the sweet creamery butter, yet, with the help of all our reasoning faculties, we could not find it desirable enough to eat freely. The cow will only produce well when she likes her food and her home.

Dairy Diversification.

The Rockdale, Texas, Meeting.

ED. HOARD'S DAIRYMAN:—The writer recently visited the Rockdale community, and enjoyed an opportunity to meet some of her enterprising citizens, and especially to look into the dairy interests that have recently developed in that locality. All other portions of south Texas have experienced trouble in making good butter during the summer season without ice, for creaming, or churning. But some have succeeded, at Rockdale, in making high-grade butter without even the assistance of cool water.

Golden, granulated butter, free from milk, and sweet at three weeks old, was shown before a crowd of some seventy-five practical farmers and their wives. This butter, produced when September temperatures were 90° to 95°, (maximum) was the product of those who had received no special training in butter making, and who stated to me that their success was due to the use of a cooling system, which was invented and put upon the market by Mr. L. H. Porter, of Rockdale, and which is probably familiar to those reading the advertising columns of our agricultural papers. This butter sells in Houston for 20 cents per pound.

After spending a day most profitably and pleasantly for me, I felt impressed with the signal success of this infant industry at Rockdale, and was gratified to learn of the esteem in which the people of his home community hold Mr. Porter's cooling system.

Out of some one hundred pounds of sample butter shown, a number of the makes were not up to the standard in grain, or bore evidence of too much churning, over working or use of improper feeds. Such errors in handling can soon be removed, if the people interested, will give these matters studious attention. For those who desire to improve in methods, I recommend the purchase of one or both of these books, "Milk and Its Products," by Wing, or "The Chemistry of Milk," by Snyder. Every butter maker should own one of these little books.

In addition to the butter display, an excellent piece of Milam county cheese was shown and freely sampled. During the afternoon an exhibition of a hand separator at work, and of milk testing and cheese making machines was given, in which the uses and processes were fully explained to the interested onlookers.

While in the town only a short time, I found that there were enterprising newspaper men and merchants, who were anxious to help the farmers of that section, to a reasonable diversification, and who felt an intelligent and unselfish interest in the welfare of Milam county, and her undeveloped resources. J. H. CONNELL.

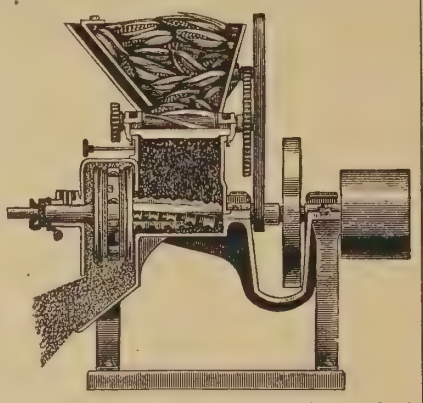
College Station.

ILLUSTRATION.

KELLY DUPLEX GRINDERS.

The "Kelly Duplex Mill" shown herewith, is manufactured by O. S. Kelly Co., of Springfield, Ohio. It has been before the trade for so great a length of time, and has proven so satisfactory that we cannot refrain from giving it a word of recommendation at this time. We believe that this is the only mill which, as is indicated by its name, has duplex grinders or buhrs.

This is really a much greater advantage than might at first appear, for it means that the grain



is ground twice at a single operation. Indeed we think that the Duplex must be the best representative among feed grinders of the now universally accepted gradual reduction process of grinding.

First of all, it has a system of breakers, which break up the corn and cob, dropping it to the bottom of the hopper where it is again further crushed and reduced in the process of being fed into the Duplex grinders. This means that there are really four gradual reductions from the whole ear corn to the finished meal.

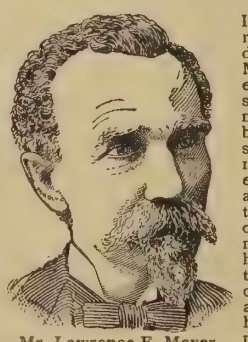
In addition to the above advantages, this is a strong, durable mill of large capacity, and one well calculated to give satisfaction under almost any conditions. We might just add that the business of the O. S. Kelly Co. has so enlarged and extended that they have been obliged to erect a large factory at Iowa City, Iowa, to better enable them to care for this trade.

Should any of our readers be needing a feed grinder, they will do well to correspond with these people before buying. Ask for catalogue, etc.

Great Rupture Cure

Wonderfully Brilliant Invention Sold at a Low Price.

A Home Cure That is Restoring Thousands to Perfect Health, Many Remarkable Instances.



Mr. Lawrence E. Meyer.

In speaking about his remarkable cure of a dangerous rupture Mr Lawrence E. Meyer of Syracuse N. Y. says: "I tried the method of Dr. Rice because it seemed such a vast improvement over anything else I had used and also combined curative effect such as no other rupture treatment contains. I hadn't much faith in the possibility of a cure but the results are remarkable. I had been laid up for months, but from the day I began the Rice method the rupture did not bother me for a minute. It was only a short time when I couldn't feel any trace of where the rupture had been and I soon was able to work all day as freely as a young man. I advise every ruptured man or woman to send at once and get this method as will certainly cure permanently and perfectly." Mr. Meyer's advice is good. Upon application to Dr. Rice, he will send you free a book that fully explains how he cures rupture. If you know of another person ruptured send and get a book for him. Such an act of kindness will be remembered all the rest of his life. Write today without fail. Address Dr. W. S. Rice, 353 F. Main St., Adams, N. Y. The book is mailed free to all who send name and address.

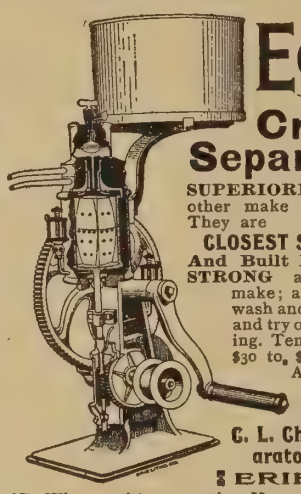
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Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE.
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Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., AT HALF PRICE.

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

BELTING

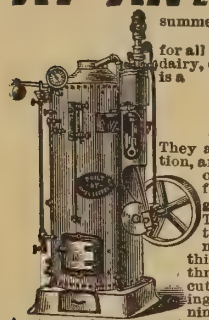


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AT ANY TIME—



summer time or winter time, the *BEST POWER* for all purposes on the farm, in the dairy, creamery or cheese factory, is a

LEFFEL ENGINE.

They are very simple in construction, and easy to run and keep in order. Are very economic of fuel, are easy steamers and great power developers. They are made both horizontal and upright with engine mounted on boiler. Everything is made of best material throughout. They are ideal for cutting and grinding feed, sawing wood, pumping water, running cream separators, churns, butter workers, etc. Send stamp for Book on Power.

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High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.

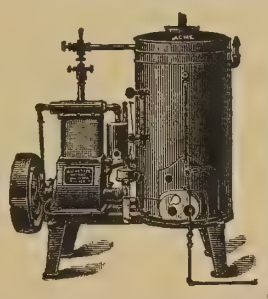
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our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO., Detroit, Mich

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The Acme Engine



Still LEADS

1 TO 6 Horse Power.

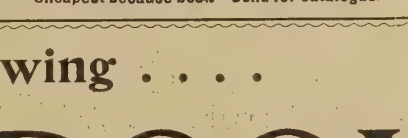
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Absolutely perfect. Soon pays the cost. Cheapest because best.

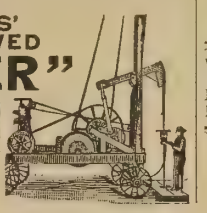
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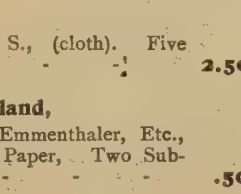
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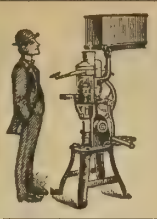
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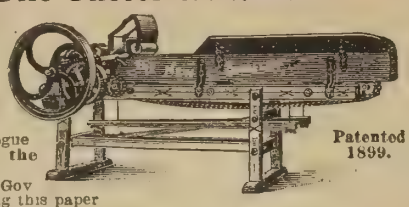
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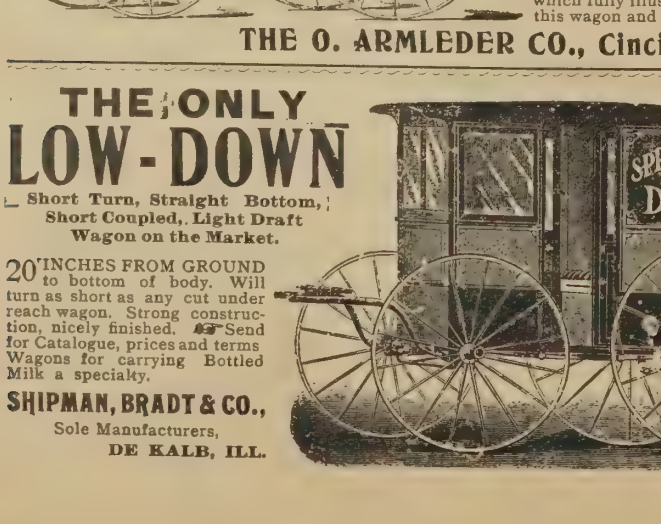
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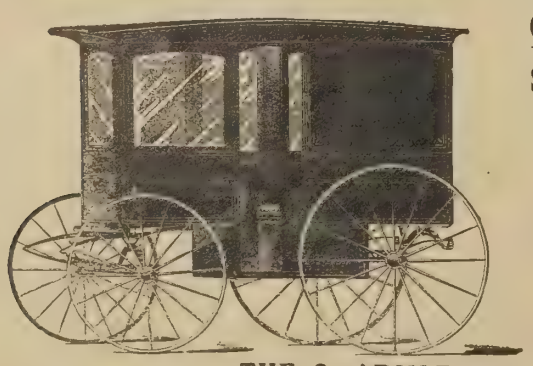


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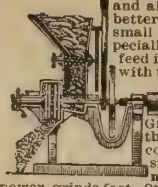
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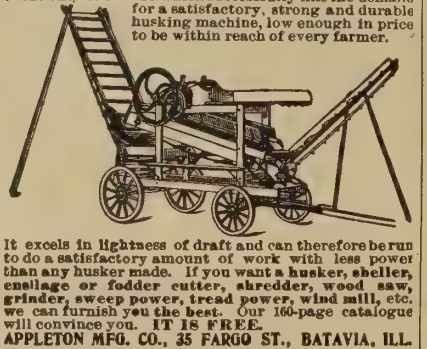
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VOLUME XXX. FORT ATKINSON, WIS., OCTOBER 27, 1899. NUMBER 37

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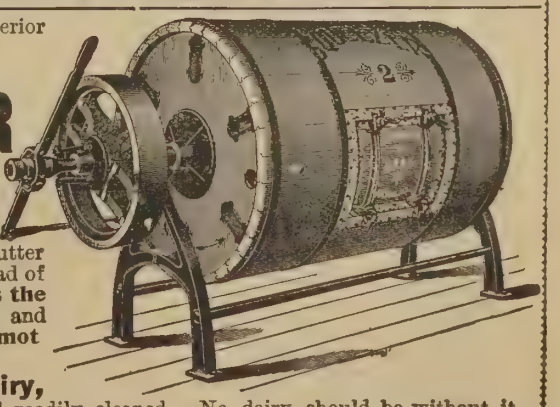
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squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

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Will do Exhaustive Churning at any Temperature.

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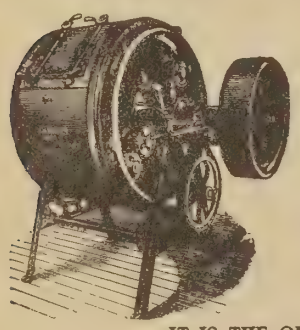
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It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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"PURIFINE" A BOON TO THE GREAT DAIRY INTERESTS,

A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

SAN FRANCISCO, Sept. 22d, 1896.
I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
E. A. GREEN. Sec'y,
Millbrae Dairy Company, Mission & 9th.

Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

FITCH CHEMICAL COMPANY, Bay City, Michigan.



The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.
W. H. YOUNG,
Box 135, Aurora, Ill.

HARVEY'S ANTI-SUCKING BITS For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for **50 CENTS.**
Will be sent as a premium for
ONE NEW SUBSCRIBER.

"Always In the Lead and Now Better Than Ever."

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THE Improved United States Cream Separators have been proven by tests repeated from year to year, at all Agricultural Experiment Stations in the last four or five years, to be superior to all other Cream Separators, many tests of the skim milk showing only .01 or .02, and are now still further improved and greatly increased in capacity for

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All experienced Cream Separator operators concede that the United States is unapproached in thoroughness of separation and perfection of manufacture. All gears are enclosed; Bowl Spindle covered with brass shield; have ball bearings. The most cost is put into their manufacture, and they are therefore better and will wear longer, yet are sold for less than others considering capacity and close skimming—are therefore the cheapest, because the best.

Examine "New Century" Prices and Capacities.

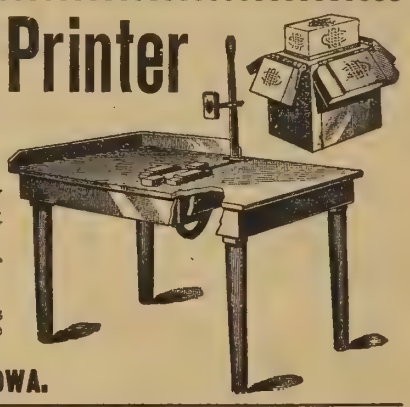
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Agents wanted in all towns not at present canvassed

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BELLOWS FALLS, VERMONT.

Self Gauging "All Over" Printer



The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.

The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

making it a most desirable printer for large dairies or creameries. Write us at once for descriptive circular and price list.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

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Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

GENESEE BUTTER SALT A flaky grain, very soluble, will not wash out (like fine salt) and brings out the best flavors in the butter.

GENESEE CHEESE SALT Trifle coarser than Butter Salt, of the same quality and is cheaper than common salt because it goes further and produces better results.

Genesee German Cheese Salt (Deutscher Kase Salz) has no equal for Swiss, Limburger, Brick, etc.

Genesee Salt Never Lumps nor Hardens.

F. A. TRIPP, Chicago, Ill. **GENESEE SALT CO.,** New York, N. Y.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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AN exchange tells of a patron of a creamery, who was so anxious to have his milk keep over Sunday, that he salted it heavily. The result was that the cream would not ripen, the butter was off and the churning poor because the cream was sweet. This is exactly what happens when preservatives are used in the milk.

The cream will not ripen for the butter maker, nor the milk for the cheese maker, and a failure is scored in each case.

A growth of the proper kind of bacteria is necessary for both butter and cheese making, and when the factory man is in trouble with non-ripening milk on his hands, he may suspect preservatives and act accordingly.

THE HISTORY OF A TUBERCULOUS HERD OF COWS.

Important and Reassuring Deductions.

The Wisconsin Agricultural Experiment Station, as noted in these columns from time to time, has had a herd of tuberculous cows under its direction for nearly four years and for the later part of this period under its full control. It has been doing in this respect the very thing which HOARD'S DAIRYMAN has insisted was necessary to be done and has contributed a goodly number of demonstrated facts to the limited store of knowledge on this important question. There is much more to learn, and probably always will be, but it is satisfying to have some substantial basis to stand upon in pursuing further investigations. In the early days of the tuberculin test, the scientists went fairly wild, and conjured up from the depths of their imagination all manner of frightful pictures. A good many of them are not yet over their fright as every now and then the pronunciamentos of Boards of Health and State Veterinarians amply attest.

But now comes Prof. Russell, than whom no more patient, accurate and conscientious investigator can be found, and in *Bulletin* 78 of the Wisconsin Agricultural Experiment Station tells us that it is perfectly practicable to build up a herd of healthy animals from one that is badly diseased—not, indeed, by *curing* all the affected individuals, but by quarantining them and taking away their progeny at birth. He has proven that the disease may continue in latent form for years, in many instances, and not affect the usefulness or general health of the animal. He does, indeed, and out of abundant caution, recommend that the milk of such cows should be pasteurized, whether used for human consumption or for feeding to calves, and this nothwithstanding the fact that he has yet to find a single tubercle germ in the milk of any of the tuberculous cows under observation.

This is not all, by any means, neither could we give the whole without reprinting the entire bulletin. Wisconsin readers can obtain a copy of this publication or any other, issued by the Station, by sending a request on a postal card addressed "Agricultural Experiment Station, Madison, Wis." It is quite probable also that a limited number of requests from readers in other states would receive favorable consideration.

A HELPFUL AND PRACTICAL CHEESE MAKER.

There is no word in the English language more misused than the word "practical." This is particularly true among farmers. We can see men all about us who pride themselves on being "practical," who use the word to measure by, who say this thing, or this man is not "practical," when all the time it was not the practicability of the thing that troubled them, rather their own inability to judge what was practical. For instance, the other day, a dairy farmer said, in our hearing, that it was not a practical thing for a dairyman to use a registered Guernsey bull in a herd where the milk was to be taken to a creamery. He said it would do well enough where a man made up his butter in a private dairy.

That man did not understand the first meaning of the word practical. He was too ignorant and self conceited to understand it. At the same time among the patrons of the same creamery where he delivered his milk, were grade Guernsey herds of cows which averaged their owners double the gross cash and four times the profit per cow that his did.

We have known many hundreds of cheese makers and creamery operators. There is an amazing difference in these, in their practical ability, and especially in their ability to help the community of farmers they live in, to grow and improve in dairying. It is a common thing to see such a man go into a creamery or cheese factory, stay a series of years, and leave it without the slightest indications that they have done the farmers they come in daily contact with, the least bit of good. The farmers have learned nothing from them.

Of an entirely different order of man in his influence among his patrons, is Mr. David Haven, of Hartford, Michigan, who owns and runs a cheese factory. In all his relations there is seen the "practical" or constructive stroke of the man who builds up men and things about him. He sees clearly that many of his patrons are losing money, because they do not have right ideas about cows, and the care and management of cows and milk. He sees that what his patrons need is better ideas in place of poor ones. So he sets to work to boost them into a better order of thinking and doing. He writes a series of articles in the local papers and makes this "practical" proposition:

"The drawing of the milk is by far the largest single item of expense, and we must confess we know of no way to get rid of it; but after due deliberation, we have decided to make the following offer, viz:

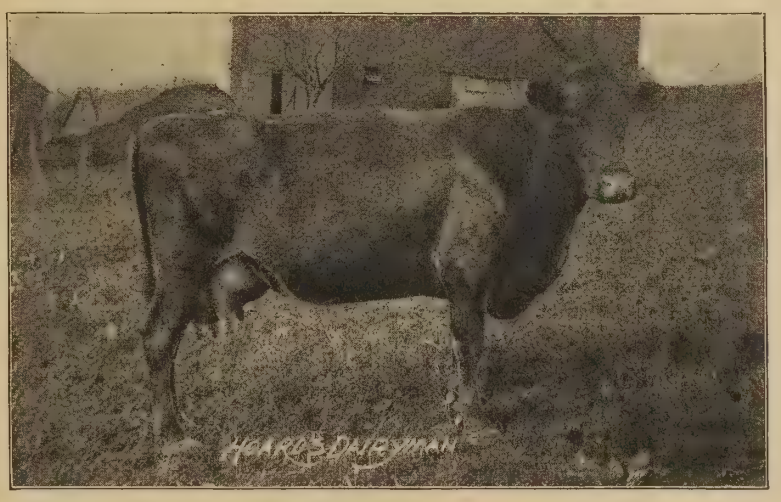
The first farmers who will keep 200 cows, take HOARD'S DAIRYMAN, use an aerator, and deliver the milk at the factory without expense to us for at least 300 days in the year, commencing with 1900, we will agree to make the cheese for them for $1.35 a hundred instead of $1.50 the present price. This contract will not be binding on either side unless we get 200 cows pledged, and only the milk from 200 cows will be made at $1.35. We will contract for three years. No one with less than six cows will be allowed to contract. The reason we require the milk delivered without expense to us is apparent. The reason for requiring HOARD'S DAIRYMAN to be taken is that it will make one a better feeder, consequently they will get more milk and more money. The reason for using an aerator can perhaps best be illustrated by actual results. The second Sunday in July we received 3,043 pounds of milk from which we made 322 pounds of cheese. Two Sundays after we received 3,059 pounds of milk from which we made 349 pounds of cheese, or from sixteen pounds more milk we made twenty-seven pounds more cheese. The difference is that the first day was excessively warm, consequently the milk came in poor shape; the last day was cool and the milk was in fine condition; and by using the aerator, and cold water, milk will come in good shape, no matter what the weather is.

The explanation is this, that when the weather is warm and milk that bacteria grow and develop in it faster than when it is aired and cooled when first drawn from the cow; and the bacteria working in the milk destroy the casein or cheese part so that it goes off in the whey. Poor milk makes a light yield but good whey; good milk gives good yield but poor whey. An aerator will pay for itself three times in one year in increased yield of cheese. Let us know at once what you think of our offer of ten per cent reduction in making.

If the farmers see fit to contract to furnish the milk from 200 cows for 300 days in the year, we shall ask them to choose some one to do our figuring at our expense, and to accept an honesty bond from us which will stop any doubt in any one's mind.

Respectfully yours,
DAVIS HAVEN.

Here is a man who is willing to take fifteen cents less on every hundred pounds of cheese, if his patrons will do the few things every intelligent patron should be glad to do. He is hiring them to do the best for themselves. That man is a practical teacher of the principles of sound dairying in his community.



GRADE JERSEY COW.

Property of RAY DUFNER, Fennimore, Wis.

A Grade Jersey.

ED. HOARD'S DAIRYMAN;—I send you a picture of my grade Jersey cow which I think is a very good type of the dairy animal. She has given fifty-one pounds of milk in twenty-four hours which tested 5.1 per cent fat.

The test was made June 28, and the cow became fresh April 4. I have a herd of twelve Jerseys. Four of them are two-year-olds, and two have been milked nearly a year. They are giving three hundred pounds of milk per day and my average test for June was four per cent of fat. I do not think any all-purpose herd in this or any other state can equal them. RAY DUFNER.

Fennimore, Wis.

Inspection of City Milk Supply.

ED. HOARD'S DAIRYMAN:—In one of your late issues I saw a short article relating to the fining of dairymen in Kansas City, Mo., which is a very small affair taking into consideration the magnitude of the milk business. The great need of the present time is the inspection of milk at the farm or dairy where produced, to see how cows are fed, milked and handled, so as to produce a clean, wholesome article. If that was done by competent men, who could issue certificates of the first, second and third class, according to quality, care and cleanliness—it is a notorious fact the barns, milk houses, etc., are the worst constructed, without ventillation or drainage in the district around Kansas City, that I ever saw—and the result would benefit both producer and consumer, and would cause increased demand for the best milk at a much better price. There is another matter that puzzles practical dairymen and others. It is that of people without farming or dairy knowledge, going into the business, expecting to carry it on, without making any provision as to outfit, a supply of good water, etc. It requires as high order of intelligent supervision to run a dairy successfully as any other business.

Kansas City. PRACTICAL DAIRYMAN.

Big Milk Farms.

In the village of Arden, Orange County, New York, 44 miles from New York City, is the Arden Farms Dairy Company, which owns 15 000 acres of land, 5,000 acres of which is tillage. The central portion of the main barn is three stories high, with two wings in which the cows are kept; nothing is stored over the animals; the floor where the animals are kept is concrete; hot and cold water is supplied by a system of pipes; troughs and floors can be flushed with water and kept scrupulously clean. In this barn are kept at all times upwards of one hundred milkers, although 375 cows are owned by the company. The balance of the milkers are distributed in the other barns. When a cow is dry she is sent to one of the outlying farms. The herd is a mixed one, Guernsey and Ayrshire blood predominating. The company sells two grades of milk, one of four per cent, and one of five per cent. Everything is kept scrupulously clean, the cattle are curried and brushed twice a day. The milkers, after thoroughly washing, don a milking suit of white duck and wash their hands after each cow. The milk is strained four times before reaching the consumer. The milking pails have closely fitted covers, with a six inch disc strainer, through which the milk enters the pail. There is a large cooling room and aerator, with cold storage rooms of the most modern pattern. Milk is put up in bottles. The lowest price at which any milk is sold is that which is disposed of in bulk, which is ten cents per quart. Milk in bottles is sold at twelve cents per quart.

This is only one of many similar enterprises that have sprung up near the large cities and seems to show a tendency for the business to drift into the hands of corporations or individuals with sufficient capital to carry it on a high grade plan. As long as the large operators get the extra price that their products secure, the small operator will not be seriously affected, as there will always be a market for the product that does not make any great pretentions to high quality and scrupulous cleanliness, yet the lesson to be learned also shows that there is a large proportion of the consumers who will pay an extra price for a high grade article.—*Up-to-Date Farm and Garden.*

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Coming Events.

Minnesota Butter and Cheese Association, Owatonna, Nov. 8-9, 1899.
Kansas Dairymen's Association, Manhattan, Nov. 22-24, 1899.
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Tennessee Dairymen's Association, Sweetwater, Jan. '25, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.

TEACHING THE ELEMENTS OF AGRICULTURE IN THE COMMON SCHOOLS.

Those who were so fortunate as to hear the most admirable address of Hon. C. C. James, Deputy Minister of Agriculture for Ontario, before the late Farmers' National Congress in Boston, must have been forced to the conclusion that our Canadian cousins have thought and worked on this subject far in advance of the conviction which exists in the United States. The address was indeed a most cogent and convincing argument from beginning to end of the great value to the cause of agriculture, the coming farms and the country, of such a system of education, and we hope ere long to lay before our readers a resume at least of its most salient and important conclusions. It will be remembered that Prof. James is the author of a text book on this subject which the DAIRYMAN has spoken approvingly of several times. This book has lately been revised and somewhat enlarged by Prof. Craig, of the Iowa Agricultural College, and is now published by Appleton & Co.

A most comprehensive report on Manual and Practical Instruction in Primary Schools, in Ireland, has lately been issued by the English Parliament, based on the investigations of a Royal Commission appointed by the Lord Lieutenant of Ireland, which with its voluminous appendix furnishes the most exhaustive statement that has yet appeared, of what is being done in the whole world on this question. It would be a grand thing for the knowledge and judgment of the farmers of the United States if a comprehensive summary of this splendid report could be published in every newspaper in the land. In spite of our boasted common school system of education, the schools of England, France, Holland, Sweden, Switzerland, Denmark, Germany and Wurtenburg are far ahead of us in teaching the child, as Aristotle said, "that which he can practice when he comes to be a man."

Many farmers object to the introduction of these studies into our common schools on the ground that no school can teach a child the art, or in other words, the practice of farming. This is true. But it is not contemplated that the art of farming should be taught. Our common schools do not teach the art of arithmetic as applied to the conduct of all the vast business that is carried on about us. But business cannot be carried on without arithmetic, and so we teach the child the foundation principles of the *science* of arithmetic and when he comes to a business life he easily learns to put those principles into practice.

So with all other studies; it is not the practice, but the underlying science which is taught, and we send the boy or girl to school with the firm trust that they will learn all the more the better practice because of having been taught in their youth the principles which underlie that practice. For instance, very much of our farm literature, experiment station bulletins, and the books that are written, shedding important light on one or another of the special branches of farming, are obliged to use terms which belong to the science of their subject. Many good farmers find themselves barred at once from a full comprehension of those terms, and also of the subject, because they had never made a study of the principles or things those terms describe.

Would it not have been a great advantage to those farmers if, when they were boys in the country school, they had been taught on such matters?

Why should not the farmer's boy be taught the meaning and action of the elements of fertility; of animal economy; of the chemistry of feeding; of the principles which govern the growth of plants; and the physiological adaptation of different farm animals to their true purpose?

There is a great mass of useful knowledge relating to the *science* of agriculture which should be taught to our boys and girls. Such teaching would prove a thousand times more useful and helpful to them in after life, than much of the knowledge that is now taught. The people of Europe see this, and are giving their children this education.

Is not the American farm boy and girl as worthy of this great advantage as those of any other country?

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

COLORADO QUERIES.

I have about thirty tons of clover and timothy that two days after being put up in large shocks, received two heavy rains, one each day successively, and was pretty thoroughly wet. It was re-shocked and allowed to dry before being stacked,—but the clover is black, and the timothy very much colored. Will you tell me what per cent this hay has lost of its feeding value for milk cows and for young cattle?

Do two-year-old heifers in milk require more feed in proportion to weight than grown cows?

I am milking four, feeding ten pounds grain, as per your feeding formula, and what clover and timothy they will eat, but they give very little milk,—ten pounds, fifteen pounds, ten pounds and twenty pounds, respectively. Two are grade Jerseys (the smaller milkers), and two are full-blood Holsteins, and have been milking four months.

Petersburg, Colorado. T. G. Y.

The amount of damage sustained by the hay getting so thoroughly wet can hardly be computed. It could quite easily reach fifty per cent, and might be more.

All growing animals require more feed—per thousand pounds weight—than those that are mature. The yields reported are not particularly bad for two-year-old heifers, although many do much better. With anything like fair hay, ten pounds of grain ought to suffice; but when the hay is less valuable than straw there is a presumption that more grain would not be amiss. Try increasing the feed a little and gradually, and notice the effect.

A NEW JERSEY DROUTH.

The state of New Jersey suffered severely from early spring and summer drouth, and is consequently very short of hay. Will you please tell me whether I can carry our cows through this winter and keep up full flow of milk on fresh, sweet corn stover and wheat straw for roughage, by making up protein from dry brewers grains, wheat middlings and corn meal? We sell milk. An early answer will greatly oblige A. T. E.

Ashland, N. J.

We cannot quite guarantee as good results from corn stover and wheat straw for roughage as might be expected from silage and clover hay, but cows ought to do fairly well on a daily allowance, substantially like the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. corn stover	8.93	.26	4.86	.11
8 lbs. wheat straw	7.23	.03	2.90	.03
10 lbs. dried grains	9.18	1.57	3.63	.51
2 lbs. middlings	1.76	.26	1.06	.07
2 lbs. ground corn	1.78	.16	1.33	.09
Totals	28.88	2.28	13.78	.81

It is hardly to be expected that *all* the stover and straw will be eaten, and this will tend to reduce the amount of dry matter, much more than the digestible nutrients. It would probably improve the ration very considerable, and not add to its cost materially, to substitute two pounds of linseed oil meal for four pounds of the dried grains.

The stover could also be made much more palatable, and considerable waste avoided, by running through a cutting box, dampening and letting lie in a pile for twenty-four hours or longer, to soften and heat up somewhat.

A PENNSYLANIA RATION.

Will you kindly formulate a ration for me under the following conditions: Cows, Jersey and grade; average weight, 1,000 pounds. Oats, thirty-five cents per bushel; corn, forty-five cents per bushel; wheat bran, $16 per ton; mixed hay, $14 per ton; ensilage from fairly well eared corn. Average price of milk, 6⅔ cents per quart. Can get oil meal but is dear. F. S.

Ridgeway, Pa.

As oats are worth not to exceed ten per cent more than bran, the price at which they are quoted forbids their consideration in making up a ration formula. Hay is also quoted much above its relative feeding value and should therefore be used as sparingly as possible. Leaving out of consideration its greater residual manurial value, the actual feeding value of bran per ton is fully twenty per cent more than that of the best mixed hay, and the difference between hay and corn is much greater. If limited to the feeds named we would suggest a trial of the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
5 lbs. hay	4.29	.24	1.98	.08
10 lbs. bran	8.81	1.26	3.86	.30
4 lbs. corn	3.56	.32	2.66	.17
Totals	24 58	2.21	12.70	.76

Mix grain with silage, feeding half at night and half in the morning. If the cows are accustomed to a midday foddering give them the hay then. Otherwise feed the hay at night. Do not omit the daily allowance of salt, or better yet, a small tablespoonful both night and morning, with the feeds.

WHAT TO DO WITH THE CORN.

I have six acres of corn which I would like to save, but don't know how. It stands eight feet high, and the silk on that most matured is just beginning to turn a little brown. I don't suppose it is matured sufficiently to make good ensilage, even if I had a silo, and such green stuff probably could not be made into "corn hay," and we are liable to have frosts most any time now. A. H. K.

Coupeville, Wash.

This inquiry was dated October 2nd, and was appended as a postscript to a letter making a remittance for Prof. Henry's book on "Feeds and Feeding." It consequently had to go through the book keeper's hands, and from him to the mailing clerk, before reaching the editor's table. The result is, that the answer to the inquiry has been unavoidably delayed until the present time, too late, we fear, even if a satisfactory answer could be given, to be of any benefit for the present year.

When a business has grown to the proportions which obtain in the offices of HOARD'S DAIRYMAN, there is, necessarily, more or less of routine required, and to take anything out of its regular channel, almost certainly leads to confusion. It would be a great convenience to us, and insure more prompt attention, if correspondence intended for the editors should be kept distinct and separate from that which relates to other matters. Of course, we are glad to hear from our friends in any way, but we have frequent occasion to regret that some matters are unavoidably delayed until the answer loses much of its pertinency.

The only thing to have done with this immature corn, was to cut it off near the ground and set it up in smallish "stooks" or "shocks" or "stouts," and let it cure in that way.

THE BAR IN MODEL COW STALL.

A California reader inquires about the cross-bar in the Model cow stall. This bar should be about two inches square and firmly spiked to the floor. If a 2×4 is used, it should be laid flat wise.

RATION FOR FATTENING A COW.

E. C. A., Los Angeles, Cal., has a grade cow, nine years old, weighing 1,000 pounds and giving two to two and one-half gallons milk per day, that he wishes to fatten. Barley hay is worth $13 per ton; barley straw, $5; alfalfa hay, $10; bran, $22; rolled barley $21; shelled corn, $21. We may say, in reply, that unless old cow beef brings more money in California than in Wisconsin, it will not pay to try to feed this cow very long. As long as the milk holds out, give her generous feed—all the barley and corn, mixed with some bran, that she will eat, taking care to increase the daily allowance so moderately as not to drive her off her feed.

SHREDDING CORN STOVER.

I have been a student of your paper for some time, and have been greatly aided by it. Please tell me, will it pay to have fodder corn run through a threshing machine? I have three acres of very heavy and well cured fodder, and would you advise me to soak the threshed fodder before feeding? Can a good ration be had from threshed fodder corn, ground corn, 25 cents per bushel;

ground oats, 22 cents per bushel; and timothy hay, $6 per ton, all of which I have. Or would you advise me to buy some bran at $16 per ton? Is buck wheat any good to feed cows? I intend to have a silo next year. T. W. H.

Wyalusing, Wis.

It doubtless makes corn fodder (stover?) much more palatable to run it through a shredder, and in the absence of a regular machine for that purpose, a common threshing machine may be used. However, unless the fodder is pretty dry, care must be taken not to store the shredded material in large stacks or big mows, as it would be likely to mould. Shredder fodder is not improved by wetting.

A satisfactory ration cannot be had from the feeds named, for the reason that in any practicable amounts they would not furnish sufficient protein. One should have some gluten feed, cotton seed meal or other feed rich in protein to combine with them. Bran answers a very good purpose, but is outrageously dear at $16 per ton. Oats are decidedly cheaper.

With ten pounds stover, ten pounds of hay, five pounds of oats and five pounds gluten feed, one could expect cows to do fairly well.

Buckwheat middlings make a splendid addition to the feed for a dairy cow. Grind the full grain, separate the flour and sell that and then have a most valuable by-product remaining.

RATION FOR YOUNG SWINE.

Please give me a ration on best way to feed pigs, to commence at six or eight weeks old, and have them fit to kill at from seven to nine months. Grain on hand is corn, oats, buckwheat, barley and peas; also plenty of sour milk. R. H. K.

Whippleville, N. Y.

For most economical gain feed four pounds milk to one pound ground corn. It is impossible to specify with even approximate certainty the amount that will be eaten daily. The best guide is to watch the trough and require everything to be cleaned up.

In Prof. Henry's book, "Feeds and Feeding," on page 551, is a table relating to this subject, from which we extract the following figures:

Weight of pigs in pounds.	*Actual av. weight.*	*Av. feed eaten per day.*	*Total feed for 100 lbs. gain.*
	lbs.	lbs.	lbs.
15 to 50	38	2.23	293
50 to 100	78	3.35	400
100 to 150	128	4.79	437
150 to 200	174	5.91	482
200 to 250	226	6.57	498
250 to 300	271	7.40	511

In this table six pounds of skim milk are calculated as equal to one pound of grain. If cheaper, some barley could be used in connection with the corn. Barley makes the finest kind of pork.

Note a'so how much less feed is required for one hundred pounds of gain when the weight is below one hundred pounds.

KEEPING SKIM MILK SWEET.—WOOD ASHES AS AN ABSORBENT.

The creamery to which my milk goes receives only once each day—in the morning—and the first to arrive, unless willing to wait a long time, have to take milk separated the day before which, always very sour, is also little better than whey, frequently.

Now is it not both possible and practicable for a creamery while operating separators with steam to connect pipes with the separated milk vat and heat (pasteurize) it to such a degree as to preserve sweet until the following day?

In your opinion, would wood ashes make a good stable absorbent? "SUBSCRIBER."

Potsdam, N. Y.

The DAIRYMAN has preached, in season and out of season, the necessity of sweet skim milk for animal feeding and has called attention time and again to the losses that come to the farmer, both in milk and animals, from the sour, dirty skim milk tank.

The patrons of a creamery should not allow the valuable skim milk to go to waste as they do. The average creamery proprietor does not consider that it is his duty to look after the skim milk that belongs to another man. The creamery patron considers it the other man's duty, and the result is that the milk is wasted.

It is both practical and possible for the skim milk to be kept sweet at the cost of a little work and trouble and a small cost for the necessary apparatus.

The easiest way is to have two skim milk tanks, tin lined, and have one of them cleaned out every day. This will give sweet skim milk, except in the very hottest weather. A better way is to have the milk pasteurized by means of the waste steam, but if this last method is used, care must be taken either to cool the milk that is to be left in the tank over night or to jacket the tank so that the temperature will not fall below 120° F. otherwise the milk will rapidly cool to abont 100° F. and sour with great rapidity. Whereas, if it is cooled to 60° F. or kept hot it will remain sweet.

Wood ashes are not a good absorbent for the stable. Besides being caustic when they are wet they are apt to cause loss of nitrogen by driving off the ammonia. Bedding, dry peat or a mixture of road dirt and land plaster are better.

AN IOWA CASE.

Will you kindly give me a ration from the following feeds? I feed for butter. Cows are Jerseys; weigh about 700 to 850 pounds:

Ground corn, $10.50 per ton; bran, $10.00 per ton; ground oats, $13.50 per ton; bright oat straw, bright corn fodder cut in length about two inches. (Don't know cost or value.) Are raised on the farm.

Has sorghum cane, sowed in June and cut in October, much feeding value? If so, what as compared with corn fodder? F. S.

Polk, Iowa.

It is simply impossible to make a satisfactory ration from the feeds named. The nearest approach to it would be 10 pounds oat straw, 10 pounds corn stover and 15 pounds bran; and these small cows could not take care of so much. With such roughage, one needs some oil meal—not less than a pound daily for each cow—and some gluten feed, say 4 pounds, and about 5 pounds bran. If the cows are worth keeping at all—and being Jerseys the presumptions are all in their favor—it will pay to feed them as dairy cows ought to be fed.

If the sorghum hay did not get frosted, it will make very good feed, probably considerably better than ordinary corn stover.

JUDGING CALVES.—THE DAIRYMAN HELPS TO SECURE FIRST PREMIUM ON BUTTER.

I enclose, herewith, one dollar to pay for paper for the coming year.

I was glad to receive cards to distribute, and hope some of the recipients have returned them. I think I can distribute a few more to your advantage.

I look for the DAIRYMAN weekly, as it is a great help to me.

Last spring I wrote you in regard to some trouble with cream and last week I took first premium on butter at three combined county fairs.

I would like to ask about raising calves. Cows are mostly ordinary stock. Bull is a good registered Guernsey. I want to raise best heifers. What are the good points you look for, and what defects in a calf will cause you to kill her?

You say a bull should have well placed rudimentary teats; how far apart do you want them? G. D. S.

Holyoke, Mass.

The DAIRYMAN is gratified that this friend and many others have so good an opinion of it, as to be willing to aid in its increased circulation. The extra cards have been sent. It is also pleased to learn that its advice in the case referred to proved so satistactory. This is by no means an isolated instance, but it happens to be in a line not so frequently mentioned, and attests to the wide and diversified merit of the paper.

We would judge a calf by much the same "points" that we apply to the mature animal, making allowance of course for the changes incident to growth. There are those who insist that the mouth of the calf is an index of its future constitution, and refuse to raise those not having a full and well developed set of teeth. We would not go quite to this length with a calf whose breeding promised special excellence, but would rely upon extra care to overcome the pre-natal defects. We like to see the arching flank, the the thin incurving thigh, and well placed teats, even in the young calf.

The rudimentary teats in the bull should be three to four inches apart, and a half inch or more long.

STATE VETERINARIAN'S SERVICES.

A Wisconsin reader asks how the State Veterinarian may be had to examine cattle in his neighborhood, that give indications of tuberculosis, and what expense, if any, attends such official inspections. As we are unable to give full particulars, we advise writing to that officer direct, Dr. H. P. Clute, Marinette, Wis.

MILK FORMING TOO EARLY.

I have a registered cow that will calve in December, 3-year-old and has one teat that gives just a little milk out of it. She is a very rich milker. The teat never had any thing the matter with it J.

San Antonio, Texas.

This is not a very uncommon occurrence. Unless the udder enlarges quite considerably do nothing, but if it becomes too much swollen and tender withdraw the milk.

WHAT IS A 14-POUND COW WORTH?

I am surprised that any one would send my name to you as one interested in the dairy business. I bought a cow a short time ago because the party represented that she would make fourteen pounds of butter a week. I tested her today and am satisfied with the result. What is such a cow worth when seven years old, and has never been dry since her first calf? My wife thinks that we could get the twenty-five cents worth from the paper, so I enclose you that amount on a trial subscription. H. M.

Leavenworth, Ind.

We think you have a bargain in the cow, regardless of the probable price paid and that you have a wife of excellent judgment, whose advice is worth following in many particulars.

The value of a cow that will make fourteen pounds of butter a week compared with that of one which will make only seven pounds a week, can be estimated in a way from the following figures:

Suppose the food cost of simple maintenance in either case is eight cents per day, and that it requires in addition eight cents worth of feed to make a pound of butter. The seven-pound cow would consume $1.12 worth of feed in a week and the fourteen-pound cow $1.68 worth. At twenty-two cents per pound for butter the respective incomes would be $1.54 and $3.08 and the net profits forty-two cents and $1.40 respectively, or practically $1.00 per week in favor of the fourteen-pound cow. This difference would not continue throughout the season, but is quite safe to estimate it at $30 for the year. A cow seven years old is good for at least five years more of service, and on the foregoing basis, if the seven-pound cow is worth $50 the fourteen-pound cow is worth $165. In order to refund the purchase price and six per cent annual interest thereon, the first cow must return an annual net profit of $13 and the second cow an annual net profit of $42.90.

A WELL STATED OHIO FEEDING PROBLEM.

Would you please make me a balanced ration out of some of the following feeds: Wheat bran, $15 per ton; corn bran, $13 per ton; oil meal, $24 per ton; Quarker Oat Feed, $15 per ton; sugar feed, $14.20 per ton; corn and cob meal, $12 per ton; ground oats, $18 per ton.

I have plenty of corn stover and clover hay for roughage, but my hay is not first-class. The balance of my feed, with the exception of corn and cob meal, I have to buy. Sugar feed is a very popular feed with dairymen here. It is a by-product of a glucose factory. So I want as cheap a ration as is consistent with good results.

Which is the best way to feed, wet or dry? Dairymen here, claim that they get the best results by feeding wet feed. Would it not be best to run the stover and hay through a feed cutter, and mix with ground feed and then scald thoroughly? Would it pay me to buy malt from the brewery at eight cents per bushel? I would have to take the same amount every day in a year.

I have been a subscriber of your paper for several years, and find it full of practical dairy knowledge. W. C. W.

Dayton, Ohio.

We have discussed the wetting of feed in reply to an inquiry from Leadville, Colorado. With plenty of water, not too cold, and convenient of access, and opportunity for each cow to drink without fear of molestation, we have never observed any benefit to result from wetting the feed—except as it may be desirable in case of mixing the grain with dry chaffed fodder, in order to prevent its sifting through.

Wet brewers grains are an excellent feed when strictly fresh, provided they are stored and fed in water tight compartments, but if the water is permitted to drain from them through the floors, they are liable to make breeding places for undesirable bacteria. Their feeding value per ton is somewhat less than one-third that of bran. Sugar feed is the same as gluten feed, and if of good quality deserves its popularity. It is much the cheapest of the several grain feeds named.

We, therefore, recommend as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay....	10.16	.82	4.30	.20
10 lbs. corn stover....	5 95	.17	3.24	.07
5 lbs. corn and cob meal.....	4.45	.32	3.15	.18
5 lbs. sugar feed.....	4.61	1.02	2.42	.20
Totals.....	25.17	2.33	13.11	.65

We have estimated the clover hay as damaged 20%. We always advise chaffing (cutting) a part of the roughage where this is practicable, and in the case of corn stover, dampening it sufficiently to cause it to heat and soften somewhat. In such cases use about equal parts by weight of the cut fodder and grain. Feed some of the forage without cutting.

COST OF KEEPING STOCK OF DIFFERENT AGES.

Enclosed please find $2 for Prof. W. A. Henry's Book, "Feeds & Feeding." I want to know, along with a great many other things, how much does it cost a week to keep a yearling, a two-year-old, and a dry cow in good growing condition in winter quarters. I presume I will find out all about it in the book. R. M. B.

West Springfield, Mass.

The book has been sent as ordered, but we have some fear about Mr. B.'s finding the specific information he seeks, but he will find a full discussion of the various conditions which enter into the problem, and by applying the information thus obtained, learn to select feed stuffs with discrimination, being guided by their relative feeding and market values.

The tables reproduced in full on page 636-7 in Prof. Henry's book, make the following estimate of digestible nutrients required per day and per one thousand pounds live weight to maintain weight in case of mature animals and provide for growth with those that have not reached maturity:

	Protein lbs.	*Carbohydrates lbs.*	*Fat lbs.*
Mature Animals...	0.7	8.0	0.1
Cattle 12 to 18 mos.	2.0	13.0	0.5
Cattle 18 to 24 mos.	1.6	12.0	0.4

If a yearling weighed 500 lbs. it would (theoretically) require one-half of the amounts specified above, or 1 lb. digestible protein, 6½ lbs. digestible carbohydrates and 2½ lbs. fat (ether extract). This is a trifle more than is found in 10 lbs. of good clover hay or in 8 lbs. timothy and 2 lbs. bran.

The Winter Calf.

ED. HOARD'S DAIRYMAN:—It is getting to be very commonly the practice among dairymen and farmers to have a portion of their cows come fresh in the fall. The care of the young calves at this time and during the succeeding months is a point of considerable importance; since upon it depends, to a great extent, the future usefulness of the animal.

In the first place the dairyman should depend upon the female increase to keep up his herd; consequently he must use all precaution and spare no effort to make the very best possible cows of the young things. It is taken for granted that he is using a thoroughbred sire, and in this way striving, with the aid of judicious selection, to raise the average yield per cow from year to year.

In raising calves, as in most other things, much depends upon getting the right start, and a calf of superior excellence may be made an inferior cow, solely by wrong treatment during the first few months of its life.

To begin at the beginning, the calf should be removed from its mother as soon as possible after its birth. In this way there is less grieving at the separation on the part of the cow, and also the young thing more readily takes to its food, in other than the natural way.

A well littered, roomy stall is the best place for the calf, which should always be by itself, not allowing two to occupy the same stall. Teach it to drink by placing the milk, fresh from its mother's udder, in a shallow vessel, and with the tips of the fingers on its nose. By gentle pressure it will not be difficult to direct its attention to the warm milk. Usually it is not necessary to allow the calf to suck the fingers at all, although there is great difference in animals in this respect. Some are quick to learn, others dull and stupid.

However, no one ever gained anything by losing patience with a calf when teaching it to drink. The utmost kindness should ever prevail; any other is brutal in the extreme, considering the extreme helplessness of the animal.

Only new milk should be given for the first week or ten days, then gradually add sweet skimmed milk to this, until at the end of two weeks, only skim milk is given. This should be always blood warm, never too warm nor too cold. Too hot or scalded milk invites constipation, while that which is too cold is apt to cause diarrhœa.

The quantity must be gauged according to the size and age of the calf. The particular breed may have nothing to do with this question of how much to feed, but I have found that a Jersey or Guernsey does not require (nor is it advisable to give) so much milk as a Durham. Feed three times a day, two or three quarts at a time, increasing the amount as the calf grows.

Watch carefully for indications of diarrhœa, which is sometimes brought on by over feeding of milk. Keep bright clover hay in a manger before it after the animal is two weeks old. It is surprising how soon they will begin to nibble at it. This should be turned over every day, or thrown out to other stock and fresh put in its place.

The question of grain for calves is one upon which all do not agree. It has been our practice for a number of years to begin feeding dry bran early, and we believe it pays so to do. Ground oats is an excellent food for all young animals, and where it is more convenient this may be fed instead of the bran. Either should be fed dry and not put into the milk. The action of the saliva upon the grain is essential and this is missing when it is taken with the milk. I knew of one man who fed whole oats in the milk. It ought not to require a very great degree of intelligence to decide that this is a bad practice since the grain would be swallowed whole, not masticated at all. Salt should be supplied to calves. They crave this. In cases where the boards of the stall are gnawed and licked by the animal it is traceable to the want of salt. I have seen boards eaten entirely through in this way. One feature of the care of the winter calf very frequently neglected is cleanliness of its quarters. A good dry bed is essential to thrift, and a calf cannot thrive in a vile, filthy place. Especial care is required while it is quite young and the droppings soft and watery. The pen should be cleaned out and well littered at least every other day, oftener if necessary, and the air kept pure and sweet. With abundance of straw at hand it is nothing unusual to find calves, pigs, etc., wallowing in filthy pens while ten minutes work would make everything neat and clean.

This same straw stack may be drawn upon to make the place warm. If not already comfortable pack with straw around the sides. This inexpensive material shuts out cold exceedingly well, and may well be employed in many instances. At any cost do not allow your animals to go cold and shivering. Under such circumstances they cannot grow as they otherwise would.

A calf dropped in autumn or winter, in nine cases out of ten, is in far better condition at the end of six months than one born in spring or summer.

The object in view is to keep them growing steadily. As they grow, increase the feed, giving clover hay or corn fodder, (well cured) all they will eat. I have had six months' old calves eat cut corn fodder greedily. They need plenty of roughage, and it is not considered best to allow the future dairy animal to become very fat. Indeed, this is detrimental to best results. Rather a good, muscular development than fat.

For this reason, skim milk is better than whole milk. It is not an animal fit for the butcher's block that we want, but one with paunch well developed. I have long since ceased to be ashamed of a "pot-bellied" Jersey heifer calf.

Now, just a word concerning dainty and delicate animals. There are sometimes such calves born. Every dairyman knows the difference between the hungry calf and the one that never cares whether it eats or not. My experience with these has been such that I believe it rarely pays to bother with them. Better kill them at once than try to keep them. The chances are it will be time thrown away to fuss with them. If they live they will not amount to very much, since a dainty calf is quite likely to be a dainty cow, and we only want those that have the appetite of a goat or a school boy.

It is sometimes a question to know what to do with the male calves. If of the dairy breeds, no one wants them for beef, at least, the butchers are not hankering for such animals. If they are fed grain in connection with skim milk until two, three, or four months old, they make very nice eating for the farmers' family. They will be found fat enough; and while not like veal, exactly, the meat is very sweet and tender. We call it baby beef, and never have the least trouble in disposing of them in a big family like that usually found in the farm home.

Michigan. W. C. ROCKWOOD.

Why Do We Keep Cows?

ED. HOARD'S DAIRYMAN:—In this portion of New York the farmers might well pause and ask themselves this question. Nearly all are producing milk for the New York city market at the present time for only one and two-fifths cents per quart, and this too in a year of unparelleled drouth when cows have had to be fed ten months out of twelve if kept at even a moderate flow of milk.

A general impression seems to prevail that nothing else can be done except to continue to suppy the city dealers with milk and take whatever they chose to give, although many have been raising calves which will result in a loss fully as serious as the selling of milk, because the selling price when marketed will not equal the cost, as the breeding and feeding are such that will produce inferior animals.

One dairy here is composed of mostly high grade Holsteins, and some of them with proper care and feeding would give from twenty to thirty quarts per day, but under the present system of feeding, give only from eight to twelve. They must be cut off in feed supply because not enough has been raised to carry them through the winter. Better dispose of part of them at a great sacrifice, and feed the remainder for a profit, than to keep them all only on a maintenance ration.

Some of these are lately fresh and others soon will be, but the same mistake of last year will be repeated in allowing them to shrink less than one-half of their capacity by withholding feed.

Corn for silage is usually planted here, thick, in rows three feet apart, and usually a large crop of fodder is produced on an acre, but being so thick not enough of sunshine is stored in the plant to make a very desirable feed, it being immature and "washy" even if the kernels are glazed. I picked up a piece of an ear last winter and when dried the juice of the kernel all evaporated and left nothing but chaff.

Corn is a semi-tropical plant and needs warmth and sunshine, but the farmers here are slow to learn, although farmers' institutes are held in nearly every community. I planted twenty-five acres of "Pride of the North" for silage, putting the rows three feet and eight inches apart and planting much thinner in the row. The result is, I had not so great a quantity of fodder per acre as though it had been thicker, but I had corn that would yield about thirty-five bushels shelled corn per acre and matured sufficiently to make a cow feel as though she had more than husks to feed on, and if such feed could be supplemented with some nitrogenous food their owners' pocket book would be filled to repletion, but the contrast between the Wisconsin and Iowa dairymen and the general eastern dairyman is exceedingly great, so much, so that one would not think they were working for the same result. F. C. J.

Conklin, N. Y.

Hot Water at the Barn.

ED. HOARD'S DAIRYMAN:—That is a heading probably never before seen in a dairy or agricultural paper. That is the next improvement to come, and for myself I have concluded to have it the coming winter and heat the water with a tank heater, now in general use.

Those cylindrical tank heaters were sold to the farmers for sixteen dollars each, when the cost of manufacture was less than five dollars. The inventor got eleven dollars for his patent and was contented to put the money in his pocket without perfecting the invention. I have used one of these heaters ten years, and for the last five, have been trying to find some way to warm milk and other feed for calves and hogs to 100° F. Drinking water for the cows is usually kept at about 60° F. We have had trouble enough carrying milk into the house to warm. When a man returns for it in a half an hour, he will find it cold or nearly boiling hot. Now I will warm it at the barn and know it will be just warm enough whether it stays there half an hour or an hour.

In five minutes, I can raise the temperature of drinking water from 32° to 60°.

I shall pump into my stable with the same pump either hot or cold water or a mixture of the two. This hot water I want in the stable for wetting bran. I consider bran worth twice as much wet as dry—in other words, a man will get as much for his money if he feeds wet bran that cost him twelve dollars per ton as to feed dry bran at six dollars per ton. Every farmer and every farmer's wife will be glad to see the old system of warming milk over the kitchen stove abolished, whatever may be the general opinion about feeding wet bran.

With eight quarts of wet bran once a day and four quarts of whole oats once, there will be no clogging in the manifolds, but both will have a tendency to move through the stomach easily and keep the bowels loose—a very important thing for a dairy cow. A spoonful of salt should be mixed with the bran.

The cost of making the change so to warm the milk by the tank heater, may be from $2 to $3, with scarcely any additional cost for fuel.

The inventor of our tank heaters did not have them to clean, or he would have left them in better shape for cleaning. We have burned coal and cleaned out the ashes once a week, and then had the trouble of starting a new fire by using wood. The fire is raised a little higher each day by the accumulation of cinders and ashes, until the fire is so high the last day, that the water is warmed but little.

Now there will be a change and the heater will be cleaned every other day in less than two minutes, without putting out the fire. This will avoid a very dirty disagreeable job, which we have had every week all winter. The cost of making the change in the heater will be about $1.50.

With warm water, warm bran, warm ensilage and warm stables, we can get very near summer conditions, with flies and intense heat left out. With ice water, frozen ensilage, cold barns at night, and an open yard for the day, we get to the other extreme where cows must be unprofitable. My neighbors fed frozen ensilage during the severe weather of last February, while I am perhaps the only man in the northern states feeding ensilage at 90° at the same time.

Oconomowoc, Wis. N. B. WHITE.

"You Never Miss the Water Till the Well Runs Dry."

So it is with health; we never realize its value until it is gone. When old time strength and vigor are wanting it is the best to look at once to the blood. Purify it by taking Hood's Sarsaparilla, and restored appetite, perfect digestion, steady nerves and even temper will prove that it is bringing back the glow of perfect health.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Feeding Problem in New York.

ED. HOARD'S DAIRYMAN:—The hay crop in this section, owing to the drouth, was very light. Many farmers around here will be short of dry fodder. In our case we have thirty-three head of cattle, sixteen calves and three horses which we would like to get through the winter in good shape. About twenty-five of the cows will be giving milk; however, of that number only five or six will be fresh before February. About fifteen of them will be milked right through the winter.

We have about forty tons of timothy hay, 100 tons corn silage, 200 bushels of oats, forty bushels wheat, about five tons of bran and about what straw we need for bedding. Bran is worth $17 per ton. Middlings, and gluten feed each about $19 per ton, corn meal about $18. Cotton-seed meal isn't used or sold here and I haven't looked up the price in car lots. Milk is now netting us in the factory about $1.13 per cwt. We want to get as much milk as we can from our cows both on account of the price and the added fact that many of them are heifers. Hay is worth about $10 in the stack or $12 delivered. Straw is worth $5 and $6.

One other fact: We have owned this farm only about eight months. It has been used as a "hay farm" for the past five or six years. The liquid manure has never been saved. We desire to increase the productiveness of the soil very largely.

Now the question is, what would you advise us to do? What feed or feeds would you advise us to buy and in approximately what quantities? And will you give us a balanced ration? We take our milk to the

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on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons. Made by STANDARD OIL CO.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

factory till about the middle of November, then we go to a creamery through the winter. We have seven cows that will average in weight about 1050 pounds. Our heifers are grade Ayrshires and will average about 900 pounds. Our calves are registered Ayrshires.

The cattle will be given close and careful attention throughout the winter. They will be well housed and our water supply will be so arranged that we can water either indoors or outdoors as the weather may warrant. The chill will be taken out of the water before being given to the stock. I think I have given you the main points and if you will accomodate me with an answer I shall deem it a very great favor. G. E. P.

St. Lawrence Co, N. Y.

Without attempting to be exact, we estimate that G. E. P. will feed as an average about twenty cows in milk and that the calves and remaining cows will be equivalent to about twenty dry cows. The feeding period will be about 200 days. We would reserve the oats for the horses and exchange the wheat for good straw and feed that to horses. Cotton seed meal can probably be bought delivered for about $23, and at that price it will pay to feed it as liberally as consistent, both for its nutritive effect and the residual fertilizing elements. Take the litter and manure from the horse stable and spread in the gutters behind the cows to absorb the liquids. Also buy a few barrels of land plaster and use from a pint to a quart in the stable for each animal every day. This will fix the ammonia in the manure and thus conserve its value as well as add to the healthfulness of the stable.

We cannot give a formula adapted for cows in all the different stages of lactation but the following will serve fairly well for cows in full flow of milk, and as they commence to shrink decrease the amount proportionately:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. hay	8.68	.28	4.34	.14
5 lbs. bran	4.41	.63	1.93	.15
3 lbs. ground corn	2.67	.24	2.00	.13
2 lbs. C. S. meal	1.84	.74	.34	.18
Totals	24.20	2.22	12.11	.78

This will take half the hay and half the silage, and the remainder will very nearly take the dry cows and calves through the winter, Perhaps they will need a little grain, but not very much.

New York Farm and Dairy Notes.

ED. HOARD'S DAIRYMAN:—We have three creameries in our town. Until two years ago there were only two, one milk shipping creamery, and one which makes cheese. Some of the patrons became dissatisfied with the prices paid, and were induced by some Elgin creamery builders to form a stock company that would buy the creamery they wished to build, and run it on the co-operative plan. Stock was issued and sold to the amount of $6,000. This was probably between one and two thousand dollars more than the creamery cost, but the stock owners preferred to pay the Elgin builders this large profit, than to build the creamery themselves, and save it. This creamery is making Elgin creamery butter, the milk shipping creamery mentioned is supplying a milk route in New York City with bottled milk and cream, and the other creamery makes mostly cheese. The two latter are owned by individuals who buy the milk and pay one-half a cent less than the New York price.

The average price for the year is not over two cents per quart. The question which our people are trying to answer, is, whether a co-operative creamery can make butter and sell it at a price that will pay its owners better than selling milk for the prices paid at the other creameries. The patrons of the co-operative creamery receive back their skim milk, and counting the value of this, I think there is but little difference in what has been realized by the patrons of the three creameries for their milk.

PROFIT IN A SMALL DAIRY.

I know a man who has a position where he earns good wages all the year. A few years ago he bought a small farm near the village where he works. This farm he is paying for with his savings. A few good cows are kept, which are mostly cared for by the wife and children. Very fine butter is made, which is put up in prints. They have established a trade for this butter in the village, and are not able to supply the demand for it, at a price considerably above the general market. The skim milk is fed to hens, which add something to the income of the farm. But little work is done on the farm, except to cut the hay, and care for the cows. The family are all working together to pay for the farm, and all have something to do, and are encouraged in their work by the prospect of owning their little farm home, where they can live very comfortably and save some money, with the income of the little dairy to add to the wages earned by the man.

Probably there are other wage earners, who having a salary they can depend upon, would be encouraged to save money to buy and pay for a home, if similarly situated. If the right kind of a man goes in debt for such property, it may be the best thing he can do, for if he was not in debt, he would have less inducement to save money. If a poor man has a wife and children who are willing to work and help him, a little farm like the one mentioned gives them the opportunity, and children living in or near a village are much better off for having work of this kind to do. Instead of spending their time on the street, and getting the education of the street, they can be made to become interested in the farm, and learn many things of use to them.

SOME COMPENSATION IN FARM LIFE.

The most of the farmers I meet are dissatisfied. They complain that they can only just make a living and work hard and practice close economy. These people do not seem to realize that the poor man, who works for other people for wages, or the man with the small capital, who is engaged in trade, are engaged in a harder struggle for a living than most farmers. I know people, who had some money invested in farms, because they could only just make a living, became discouraged, and finally gave up their farms. Some of them moved to the village, rented houses, are now trying to support their families by working by day's works, wherever they can get work to do.

I think if I was on a farm and had some money invested in it, that I would make a strong effort to pay for the farm, which would make a home for me. There are some compensations in farm life, which are not always sufficiently appreciated by the farmer. He works for himself, and can plan the work as he chooses. He can work hard when he wishes, or rest when he needs to, instead of working under a boss, as the most of the wage earners do.

The man, who works for others, may at any time lose his job, and his wages stop until he can find another, and soliciting work is not very pleasant for many people. The fruit and vegetables he can grow, will make a large part of his living, and these need to cost him but little. He can plant trees and vines to embelish the grounds about his residence, which need to cost him but little, besides his own labor. As the years go by, he can add improvements as he can afford, and these he will appreciate more because of the personal effort he makes to get them.

We value things according to their cost to us. If a man builds up and improves a farm by his own labor, he appreciates what he has acquired far more than if some one else had done the work, and he had bought the farm with all the improvements on it. When a man plans improvements on a farm according to his own ideas, and then works out his plans, a part of the individuality of the man goes into the farm, and the farm reveals, to a large extent, the character of the man. A man engaged in this work, not only may improve and build up a farm, but the efforts he makes develops a stronger and better character in the man. With the great majority of people, the conditions of life are not easy, and with increasing competition, the struggle is growing more intense, and on this earth, I believe there is no better place for a man, whose tastes and abilities adapt him to the work, than on the farm. W. J.

Delaware Co., N. Y.

Remedies for Lice on Live Stock.

1. Mercurial ointment, diluted with a little oil, is very effective on horses and pigs. It is applied in small quantities to the affected parts only. It must not be used on cattle.

2. A tobacco decoction (one pound tobacco and three gallons boiling water, allow to stand for half an hour), with or without the addition of two pints of vinegar, is very effective, but often produces nausea in horses and cattle.

3. Five per cent solutions (three teaspoonful to a pint) of creolin or lysol, in water containing 20% of alcohol well rubbed in with a stiff brush, is very effective.

4. Kerosene emulsion.

5. For hogs, kerosene.—*Southern Planter.*

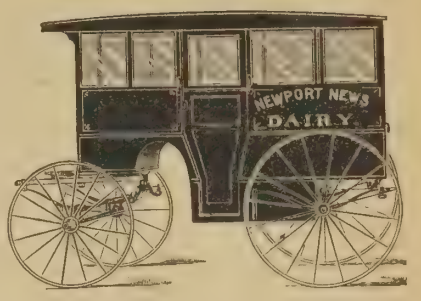
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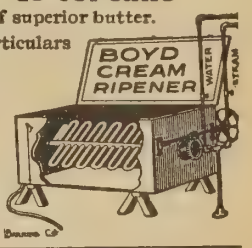
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Chillicothe, Ohio.

BOYD CREAM RIPENERS stand ready **to aid you to fortune** with ame as a maker of superior butter.

Write for full particulars at once.

CORNISH & COMPANY,
ST. PAUL, MINN.
Creamery Machinery, Sharples Improved Separators.



AGENTS WANTED. All Inquiries Answered.



THE BEST FOR THE DAIRY, be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

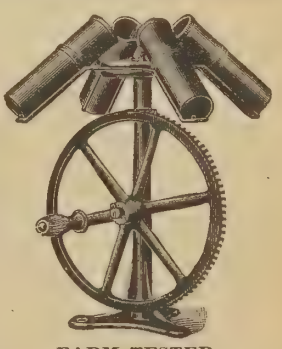
"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,
42 Concord Street, Lansing, Mich.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

DAIRY MARKETS.

The present phenomenal rise in the prices of cheese, especially in the New York markets, is a clear illustration of the corresponding rise in the food consuming power of the American people when a period of prosperity is upon them. The present price of 12 cents a pound for New York cheese, so a prominent buyer in the East informed us recently, has been brought about almost wholly by the home demand. Much of the eastern cheese has been bought upon Chicago and other western orders.

As the people grow prosperous and wealthy they consume all the more of the best of dairy products. Still there is a point in price beyond which the demand will not go and we fear the cheese market is close to that margin.

The price of butter is well up for this time of year, but is not, however, excessively high, though relatively lower than that of cheese. The milk that will make a pound of butter will make two and a half pounds of cheese. At that ratio, when cheese is 12 cents, butter should stand at 30 cents. There is, however, with butter to be considered, the double value at least of the skim milk as a by-product over that of whey, so that the skillful farmer gets as good a return in the end from butter as he does from cheese. In addition, the skim milk enables him to carry a much larger number of young cattle and thus increases the fertility of his farm.

One important lesson to be learned from the present condition in the market for dairy products is, that all this much feared over production has not yet appeared.

Those farmers who have hesitated to go into dairying, or being in, have hesitated about making much needed improvements on their farms or buildings or cattle, can see, if they will look, that there is yet a strong and vital demand ahead of them for all the good thinking and working in this line they can summon.

We are yet a long way off from a condition of the market demand for *good* butter and cheese, when it will not pay a handsome profit to produce the same, provided, always, that we use the best modern intelligence in doing it. To be a clear minded, economic producer and handler of good cows and their product is about as sure a way to make good profit as any business that is going.

Several Difficult New York Questions.

And Not Very Satisfactory Answers.

ED. HOARD'S DAIRYMAN:—The answers to the questions from your subscribers which appear from week to week are so instructive that I am going to ask for a few helpful suggestions myself. I have a herd of registered Jerseys, thirty aged cows, fifteen two-year-old and yearling heifers and a couple of bulls. They were purchased with regard to their milking qualities as well as richness and represent several of the very best families—Exiles, King of St. Lamberts, Ida's Rioters, Combinations, and Golden Lads, "close up."

I have built a modern sanitary barn,—cement floors—fitted with water basins, Newton ties, and having weighing room, etc., twin silos, separator, Babcock tester.

Wash room has stone tubs, boiler for heating water and steam box, and bottling cellar has large refrigerator for storing the aerated milk until it is loaded on wagons to be delivered in the village—six miles from farm—at six cents per quart. We make and sell at present 172 quarts and that is not far from the average for past year.

The farm contains seventy-six acres, about forty of which are tillable, and I rent a farm adjoining of forty acres, twenty-five of which are capable of cultivation. We practice soiling, and grow cow peas, soja beans, mangels, barley, rye, oats and peas, millet and a little clover. No grass lands or pasture.

Now as to present prices: Timothy hay (for horses) is worth $22 delivered; clover from western part of state, $16 and scarce; bran, $19; oats, $26.25; middlings, $21; linseed, $35; cotton seed meal, $26.50; corn fodder is three cents a "stout" (weighing from six to nine pounds.)

The village where we retail our milk has a population of about five thousand, and eighteen "milkmen" compete for the patronage. Some of the milk peddled there only brings four cents, but we get six owing to superior quality, bottling and icing it.

Now what I want very much to know is, how many "help" to employ to handle this business at a profit, what duties each should perform and what feeds to grow and which to purchase. I can and do give my personal supervision, and a lot of hard work besides, but the result is not very satisfactory. Had I better turn the management over to a farm manager? Please give me as explicit directions as space will permit and everlastingly oblige. A NEW DAIRYMAN.

Rockland Co., N. Y.

At the prices named for feed and the price received for milk, we confess our inability to see much chance for profit. The former are much too high and the latter too low for the quality of milk furnished and the care bestowed upon it.

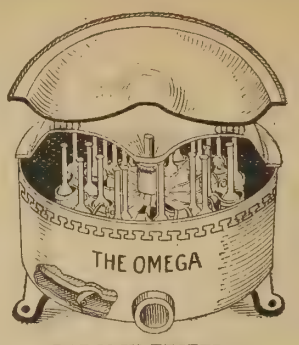
Such milk should find customers willing to pay at least ten cents per quart, and in many cities would be eagerly sought for at that price.

From the circumstance that corn fodder (stover) can be had, we assume that our inquirer can raise corn, and, if so, it should be in the form of silage his main reliance for fodder in the future, both for summer and winter. For the forty-seven animals this would require not far from 350 tons, which should be grown on twenty-five acres or less of ground. Soja beans, or cow peas may probably be grown with the corn and siloed with it. Crimson clover should be sown at the time of the last cultivation, and be plowed under the next spring as a fertilizer. Incidentally it may furnish some feed. The balance of the tillable land, after reserving garden and truck patches, may be divided between oats and clover—the clover to furnish hay and the oats to exchange for cheaper feed that will answer as good if not a better purpose. The rotation will be corn, oats, clover, with a portion of land in corn, two years.

We are inclined to protest somewhat mildly, against the questions about help. We suppose it will largely occupy the time of, at least, two men to assist with the milking and care of milk utensils, and care and delivery of the milk, and it is somewhat doubtful whether one other man and the proprietor, although he may do a "lot of hard work," can work the land as intensively as it ought to be worked. It certainly will be necessary at times, to have additional help.

We cannot offer any suggestions in regard to the advisability of getting a "farm manager," except to say there are pleasures and benefits in managing one's own business which cannot be measured in dollars and cents.

The cows do not seem to have been doing very well, as the average yield, with thirty cows giving milk, would be less than thirteen pounds daily, or but little more than half what it should be. It may be that they have not been profitably fed. We suggest that such of them as are fresh, or nearly so, be gradually brought to a ration, composed, say, of 10 pounds clover hay, 10 pounds corn stover, 6 pounds bran and 2 pounds cotton seed meal.



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Creamery Apparatus,
Pasteurizers, Milk Weighers and Alpha Cream Separators, write to
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229 S. Water St., CHICAGO.
Refrigerating Machines for Creameries, Meat Markets, Hotels and Ice Making Plants.

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You will find this cooker by far the most satisfactory *in every way*. Absoutely full measure—(50 gallon size *not* stamped "70 gallons"); one-half cheaper than any other; simplest; lasts for generations; quickest in heating; most economical of fuel; coal or wood; 7 sizes, 15 to 70 gallons. Send for circular. *Money back if not satisfactory.*
Direct from factory to farmer. HEESEN BROS. & CO., 26 High St., Tecumseh, Mich.

I Can Sell Your Farm
no matter where located. Send description and selling price, and learn my successful plan. W. M. OSTRANDER, 1215 Filbert St, Phila., Pa.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Fairview Farm
GUERNSEYS
FOR SALE.
YOUNG BULLS, some old enough for service. Address, C. W. WILCOX, Des Moines, Iowa.

Riverside Guernseys.
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

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GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
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"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** Farm Supt., Madison, N. J.

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84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM, Rhinecliff, N. Y.

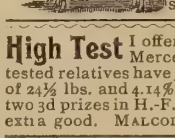
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Our system of teaching by mail will give any boy a technical education. Write for pamphlet and state what you wish to study.
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Thirty head of registered Holstein-Friesians, all females except the bull at the head of herd, for sale on easy terms on five years' time if desired, with equal annual payments at 5 per cent interest, or will rent herd to responsible and experienced parties. Correspondence solicited.
ALPHEUS M. SMITH,
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HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the grand young bull Prince Mercedes DeKol, whose 4 nearest tested relatives have an average equivalent record of 24½ lbs. and 4.14% fat, and have won 1st, 2d, and two 3d prizes in H.-F. Offic'l Prize Contests. Others extra good. MALCOLM H. GARDNER, Darien, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis

DE KOL'S BUTTER BOY No. 19210.
Son of the great DeKol, and Royal Paul No. 22979. Combining the blood of Pauline Paul, Pietertje 2nd, Koningen Van Friesland 5th and DeKol in one sire, head our choice herd of over 100 Holsteins. Sons ready for service, and heavy milking cows bred to them, for sale. Write now to **Dellhurst Farms,** Mentor, O.

READY NOW
A few cheice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

MEADOW LAWN HERD Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

15 CHOICE DAIRY Cows must be sold by November 3d. Five registered Holstein-Friesian cows and ten high grades, ¾ Holstein blood and better. Great producers. Rich breeding. All cows bred to a son of the $1,000 bull Netherland Carl, and almost full brother to the sweepstakes bull at Trans-Mississippi Exposition, 1898. Intelligent dairymen will find them a great bargain at the price they are offered. Write to-day for full particulars. **KARLEN & CO.,** Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

Seeding for Vetches.

Our favorite mixture for green fodder is, as every reader of the journal knows, two bushels of vetches, one of peas and one of oats; the cutting to begin as soon as the peas and tares are showing for bloom, and the land, immediately after the crop is finished, to be broken up and sown with rape. Of course, this green fodder is to be sown in successional patches, and is intended for spring seeding. If, however, the "climate conditions" of NewYork will admit of winter-vetches doing well, we should recommend two and one-half bushels of vetches to one bushel of wheat.

So much superior is the quality of the winter-vetch fodder to that of the larger vetch, that is the spring kind, that many of our best East of England farmers sow the winter kind in the spring.

By the time the vetches sown with rye are fit for cattle-food, the rye will be advanced in life and too sticky to be pleasant eating. People, who have been in London in the early spring, will say: Oh, but I saw carts loaded with green rye and tares (vetches) and the men were peddling the bundles out at the "mews;" true enough, but they are only used as a bonne bouche for the horses, not by any means as a standby, and the horses, tired of their long winter's dry food, find them an agreeable laxative, for this fodder is cut in its earliest green state, and a full meal would soon produce a too relaxed state of the bowels.

As to the large seeding we recommend, it must be remembered that the spring vetch is one-third larger than the winter vetch. One thing is certain, at least to our mind: If you want quick growth of green fodder, you must sow thickly.

In putting in the seed of vetches, the best plan is to use a drill, and to bury the winter mixture of vetches and wheat three inches deep, while two inches will be enough for the spring pulse and tares. Sow the first patch in spring as soon as the snow is gone; the next three weeks after the first, and the third fifteen days after the second sowing. Roll the winter sowing as soon as the ground is dry enough, and the spring and summer sowings as soon as the plant is up.—*Journal of Agriculture.*

Feeding Pumpkins to Dairy Cows.

We find prejudices for and against feeding pumpkins to dairy cows. One man says it will dry up the cows; another man says that it will be all right if the seeds are taken out. But from experience the writer is satisfied that it is a question of cow characteristics rather than pumpkin characteristics. He once tried the experiment of feeding pumpkins to one of his best cows—a milking Durham. She was a perennial milker, in fact, under ordinary treatment she could not be dried up at all, even at calving time. But on being fed with pumpkins in large quantities, she began to fall off in milk, till she was nearly dry, at the same time putting on fat till she was plump and glossy. The pumpkins had to be discontinued for the sake of the milk pail. It was determined to use the pumpkins by feeding them to a poor scrawny cow, lately purchased. It was not doubted that fatness would result, as in the case of the first cow. But no; the more pumpkins she got the more milk she gave, and after several weeks of that kind of high feeding was as poor as ever, but had greatly increased her performance at the milk pail. One cannot, therefore, tell what the effect of feeding pumpkins is by their effect on one cow, or on a number of cows of the same strain of breeding. The owner of a herd of milking Short-horns might find the feeding of pumpkins very detrimental to the continuance of his milk supply, while the owner of a herd of Jerseys might find pumpkins conducive to increased milk production. Individuality counts. —*Farm, Field and Fireside.*

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—But 5,280 pounds of butter were offered for sale on Monday's Elgin Board of Trade. All bids were at 23 cents, but at the close of the call, 3,480 pounds were sold at 23½ cents, this being the only sale. The market was declared firm at 23½ cents. The sale made was:

	Pounds.	*Price.*
Red Clover	3,480	23½c.

The market for the corresponding week of the three preceding years, were as follows:

Oct. 24, '98, 16,500 pounds butter sold at 22 cents.
Oct. 25, '97, 18,840 pounds butter sold at 23 cents.
Oct. 26, '96, 86,460 pounds butter sold at 19@20c.

The New York market, Monday, was reported firm at 24 cents. H. C. B.

Elgin, Ill., Oct. 23.

CONCERNING OUR ADVERTISERS.

DAIRYMEN AND FARMERS

will rejoice to be informed that at last a reliable cure for abortion in cows has been discovered in Robert's Anti-Abortion Serum. It has the added merit of being easily administered. All interested are advised to write to Dr. D. Roberts, Veterinary Surgeon, Waukesha, Wisconsin, for proof of many cures, and full particulars as to prices, etc.

A VALUABLE BOOK ON STOCK PROTECTION, FREE.

The protection of his herds from contagious diseases, among which tuberculosis is chief, is the first duty of a stock raiser. A book that will enable a stockman to protect his stock, his family and the community has been published, and is sent free to anyone, on request, by H. K. Mulford Company, chemists, of Philadelphia and Chicago. This booklet contains simple directions for administering Tuberculin, the use of which is essential, in order to carry out the laws providing for the separation and destruction of infected cattle. This test infallibly gives notice when tuberculosis is present, even in its earliest stages, thus enabling an owner, by separating the infected animal, to preserve its fellows from destruction. There is no danger of producing tuberculosis by the use of Tuberculin. In cattle which are diseased no reaction is noted, and no harm follows.

ED. HOARD'S DAIRYMAN:—Among our recent sales we sold to Manuel Garcia Sedam, of La Piedad, Mexico, a very fine young herd of Jerseys, mostly St. Lamberts. They are the foundation for one of the finest herds in that country as he has spared no pains or money in selecting them. They were nearly all bred to St. Lambert, of Brodhead 46957, or daughters of his, whose breeding is unequaled as his pedigree will show.

We also sold to Mr. Peter S Johnston, of Sylvan, Wis., a valuable pair for a foundation. The bull is sired by St. Lambert of Brodhead and is out of Fannie Bugler 15962, who was in our herd until she was past eighteen years of age. She had a record of fifteen pounds, two ounces of butter in one week. She never had but three daughters and one did not live to be a cow. The others have both made tests, one nineteen pounds, eight ounces, and the other sixteen pounds, one ounce. The cow is also from our best strains of stock and Mr. Johnston will surely be heard from in the Jersey world later. N. N. PALMER & SON.

Brodhead, Wis.

DAIRY MARKETS.

ELGIN, Ill., Oct. 23—Offerings 88 tubs; 58 sold at 23½c. Committee reported market steady at 23½c.

CHICAGO, Ill., Oct. 23—Butter—Creamery, extras, 22c; firsts, 19@20c; seconds, 15½@16½c; dairies, selections, 19c; No. 1, 16c; No. 2, 15c; extra ladle, 14½@15c.

Cheese—Full cream, Twins, new, good to choice, 11¾@12c; Young Americas, 12@12¼c; Swiss, 10@13c; Limburger, 10@11½c; Bricks, 10@12c.

Eggs—City-candled, fresh, cases returned, 16½@17c.

Cattle—The run rather exceeded expectations, and the general market declined 5@10c. Eight loads of 1,379-lb Hereford steers sold at $6.50, which was the top of the market. Five loads of 1,424-lb. steers sold at $6.40, with very few good enough to sell above $6.15. Strictly prime 1,400@1,500-lb. beeves would sell around $6.60@6.75. Native steers averaging 798@1,557 lbs. sold at $4.10@6.15; bulk, $4.85@5.80, including 1,300@1,450-lb. export cattle at $5 30@5.60; grass Western steers sold at $3.80@5; bulk, $4.30@4.50; Western cows and heifers, $3.10@4.50; grass Texas steers, 1,031@1,065 lbs., $3.80@4, native cows, $1.50@4; bulk, $2.60@3.10; heifers, $2.70@5.35; bulk, $3.35@4.10; bulls, $2.50@4.15; bulk, $2.90@3.40; stags, $3.50@4.75; veal calves, $6.@7.50, and feeding cattle, $3@4.60; bulk, $3.50@4.05.

Bran—Easier, and demand light, with a sale of 1 car at $12.25 per ton.

MILWAUKEE, Wis., Oct. 23—Butter—Creamery—Fancy Prints, per lb., 23½c, extras, 23½c; seconds, 20@21c; imitations, 19@20c Dairy—Selections, 18@20c; lines, 16@18c; ladles, 15@16c. Market weak and quiet, particularly creameries; receipts, 10,445 lbs.

Cheese—American Full Cream—October Flats, 11½@12c; July, August and September, 11½c. Brick, 11½@12c. Limburger—New choice, per lb., 11@11½c. Swiss—Drum, 12½@13c; Block, 12½@13c; No. 2, 10½@11c. Market easy; receipts, 16,770 lbs.

Eggs—Fresh per doz., 16½c, loss-off cases returned. Market quiet and easy; receipts, 206 cases; supply almost entirely cold storage, which do not command prices quoted for fresh.

FOND DU LAC, Wis., Oct. 23—Offerings 602 Twins and 490 Daisies; market quiet at 11½c@11⅝c for Twins.

MUSCODA, Wis., Oct. 23—Offerings 750 boxes Twins; car lots, 11½c; local lots. 11c.

ST LOUIS, Mo., Oct. 23.—Butter—Steady; creamery. 19@24c; dairy, 14@19c.

Eggs—Steady; 15c.

KANSAS CITY, Mo., Oct. 23 —Butter—Creamery, 19@22c; dairy, 16c.

Eggs—Fresh, 14c.

CINCINNATI, O., Oct. 23.—Butter—Firm.

Cheese—Firm; good to prime Ohio flat, 12½c.

Eggs—Firm; 15c.

BALTIMORE, Md., Oct. 23.—Butter—Firm; fancy creamery, 24c; fancy imitation, 19@20c; fancy ladle, 17@18c; good ladle, 16c; store packed, 14@15c; rolls, 15@17c.

Cheese—Firm; large, 13@13¼c; medium, 13@13½c: small, 13¾@13¾c.

Eggs—Firm; fresh, 18@19c per doz.

NEW YORK, Oct. 23.—Butter—Creamery, Western extras, 24c; firsts, 21½@23c; state extras, 24c; firsts, 22@23c.

Cheese—State, full cream, small colored fancy, 12¾c; white, 12¾c; large colored fancy, 12¼c; white, 12@12¼c.

Eggs—State, Pennsylvania and Western, 21½@20c.

PHILADELPHIA, Pa., Oct. 23.—Butter—Solid-packed separator creamery, extras, 24c; firsts, 23c; seconds, 19@22c, imitation creamery, extra, 18c; firsts, 16c; seconds, 14c; ladle-packed, extra, 16c; firsts, 15c; seconds, 14c; print butter, creamery, extra, 24c; firsts 23c; seconds 19@20c.

Eggs—Pennsylvania and near-by, 20c; Western, 19½@20c; Southwestern, 18½c; Southern, 18c.

The Difference Between Separators.

The difference between Cream Separators is greater and more material than the difference between almost anything else that could be suggested.

The difference is not merely one of choice, kind, style, color, shape, manner of handling, method of operation, or even style of construction or durability, as would be the case with almost anything else that might be thought of.

On the contrary, the difference between the "Alpha" disc and all other cream separators is one of dollars-and-cents results every time milk is put through the machine, and in the course of a week, a month, or a year these differences amount up into almost incredible figures.

There is nothing difficult to understand about the differences or as to how and why they exist. The patent protected "disc" system of milk-strata separation, which can be used only in the "Alpha" machines, tells the whole story. Facts, figures, and reasons are given with full illustration in a De Laval catalogue, which may be had for the asking.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

BALTIMORE MARKET.

BALTIMORE, Oct. 19—Butter—It is the general feeling and finds form in expression that this is the dullest October in the experience of the trade. To arrive at this conclusion is easy, much easier than to assign a satisfactory reason for the condition. The receipts, it is true, are now and have been, unusually light and the increase in population is in commendable ratio by no means below the normal, so why the consumptive demand does not require more to satisfy it than goes through the hands of the dealers is a mystery, and a problem to which the only solution is, without doubt, quite unsatisfactory to the receivers. The advanced price of fresh extras has put that grade beyond the reach of many, thereby making the scant supply sufficient for the demand. The weather has been so warm, along with this other fact, that there have been but few calls for June creameries. Imitation creamery and ladles remain scarce and in good demand. The receipts of rolls are not large, but the weather has had a bad effect upon many of the small lots, and buyers use this to their advantage as regards price.

Creamery Separator, extra, 24c; firsts, 22½@23c; seconds, 20@21c. Creamery Gathered Cream, extra, 21@22c; firsts, 19½@20c; seconds, 19c. Creamery Ohio, extra, 21@22c; firsts, 19½@20c; seconds, 19c. Creamery Imitation, firsts, 17@18c; seconds, 15½@16c. Iowa & N. W. Ladle, firsts, 16@17c; seconds, 15c. Ohio & Indiana Ladle, firsts, 16@17c; seconds, 15c. Ohio Rolls, extras, 17c; firsts, 15@16c; seconds, 14c. W. Va. Rolls, extras, 16c; firsts, 15c; seconds, 14c. Ohio & W. Va. Storep'd, firsts, 15c; seconds, 13@14c. Creamery Blocks (2 lbs), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c. Creamery Prints (½ lb.), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c. Md. Va. & Penna Prints, extra, 21c; firsts, 20c; seconds, 18@19c.

Cheese—Receipts light, demand good; market firm with prospects of higher prices in the near future.

N. Y. State—Cheddars, fine, 12½@12¾c; choice, 12@12¼c; fair, 11¾@11¾c. Flats, fine, 13@13¼c; choice, 12¼@12¾c; fair, 12@12¼c. Small, fine, 13½@13¾c; choice, 13@13¼c; fair, 12¼@12¾c. Ohio—Flats, fine, 12¾@13c; choice, 12½@12¾c; fair, 11½@12c. Ohio Picnic, fine, 13@13½c; choice, 12½@12¾c; fair, 11¾@12¼c Skims, fine, 10@11c; choice, 9@9½c; fair, 8¾@8½c. Swiss cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—Choice fresh eggs are in rather light supply; for this kind of stock there is a good demand at 17½c. When we say fresh eggs we do not mean held or mixed eggs; please bear this in mind. Cold Storage—The supply is ample for the demand, which is confined principally to choice marks.

301 Exchange Place. G. M. LAMB & BRO.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Situation as foreman or manager on a first-class dairy farm. Can furnish full references as to ability and character. Address "L" St. Ives Park Farm, Fullerton and 64th Ave's, Chicago, Ill. 36-2

For Sale—Registered Guernsey bull, dropped Dec. 14, 1898. F. W. DAWE, Mineral Point, Wis.

For Sale—Holstein Friesian bull No. 24305, calved Dec. 16, '95, butter bred, weight 1900 lbs., also H. F. bull calf, son of the above, 6 mo. old. Prices reasonable. F. E. LAWSON, Walworth, Wis. 36-2

A Baby De Laval Separator No. 3, capacity 600 lbs. an hour, 30-gal. churn, butter worker, 6-bottle Babcock tester, shafting, pulleys, belts, etc. Price $100.00. Separator good as new and cost $200.00. E. R. BALSLEY, Troy, Wal. Co., Wis. 34-tf

Herdsman wanted who is a good feeder and milker, and wants steady employment. For particulars address A. J. DAUGHERITY, Streator, Ill. 32-tf

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Wanted—An energetic young man with a thorough knowledge of handling milk, to manage a milk depot in a prominent Virginia town, handling about 300 gallons per day. Price and satisfactory references required. Address F. C., care Hoard's Dairyman, Fort Atkinson, Wis. 36-2

Field Glass—$10; originally cost $30: Very powerful and nearly new; 26 ligne binocular glass; not a cheap affair, but of best French make, and will send it for examination by addressing Box 392, Cincinnatti, Ohio.

For Sale—Sharples separator of 300 lbs. capacity, in good condition. Business has out grown its capacity. Price $50. C. I. WEST, Station I, Cincinnati, Ohio.

New upright 6 H. P. engine and boiler, been used 3 days. Warranted in perfect condition, cost $150, will take $100 cash. J. P. ASHBAAGH, Edgerton, Minn.

Wanted—At once a married man of family with three milkers. Must have experience in handling and feeding dairy cows. No preference as to nationality, only that he must have industry and dairy knowledge. Good wages, schools, church, good dwelling to live in, all convenient. Address the undersigned, A. D. SPRAGUE, Caledonia, Minn.

Wanted—Good reliable man to work in a creamery as second hand. Man with some experience is preferred. Address HIGHLAND CREAMERY CO., Kinwood, Wis.

To Los Angeles and Southern California.—Every Friday night, at 10:35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California. In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey. These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only $6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Geo. H. Heafford. General Pass. and Ticket Agent, Chicago, Ill. 37-sp

Farm Dairy Accounts.

ED. HOARD'S DAIRYMAN:—Complying to the request of C. D. Rust, October issue, page 677, while I am neither farmer nor dairyman, (keeping a few cows and chickens) I have been using the attached form for accounts for some time, and find it quite suitable for any of my purposes, and can be enlarged or contracted to suit.

I use a book long enough to permit of thirty-one days' record, and space above for heading, and space below for remarks. I use a separate book for cows, hens, feed, etc., and carry monthly totals of each to a separate book, showing only monthly totals of herd or pens, and footing them gives grand yearly totals. But if a book of sufficient width were kept, all could be entered upon one page. This, however, is only a matter of taste. CHAS. LYNCH.

Chicago, Ill.

LBS. MILK RECEIVED. July, 1899.

	Star.	Spot.	Kate.
Amt. Ford..	300	200	150
1.....	5	6	4
2.....	5	6	3
Total.....	310	212	157

Grand Total, 679 Lbs.

Remarks:

FEED BOUGHT. July, 1899.

	Bushels Corn.	Price.	Bushels Oats.	Price.	No. tons Hay.	Price.
Amt. Ford..	100	.35	150	.25	5	$10.00
5.....	50	.40	75	.22	3	9.00
Total.....	150	$55.	225	$54.	8	$77.00

Grand Total, 186 Lbs.

Remarks:

LBS. MILK RECEIVED. 1899

	Star.	Spot.	Kate.
january....	100	90	80
February .	125	100	105
March.....	150	125	100
April.....			
Total.....			

Grand Total

Remarks:

Home Grown Rations.

A Pennsylvania Problem,

ED. HOARD'S DAIRYMAN:—Wishing to grow as much of the feed for our cows as possible on the farm, I had thought that a rotation of corn, wheat, and clover would be about the right thing.

How near a balanced ration could be made from silage and clover hay? Would there be any danger of having the silage too rich, i. e., contain too much grain if it were planted only thick enough to mature fair sized ears, on ground that produces seventy-five to eighty bushels per acre.

What is the comparative value of ground flax seed and old process oil meal? Would sun flowers be profitable to raise for feed for cows?

I am anxious to raise something to furnish protein for them so as to avoid having to buy expensive feeds. R. G. M.

Woodbine, Pa.

One should raise those crops for which his soil and climate are best adapted, giving preference, other things being equal, to such as are best for feeding. It would be poor policy to feed corn or oats when either could be exchanged for some other feed answering a better purpose and worth less. But, as a rule, the farm should be stocked so that the equivalent of all the feed raised could be made over into beef or milk or wool and mutton, or horses, hogs, or fowls, and in this way conserve fertility and gain a manufacturing profit.

The rotation suggested would prove a good one in localities where wheat and corn can be profitably grown, but one could hardly expect to rely exclusively upon corn and clover for cow feed. For example, a cow weighing one thousand pounds could not be expected to eat more than about thirty pounds of silage and twenty pounds of clover hay per day, and these would furnish not far from twenty-five pounds dry matter containing digestible nutrients as follows:

Protein	1.75 lbs.
Carbohydrates	11.36 "
Fat (ether extract)	.55 "

The silage might possibly be increased to forty pounds, but this would still leave the protein and fat deficient.

In our opinion it would be more profitable to drop ten pounds of the clover hay and add eight to ten pounds of grain—say four pounds bran, four pounds gluten feed and two pounds corn chop. Of course these ten pounds of grain would cost more than ten pounds of hay, but it is the simple truth that milch cows cannot do their best when receiving only coarse fodder, any more than a horse can do its best without any grain. A cow that is giving from twenty to thirty pounds of milk per day is using up as much energy as a horse at moderately hard work, and should be fed with the same care and discretion. A good cow in her line, like a good horse in his line, will respond to proper feed up to the limit of her capacity; and not until this point is reached and maintained from day to day, due regard being had to the changes incident to prolonged lactation, can it be claimed that the cow is being economically fed. A cow can subsist and give some milk when limited to straw or cotton-seed hulls for feed, but there is no resulting profit. A diet of silage and clover hay is much better than most cows have—we are sorry to say—but it is not the best or most economical for cows that have not been milking six months or more. The cow makes milk from the feed she receives—no feed, no milk; poor feed, little milk; good feed, much milk.

For the relative feeding value of flax seed and old process linseed oil meal, as well as other feeding stuffs, see the table published in this issue.

There is a Limit, but it is Not Yet in Sight.

A Feeding Problem from Mississippi.—Milking Tubes.—Cotton Seed Meal for Calf Scours.

ED. HOARD'S DAIRYMAN:—Is there a limit to human endurance? After carefully reading the DAIRYMAN for two years, seeing with what persistency your subscribers continue to ask for ration formulas, and with what persistency you continue to answer, we are almost forced to the conclusion that there is no limit, at least in your case. Hence we are emboldened to ask you to suggest a proper ration out of the following:

1st Ration: Wheat bran, $16 a ton; cotton seed meal, $17 a ton.

2nd Ration: Wheat bran and cotton seed meal, as above, and corn meal at $20 a ton.

3rd Ration: Wheat bran, cotton seed meal and corn meal, as above, and cow pea meal at $20 a ton.

In either of the above cases, each cow will have a daily allowance of twelve pounds cotton seed hulls (worth $3 a ton) and ten pounds, only, of Johnson grass hay; cows weigh from 600 to 900 pounds. Hay worth $9 a ton.

Would clean, shelled oats, unground, which I can buy for thirty-eight cents, be of any value, added to the other materials named; or are such unground oats injurious to milk cows?

So much on rations. Will the milking tubes we see advertised in HOARD'S DAIRYMAN, and which we so often see recommended by the "V. S." in your columns, cause the milk to flow from the udder voluntarily, or is manipulation of the udder, or teat, by the milker necessary?

And now about calf scours: I frequently have the scours among my calves, caused by either the quantity or quality of milk they have taken.

Some two years ago, it occurred to me that as cotton seed meal was an astringent, it might be beneficial in scours. Since then, I have had occasion to resort to it several times, and have never had a case that failed to yield to the treatment. Ask some or your northern, as well as southern, dairymen to try this, and report results through your columns.

Amory, Miss. L. H.

One seldom tires of the work in which he is profoundly interested, and the writer who has answered most of the feeding inquiries in recent years, has to confess that the new phases of the general subject, presented in the communications received, act as a continual stimulant and tonic. He tries to put into the answers, as a rule, something more than a mere formula, by offering pertinent suggestions as to the manner of feeding, reasons for preferring one class of feeding stuffs to another, objects of feeding, etc.

We submit below three formulas, as suggested, and would like to discuss them at length, but want of space forbids:

NO. 1.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrient: Protein.	Carbohydrates	Ether Extract
10. lbs. Johnson grass hay	8.77	.24	4.79	.07
12 lbs. C. S. hulls	10.67	.04	3.97	.20
6 lbs. bran	5.29	.75	2.32	.18
3 lbs. C. S. meal	2.75	1.12	.50	.27
Totals	27.48	2.15	11.58	.72

NO. 2.

Hay and hulls as above	19.44	.28	8.76	.27
5 lbs. bran	4.41	.63	1.93	.15
2 lbs. C. S. meal	1.84	.74	.34	.18
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	27.47	1.81	12.36	.69

NO. 3.

Hay and hulls as above	19.44	.28	8.76	.27
3 lbs. bran	2.64	.33	1.16	.09
2 lbs. corn chop	1.78	.16	1.33	.09
2 lbs. cow peas	1.70	.37	1.08	.02
2 lbs. C. S. meal	1.84	.74	.34	.18
Totals	27.40	1.93	12.67	.65

In each of the above formulas there is more dry matter than is required, and in our opinion a larger quantity of cotton seed hulls than a milch cow ought to be required to work over and digest. It takes energy to digest food and hence easily digested feeds require less expenditure of energy than those not so easily digested. And there is no other source than feed from which energy can be had. Therefore we advise cutting down the hulls by a least 4 lbs.

When this is done our preference would be for formula one.

One could not afford to feed oats at the price named, unless in special cases where one was striving for a large yield, regardless of cost.

The milking tubes are expected to work automatically, but gentle manipulation of the udder when in use would be advisable.

Thanks for the suggestion of cotton seed meal as a remedy for scours, but there should go with it the caution that constant feeding of cotton seed meal to calves may result disastrously.

Actual and Babcock Butter.

Prof H. H. Wing, in a reply to a letter in the *Country Gentleman* makes the following vigorous answer to the old claim that fat in the milk is not butter.

The statement is made that "one side holds that the cow should receive credit for every iota of butter fat indicated on the Babcock test tube, and is composed of those who do not make butter, but who deal in milk and cream." This is untrue. Very few dealers in milk and cream pay any more attention to the Babcock test than they have to. If they did, the average consumer of milk and cream would be much better off. But on the other hand, thousands of men who make butter, buy millions of pounds of milk daily, and credit the cow "for every iota of butter fat indicated on the Babcock test tube," because it shows exactly what the milk is worth *to make into butter*.

The old idea that the butter must actually be made in order to credit the cow with it, is of course, strongly brought out, but in the following quotation the cat is very neatly let out of the bag, and the whole animus of the article shown up: "However that may be, the actual amount of *butter* is his (the dairyman's) standard, as it is this which he sells. He is paid a certain price for a pound of butter without inquiry as to whether it contains 80 or 85 per cent of fat." Here is the gist of the whole matter. Our writer wants the record to be based not on *fat*, which is a certain definite substance easily capable of being determined and measured, but on *butter* "without inquiry as to whether it contains 80 or 85" or some other percentage of fat. In short, the writer would have a cow establish a butter record on any uncertain mixture of water, fat and salt that an unscrupulous owner may bluff off on a credulous public as butter. He makes a great virtue of decrying credit for what might have been done, and asks: "Can we honestly expect to credit a cow with butter whose milk was sold at so much per 100 lbs to some milk dealer and retailed about town at so many cents per quart, without regard to the amount of butter fat contained in the same?" Instead of "assuredly not," I should reply "certainly," and would ask further, is it fair to say that a cow that has produced 40 lb. of milk containing 5 per cent of fat daily for a week has no capacity for butter-making, because a lot of hungry boys and girls drank up all the milk, so that the good wife had no chance to make any butter?

No cow has ever made any butter, (unless perchance some enterprising dairyman may have occassionally led her upon a tread power to revolve the churn). She has simply secreted a fluid containing a certain amount of fat, six pounds of which are required to make and will make seven pounds of butter with very slight variations. There can be no question that the quantity of fat secreted indicates the butter capacity of the cow, no matter what is done with the milk, our learned author to the contrary notwithstanding.

As to what is said concerning the possibility of fraud in making records, there can be no question. No record or test is any better than the man behind it. An *honest man* is necessary in any case, but the opportunity for fraud is undoubtedly made greater where the milk is separated, the cream ripened and churned and the butter made, than where a fat test is made at once.



What the Hog has Done for the Farmer.

The editors of The *Stockman and Farmer* have proposed the above text, thinking perhapes that I might try to do justice to the subject. But how could I or any one else? It is the story of millions untold, the history of the great American hog. From the days of our Pilgrim Fathers he was the companion and supporter of the pioneer on his journey westward, until his abode is in every state and territory of the Union from the Atlantic to the Pacific. On the Plains and in the Rockies (the home of the buffalo, the antelope and the grizzly) he reigns supreme, at home in every clime, the ever true abiding friend of the pioneer. It would give volumes of interesting reading if farmers had left behind stories of his individual benefit, ever dividing the hardships, with a contented grunt for the smallest favors. It would be the story of millions, that the hog laid the foundation of their happy, free and independent homes—if we were not so forgetful and did not ascribe success to our own individual efforts, forgeting that in the mighty struggle he divided

Results Make Reputation.

Singer Machines, either lock-stitch or chain-stitch, are the successful result of long experience and constant improvements in the endeavor to make nothing but the best sewing-machines for family use. The accomplishment of this result requires six of the largest, best-equipped factories in the world, and the best inventive talent of the age. Twelve thousand workmen are employed in these factories. Experience counts with THE SINGER MANUFACTURING COMPANY. The average term of employment among these workmen exceeds a decade.

Sold on instalments.
Old machines taken in exchange.

The Singer Manufacturing Co.,
"Sewing-Machine Makers for the World."

the hardships of poor shelter, storms and starvation. It was he that furnished the main staple of wholesome, nutritious meat and the necessaries of life; he paid for shoes and winter garments; it was he that paid for the first cow, he that paid for the first plow; it was he that furnished the money for taxes, however small they were, but they were cash. When other products had to be sold for half cash and half trade he demanded cash and it was ever forthcoming. He walked to his burial and future home and liquidated the note on the team; he bought the school books; it was he that paid for the material for stable, for horses and cow, while he without a discontented grunt took his abode in a straw pile, and his mate brought forth lusty litters, any one of which would excell the three-year-old steer in value in ten months. It was he that paid the doctor bill; he that lighted up the first Christmas tree and furnished the toys for the kids, the first merino dress, calico and trimmings, and caused the smiles and tears of joy. It was he that replaced the log hut, the sod house, the shanty, with comfortable and often stately homes. He paid for the education at city schools, and the professional boy forgets that his superior education is somewhat due to the American hog.

The wheat farmer of the west, that trusted his all in wheat until it went below the cost of production, found in him his savior—he paid his way, ten pounds per bushel, live weight. His presence changed agriculture on the plains; he ate alfalfa, clover and bluegrass. Corn was no longer a drug on the market, but a remunerative freight product for the railroad.

It was no longer fuel—he replaced it with coal and gasoline. He brought about mixed husbandry. Go where you will, if you find him intelligently cared for with a liberal hand, the farmer's reward is sure to come.

In 1898 he found his way to distant shores in—

Live hogs	$ 110,487
Bacon	46,380,9 8
Hams	18,987,525
Pork, fresh	815,075
Pork, pickled	4,906,961
Lard	39,710,672
Total	$110,811,638

American farmer, read, think, stick with intelligence to the American hog; better his condition, stick to him as he sticks to you, brother-like. They tell you that he is not what he should be, they show you figures of sales and exports, but all sink into insignificance in comparison with the American hog. —THEO. LOUIS, in *National Stockman and Farmer*.

The Low Test.

At nearly every institute attended last week by Professor Cottrell and myself, the question was asked: "What is the reason our milk tests 2.6 per cent one month and the next month, under exactly (?) the same conditions, it tests 4 per cent or more?"

There are a great many things that affect the test so that we can not point to any one thing as doing it. In the first place, the conditions are never "exactly" the same; the pasture may be better one month than another, the weather may be cooler or warmer, perhaps you encourage the cow less with the milk stool, or perhaps the boy who brings them in does not get them so much excited. All these things, and many more, influence the per cent of butter fat. Kindness is sure to be rewarded by an increase in both the per cent of butter fat and also in the milk yield; whenever you abuse the cow either by a sharp word, the milk stool, or by running her, you are taking money out of your pocket by decreasing the per cent of butter fat and also the yield of milk. Whenever the cow suffers for lack of food, water, or proper care there is a decrease in the amount received from her.

There are other reasons why your test may be lower one month than another. When the milk is warm it churns very easily so that when you send your milk to the station in cans only half full they will be partially churned when they get there. There is no way of getting a fair sample of such milk, for the butter fat that is churned is lost, both to the patron and to the creamery man. If you have a can and a half to send, fill one can full so that you will be sure to have that much that will not be churned. Keep the milk as cool as possible as it does not churn so readily at a low temperature.

If you do not want a low test do not take the first milk yourself and let the calf have the last. The first milk often tests as low as one-half of one per cent, while the last will test 10 per cent to 12 per cent. Don't skim all your milk before you send it to the station and then expect it to test 6 per cent.

To the creameryman I would say, keep all samples of milk from churning if possible; good tests can never be obtained from a churned sample without the use of ether and this is too laborious a process for you. It is claimed by some that simply heating the milk to a temperature that will melt the butter fat will answer, but my work in this line convinces me that satisfactory results can never be obtained in this manner.

J. A. CONOVER, in *Kansas Farmer*.

National Creamery Buttermakers' Association.

ED. HOARD'S DAIRYMAN:—President Boardman informs me that he has appointed the following gentlemen to serve on the executive committee of the National Creamery Buttermakers' Association for this year: Geo. E. Haskell, of Nebraska, H. M. Brandt, of Kansas, and F. B. Fulmer, of Wisconsin.

President Boardman took into consideration the fact that last year Illionois, Iowa and Minnesota were represented on the committee and as South Dakota has the vice president, thought best to appoint members from those states not represented last year.

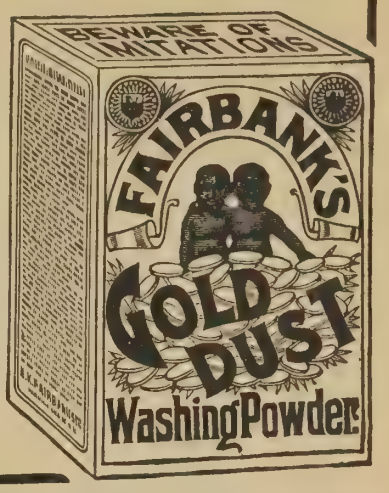
The new members of the committee are well known and popular among the buttermakers. Mr. Haskell is president of the Beatrice Creamery Company, and is always working to advance the interests of the creamery trade; Mr. Brandt learned his trade in a Lancaster county, Pa., creamery and came from there to Kansas some ten years ago, where by his ability and industry he has built up one of the most successful creameries in that state; Mr. Fulmer who is buttermaker and manager of the Ettrick (Wisconsin) Farmers' Creamery, is well known throughout the west as the former instructor of creamery buttermaking in the Wisconsin, Dairy School.

The committee will meet at an early date to decide on the next meeting place, which beyond a doubt will be Lincoln, Neb., that place having received the popular endorsement at the Sioux Falls Convention, besides having made the most liberal offer received from any city for the holding of the next National Convention.

Elgin, Ill. E. SUDENDORF, Sec'y.

Housework is Hard Enough

with even the best soap which needs hard muscular rubbing to make things clean. Gold Dust does all that soap does and saves time and much rubbing.



Send for free booklet—"Golden Rules for Housework."

THE N. K. FAIRBANK COMPANY
Chicago St.Louis NewYork Boston

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

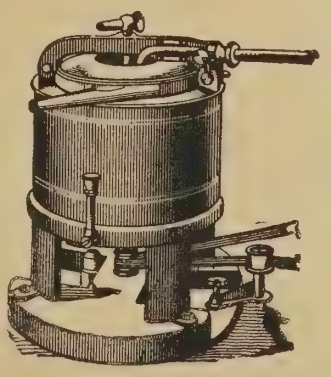
PARKE, DAVIS & COMPANY, Detroit, Michigan.

BRANCHES: New York City, Kansas City, Mo., Baltimore, Md., New Orleans, La., Walkerville, Ont., and Montreal, Que.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.



You Can't Get Behind Facts.

Facts cannot be obliterated by smoothly worded advertisements, by exaggerated claims on paper or promises of superior results.

The REID IMPROVED DANISH SEPARATOR

has stood the test of time, winning by merit the approval of successful creamerymen throughout our land.

The REID Separator and Pasteurizer Win at a Canadian Fair.

At the Toronto Industrial Exhibition, both first and second prizes for Creamery butter were awarded J. C. BELL, Winchester Creamery, Ont., who uses the **REID Separator and Pasteurizer.**

"The Reid Improved Danish skims **cleaner** and **more** in the same length of time than any separator that I ever used."—E. R. DANIELSON, The Franklin Creamery Co., Franklin, Minn.

"The Reid Improved Danish Separator does the **best and most work with the least expense.**"—E. R. GOLDTHWAIT, Norwalk, Cal.

"The Reid Improved Danish **will do more work and do it better** than any other separator we have ever seen."—WINCH & BEAMIS, Marilla, N. Y.

"The Reid Improved **costs less for repairs** than any other separator."—NEW ERA COMPANY, New Melle, Mo.

Write for Separator and Pasteurizer Booklet or Reid's New Illustrated Catalogue of Creamery Supplies, free.

A. H. REID, 30th & Market Sts., PHILADELPHIA, PA., CEDAR RAPIDS, IOWA.

Removing Placenta.

ED. HOARD'S DAIRYMAN:—I am always interested in the DAIRYMAN, and especially the veterinary column. On page 701, Dr. Horne gives method for removing placenta with the hand. We have had several cases of retained placenta in our herd, so will give our method, which has been very successful.

Would advise every one to prevent this trouble, if possible, as it takes from one to four hours of the most arduous labor. After waiting two days(not longer)and the afterbirth has not removed, I dress in old clothes, leaving the right sleeve off, then wash hands and arms in warm water, into which a few drops of carbolic acid have been dropped; next grease right arm to shoulder with vaseline. I then grasp protruding end of placenta with left hand, and insert the right hand and arm and gently peel off the afterbirth from the cotyledons (toad stool like projections connecting womb to placenta) with the fingers. This is a tedious job, as there are from sixty to one hundred and fifty of them. They must all be detached so in withdrawing the membranes, the womb will not be lacerated. The reason for waiting two days is to allow the membranes to soften so the cotyledons can be peeled off more easily.

In cases of abortion, have found it almost impossible to remove the afterbirth even in two days after calving or aborting, though it is best not to wait longer than two days as the os may close so as to exclude the hand entirely. A. J. N.

Valley Mills, Ind.

No Hood Farm Cows Died at Toronto.

ED. HOARD'S DAIRYMAN:—We have had many inquiries as to whether we lost any cows at Toronto, and it has even been reported that as many as eight from our herd died. In justice to ourselves we would ask you to insert the following letter from Dr. Bell, assistant Secretary of the Toronto Exposition:

C. I. Hood, Esq., Proprietor Hood Farm, Lowell, Mass.—Dear Sir:—This is to certify that the prizes awarded to Hood Farm, Lowell, Mass., on Jerseys and Berkshires, were paid in full. None of their cows or hogs died. A. W. BELL, Assistant Secretary.

All our stock has arrived home from the fairs in safety. They left St. Louis Sunday noon, Oct. 8, and arrived in good condition Saturday, Oct. 14th. Oonan 12th, one of the heifers in the herd, calved on the road. Both she and her calf are doing well.

Lowell, Mass. HOOD FARM.

Compel Us to Eat Strong Cheese.

ED. HOARD'S DAIRYMAN:—In last week's issue the writer of Northern New York Pencillings wonders why more people do not eat cheese; I am actually surprised that so much cheese is eaten. What people like about strong, sour cheese I can't see, and there are a multitude of others of the same opinion as myself. At all the boarding houses that I have been at, not one person in ten would eat cheese, and they said only because of the rancid, sour taste. Let makers put out cheese with a delightful flavor similar to that of extra creamery butter and a great many people will live on cheese. It has not been my good fortune to get any of this mild flavored cheese but once, several years ago, and I cannot help but remember how good it was. I tasted all the high scoring butter at the National Butter Show, Topeka, Kans., 1898, and none of it was as good, to my taste, as that remarkable cheese.

Why do not makers make a mild brand of cheese, even if they do have to make the other. F. Z.

Kirksville, Mo.

A Round Barn and Silo.

ED. HOARD'S DAIRYMAN:—Being one of many readers of your valuable paper, the only periodical I am interested in, I wish to say that so far I have never felt to be a burden to you, having always found plenty of instruction and beneficial reading matter contained therein; but would be pleased if you would give a sketch of a round silo, thirty by thirty-five feet deep, with a gangway, seven feet wide around, and stalls for cattle around this.

How many cattle could be placed here?

How many tons would the silo hold?

How many cattle could be fed from this for one year?

Could it be fed fast enough to the stock the barn would hold?

How many acres of land would it take to raise corn enough to fill it?

Also would like to know what you think the result would be from feeding silage, malt sprouts, hay and corn meal to Holstein cattle. J. P., Sr

Erie Co., N. Y.

A silo of the dimensions specified would be all out of proportion, and it would be of little avail to publish plans for such a structure. A building of the dimensions specified would allow stable room for forty cows, after allowing for necessary passage ways, and if each cow was allowed forty pounds of silage, each day in the year, a silo with a capacity of 300 tons would be all sufficient. A silo thirty feet in diameter and thirty-five feet deep would easily hold 650 tons, or more than twice as much as forty cows would need.

One could not make a satisfactory ration from the feeds named, for the reason that as a rule cows will not eat more than three to four pounds of the malt sprouts per day, and hence the protein could not be brought up to the proper amount.

Money to be Made

Good pay for all you do, and perhaps five hundred or a thousand dollars extra at the end of the season. We want good, reliable agents to secure subscriptions to

The Ladies' Home Journal

AND

The Saturday Evening Post

distribute prospectuses, secure renewals, and generally look after our interests.

The Curtis Publishing Company, Philadelphia

Marquilla's Major 40804.

SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
W. R. THOMAS, Bellmore, Ind.

$50 A BULL CALF, solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month. 7293 lbs. in a year. Milk tested 5⅓% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

A. J. C. C. BULL CALF FOR SALE!

Dropped Aug. 2, 1899. Solid color; black tongue and black switch.

SIRE:—A full brother to Exile's Lulu 49948, that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test. DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Introduce Milking Jersey Stock INTO YOUR HERD

by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.



Buhl Stamping Co.
DETROIT, MICH.

Makers of high grade Milk Cans and Milk Can materials.

Write for our Book.

"A STUDY IN MILK CANS."

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.
R. C. GREEN, Albion, Wis.

PAIR POLLED JERSEY CALVES.

Yearling heifer served Oct. 4, '99. Bull calf born July 22, '99. Price $150.00 f. o. b. Write to
JAMES R. ORR, Cedarville, Ohio.

FOUR SOLID COLOR BULL CALVES

out of tested Dams, and sired by Diploma's Combination, sire of two tested cows. Also a few heifers for sale.
J. E. TYRRELL, Marysville, O.

Registered Jerseys.

Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Six Good JERSEY COWS In calf to a son of BROWN BESSIE the champion butter cow at the World's Fair, or a son of DIPLOMA—sire of fifty in the list including MERRY MAIDEN—are in my hands to sell at FARMERS PRICES. I fully recommend them. MUST BE SOLD. Send for pedigree and prices.
H. C. TAYLOR, Orfordville, Wis.

JERSEY BULLS

The Iowa Agricultural College offers for sale five good young Jersey bulls of
CONBINATION BREEDING.
These bulls are of good individual merit and from heavy milking ancestry. Old enough for immediate service. Prices reasonable. Address
FARM DEP'T, Iowa Agr'l College, Ames, Ia.

There's plenty of Jersey blood NOT AS GOOD as that of

Old PEDRO 3187.

There is NONE ANY BETTER.

I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

Closing Out Sale!
100 JERSEYS.
Two of Tennessee's Best Herds. Morgan & Brown and The Woodard Herds Over 40 Tested Cows.
At Nashville, Tenn., November 9th, 1899.

Including noted cows **Bisson's Belle, Landseer's Fancy 3d, Ethleel 5th, Rioter's Denise 3d, Tormentor's Rexea. Fancy's Pet,** in all over 40 tested cows. Bisson's Landseer and another son of Bisson's Belle, and Oonan's Harry Pogis in bulls. More of the blood of Landseer's Fancy and Bisson's Belle than was ever sold before. Several daughters of Fancy's Harry. COL. GEO. A. BAIN, Auctioneer. Address, for catalogue—
Eugene Smith, Mgr., 155 N. Market St.
Tuberculin tests arranged where laws require.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

JERSEYS.

Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

FOR SALE!
— CHOICE —
A. J. C. C. Bull Calves

Sired by Chilton of St. Lambert 39689, by Matilda 4th Sire out of Ida's Alpha, test 25 lbs. 15¾ oz. in 7 days. For description, etc., address
G. N. KERSTEN, Chilton, Wisconsin.

Hood Farm Jerseys **For Sale**—Prize yearling bull at the Great Western Fairs, 1899—Pogis 9th of Hood Farm 55552 First in class and sweepstakes at the Great St. Louis Fair, and at Illinois, Wisconsin and Indiana State Fairs. His sire, Hood Farm Pogis, won first and sweepstakes at Springfield and Milwaukee, and second at Indianapolis and St. Louis His dam, Figgis, won first at all these fairs. Dropped July 9, 1898. For price address HOOD FARM, Lowell, Mass.

FOR SALE!
DOUBLE GRANDSON OF
Exile of St. Lambert 13657

78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and **will be sold CHEAP.**
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.

This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere.

SOME CHOICELY BRED
Bull Calves

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

The Lone Tree Jerseys

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

Closing Out Sale Of CHARTER OAK HERD!
180 Head, pure St. Lamberts.
High per cent ST. LAMBERTS and TORMENTORS,
Oct. 25th and 26th, at Pomeroy, Ohio.
Have sold my lands and must sell my cattle. Send for catalogue.
J. P. BRADBURY. Pomeroy, Ohio

Facts About Fabius Creamery.

The Fabius Creamery was in need of more separators last summer. For the purpose of obtaining the best, the United States and the De Laval were set side by side for a 30 days' test, the Fabius Creamery insisting that no agent or representative should operate or test either machine. At the end of the 30 days the order was given the United States, because it did more thorough separation. How ridiculous for Mr. Hamilton, the secretary, to now claim that it was because the De Laval Co. held to the list price and the United States did not.

This statement of Mr. Hamilton is not correct. The De Laval agent offered large discounts and made desperate efforts to get the order.

We have before us a letter from an officer of another New York creamery who states that the De Laval offered them a discount equal to 37½ per cent. from the list price.

We have a statement from another party that the De Laval offered to put an Alpha Separator in their creamery without charge. They would not give it to them, but they might use it indefinitly. So much for prices.

The facts are we were paid as much cash as was named in the last contract with the De Laval Co. that it should be paid, and this cash payment to the De Laval Co. was dependent upon the De Laval machine making enough more butter over the United States to make the amount good and in case it did not there was no money to be paid to the De Laval Co. We challenge them to publish the contract.

As the United States was awarded the order for the three new separators on June 27th our representative gave it no further attention, except to set up and start the machines. The machines were set and no complaint was made —everything was satisfactory. Not until six weeks after did we know that the De Laval Co. had had two special agents working on the directors there for weeks to upset and counteract their defeat, if possible. This was done secretly and with the understanding that the United States Company should not be advised.

We did not learn, as above stated, of these movements for about six weeks and not until the De Laval agents had succeeded in getting a contract for another special test to last six days only, in which the De Laval agent was to have the privilege of conducting the test of the United States and the De Laval also, and no United States representative should be present, and from these tests of the two machines for six days was the De Laval to prove the claim that it would pay for itself and thus cost the Fabius Creamery nothing.

As soon as the above facts were learned, which was not until only the six days' tests were nearly over, the United States agent appeared and requested that he might have the privilege of overseeing the operating of the United States, to see that it was properly run, and send samples of the skimmed milk to the State Chemist for analysis.

To this request the De Laval agent objected and said: "The De Laval Co. had everything to lose and nothing to gain and he should simply stand by the contract." The directors at this time were in session. They then examined the contract and stated that it was so worded that they were in the power of the De Laval Co. and could not allow the United States agent to oversee the operating of the United States machine unless the De Laval consented.

Just think of a creamery company being caught in any such contract as that.

Every director admitted that the tests for the 30 days of the United States were many of them .02½ of one per cent. and that none of them were over .05 of one per cent. A request was then made that they give a copy of the records of the United States tests for these 30 days.

To this request director Knapp, who all through fought for the De Laval people as fiercely as any agent could, objected and he was seconded by Mr. Hamilton, the secretary, who said he "DID NOT THINK IT WOULD BE WISE TO GIVE THE UNITED STATES SUCH A STATEMENT AND THEN TURN AROUND AND BUY THE DE LAVAL SEPARATORS. IT WOULD LOOK TO THE PUBLIC AS THOUGH THEY HAD BEEN BOUGHT." We wonder what the reader thinks of that statement.

The United States had beaten and now they refuse to give the records, because "it would give the public the impression that Fabius was bought up if they put in the De Laval. Is not this very transparent? Director Knapp, who kept the records, later stated that they had been destroyed. Why were they destroyed? There could be but one reason—it was because they proved that the Uuited States had beaten and they were now caught in a trap and did not wish to be exposed.

The operator of the machines was, for some reason unknown to us, an ardent De Laval partizan and worked his fires and De Laval machines to favor them. At one time when a sample of skimmed milk was to be taken from the Alpha he turned on more steam and increased the speed several hundred revolutions and as soon as the sample was taken he turned it off again.

He knew it was dangerous to run it at a high speed too long. Too many accidents have happened to that machine. We do not know how many times he operated the Alpha in this way. It is fair to presume, as he did it once, he would do it many times.

After Mr. Hamilton, the secretary, had given his figures at a directors' meeting (a part of which appears in his letter published by the De Laval Separator Co.) a vote was taken. THERE ARE SEVEN DIRECTORS. FOR THREE BALLOTS THE VOTE STOOD A TIE, ONE DIRECTOR NOT VOTING.

The fourth vote there were three votes for the De Laval, two blanks and two nays. From this it would seem that the directors did not put much confidence in the figures. And the De Laval won only on three votes out of seven, two refusing on the fourth ballot to vote.

The De Laval Company is welcome to all the glory they can get out of such methods.

We are sure that all fair-minded persons will concede that a company that has to resort to such methods admits that their machine cannot win on fair and honest tests.

Mr. Hamilton, the secretary, estimates a large gain for the De Laval on their one-sided tests, where the De Laval agent was permitted to manipulate the United States with a partisan operator to help him.

Mr. Hamilton in his statement is very particular to leave out the figures of the tests of the several separators and says, "The tests proved to us" so and so. THE FACTS ARE THAT DURING THE TESTS THE DE LAVAL PUT FIVE DIFFERENT SEPARATORS INTO THE FABIUS CREAMERY IN ORDER TO GET THREE THAT WOULD DO PASSABLE WORK.

Now let us look at the facts based on the figures:

The first test of thirty days the United States did the most thorough skimming and got the order for three separators, which were promptly paid for.

The second test of six days, which was intended to be conducted without the knowledge of the United States people, the average test of skimmed milk from the three De Laval separators was .055 of one per cent, but the De Laval agent claimed that as one separator did poorer work than the other two, it should be left out and the tests of the two others only be accepted. This claim of the De Laval agent was allowed and only the average of the two tests was accepted, which was .042.

Now let us see what Mr. Hamilton said about the United States separator, before he got to that point he "was afraid it would be said they were bought up." His statement was as follows:

FABIUS, N. Y., Nov. 22, 1897.

The No. 1 U. S. Separator we bought of you is doing fully as good work as it did last year. We have made several tests of the skim milk showing only 0.04 of butter fat. The longer we use it the better we like it.

W. L. HAMILTON,
Sec'y Fabius Creamery.

Bear in mind that this was not the latest United States Separator and yet THERE WAS ONLY .04 OF ONE PER CENT OF BUTTER FAT LEFT IN THE SKIMMED MILK, WHICH IS .002 LESS THAN THE TESTS OF THE BEST TWO DE LAVALS IN THE SIX DAYS TESTS.

Now suppose the De Laval separated perfectly, leaving no butter fat whatever in the skimmed milk (but it did not. In some tests it left .08 to .14), it could not possibly save more than this .04, for this was all there was to save. Then this .04 of one per cent of the year's milk, 9,723,369 lbs., amounts to 3,889 lbs. butter fat, which at 18 cents per lb. amounts to $700.02, or but a little over half what Mr. Hamilton, the secretary, says "they are convinced" they would save by their estimates. Now, does the reader wonder that Mr. Hamilton was afraid the public would think "they were bought up" if they gave the still better records of the 30 days tests of the later improved United States?

The De Laval Company will try to squirm out of this by claiming greater churn-ability of their cream. This claim is false. All Experiment Stations agree that there is no foundation in this claim.

Again, in the private contract made with the De Laval Separator Co., the Fabius Creamery was to advertise the United States Separators in creamery and dairy papers as though they were its property, but all expenses of advertising were to be paid by the De Laval Separator Co. This agreement, however, was entered into without the knowledge of a part of the officers of the Fabius Creamery and was condemned by them when they learned of it.

Is this not conclusive that the De Laval Separator Co. and the Fabius Creamery entered into a compact to injure the United States Separators?

Will not every honest reader admit that, as the De Laval Separator Co. finds it necessary to be bolstered up by such methods, it cannot win on its merits, and that the IMPROVED UNITED STATES SEPARATOR IS THE BEST SEPARATOR?

VERMONT FARM MACHINE COMPANY,
Bellows Falls Vt.

Milk Fever and the New Treatment.

In discussing milk fever, we should remember that this disease is not a fever at all. That is, there is no elevation of temperature as in most infectious and inflammatory diseases.

This name was given before clinical thermometers were in use, and when temperature measurements of cows were impossible. A better name is parturient paresis, meaning a partial paralysis, occurring at the time of parturition.

As to the causes of milk fever, we have some definite knowledge and many guesses. It is known that this disease is almost exclusively confined to the richest milking cows in the prime of life. Too many dairymen know to their loss that milk fever usually selects the best cow in the herd. The disease is most likely to occur after the birth of the third, fourth, or fifth calf, and only when the act of parturition is normal and easy. Warm seasons or warm stables predispose to milk fever, as do high condition and stimulating and rich food. Unrelieved tension of the udder with milk before calving increases the tendency to milk fever.

The conditions opposite to the above usually protect cows from this disease. That is, milk fever is very rare indeed among cows that are poor milkers—the beef breeds are almost exempt—heifers with their first calf practically never have milk fever—and it is rare with the second calf and old cows past their prime. It does not follow difficult, painful or prolonged labor—although the exhaustion following this condition may bear a superficial resemblance to milk fever. Poor pasturage and low feeding lessens the danger from milk fever and this malady is not likely to occur in a cow that is milked up to calving, or in one that is milked regularly before calving to relieve the tension of the udder.

In an animal that is dead of milk fever, there are no striking alterations. Indeed, the alterations are so slight in many cases that if the history and symptoms are unknown it may be impossible to determine the cause of death. It may be said that there is no constant and characteristic alteration of milk fever, although it is often found that the brain is somewhat congested or oedematous, that the contents of the third stomach are dry, that some food has passed from the paunch into the throat, and that the lungs are inflamed from the passage into them of substances that were intended for the stomach.

All of the above has been known for a long time and is repeated by nearly all writers on the subject. But when attempts are made to explain these facts the writers differ greatly, and their conflicting theories prove that there is but little definite knowledge as to the real nature of milk fever. These theories need not be discussed, it is sufficient to say that this disease has been ascribed at one time or another to chilling or indigestion at parturition, to the entrance of air into the veins by way of torn vessels in the womb, to congestion of the brain from a surplus of blood after the need for blood is lessened by the expulsion of the fœtus, by clotting of blood in the vessels of the brain, etc., etc. Another theory, that had many supporters for a long time, is that this disease is a poisoning or intoxication due to the absorption of substances produced by bacterial action in the womb. This view has had more strength than any of the others, for it offers an explanation of the symptoms and lack of post mortem tissue changes, all of which resemble the conditions following some intoxications.

But none of the theories could be made to harmonize with all of the observed facts, and, as the facts could not be changed, the theories had to be dropped.

A DANISH THEORY.

Two years ago, a Danish veterinarian suggested that milk fever may be a poisoning of the animal due to the absorption from the udder of abnormal substances produced there under certain conditions. It is known that by the fermentation of certain organic substances poisonous compounds, known as ptomaines, may be produced. These sometimes develop in sausage, cheese, ice-cream, preserved meat, etc., and in such cases produce illness when eaten. Such poisonous substances are the product of bacterial action. It has been shown recently by Dr. V. A. Moore that bacteria may be found even in the deep parts of many udders. It is not impossible, therefore, that poison, producing fermentations may occur in the colostrum and that the animal may be poisoned by the absorption of this material from the udder. If we accept this as a working theory, does it explain the known facts in regard to milk fever, and does it harmonize with all of them? If injurious bacteria enter the teat they will have greater opportunities to become distributed by the prolonged manipulation, and through the wide passages of the productive udder of the rich milker than through the unmanipulated udder of the heifer or the more confined passages of the poor milker. After distribution, also, they will find more secretion upon which to feed and work in the udder of the rich milker than in that of the poor milker. If the cow is kept milked out prior to calving there will be little opportunity for any injurious substance to accumulate in harmful quantity. The conditions that tend to prevent milk fever are the conditions that tend to repress the activity of the udder, as bleeding, purging and low feeding. That high condition, without an active udder does not predispose to milk fever is shown by the fact that this disease is so rare among Hereford, Galloway and Angus cattle, although the cows of these breeds are usually in higher condition than Jerseys or Guernseys when they calve. It appears, therefore, that there is some force in this new theory, and it remains to determine whether a plan of treatment based upon it will give better results than have heretofore been obtained. Milk fever has always been looked upon as a very fatal disease, and in different places and differen seasons the mortality has ranged from fifty to ninety per cent.

If milk fever is produced by the absorption of a poison developed in the udder, the injurious material in the udder should be removed or neutralized as soon as possible. Frequent milking—every hour or so—has for years been looked upon as a very important part of the treatment in all of these cases. But the new treatment goes farther than this, it provides for washing out the udder. Pure water and many solutions have been experimented with, and it has been found that a one per cent solution of iodide or potash has given the best results. About one-half pint of this solution is injected into each teat, and distributed by rubbing and manipulation through each quarter of the udder. The solution is allowed to remain for fifteen or twenty minutes, and is then milked out. This is repeated in four hours, if necessary. In making the injection, a milking tube is used to which a piece of thin rubber hose two feet long is attached. In the loose end of this hose, a small funnel is inserted; this is held above the udder and the solution is poured into it and allowed to run slowly into the milk cistern and ducts.

NECESSARY PRECAUTIONS.

Most careful attention must be paid to the cleanliness of the udder and hands and the sterility of the instruments and solution. The solution must be made with freshly boiled, distilled water, and in a sterile bottle. The instruments, that is the milking tube, the rubber tubing and the funnel must be freshly boiled and kept in a perfectly clean dish until used. The udder must be washed and the teats disinfected, and the hands disinfected before the milking tube is inserted. All of these extraordinary precautions are necessary to prevent injury to the udder. If foreign matter or certain bacteria are introduced with the instruments or medicine, the udder will become inflamed and perhaps will be destroyed.

As to other treatment, it is always necessary to keep the cow propped up in an upright position with bundles of straw or bags of chaff. This keeps the blood from settling in one lung and helps to prevent death from exhaustion or pneumonia. It is also well in many cases to give stimulants, as aromatic spirits or carbonate of ammonia or alcohol. If the cow can swallow, it is well to give a purge of one pound of Glauber's salts dissolved in one quart of molasses. The legs should be well rubbed and the position changed often enough to prevent cramping.

As State Veterinarian, I have asked many veterinarians to co-operate with me in try-

Wells Richardson & Co.'s Improved Butter Color

THE BEST IS ALWAYS CHEAPEST

"THE KIND THAT HAS NO MUD"

can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT, and NEVER becomes RANCID. It is for sale by All First-class Dealers.

It's As Good As Any and Better Than Many.

Alderney Butter Color.

FREE FROM ALL SEDIMENT.
DOES NOT FADE.
ALWAYS UNIFORM.

GIVES PERFECT JUNE TINT.

Special Premiums given to **Prize Winners** at State Dairymens' or Butter Makers' Conventions for butter Colored with **ALDERNEY BUTTER COLOR.**

Samples Sent Free to any Buttermaker.

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CHICAGO, No. 14 North Clark St. BOSTON, 98 Commercial St. PHILADELPHIA, 109 So. 2nd Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York. Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



THE AMERICAN Cream Separator

PRICE - - $65

Still at the head, receiving **First Premium and Diploma** at the St Louis Fair, as the

Best Cream Separator For Farm Use....

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Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

American Separator Co., Box 1023, BAINBRIDGE, N. Y.

ing this new treatment. Reports on more than one hundred cases show about seventy-five per cent of recoveries. Dr. Schwartzkopf has collected reports on a large series of cases treated in this country by this new method, and they show seventy-three per cent of recoveries.

In Denmark and Germany the treatment is used more than here, and the recoveries amount to eighty-three per cent, according to the last published statistics, covering several hundred cases.

Enough has been done to show that this treatment gives much better results than have ever been obtained before, and it is highly probable that the results will become better still as the new method is better understood and more extensively used. It is also possible that some improvements can be made in it. The research laboratory of the State Live Stock Sanitary Board is using a part of its resources in the further solution of this problem. LEONARD PEARSON,

State Veterinarian of Pennsylvania.

Pasteurizing Skim Milk.

ED. HOARD'S DAIRYMAN:—I see in the DAIRYMAN of Oct. 13, Mr. B of Potsdam, N. Y., wants to know if it is not possible to pasteurize the skim milk at the creamery. I am running a skimming station and all of the milk is pasteurized and the patrons do not have to wait for their milk either. The weigh platform is on one side. The milk is weighed in and the patron drives around to the opposite side and the sterilized skimmed milk is ready for him to draw. After the milk is skimmed it is elevated to a tank over head by means of a steam jet pump. In the large tank is a small round tank holding about two gallons. The milk is delivered into it; there is also another steam pipe entering it, which is full of small holes in the bottom side. I turn on enough steam to heat it nearly to the boiling point, fast as it runs from the seperator. Sometimes it does boil but it does not have any burnt taste. We can skim and pasteurize 100 pounds in three minutes and there is no waiting. I would like to take a sky view of the tank Mr. B. gets his skim milk from (that is I would want to view it from the sky.) I would not want to get any closer to it than that.

The creamery man surely does not read HOARD'S DAIRYMAN, or there would not be any milk of any kind in the skim milk tank when the first patron came. Our skim milk tank is washed just as often as our separator, and there is no bad odor about the station. But we give the DAIRYMAN all the credit. If Mr. B. will get his creamery manager to read the DAIRYMAN awhile, he will be able to get his milk on time and pasteurized too in a clean tank, unless he be like the editor of the *Jersey Bulletin*, "sot in his ways."

If you will just come to Kansas, we will give you your milk back sweet and on time. I have been thinking of trying to tell you what the DAIRYMAN has done for me but am not capable of doing it in good enough style for any one to read. J. R. C.

Burden, Kans.

The above is practically the plan illustrated and recommended in the DAIRYMAN years ago.

Wisconsin Cheese Makers' Association.

ED. HOARD'S DAIRYMAN:—In response to the call of Pres. J. A. Carswell, the Board of Directors of the Wisconsin Cheese Makers' Association met on October 13th at Madison, in the rooms of the Capital House, where extensive preparations were planned and discussed for the Eighth Annual Meeting of the organization.

In addition to other important business pertaining to the future welfare of the Association, it was decided to hold the next meeting in the city of Madison on the 7th, 8th and 9th days of February, 1900.

The very best dairy talent obtainable in Canada and the States will be secured, and no time or expense will be spared in making this coming meeting the very best in the history of the association. The preparations will be vigorously pushed from now up to the date of the meeting, and will include papers and addresses along all lines of cheese making.

The Board guarantees the cheesemakers' of Wisconsin a most excellent program and splendid premium list. U. S. BAER.

Secy. Wisconsin Cheese Makers' Assn.

Transfers of Guernsey Cattle from September 15 to 30, 1899.

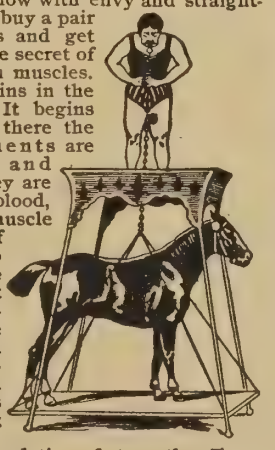
BULLS.

Anthony Wayne 6194, William F. Gable to Henry C. Posey, Isabella Pa.
Banner Boy 6217, Christ. Muth to Helen M. Sweet, Oshkosh, Wis.
Bishop's Viscount 5545, John W. Scribner to George C. Hill & Son, Rosendale, Wis.
Culla 5585, George C. Hill & Son to John W. Scribner, Rosendale, Wis.
Eurus of Chester 6200, A. J. Cassatt to S. E. Stewart, Arch Spring, Pa.
Elkdale Chief 5243, D. L. Stevens to Flannelly Brothers, Carbondale, Pa.
Erwin of Green Bank 6215, Henry Marshall to Wm. B. Harvey, West Grove, Pa.
Franklin Prince 6228, M. M. & E. J. Hollingsworth to A. P Thompson. New London, Pa.
Gilded Dawn 5668, J. E. Shannon to Hazlewood Co., Ltd., Spokane, Wash.
Lilith's Colonel 5576, G. L. Burleson to J. G. Seward, Harvey Wis.
Prince Orange 6215, Louis Cabot to W. L. Graham, Fort Ann, N. Y.
Prince of Knox 4738, A. Culbertson to S. J. Conner, Kingsville, Pa.
Prince of Kersley 6218, Ely T. Smith to Amos A. Rosenkrans, Flint, Mich.
Pomara Boy 6226 John C. Higgins to E. T. Gill, Haddonfield, N. J.
Prince Otto 6205, F. E. Perkins to Joseph Cole, Harmony, R. I.
Protector of Sunnyside 6000, M. M. & E. J. Hollingsworth to Emmor D. Gawthrop, New Garden, Pa.
Sir Robert Rosendale 6196, O. Koogle to Wm. Farr, Rogers, Mich.
Trilby's Son 6203. Wm. B. Harvey to Pennock F. Hamilton, Cochranville, Pa.
Trustee 4925, G. N. Proctor to W. A. Blodgett, South Lincoln, Mass.
The Banner Badger Boy 5958, Charles L. Hill to Wm. B Strong, Brownington, Vt.

COWS.

Anacortees 11481, Barbara H. 5849, Maude Prestige 11538, Ocosta 11479, Yakima's Pride 11480, Zella Whitey 2d 4881, J. E. Shannon to Hazelwood Co., Ltd., Spokane, Wash.
Acerose 12070, Legume 12069, Peltate 12074, Pinnate 12071, Rhizoma 12078, Siliqua 12076, Sorus 12075. Spadix 12072, A. F. H. Smith to E. H. Schley, Bernardsville, N. J.
Baby Lace 12040, Clara F. 12038, Dorkis 12037, Elizabeth J. 12036, Elizabeth J. 2d 12111, Honeymoon 2d 12035, Renaissance Lace 12041, Trousseau 2d 12039, F. E. Perkins to Joseph Cole, Harmony, R I.
Lilith 2d 8995, Lilith's Fancy 12106, G. L. Burleson to J. G. Seward, Harvey, Wis.
Calico 10191, Edward Sharpless to Joshua Sharpless, London Grove, Pa.
Lady Warwick 8215, Horace C. Disston to James T. Armour, Bay View, Md.
Miramont 12064, D. W. Clark to Geo. E. Stickney, Newburyport, Mass.
May Stanton 12066, Edward Horne to Ezra Michener, Carversville, Pa.
Nettie Howard 11065, Edward Horne to Thomas S. Michener, Doyleston, Pa.
Rose of Evergreens 6732, Hanford K. Wanzer to George J. Hallenbeck Altanmont, N Y.
Peterboro, N. H. WM. H. CALDWELL, Sec'y.

We all covet strength and admire it. We look at the marvelous muscular development of a Sandow with envy and straightway resolve to buy a pair of dumb bells and get strong, as if the secret of strength lay in muscles.

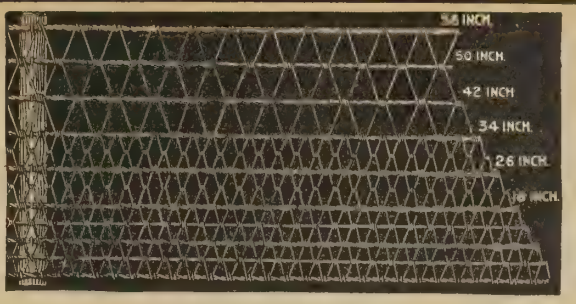


Strength begins in the stomach. It begins there because there the strength elements are manufactured, and from there they are distributed to blood, bone, brain, muscle and nerve. If you want to begin to be strong, start with the stomach. Put the digestive and nutritive organs and blood making glands in perfect working order. That is the foundation of strength. Exercise puts on the superstructure of development.

To establish the stomach and the digestive and nutritive functions in perfect health, there is no medicine so sure and so satisfactory as Dr. Pierce's Golden Medical Discovery. It strengthens the stomach, enriches the blood, nourishes the nerves, and regulates the functions of every vital organ of the body.

"About twelve years ago I was suddenly taken with a pain in the pit of the stomach which was so violent I could not walk straight," writes O. S. Copenhaver, Esq., of Mount Union, Huntingdon Co., Pa., (Box 222). "It would grow more severe until it caused waterbrash and vomiting of a slimy yellow water. I consulted a physician and he told me I had a form of dyspepsia and treated me for about six months with but little benefit. I still kept getting so weak I could scarcely walk. I then tried another physician and he told me my liver was out of order and that I had indigestion. He gave me a treatment and I got some better but only for a short time. I then took to using several widely advertised patent medicines, but received no more than temporary relief while using. I then tried Dr. Pierce's medicines, using his 'Golden Medical Discovery,' 'Favorite Prescription' and the 'Pleasant Pellets,' and in two months' time I was feeling better than I had for years before. I can truthfully say Dr. Pierce's medicines did me more good than any I had ever taken."

Dr. Pierce's Common Sense Medical Adviser, 1008-pages, fully illustrated, is sent free on receipt of 21 one-cent stamps (cost of mailing only) for paper edition, or 31 stamps for edition bound in cloth. Dr. R. V. Pierce, Buffalo, N. Y.



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is only one of the ten styles we make. We call it our standard because it is designed to meet nearly every requirement of the fence user. Made in **six heights**, as you see it in the illustration, for cattle, horses, hogs, pigs and general farm fencing, this is by all means the Standard Fence, outselling every other fence on the market. **And it's cheap, too.** If you can't find the Ellwood at your dealer's write us for catalogue.

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Are an established factor in the CREAMERY BUSINESS to-day. Protect your special brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. **Our STANDARD** weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

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PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

Mr. Dairyman:

Are you getting all the cream from your milk by your present method? We should like to put an



Empire Cream Separator

in your dairy and compare results. If you do not make enough extra butter to pay for it in 6 months, we will not ask you to keep it.

The Empire is as much in advance of the old style separators as the latter are of the setting system.

Six sizes of hand machines ranging in price from $40 up. Catalogue free.

U. S. Butter Extractor Co., Newark, N. J.

Fur Robes and Coats—We will manufacture them from your cattle and horse hides cheap Samples free. MILFORD ROBE TANNERY, Milford, Ind.

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Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
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See that the name of the American Cotton Oil Co. appears on the red tag.

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Pressed Steel Wheels. For Farm Wagons and Trucks. Have all the Latest Improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the BEST metal wheels on the market, buy them from **The Arnold Metal Wheel Company,** Lock Box 28, New London, Ohio. Catalogue and prices on application



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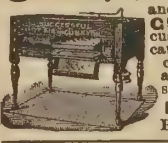
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A new Sweep Grinder of large capacity, easy power and great durability. **Easiest runner made.** Upper and lower grinding rings operate in opposition to each other, doubling grinding capacity. Crushes and grinds ear corn and all grains single or mixed. Send for circulars, etc.

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and have 12,000,000 feet for sale.

Send us your bill for our estimate.

Write for free Illustrated Catalogue No. 20 on general merchandise from Sheriffs and Receivers Sales. Address

Chicago House Wrecking Co. CHICAGO, ILL. OMAHA, NEB.

Winter and Spring Wheat Bran.

[Press Bulletin.]

The Pennsylvania Experiment Station has recently completed some interesting investigations into the relative value of winter wheat and spring wheat bran. The samples examined represented the various brands offered for sale in his locality.

Based on older analyses, the general opinion has been that there is no material difference in the composition of winter and spring wheat bran. The Station's analyses, however, as well as later analyses in other states, show that, on the average, spring wheat bran is about one per cent richer in protein than winter wheat bran, while experiments at the Massachusetts Station indicate that the protein of spring wheat bran is also more digestible than that of winter wheat bran. So far, then, as bran serves for the purpose of supplying protein to balance up a ration, the spring wheat bran appears to be preferable to the winter wheat bran, notwithstanding that the latter usually commands a higher price in the market.

The composition of the different samples of bran was found to vary considerably, and it was also found that in Maine and Massachusetts, where an official feeding stuffs control is maintained, the variation was somewhat less and the average grade of the product, somewhat higher than in Pennsylvania.

The results of these investigations will shortly be published in bulletin form.

The Value of Sorghum as a Feed.

[By A. HALL, read before Farmers' Institute, Speed, Kans., September 18, 1899.]

The need of the hour is the greatest amount of production at the least expense, and the great question for every producer to solve is, "Will this thing or that thing pay better?"

The Navajo Indian weaves a blanket which requires his labor and skill for one year, and yet he has an unspeakable pride when he gets $10 for his labor. But in higher civilization it is estimated that one must have at least 50 cents per day if he feeds and clothes himself and lays by a small amount for old age. Then if we measure the value of this Navajo blanket by a higher civilization it is worth just $156. Our fathers considered they had reached the goal when a hand had cultivated twenty-five acres of corn and fifty bushels per acre had been obtained, or a total of 1,250 bushels. Nevertheless they so directed our observations and pointed to a higher economy that we are enabled to somewhat grasp the situation as it is presented, so today we consider seventy acres per hand and thirty bushels per acre, or a total of 2,100 bushels, of more value than that which our fathers produced.

Then it is the economy of production that gives value to all products. To illustrate, if one ton of sorghum is worth four tons of prairie hay, and yet if those four tons of prairie hay can be produced at a less expense than one ton of sorghum then it would be economy to produce the four tons of prairie hay. What I have to say of sorghum as a feed will be along this line. I shall not speak of sorghum as a substitute for grain but as an aid, as I have never learned to prepare stock for market without the use of what I consider a stronger feed than sorghum.

I will presume that every farmer has his mode, or manner, of raising sorghum. I prefer sowing it with a drill, where that implement can be had, otherwise broadcast. As a feed for stock hogs in spring and summer I have never found anything to equal it. Where hogs have to be kept in pens, as most farmers in this community are compelled to keep their hogs, they can be grown faster and cheaper on sorghum than any other feed we can produce; but for the feed to do the most good it must be prepared fresh—that is, it must be cut or pulled at each feed, and I prefer pulling it as the hogs will eat every root and often will eat roots first. To pull the sorghum will not take as long as it may seem at first thought. Where hogs are fed three times a day any person can pull enough sorghum in thirty minutes to feed forty hogs.

For hog feed, the seed can be sown the first of April, or sooner if the ground can be worked, and by the 15th of May you can cease feeding all grain to stock hogs and go in on sorghum.

But grand as sorghum is as a hog feed, I have always found my best results when it is used as hay for horses and cattle. I consider one ton of sorghum hay worth four tons of prairie hay as a feed, and it can be produced at one-tenth the cost when everything is considered. It will yield from four to eight tons per acre, and I have heard men, whose truthfulness and ability to judge accurately I have no reason to doubt, say they have raised twelve tons per acre. For hay, it can be sown any time from April 10 to June 20; then let it grow until headed out and the seed well ripened.

Now let us note its great advantages over any other hay. You can cut your sorghum hay in August and if you are crowded in work you can put it up in December and the stock will eat it just the same and your results will be as satisfactory as though it was put up sooner. But I advise you to put in the stack in four weeks after cutting, but no sooner.

Let us make a little compairison of yield per acre with that of prairie hay. Sorghum will yield from four to eight tons per acre. Prairie hay will not exceed one ton per acre, and I hold that one ton of sorghum hay is worth, as a feed, four tons of prairie hay—that is, it will keep the same amount of stock in as good condition as will four tons of prairie hay. In this respect, when we consider its cheapness in production, its enormous yield per acre, the easy manner in which it is cured, and the satisfactory results from feeding it, we must conclude that we have nothing to equal it in value as a feed.

Before coming to Kansas I had been accustomed to seeing either sheaf oats, red clover, or timothy used as a hay, but I consider sorghum superior to any of those. With the advancing price of land, with the great demand for valuable feed, with the sharp competition which is continually being presented, it behooves every farmer to try for the best results at the least expense.

Two eminent statisticians have been figuring the shortness of time at which this nation will cease to export grain. One has fixed the date at fifty years and the other at thirty years. Just how correct either one is remains to be seen, but I venture the assertion that no thrifty farmer in this community can afford to keep one acre of ground for the purpose of producing one ton of prairie hay ten years hence.

In closing this paper I will say that perhaps we have those with us who may be able, with the aid of science, to prove the fallacy of some of these assertions. But we invite all friendly criticism, holding that he who corrects an error is a benefactor.—*Kansas Farmer.*

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NN 111

THE YOUTH'S COMPANION, BOSTON, MASS.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FAILURE TO BREED.

I have a heifer about twenty-one months old, that was bred the first time when about one year old. She came in heat about three months later, and was again served by the same bull. This bull is two years old, and is a sure bull. Since then she has been in heat two or three times, and was served each time. P. T.

Marinette, Wis.

ANSWER.

Repeated serving is always ruinous. In all such cases, you need a medicine to stop coming in heat for several seasons. Such medicines are advertised in the DAIRYMAN, and they, being special, are the safest and cheapest for your purpose. The formulas for such uterine and ovarian conditions are compounded from drugs not fit for a layman to meddle with, and no simple form of medication is worth anything at all.

SWEENEY.

Is there any cure for sweeney in horses? I have a six-year-old which got sweeneyed last spring, by plowing him, and seems I can not get any cure for same. H. H .F.

Cincinnati, Ohio.

ANSWER.

Atrophy of the muscles of the shoulder is common to the horse of the hard driver. All sorts of butchery and fool-hardy methods are recommended by the different know-alls. Rub hard twice a day with alcohol and fish oil, half and half. About every third day rub in home-made lard and alcohol as a change in feeding the muscles of the shrunken shoulder.

POISONOUS PLANTS IN HAY.

Last spring there was a good deal of sickness among calves here; they lost appetite and their ears drooped forward, and the hair got rough; passage very offensive, often being of a whitish color. Those we opened had a place in the wind pipe that seemed much inflamed. The disease appears to be coming again this fall. Some sucking calves were affected and in nearly every case the calf died. J. D. McL.

Winfred, S. D.

ANSWER.

I have lately been studying the poisonous plants found in the pastures, in the hay, on the corn stalks, etc., etc., and find from professional chemist's catalogue of plants, that there are from fifty to seventy poisonous plants to be found in our pastures, hay, corn stalks, etc., etc, and that these cause many deaths by poisoning amongst our domestic animals yearly, and also cause death in the human family, poison rye grass, poison Indian corn grass, common ergot, sleepy grass, all the buttercups, etc., etc. One of the most deadly vegetable poisons is our much valued lilly of the valley. To chew one single stem of the fragrant flower is dangerous.

DEATH FROM EATING COW PEAS.

Mr. E. Kaiser, of Freestate, Mo., asks about the effect of green cow peas on cattle. After allowing his cattle to feed in a field of green cow peas for half an hour, five head out of sixteen died in a short time—three milch cows and two yearling steers. The cows began to shiver and became stiff; were not bloated at first, but slightly towards end of sickness.

The letter was referred to Dr. Horne who answers as follows:

ANSWER.

Yes, if given too liberally, but the cow pea, so far as I know, is not specially a cause of hoven—bloat. I am quite sure your cows were poisoned by some poisonous plant and not killed by bloating; there are many more deadly poisonous weeds now than there used to be; quite a good many of them are hidden to the ordinary observer. Smut seems to be a prominent source of poisoning to our domestic animals.

FAILURE TO SERVE.

I have a pedigreed Ayrshire bull, three years old last July. Kept on tether during the day, stabled at night and moderately worked on a dung sled. Serves one or two cows a week. He gets about six pounds hay in the stable and keeps in such good order as to be inclined to be fat. Lately he is beginning to lose all ambition for service. With a cow in prime season, it will take him an hour to make up his mind often, making four or five futile attempts. Can you suggest a remedy? D. F. B.

Whonnock, B. C.

ANSWER.

I kept Durham, Jersey, and other breeds of bulls for public service for twenty-five years, and had, of course, lots of experience. I observed all sorts of freaks; many like yours, only mine never worked. Let him rest from service and hauling the sled. Give him nux vomica in half dram doses, and one dram of blue flag in one ounce of old whiskey and three ounces of water; one dose a day for three doses; then rest four days; then give one dose every four days for just three doses only.

POOR APPETITE.

I have an Ayrshire-Jersey calf, now in his sixth month, that will not eat. He, with five others of about the same age have been in an old orchard all summer and have been fed grain. In September my man, instead of feeding the calves some mixed hay, to help the pasture out, gave them some green cut corn ensilage, about two bushels daily for six calves. When I found the calves getting thin in flesh I inquired as to their feed, and at once stopped the ensilage. (This ensilage was cut fresh from the stock every morning.) Then this calf refused to eat any other food. I try to induce him to eat brown middlings and whole oats. Sometimes I offer him white middlings, wheat bran and whole oats. He will eat but a mouthful or two of either, and will eat only a wisp of hay. I gave him a physic of castor oil. He is not scoured, simply has no appetite and is very poor in flesh. F. SIMPSON.

Ridgeway, Pa.

ANSWER.

No kind of oil has a place in the stomach of the bovine family, only as an injection. Sulphate of magnesia is the true cow physic always. Give the little fellow one scruple of nux vomica, two drams of fluid extract of golden seal in one ounce of old whiskey and two ounces of cold water; one dose each morning for two days, rest three days, then give one more dose. In five days give the last dose.

SWELLING OF SHEATH—SMUT POISONING.

I have two cases of sickness in my herd of full-blooded Holstein cattle.

No. 1. A bull between two and one-half and three years old, having been used with mild service upon the cows, that is to say, not oftener than twice a week, was put into a pasture by himself and fed wheat and oat hay mixed, with free access to pure, fresh water directly from the spring. He did not seem in any way out of order the day before, but the next morning was very much swollen about the navel, the swelling extending well along his sheath. He appeared stiff in his hind legs. I had the swollen parts bathed in hot water, and gave him a pound of Epsom salts with a teaspoonful of ginger dissolved in hot water, three consecutive mornings. He now seems to be quite well, as far as his actions indicate, eats the usual amount of hay and chews his cud regularly, but the swelling of his sheath has not entirely subsided.

No. 2. A cow six years old dropped her last calf last January; since then has milked steadily, good appetite, has been fed a mixture of wheat, bran and middlings, one part of middlings to three of bran, and all the wheat and oat hay mixed she would clean up, with free access to pure spring water. She was bred to the bull the first of September, not having come into season until that time since dropping her calf in January. About two weeks ago she refused to eat, her flow of milk rapidly diminishing; seemed very stiff in all her muscles, and would creep along rather than walk, and seemed to quiver in the muscles of her fore and hind quarters. A few days later her hind quarters began swelling so that she was puffed from her hips to hind hoofs. Also swollen between the front legs to quite a little distance under her belly. I gave her a Glauber salts drench morning and night for two days, and blistered each hind quarter with mercurial blister, feeding her as much as she would care to eat, of green corn stalks and leaves, twice a day. She steadily refuses to eat hay, but seems now to be doing very much better.

San Francisco, Cal. R. M. H.

ANSWER.

No. 1. Needs and must have a personal examination to find out the difficulty. He may have been stung. He may have some foreign body up in the sheath, or he may be foul in the sheath, etc.

No. 2. The mercurial blister was malpractice. Your symptoms indicate smut poisoning, clearly, or some other form of poisoning. Give repeated full doses of sulphate of magnesia, not Glauber salts, i. e., sulphate of soda. This of course to be given with intelligence. If too much reduced in flesh, purge more lightly. Still, purging is the best and simplest method.

Rub in hard: Sulfuric ether, two ounces; oil of cedar, two ounces; camphorated spirits, strong, six ounces; fish oil, six ounces. Keep well corked and out of the sun, and shake each time before using. Keep in shade. Rub twice a day.



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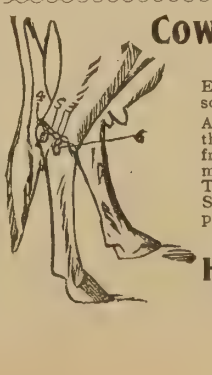


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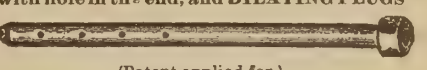
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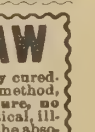
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On Mixing Feeds.

Perhaps instead of talking so much about balanced rations and nutritive ratios, it might be well to talk a little about mixing feeds. First, a few facts: It is a fact that you yourself, while fond of bread and fond of butter, like them a good deal better together than you do separate. You could live on bread without butter if you had to, you could live for a little while on butter without bread, but you can live better by spreading the butter on the bread. You are fond of beans and you could eat them without pork, you are fond of pork and could eat it without beans, but long experience has taught you and your grandmother that pork and beans together are better than either pork or beans separate. You are fond of potatoes; you are also fond of beef. You could make a meal on brown potatoes without roast beef, or you could make a meal on roast beef without brown potatoes, but your grandmother taught you long ago that roast beef and brown potatoes are a very good mix for a substantial dinner. We might state facts like this much more fully, but the above will convince you that you like your food mixed.

Observation has taught you long ago that oats are good for pigs, and so is corn, but if you have kept you eyes open and notice closely you have observed that pigs make better gains on oats and corn mixed than they do on either separate. On the same line we might give you a few similar facts from the stock yard. With potatoes at ten cents per bushel, the digestible nutrients or food will cost you ninety cents per hundred pounds. With corn at thirty-five cents the digestible nutrients will cost you seventy-eight cents per hundred pounds. With middlings at $14.00 per ton, the digestible nutrients, or that part which the animal actually utilizes, will cost you ninety-seven cents per hundred pounds, and with skim milk at ten cents per hundred pounds, the digestible nutrients will cost you $1.12 per hundred pounds.

This makes potatoes with corn at thirty-five cents worth for feeding purposes between eight cents and nine cents per bushel as compared with corn, and it makes one hundred pounds of corn worth about nine times as much as one hundred pounds of skim milk. Now let us try a little mixing. It has been found by the experiment stations, in actual feeding, that six hundred pounds of milk fed alone will make about as much gain as one hundred pounds of corn, but that if you mix the milk and corn in the ratio of three or four pounds of milk to one of corn, that between three hundred and four hundred pounds of skim milk will equal one hundred pounds of corn meal. Potatoes fed alone to hogs are worth very little unless they are boiled, but mix them with middlings or shorts or oil meal and note the high appreciation that the hog has for that kind of a mixture. His appreciation is scientific as well as practical. He believes in mixed feeds. If you offer him a mixture of corn and potatoes, he might probably turn up his nose, that is, if he had been fed like a millionaire. He does not know anything about science or balanced rations, but he distinguishes very quickly between mixes and mixes. He will take his corn with skim milk or buttermilk, if you please; he will take his potatoes with middlings, or he will take corn with middlings. While he will take middlings and skim milk, his internal consciousness would indicate after a little while that the mix was not quite right. The little pig might think differently because he is different.

Experience has taught the farmer that clover hay with corn fodder or timothy or straw or corn is a most excellent mixture, that clover and corn will do better together than separately, and that corn fodder gains in value very rapidly by being fed interchangeably with clover hay. In other words, that you get not only the value of each, but you get an additional value as a result of the mix.

But after all, this is only the old doctrine of balanced rations and nutritive ratios stated in a different way. The skim milk has a nutritive ratio of one to two, and potatoes one to 11.5; that is, one of flesh formers to the amount stated of fuel or heat makers. What the growing pig, calf or lamb requires is about one to five, or about the ratio of oats or middlings; hence, the importance of mixing. The reason why you like bread and butter mixed is because butter is almost entirely a pure heat maker; the bread, especially brown bread, is largely muscle making. You want them mixed, and when the weather is very cold and the demand for heat greater, you would not object to some side meat with it.

The doctrine of balanced rations is founded on nature's laws. You can not avoid them except at your own loss. Mixing feeds intelligently is simply balancing rations, and you will mix with larger intelligence and greater profit if you will take time to study nutritive ratios. It is all right to call it mixing feeds, and the science of mixing feeds, but it is just as well to master that word nutritive ratio and get down to scientific principles. It is not after all any bigger or harder word than telegraphy or telephone, or any other of the new words that science is continually forcing upon us.—*Wallace's Farmer.*

Paralyzed Pigs.

Every year we receive many inquires from subscribers wishing to know what is the matter with shotes and brood sows that are paralyzed in their hind quarters. They go down, their general health does not seem to be greatly affected, and we have known brood sows affected in this way when their pigs were a few weeks old that nursed their pigs through without any apparent loss. In our boyhood days the cause was supposed to be kidney worms, and they were dosed with corn that had been boiled in lye, but without any marked effect. That there is such a thing as kidney worm every butcher is well aware who has found the worm actually in the kidney. We believe, however, that while occasional instances of this may occur, the breaking down of pigs in their hind quarters is due in general not to the kidney worm, but to improper feeding. In fact improper feeding is the cause of many of the ailments of pigs, and often when not suspected. When a brood sow has been fed on a corn diet and been compelled to draw on her own system for the flesh and bone forming materials and then meet the wants of a litter of pigs that require a flesh forming diet, it is easy to understand why she should break down. When pigs have been fed on all corn diet, having access neither to oats, pasture, lime, nor ashes, it is not strange that when they get to be 100 or 150 pounds weight they break down, for the same reason that hogs fattened in this way to 200 or 300 pounds are often found too weak in the bone to stand the hauling of a few miles to market, and break down.

How is this to be remedied? First, by feeding brood sows oats and clover hay as well as corn; second, by giving the pigs skim milk, clover pasture, and a partial diet of oats, shorts or bran. The latter cannot be used in large quantities, because it is too bulky, but oats, shorts, and clover hay can be used. All hogs should have before them at all times a mixture of salt and ashes and should have access to the earth where they can root for what they want. As frequently stated, we do not believe in fighting with the Creator of the hog in putting rings in noses that were intended for rooting. If they root up the pastures, let them root. There is something wrong with your pasture. The hogs are helping, rather than hindering.

The above is not merely the dictum of the editor of this paper. The subject has been throughly tested at the Wisconsin Experiment Station, and it has been proved beyond question that a sole diet of corn, such as a majority of farmers give their hogs, will not produce strong boned hogs, and it is the weak boned hogs or brood sows that have been compelled to make bricks without straw that break down. Now is the time to avoid the difficulty for the future. Give the brood sow the proper material with which to manufacture. A pig factory can not produce healthy pigs without the right kinds of material, and this must include bone making material, in which corn is deficient.—*Wallaces' Farmer.*

Oleo.

December 10, 1896, Joseph Wilkins and Howard Butler were apprehended in Philadelphia, while in the act of removing stamps from boxes containing oleo. Wilkins was an extensive dealer in oleo at Washington, D. C., and Butler a clerk in his employ. It was stated that the dealer had previously violated the law on numerous occasions, being leniently dealt with by the authorities. This time, however, he was sentenced to six months' imprisonment and $1,500 fine, his clerk receiving a sentence of four months imprisonment and $500 fine. This was in February, 1898. An appeal was taken, and an effort made to prove the law unconstitutional. It was not until the latter part of September that the United States Circuit Court of Appeals rendered a final decision in favor of the Government, affirming the verdict, and directing the District Court to enforce the sentences imposed. It seems hard that nearly two years' fighting should be required to secure punishment of a flagrant violation of the law, but there is satisfaction in knowing that this case will furnish a precedent in dealing with future breaches of the oleo laws.

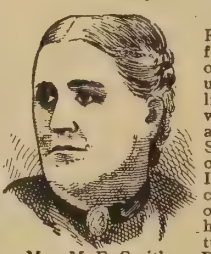
We wonder whether the writers who urge the use of oleo as a worthy food product have ever really eaten it for any considerable period. The writer lived for nearly two years with a co-operative colony in a southern state. The native butter was scarce, and of miserable quality, our dairy was in an embryonic state, and from motives of economy it was not deemed practicable to buy good northern butter. So we tried to content ourselves with oleo as a fat ration. Scarcely one individual out of three hundred ever professed to like it, and many cases of sickness, treated by resident physicians, seemed to be directly caused by eating the oleo. The use of refined cotton seed oil in most culinary operations was a decided relief, and was followed by a general improvement.

We bought the oleo directly from several of the great packing corporations composing the "beef trust," in quantity, paying a good price, and demanding the highest quality manufactured. We found it necessary to make frequent changes in the parties from whom we purchased it, as the first consignments would invariably be a close imitation of butter in texture, taste and odor, and evidently contained a high per cent of real butter. Subsequent shipments would fall off rapidly in quality, until they became too rank even for our degenerated palates, when we would try another member of the same chain of factories. This, we have heard since, is a regular dodge to secure new customers, while farming the older ones for higher profits. Now, there is no fault to be found with the use of intestinal fats when openly sold and recommended, if one become so depraved in his tastes as to relish such mixtures, but to claim that oleo, as now put on the market, is a worthy substitute for meat and butter, is an outrage on common experience.—*Rural New Yorker.*

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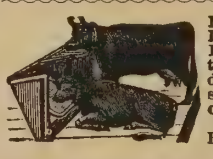
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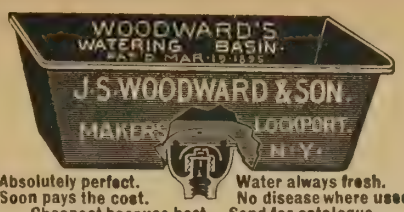
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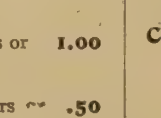
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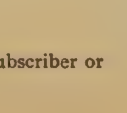
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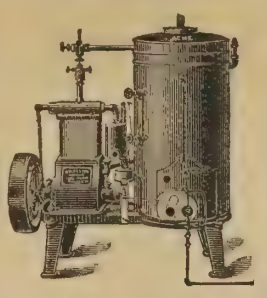
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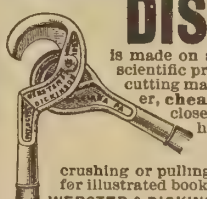
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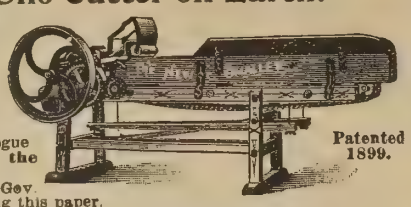
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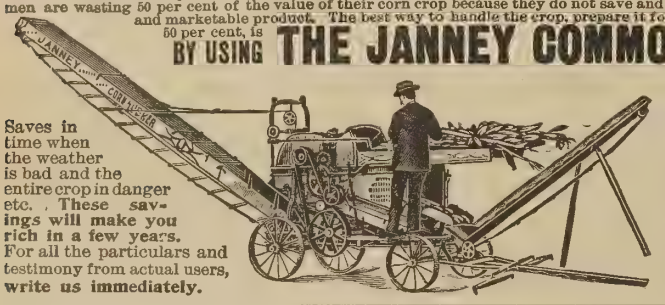
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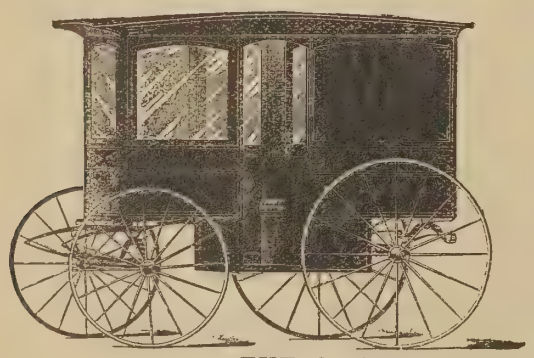


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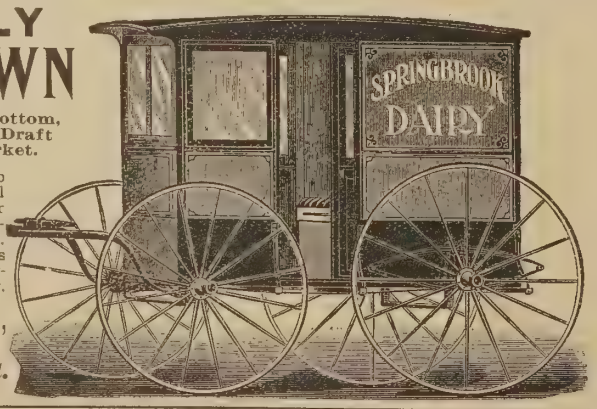
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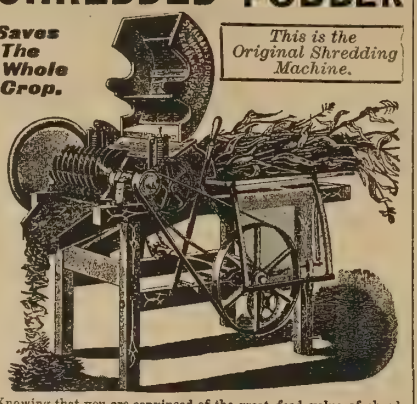
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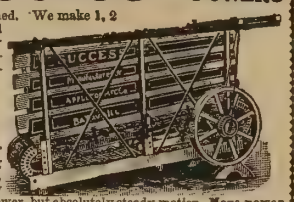
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"SUCCESS" TREAD POWERS

are properly named. We make 1, 2 and 3 horse tread powers, smooth or level lags as desired, down or mounted. The

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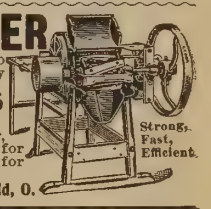


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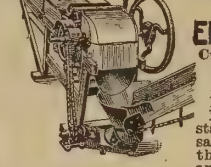
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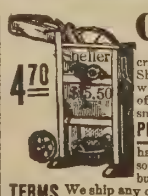
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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., NOVEMBER 3, 1899. NUMBER 38

University of Ill

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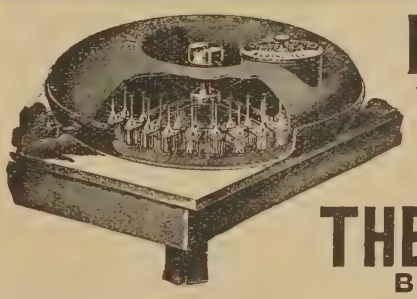
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DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
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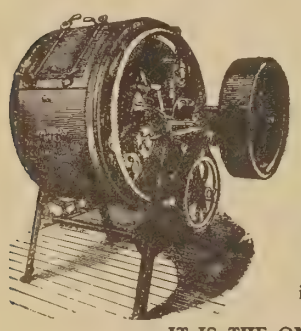
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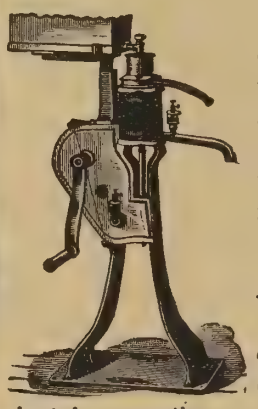
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Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

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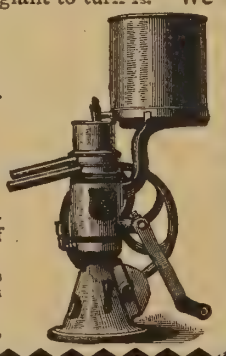
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to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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GENESEE BUTTER SALT A flaky grain, very soluble, will not wash out (like fine salt) and brings out the best flavors in the butter.

GENESEE CHEESE SALT Trifle coarser than Butter Salt, of the same quality and is cheaper than common salt because it goes further and produces better results.

Genesee German Cheese Salt (Deutſcher Kaſe Salz) has no equal for Swiss, Limburger, Brick, etc.

Genesee Salt Never Lumps nor Hardens.

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DAIRY AND STOCK FARMERS Will do well to inquire about the fine meadows in Aitkin county, Minnesota, where splendid stock lands can be bought for $3.00 to $5.00 per acre on 10 years time at 6 per cent interest. Cheap railroad rates whether you buy or not. For maps, rates and further particulars write L. B. ARNOLD, Agent, 901-5 Guaranty Building, Minneapolis, Minn.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

WISCONSIN produced last year 64,000,000 pounds of cheese worth $5,000,000, and 100,000,000 pounds of butter, worth $20,000,000. It produced also 10,000,000 bushels of wheat; 32,000,000 bushels of corn; 75,000,000 bushels of oats; 16,000,000 bushels of barley; 3,000,000 tons of hay and 13,000,000 bushels of potatoes. It has within its borders 1,000 creameries and 1,600 cheese factories.

Random Jottings.

Factory Salesmen—Skimmed Cheese—Beef vs. Cheese—Cheese as Food.

ED. HOARD'S DAIRYMAN:—As a rule, the average cheese factory salesman, where there is a fluctuating market, stands, as it were, "between the devil—with a small d—and the deep sea." Its "you'll be damned if you do, and be damned if you don't." If, perchance, the market "springs a quarter," during the week after his last sale, a whole lot of patrons begin to howl; if it drops, and he did not sell, the same patrons and a whole lot more, set up a louder howl and they yell, "I told you so." 'S'nawful place to put a man; worse than chairman of the Filippino peace chappies; but most salesmen manage to get through the season, and be re-elected the next spring.

The Belleville factory has inaugurated the work of degeneration. It has begun the making of skimmed cheese. A few days ago the separators were started, there being a number of patrons who are having some of their cows come fresh in milk, and, desiring to raise the heifer calves, naturally want the sweet skim milk from the separator. They say: "At present prices for cheese and butter, there is the most cash in cheese; but, we want the skim milk, which is worth to us, twenty-five cents per hundred pounds, which more than makes up the difference in prices." Another patron has but little milk or does not want to raise any calves. He says: "Sweet whey is worth from five to eight cents per hundred, to mix with middlings for my pigs. These figures make cheese worth the most."

To bring about a compromise, the big separators were started and two-fifths of the butter fat removed. That goes as sweet butter to a commission house in New York, which caters to the Jew trade; the three-fifths—or what is saved from it—goes into the cheese hoop. No sales have yet been made of the cheese product, but the salesman thinks the price will not drop more than two cents below that of full creams. If he is correct in his estimate, there is more money in the combination than in either butter or cheese alone.

But what a depraved palate one must have who will buy a two-fifths skimmed cheese and pay within two cents of the price of a thoroughbred, well made and cured, full cream. If the cream constitutes the edible value of a cheese—and it should—when a full cream is selling for twelve cents, such a skim ought not to bring but about eight cents. It wouldn't score that much if I were to buy it.

Up in Lewis county they don't open the cheese factories in the skim degree. Not any; only the very best full creams are made. Result: Nearly all the prizes awarded at the state fair, go into that county, while the average price paid for Lewis county cheese is about one-half cent higher, for the year's make, than in any other county in the state. Imagine Herb. Cook skimming a "Crown-Brand" two-fifths and making "Moses" butter out of the product, then shipping the cheese to his patrons. Where would his markets be another year? You can't eat your cake and keep it too, nor take two good crops at the same time, off the same land, and continue the dodge a great while. The chickens will both come home to roost, dead sure, and not be long in making the journey, either.

A few weeks since, Dr. Jordan, of the Geneva experiment station, had a valuable article, devoted in part, at least, to the edible value of cheese, as compared with beef steak, in the *Rural New-Yorker*, and which has been quite extensively copied by the agricultural press. In it, we were told that the edible milk solids were worth fully twice as much as those in beef steak. The same statements have been made by the chemists of the station, and from Cornell, and by nearly every speaker on the "institute platform," during the last eight years; and we had come to accept the statement as true. But, there is no telling what will happen or "turn up." Every little while somebody comes along and upsets—or tries to—some one of our long cherished pet theories, or knocks down and smashes an idol or two, till we are left unprotected and alone, with our last condition, "wus than our fust;" and we know not which way to turn for relief.

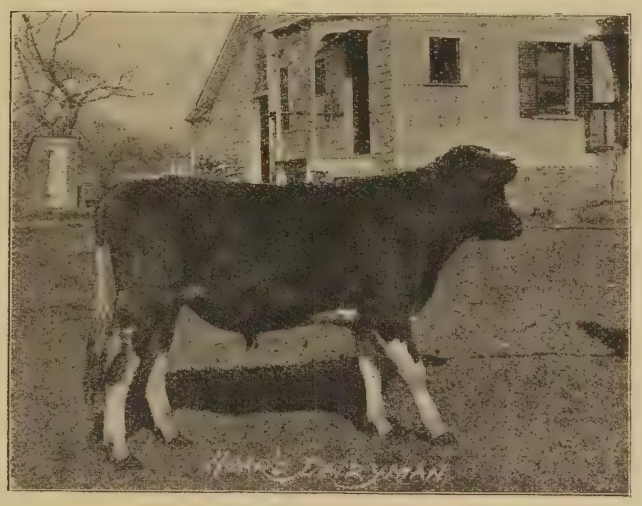
Here is a case in point: A writer whose name is N. B. Franklin, in a recent issue of the *Jersey Bulletin*, has an article under the heading: "Erroneous Estimates of Cheese," in which he seemingly knocks into smithereens all of Dr. Jordan's and the other authorities' statements as to the superior food value of cheese over meat. He says in part:

"It is claimed that chemistry shows that one pound of cheese is equal to more than two pounds of meat without any bone—that $1.00 worth of cheese is worth nearly $2.50 of beef steak, at present prices. These statements are erroneous and misleading. They are based upon the potential energy of the proteid, carbohydrate and fat content of cheese, as shown by chemical analysis. They need to be corrected by its real digestibility in the human stomach.

Tested by chemical analysis, cheese has an exceedingly high value, but its indigestibility brings its nutritive value to a very low level. Moreover, with cheese, as with all other highly concentrated foods, individual idiosyncrasy becomes a controlling factor."

This writer, to prove the statements above made, quotes Dr. Edward Smith, of London, England, as saying in his work on foods, as follows:

"The value of cheese, as an article of diet, has not been entirely established. If we consider it in its chemical composition, we find it very rich—richer than any other known food—in its nutritive elements, provided we select a good specimen * * *



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LUCKY REX, A J. C. C. 50989.

Property of O. A. BENN, Hodgdon, Me.

There is, however, a long standing belief that cheese is not easily digested, and, in fact, that, of any given quantity, much will pass off by the bowels, unused, and, so far as this is true, its nutritive value is lessened. That it is true, has been repeatedly proved by us when determining the amount of nitrogenous matter, which appears in the fæces, after eating cheese. * * *

While, therefore, it may be proper to eat a small portion of cheese, both for the nutriment which it supplies, and for the promotion of digestion, it is not proper to eat a large quantity or to make it a principal article of food, and a substitute for meat. Continuing, Mr. Franklin further says: "In regard to the use of cheese, as in so many other things, the many have been wiser than the few.

In spite of repeated advice and recommendation, the American people have refused to substitute cheese for meat.

In England, the poorer and cheaper kinds of cheese were once largely eaten in substitution for meat, by the poor laborers in South Wales, Somerset, Wilts, Dorset, and some other counties; but, in districts where meat was obtainable by the poor, as in Yorkshire, this habit did not prevail. Since the introduction of fresh meat from America and Australia, cheese has almost entirely ceased to be used as a substituie for meat.

The indigestibility of cheese is recognized in all cook books that give recipes for cooking it, and cooking soda is always added to the recipes to mitigate this indigestibility."

Now then, gentlemen, which horn of this cheese "critter" are you going to tackle? The institute season will open in a few days and, therefore, every speaker should "be armed and thrice armed with the double panoply of truth." It won't do for John Gould to get on his pins and begin to extol old Slicker's milk contingent as a cheese molecule, then back up the statement that a pound of old Slicker's cheese is worth two of her loin as an every day Western Reserve edible ration, unless this discrepency between Dr. Jordan et al, vs. Franklin and Smith has been disposed of in favor of the defendents. Not only John, but the other boys as well, must know whether it is cheese or cold beef steak in their sandwich before they begin to get too gay on the platform. It is a much more serious question to dispose of than is that immune Western Reserve horn fly problem.

Its true, John, but you may write me as one who loves good cheese, greatly preferring it to that immune beef steak we got one day in that Erie county village tavern. If, however, this is a condition, not a theory, as Grover once remarked, it is time you fellows who are to "holler" in the institute halls, this winter, discovered the true microbe or bacterium in the ration. C. W. JENNINGS.

Belleville, N. Y.

Special-Purpose Profits.

ED. HOARD'S DAIRYMAN:—On page 612 of HOARD'S DAIRYMAN, September 15th, 1899, appears an article by T. J. F., of New York, entitled, "Selection of Breeds," in which attention is called to an article from my pen, written some two years since, in which an attempt was made to combat his statement in a previous article, that a general-purpose, beefy type of a cow was more profitable on a farm than she of the Guernsey-Jersey type. The reply referred to, gave an actual demonstration, with figures of the comparative net product of twenty cows of the Guernsey-Jersey type as against that of the twenty Short-horns that he introduced. The final summary developed that the former produced an annual income of $1,108, amounting to $55.40 each, while that of the general-purpose type was $571.36, amounting to $28.57 each. A careful re-examination of that statement gives no occasion to diverge from the positon then taken, and until my New York friend demolishes the comparative statement referred to, thus making the position there taken untenable, I shall remain firm in the conviction that the cow of the specific dairy type is a larger profit producer, than she of the all-purpose type. Butter in McGregor is selling at 25 cents per pound. My dairy type cows (fifteen) are yielding a pound a piece each day on pasture alone. FRANK KINSLEY.

McGregor, Iowa.

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Coming Events.

Minnesota Butter and Cheese Association, Owatonna, Nov. 8–9, 1899.
Iowa State Creamery Buttermakers' Association, Nov. 15-17, Mason City.
Kansas Dairymen's Association, Manhattan, Nov. 22-24, 1899.
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19–21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13 1900. Place to be selected.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7–8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13–14, 1900.

FRESH milk does not exist in China. Hence this country is an inexhaustible market for condensed milk. It is imported via Canton or Antwerp and sold by German and English firms.

AN OLEOMBGARINE ORGAN.

Every farmer in Wisconsin should know once for all that the Milwaukee *Evening Wisconsin* is an oleomargarine organ. It has for years taken every opportunity to defend the fraud in its editorial columns, and is no doubt retained by the Chicago Oleo Combine as their special defender in Wisconsin.

THE PRESENT STATUS OF OLEOMARGARINE LAWS.

It would puzzle even the legendary "Philadelphia Lawyer" to understand the various decisions in oleomargarine cases. Not to mention the Chicago courts, which have a way, all their own, of construing statutes, based apparently upon the theory that the ordinary consumer and the producer of honest goods has no rights, which either the Chicago manufacturer or Chicago courts are bound to respect, it is manifest that United States judges are extremely sensitive lest state legislatures should infringe upon the prerogatives of congress in the way of interfering with inter-state commerce.

The latest devotee to this fetish is Judge Lochren, of Minnesota, who has not only reversed one of his own decisions, but has gone so far as to assume, contrary to its own solemn declaration, that the United States Supreme Court has reversed its decision in the Plumley case, which held the Massachusetts anti-color law not in conflict with the commerce clause of the federal cosntitution.

It may be difficult for judges who are not posted as to the facts, to understand why the reasoning of the court in the Schollenberger case, which holds the Pennsylvania anti-oleomargarine laws void, did not lead the court to a formal reversal of the Plumley case, a conclusion to which much of the argument did, in fact, tend, but the distinction between the two cases is, that whereas the Pennsylvania statute prohibited the sale of all oleomargarine, the Massachusetts statute only prohibited the sale of that which was colored to resemble butter, and thereby rendered so difficult of detection that frauds could be all too easily perpetrated. The circumstance that Massachusetts did not forbid the importation and sale of oleomargarine, in its own color and on its own merits, gave the commerce clause of the United States constitution all the scope that could rightfully be claimed for it, for, as Justice Harlan well said:—"*The Constitution of the United States does not secure to anyone the privilege of defrauding the public.*"

But the Pennsylvania law, by attempting to exclude all oleomargarine, regardless of whether it could or could not be made contributory to fraud, was declared to be in conflict with congressional legislation, and we confess to no little surprise that Judge Lochren failed to differentiate the two cases. That he did not do so is plainly apparent from the following extract from his "opinion" in the Minnesota case, recently decided by him:

"The doctrine which has apparent support in the Plumley case, that a state may exclude from its markets, and absolutely prohibit the sale of an admittedly wholesome article of food merely because designedly prepared to resemble so closely another more generally desired article for which it is a substitute, that persons may be easily deceived, and have it imposed on them for the other article, is plainly contrary to the holding of the supreme court in the Schollenberger case, and untenable since that decree in which the court announces that 'the legislative policy does not extend so far as to embrace the right to absolutely prohibit the introduction within the limits of the state of an article like oleomargarine, properly and honestly manufactured.' "

Had the Minnesota statute, like the Pennsylvania law, entirely excluded oleomargarine, the doctrine of the Schollenberger case would have applied. But it did not do this. Judge Lochren did not claim that it did, for the opening paragraph of his opinion reads as follows:

"This case arises from the attempted enforcement of a statute of the state of Minnesota designed to prevent the sale, or having in possession for the purpose of sale, of oleomargarine colored with any coloring matter so as to resemble butter made from cream."

There has been a decision in Maryland to much the same effect as this one by Judge Lochren, so that we are now confronted with the condition that while the United States Supreme Court, nominally at least, recognizes the validity of the so-called anti-color laws, it furnishes a line of reasoning which leads state and inferior federal courts to make the anti-color laws inoperative and of no effect.

Further legislation by congress is therefore absolutely imperative, and with more than three-fourths of all the states on record by their statutes, passed not hurriedly, but after mature deliberation, as opposed to the traffic in colored oleomargarine, it would seem that appropriate legislation could be had without much difficulty or delay, provided those who favor such legislation do not divide and quarrel too much among themselves. We have advocated the taxing of colored oleomargarine in such amount that it cannot be sold at a large profit for less than good butter ought to command. We have also advised inserting in such a law, a proviso that nothing in it should be held to authorize the sale of oleomargarine contrary to state laws and municipal regulations. The resolutions adopted by the Farmers' National Congress, at its late meeting in Boston, and by the Dairy and Food Commissioners more recently at their meeting in Chicago, goes a step further than this and demands an increase of the tax on all oleomargarine, whether colored or not colored, to ten cents per pound. If congress will give us such a law, we shall not object, but we must insist that a tax sufficiently large to give genuine butter a fair show in the market, and afford some measure of protection to the ultimate consumer, shall be placed upon the colored article, "because" as Judge Lochren well says:

"of the facility with which it can, by dishonest dealers at retail and keepers of inns and boarding houses, be put off as butter upon customers and patrons who desire only butter, and would not knowingly use oleomargarine."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

WHERE MILK IS SOLD BY QUALITY.

Would like to have you give me a balanced rations from the following, and if you can suggest any additions would be glad to have them. We sell our milk wholesale and price received is according to quality; for each half per cent of butter fat above four per cent we get one cent per gallon additional to the market price; that is to say if four per cent milk is worth twelve cents per gallon we would get fourteen cents for five per cent milk. We are interested in quality and quantity.

I have on my farm twenty-five grade Jerseys and a registered Jersey bull. From this on I expect to raise my heifer calves. Have my farm run on shares, giving my dairyman half proceeds. Hope to have a silo in another year. Feeds used: Middlings, $17.50 per ton; bran, $16.00 per ton; cob meal, $14.00 per ton; timothy hay, $12.00. Corn stover I cannot give a price per ton, but I bought 580 shocks of corn and allowed $81 for the fodder.

I have been reading the DAIRYMAN for the past two years, but had my dairy leased in such a way I could not follow its suggestions, but since Oct. 1st, have a new dairyman and a new lease and we expect to profit by the suggestions of your excellent paper.

Beaver, Pa. G. C. McJ.

We wish it was within the truth to say to this inquirer that he can at will change the quality of the milk from his cows by a modification of the ration allowed. This was the universal belief only a few years ago, but careful experiments in many places have proven that it is the individuality of the cow and not the character or amount of feed eaten (provided she is reasonably nourished) that determines the per cent of fat in the milk. We can modify the quantity, from practically none at all to the extreme limit of her capacity, by giving or withholding appropriate feed.

It should never be forgotten that protein is the one element in feed without which the cow cannot make milk. Protein is necessary for other purposes also, but very much less is required for such purposes than for furnishing casein in the milk. (See page 754.) The amounts of digestible protein required by the cow giving milk will, therefore, vary with the amount of milk given. The main point, therefore, in forming a balanced ration is to make sure that it contains sufficient digestible protein for the individual animal, due regard being had to the quantity of milk returned. Experience seems to have proven that the average amount required for this purpose is from two pounds to two and a quarter pounds.

With this primary fact always in mind let us try to formulate a ration from the feeds named commencing with the roughage. We cannot expect a cow to eat more than about fifteen pounds of timothy and ten pounds of corn stover. In fact, this is more than most cows will eat, especially when furnished with a suitable amount of grain. Suppose we limit the hay to twelve pounds, and then by referring to the table on page 754 we find that this amount of hay and stover will give us dry matter and digestible nutrients as follows:

	Dry Matter.	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
12 lbs. timothy hay...	10.42	.34	5.21	.17
10 lbs. corn stover....	5.95	.17	3.24	.07
Totals.....	16.37	.51	8.45	.24

We have now not more than one quarter of the digestible protein required and the question is where can we find the remaining one and a half pounds. Ten pounds of bran will give only one and one quarter pounds, and twenty pounds of corn and cob meal only a trifle more. Manifestly we must search for something carrying more protein. Oil meal, cotton seed meal, gluten meal and gluten feed are the most available for this purpose, and when there are neither roots nor silage to go with dry feed, some oil meal is very desirable in order to keep the digestive tract in good order and thus insure proper and full digestion of other feeds. But the price of oil meal at present is almost prohibitive and hence we must use it as sparingly as possible. Taking roughage as before, let us add grain as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
Hay and stover as above.....	16.36	.51	8.45	.24
4 lbs. corn and cob meal.....	3.56	.26	2.52	.14
4 lbs. bran.....	3.52	.50	1.34	.12
2 lbs cotton seed meal	1.84	.74	.34	.17
1 lb. oil meal.....	.91	.29	.33	.07
Totals.....	26.20	2.30	13.18	.74

This is probably somewhat more than will be necessary as an average and we should make such reduction as may be desirable in the corn and cob meal and timothy hay, as both of these have a market value greatly in excess of their relative feeding values.

A MISSOURI RATION.

Please give me ration formula from oil meal, $25 per ton; cotton seed meal, $24.40 per ton; wheat bran, $13 per ton; oat chop, $12 per ton; oat hay, $4 per ton; millet, green and bright, no seed, $4 per ton; clover, $4 per ton; clover and timothy, $4 per ton, and corn, 25c per bushel. Kafir corn fodder with the grain. I have raised the hay and corn; have grinder to grind corn with cob.

Am a would-be dairyman, so of course green. Any pointers you may give me, will enable me to change the above color. Paper farmers are winning out. The Uncle Josh kind claim the land is a little too high.

Cameron, Mo. O. S. A.

If the "oat chop" is genuine and unadul-

terated ground oats and not a lot of oat hulls from some oat-meal mill, it is the cheapest feed named. We have a suspicion that it is not the product of whole oats ground and if such is the case, do not purchase. There is an embarrassing variety of coarse fodder (roughage), but as there is nothing quite so good for milch cows as clover hay we would advise using that exclusively with a little oat or millet or both, just for variety.

The following combination makes a very acceptable daily allowance for Jerseys:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay.....	12.71	1.02	5.37	.26
4 lbs. corn and cob meal.....	3.56	.26	2.52	14
4 lbs. bran.....	3.52	.50	1.54	12
1 lb. oil meal.....	.91	.29	.33	.07
Totals.....	20.70	2.07	9.76	.59

In addition to the above give as much of the other hay or kafir corn fodder as each cow will eat, not forgetting, also, the daily allowance of salt.

A FLORIDA RATION APPROVED.—WHAT TO DO WITH A DAINTY COW.

What do you think of the following ration for grade Jerseys: Twenty pounds ensilage, with the ear corn cut up, ten pounds mixed hay (beggar weed, crab grass, etc.,) green pasturage, presumably thirty pounds a day, and a mixture of feeds, six pounds bran, four pounds cotton seed meal and three pounds corn meal and a feed of about five pounds and upwards a day of this, more or less, according to cow's capacity for returns?

What would you do in feeding a cow fresh three weeks—that is on fair pasturage—and having a feed of, say ten pounds hay (above mentioned) and five pounds grain, as above proportioned, that does not eat up clean that amount of grain?

Ration above first mentioned is one calculated on for future when I open silo, at which time I anticipate having a pasture of winter Florida grasses.

We estimate the ration above indicated will contain dry matter and digestible nutrients about as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage.....	4.18	.18	2.26	.14
30 lbs. pasture grass.	6.00	.75	3.06	.15
10 lbs. hay.....	8.24	.57	3.97	.14
5 lbs. grain as above.	4.50	.95	2.00	.25
Totals.....	22.92	2.45	11.29	.68

It is somewhat doubtful if cows in a Florida climate will eat as much as this, but if they will we are unable to suggest any modification.

Concerning the cow with dainty appetite, we can only suggest that possibly she may not relish some of the ingredients in the grain mixture. Cows are not unlike men, women and children in this respect. It may be that some of the ingredients are a little off in quality or stale. Make a careful examination, and in various ways try to humor the cow's likes and avoid those things she dislikes. If not already doing so, try adding a very small tablespoonful of salt to each feed.

SIZE OF FEED CUTTER.

What is the largest size feed cutter that it is practical to use with two horse power, tread or sweep? Horses are heavy ones.

Duluth, Minn. J. B. McL.

Two horses on a tread power are easily equivalent to three on a sweep power and quite frequently to four. A large cutter will run practically with as little power as a small one when doing the same work. The present writer uses a 12-inch cutter, but from the first has regretted that it is not larger. When he buys again, the cutter will have 16-inch knives, and then an engine can be used to good advantage, whenever desired.

A QUEBEC RATION.

Kindly formulate balanced ration for cows that freshened from January to June, and that are giving an average of nineteen pounds daily. I have mixed timothy and clover hay, corn ensilage (limited quantity,) rutabaga turnips, pea and oat meal. Can buy bran for $15, cotton seed meal, $23.

If not too much trouble would thank you for an answer by mail, as cows will come to barn very soon, and I suppose it would be two or three weeks before it would appear in the paper. E. P. R.

Barnston, Que.

The request to reply by mail is answered by the notice at the head of this department. Of course the writing of one letter would not seriously interfere with our regular work, but unfortunately there are so many who, for one reason or another, prefer a personal reply, that we feel compelled to adopt and adhere to the rule of replying only through the paper. We shall use our best endeavor to answer all inquiries promptly, and especially such as have not been substantially answered in recent issues, in reply to other readers.

In the present case, premising, as we have so often explained, that the feeder must himself exercise judgment and discrimination, and apportion the feed with regard to the capacity and condition of each cow to respond, we submit the following as a fair average daily allowance for the several cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage.....	6.60	.33	3.50	.18
10 lbs. timothy hay..	8.53	.48	3.96	.16
20 lbs. rutabagas.....	2.28	.20	1.62	.04
4 lbs. peas and oats mixed.....	3.57	.52	1.98	.10
4 lbs. bran.....	3.52	.50	1.54	.12
1 lb. cotton seed meal	.92	.37	.17	.08
Totals.....	25.42	2.40	12.77	.68

If the cows are much below 1,000 pounds in weight, it might be practicable to take away one pound each of the combined peas and oats, and the bran.

A WISCONSIN RATION.

Please formulate a ration from plenty of clover hay and corn fodder that we will run through the cutter, stalks and all; the rest of our feed will have to buy. Our cows are grade Jerseys. Is it better to keep on with the Jersey or cross with the Guernsey? Will the Guernsey give any more milk?

Suldal, Wis. S. G. T.

We recommend a trial of the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs clover hay. ...	8.47	.68	3.58	.17
10 lbs. corn fodder...	7.10	.37	4.04	.12
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. gluten feed....	3.69	.82	1.94	.14
Totals.....	22.78	2.37	11.10	.55

If any cow will eat more roughage, either hay or corn fodder, let her have it. Profit comes from giving each cow all she can eat and turn to milk. Strive to see, not how little, but how much you can encourage each cow to eat and not increase too much in live weight.

It is not good policy to mix breeds, but it is good policy always to get the best sire of the breed you have.

Good Jerseys will give all the milk and make all the butter any reasonable man can demand, provided they are properly fed and cared for; and without such feed and care no cow will do well.

A KANSAS RATION.

My old cows are mostly Durhams, with some Jersey and Holstein mixture, but the younger ones and heifers are all grade Holstein. The average test at the factory is 4.2; the lowest, 3.8, and the highest 5 per cent butter fat.

My rough feed is good prairie hay, $4.50 per ton; clover and timothy (early cut), $9.00; kafir corn and hay (early cut, all bright and nice cure) $4.50 per ton. My grain is: Bran, $12.00; corn, 23 cents per bushel and oats 20 cents. I have a mill of my own, and grind the corn and cob and oats together; oil meal is $32.00; cotton seed meal and gluten feed we do not have in our market.

I have a good many pumpkins at present that I am feeding. You speak of feeding so many pounds of hay in your rations. Is that all the hay or rough feed that they get in a day? F. T.

Pittsburg, Kan.

That clover and timothy hay is first class roughage, but it is not worth twice as much as the other varieties. Bran at $12.00 will furnish protein cheaper than clover and timothy at $9.00; and so will oil meal at $32.00. We therefore suggest a daily allowance of, say 4 pounds bran, 3 pounds corn and cob meal, 3 pounds oats and 2 pounds oil meal, with all the roughage each cow will eat, which will possibly be not far from 10 pounds of the prairie hay, and the same amount of kafir corn and cane hay.

Our formulas are intended to give the total amount of roughage and grain required for an entire day; but this is simply an approximate estimate. If a cow will eat more than we specify, she should have it; and conversely, if she does not eat it all with good relish, give her less. Formulas for rations have their value, but they cannot supercede or do away with the exercise of good judgment by the feeder.

OLD BREAD FOR COW FEED.

Would you please tell us whether old bread can be used to advantage for milch cows, and, if so, how would you use it? It can be bought for little money, per load, and as feed is right high, I would think that it would be a good substitute to mix. Some of the bread contains lard, either inside or on the baking pans. I know not if it is healthy to use. Cake and doughnuts are sometimes included in a load, which I am also in doubt as to their healthfulness. W. A.

Norfolk Co., Va.

It depends entirely on the price at which the bread can be obtained.

The nutritive value of white bread is about on a par with corn meal, and in buying it you could afford to pay about the same price per ton. If it is broken up in a mill and fed in about the same proportion as corn meal, there is no reason why it should not be used. But it all depends on the price.

Dried bread is very light, and being misled by the bulk, you may be paying more for it than it is worth.

The small amount of lard will not make any difference.

A VERMONT RATION.

I notice that some good dairymen and breeders are feeding equal parts of corn meal and bran. Is this a well balanced ration to feed with corn fodder having some small ears, and some pasture feed, or to feed later in the fall with mixed hay and corn stalks? Price of corn meal, $28 per ton; bran, $18 per ton; oats (ground,) $20 per ton; timothy hay, $20 per ton; mixed hay, $—per ton. This I think, would be a convenient ration for the average Vermont farmer, as most of us raise oats and corn. We can buy other feeds, such as cotton seed meal, oil meal, gluten fed, etc.

Cheese is selling for 13 cents at the station, and we naturally wish to feed as much grain as possible without injury to cows.

Vt. "A NEW ENGLAND FARMER."

We wish our friend had given us the prices at which he can buy oil meal, cotton seed meal and the glutens. There are about nine chances in ten that they would be much cheaper than any of the feeds named. More than this, we suspect that the cows for which this ration formula is wanted, have been milking several months, and are expected to be fresh again next spring. If this is the case, they require quite a different ration from one that would be suitable for cows that had not been milking more than two months. And still fruther, we account this frozen pasture grass of very little account.

If the cows have been milking six months or more, the combination of bran, oats and corn, equal parts by weight, will probably suffice, but otherwise we should certainly add some of the highly nitrogenous feeds—and, probably under all the conditions, would prefer cotton seed meal—but not more than two pounds per day, and this amount to be reached by gradual advances. In addition, if the cows show any tendency to costiveness, as they are likely to do in the absence of roots or silage, some oil meal may be used to good advantage. After this add the mixed grain in such amounts, as will cause each cow to do her best, keeping a record of the milk yield from day to day. Whenever any cow fails to respond, after a reasonable time, to the increased feed, and instead of turning her surplus feed into milk, turns it to increase of weight, the evidence is conclusive that she is receiving too much grain. In such a case it is only common sense to reduce her allowance.

In general terms, we may say that these cows should be expected to eat about ten pounds of the mixed hays, and ten pounds of corn stover, with about six pounds of the mixed feed, and cotton seed meal and oil meal as suggested.

CAPACITY OF SILO.—CUBIC FEET IN A TON OF HAY.

How many tons in silo 12×16×20 feet deep?

How much hay in bulk—tons—10 feet deep, 20 feet wide and 30 feet long?

Roanoke, Va. C. W. T.

A silo of the size given above will hold about eighty tons.

The weight of a cubic foot of hay is an uncertain quantity, depending on the size of the stack or mow, and the age and quality of the hay.

Depending on these conditions, it will vary from 340 to 500 cubic feet per ton. Taking the average of the above, a stack the size given, will contain a little over fourteen tons.

COLD STORAGE FOR CHEESE.

Will you be so kind as to give me an idea how to build a cold storage for cheese, 24×36? The best way to build, expense or cost of such a one, and is there any expense to run one after it is built. W. J. E.

Dana, Iowa.

The building of a successful cold storage room is not by any means an easy task, especially for a novice. The best way to do is to correspond with manufacturers, who make a specialty of such work, and follow their recomendation. The first cost will be more, but it will be less expensive in the long run.

A CALIFORNIA RATION.

Kindly give me the best ration out of the following feeds for Jersey cows, from seven to eight hundred pounds: Plenty of oat hay and grass hay; wheat bran, $20; middlings, $23; small potatoes, $5; other feeds can be purchased if needed to balance ration.

Eureka, Cal. H. E. A.

"Grass hay" is altogether too indefinite a term for use in formulating a ration. It may have a specific application in California, but in Wisconsin it might mean timothy or red top, or a dozen other varieties, each with a different feeding value. We can do no better under the circumstances than to suggest feeding from eight pounds to ten pounds of bran, ten to twenty pounds of potatoes and all the hay each cow will eat. Four pounds of potatoes are accounted to have about the same feeding value as one pound of grain.

SOUR MILK FOR CALVES.

Have been feeding calves from three to six months old, out on poor pasture, on sour milk, and when warmed turns to whey and curd. They seem to like it; have had it all summer. Will it injure them? H. E. A.

Eureka, Cal.

H. E. A. would seem to be most competent to answer this question from his own experience. We have seen excellent calves reared on such milk, with some oats and corn added. It is, however, dangerous to feed sour milk one day and sweet milk the succeeding day. It is also pretty conclusively established that clabbered milk is less dangerous than that which has only partially soured.

RYE FOR HAY.

What quality of hay does rye make, and when is the proper time to cut it?

We will be milking 100 cows here this winter, and we propose to chop our hay and mix mill feed with it; the mill feed is shorts, bran, and middlings altogether.

How many pounds of hay and mill feed should we feed to each cow per day? How

much can we afford to pay per ton for mill feed to feed the cows, properly taken care of, and sell our butter at twenty cents per pound?

Balk, Cal. H. E. N.

There is a very wide difference of opinion as to the feeding value of rye hay and rye straw. Some Wisconsin dairymen of our acquaintance consider them superior to either oats or wheat hay and straw, and others hold them of comparatively little value. Any crop which is to be made into hay should be cut before the seed begins to mature, or in fact, before it is fully formed.

Cows that have not commenced to shrink, if of fair dairy ability, should have not less than ten pounds daily of the feed described, and some no doubt would richly repay for even more than this. Where one is milking 100 cows, he is liable to have some unprofitable, non-paying boarders that it would pay him to kill outright if they could not be otherwise disposed of—and some that will respond profitably to high feeding. No man can write a formula that will answer for each of several cows, and a feeder that follows a formula blindly, without regard to results, is not wise. So long as the cow responds to increasing feed with a profitable increase of milk, one may be sure he is not feeding too much.

Always feed as much hay or other roughage as each cow will eat with relish.

WIDE VARIATIONS IN FAT CONTENT.

The cheese maker of our cheese factory has been making Babcock tests for the patrons of his factory. The tests have run from 1.5 to 8.4 butter fat. Do you consider tests showing such a variation correct? Isn't a test showing 8.4 butter fat to be mistrusted. T. Q.

East Hartford, N. Y.

The accuracy of such figures as the above, depends, to a certain extent, on the milk, and until we know whether the samples were taken from fresh cows or strippers, it is impossible to say if the work was accurate or not. We have seen milk, from cows far advanced in lactation, show 10% of fat, but only a very small amount of milk was given. We have also tested milk from animals that had run in a dried up pasture with no other feed, that showed below 2.0%. Therefore, we hesitate to say that such variations may not be correct, although the chances are greatly against such wide variations being found in the same factory, at the same time.

A little quiet investigation as to the methods used in sampling and testing, would throw more light on this subject than we are able to furnish.

BUCKWHEAT BRAN.

Is buckwheat bran good for dairy cows? If so, how would you feed for milk? Am using gluten meal, and sell milk to town customers and want it right. A.

Watervliet, Mich.

The table of feeding analyses to be published this week answers these questions in part. Buckwheat bran has a very considerable feeding value but it is not easily digested, and unless it can be had very cheap or has a good proportion of the middlings with it, is of doubtful economy. Neither this bran nor gluten meal will injure the quality of the milk.

AN OREGON RATION.

It gives me pleasure to state that your paper has been of inestimable help to me. I come to you for more help. We do not often find any rations as formulated in your paper applying to this particular region. We do not raise much corn owing to early and late frosts, and oil meal and the like would cost $30 per ton and more. Our selection is narrow therefore. We have alfalfa in plenty. Can raise sugar beets and probably corn about three years in five. I will give you our available feeds this winter—we will be better prepared next summer. Alfalfa at $6; wild hay at $5 (our selected wild hay is fine, containing wild clover). Oats 85c per cental; barley, 70c; bran, $12; wheat, oat and barley straw. Please make me a ration.

Your rations nearly invariably include corn, cotton seed meal, linseed meal or the like, which renders them valueless for this section. If you will formulate a balanced ration out of the stuffs mentioned you will oblige a very large territory of people in eastern Oregon and Washington. Expressing my appreciaiion of your assistance in the past, I remain, E. M. S.

North Powder, Ore.

There should be little trouble in getting a very satisfactory ration from the feeds named. We give a formula below, assuming that the Oregon wild hay is the equivalent of the best Minnesota prairie hay.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. alfalfa hay	9.16	1.10	3.96	.12
10 lbs. wild hay	8.75	.35	4.18	.14
4 lbs. oats	3.56	.37	1.89	.17
4 lbs. bran	3.52	.50	1.54	.13
Totals	24.99	2.32	11.57	56

This ration would in our estimation, be better if it contained at least twenty-five per cent more ether extract (crude fat) and it is for this reason that we so urgently recommend corn for use with alfalfa hay. Oats will answer for this purpose fairly well, but they are usually more expensive than corn. Something in the way of silage or roots, to furnish succulence and keep the digestive tract in good order, would also be a distinct advantage. In the absence of anything of this character, a little linseed oil meal even at $30 per ton, might prove a good investment, for feeding now and then to cows, if any, whose manure showed a too dry or feverish condition of the bowels. Regular salting tends to prevent this condition also.

EGYPTIAN CORN WITH ALFALFA.

I would like to know if ground Egyptian corn will be good to feed milch cows through the winter. The cows have alfalfa and wheat hay; alfalfa will last about two months and wheat hay the balance of the time. They will have pumpkins for three months. They will have pasture consisting of salt grass and a small amount of green feed (foxtail.)

If it will be more profitable to feed other grain at one cent a pound than this at three-fourth cents a pound, state what it is, because I can sell the corn. THREE C'S.

Hanford, California.

Egyptian corn will do very well with alfalfa hay as has been demonsrated by actual trial in Kansas, but would not furnish sufficient protein with the wheat hay. If it can be done, the proper course to take would be to feed the two kinds of hay in alternation—say alfalfa in the morning and wheat hay at night. Alfalfa is rich in protein, the one indispensable nutrient for making milk. We are not sufficiently advised to say whether the ground Egyptian corn can be prudently fed without mixing it with something lighter and more bulky. If it weighs as heavy as common maize we should advise mixing some bran with it, unless a part of the hay could be chaffed and used for that purpose.

A NEBRASKA RATION.

Can you give me a balanced ration for cows, with feed as follows: Sheaf oats, millet hay, ensilage, of corn well eared, and bran. Have also good early cut prairie hay.

Riverton, Neb. B. F. T.

It is hardly practicable to use all the varieties of fodder named each day. We should feed about twenty-five pounds of silage and ten pounds of bran daily and in addition as much of the sheaf oats, millet and prairie hay as each cow would eat, using if convenient, one kind at night and another in the morning, and little or nothing at noon.

AN ONTARIO RATION.

Would you please give me a ration from the following, and how much should be fed daily to an average cow, say 900 to 1,000 pounds: Hay, timothy and clover mixed, $8 to $10 per ton; bran, $14; oats, ground, $19; peas, ground, $22: barley, ground, $20.

Ontario. F. D.

As an average for an entire herd, the total being apportioned according to the ability of the several cows to make good use of their feed, regard being had to the length of time each had been in milk, as well as to normal capacity, the following ought do give fairly good results:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
18 lbs. mixed hay	15.36	.86	7.13	.29
8 lbs. bran	7.05	1.00	3.09	.24
2 lbs. peas	1.79	.34	1.04	.02
Totals	24.20	2.20	11.27	.55

Notes From the Indian State Fair.

An Excellent Practice Introduced.

ED. HOARD'S DAIRYMAN:—On Friday morning of state fair week the Indiana State Dairy Association, H. E. Van Norman, La Fayette, Secretary, held a meeting on the fair grounds.

Exhibitors of Ayrshires, Jerseys, Guernseys and Holsteins led out representative animals for illustration of dairy types In an informal way, Prof. C S. Plumb, of the Indiana Experiment Station, Mortimer Levering, of La Fayette, and Mr. Axtell, of Ohio, discussed the dairy type as an ideal which the breeder is striving to produce. They used the animals present to illustrate their remarks. It was a question of type or form for dairy performance, and the animal was not discussed as a representative of her breed. Questions and discussions lasted for an hour. All were disappointed that Mr. Peer, judge of dairy cattle, was unable to be present, as expected when the meeting was called.

The strong wind and the hum of machinery were somewhat distracting, nevertheless the effort to give an opportunity for study of dairy form was a success and deserves to be repeated another year under more favorable surroundings.

The Fair authorities have enlarged the Dairy building by adding an amphitheater, seating about 700 people, facing a space which was occupied by Purdue University, as a working dairy. Here all the operations of the dairy were carried on twice each day by students from the Dairy School under direction of the instructor. Milk was separated, cream ripened and churned, butter worked and printed and the Babock test in frequent operation. Large audiences watched with keenest interest the progress of the work, asking questions as to principles and practices.

The showing of butter and cheese was extremely small but of excellent quality. T. H. Gallagher, of Chicago, placed the scores—1st. on creamery butter going to H. S. Newby, Spiceland creamery, score, 97; 1st. on dairy to Peter Raab, Brightwood, 97; Dairy prints, J. H. Ward, Thorntown, 98. Twin cheese, 1st. W. L. McCain, Hortonville, 93; 2d. Boyd and Drischel, Cambridge city, 88; 3d Groveland Cheese Co., 85, and Boyd and Drischel 1st on Young Americas. REPORTER.

La Fayette, Ind.

We commend without reservation the plan originated at the Indiana Fair of bringing out the cattle from the different breeds and having them compared and criticised from the exclusive dairy point of view, and this not for the awarding of a prize, but for the instruction of the attending dairy farmers.

MISREPRESENTATION AND MILK POISONING GO HAND IN HAND.

When men give themselves up to counterfeiting, or tampering, with human food, either as makers and vendors of oleomargarine or manufacturing dangerous compounds to put in milk, they soon lose all manhood and character This fact is clearly brought out by a correspondence which F. W. Moseley, of Clinton, Iowa, has lately had with Heller & Co., manufacturing chemists in Chicago. This firm is largely engaged in manufacturing and pushing the sale of a formaldehyde milk preservative, called "Freezine." During the session of the U. S. Senate Committee, called the "Pure Food Committee," in Chicago, this firm came before the committee to testify concerning their compound.

Previous to this Heller & Co. tried to induce Mr. Moseley, who is of the dairy supply firm of Moseley & Pritchard M'f'g. Co., to handle their "Freezine." Mr. Moseley objected because he feared that the article was injurious to health. In response to his letter stating his objections, Mr. A. Heller, of the Heller Co., wrote the following letter:

B. HELLER & CO.,
MANUFACTURING CHEMISTS,
CHICAGO, U. S. A., May 22, 1899.

F. W. MOSELEY, ESQ., CARE OF MOSELEY & PRITCHARD, Clinton, Iowa.—DEAR SIR:—In the early part of April our Mr. Hill called on you and tried to induce you to handle Freezine. You told our Mr. Hill that if we would get the endorsement of some government authority of this country, you would then endorse the Freezine through every paper that you write for, and would also handle the goods; but that you never would handle them until you are sure that they are healthful. What you wanted was the endorsement of some one who is authority. As we understand it, you first want to be convinced that Freezine is not injurious and then you will handle it. We are fully aware that you can do us much good by handling the Freezine and also endorsing it.

As we are now in a position to give you an endorsement from the highest authority of this country, we take the liberty of writing to you.

You, of course, are aware that the United States Senate appointed a committee, called the "Pure Food Committee." The committee met in this city last week. The writer was requested to explain about our Freezine and some of our other preparations. You can readily understand that the writer could not very well explain our formulas, etc., in the presence of reporters; therefore, the writer requested the permission to explain in the presence of the commissioners alone. This permission was granted, and because all of the reporters were requested to leave the room, the reporters of course were displeased and therefore wrote sensational articles about

"Honor is Purchased by Deeds We Do."

Deeds, not words, count in battles of peace as well as in war. It is not what we say, but what Hood's Sarsaparilla does, that tells the story of its merit. It has won many remarkable victories over the arch enemy of mankind—impure blood. Remember

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.



Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.
Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

some of our preparations, including Freezine. These articles were not true.

After the writer explained our Freezine, Dr. Wiley, of the United States Agricultural Department, made a statement, a copy of which we herewith enclose. We will forfeit $1,000 if that statement is not true.

You will understand the writer gave the Department much valuable information and explained to them the value and also healthfulness of Freezine. The writer furnished the committee with medical reports from scientists, chemists and physicians endorsing the use of the very chemicals used in our Freezine. It was on the strength of all these reports from professors of this and foreign countries, who are high authority, and from the testimony given by the writer, that Dr. Wiley made the statement that he did.

From the statement you will see that our Freezine has been endorsed by the highest authority of this country, Dr. Wiley, of the United States Agricultural Department, of Washington. Such an endorsement certainly speaks highly for our Freezine.

Will you kindly let us know whether you now feel disposed to handle the Freezine for us? We are sure that it will be mutually beneficial, and we know that you are in a good position to sell quite a good deal of the Freezine. We will make you a liberal discount, so that it will pay you well to handle Freezine.

Thanking you for a prompt reply, we are,
Yours very truly,
B. HELLER & CO.
PER A. HELLER.

P. S.—We enclose herewith a booklet treating on the healthfulness of Freezine. Please read the booklet carefully, as it will give you much information. If you desire it, we shall be pleased to explain to you why Freezine is healthful for infants, and why Freezine should be used by every milk dealer. B. H. & Co.

The following is the statement made by Heller & Co. in this correspondence, as to what Dr. Wiley, Chief Chemist of the Agricultural Department at Washington, said right after Albert Heller, of the firm of Heller & Co., gave his testimony before the United States Food Commissioners, in Chicago, May 10th, 1899:

STATEMENT MADE BY DR. WILEY.

"You will remember I testified that I believe in innocent preservatives, that there were certain food products in which they were necessary, and that I believe, in a proper use and way, they were not injurious to health. On the contrary, I should favor the use of preservatives, and this is an excellent preservative for certain purposes, and as explained by Mr. Heller, I do not see how in the small quantity which he recommends, it could be injurious to health and doubtless is a good remedy."

It is not unworthy of notice that Mr. Moseley's position in this matter is characteristically misrepresented. He did not promise to handle "Freezine" if some government authority would endorse it, but specifically stipulated as follows:

"If you would submit a sample of Freezine to Prof. W. A. Henry, Director of the Agricultural Experiment Station, Madison, Wisconsin, and arrange with him to make an analysis of it and report on it, the writer would, if that report was fully favorable—so much so that Prof. Henry advised its use by dairymen and others who handled milk—endorse it in all the agricultural papers to which he contributed articles on dairy subjects. The writer also stated to your traveler that if Prof. Henry's report was unfavorable he would just as surely make the fact known through his letters to the agricultural press."

This misrepresention of Mr. Moseley's attitude is, however, comparatively venial when compared with the attempt to represent Dr. Wiley as endorsing "Freezine," if in fact he did not so endorse it. In order to ascertain the truth of the matter, immediately after Mr. Moseley furnished the DAIRYMAN with this correspondence, we sent the same to Prof. W. A. Henry, of the Wisconsin Experiment Station, with request that he write us what he thought of it. We were greatly shocked that the chief Chemist of the Agricultural Department should seemingly prostitute his high position to endorse for use in milk, what the best medical authorities pronounce to be a dangerous poison. Prof. Henry shared in the views of the DAIRYMAN in this respect and sent the correspondence to Hon. James Wilson, Secretary of Agriculture. In his communication to Mr. Wilson, he set forth the fact that the Dairy and Food Commissioner of Wisconsin was enforcing with vigor, the strict law in vogue against the use of all preservatives in milk and that it would prove hard work to maintain our law if the Department Chemist was quoted in support of such nefarious practice. To Prof. Henry's letter the Secretary of Agriculture made reply as will be seen in the two following letters:

(LETTER NO. 1.)

UNITED STATES DEP'T. OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C.
August 26, 1899.

PROF. W. A. HENRY, Madison, Wis.—DEAR SIR:—Your letter of August 20th is a surprise to me. I am not ready to believe that Dr. Wiley has advocated anywhere, or at any time, the preservative Freezine, or any other, in the connection in which he is quoted. He is at present at Columbus, Ohio, and as soon as he returns I will send for him and put the matter before him. I desire to say, however, that if he endorses it, the Department does not. I agree with you entirely and sympathize with you in all your efforts along these lines. Whatever influence the Department has, will be used with the men who desire honest work. I will write you as soon as Dr. Wiley returns.

Very truly yours,
JAMES WILSON, Sec.

(LETTER NO. 2.)

UNITED STATES DEP'T. OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C.
August 28, 1899.

PROF. W. A. HENRY, DIRECTOR AGRL. EXPT. STA., Madison, Wis.—DEAR SIR:—I have shown your letter of the 20th inst. to Dr. Wiley, who makes the following statement:

"After I had given my testimony before Senator Mason's Committee on the subject of the use of preservatives, I was called on by a representative of the firm of B. Heller & Co., at my hotel, who said that my testimony in their opinion would greatly injure their trade. I replied that I had not mentioned their preservative by name, in so far as I knew, in my testimony, but understood that the substance which they sold under the name of "Freezine" was nothing but formaldehyde. I said that so far as I knew, it was not the intention of Senator Mason's committee to injure any legitimate business. The representative of the firm said that the quantity of formaldehyde used by them was extremely minute, I have forgotten now the exact amount, and I replied that I did not suppose that that quantity of formaldehyde would be injurious to a healthy stomach, but it should not be used unless properly labeled, so that the purchaser would know what it is.

The firm has no right to circulate such statements as it has. I did not endorse Freezine, or any other preservative, in any way, shape or form, and Mr. Heller would find no market probably for the sale of formaldehyde, under its own name. His use of my name as an indorser of formaldehyde is absolutely unauthorized, and I have already, more than two months ago, called attention to the fact that he was using my name without my sanction, and he promised at once to desist; otherwise, I said, legal steps should be taken to put a stop to it."

The above statements of Dr. Wiley, in connection with his testimony before the Committee, seem to me should be satisfactory to the health authorities of Wisconsin. His own attitude in regard to the use of preservatives is well known from his numerous publications and public addresses.

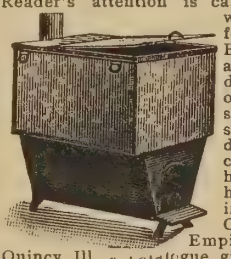
The Department will aid the medical authorities of Wisconsin in every possible way in controlling the use of preservatives and in compelling the proper labeling of food products which contain them.

Respectfully,
JAMES WILSON, Sec.

The above is a plain, unvarnished and representative statement of the reckless and misleading methods taken by formaldehyde and other preservative manufacturers to foist their compounds upon the milk trade. Deception and imposition are the inevitable concomitants of juggling and jockeying with human food. The man or woman who will put up milk to be taken for food in any form and will use such stuff in the same, deserves the most open public exposure and severest treatment the law can impose.

Farmers' Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.



Get Pure Products

to treat live stock. Anthrax, regarded as the most contagious, virulent and fatal of all diseases that attack cattle, sheep, horses, mules, and goats, can be prevented and an epidemic cut short by our

Anthrax Vaccine Virus.

We furnish also Tuberculin, Mallein, Black-leg Vaccine, Pneumonia Antitoxin, Roup Antitoxin, Distemper Antitoxin. *Write for our free book*, invaluable to stockmen and dairymen.

Price of Anthrax Vaccine, $2.50 per tube of ten complete doses (two injections each), for cattle, horses and mules. $3.50 per tube of twenty complete doses for sheep and goats.

H. K. MULFORD CO., Chemists,
416 S. 13th St., Philadelphia.
112-114 Dearborn St., Chicago.

Stock Feeders,

Dairymen and Farmers
who know the economy and value of ground feed should
look into the merits of these



Scientific GRINDING MILLS.

Being **double action and tripple geared** they grind **fast and easy.** Crush and grind ear corn, and all small grains singly or mixed. Special attachment for grinding Milo Maize and Kaffir Corn. Supply power for other purposes while grinding. Other styles horse and steam. Get our Catalogue **I**, before you buy.

The Foos Mfg. Co., Springfield, Ohio.

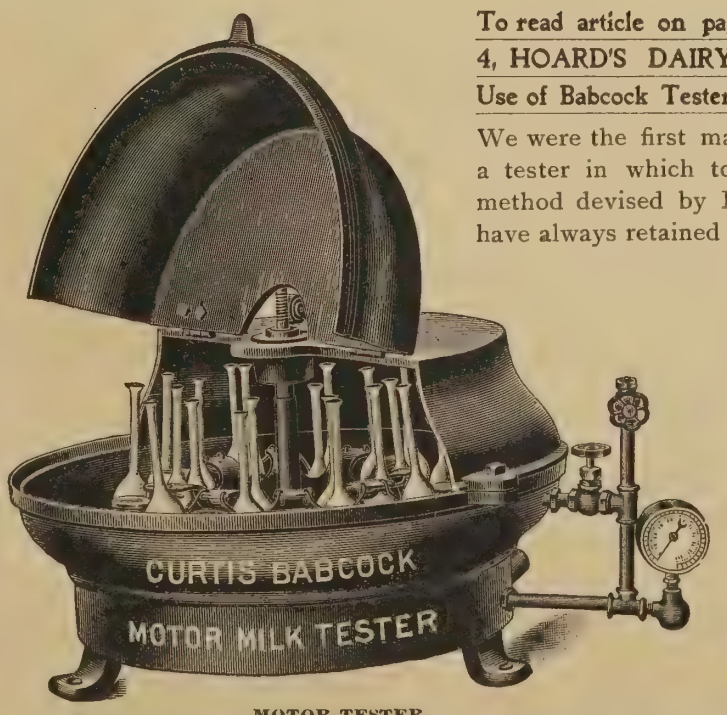


The YOUNG AERATOR And Cooler

Needs no water or ice, removes all odors and gasses. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG,
Box 135, Aurora, Ill.

Be Careful



MOTOR TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue, with directions for operating, free.



FARM TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for ***DE LAVAL ALPHA SEPARATORS.***

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

OUT OF RANGE.

The *Wisconsin Agriculturist* reprints from the Indianapolis *News* an article on what the latter paper is pleased to call the "Milk Belt" of the United States. The wild statement is made that of the milk solids the following proportions exist:

Butter fat, 3½ per cent; casein, 5 per cent; milk sugar, 5 per cent. There is a great deal of such wild assertions made by editors who know nothing of the subject on which they write. No such proportion of milk solids exists in cow's milk in this or any other country. No one ever saw natural milk with the butter fat less than the casein nor do we remember of any analysis that has yet been made in which the casein ran as high as 5 per cent.

Mr. Wheaton's Canadian Dairy Notes.

Cold Room for a Farm Dairy.—Pasteurized Milk for Cheesemaking.—Use of Calcium Chloride.—Fall Cheese Making.

ED. HOARD'S DAIRYMAN:—A dairyman in Eastern Ontario, who has made a success of his business, and who claims that his success has been almost entirely due to reading papers like the DAIRYMAN, containing the practical experiences of those engaged in the business, gives the following plan for a cheap and simple cold room for a farm dairy:

"First, a good, strong stone wall, sixteen feet square, and six feet high, on top of which are laid sleepers sufficiently strong to hold up fifty tons of ice. On top of these sleepers put a plank floor, covered with galvanized iron, soldered together, so that it will not leak, and allow the iron to come up on the sides, six or eight inches, forming a pan. Have the floor slant a couple of inches, and at the low side have a waste pipe, leading into the cold room below. Under this pipe, place a large barrel or vat, and you have it full of continually changing ice-water from spring to fall. This is very convenient for cooling cream, by having the cream in long, deep cans, and set into this water. The cellar or cold room, under the ice, maintains an even temperature the entire summer, and keeps the butter hard, and cream sweet as long as necessary.

"The storage-room for the ice, above the cellar, should be made twelve feet high, double boarded, and papered in and outside of the studding, thus forming an air space, which is very essential. The ice may be covered with sawdust in the usual way."

This seems to us like a very simple and cheap plan for constructing a cooling or cold room on an ordinary dairy farm. It could be constructed by any ordinary mason and carpenter, and combines an ice house and a cold room under one roof. If every dairyman had some such place for keeping his milk, cream or butter, during the warm weather, he would be considerable in pocket, and have greater satisfaction in carrying on his business.

The dairyman referred to carries on a milk and cream trade. Being near one of the larger eastern towns, he has built up a very extensive trade in pasteurized bottled milk and sweet cream He is a thorough believer in pasteurizing the milk or cream for buttermaking, and has achieved signal success in this line, having scored first prize on his pasteurized butter, wherever exhibited this fall. His sales of pasteurized milk have increased over two hundred and fifty per cent, during the past six months.

His system of pasteurizing milk is also simple, and we cannot describe it better than by giving his own words:

"We put the milk in a vat surrounded by a thin sheet of water into which a steam pipe is placed, connected with a steam syphon; allow the steam to run into the water, until the temperature of the milk reaches 156 degrees. We allow it to remain at that temperature for twenty minutes, and then cool by letting cold well water run around it for a couple of hours, which reduces the temperature to sixty degrees F., when the milk is bottled, crated, and placed in cold storage in connection with the dairy house."

Though the method of cooling the milk might be improved upon and made to cool the milk quicker and to a lower temperature, yet the plan seems to serve the purpose for which it is intended, and does very well when the milk is going into consumption in a comparatively short while.

Pasteurizing milk for cheese making has not been given much attention in this country. It is generally considered that the plan is not feasible in a cheese factory, where large quantities of milk are handled, and besides some authorities agree that pasteurizing milk renders it unsuitable for cheese making.

The Germans have been conducting some experiments along this line recently. Three series of experiments were made, including a large number of triais in each case. In the first series the separated milk was heated to 167 degrees for fifteen minutes; to 185 degrees for ten minutes. In the second series, and in the third series, to the boiling point for two minutes. In each experiment, about five gallons of separated milk were used, varying proportions of calcium chloride being added in some cases, and none in others.

In the first series, there was little difficulty in making cheese from the milk, either with or without the calcium chloride being added, but those conducting the experiment recommend adding to such milk about fifteen grains of calcium oxide (lime) per two and one-half gallons of milk, to facilitate the curdling.

In the second series, the results were in many respects the same as in the first series. The cheese yield in each case was greater where the calcium chloride was used, than when not used. The green cheese also contained more water, but even on the basis of dry matter the yield was greater. The greatest difficulty from making cheese from this kind of milk was found to be the time required for the complete separation of the whey from the curd.

The use of the calcium chloride was also found to restore the ability of milk heated to boiling point to curdle, but to curdle it in the same time, two and one-half times as much calcium chloride was required as in the first series. The separation of the whey was very slow and difficult, and the curd itself was unusually rich in water, and was changed to a greyish white appearence and finely granulated condition, with very little tendency to adhere together. The addition of larger quantities of calcium chloride improved the adhesive qualities of the curd, although it did not entirely remove the difficulty.

In some later reports regarding the experiments, it is stated that all difficulties in making cheese from milk heated to 185° F., have been overcome, and that the process is rendered as simple as ordinary cheese making.

Further particulars in regard to these experiments will no doubt be eagerly looked for by dairymen in this country.

Should the process outlined above prove successful, it might be very helpful in some of our cheese factories in the dry weather, when bad flavors in the milk are rampant.

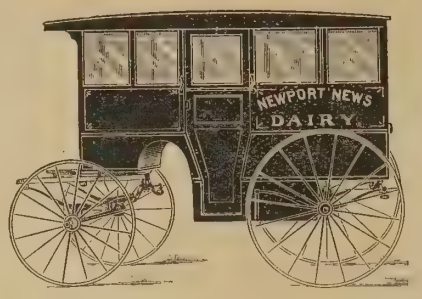
By heating the milk to 185°, all the germs causing the bad flavors would be destroyed, and by treating it as described and making cheese therefrom, a finely flavored product as any of the season should result. However, it might be well for some of our dairy experts to try the plan on whole milk before placing much confidence in its success. In Canada, where we make no skim milk cheese, any plan adapted to skim milk alone, would be practically useless.

Usually the cheese factories, with the exception of the larger ones, close at the end of October for the season. But it is more than likely that as many of them as can will run as far on in November as possible this season. This is always the case when the price of cheese is high in the fall of the year and the weather is at all favorable for making.

If the buildings are properly equipped and the curing rooms in shape for curing the cheese and maintaining an even temperature, the only drawback to making cheese later than this month, is the tendency of many patrons to feed turnips or turnip tops to their milking cows, thus causing bad flavors in the cheese. On this account, taking one season with another, it would be better for all concerned, if the cheese factories closed on October 31. Besides, many of our factories are yet far behind in the way of proper curing facilities, and it is risky for them to attempt to make cheese when the cold weather approaches. J. W. WHEATON.

Toronto, Canada.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Banner Root Cutters

CUT BEETS, MANGELS, Turnips, Carrots, and all other roots and vegetables for stock feeding. CUT FINE.

Choking Impossible.

Run easy, have self feeder, separate dirt from cut feed. Five sizes, hand and power.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

Largest Root Cutter makers in the world. *Catalogue free.*

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys.
CHAMPION Herd
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to
DELLHURST FARM, Mentor Ohio.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¼ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H-F Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis

READY NOW

A few cheice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

HOLSTEIN-FRIESIAN CATTLE

Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

5 HOLSTEIN BULLS 5

For Sale, ranging from 10 months to 2 years old. Two of these animals from dams with records of 60 and 71 lbs. milk in one day, testing respectively 4.5% and 3.6%. All of these bulls are exceptionally well bred and will improve any herd that they head. Will be sold at reasonable prices. Choice Chester-Whites for sale. W. R. GATES, Fort Atkinson, Wis.

Prices Greatly Reduced

On account of lack of stabling for bulls, we will offer in the next 30 days five yearling Holstein-Friesian bulls and 15 bull calves at prices within reach of dairymen. Cow men who are in need of bulls and appreciate **high quality** of stock, and strive for improvement, should take advantage of this opportunity, as over 20 head, young stock, mostly bulls, sold from this farm, at an average of $100 per head this year, going from New York to San Francisco and Mexico. Write for pedigrees and prices, or visit if possible. VALLEY MEAD FARM, Monticello, Wis.

HERD OF Holsteins For Sale.

Thirty head of registered Holstein-Friesians, all females except the bull at the head of herd, for sale on easy terms on five years' time if desired, with equal annual payments at 5 per cent interest, or will rent herd to responsible and experienced parties. Correspondence solicited.

ALPHEUS M. SMITH,
100 Washington St., CHICAGO, ILL.

The Big 4 at Brookside.
THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 120 Brockville Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

Prof Connell astonished the audience by being able to declare from samples of the butter the exact food which the cows, from whence it came, had been eating. —*Houston Texas, Posts.*

We don't blame that audience for being astonished. Such an exhibition of butter reading would naturally phase any audience. But why stop at food? Why not go on and tell breed, color and length of horns? This opens up a new field in grading butter.

WE publish in full Mr. Axtell's communication concerning the general subject of judging dairy cattle at fairs, with some comments on the judging of Guernsey cattle at the late Wisconsin State Fair; but it must not be concluded that HOARD'S DAIRYMAN endorses his argument or conclusions, without several material reservations.

If Mr. Axtell knew Mr. Hill and Prof. Carlisle, as we know them, he would at once and forever acquit them of favoritism, deception or conspiracy, however much he might differ with them in judgment, or as to the principles which should govern in awarding premiums at a State Fair.

WISCONSIN DAIRYMEN'S ASSOCIATION.

The Executive Board of the Wisconsin Dairymen's Association will meet at Fort Atkinson, Wednesday, November 15th, to arrange for the next annual convention. Localities desiring to secure the meeting of the association should correspond at once with the secretary, Geo W. Burchard, Fort Atkinson, Wis.

THE SUMMER SILO.

We hope every reader of the DAIRYMAN who doubts the practical economy of building a summer silo will read attentively what John Gould, of Ohio, says in his "Note and Comment," on page 717 of the DAIRYMAN of October 20th. The experience of Mr. Williams which is recounted there ought to be enough to convince the most skeptical man in the world of value of ensilage in summer feeding. Let us repeat a little of what Mr. Gould says:

"With the drouth here, came an almost instant drying of the pastures, and the shrinkage of milk was remarkable. By July 1st, Mr. Williams commenced with a ration of twenty-five pounds a day, continuing it until July 13th. Before commencing to feed silage the shrinkage of milk was five per cent, but at the last date, the cows had not only overcome that, but had made a gain over normal of three and one-half per cent. For the next three weeks the ration was increased to thirty-three pounds, but so fierce was heat, flies and dry pastures, that the cows fell off 3 3 per cent. Then the ration was increased to fifty pounds of silage, and the gain overcame the shrinkage, and plus 2.7 per cent.

That statement of facts is more potent than an hour of the best preaching from this text that the DAIRYMAN can do.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—But 3,600 pounds of butter were offered for sale on Monday's Elgin Board of Trade. Bids of 23½ cents were made, but were declined, and the call closed with no sales made. The Quotation Committee declared the market firm at 23½ cents. The total sales reported for the week were 546,000 ponnds. The sales for the corresponding week of the three preceding years were as following:

Oct. 31, '98, 10,080 lbs. butter sold at 22c.
Nov. 1, ,97, 9,120 lbs. butter sold at 23c.
Nov. 2, '96, 40,020 lbs. butter sold at 18@19c.

The New York market Monday was reported firm at 24 cents. H. C. B.

Elgin, Ill, Oct. 30th, 1899.

DAIRY MARKETS.

ELGIN, Ill., Oct. 30.—Sixty tubs offered; no sales. Committee reported market firm at 23½c.

CHICAGO, Ill., Oct. 30.—Butter—Creamery, extra, 23c; firsts, 19@20c; seconds, 15½@16½c; dairies, selections, 19c; No. 1, 16c; No. 2, 15c; extra ladle,14½@15c.

Eggs—City-candled, fresh, cases returned, 17c.

Cheese—Full cream, twins.new, good to choice, 11¾@12c: Young Americas, 12@12¼c: Swiss, 10@13c; Limburger, 10@11½c; Bricks, 10@12c.

Bran—In light request and prices steady at $12.25 per ton.

Cattle—There was no change in the cattle market. Trade was active, with exporters free buyers at $5.50@5.75. The top of the market was $6.10 for four loads averaging 1,361 lbs., with $6.35 the next highest The primest 1,400@1,600 lb. beeves would sell at $6.70@6.85. Most of the beef cattle sold at $5.20@6, averaging 1,030@1,540 lbs. Corn-fed Westerns sold at $4.30@6.10; bulk $5.50 @5 90; Kentucky steers, 1,222@1,282lbs., $5 55; grass Western steers, $4@4.90; Western cows and heifers, $3.30@4.25; Texas steers, 1,039 lbs., $4.10, and Texas cows, 712 lbs., $2.70; native canning stock, $2.25@3; fat cows and heifers, $3.24@5.10; bulls, $2.75@4.30; stags, $3 75@5.25; oxen $3.50@4.50; calves $5@7.50; and feeding cattle, $3.25@4.60.

MILWAUKEE, Wis., Oct. 30.—Butter—Creamery, fancy prints, per lb., 23½c; extras, 23½c; firsrs, 22@23c; seconds, 20@21c; imitations, 19@20c; dairy, selections, 18@20c: lines, 16@18c; ladles, 15@16c. Market unchanged, supplies being ample and sales moderate; receipts, 7,029 lbs.

Cheese—American full cream, October flats 11½@12c; July, August and September, 11@11½c; Brick, 11½@12c; Limburger, 11@11½c; Swiss, drum, 12½@13c; block, 12 ½@13c; No.2, 10½@11c. Market easy; receipts 7,890 lbs.

Eggs—Fresh, per doz., 16½c, loss off, cases returned. Market unchanged; receipts, 205 cases.

FOND DU LAC, Wis., Oct. 30.—Offerings, 3,000 Twins, and 515 Daisies; market very quiet, with few sales of Twins at 11¼c.

MUSCODA, Wis., Oct, 23.—Cheese—Offerings. 750 boxes Twins; car lots, 11½c; local lots,11c.

HILBERT. Wis., Oot. 21.—Cheese—The sales were 223 cases Young Americas at 11½c.

BRILLION, Wis., Oct. 20.—Cheese—Brillion market 350 boxes Young Americas at 11½c; 706 cases Twins at 11¼c; 1,700 boxes Daisies at 11¼c.

APPLETON, Wis., Oct. 19.—Cheese—The offerings to-day were 190 Cheddars and 359 Twins; 11¼c was bid, but passed and no sales.

BERLIN, Wis., Oct, 21.—Cheese—Offerings 213; no bids received. Owing to the decreased output of cheese, and the lack of interest it was decided to adjourn, subject to the call of the president and secretary.

HORTONVILLE, Wis., Oct, 19.—Cheese—The offerings were 135 Cheddars; 1,099 Twins: and 136 Daisies; 11 cents was offered on all lots, but only one lot of 40 boxes was sold. Market dull.

SHEYBOYGAN FALLS, Wis., Oct. 25—Fourteen factories offered 1,135 boxes of cheese to-day, and all except seventy-five boxes were sold as follows: 629 cases Young Americas at 11¾c; 147 Twins at 11⅝c; 30 Twins at 11½c; and 254 Daisies at 11¾c; market quiet.

MANITOWOC, Wis., Oct 25—Offers of cheese at dairy Board of Trade to-day were 650 boxes Daisies, 150 boxes Twins, 600 boxes Young Americas. All offerings were sold; Daisies at 11c; Young Americas at 11¾c; Twins at 11@11¼c.

PLYMOUTH, Wis., Oct. 24—Sales to-day 1,120. Twins at 11½c and 895 Americas at 11¾c; market firm.

NEW YORK, Oct. 30.—Butter—Creamery, Western extras, 24c; firsts, 21½@23c; state extras, 23¾@24c; firsts, 21½@23c.

Cheese—State, full cream, small colored or white fancy, 12¾c; large, 12c.

Eggs—State, Pennsylvania and Western, 21½@21c.

UTICA, N. Y., Oct. 26.—Cheese—Sales, 6,345 boxes large colored at 11½@12c; 780 boxes large white at 11½@12c; 1,250 boxes small colored at 12@12¼c; 900 boxes small white at 12@12¾c; 340 boxes small skims at 11¼@11½c.

BOONEVILLE, N. Y. Oct. 20—There were 1,218 boxes of large colored cheese and 240 boxes of large white offered, but as there were no buyers present there were no sales.

LITTLE FALLS, N Y. Oct. 23—Cheese—Sales 420 boxes large colored at 12c: 1,154 boxes small white at 11@12c; 970 boxes small colored at 11@12c; 355 boxes colored Twins at 12c; 1,074 boxes white Twins at 11 @ 12c.

BALTIMORE, Md., Oct, 30.—Butter—Market firm: creamery separator, extra, 25@26c; extra firsts, 24c; creamery firsts, 23c; creamery, imitation, extra, 19@20c; ladle, extra 17@18c; Western store-packed, 13½@14c.

Eggs—Market firm; strictly fresh stock 18½@19c.

PHILADELPHIA, Pa. Oct. 30—Butter—Solid-packed, separator creamery, extra 24c; creamery, firsts, 23c; seconds, 19@22c; imitation creamery, extra, 18c; firsts, 16c; seconds, 14c; ladle-packed, extra, 16c; firsts, 15c; seconds, 14c. Print butter—Creamery, extra, 25c; firsts, 24c; seconds, 19@22c.

Eggs—Pennsylvania and near-by, 21c; Western, 20@21c; Southwestern, 19c; Southern, 18c. Butter steady; eggs firm.

ST. LOUIS, Mo., Oct. 30—Butter—Firm; creamery, 19@24½; dairy, 15@20c.

Eggs—Steady: 15½c.

KANSAS CITY, Mo., Oct. 30—Butter—Creamery 19@22c: dairy, 18c.

Eggs—Fresh,14½c.

CINCINNATI, O, Oct. 30—Butter, 25c.

Eggs Firm; 16c.

Cheese—Good demand; good to prime Ohio flat, 12½c.

NEWARK, N. J Oct. 30—Market firm; for extra Elgins, 24c. Fair receipts.

WASHINGTON, D. C. Oct. 30—Market firm. Extras, 24½c; fine firsts, 23c.

BOSTON, Mass, Oct. 30—No change in butter, cheese or eggs from last week.

NEW ORLEANS, La. Oct. 30—Butter firm; 24 to 25c. Receipts small.

Latest quotations for fancy creamery: Buffalo, 24c; St. Paul, 22c; Minneapolis, 22@22½c; Detroit, 24c.

BALTIMORE MARKET.

BALTIMORE, Oct. 26—Butter—In sharp contrast with the condition of the market at New York, and other principal distributing points in the east, the most prominent feature here is the great scarcity of separator and gathered cream goods of the grades below extras, even firsts being none too plentiful. The greatest activity is observable among the buyers, both out of town and local, in their house to house explorations into everything that lies on the floors, or in the freezers, that can be hammered into something to satisfiy this craving for a quality, or qualities, worth from nineteen to twenty-one cents; and, as far as can be seen, it is poor hunting, the game not being worth the candle. Now, here is an object lesson for all shippers having a tendency toward other markets, where already, there is a congestion of these, to us very desirable grades—don't do it; don't send your products where they will only provoke unfavorable criticism at this time when this city is anxious for even the mottle and the light wasted varieties; with all of these imperfections there is a ready place for it now and at fair prices, and the chief reason is that this community prefers fresh made butter to that which has been stored. Store-packed and rolls continue in good demand for all grades.

Creamery Separator, extras, 24c; firsts, 22½@23c; seconds, 20@21c; Creamery, Gathered Cream, extras, 21@22c; firsts, 19½@20c: seconds, 19c; Creamery, Ohio, extras, 21@22c; firsts, 19½@20c; seconds, 19c; Creamery Imitation, firsts, 17@18c; seconds, 15½@16c; Iowa & N. W. Ladle, firsts, 16@17c; seconds, 15c; Ohio & Indiana Ladle, firsts, 16@17c; seconds, 15c; Ohio Rolls, firsts, 15@16c; seconds, 14c; W. Va Rolls, firsts, 15c; seconds, 14c; Ohio & W. Va. Store packed, firsts, 15c; seconds, 13@14; Creamery blocks (2lb). extras, 25½@26; firsts, 24@25; seconds, 22@23c; Creamery prints (½), extras, 25½@26: firsts 24@25c; seconds, 22@23c; Md., Va. & Penna. prints, extras, 21c; firsts, 20c; seconds; 18@19c.

Cheese—Receipts fair; demand good; market firm.

N. Y. State—Cheddars, fine, 12½@12¾c; choice, 12@12¼c; fair, 11¼@11¾c; Flats, fine, 13@13¼c; choice, 12½@12¾c; fair, 12@12¼c; Small, fine, 13¾@13¾c; choice, 13@13¼c; fair, 12¼@12¾c; Ohio—Flats, fine, 12¾@13c; choice, 12½@12¾c; fair, 11¾@12c; Ohio—Picnic, fine, 13@13½c; choice, 12½@12¾c; fair, 11¾@12¼c; Swiss Cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—Under continued light recipts of choice fresh eggs, our market rules at 18 to 18¼c; there is a good demand for all fresh stock no matter what section they come from, just so they are fresh; mixed or held eggs will not fill the bill; please bear this in mind. Cold storage—All choice marks meet with ready sale.

301 Exchange Place G. M. LAMB & BRO.

WANTED—AGENTS FOR CREAM SEPARATORS

During the next six months—in conjunction with the introduction of the improved "NEW CENTURY" De Laval Cream Separators—we shall thoroughly reorganize our system of Dairy or "Baby" separator local agencies. Out of 2,000 existing agencies and sub-agencies 1,500 will be changed, and as many additional new ones created. 1900 promises to be the greatest of separator years. Centrifugal separation and clarification must soon become universal. Machines may be sold in every township. The conceded superiority of the "Alpha" De Laval machines should give them 85 per cent. of the total trade. But live aggressive agents are equally essential to getting it. We have the machines and require more good agents. Successful separator agents are confined to no particular class. Applications should give full details.

Mention This Paper In Writing.

THE DE LAVAL SEPARATOR CO.

Western Offices: RANDOLPH & CANAL STS. CHICAGO. | GENERAL OFFICES: 74 CORTLANDT STREET, NEW YORK. | Branch Offices: 1102 ARCH STREET, PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—May Koffee's King Koffee, A. J. C. C. 44259. Best 3-year-old bull in New England. GEO. W. KNAPP, Stoneham, Mass.

Wanted—Position by young man as manager of dairy farm. Satisfaction guaranteed or no pay. Address "D," Box 558, Fort Atkinson, Wis.

Butter Maker wants position. Product guaranteed. References. Would lease. A. C. RAYMOND, Eagle Hotel, Lebanon, Pa.

Dairy Farm to Rent—Consists of 230 acres. 40 to 50 milch cows; completely furnished with improved machinery. Rent with or without milk route. Located inside school district of city of 9000. Liberal terms to right man. Must have A. 1. references. J. P. ANDREWS, Faribault, Minn.

To make your home happy—Use "Garland" Stoves and Ranges.

For Sale—Ten new milch, grade Guernsey cows RAY C. BICKNELL, Fort Atkinson, Wis.

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Tamworth boars. Also a good farm. Write at once. E. CLYDE HAMMOND, Cresco, Iowa.

Wanted—A competent and reliable workman on a small dairy farm. Must be a good milker. Permanent position to the right man. Address M. RUEBHAUSEN, Watertown, Wis

A Baby De Laval Separator No. 3, capacity 600 lbs. an hour, 30-gal. churn, butter worker, 6-bottle Babcock tester, shafting, pulleys, belts, etc. Price $100.00. Separator good as new and cost $200.00. E. R. BALSLEY, Troy, Wal. Co., Wis. 34-tf

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

At Half Price.—Bull calf dropped August 15, 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis.

Get in on the Ground Floor.—This applies to two classes of people. Those who are interested for the purpose of investment or speculation, and those who for any reason desire to change their business locations. To any person in either class the new towns located and owned by the Chicago & North-Western Railway Company along its new lines of railroad now being constructed, offer the most tempting inducements. Prices of lots in these towns are still absolutely on the ground floor, and are sure winners either for investors or locators. The North-Western also owns nearly one-half million acres of splendid timber land, adapted to general farming, which is for sale at very low prices. Write for information to J. F. Cleveland, Land Commissioner, Chicago & North-Western Railway Company, Chicago. 38-2

Improved Train Service Between Rockford and Watertown and Waukesha and Milwaukee, via the North-Western Line. By the addition of new trains on the above line, passengers can now leave Fort Atkinson at 8:42 a. m., arriving Watertown at 9:30 a. m., and Milwaukee at 10:45 a. m. respectively, and convenient service returning. Commodious day coaches. For particulars inquire of agents Chicago & North-Western R'y. 38-3

To Los Angeles and Southern California.—Every Friday night, at 10:35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California. In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey. These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only $6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Geo. H. Heafford. General Pass. and Ticket Agent, Chicago, Ill. $7-sp

Analyses of Feeding Stuffs.

TABLE SHOWING AVERAGE AMOUNTS OF DIGESTIBLE NUTRIENTS IN THE MORE COMMON AMERICAN FODDERS, GRAINS AND BY-PRODUCTS.

Name of Feed.	Dry Matter in 100 Pounds.	Digestible Nutrients in 100 Pounds. Protein.	Carbohydrates.	Ether Extract. (Crude Fat.)
GREEN FODDERS.	Lbs.	Lbs.	Lbs.	Lbs.
Pasture Grasses mixed	20.0	2.5	10.2	0.5
Fodder Corn	20.7	1.0	11.6	0.4
Sorghum	20.6	0.6	12.2	0.4
Red Clover	29.2	2.9	14.8	0.7
Alfalfa	28.2	3.9	12.7	0.5
Cow Pea	16.4	1.8	8.7	0.2
Soja Bean	24.9	3.2	11.0	0.5
Oat Fodder	37.8	2.6	18.9	1.0
Rye Fodder	23.4	2.1	14.1	0.4
Rape	14.0	1.5	8.1	0.2
Peas and Oats	16.0	1.8	7.1	0.2
Beet Pulp	10.2	0.6	7.3	...
SILAGE.				
Corn	20.9	0.9	11.3	0.7
Corn, Wisconsin analyses	26.4	1.3	14.0	0.7
Sorghum	23.9	0.6	14.9	0.2
Red Clover	28.0	2.0	13.5	1.0
Alfalfa	27.5	3.0	8.5	1.9
Cow Pea	20.7	1.5	8.6	0.9
Soja Bean	25.8	2.7	8.7	1.3
DRY FODDER AND HAY.				
Corn Fodder	57.8	2.5	34.6	1.2
Corn Fodder, Wis. analyses	71.0	3 7	40.4	1.2
Corn Stover	59.5	1.7	32.4	0.7
Sorghum Fodder	59.7	1.5	37.3	0.4
Red Clover	84.7	6.8	35.8	1.7
Alfalfa	91.6	11.0	39.6	1.2
Barley	85.2	6.2	46.6	1.5
Blue Grass	78.8	4.8	37.3	2.0
Cow Pea	89.3	10.8	38.6	1.1
Crab Grass	82.4	5.7	39.7	1.4
Johnson Grass	87.7	2.4	47.8	0.7
Marsh Grass	88.4	2.4	29.9	0.9
Millet	92.3	4.5	51.7	1.3
Oat Hay	91.1	4 3	46.4	1.5
Oat and Pea Hay	85.4	9.2	36.8	1.2
Orchard Grass	90.1	4.9	42.3	1.4
Prairie Grass	87.5	3.5	41.8	1.4
Red Top	91.1	4.8	46.9	1.0
Timothy	86.8	2.8	43.4	1.4
Timothy and Clover	85.3	4.8	39.6	1.6
Vetch	88.7	12.9	47.5	1.4
White Daisy	85.0	3.8	40.7	1.2
STRAW.				
Barley	85.8	0.7	41.2	0.6
Oat	90.8	1.2	38.6	0.8
Rye	92.9	0.6	40.6	0.4
Wheat	90.4	0.4	36.3	0.4
ROOTS AND TUBERS.				
Artichokes	20.0	2.0	16.8	0.2
Beets, common	13.0	1.2	8.8	0.1
Beets, sugar	13.5	1.1	10.2	0.1
Carrots	11.4	0.8	7.8	0.2
Mangels	9.1	1.1	5.4	0.1
Parsnips	11.7	1.6	11.2	0.2
Potatoes	21.1	0.9	16.3	0.1
Rutabagas	11.4	1.0	8.1	0.2
Turnips	9.5	1.0	7.2	0.2
Sweet Potatoes	29.0	0.9	22.2	0.3
GRAINS AND BY-PRODUCTS.				
Barley	89.1	8.7	65.6	1.6
Brewers Grains, dry	91.8	15.7	36.3	5.1
Brewers Grains, wet	24.3	3.9	9.3	1.4
Malt Sprouts	89.8	18.6	37.1	1.7
Buckwheat	87.4	7.7	49.2	1.8
Buckwheat Bran	89.5	7.4	30.4	1.9
Buckwheat Middlings	87.3	22.0	33.4	5 4
Corn	89.1	7.9	66.7	4.3
Corn and Cob Meal	89.0	6.4	63.0	3.5
Corn Cob	89.3	0 4	52.5	0.3
Corn Bran	90.9	7.4	59 8	4.6
Germ Meal	89 6	9.0	61.2	6.2
Gluten Meal	91.8	25.8	43.3	11.0
Gluten Feed	92.2	20.4	48.4	3.5
Hominy Chop	88.9	7.5	55.2	6.8
Starch Feed, wet	34.6	5.5	21.7	2.3
Cotton Seed	89.7	12.5	30.0	17.3
Cotton Seed Meal	91.8	37.2	16.9	8.4
Cotton Seed Hulls	88.9	0.3	33.1	1.7
Cocoanut Meal	89.7	15 6	38.3	10 5
Cow Peas	85 2	18.3	54.2	1.1
Flax Seed	90.8	20.6	17.1	29.0
Oil Meal, old process	90.8	29.3	32.7	7.0
Oil Meal, new process	89.9	28.2	40.1	2.8
Cleveland Oil Meal	89.6	32.1	25.1	2.6
Kafir Corn	84 8	7.8	57.1	2.7
Millet	86.0	8.9	45.0	3.2
Oats	89.0	9.2	47.3	4.2
Oat Feed or Shorts	92.3	12.5	46.9	2.8
Oat Dust	93.5	8.9	38.4	5.1
Peas	89.5	16.8	51.8	0.7
Rye	88.4	9.9	67.6	1.1
Rye Bran	88.4	11.5	50 3	2.0
Wheat	89.5	10.2	69.2	1.7
Wheat Bran	88.1	12.6	38.6	3.0
Wheat Middlings	87.9	12.8	53.0	3.4
Wheat Shorts	88.2	12.2	50.0	3.8

GLOSSARY.

The terms used in the above table and in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elments are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES.—That part of the digestible nutrients which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude* fat. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FEEDING STANDARDS.

Various experiments have been conducted with a view to ascertain the amount of feed and the varying amounts or proportions of the several digestible nutrients required by domestic animals under the differing conditions in which they are placed. It is evident that a horse or an ox, at rest in a stall, requires less feed than when at work, and that a dry cow should not be fed in the same way that one would feed her when giving milk. The more work required of the horse, and the more milk yielded by a cow, the greater is the demand for feed. In the nature of the case there can be no exact and arbitrary standards laid down. What will suffice for one animal may be either too much or too little for another accomplishing the same work, owing to differences in adaptability, in digestive and assimilative powers and, in care and environment. It is well known that the well groomed and properly stabled horse requires less feed for the same work than the same horse left to shift for himself without grooming or shelter. It is equally true that the milch cow responds by larger results to good care and proper shelter.

It does not follow that the labors of investigators in seeking to establish standards for feeding, have been fruitless. On the contrary, the results already attained are most helpful if rightly used and varied from as circumstances may require. The following table is compiled from the conclusions reached by different experimenters, supplemented by personal experience and reports from readers of HOARD'S DAIRYMAN:

Animal.	Daily allowance for 1000 lbs. live weight. Dry Matter	Digestible Nutrients. Protein.	Carbohydrates.	Ether Extract. (Crude Fat.)
COWS.	Lbs.	Lbs.	Lbs.	Lbs.
At rest in stall	15 to 20	0.5 to 1.0	7.0 to 10.0	0.1 to 0.3
Giving milk	20 to 30	1.6 to 3.0	10.0 to 16.0	0.5 to 1.0
HORSES.				
Light work	15 to 20	1.5 to 2.0	9.0 to 10.0	0.4 to 0.6
Heavy work	26 to 30	2.5 to 3.0	13.0 to 15.0	0.8 to 1.0
YOUNG DAIRY STOCK. Age in months. / Av. live wt. per head, lbs.				
2–3 / 150	23	4.0	13.0	2.0
3–6 / 300	24	3.0	12.8	1.0
6–12 / 500	27	2.0	12.5	0.5
12–24 / 700	26	1 5 to 1.8	12.0 to 12.5	0.3 to 0.4

The food of support, or the simple maintenance ration, is the amount required to hold the animal at a uniform weight when no energy is expended in exercise or milk giving. The larger the animal, other conditions being equal, the greater the amount of feed required for this purpose; but the variation in this respect does not run parallel with the variation in weight. Thus a cow weighing 800 pounds will require more feed per hundred than one weighing 1000 pounds or 1500 pounds. Instead of deducting, for such an animal, one-fifth from the maintenance ration, as given above, it would be nearer right to deduct not more than one-sixth. Whatever is consumed beyond the requirement for maintenance, supplies the material for growth, for making milk or furnishing the power expended in work and exercise and combatting enemies and the elements. It follows that as conditions vary the standards should vary.

It should not be forgotten in compounding a ration that the stomachs of different classes of animals vary in relative size. The cow has very capacious receptacles for food, showing that she is fitted to consume relatively more coarse fodder than other animals, and hence, in arranging her feed, regard should be had both to bulk and the proper distribution of the nutrients throughout the entire mass. For example, 20 lbs. of timothy hay or 10 lbs. of corn will furnish practically equivalent amounts of nutriment, but the cow will not thrive on corn alone, because of the defective digestion, consequent upon failure properly to distend her stomachs and subdivide the concentrated food. Those of us who belong to the generation that went "through the war" remember that "roughage" was quite as essential as grain for the continued well being and endurance of the animals. The prescribed army ration for the horse contains practically an equal amount of roughage and grain; for the cow, under ordinary conditions, we think it best to have about two-thirds of the dry matter in roughage and one-third in grain. When feeding heavily for rapid increase of weight or extra flow of milk, this proportion cannot be maintained, but the roughage should not be materially decreased.

HOARD'S DAIRYMAN aims especially at giving the milk producer, the farmer who keeps cows, the very best and clearest scientific and practical information that can be obtained on the feeding question. It is always ready to answer any and all questions that it is able to on the many sides of dairy practice. For the trifling sum it costs, only $1.00 a year, less than 2 cents a week, it would seem no man who really values sound knowledge and who seeks the best profit can afford to be without it.

A RECENT trip through New York, by the senior editor of the DAIRYMAN, disclosed to him the very serious damage which has been done, to the dairy farmers in particular, by the severe drouth, which has prevailed all of the late summer. The corn crop in most localities is almost a complete failure, and the drying up of springs and streams compels farmers to haul water for their stock, in some cases several miles.

Years ago Horace Greeley warned the eastern farmers that if they cut off the timber from the tops of the hills they would greatly lessen the water supply. They paid but little, if any, attention to the warning, however, and now the dire effect of such wasteful action is seen. A few, very few, of the dairymen filled silos last year for summer use, and they report but little, if any, shrinkage in the milk flow, right through the drouth. The reduction in the production of milk has been very great and is being felt in the butter and cheese market.

The Butter Fat Contest at the Washington State Fair.

ED. HOARD'S DAIRYMAN:—In the butter fat contest there were two prizes, one for $50, and second prize $10; and there was a prize of a pair of Chester White pigs valued at $25, offered by Mr. Guy MacL. Richards for the pure bred cow making the most butter fat as shown by the Babcock test, in forty-eight hours.

In the first contest there were four entries. Mr. Guy MacL. Richards, of North Yakima, entered two Holstein cows and Mr. Mitchell Stevens, of Ellensburg, Manager of Elmwood farms, entered two Jersey cows, bred at Elmwood, but have lost registration. The score was as follows:

	Milk. Lbs.	Milk. Oz.	Per cent Fat.	Pounds Fat.
Jersey cow, 26.....	77	11	5 76	4.47
Jersey cow, Beatri e...	71	06	5.83	4.15
Holstein cow, Bessie..	80	04	3.50	2.80
Holstein cow, Chekotie	79	01	3.00	2.33

The Jersey cow won both first and second prizes. In the contest between pure bred cows, A. M. Stevens entered Galvina 97346, A. J. C. C. She yielded in forty-eight hours, 57 pounds, 10 ounces milk; test, 5.21 per cent fat, equal to three pounds fat. She ate six pounds of a mixture of bran, barley and oats, and one pound corn meal, twenty pounds carrots, and hay at will, daily. Holstein cows, as above, were also in this contest. Cow 26 ate eleven pounds of a mixture of mill feed and ground oats, twenty pounds carrots and hay at will, daily.

The Jersey cow, Beatrice, ate eight pounds oats and mill feed, equal parts; twenty pounds carrots and hay at will. The Elmwood cows won all three prizes. They were taken off the pasture, Wednesday, a week prior to test, taken to Ellensburg, kept over night, and from six o'clock in the morning next day, until nearly four p. m., kept in the stock yards and then shipped, and it was nine p. m. before they could be milked at the fair grounds; they went off badly on feed and milk. Beatrice ate nothing but a little hay and carrots for two days, and during the contest all the Jersey cows came in heat; yet, for food eaten, we think they did fairly well: 4.47 pounds, 4.15 pounds, and 3 pounds fat in forty-eight hours, for 11 pounds, 8 pounds and 7 pounds grain and bran makes cheap butter fat.

Ellensburg, Wash. A. M. STEVENS.

Injury to Fodder by Exposure.

The unusually small hay crop of the present year has directed the attention of feeders to the most valuable of all agricultural side products of our state—corn fodder, more properly, the corn stover. The custom has been to leave most of this valuable feed standing in the field, and let stock take what they would of it, after it had been exposed to the frosts and storms. Experiments have repeatedly shown that well-cured corn stover is fully as valuable for feeding purposes as good timothy hay. This conclusion is the result of the practical feeding experiments carefully conducted.

The custom of allowing the fodder to stand in the field exposed to the weather, results in a two-fold loss; the feed becomes dry and unpalatable as compared with well-cured fodder, and there is also a great loss of material. This loss of material is both mechanical from the breaking up of the leaves, and chemical from the destruction of the constituents of the fodder. About one-half of the total feed in the fodder is found in the portion of the stalk, below the ear. Practically all of this and a portion of the stalk above the ear are lost if the fodder is left standing in the field.

The chemical losses, due to exposure, are chiefly losses of the group in which sugar and similar soluble bodies are found. These soluble substances are the ones most readily digested, and palatability of the food depends in a large degree on the proper preservation of these materials.

Cane growers know how rapidly canes deteriorate after a heavy frost or splitting freeze. Similar changes take place in the corn plant, which is related to the cane, but in a smaller degree, since the sugars are present in a smaller quantity. The changes that take place in weathering result in an absolute loss of material of the sugar group, since they are converted into compounds that pass off into the air. The albuminoids of the corn are more digestible than the albuminoids of hay. But weathering has the same effect on the corn plant as over ripeness in hay—the albuminoids are made less digestible, and so there is a loss of available albuminoids as well as an absolute loss from the decomposition that is steadily going on.

The hardening of the woody fiber incloses the other materials, so that greater resistance is offered to the action of the digestive fluids, and there is less food material available for the support of the animal.

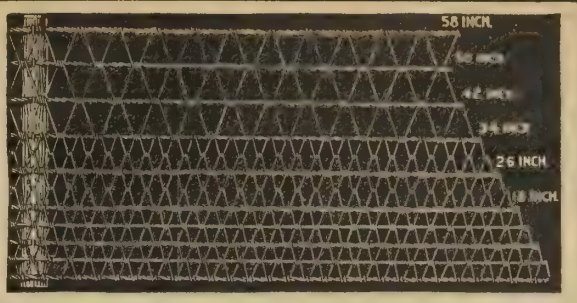
The experience of good feeders, as well as feeding experiments carefully conducted under chemical control, indicate that the most feeding material may be derived from the corn crop by cutting it as early as is consistent with the proper curing of the ears. Danger of molding may be lessened by making the shocks smaller than is customary. Shocks as small as four hills square are sometimes used and permit very free circulation of the air. The labor of cutting and handling is considerably lessened by the use of smaller shocks.—*Dairy and Creamery*.

A lamp does not burn very well, and eats its head off in chimneys, unless you use the chimney made for it.

Index tells.

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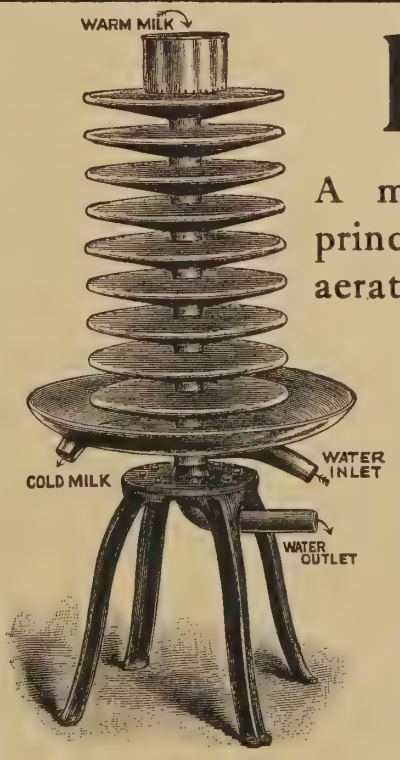


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Judging Dairy Cattle.

ED. HOARD'S DAIRYMAN:—In justice to Mr. Philips as well as myself, I beg leave to answer certain statements and inferences given to your readers under head of "Judging Guernseys at Wisconsin State Fair."

To begin, I am the Ohio exhibitor referred to. I am not John Jones, nor do I know who the writer, signing himself John Jones, is.

I did state that one of the Philips cows was a "three teater" and that her udder was otherwise imperfect. It was plain to be seen that this cow's udder was badly unbalanced from some cause, which Mr. Philips admits, and assigns to milk fever.

I did also state that another of the Philips' cows was badly defective in fore udder, meaning tucked up, or weak as compared with her back udder, but I did not intend to state that her front quarters were extinct or even impaired, but rather that she did not possess a good development of fore udder. I further stated that I did not see how any competent and conscientious judge could award 1st, 2nd and 3rd prizes to cows of the type of the Philips' cows, being of the coarse, slab-sided, hard-keeping build, carrying the pendulant, inverted style of udders, when there were two tidy young cows in the ring, like Mr. Tratt's, having symmetrical shaped udders, well developed, front and back, and in almost fresh flow of milk.

I will further state that my criticisms were passed on the judging of the cows, and the defects referred to in the cows receiving the awards were pointed to as a reproach against the decisions rendered, rather than against Mr. Philips or his cows.

I am very glad that Mr. Philips' cows are not for sale, for in that case the comparisons will not be damaging to him.

When Mr. Philips goes on to state under what conditions he took his cattle from the field and placed them before the public, on exhibition, he would seem to me to be defending himself against a charge that no one who saw them would, for a moment, think of preferring, namely: That he especially fitted them for the show ring.

Should he ever venture outside the circle controlled by his friends, with cattle in the condition his were exhibited at Milwaukee, he will have a chance to learn something himself, while he is teaching the other fellows.

But I have great confidence in Mr. Philips' ability to keep up with the procession, for Tuesday morning, while my men and myself, preparatory to showing, were engaged in combing out the tails of our cattle, that we had washed and braided up carefully the night before, were polishing their horns and smoothing down their coats that they might look as tidy as a bride on her wedding day, I saw Mr. Philips doing work on the brushes of some of his cattle with his jack knife, that would have bid defiance to any comb. The dung balls and burrs came out and plenty of hair too. I think this must be the trick referred to by the Editor, in his answer to John Jones as "plucked tails," at least it was one I never saw practiced on any fair grounds before.

Now friends and critics, what do you go to fairs to see? The mature fruit, the finished article of handiwork, the perfected machine is it not? You expect to see the best in every department that can be produced, and you like to see each exhibit in the pink of condition, do you not?

If an exhibitor of carriages brought a vehicle covered with mud, its trimmings faded with sun and rain, a few spokes out of the wheels, the whole outfit bespeaking that 'twas wrecked and worn out, but withal had been constructed of pretty good material to start with, and you were to judge it along with others, would you give it a premium over a new and bright and clean vehicle of the same pattern, equally well constructed of just as good material? Or if a horse had only three legs, or possessing four, was very lame on one of them, the muscles shrunken and the cords shortened, until he could scarcely get his foot to the ground, would you consider him worthy of a prize, as a carriage horse, against a horse with four good legs and equally as good in every other way? Would you consider him worthy if there wasn't another horse in the ring?

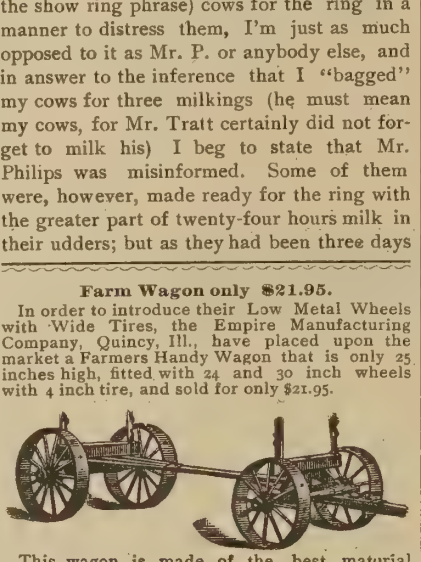
Well, if you would require a perfect vehicle, bright and clean, a sound horse well groomed, wouldn't you at least *prefer* a sound cow, shown at her best?

Blanketing and housing cattle, together with plenty of grooming to make the hair look bright and slick, I consider perfectly legitimate and commendable. The effect pleases the people who pay to see the show; it never disgusts them; they never criticise, but always praise their glossy coats; while those showing rough coats, faded hair, and well recognized evidences of neglect are made the butt of everybody's jokes. Clipping the tails above the brush, we have sometimes practiced, don't know that it does any harm, and am sure it does no good, except as it adds to the general appearance of tidiness, which exhibitors, as a rule, like to produce, to please the people, and help to make a pretty show—just as we polish the horns, and all the pay we get for it is, that we hear the ladies occasionally exclaim: "Oh, what beautiful horns!" These minor points have very little to do with fixing the opinion of the judges, and no exhibitor puts much reliance on the show ring polish to win; but I consider it quite as appropriate that the show cattle be brought out fitted, if you please, for the show ring, as that their owners should go well and neatly dressed to church, or to a ball.

When it comes to "bagging up" (pardon the show ring phrase) cows for the ring in a manner to distress them, I'm just as much opposed to it as Mr. P. or anybody else, and in answer to the inference that I "bagged" my cows for three milkings (he must mean my cows, for Mr. Tratt certainly did not forget to milk his) I beg to state that Mr. Philips was misinformed. Some of them were, however, made ready for the ring with the greater part of twenty-four hours milk in their udders; but as they had been three days

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmers Handy Wagon that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

Marquilla's Major 40804.

SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
W. R. THOMAS, Bellmore, Ind.

$50 **A BULL CALF,** solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month, 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a granddaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

The Hillside **Jersey Farm** affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address
F. E. BRYANT, Carlsbad, New Mexico.

A. J. C. C. BULL CALF FOR SALE!

Dropped Aug. 2, 1899. Solid color; black tongue and black switch.

SIRE:—A full brother to Exile's Lulu 49948, that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test.

DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Introduce Milking Jersey Stock INTO YOUR HERD

by buying one of our bull calves. Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.



Buhl Milk Cans

ARE THE MOST DURABLE

And Easiest To Clean.

Our Hand Book, "A Study in Milk Cans" is mailed FREE. Write for it.

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.**
R. C. GREEN, Albion, Wis.

PAIR POLLED JERSEY CALVES.

Yearling heifer served Oct. 4, '99. Bull calf born July 22, '99. Price $150.00 f. o. b. Write to
JAMES R. ORR, Cedarville, Ohio.

FOUR SOLID COLOR BULL CALVES

out of tested Dams, and sired by Diploma's Combination, sire of two tested cows.
Also a few heifers for sale.
J. E. TYRRELL, Marysville, O.

Registered Jerseys.

Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

St. Lambert **Jerseys,** all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

FOR SALE.

Registered Jersey bulls from 10 to 20 months old. Sired by Ida's Rioter of St. L. 18th, No. 42252, and Le Brocqo of Clearview, No. 46794. These are all prize winners at all the Fairs showed at this fall. Do not write unless you want a calf. CLEARVIEW STOCK FARM, J. S. CAMPBELL, Prop., Butler, Pa.

Six Good JERSEY COWS In calf to a son of BROWN BESSIE the champion butter cow at the World's Fair, or a son of DIPLOMA—sire of fifty in the list including MERRY MAIDEN—are in my hands to sell at FARMERS PRICES. I fully recommend them. MUST BE SOLD. Send for pedigree and prices.
H. C. TAYLOR, Orfordville, Wis.

JERSEY BULLS

The Iowa Agricultural College offers for sale five good young Jersey bulls of

CONBINATION BREEDING.

These bulls are of good individual merit and from heavy milking ancestry. Old enough for immediate service. Prices reasonable. Address **FARM DEP'T, Iowa Agr'l College, Ames, Ia.**

There's plenty of Jersey blood NOT AS GOOD as that of

Old PEDRO 3187.

There is NONE ANY BETTER.

I have for sale his grandsons, by PEDRO OF FAIRFIELD 50626, from rich dams.
W. F. McSPARRAN, - - Furniss, Pa.

Closing Out Sale!

100 JERSEYS.
Two of Tennessee's Best Herds. Morgan & Brown and The Woodard Herds Over 40 Tested Cows.
At Nashville, Tenn., November 9th, 1899.

Including noted cows **Bisson's Belle, Landseer's Fancy 3d, Ethleel 5th, Rioter's Denise 3d, Tormentor's Rexea. Fancy's Pet,** in all over 40 tested cows. Bisson's Landseer and another son of Bisson's Belle, and Oonan's Harry Pogis in bulls. More of the blood of Landseer's Fancy and Bisson's Belle than was ever sold before. Several daughters of Fancy's Harry. COL. GEO. A. BAIN, Auctioneer. Address, for catalogue—
Eugene Smith, Mgr., 155 N. Market St.
Tuberculin tests arranged where laws require.

ARDEN HERD OF

JERSEYS.

JOLIET, ILL.

H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.

Pedro's Handsome Prince, No. 42794.

Sixteen Tested Cows in Herd.

Young Stock for Sale. Write for Particulars.

JERSEYS.

Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97.
640 ACRES Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

FOR SALE!
— CHOICE —
A. J. C. C. Bull Calves

Sired by Chilton of St. Lambert 39689, by Matilda 4th Sire out of Ida's Alpha, test. 25 lbs. 15¾ oz. in 7 days. For description, etc., address
G. N. KERSTEN, Chilton, Wisconsin.

Hood Farm Jerseys **For Sale**—Bull dropped Sept. 21, 1898. Is a grand individual, has some white markings. Sire. Pedro Signal Landseer, a son of Young Pedro. Dam, Maquilla of Hood Farm, test, 14 lbs. 13¾ oz. on dry feed when 2 years 8 months old. In one year with first calf she gave 7281 lbs. milk testing 512 lbs. 13 oz. butter; by Fancy's Harry. For price address,
HOOD FARM, Lowell, Mass.

FOR SALE!

DOUBLE GRANDSON OF

Exile of St. Lambert 13657

78 Tested Daughters—more than any other bull, "Living or Dead." Solid lemon fawn color, one year old. A handsome individual, and **will be sold CHEAP.**

P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.

This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

SOME CHOICELY BRED

Bull Calves

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

The Lone Tree Jerseys

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

Closing Out Sale **Of CHARTER OAK HERD!**

180 Head, pure St. Lamberts.
High per cent ST. LAMBERTS and TORMENTORS,
Oct. 25th and 26th, at Pomeroy, Ohio.

Have sold my lands and must sell my cattle. Send for catalogue.
J. P. BRADBURY. Pomeroy, Ohio

on the cars, and the last thirty-six hours without water, and were unloaded late Monday, and ordered into the show ring early Tuesday morning, the amount of milk they had in their udders was not distressing to them; and I will add right here that Mr. P. could have, without objection on my part, and it is my opinion, without distress to them, have "bagged" his cows for twice three milkings. But you have perhaps noticed that pendulous udders of the bell clapper style don't improve in appearance much, by "bagging." Mr. Tratt's cows would have shown better, and should have been shown with moderately full udders.

I maintain that all dairy cows should be shown with well filled udders, and if they are not secreting enough milk to fill their udders, or when filled are badly carried, being pounded from one side to the other with every step they take, that it does and should place them at a serious disadvantage before a judge. The true shape of the udder cannot be determined unless well filled; moreover, a blind quarter or a weak one is easier balanced up with a little milk in them, than when filled tight.

I also claim that a fresh cow is entitled to preference over a dry cow—always supposing them nearly equal in other respects, for numerous reasons. She makes a better show. This pleases the people who came to see the show. It takes planning and patience, sometimes accompanied by repeated disappointment, to finally bring her out in the pink of condition, in her full bloom, at a time, as we may say, when we have before us the "proof of the pudding". Is not this effort on the part of the exhibitor, commendable and worthy of reward? Has a judge a right to presume, that some other cow, after she has recovered the use of her impaired functions, and has again freshened, having run the gauntlet of milk fever and all the other ails that are liable to beset her in meantime, will then be just as good a cow, and perhaps a little better than the one that stands before him already rounded out to the highest degree of cow excellence.

As for the other tricks that Mr. P. refers to, as greasing the ears, and injecting the udders, one of them seems to have reacted very forcibly on the man that was probably the first exhibitor to attempt it. The other, greasing ears, I never heard of. Coloring the natural wax in the ear, has, I am told been resorted to, and I know of one case where a certain cow was said to have been defeated on account of too much artificial coloring material used on her udder. Deceptions of this sort are readily detected by a keen judge and should have an effect on him the reverse of favorable.

I did not show my cows at Milwaukee. I received a little foretaste of what I believed would happen on females, by what did happen before Prof. Carlisle had finished the bulls.

When I learned that the yearling bull awarded first prize, belonging to Mr. Hill had been bred by Mr. Philips, and saw how near alike in type Mr. Philips' cattle were, and had just myself received first prize on my two-year-old bull, a bull of very similar type to Hill's, that I considered the poorest individual of the seventeen head I had with me, against two bulls that were his superiors, I declined to lead out any more of my cattle.

Mr. Hill since assured me, in a letter, that I made a mistake, that he believed I would have at least received first and second on aged cows.

Very likely Mr. Hill, being Ass't. Superintendent, knew, but if that is the case, what puzzles me is, why didn't Mr. Tratt get something on his cows that were young and sound and fresh, and very much nearer the type of my best cows than Philips' were.

Now I don't think Mr. Hill really expected me to get first and second on cows; I think he just wanted to make me feel bad by telling me what I had missed, and expected the prizes to go where they would help boom the bull he had chosen to head his herd.

With the permission of HOARD'S DAIRYMAN, I will have published in their valued paper, in the near future, pictures of several representatives of this Ohio herd of Guernseys, whose owner took so radical a step at the Wisconsin State Fair.

The cuts shown will be exact reproductions of photographs, taken within the last few months, without the least alteration or exaggeration. L. V. AXTELL.

Lake Co., Ohio.

Hoard's Dairyman in Florida.

Following its Teachings Brings Success.

ED. HOARD'S DAIRYMAN:—I count on the weekly visits of the DAIRYMAN, and have always found it an A-1 adviser,—so many things appear in its columns that are worth to me many times the amount of the subscription.

One year and eight months ago, I located here and had no actual experience in dairying; started with two cows, grade Jerseys, and have added to my herd some very good dairy cows, and recently secured a full blooded Jersey bull, a descendent of Adelaide St. Lambert, and am anticipating a number one herd in a few years. Am now raising seventeen heifer calves, part sired by this bull. Commenced making butter for the local trade about one year ago,—knew nothing about handling cream or butter, but by close study of articles in your valuable paper, I have succeeded in producing an article that finds a demand far in excess of my supply, and I am greatly encouraged.

I wish to thank you for your helpful replies to my inquiries, both direct and through replies made to others which fit my case

I wish you the increased success, which you so deservingly merit. "CRACKER."

Jefferson Co., Florida.

Feeding Oil Meal to Young Calves.

W. E. T., Rush Lake, Wis., writes: "I wish to inquire concerning feeding oil meal to young calves. Is it good for them, and if so, should it be cooked or fed raw? How much should be given a calf when two weeks old, and how much later on?

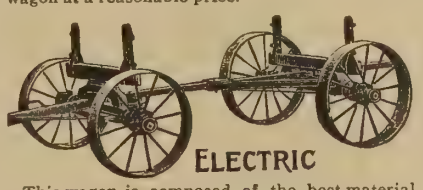
For very young calves it is better to scald the oil meal with water, in order to form a jelly. Some of this jelly or pudding can be placed in a pail of milk. The calf will find it as it drains the vessel, and show his appreciation by devouring it greedily as soon as he has learned its taste. At first a few teaspoonsful of the meal a day is sufficient. When a little older the meal need not be cooked, but fed either with the milk or other grain, as oats or bran in the trough. As oil meal is relatively expensive in Wisconsin, the feeder should not use a large quantity of it. A handful for a young calf and a double handful for an animal three or four months old, will be helpful, and the remainder of the grain ration can consist of oats, bran, with a little corn meal if a dairy calf, and a considerable quantity of corn meal if the animal is designed for beef.

Oil meal is one of the best of feeding stuffs for limited use with all kinds of farm animals, and stockmen should have it on hand at all times. Its effects upon the bowels are the very best, and animals receiving it show its worth in the loose, flexible hide, silky hair, and the general appearance of thrift. W. A. HENRY.

Wisconsin Agricultural Experiment Station.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



ELECTRIC

This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy, Ill.

Carpet Stretcher for 30 Cts. Big money to live Agents. Address, J. C. KEITH, Battle Creek, Mich.

THE UNITED STATES TRIPLE CURRENT SEPARATOR

Has proven time and again in competition with other separators that it

AVERAGES TO DO MORE THOROUGH SEPARATION WITH LESS COST FOR REPAIRS.

It does not need to be bolstered up by tricks to make a record. Read the following:

Skims Over Rated Capacity and Cleaner than the De Laval.

CROWN POINT, N. Y., July 18, 1899.

Our creamery started five years ago and during that time we have used three different kinds of cream separators. This spring we needed new separators and about three months ago, a DeLaval Alpha Disc Separator was put in our factory and two weeks later an Improved U. S. Both separators were the $500 size.

After thirty days' tests we purchased the United States because it showed a greater capacity and averaged to separate more thoroughly. It has exceeded its capacity and shown an average test of skimmed milk up to date of .032 of one per cent.

My personal experience in skimming milk is of two years' close attention. My experience handling and making machinery has been of thirty-four years consecutive duration. In my judgment, to give a candid and unbiased opinion, the Improved U. S. Separator, regarding its construction, capacity, simplicity, even and clean skimming, and power required, excels all that came under my notice in making a selection.

W. S. GREEN, Manager and Treas.
Farmers' Creamery, Cheese & Produce Co.

The U. S. Displaces a Sharples' Tubular.

EAST SPRINGFIELD, N. Y., June 26, 1899.

This is to certify that we, the undersigned, have placed in our factory here a No. 0 U. S. belt Separator and we are satisfied and pleased with it. We have run through it over 3,000 lbs. of milk per hour for three solid hours, and it skimmed down to less than .05.

We have been trying to use a No. 25 Tubular machine, but it has given us an endless lot of trouble and we cannot possibly, neither can P. M. Sharples' experts, make it skim clean, even when the cream is very thin. We do not care for any more Tubular Separators, the old reliable U. S. is good enough for us.

ISIAH COOK, President.
CHAS. A. GRANT, Buttermaker.
BENJ. FRANKLIN, Director.
FRANK E. BARMEYER, Director.
G. W. GRAY, Secretary.
J. J. WALRATH, Manager.

The U. S. Gives No Trouble.

ST. REGIS CREAMERY,
ST. REGIS FALLS, N. Y., June 29, 1899.

The U. S. Separator No. 0, bought of you this spring is giving entire satisfaction. The production for the month of May was 1 lb. of butter from 22⅛ lbs. of milk, which is better than any of my neighbors that I have heard from. The machine has never given any trouble and it does not seem likely that it ever will. WM. T. O'NEIL.

The U. S. the Best All Round Machine.

WAUKEE, IOWA, Oct. 17th, 1899.

I have run a United States Separator since Jan. 19, 1899, and have had unusually good success with it; have been skimming right along as close as one twentieth (.05) of one per cent. They are easy to run and simple in construction. They do not cut the cream as other machines do.

We are using two Alphas and one Springer at the other two creameries and I think the U. S. the best all round machine we have.

I can make any U. S. skim to a small fraction of one per cent. We test all our separators every day. A. L. ROSENBERG.

We furnish everything necessary for a complete Dairy or Creamery outfit.

Write for Illustrated Catalogues.

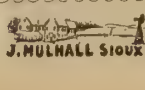
VERMONT FARM MACHINE CO., Bellows Falls, Vt.

NOTICE.

If you become a member of **The United States Co-operative Boot and Shoe Purchasing Association** you can save 33⅓ per cent on all boots and shoes you buy for yourself and family. For instructions how to join the Association, full information concerning it, and illustrated book on shoes, send your address and ten cents to

E. H. TILTON, Secretary.
105 Sumner St., Boston, Mass.

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.



IOWA FARMS $2 PER ACRE CASH BALANCE 4 CROP TIL PAID

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for **50 CENTS.**

Will be sent as a premium for

ONE NEW SUBSCRIBER.

Fur Robes and Coats—We will manufacture them from your cattle and horse hides cheap Samples free. MILFORD ROBE TANNERY, Milford, Ind.

Comments and Queries From Robinswood Farm.

The Selection of the Dairy Cow In Relation to Protein Feeding.—Her Evolution Consequent Upon Practical Conditions.—Liquified Air as a Milk Preservative.—The Nature of the Feed More Important than Breed.

ED. HOARD'S DAIRYMAN:—I know all of my neighbors are wide awake to see how much of a fool I can make of myself as a farmer. I have already made quite a number of essays in one way or other. Some of them have been fool things to do, but my neighbors will bear me out that none of the unsuccessful essays have been large ones. I having always kept one foot on dry land, and have always been able to pull out the foot from the "marshy" spot without getting bogged. So, as in other things, I am going slow in my selection of the dairy cow I want to raise, and recommend to the farmers who patronize Gilmanton's Creamery. Nevertheless, I am beginning to arrive at some pretty definite conclusions in the matter—getting "warm" as it were. I have concluded not to expect a cow that will perfectly fit the case. There is no more reason why one should expect perfection in a dairy cow, than in anything else. I know enough now of the hopelessness of getting what we want by crossing breeds. I can plainly see, that in the long run, the practice is one of degeneration. It is bad enough to make progress by keeping to one established breed. I do not believe that anyone of the established breeds is the all-round breed for the average American farmer. Nor will one kind of a cow be the best for all of the farmers of such an immense territory as exists on this North American continent, with the various diverse conditions pertaining to its many sections.

I believe that each section must start with the established breed best adapted to the special local requirements, and then by selection and intelligent breeding gradually evolve the kind of a cow desired. I believe, that in a general way, that cow will be more of a dual-purpose cow than the specialized Jersey now is. (The dual-purpose cow is worse than the ghost; it "will not down.") I think there is a reason for its constant appearance. It would not seem so terrible if this custom were spoken of as the dual-purpose dairy cow, and make a marked distinction between her and the combination beef and milk cow. No dairyman wants the latter.

The first requirement of a dairy cow is, that she shall give a big lot of milk. It also ought to be known, that in this age of specialism if a man is to succeed, he must have a special and definite aim, and stick to what he is aiming at. There is no question in my mind that, over a large area in our country, it will pay farmers best to make their aim veal and beef; and let the milk products be a secondary matter. But if a man is going to make two-year-old beef his aim, he has got to plan very differently, than if high-grade butter is his goal. If he is going to succeed, he has got to have stock whose strong tendency and ability is to grow muscular tissue quickly, and in abundance. He has got to have an easily tillable soil, and grow great corn crops. He has got to have rich pastures, above all things. His young stock has got to be kept "sappy," and growing all the time; and, withal, he need not bother himself about protein crops and feeds.

But there are lots of farmers who are not situated favorably for the carrying out of such requirements. Our Gilmanton farmers are of this sort, and we could never compete with other sections, if we aimed for beef and veal as a principal product. Our local conditions are favorable for the production of fine milk and butter. Most of our farmers are situated so far from shipping stations, as to make the hauling of milk for city use too onerous a matter. Even under present conditions of competition, it would be perfectly out of the question.

When the milkmen of the country get to using liquified air as a means of preserving their milk, it will then be very simple to aerate milk by pouring into the milk can a little fluid air, which would freeze up the milk solid, and thus enable it to be transported hundreds of miles, and keep perfectly so long as it remains frozen. This possibility puts very far distant cities within practical reach of farmers who may be located close to railroad shipping stations. When this practice is generally adopted, there will be less money in the selling of whole milk than at present, although it will also largely increase the consumption of milk in cities, on shipboard, etc. This outlook is one reason why we Gilmanton farmers should stick to our aim of high-grade butter. We can make it; our creamery product took first prize at the Rochester Fair this fall, the judging being by one of the most competent experts in this country.

We have a climate which, practically, leaves out the hot summers of lower altitudes and more southerly latitudes. This means a cool temperature in which to transport our milk to the separators, and our butter to shipping stations. It means that we maintain permanent pastures of the best grasses. We have fine water and pure air. Our region grows very healthful cattle, as well as vigorous men.

We have our central creamery, and a number of outlying skimming stations. It yet remains to use a pure culture starter, to be certain of the highest excellence in the product every time, and then to advertise our claims for patronage, in order to place every pound of butter we can make at a very considerable advance over general market rates. In the matter of high-grade butter, we can compete with the world; alas! it is the only thing in which we can compete with the world. Hence, there must be no mistakes in the policy for advancement that we make.

I don't know that it would make much difference as to which of these breeds we should start with—Ayrshires, Jerseys, or Guernseys. It would amount to pretty much the same results in the end. It would be a cow, evolved as to her performance in somewhat strict accord with the nature of the feed that will prove practical to produce in the most economical manner. The growing and feeding of protein feeds must be aimed for. If it shall prove practical to feed our cows on a narrow ration with a full proportion of protein, our future cow will be a specialized milk machine, but if the ration is to have a disproportion of carbohydrates, she will become more of the dual-purpose dairy cow—a creature with a larger frame, on which the excess of carbohydrates in the food can be deposited as occasion requires. The fact that we will have to utilize our extended but poor pastures will tend to develop her muscular system, and make of her a larger cow than one that is soiled, or otherwise nourished without so much exercise.

It must be accepted as a fact that too much exercise tends to decrease the flow of blood and nerve impulse to the milk manufacturing apparatus. The more protein we can feed, the more milk we can produce. I don't suppose there is any danger of feeding too much protein under present conditions. I am experimenting again with feeding bought proteins, such as gluten and cotton-seed meal. I do not have much faith as to the practical outcome in profit, but I want to give it a more fair and severe trial than I did last winter. I am also preparing to grow a va-

Wells Richardson & Co.'s Improved Butter Color

THE BEST IS ALWAYS CHEAPEST

"THE KIND THAT HAS NO MUD"

can always be relied upon as the BEST, being UNIFORM, free from all SEDIMENT, and NEVER becomes RANCID. It is for sale by All First-class Dealers.

IT'S AS GOOD AS ANY AND BETTER THAN MANY.

Alderney Butter Color.

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DOES NOT FADE.
ALWAYS UNIFORM.

GIVES PERFECT JUNE TINT.

Samples Sent Free to any Buttermaker.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO, No. 14 North Clark St. BOSTON, 98 Commercial St. PHILADELPHIA, 109 So. 2nd Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York. Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

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AMERICAN Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and **S. M. BARRE**, Winnipeg, Man.

riety of protein crops next year: Crimson clover, grown as an annual, Canadian peas with oats, soy beans; grow bush beans, horse beans and cow peas.

There does not seem to be any doubt but that we can produce a better balanced ration of rough feeds than we now grow. We can also do something in growing concentrates. Our oat crop we can let get ripe, and thresh out the grain; the same pertains to the field peas, and to the early maturing bush beans. There is one advantage in ripening some of these cow feed crops and threshing them, in that, if cured as hay, the mice are apt to get in through the mow, and greatly injure the quality of the feed.

Whether it is going to pay to grow these special protein feeds, remains to be seen. It certainly does not seem worth while to stuff the cow with more carbohydrates than she can make use of, as the quantity of milk is determined by the amount of protein present. It were probably better to separate the rough parts of the carbohydrates, and use them for bedding litter, and for absorbents. This will tell in the saving of manure, and in benefiting its quality.

Part of the corn crop might go in the silo, and part be allowed to ripen the grain, and thus concentrate most of the protein of the plant into the grain. In view of the desirability of introducing as large a portion of protein as possible, it seems as though the old style of ripening the ear in the stalk might not be so bad a plan. Part of the stover—the leaves and tops—could be fed, and the rejected butts be shredded for bedding or for hay for store stock, where quick growth, and daily product of milk is not to be provided for.

It seems as if the disproportion of carbohydrates such as is found in timothy hay, corn butts, etc., might not only be fed to bulls, steers and horses at rest, but also be used for bridging over drouths in the summer, during which periods most of the better dairymen's herd should be more or less dry; hence in no present need of a large protein content in the food supply. Here are a lot of practical problems which we will have to work out to a determination. In the meantime no mistake would be made in commencing to grade up the herd with a thoroughbred bull of the three breeds mentioned.

In our cold country, I think it would be a mistake for the ordinary farmer to commence with thorough-blood females. If a man is to become a breeder of thoroughbred dairy cattle, that is one thing; but I believe that the practice of the stock breeder should be very different, from that of the general purpose farmer or dairyman. By starting with dams already adjusted to the peculiar conditions of the farmers' environment, his new blood would be gradually and harmlessly infused through the herd, and become adjusted to the peculiarities of the environment and special conditions of feed, more advantageously than if full blood females were introduced.

This reasoning would not pertain if full bloods were to be obtained fully acclimatized and used to local practices in feeding. But it seems as if the breeder of thoroughbreds in order to maintain milk giving tendencies, should often feed in a more expensive manner than would be profitable for the general farmer and the dairyman. Specialism must pertain in this as in other things. The breeder gets his profit from stock possessing certain valuable tendencies. The farmer gets his by great economies in the production of his milk and butter products. No matter if the farmer is not able to balance his rations in protein or to give a highly concentrated feed, he ought to have a herd that has the capacity to make the best use of what he does grow or feed.

But if he cannot grow a good quantity of protein, there does not seem to be much use of having cows with highly developed milking apparatus. The cow wanted, depends largely upon the amount of protein in the food provided. J. W. KITCHEN, M. D.

New Hampshire.

Second-Growth Sorghum Causing Death of Cattle.

The reports which have been made from time to time concerning the results of feeding second-growth sorghum, have been utterly irreconcilable. For every instance where one farmer has reported the loss of animals following the use of second-growth sorghum, another, and perhaps two or three, will report the use of such fodder for years in succession with out any ill effects.

Hitherto, there has been no satisfactory explanation of these discrepancies, but the instances related below appear to solve the problem satisfactorily.

Every season there is complaint of loss of cattle from eating second-growth sorghum and similar foods, and the question is asked as to whether such foods are poisonous. Although death frequently follows when cattle are permitted to fill themselves on second-growth sorghum, it should not be understood that the food contains a poisonous substance, as the following will make clear: The Sanitary Dairy Co., of this city, recently lost 17 cows and Chief Sanitary Officer Francis sent the veterinarian of the Health Department, Dr. Ellis, to investigate the case, as it was feared by many that some contagious disease had broken out or that death was due to poison and that all the herd would be more or less affected, thus vitiating the milk supply. Dr Ellis found, however, that the cows had broken into an adjoining field and gorged themselves with second-growth sorghum which by fermentation in the stomach developed gas to an extent sufficient to burst the paunch and thus cause death.

Sedalia, Mo., Oct. 13.—T. L. Scott, a Kemp, Mo., stockman, turned a bunch of cattle yesterday into a sorgum-cane patch. Inside of an hour four of the animals died and many of the others were taken sick. A post-mortem examination of the dead cattle disclosed that death was caused by over gorging of their stomachs with green cane fodder, causing gas to fill their paunches to the bursting point,

Such cases, as every farmer knows, are readily relieved by thrusting a trochar into the paunch at the point of greatest distention, which will be just forward of the left flank and not far from the back bone, then withdrawing leaving the canula as a tube through which the gas may escape. If a trochar is not at hand the large blade of a pocket knife and a goose quill may be made to answer, thrusting the knife through the hide and linings of the paunch, then placing the quill in the incision and thus affording an escape for the accumulated gas.—*Rural World*, of St Louis.

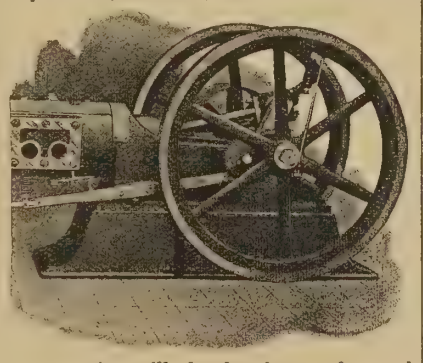
ILLUSTRATION.

The accompanying cut illustrates a gasoline engine, made by the Davis Gasoline Engine Works, of Waterloo, Iowa. They have the following to say of the engine:

"There are no small springs or light intricate parts in the construction of the Davis engine. Anyone can run it without the least difficulty.

It is assurance against danger from any source—explosions or otherwise. The supply tank (whether gasoline or other fuel)is always placed lower than the engine, and is buried under ground when desired. The feed chamber is provided with an overflow pipe which returns all surplus oil to the supply tank. The Davis positively pumps the oil from the tank.

The Davis Engine is reliable because it is simple; it is reliable because it is built of the very best of material; it is reliable because



every engine will develop its rated actual horse power, and will continue to pull its full load as long as required. It works as well in cold as in warm weather.

This engine is most emphatically a high grade engine, and is most mechanical in construction. The forged steel connecting-rod is turned and polished; the boxes are genuine aluminum bronze.

Buyers of high class engines should demand that the main bearings are fitted with quarter boxes. With these boxes the wear is always completely taken up, and insures perfect alignment and a steady, even running machine, free from pound or jar, that is so common with the ordinary cap box.

For further information address manufacturers.

Prepare for Winter.

Now is the time to think about keeping your stock warm during the coming winter. Before cold weather sets in look over your out buildings and see if there are any leaky roofs, any shingles or clapboards coming off, or any cracks that need stopping up to make the buildings warm.

It is poor economy to have cows and horses sleep cold in the winter, and every farmer knows how much more profiable hens are, and how much faster the chickens grow if they are kept warm.

If you will accept a suggestion from us, of which the editor of this paper will approve, you can fix up your old outbuildings, prevent leaky roofs, make warm your sheds, barns, hen houses, hot beds or green houses at very little expense.

Go to your nearest hardware dealer and get a roll of **Neponset Red Rope Roofing**, which is made for any outside covering, and is

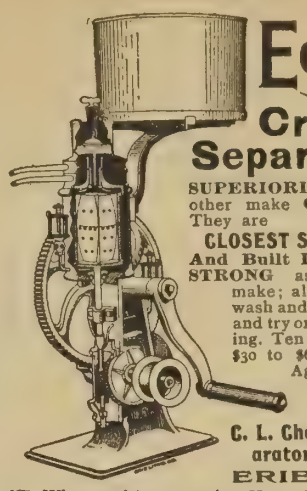


postively water-proof, wind-proof, and frost-proof. There are five hundred square feet in each roll, and it will only cost you $5.00 including the necessary nails and tin caps.

Don't confound **Neponset Roofing** with common tar paper, which, when exposed to the weather will crack, crumble and quickly rot away.

Tar paper was all right for your grandfathers, but in this age of advancement a covering which is very much more durable and economical is required, and that is **Neponset.** It takes the place of shingles or clapboards on outhouses, and back-plaster in dwellings. Any one can put it on and it will last for years.

If you would like to have a sample of this Roofing and full particulars before you buy, send a postal card to **F. W. Bird & Son, East Walpole, Mass.,** and they will send it to you by return mail free.



Eclipse Cream Separators

SUPERIORITY over any other make **Guaranteed.** They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

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THE BEST FOR THE DAIRY, be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

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Makes the work easy and profitable to the dairy farmer. Agents wanted. Catalogues. free.

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CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

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THE MILK MAID'S DELIGHT

is our 9 wire 50 inch Cow Fence. It holds cows.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

AFTER HARVEST, FENCING.



Now that your crops are all in, you will have time to attend to that fencing. The best farm fence you know, is

THE ADVANCE FENCE.

It's the one that is sold direct to the farmer at wholesale prices. Nobody can buy it cheaper than you can. Entirely interwoven. No loose ends. Circulars and special discounts free.

ADVANCE FENCE CO., 126 Old Street, Peoria, Ill.

BUGGIES AT OLD PRICES.

BUGGIES

It is tough on the factory, but they admit our option on Buggies is good. "Their loss is your gain." A BIG ADVANCE has already been made, but we will sell these goods at old prices. First come first served. Send for free catalogue of Plows, Harrows, Disc Harrows and Other Goods selling at old Prices until Jan. 1st, 1900 only.

Hapgood Plow Co., Alton, Ill.

Only Plow Factory in U.S. selling direct to Farmer.



IT COSTS LESS TO BUY NEW WHEELS

than to repair the old ones—you can get 4 Buggy Wheels 7-8 in. Steel Tire for $7.50 4 Carriage Wheels 1 in. Steel Tire for $8.00 Special Wheels for Milk Wagons with steel tires 1¼x⅜, $11.25. Special low-down gear supplied when desired Gears & Axles. Boxes set when wanted. Write us for free price list No 84 with rules for measuring.

WILMINGTON WHEEL CO., Wilmington, Del.

Keeping Farm Accounts.

ED. HOARD'S DAIRYMAN:—Answering Mr. C. D. Rust, of Brooklyn, N. Y., in regard to a simple accurate system of keeping farm accounts, I send herewith a copy of some of the accounts in my ledger.

For myself, I use regular double entry, and keep journal, cash-book and ledger, besides a small pocket day-book in which I make the entry of all my transactions just when they occur, thus avoiding any chance of error by lack of memory. Would suggest that any one using a pocket day-book be very particular about all that goes into it, for in case of any legal dispute the book of original entry will be the one that must be considered.

Friend Rust can open other accounts, such as a "General and Sundry Expense Account" into which he can throw all sundry items of expense as they occur; "A Living Expense Account" into which can be charged everything that is required for the living of the family; a personal account into which charge all cash and other things used by himself. Other accounts may be opened as necessary, and at the end of the year, or sooner if necessary, he should open a "General Ranch Account" into which he should close all other accounts which pertain to the expenses and produce of the farm, and then he can see just what the profits are, and he then has everything in a very accurate and compact form. A ledger of about 400 pages, which can be bought at any stationery store for about $1.75, is just about the thing for a farm ledger.

He will see by referring to the sample accounts, which are exact copies from my ledger, that the expenses, such as seed, etc., are charged up in the left hand column, while any produce sold is credited in the right hand column.

In regard to the "Living Expense Account," whenever charge is made for anything taken from the ranch for use, a credit should then be given to the proper account. For example: Suppose I take a sack of potatoes for home use. I charge living expense account with the then market value and credit potatoes and vegetable account for the same amount. In this way each account will get its proper credit.

ARTHUR W. BIGGERS.

Navarro, California.

HAY AND GRAIN ACCOUNT.

1898.	J. P.	
Nov. 21, to 10,080 lbs. oats for seed	65	$151.40
1899		
Feb. 16, to 4 sks. barley for seed	66	4.00
July 24, to 150 lbs. binding twine	133	20.50
Sept. 2, to 1,000 new grain bags	133	75 50
Sept. 2, to 185 old grain bags	133	9 25
Sept. 2, to sack twine and needles	134	2.85
Sept. 9, to threshing 3,088 bu. oats @3c	134	92.64
Sept. 9, to men's labor on thresher	134	20.25
Sept 9, to board of threshers	134	12.50
Sept. 9, to freight on sacks and twine	134	3.90
Sept. 16, to baling straw @ 15c bale	135	18.75

1899.	J. P.	
Oct. 9, by 5 sack oats	133	$ 5.00
Oct. 14, by 8,356 lbs. oats @ 1c	139	83.56

POTATOES AND VEGETABLE ACCOUNT.

1898.		
Dec. 22, to garden seed	65	$ 3.70
1899		
Apr. 12, to 3,547 lbs. potatoes for seed	65	37.90

1899.		
Oct. 4, by pot. & veg. from Aug. 1-Oct. 4	134	$50.07
Oct. 9, by 900 lbs. pot. to Coombs	134	9.90
Oct. 9, by 1 sk. to Mrs. S	134	2.00
Oct. 14, by 140 lbs. Polaris potatoes	135	1.40
Oct. 14, by 205 lbs. cabbage A L. Co	139	1.85
Oct. 14. by 2,384 lbs. potatoes to A. L. Co	139	23 84

BUTTER AND POULTRY ACCOUNT (6 COWS.)

Cows entirely on pasture.
Can charge whatever expense there is for feeding, etc.

1899.						
Feb. 22, by butter to A. L. Co					133	$ 4.32
Feb. 28,	"	"			133	4.37
Mar. 11, by 23 lbs. butter to A. L. Co					133	4.83
Mar. 16, 22	"	"	"		133	4.62
Mar. 25, 25½	"	"	"		133	5.35
Mar 30, 17½	"	"	"		133	3.33
Apr. 30, 86½	"	"	"		134	16.44
May 31,		"	"		134	16.92
July 31, 401½	"	"	"		135	72.37
Aug. 7, 18½	"	"	"		135	3.70
Sept 26, 56	"	"	"			11 09
Oct. 1, by butter used by family						34.50

A Good Combination.

Dairy Cows and Pigs.

ED. HOARD'S DAIRYMAN:—Pigs can be grown very profitably upon the dairy farm, and perhaps there is no better combination for actual profits, than these two—the cow and the pig.

Skim milk contains all the essential elements of growth in animals; the fat can be dispensed with entirely. It builds up the frame, rather than puts on fat, and this is exactly what is desired in the case of pigs.

You will notice that in speaking of this combination, mention is made of pigs, not hogs. It is the former that is the money-maker, for there is no profit in keeping such animal until it becomes a hog. To get best results we want to have our pigs ready for market at six to eight months of age. Kept much longer the profit begins to decrease. Quick growth should be secured, and the earlier the period when they are turned off, after they reach a certain point, the better. Let us consider this question of rapid growth, and see how to secure it.

In the first place we need good, healthy, thrifty stock to serve as breeders. The sows should be liberally fed during the period of gestation, but corn should not figure conspicuously in the ration. Rather let the animal receive plenty of succulent food, clover, roots, bran—that standby of all seasons for all kinds of stock—anything that will keep her in good condition, but not fat. Plenty of exercise is necessary, also, and fresh water to drink at will. Skim milk is an excellent food for the brood sow, and so, also, is buttermilk.

We ring our sows and turn them into the stubble fields after harvest. Some do not recommend this practice, but we have never had any injury done in following it, where the animals cannot root. Exercise and plenty of it, is what the sows need at this time. The pigs will be more apt to come with vigorous constitutions, ready to begin rapid growth from the very first.

After farrowing, little food should be given the dam until the pigs are twenty-four to forty-eight hours old. A pail of slop, half a bucket of skim milk, or a little bran will be sufficient. Water should be given. In cold weather take the chill off before offering it.

After a few days the ration may be gradually increased, until on full feed. If asked what amount this should be, I would reply, all the sow will eat up clean. If the pigs are to get a good start, the dam must be supplied with abundance of good nourishing food.

I know that some think dish water is about all a sow needs to keep herself and a litter of pigs on, but I take no stock in such methods. Give plenty of bran, ground oats or something similar, and sweet milk to drink. Avoid buttermilk for a sow that is suckling pigs. It may cause diarrhœa.

Young pigs need exercise or they will get too fat, where the dam is highly fed, and have "thumps." Spring farrowing is usually more liable to develop this disorder than fall; since, when the weather is cold, as in March or April, the little things stay closely in the nest, become over fat, and trouble ensues right away. I have never had any trouble of the kind, since following the rule of compelling the pigs to take exercise. Turn them out of the pen every fine day for a run in the barn yard, or other convenient place. Do this every day after they are a week old, and there will be no trouble with the "thumps."

So firm is the writer's belief in the advisability of starting the pigs to generous growth prior to weaning, that he has bought bran to be fed, to a neighbor's sow, whose pigs had been purchased to be delivered at ten weeks old. The pigs, of course, got their share of the bran, so it was eventually to my advantage to see that they had it.

After weaning, at ten weeks, the pigs must be pushed every day. Once a pig comes to a standstill, it is all up with it so far as profit goes. I would not take a stunted, pot bellied pig as a gift. They will eat, but they don't thrive when in this condition. To avoid it feed generously of bran, ground oats and sweet skim milk, all they will drink. Avoid corn as a steady diet; a young pig has no need of it, and it acts as a positive injury if fed to excess. If confined to one thing, choose bran for growing pigs. Give all they will eat up clean each time, but no more. Never allow food to collect in the troughs. Better let them get a little hungry from one meal to the next, so they will be ready to eat with a relish.

Keep every thing sweet about the food. Sour swill barrels are an abomination. A hog does not prefer to have its food different from other animals. Fresh water should be provided at all times.

Not until the pigs are at least four or five months old, should any attempt be made to fatten them. They will be fat all the way along, but do not begin feeding a corn ration until this time, then push them for all they are worth until they are marketed. They should weigh from 250 to 300 pounds alive. Skim milk is an important factor in the rapid growth of pigs; nothing can quite take its place. So fed it returns large profits per hundred pounds, and furnishes one of the best possible ways of disposing of this important by-product of the dairy.

Genesse Co., Mich. W. C. ROCKWOOD.

An Experience with Lump Jaw.

ED. HOARD'S DAIRYMAN:—Having seen some inquires in your paper regarding Lumpy Jaw, I will give my experience with it.

In 1893 one cow shrank her milk from ten

Now

Is the time to subscribe for the volume for 1900 to take advantage of the special offer below:

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The Companion Calendar for 1900, given also to all New Subscribers, lithographed in twelve colors, is the most beautiful one in the long series of exquisite Companion Calendars.

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THE YOUTH'S COMPANION, BOSTON, MASS.

Test it Free!

The NATIONAL Cream Separator



In buying a Separator you want the best. The *National* is the closest skimming and the lightest running Cream Separator in the world. Substantially built, readily cleaned, and easily managed. We will send you a *National* on **Ten Days' Trial**, and if it don't do just what we claim, ship it back at our expense. Try it in competition with any other make, and judge for yourself. Send for our free catalogue.

NATIONAL DAIRY MACHINE CO., Newark, N. J.

Second-Hand SEPARATORS

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.

P. O. BOX 56, WEST CHESTER, PA.

THE IDEAL MILK PAIL



Is the best, cheapest and most practical pail and strainer on the market. Write for circular and special price to

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National Specialty Co.,
RACINE, WIS.
Agents Wanted in every Co.

OUR INCUBATORS EQUAL THE BEST.

They have all the latest improvements and are sold at very low prices and GUARANTEED to please every customer. Send 6c. for our 148 page catalogue which contains full descriptions of our extensive line and tells how to raise poultry successfully. Send for it at once.



DES MOINES INC'B CO.
Box 424 Des Moines, Iowa.



GOLDOMETOR for locating gold, silver and other minerals. In a pocket case. Also Rods and Spanish Needles. Catalogue, 2 cent stamp. B. G. STAUFFER, Dept. H. D., Harrisburg, Pa.

Protect Your Feet From The Cold and Wet.

All Knit "BALL-BAND" WOOL BOOTS, are the best.





They are the most comfortable and will wear twice as long as others. "Ball-Band" Socks and Rubbers are the same high quality as the All-knit Boots. They have superior features not found in others. Be sure that the trade-mark "Ball-Band" is on every pair. There are more imitations and counterfeits this season than ever before. We make all our own rubbers and are not connected in any way with any Trust. Insist upon getting "Ball-Band" goods from your dealer and take no others said to be "As good as," etc. Mishawaka Woolen Mfg. Co., Mishawaka, Ind.

to five quarts before I discovered the lump, which was located on her flank, about the size of a large bowl, apparently soft and full of pus. I lanced it and it literally emptied itself out. After rinsing it out well with warm castile soap suds, using a common syringe, I inserted about ¼ ounce liniment called Cactus Oil.

That was the end of No 1. and would have ended it all if I had have buried the pus, but I had the lumpy jaw start on my cattle in about two or three months after, and we had a free fight for about three years.

During that time I lost two head and ruined the third. I read and experimented and tried patent remedies. Finally I cleaned my small herd with the same remedy I treated the first with. Allowing the lump to come to a head or soften, I opened it well, then cleaned it out with suds, and buried all pus, allowing none to escape. Cleanse the manger with boiling water, after the lump stops running, which will be in a day or two. I have, by this remedy, succeeded in cleaning the disease from my premises and have not been bothered with it for nearly two years. I cannot say whether it was the liniment or the cleansing that did the work, but it seems to me that any disinfectant and healing liniment would be good. If any of my brother dairymen wish to hear from me personally I will answer a letter from them with stamp enclosed as there may be some things that will bother a green hand the first case.

When I saw the letter from G. L. on page 116, I felt it my duty to write. But not long after I saw a letter from Mill Creek and I thought I *must* write, but to-night I saw the condition G. L. is in on page 701 and I have written (perhapes for the scrap pile) but I have discharged my duty. I do not want to speak light of Professor Horne for he, I think, gave the correct scientific answer.

I have taken interest in all good veterinary work for thirty years, having worked at horse shoeing for twenty-five until my health failed and now I have eight cows and forty acres of land all clear and am happy since I am rid of the lumpy jaw, and a subscriber to HOARD'S DAIRYMAN.

Outagamie Co., Wis. A. E. BURDICK.

Pennsylvania Pickings and Thoughtlets.

ED. HOARD'S DAIRYMAN:— Wheat seeding is about completed in our section of the state, and the acreage is larger than it was for some years. The price is low, sixty-six cents in our local market, so that is no incentive we should think, but it works this way. The majority of our farmers depended on wheat for their main cash crop for many years, but of late it has brought so little money that it was a difficult matter to make ends meet; thus it is that he increased the acreage, and is still increasing. Also to make more bushels to the acre (a very laudable ambition) he started sowing commercial fertilizers, and the quantity he now uses is immense. Ten years ago, a few carloads came to our little railroad station; now we get annually forty or more carloads, and our farmers pay for it upwards of $15,000. Some of this plant food is profitably and intelligently used, but a larger part of it is half or wholly wasted. Unwise rotation of crops and careless culture cannot be made profitable by a liberal use of plant food, costing five to fifteen cents per pound. Not enough stock is kept, and what is kept is often starved on plenty of timothy hay.

But I am glad to say that a better condition of things is dawning. The working and preaching of our dairy and agricultural press is bearing fruit. Clover is spoken of more kindly, and some even grow it. In many stables dairy cows are tolerated and even respected, where formerly only the square, blocky animal dared set foot.

Light is dawning. I had more inquiries concerning silos this fall than ever before, both personal and by mail. Ten times as many agricultural papers are taken at our post-office as were taken a decade ago.

BETTER AND MORE PRACTICAL AGRICULTURAL TEACHERS ARE AT WORK.

Not many years back, the writers for our agricultural papers, and the speakers at our institutes were anything but farmers—generally lawyers or doctors, who farmed by proxy, and made up their losses on the farm in their professional practice, and the politician who always had an ax of his own to grind, and who was always very sure that the only way the farmer could improve his lot was to put him into office, and pay him a handsome salary. Of late years, farmers, who attend institute, and read papers, are becoming more critical and will not tolerate men who can only tell big stories for effect or amusement, who advise how to run a farm, but never take their own medicine. Foolish and ridiculous teaching is called down by the practical farmer, and of late quite an evolution, or I might say revolution, has been accomplished along the line of sifting out the impractical teachers, and their place has been filled by men who not only are practical but successful along their chosen line of work. Men, who not only can handle sucessfully their line of work, but who are well read, up-to-date in the scientific discoveries, that so greatly aided the farmer during the last few decades. In many states, this sifting process has given the institute managers a corps of up-to-date, practical workers and teachers. The institute director of New York state, F. E. Dawley, has instituted a policy that could advantageously be copied by other states. Mr. Dawley makes personal visits to the farms of his speakers. This is the best way to learn at short range, if his workers are sincere and honest in their teaching. No doubt, every successful person has higher aims and ideals than he can attain in practice. Such is the case of necessity, but a glance about his place will tell if his preaching and practice conform. If they do not, his preach is often more harm than good, and the less heard the better.

Adams Co., Pa. L. W. LIGHTY.

Pasteurizing Skim Milk.

ED. HOARD'S DAIRYMAN:—It is not only possible and practicable but a necessity to pasteurize the skim milk at the creamery, for all patrons who wish to have sweet milk, the day after it is delivered at the creamery. Patrons report no difficulty, whatever, in having good sweet milk for their calves the following day. Some patrons prefer not to have their milk pasteurized; while others insist upon it. Have found the most satisfactory way to run a pipe with valve and hose to the skim milk platform. The pipe having steam connections and the rubber hose being flexible, it can be inserted into the can of milk and heated to 160 degrees, the keeping point. On this plan skim milk can be served hot or cold as desired and there need be no addition of water from the steam pipe. The water should be allowed to escape from the end of the hose before it is placed in the can of milk. A few minutes spent in this way will put the milk in a condition with other feed to make good calves and help to settle the heretofore vexed question of how to get good sweet skim milk. C. F. PRESSEY.

Mitchell Co., Kansas.

CONCERNING OUR ADVERTISERS.

ADVANCING PRICES.

Nearly everything the farmer needs to buy is advancing in price. The Hapgood Plow Co., of Alton, Ill., announce that they are prepared to continue present low prices on all their goods until the first of the year, 1900 at which time by the condition of things they will be compelled to raise prices. Their catalogue is sent free to all who write for it and includes a thousand things the farmer uses. This is the only plow factory selling direct to farmers. Their responsibility is well known, and orders sent them can be accompanied by the cash with the full assurance that the goods will be as represented or money refunded.

The rising price of cattle is creating an unusually lively interest in everything pertaining to stock feeding, and in view of this situation we direct special attention to the feed mills made by the N. P. D Bowsher Co., South Bend, Ind. This firm has made a specialty of mills for ten years, and have always maintained a high standard of excellence. Many of our readers who use the Bowsher mills highly recommend them.

In this issue we present the advertisement of the "Ideal Milk Pail," manufactured by National Specialty Co., of Racine Wis.

The constant tendency and demand of the times is for greater care and cleanliness in milking and this pail meets this demand excellently well.

HOW TO PREVENT BLACK LEG.

What can't be cured can be prevented, is a good motto for stock raisers in these times, when protection against the most virulent and contagious diseases is secured by the discoveries of science. Black-leg, the scourge of cattle which attacks large herds and destroys its youngest and best members, can be easily prevented by vaccination. Innoculation with Black-leg Vaccine affords sure protection against the disease. Directions for its use can be found in a booklet which is sent free to anyone by the H. K. Mulford Company, of Philadelphia and Chicago. This treatise is invaluable to anyone interested in live stock. It contains descriptions and directions for treating the contagious diseases which work such expensive havoc among animals in times of epidemic.

As a matter of health the feet should be kept dry and comfortable. To people exposed there is no protection equal to the "Ball-Band" Knit Boots, Overs, and Rubber Boots, the most comfortable and most durable made, and possessing superior advantages. Every dealer has the "Ball-Band" goods or can get them if you wish.

HOOD FARM TESTS.

ED. HOARD'S DAIRYMAN:—We report this week the test of Kobalt 112334. It is remarkable for the reason that she did not calve at Hood Farm, but was shipped there from a long distance soon after freshening. It has been our experience that under these circumstances a cow will very seldom test until after dropping another calf. It was not so with Kobalt, as she gave from May 29 to June 4, 235 pounds, four ounces milk which made fourteen pounds nine, and one-half ounces butter. She ran in a pasture with some other cows and was fed a daily grain ration of two pounds bran, two and one-half pounds corn meal, two pounds oats, one pound cotton seed meal.

Kobalt is solid light fawn in color, carries a large, well balanced udder, and her teats are good sized and well placed. Stalactite 2d, the dam of Kobalt, is also owned at Hood Farm. She has a weekly butter record of seventeen pounds, ten and one-half ounces, and is making a grand record for herself this year as a great butter cow and a persistent milker. HOOD FARM.

Lowell, Mass.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

LICE ON STOCK.

What can I do to prevent lice on my stock? J. D.

Medford, Wis.

ANSWER.

There are no lice where good, nutritious food is given, and cleanliness strictly observed. To kill them off, use tar soap, one ounce; pyroligneous acid, ten ounces; fish oil, twenty ounces. Rub into the bottom of hair, once a day; upon the third day wash off, in a warm place, or, directly in the sun, with tar soap; wash thoroughly to the bottom, and then rub dry.

DISCHARGE FROM NOSE.

Have got a cow with a discharge from her nose, which is like the white of an egg. She is ten years old. M. E. B.

Hinsdale, Mass.

ANSWER.

I am inclined to believe you have some local cause for the conditions you name,—may be polypus, may be some ulceration of the Schneiderian membrane of the nose. I think this the most likely condition. To be correct in diagnosis requires a personal, professional examination, until the true condition is ascertained. No form of doctoring can be recommended.

LUMP IN TEAT.

For the last year I have had quite a little trouble with cows having a swelling or lump on udder just at the root of the teat; it would form a scab in from four to seven days after first notice. Sometimes there would be a little discharge of matter. This mostly occurs after calving, two to four weeks after. Cows feel and milk just as well, only difficulty in milking on account of soreness. Does it affect milk?

A REGULAR SUBSCRIBER.

Venango, Co., Pa.

ANSWER.

Cow pox: good physicking and repeat if needed. Rub in oil of almonds, 2 oz.: spermacetic ointment, 2 oz.; pulverized gum myrrh, ½ oz. Keep well anointed each day with this. Be careful of your hands.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.

GOVERNMENT POSITIONS

8,000 Appointments were made during the past year to Civil Service places, and a large number is pending for 1900. We prepared **BY MAIL** a large percent of the successful ones for the examination, and the lucky ones of 1900 will be largely those whom we assist. Let us assist you. Send for free catalogue. No. B-69. **COLUMBIAN CORRESPONDENCE COLLEGE,** 225 Pennsylvania Avenue S. E., Washington, D. C.

IT CAN'T BE DONE

No One Can Remain Well, No Chronic Disease Can Be Cured Unless the Stomach is First Made Strong and Vigorous.

This is plain because every organ in the body depends on the stomach for its nourishment. Nerve, bone, sinew, blood are made from the food which the stomach converts to our use.

How useless to treat disease with this, that and the other remedy and neglect the most important of all, the stomach.

The earliest symptoms of indigestion are sour risings, bad taste in the mouth, gas in stomach and bowels, palpitation, all gone feeling, faintness, headaches, constipation; later comes loss of flesh, consumption, liver and heart troubles, kidney diseases, nervous prostration, all of which are the indirect results of poor nutrition.

Any person suffering from indigestion should make it a practice to take after each meal one of Stuart's Dyspepsia Tablets, allowing it to dissolve in the mouth and thus mingle with the saliva and enter the stomach in the most natural way. These Tablets are highly recommended by Dr. Jennison because they are composed of the natural digestive acids and fruit essences which assist the stomach in digesting all wholesome food before it has time to ferment and sour.

Stuart' Dyspepsia Tablets are sold by druggists, full sized packages at 50 cents. They are also excellent for invalids and children. A book on stomach diseases and thousands of testimonials of genuine cures sent free by addressing F. A. Stuart Co., Marshall, Mich.

...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure **SCOURS** in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO., 159 Chambers St., New York

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to **H. W. KELLOGG COMPANY, Ripon, Wis.**

Dr. Horne's Anti-Abortient

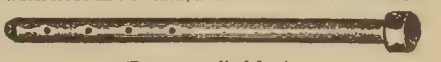
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

Cows barren 3 years

MADE TO BREED.



Book Free. **Moore Brothers,** Albany, N. Y.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

SEND FOR FREE GUN

Illustrated Catalogue and Bargain Sheet to the

JOHN MEUNIER GUN CO.,

272 West Water St., Milwaukee, Wis.

The Head of the Ohio Dairy School.

An Illustration of the Wisconsin Idea in Dairy Education.

John W. Decker, Madison, Wis., has been elected associate professor of Dairying in the Ohio State University, and enters upon his duties as head of the work of the dairy school on December 1st.

Professor Decker was born in Neenah, Wisconsin, July 10, 1867. He lived at Winneconne six years and then moved to Fond du Lac, where he studied in the public schools. In 1885 he built a cheese factory, near Fond du Lac, and operated it for two years. In the fall of 1885 he exhibited cheese at the Chicago Fat Stock and Dairy Show, winning the Potter Palmer and other prizes. He entered the University of Wisconsin in the fall of 1886. During his junior year, he was appointed instructor in the biological laboratory, where he spent about twenty hours per week, at the same time carrying on his studies. He graduated from the agricultural course, taking a degree of B. Ag., with the class of 1890. He was elected Fellow in Agriculture, which position he held for one year, when he was elected Instructor in Dairying. During the summer of 1890, he visited the cheese factories of Canada as a special agent of the Wisconsin Dairymen's Association. In 1891, he exhibited cheese at the Wisconsin Dairymen's Convention, winning the silver cup and other prizes. He has been with the Wisconsin Dairy School since it was organized, and in that time has given instruction to over 900 students, who are now scattered all over the United States and Canada.

His duties, as instructor in cheese making, have given him an extensive acquaintance and experience in this line of work.

The results of his investigations have been published in the annual reports of the Wisconsin Experiment Station, and in a book on "Cheddar Cheese Making." The Wisconsin curd test, which he has aided in introducing into the cheese factories of Wisconsin, is now considered by the cheese makers to be nearly indispensable.

The dairy school of the Ohio State University, with its magnificent equipment and its large corps of instructors, is an institution in which Ohions may feel a just pride, and this recent move on the part of the Board of Trustees will result, no doubt, in greatly increased usefulness.

The Sand Vetch.

It may be of interest to many who have found difficulty in obtaining a stand of crimson clover to know that in the sand vetch they have a crop that posseses its most desirable qualities—that of affording a live cover for the land during the winter, of being a nitrogen gatherer, and of producing an abundance of very early forage that can be grazed or cut. And more than that, it geneally can be depended on. That is worth a great deal to the farmer. Every one has felt how a failure in a crop disconcerts his plans. For hardiness, the sand vetch may be compared with the wild partridge pea, which it resembles somewhat, though it is in every way larger and stronger, but it is not bad to rid out of the land.

Its name would indicate that it is most suited to sandy land, where it must be allowed it is at home, but our experience shows that on stiffer soils, as well, it produces an immense amount of forage. It should be sown in September or October here, by hand, or drill, as wheat is sown, from three pecks to one bushel per acre. If the weather is favorable, warm and moist, it pretty well covers the ground in the fall, but stands the winter if it does not make much growth in the fall. The plants usually turn a reddish brown in the winter, but with the first warm days the green again appears, and then how it grows! Weeds, wire grass, and almost every thing else must give in.

Oats or rye sown with it, and having an equal start, usually manage to grow along with it, and are the proper thing to have there, if the crop is to be cut, as they keep the vines better off the ground, though they will be overtopped and borne down more or less.

Without a supporting crop, the vetches fall when between one and two feet high. They soon send up a further growth, when they again fall down. This continues during all their growing period. This habit makes them difficult to cut when sown alone.

They are rather troublesome to cut anyhow, as numerous clinging tendrils bind the whole mass together. But this peculiarity does not make them any the worse for grazing purposes, and the quantity of forage that vetches yield is hardly exceeded by the heaviest crop of cow peas. We have nothing but the highest praise for peas, but you can't have them in April and May.

In 1898, we left a field of sand vetch to come to maturity and lie on the land all summer. They were sown in October, 1897, and it being very dry for nearly a month, the seed did not much more than come up in the fall; but the little plants were neither heaved out nor killed by the winter's frosts. The field early took on a green color, and by April 20 the vetches had made a growth at least a foot high, and so dense the ground could nowhere be seen.

A rain at this time, beat the crop down until it was lying flat. The main stems now assumed a trailing growth, while along the stems and at their extremities a great mass of foliage continued to grow, which was soon added to by the flowers, which gave the field a purple cast.

At no time did the crop exceed twenty-four inches high, though it grew till the middle of July at which date the stems were from six to ten feet in length.

With such a mass of interlacing stems and vines over the ground, few weeds could get through, so that up to the time the crop began to die it presented a clean smooth appearance. There were acres together over which not a sprig of anything else could be seen.

During the whole season to August 15th, the ground kept moist and so mellow that one could push one's shoe into the earth three or four inches anywhere. The sun could not reach the ground, and but little evaporation took place. For two or three days after a rain, the under stems and soil would be quite damp.

When the crop died, there was a great amount of material, which, resulting from a leguminous growth, would lead one to believe the land would be very much helped; and the following crop showed it.

To make a nice job of plowing, the land, with this covering of vines, would be impossible without a disc coulter on the plow. With it, there is some trouble if it is not sharp, as the vines press into the ground before it.

To get such a quantity of vegetable matter into the land is worth some trouble.

We intended to save some of the seed, but found that not many had matured properly. They were small, and very inferior to that sown. It may be that this climate is not suited to the perfect development of the seed. —ALBERT R. BELLWOOD, in *Southern Planter*.

Anti-Sucking Halter.

ED. HOARD'S DAIRYMAN:—While waiting for your reply, as regards anti-sucking bit, I had to use my ingenuity. I first tried a strap with sharp wire nails across front of halter, but in a few days she was at her old trick. I then made a rack for her neck that I thought would be a success, but it also proved a failure after a few days. Then I caught her in the act and saw that I had put the wire nails in the wrong place. I then cut the strap, containing fourteen two-inch wire nails, in two, and riveted it to each side of the halter, seven on each side instead of in front. She has never sucked since; this does not interfere with her eating or drinking in the field, and we just unbuckle the halter and hang it up when she comes in the stable.

I consider that address on page 570 worth many times the price of your paper. I intend to read that several times. Also that excellent piece about Mr. Green's corn, page 672. G. K. W.

Toronto, Can.

Acorns as a Food and a Poison.

ED. HOARD'S DAIRYMAN:—Acorns have quite a little feeding value. The digestible nutrients as given in our feed tables are for fresh acorns; dry matter, 44.7%; protein, 2.1%; carbohydrates, 34.4%; fat, 1.7%. It is well known that hogs will readily fatten on them. Some authorities claim that pork grown with acorns is very good while others say it is soft and of poor flavor. As a rule those who practice fattening with acorns finish up with corn which seems most satisfactory. Acorns have never been known to injure hogs.

How for a cow feed?

I have lately had an expensive experience and I tried to investigate the question, but with rather meager results. That acorns will kill cows there is no doubt, but the pathology thereof is not very definitely known. Cows will eat acorns if they have access to the woodland where they can get them. In small quantities they are harmless or possibly beneficial, but just how large a quantity will make a fatal dose does not seem to be known.

Considerable acorn poisoning occurred in England from the year 1868 to 1879. Green acorns are the more dangerous. Armitage says the tannin of acorns will act directly on the fibrin of the blood and its fluidity is destroyed and the circulation impeded. Johnson, an old English authority, says acorns cause garget unless a laxative is fed with them. They will swell in the stomach and not come up with the cud to be re-chewed. A few weeks ago the best cow in my herd was killed by acorn poisoning. Since, I learned, that not a few were lost the same way in our section of the state.

This cow had not gorged herself in the least with acorns nor did she eat them for lack of other food. She had the run of the woodland pasture for the fine water therein about three hours each day, and two or three more hours in good clover pasture. In the evening she was fed six to seven pounds of corn with the cob and all the hay she would eat during the night. In the morning she got all the silage she would clean up with two pounds of cotton seed meal, so you see it is not necessary to starve a cow to induce her to eat acorns. The post-mortem showed no impaction, but the villous membrane or lining of the first stomach or paunch was entirely destroyed, blackened, and a light touch would remove it. The same conditions existed in spots in the intestines. This entirely destroyed the action of the stomach and intestines If cows are starved into eating oak leaves or twigs the results will be the same. As a precaution in the future I shall not allow my cows to have the run of the woodland while acorns are dropping fresh and green, especially when they are plenty like this season, as the ground is covered under every oak tree.

Adams Co., Pa. L. W. LIGHTY.

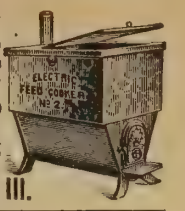


DOUBLE THE FOOD VALUE

can be secured from grain fed to live stock if it is cooked. It is more easily digested and assimilated by the animal stomach.

These **ELECTRIC FEED COOKERS**

cook feed in the quickest and best way and with the least amount of fuel. Made of cast iron, lined with steel. Boilers made of heavy galvanized steel, made in 12 sizes. Capacity from 25 to 100 gals. Strong, well made and will last indefinitely. Order before the cold weather catches you. Write at once for free circulars and prices. **Electric Wheel Co., Box 130, Quincy, Ill.**



TWO BIG MILLS IN ONE.



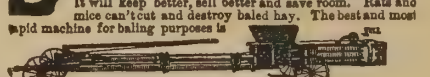
THE oscillating sweep shown in above cut insures UNIFORM GRINDING. It is only one of the many desirable improvements found exclusively in **GIANT KILLER FEED MILLS.**

Free for the asking, our new Sweep Mill and Feed Cooker Catalogue, describing large line of plain, duplex and geared grinders for one, two or four horses. We ship from Omaha, Kansas City, St. Louis, Indianapolis, Bloomington, Minneapolis.

Davis Gasoline Engine Works Co.,
WATERLOO, IOWA.

BALE YOUR HAY

It will keep better, sell better and save room. Rats and mice can't eat and destroy baled hay. The best and most rapid machine for baling purposes is



Steam and horse power.

The "ELI" BALING PRESS.

Made in 38 styles and sizes to suit every case. All steel, light, strong, lasting. Write for free illustrated catalogue.
COLLINS PLOW CO., 1155 Hampshire St., QUINCY, ILL.



THE IMPROVED
VICTOR Incubator

Hatches Chickens by Steam. Absolutely self-regulating. The simplest, most reliable, and cheapest first-class Hatcher in the market. Circulars FREE.
Catalogue 4 cts.
GEO. ERTEL CO., QUINCY, ILL.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884–'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

"I have long thought it my duty to write you a few lines to let you know what Dr.

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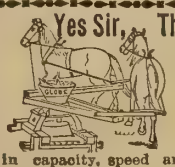


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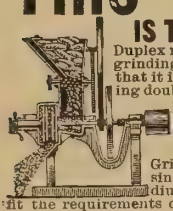


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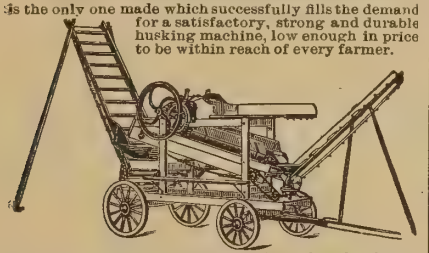
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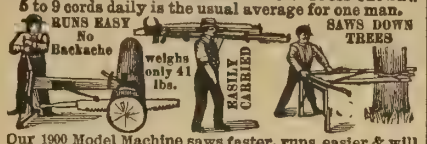
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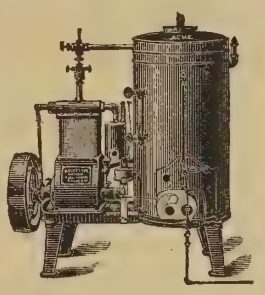
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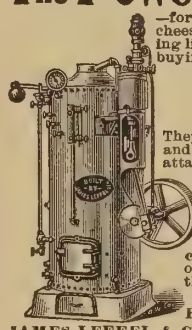
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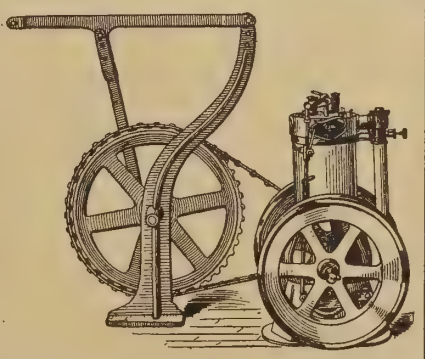
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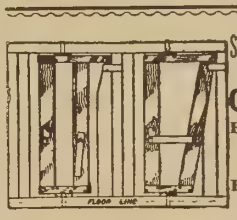
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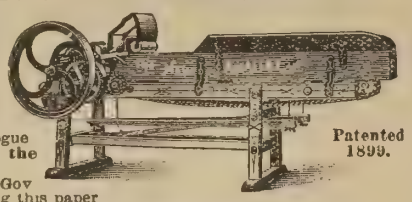
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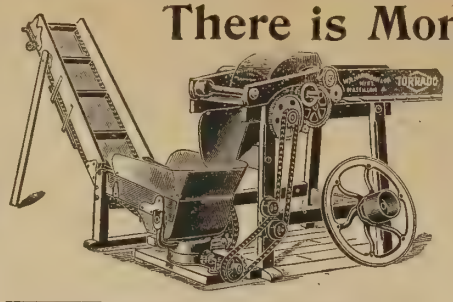


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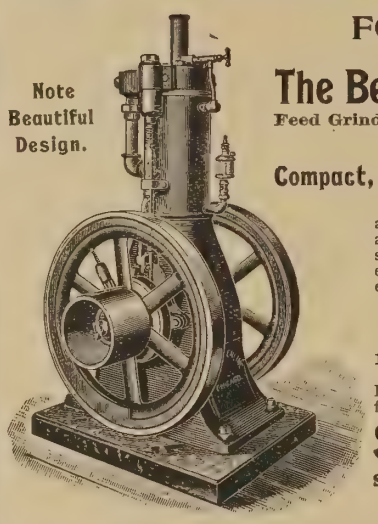
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VOLUME XXX. FORT ATKINSON, WIS., NOVEMBER 10, 1899. NUMBER 39

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REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
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DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,

Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES

Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
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HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Does This Mean You?

The dairy journals for several weeks past have been giving reports of creameries closed because of inability to get milk, and publishing letters from creamerymen who are running their factories at a loss because of the fact that good crops, high prices for live stock, and general prosperity, has caused the farmer to look upon the work of hauling milk to the creamery as rather small business. Of course this should not be so, but unfortunately we must take people as they are,—we cannot make them over, and every creameryman will have on his list a certain number of easy going patrons who never look at small things when there is something larger in sight; still he needs the milk which they can furnish just as badly as he does that of the more thrifty farmer who is looking out for the dimes just as closely in good times as in hard times. You no doubt realize this, and possibly you are right now obliged to see your business decreasing day by day for the causes above mentioned.

What Are You Going To Do About It?

Are you going to be as indifferent as the drowsy patron? Are you going to let matters take their course? You won't have much of a Christmas celebration if you do. The thing which is helping others and which will help you is to place Dairy Separators with the fellows who will not bring their milk, but who will sell you the cream if you will come after it. They have the money now and you can get them to buy if you make the proper effort. We can help you out in this, and will if you give us a chance. Think this over; meditate; dream over it, and let us hear from you.

THE SHARPLES COMPANY,
28, 30 and 32 S. Canal St.,
CHICAGO, ILL.
Creamery Machinery and Apparatus of All Kinds.

As A Milk Clarifier.

Numbers of the Sharples Tubular Separators are being used by extensive milk bottlers and milk dealers for clarifying their milk without extracting the cream.

Any cream separator will, to a greater or less extent, clarify the milk passing through it, but in most cases to a very limited extent, or in an ineffectual manner. While clarifying milk, the cream should not be separated and again mixed, or an inferior product will result. The whole separating space of the bowl should be constantly utilized or the machine will be ineffective. The bowl should be simple in construction and the course of the milk direct, to prevent as far as possible, the frothing of the milk.

The milk should be brought under the greatest centrifugal action else dirt alone will be extracted, and disease germs and blotted material left in the milk.



The Sharples Tubular Separator

IS ESPECIALLY EFFECTIVE AS A MILK PURIFIER.

It can be changed from a cream separator to a milk clarifier in two minutes. It separates filth and disease germs without separating the cream and milk. The whole separating space in the bowl is fully utilized, and the milk is brought under a centrifugal force over three times as great as in any other separator.

The bowl is simple, easily cleaned, and a minimum of froth results. No type of bowl other than the TUBULAR will accomplish corresponding results.

If interested, write us and we will fully explain the reasons for this, so that they may be readily understood. Space here is too limited for the purpose.

And as MILK and CREAM SEPARATORS the TUBULARS STAND PRE-EMINENT.

Send for Catalogue No. 46.

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P. M. SHARPLES, West Chester, Pa., U. S. A.

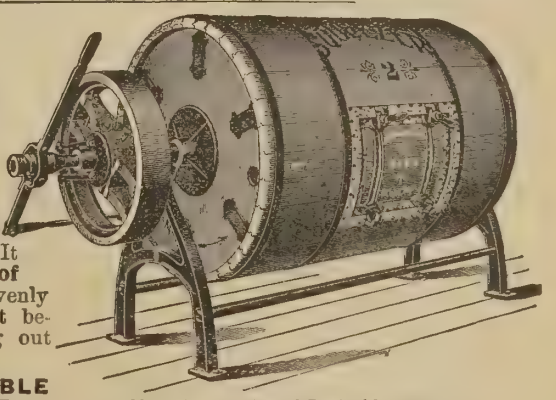
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It Does Not Destroy the Grain.

THE SQUEEZER
COMBINED CHURN
AND WORKER

will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.

IT IS SIMPLE, DURABLE AND EASILY WASHED.



Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.

Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.

1c a Pound WILL BE ADDED TO THE **Value of Butter** by the use of our Cultures at this season.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin Street, CHARLESTOWN, MASS.



A Good Churn..

IS A COMPARITIVELY SIMPLE MACHINE.

A churn and worker combined is an entirely different proposition. The

DISBROW

was the first successful combined machine. It still maintains its position as the most satisfactory combined churn on the market. It possesses many important features not to be found in any other.

Watch the reports of butter exhibits and see the large proportion of premiums that go to Disbrow butter. Write us for further particulars.

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SOLE MANUFACTURERS. *OWATONNA, MINN.*

Creamery Package Mfg. Co.,

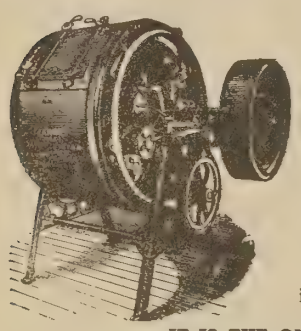
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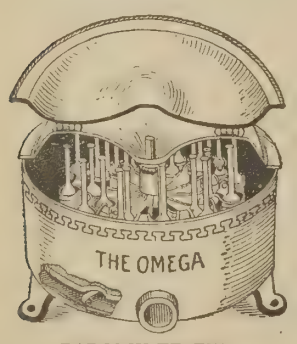
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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FOR LATEST IMPROVED

Creamery Apparatus,

Pasteurizers, Milk Weighers and Alpha Cream Separators, write to

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Refrigerating Machines for Creameries, Meat Markets, Hotels and Ice Making Plants.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

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"Always In the Lead and Now Better Than Ever."

THE UNITED STATES CREAM SEPARATORS.

THE Improved United States Cream Separators have been proven by tests repeated from year to year, at all Agricultural Experiment Stations in the last four or five years, to be superior to all other Cream Separators, many tests of the skim milk showing only .01 or .02, and are now still further improved and greatly increased in capacity for

1900 OR THE NEW CENTURY.

All experienced Cream Separator operators concede that the United States is unapproached in thoroughness of separation and perfection of manufacture. All gears are enclosed; Bowl Spindle covered with brass shield; have ball bearings. The most cost is put into their manufacture, and they are therefore better and will wear longer, yet are sold for less than others considering capacity and close skimming—are therefore the cheapest, because the best.

Examine "New Century" Prices and Capacities.

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No. 6.	"	"	" 350 to 400 "	$100.00
No. 5.	"	"	" 450 to 500 "	$125.00
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Don't be inveigled into purchasing a Cream Separator until you have first sent for the "New Century" Catalogue of the United States, which will be mailed you free.

Agents wanted in all towns not at present canvassed

VERMONT FARM MACHINE CO.,
BELLOWS FALLS, VERMONT.

Gluten Feed

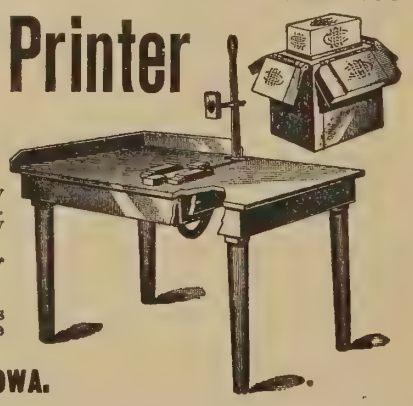
is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

DEPARTMENT H. **The Rookery, CHICAGO, ILL.**

Self Gauging "All Over" Printer



The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.

The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

making it a most desirable printer for large dairies or creameries. Write us at once for descriptive circular and price list.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

GENESEE BUTTER SALT A flaky grain, very soluble, will not wash out (like fine salt) and brings out the best flavors in the butter.

GENESEE CHEESE SALT Trifle coarser than Butter Salt, of the same quality and is cheaper than common salt because it goes further and produces better results.

Genesee German Cheese Salt (Deutſcher Kaſe Salz) has no equal for Swiss, Limburger, Brick, etc.

Genesee Salt Never Lumps nor Hardens.

F. A. TRIPP, Chicago, Ill. **GENESEE SALT CO.,** New York, N. Y.



Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

PERHAPS the best way to take the total depravity out of a bull is that used by our correspondent, Buff Jersey, and shown in the cut on page 774 of this issue. Any healthy animal, well fed, with nothing to do, will acquire "cussedness" if it is not natural; and the natural variety will become intensified by the conditions under which such animals are usually kept. Idleness, either in man or animal, is a sure forerunner of mischief, and in the case of an animal of such strength and offensive power as a well grown and well fed bull, the result is usually death or serious injury to his handler.

There is no reason why the bull should not be made useful in many ways, as has been done in the above case; for every hour spent in exercise is so much danger removed, with an equivalent improvement in the temper, as well as the health and condition of the animal.

THERE is liable to be a decided objection to the use of raw milk, produced among city consumers, by the indiscriminate abuse that is being made against it by the pseudo scientific writers and law makers. All bacteria are alike to them and they put their ban on the good and bad alike, if they are found in the milk pail. If a hack writer wants copy, the milk supply is always good for an article on its defects, and the danger from a contaminated milk supply are eagerly pointed out. The attempts that are being made to improve the supply, are ignored and timid people immediately drop milk from their list of foods. If there were less fool attempts at law making and more careful enforcement of the laws we now have, the quality of the milk supply could be easily improved and the yellow press of the cities would have less pretext for their hysterical articles on the quality of the city milk supply, with a decided increase in the milk consumption.

WE are beginning to get light on the vexed question of the cause of the grain of butter, as influenced by temperature. It would seem that time, as well as temperature, are both necessary to obtain the fat in the cream in the proper condition of hardness to produce the proper grain. This is particularly so when the milk or cream has been heated, as in pasteurization.

When the cream is cooled for churning, the fat globule does not become hard for several hours; not because the fat gobule remains warmer than the surrounding milk serum, but because it refuses to harden, even at low temperatures, unless time is given it. This fact bears directly upon the hardness of the butter as it comes from the churn; unless the fat globule has had time to become hard, butter may be soft and mushy, even if the cream has been cooled below the usual churning temperature. Haste in this point accounts for much poor grained butter. The fat globule will not be hurried, even to accommodate a rushed creamery man.

A STUDY IN THE DAIRY FORM.

We present this week, illustrations of one of the noted Jersey bulls of America, Recorder 29239, a son of the famous World's Fair cow Brown Bessie; also of a most typical Jersey mother, Teasel 75358, the only living daughter of Brown Bessie—and both from the herd of H. C. Taylor, Orfordville, Wisconsin.



RECORDER, A. J. C. C. 29239.
Property of H. C. TAYLOR, Orfordville, Wis.



TEASEL, A. J. C. C. 75358.
Property of H. C. TAYLOR, Orfordville. Wis.

Recorder presents many clear and decided points of excellence. First of all, it will be seen that he has a strong backbone. Note how full it rises just back of the withers, and continues strong and full, (but not straight) to the point of the rump. This indicates a full flow of nervous force to all of the organs. The same predominance will be seen in the cow Teasel. The mammary organs require a constant and powerful flow of nerve force from the brain and spinal marrow, and the first thing we look for in dairy animals, is to see how well they are fortified in this particular.

From the joining of the neck on the shoulders, to the tip of his tail, Recorder is a thorough dairy bull. His head is also fine, but the neck is too short, although it bears a fine under outline. He has a strong belly and vigorous vitality, as is shown by the pendant navel; a high arching flank, and well incurved thigh at the rear line, indicate his descent from dairy ancestors.

He is the getter of talented cows, with records ranging from 15 pounds, 3 ounces to 20 pounds, 10 ounces, and by the character of his stock demonstrates the value of long, presistent breeding in a selected line from a clear fountain of dairy blood, tracing in this case through his dam to Combination, and from him to old Mercury, whom he greatly resembles.

The cow Teasel, as can be seen at a glance, is a dairy cow all over. She is not only a typpical Jersey, but is more—a thorough exponent of dairy performance and capacity. The head and neck are decidedly feminine; the lean shoulder, a strong backbone not imbedded in fleshy muscle, the strong, deep barrel, the rising pelvic arch, the thin incurving thighs, and the whole rear part of the cow show plainly a conformation made especially for the splendid udder. In short, this cow in her entirety presents a symphony of dairy harmony. The dairy temperament shines out in every lineament. There need be no fears of her taking feed and turning it into flesh.

Missouri Dairy Meeting.

ED. HOARD'S DAIRYMAN:—The tenth annual meeting of the Missouri Dairy Association will be held November 27, 28, 29, 1899, at Holden, Mo. Already considerable interest is being taken in the coming convention, and the officers expect this to be the best meeting ever held by the State Dairy Association. An excellent program has been arranged. Railroads will make one-half rate, and hotels will make special rates.

St. Louis, Mo. Levi Chubbuck.
Secretary.

Pasteurized Milk for Cheese Making.

Thus far the cheese maker has not been able to use pasteurized milk in his business, owing to the fact that the heat in some way changes the nature of the casein, and consequently the rennet does not act on it in the usual manner. This fact has prevented the cheese maker from making use of pasteurized milk to improve the quality of his product, as the butter maker has been able to do so successfully. The *Milch Zeitung* publishes the results of some experiments, which were made to see if this objection could not be overcome, as follows:

"This investigation was suggested by the practice of pasteurizing milk for butter making and the resulting difficulty of utilizing the skim milk for cheese making. Three series of experiments were made, including a large number of trials in each. In the first series the separated milk was heated to 167° F. for fifteen minutes; to 185° for ten minutes in the second series; and to boiling point for two minutes in the third series. In each experiment about five gallons of separated milk were used, varying proportions of calcium chloride being added in some cases, and none in others. A small cheese was made in each case.

In the first series, where the milk was heated to 167° F., it was found that there was little difficulty in making cheese from the milk, either with or without the addition of calcium chloride, but the investigators recommend adding to such milk about fifteen grains of calcium oxide (lime) per two and one-half gallons of milk to facilitate the curdling.

The cheese made from milk heated to 185° F., and treated with calcium chloride, resembles in many respects that made in the first series of experiments. The yield of cheese was in all cases greater where the calcium chloride was used than in the control experiments. The green cheese also contained more water, but even on the basis of dry matter the yield was greater. The greatest difficulty in making cheese from this kind of milk was found to be the time required for the complete separation of the whey from the curd.

The use of calcium chloride was also found to restore the ability of milk heated to boiling point to curdle, but to accomplish this in the same time two and a half times as much calcium chloride was required as in the first series. The separation of the whey was very slow and difficult, and the curd itself was unusually rich in water, and was changed to a greyish-white appearance and a finely granulated condition, with very little tendency to adhere together. The addition of larger quantities of calcium chloride improved the adhesive qualities of the curd, although it did not entirely remove the difficulty. Experiments made subsequently, scalding to 104 degrees F. to hasten the separation of the whey, and to make the curd more adhesive, resulted favorably, and this is to be the subject of further investigation.

In a later note in the *Milch Zeitung* it is stated that all difficulties in making cheese from milk heated to 185 degrees have been overcome, and that the process is rendered as simple as ordinary cheesemaking.

If these experiments are successful, and it is found that pasteurized milk can be used in cheesemaking, it will be a long advance towards the ideal, fine-flavored cheese that we are all looking for.

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Iowa State Creamery Buttermakers' Association, Nov. 15-17, Mason City.
Kansas Dairymen's Association, Manhattan, Nov. 22-24, 1899.
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Maine Dairymens' Association at Lewiston, December 11-13.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.

A NUMBER of the co-operative creameries in Southern Wisconsin have been sold of late to single proprietors. It is a little strange that dairy farmers cannot learn to co-operate more *successfully* than they do.

A CAN of dirty milk will spoil the contents of numerous other cans if they are dumped into the same vat. The effect of bad associates is very evident when milk and dirt are mixed, and the result as shown by the quality of butter, is something to be avoided.

ACCORDING to the *Rural New-Yorker* the sellers of process butter are attempting to evade the law by printing the brand, required by law on the wrapper, in yellow ink of about the same color as butter. When the paper is moistened by being wrapped around butter, the printing becomes invisible with the usual result that the buyer is sold as well as the butter.

HON. H. C. ADAMS, Dairy and Food Commissioner of Wisconsin, is engaged to address the Maine Dairy meeting at Lewiston, the first full week in December. We can assure the Maine dairymen of a rich treat when Mr. Adams comes among them for there are few writers or speakers on dairy topics more entertaining or instructive than he. His address on "Food Adulteration" in Boston at the late meeting of the Farmer's National Congress was one of the gems of that occasion.

THE Marengo, Ill., milk sugar factory use the milk of ten creameries, from which is made, besides the milk sugar, 750,000 pounds of butter and 1,000,000 pounds of skim cheese.

The wonderful utilization of the cow in the last twenty-five years in this country, has been one of the marvels of the age. It should be noted in this connection that all this advance in the manufacture of dairy products has been based on the demand of the consumer. It is the consumer in reality that has been at the bottom of all this dairy progress.

THE HIGH STANDARD IS THE BEST.

Mr.G.T. Darrow, proprietor of the Ogdensburg, New York, *Advance*, in sending us a number of subscriptions to the DAIRYMAN, is pleased to add to his letter a postscript which reads:

"I congratulate you on the high standard you keep for the dairy farmer. It is doing good."

Mr. Darrow is living in one of the greatest dairy counties in the United States, that of St. Lawrence, and we are very glad to receive so high commendation for the work the DAIRYMAN is trying to do.

A word as to the "high standard" Mr. Darrow refers to:

There is an old saying that "there is always plenty of room on the top shelf." The meaning of this for the dairy farmer is, that the more skillful he becomes, the less competition will he find for the product of his thought and labor.

There is another old adage in business, which reads: "It is the finest wares that bring the highest profit."

These two ideas have always governed us in the standard we set for HOARD'S DAIRYMAN in its influence with its readers.

There is no use in the world in promoting poor ideas in dairying; poor cows; or their resulting outcome, poor, cheap products.

Heaven knows there are too many farmers who entertain such ideas, who keep such cows, and who slave themselves day and night to wring a little profit out of poor products.

There is no money in such ideas, cows or products.

The competition on the lower round of the ladder is fearful. It is a death scramble, almost, in many places and cases.

What HOARD'S DAIRYMAN wants is to get as many farmers as possible to see that their future salvation as farmers, and the future progress of their children lies in the direction of increasing their intelligence and skill on all farm questions.

On the upper rounds of the ladder there is less competition and a good deal more profit.

DAIRY CO-OPERATION.

As an illustration of the power of co-operation for farmers and dairymen, we cite the example of the Five States Milk Producers' Association of New York. The New York City milk dealers syndicate had the dairy farmers of the five states, which furnished milk to that city, completely in their grasp. They paid an average of less than two cents a quart for the milk, and charged the farmer with the freight, and sold it at an advance to the consumer at over 300 per cent. The farmers at last organized and stuck to their organization, until now they have closed a contract with a Pure Milk Co.. organized in the state of Delaware, with a capital of $30,000,000. The contract for milk to the members of the Association is as follows: Three cents in November, December, January and February; two and three-quarters cents in March and October; two and one-half cents in September; two and one-quarter cents in April and August; two cents in May and July; and one and three-quarters cents in June. This gives an average in the year of two and one-half cents a quart. The company buying the milk asks for one-quarter cent on each quart to be set aside, and be taken in stock of the company which they assert will pay seven per cent.

SOME OLEO FACTS.

They have a Pure Butter Protective Association in Philadelphia which is waging a holy crusade against all grocers and dealers who swindle their customers with oleomargarine when they ask for butter. Lawyer Luther Kaufman is the attorney for the Association and in a recent address before the Retail Grocers' Association of that city he presented the following well proved facts:

Philadelphians eat 40,000 pounds of oleomargarine weekly.

That amount feeds 80,000 persons, and ninety-nine of every 100 think they are eating butter.

The weekly profits from the retail sale of "oleo" are $4,000.

There are 150 merchants in that city who pay the special government tax of $48 to sell the beef fat substitute for butter. The average profits to each are over $26 weekly.

Not five per cent of the entire number of retail grocers and buttermen sell "oleo, but the illegitimate sale injures the entire trade.

Incidentally Mr. Kaufmann said that one merchant who was arrested last week admitted that he had a regular weekly sale of 2,700 pounds, which meant $270 profit. The progress of the work of prosecution, by which it is believed that the number of "oleo" merchants has been greatly diminished, and the output cut down from 100,000 to 40,000 pounds, was briefly told by Mr. Kaufman.

WATER FOR COWS.

HOW many dairymen appreciate the amount of water their cows need, both to digest their food and to furnish that needed for their milk supply? A cow cannot work over her food nor supply milk without water and plenty of it. It takes four pounds or half a gallon of water for every pound of dry matter in the food; this means nearly 100 pounds of water for a cow receiving dry food alone. If the food contains water, as in silage or roots, of course the amount required is less.

The Geneva Station found that cows in full milk require four and three-fifths pounds of water for every pound of milk. Thus a cow would need in her food and for drinking, ninety-two pounds of water for every twenty pounds of milk. Now, if a cow is in a cold barn with cold food and ice water to drink, is she going to chill herself with a hundred pounds of cold water merely to keep up her milk flow? The Indiana Station found that the milk fell off 8% when the temperature fell from 79°F. to 38°F., and a cow is not suffering at 38°F. If she is so sensitive to a comparatively small reduction in temperature, what may the dairyman expect when the thermometer is ten to twenty below zero? The man who can't afford to take the time to weigh his milk, would save the price of many scales and also prevent many dollars from getting away, if he knew a little or a great deal more about the animals he is feeding. Feed is high this year, and bran, hay, corn, etc., are high priced fuels to heat water, cows and stables with. Yet there are going to be many tons used this winter for just that purpose, and the users will be unanimously of the opinion that "dairying don't pay."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

A CURD HOUSE.

I would like to know if there is such a thing as a curd house? If so, how they are run and if satisfactory. W. J. A.

Dana, Iowa.

We are at a loss to know exactly, what is meant by the term "curd house." Formerly it was applied to a building where the curd from different small dairies was made into cheese. But as this method of cheese making is obsolete, we had supposed the name had disappeared also.

A NEW HAMPSHIRE RATION.

What ought I to feed in connection with the following to produce a well balanced ration: I have good corn stover, early cut English hay, and rowen oat hay and corn and cob meal. Bran is worth here, $18 to $20 per ton; gluten, $24 per ton; cotton seed meal, $25 per ton. Now which would be the cheaper to buy to mix with what I already have, to make butter at 24 and 25 cents a pound?

Woodsville, N. H. H. A. L.

The feeds named will furnish a superabundance of carbohydrates and fat, but are strikingly deficient in digestible protein. The digestible protein in bran at $20 per ton will cost 7.9 cents per pound, in gluten meal at $24, 4.6 cents; in cotton seed meal at $25, 3.4 cents. With reasonable care the available manurial value in a ton of cotton seed meal, after feeding same to milch cows, is $8.36; in a ton of wheat bran, $4.74. Cotton seed meal is, therefore, much the cheaper source for supplying the necessary protein to make up the deficiency in the feeds above mentioned.

If we take stover and the hay carrying the most protein, a formula for cows in fairly full flow of milk will include the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. stover	5.95	.17	3.24	.07
10 lbs. oat hay	9.11	.43	4.64	.15
8 lbs. corn and cob meal	7.12	.51	5.04	.28
3 lbs. cotton seed meal	2.75	1.12	.51	.25
Totals	24.93	2.23	13.43	.75

This should suffice for full sized cows. It contains more cotton seed meal than we like to recommend, but not more than many dairymen in New England feed. It will require fully three pounds of bran to displace one pound of cotton seed meal, but we are not at all certain that the extra cost would not be returned in the quality of the product, and the better digestion of the other feeds. This is a point that can only be determined by actual experiment.

CORN BRAN WANTED.

Will you say where the feed product from the hominy mills called cerealine or corn bran (I mean the bran part and not the heavy meal) can be purchased by carload lots? Also where the product for feed is sold from the rolled oats mills? Is it not a feed equal to bran? J. C. V.

Caln, Pa.

Our only means of information in these matters is from the advertisements of manufacturers and dealers. They probably find a market through regular trade channels, and therefore do not think it necessary to invite custom by advertisement. Probably this inquirer could get into communication with one or more manufacturers by going to his grocer and examining the barrels or other packages of hominy and writing to the address given on them.

Oat feed, or oat shorts, as it comes from

the oat meal mills, is just about equivalent to bran in feeding value. The "oat dust" is not so good.

A CALIFORNIA RATION.

Will you formulate a ration for me from the following feeds: Corn ensilage, alfalfa, cured, and some green beets, green Egyptian corn stalks, squashes, oat hay, barley hay. I have a little corn meal at $25 per ton and bran at $24 per ton. Can I afford to feed corn meal and bran at those prices?

La Miranda, Cal. F. M. W.

One cannot expect to feed all these kinds of roughage every day, and when other green and succulent feed is plenty, better keep the silage for the season of drouth or other extremity. We are of the opinion that you can not afford to feed corn. Having silage, it is to be presumed you have a machine for chaffing (cutting) the hay. Read in this connection, the letter from T. F. and wife, of Colorado, elsewhere in this issue. If some of the fodder cannot be chaffed, then bran must be mixed with the corn. When silage is fed, mix the corn with that.

The following may serve as a sample formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. alfalfa hay	9.16	1.10	3.96	.12
10 lbs. green alfalfa	2.82	.39	1.27	.05
5 lbs. barley hay	4.26	.31	2.33	.08
20 lbs. beets	2.60	.24	1.76	.02
5 lbs. ground corn	4.45	.40	3.34	.22
Totals	23.29	2.44	12.66	.49

And as much of some other variety of fodder as each cow will eat.

RELATIVE VALUES OF BRAN AND OATS.

As a subscriber to your paper I would like your opinion on the feeding values of bran and oats. Believing in raising, as far as possible, the food consumed by my stock on my farm, I would prefer to feed oats, which I can grow, to bran that I must purchase in car load lots from the west. I have a herd of twenty Holsteins and grade young cattle; shipping milk to Washington. My winter ration is clover hay, fifteen pounds; bran, six pounds; cob meal, three pounds; linseed meal, one pound, and as much corn fodder as they can eat in the barn yard. The ration I am feeding is the cheapest I can make out with a proper balanced ration. What I would like to know is whether six pounds of oats will produce like results with six pounds western bran T. O T.

Washington, D. C.

Theoretically the substitution of six pounds of oats for the same amount of bran in the above described ration would not reduce the digestible protein below the amount we frequently suggest. Oats are accounted, all things considered, as about ten per cent more valuable than bran, and if they can be exchanged for bran, leaving a wider margin than that, why should not the farmer take the advantage of the market?

Before deciding to make a permanent change from bran to oats, why not try a partial change for a time and note and be governed by the results. And withal, why not also give the other readers of HOARD'S DAIRYMAN the benefit of your experience.

A MACHINE FOR PUMPING WATER.

Do you know of a model pump that you wind up with spring and runs with pendulum, to raise water from a deep well? Where is it manufactured? A party was through taking orders but has not been heard of since. J. L. B.

Unionville, Wis.

We have never seen the pump you refer to, nor a description of the same.

Morever, we very much doubt the practicability of such a machine. The labor required to wind up the clock work, would be better employed in pumping the water directly without the intervention of wheels and springs.

A MISTAKE CORRECTED.

In your paper of Oct. 27th in answer to an inquiry from Dayton, Ohio, you say sugar feed is the same as gluten feed. That is a mistake. What is called sugar feed in Dayton is fancy corn bran in Chicago. Will give you analysis just as I got it from the factory: Ash, 3.04; protein, 13.91; fiber, 12.97: ext. matter, 65.91; fat, 4.17.

Middleton, Ohio. A. THEOBALD.

The facility with which manufacturers adopt names that have acquired a well defined meaning and apply them to something of different composition, baffles all attempt to keep up with them. A good many of them still persist in calling gluten feed gluten meal, and not a few of our readers do not discriminate between corn meal and ground corn. We know nothing about "fancy corn bran" nor any other sugar feed except what is known in the general market as gluten feed. We are, however, much obliged to Mr. Theobald for calling attention to the mistake we made in assigning a higher value to this Dayton product than it is entitled to, and the reader for whom that formula was made should govern himself according—either by getting the genuine feed, or increasing the amount of "sugar feed" by two to four pounds.

Mr. Theobald also asks us to explain the formula then submitted, and from the figures he gives we imagine he does not quite see how we can get over forty pounds of digestible nutrients out of only thirty-five pounds of total feed. In other words, he adds the total dry matter to the total digestible nutrients, whereas, in that case the thirty-five pounds of total feed contained 25.17 pounds of dry matter, and in this dry matter there were 16.09 pounds of digestible nutrients and 9.08 pounds of matter not digestible.

CONCERNING CREAM.

In preparing cream for churning, after having brought it to the required temperature (from 80° to 90°) for quick ripening, should the can containing it be tightly covered to keep it from all outside influences or should it be left uncovered to give it air?

This applies to cream which has been previously pasteurized and not more than twenty-four hours from the separator.

Also, in your advertising columns, two or three months ago, mention was made of two separator bowls bursting and injuring or killing the operators, I think in California. What make of separator was it?

Colorado. BENTON W. BELL.

In handling pasteurized cream it is better to leave the cans exposed to the air, provided such air is pure. The act of pasteurizing is for the purpose of delaying the action of the lactic ferment, or for the purpose of neutralizing the action of undesirable ferments The above advice is based on the idea that you wish to hasten the ripening of the cream for churning. If such is not your wish, then it is as well to keep the cream in covered cans until fitly ripened.

We have no means of knowing what was he make of the separator bowls that burst.

ALFALFA.

I have read a great deal about alfalfa and would like to know if it is sowed on sand loam soil. I have a piece of land that is sand loam and a little firm gravel. In a wet year I have good crops, and in dry I have nothing. If alfalfa will grow on this land please inform me where I can get the seed, and what to sow it with, oats or rye? Would it be well to top dress the land?

Middle Granville, N. Y. M. C. S.

Alfalfa is a very deep rooting plant and therefore will flourish on soil where other crops fail in dry seasons, provided the subsoil is not too wet. It is a common saying that alfalfa will not grow with "wet feet."

From the experience the editors have had this past season with a couple of small pieces of alfalfa seeding, one following the custom of sowing without a nurse crop, and the other sowing with oats, and cutting the oats very early for hay—just as soon as they were fairly headed out—we are inclined to recommend the latter method, partly because of the valuable crop of oat hay secured, and partly because the nurse crop keeps down the growth of weeds.

The seed can be obtained from any of the prominent dealers in seed, but should be bought with a guaranty of being free from dodder, or other foul seed.

Top dressing is always in order.

CALIFORNIA QUERIES.

Will sorghum with the juice extracted (called bagasse) make good silage?

I am feeding alfalfa hay alone. Will it pay to cut hay and mix with corn or bran? Corn $25 per ton and bran $20.

I have silage in winter.

Will silage and alfalfa make a balanced ration?

By answering the above you will greatly oblige a needy subscriber. H. H. C.

Westminster, California.

Undoubtedly this bagasse has some feeding value, how much we cannot say, that could be preserved in a silo. If it has been tried in this way, we have failed to notice the reports, and therefore are not justified in giving advice.

We are decidedly of the opinion that it will pay to cut at least half of the alfalfa hay and mix ground corn with it. The amount to be used will depend upon the quality of the cows and the length of time they have been giving milk. The medium average ration would be twenty pounds of the hay and eight pounds ground corn.

It is asking too much of a cow to do her best or most economical work on a ration composed entirely of roughage, just as it is asking too much of a horse to work hard and not receive any grain.

A MICHIGAN CASE.

I find of the inquiries and answers none seem to fit my case, and as my case is similar to many others here, in answering my questions you will accommodate others as well as myself. My rough feed is mixed clover and timothy hay, about half and half, and plenty of good corn fodder, shredded. Want to feed principally the corn fodder. Hay is worth $8.00 per ton. Corn is worth thirty cents per bushel, oats, twenty-two cents; bran, $16.00 per ton; middlings, same. These feeds we have here. Gluten feed, oil cake, etc., will cost us Chicago prices plus shipping.

Can grind the corn and oats either separately or together or can grind the corn and cob together and mix with other feeds. Can you fix up a ration for us out of these feeds, for average size Jersey grade cows. Our milk goes to a co-operative creamery.

We are new in the dairy business here and many are just beginning to study the feed question. C. E. R.

Lawrence, Mich.

Here is a case where oats are less in price than bran. At 24 cents per bushel, ground, they would come to only $15 per ton. We therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs shredded stover	11.90	.34	6.48	.14
5 lbs mixed hay	4.27	.24	1.98	.08
5 lbs oats	4.45	.46	2.37	.21
5 lbs gluten feed	4.61	1.02	2.42	.18
Totals	25.23	2.06	13.25	.61

See answers to other inquiries in this issue and particularly the answer to C. T. A., also of Michigan.

A MICHIGAN RATION.

I have for rough feed, corn stover, timothy hay, oats straw and about 400 bushels of sugar beets; for grains, corn and oats.

Wheat bran is $14.50 to $15 per ton. Oil meal not in our market nor do I see it quoted Can I get a good balanced ration with the feed at hand? Please give me one with the sugar beets, also without. C. T. A.

Flat Rock, Mich.

We can do no other way than advise this inquirer to sell his corn and oats and with the proceeds buy gluten feed or cotton seed meal. He will find at least two advertisements in the DAIRYMAN from parties who will quote prices on gluten feed delivered at his station, and others who will sell him oil meal. It is a mistaken notion that the dairyman must feed corn and oats because he raises them. Almost always he can sell them and buy something much better to feed, and have more or less of a margin left for profit.

If a cow needs not less than two pounds of digestible protein to enable her to do fairly well at the pail—and all the authorities agree that this is the least she should have—we see no way to get this from the feeds named.

Our suggestion, therefore, takes the following form:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
8 lbs. stover	4.76	.14	2.59	.06
8 lbs. timothy hay	6.94	.22	3.47	.11
5 lbs oat straw	4.54	.06	1.93	.04
20 lbs. sugar beets	2.70	.22	2.04	.02
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.82	1.94	.14
Totals	26.15	1.96	13.51	.49

This is, in fact, a scant ration for a cow in anything approaching full flow of milk. It would be but an indifferent dairy cow that could not utilize more of the grain—a pound of each kind at least, and when the beets are gone unless there has already a permanent shrinkage set in, this addition must be made.

A RATION STATED AND CRITICISED.

I am feeding at the present time, 4 pounds of oats, 4 pounds of barley, 20 or 22 pounds of corn fodder (corn and all). This is for one day's feed per cow. The cows are not doing satisfactory work on these feeds, and if you will tell me how to give them a better flow you will confer a great favor.

Gardenplain, Ill. J. C. H.

Cows are now receiving as follows:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
22 lbs. fodder corn	14.62	.81	8.89	.26
4 lbs. oats	3.56	.37	1.89	.17
4 lbs. barley	3.56	.35	2.62	.06
Totals	21.74	1.53	13.40	.49

These figures tell their own story, and explain why the "cows are not doing satisfactory work." In order to enable them to do better, they must have, at least, a half pound more of digestible protein, and should have about fifty per cent more ether extract (crude fat.) The probabilities are, that it will pay to sell the oats and barley, and buy bran and gluten feed, but we cannot say positively without knowing prices. Unless this exchange is made, add to the feed as above about two pounds cotton seed meal—say one-half pound daily at first, and in five days another one-half pound, and after that more as each cow responds and shows ability to turn her increased feed to milk. Refer to the table on page 754, and read what is printed in connection with it.

FOR AN INDIANA COW.

Will you kindly formulate me a daily ration for my cow. I live in town and have everything to buy. Cow is a two-year-old Jersey, giving about fourteen pounds of milk per day.

Mixed hay at $13.50 per ton, clover hay at $10.00 per ton, ground feed (corn and oats) at $19.00 per ton, bran and shorts at $15.00 per ton. Corn fodder is very scarce. I give her salt twice per day. A. K.

Rushville, Ind.

We should try feeding this heifer about as follows, giving half at night and half in the morning:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. good clover hay	12.70	1.02	5.37	.26
4 lbs. corn and oats	3.56	.34	2.08	.17
4 lbs. bran	3.52	.50	1.54	.12
1 lb. oil meal	.91	.29	.33	.07
Totals	20.69	2.15	9.32	.62

If she will eat more hay, give it to her. Investigate that corn and oats mixture. If it is not a home made article, there is a possibility that the oat part is made up exclusively of oat hulls. In that event, use pure, ground corn.

FOR ILLINOIS HOLSTEINS.

Winter is coming on and we are again obliged to fall back to dry feeds, and would thank you for a balanced ration from the

following feeds. Will have to buy all, and would like to know which of the feeds would be best to use:

Bran, $13 per ton; ground corn without cob, $15; ground oats, $15 per ton; dry sprouts (from brewery), $8 or $9; oil meal, $26; clover hay, $5. In addition to above, have corn fodder, cow beets and pumpkins that we would like to work into the ration until they are fed up. Also have some turnips, and have wondered if we can feed them without tainting the milk, and if they would add to the ration.

If you can arrange the above into a balanced ration for large Holstein-Friesian cows (a few fresh now, mostly coming fresh this winter), you will add to the value you have given me in the DAIRYMAN. H. W. S.

Quincy, Ill.

If *all* the feed is to be purchased, we should select and feed fresh cows about as follows, as an average, and others in proportion:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
20 lbs. mangels	1.82	.22	1.08	.02
5 lbs. corn	4.46	.40	3.34	.22
5 lbs. oats	4.45	.46	2.37	.21
Totals	27.67	2.44	13.95	.79

If there is corn stover on hand that can not be sold, take out five pounds hay and add eight to ten pounds stover and two pounds bran. Also, pumpkins may take the place of beets. It is said that if turnips are fed directly after milking, the effects will pass off without tainting the next milking. We cannot vouch for the correctness of this claim.

LACTOMETER FOR CREAM TESTING.

Will the lactometer give the per cent of butter fat in cream? If not, do you know of any way, aside from the Babcock test, that will, that is quick and accurate?

Do you know of any publication that gives the monthly crop reports of all kinds in the United States?

Where can I get by-laws, etc., for organizing a farmers' institute, having monthly or semi-monthly meetings?

I wish you would tell me some way by which I could get every dairyman to become a subscriber for HOARD'S DAIRYMAN, for no one that wants to be successful can be without it, yet they (or many of them) don't see it in that way. B. H. A.

Grove City, Pa.

The lactometer only shows the specific gravity of the milk, and thus gives a rough indication of its being watered. It would be useless in testing cream.

The Babcock test is the only accurate method in use outside of the chemical laboratory, that is satisfactory.

The United States Government issues monthly crop reports.

Apply to the Superintendent of Farm Institutes of your state.

We have spent a good many years in looking for such a method for our own use but have found no universal rule as yet.

FARM WAGES IN THE WEST.

Will you oblige me by stating what wages are paid in Wisconsin, Minnesota and Michigan to a man accustomed to steady and responsible employment, working with and handling men and with life-long experience in dairying and general farming, knowledge of rations, making formulas for commercial fertilizers and handy with tools?

SUBSCRIBER.

It is very difficult to answer "Subscriber" concerning this inquiry, as there are comparatively few men of such acquirements employed on farms. To make such a man available and profitable would require a large farm with a large herd of fine dairy cattle. Such men are fitted well to take charge of farms and herds owned by wealthy men, and the question of the amount of salary cannot be stated by any prevailing custom or price. We would say to "Subscriber" that he would no doubt find it to his interest to make known in the columns of the DAIRYMAN that he is in the field for such employment.

There are altogether too few of such men and they can easily obtain good and responsible places.

AN INDIANA RATION.

We have a herd of twenty milk cows, besides four head of young stock. To feed these through the winter we have silage, about 50 tons, 450 shocks of corn and some 15 or 20 tons of clover hay in the barn. Bran we buy at $13.50 per ton at present.

What kind of a ration would you advise us to feed in view of the above, and about how long will it last? A. J. N.

Valley Mills, Ind.

From the feeds named, we can do no better than suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. fodder corn	5.78	.37	4.04	.12
5 lbs. clover hay	4.24	.34	1.89	.09
10 lbs. bran	8.81	1.26	3.86	.30
Totals	24.11	2.23	12.59	.65

Ten pounds of bran will look like a large daily allowence, as it will require at least *eight quarts* at each feeding, or a half bushel each twenty-four hours. One reason why bran is held in so little esteem by many feeders, is that they feed by sight and not by weight. The figures given indicate how long the feed will last.

AN IDAHO RATION.

Will you please give me a balanced ration from the following: For roughage we have wheat straw, at 50 cents per ton; oat straw, $1.00 per ton; clover and alfalfa hay, $6.00 per ton. For grain we have bran at $15 per ton; wheat in kernel, $15 per ton; ground oats, $27 per ton and chopped corn and barley, $27 per ton. Would it be profitable to cut all roughage, mix grain with it, and then wet it and allow to heat before feeding it?

Boise, Idaho. G. H. V.

With clover and alfalfa hay at $6.00 per ton, there is some doubt whether it would be judicious to depend very much upon straw. The cows will eat some straw, just for the sake of variety, but we would not advise forcing them to rely upon the straw, and then make up for its deficiencies with expensive grain. We, therefore, suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs alfalfa hay	13.74	1.65	5.94	.18
4 lbs. ground wheat	3.58	.41	2.77	.07
4 lbs. bran	3.52	.50	1.54	.12
5 lbs. oat straw	4.54	.06	1.93	.04
Total	25.38	2.62	12.18	.41

This ration is only deficient in the item of crude fat, or ether extract, but it is by no means certain that this is a fatal defect. If corn was not so expensive, it would be better than wheat. Some pure flax seed meal would make an excellent addition to the above formula, if it could be had at anything like a reasonable price.

We do not advocate chopping all the coarse forage, but half or more of it could be treated in that way to good advantage. Personally we would defer mixing the grain until just at feeding time.

New York Farm and Dairy Notes.

Some Successful Dairymen.

ED. HOARD'S DAIRYMAN:—I recently talked with a dairyman who had rented a farm for, I think, five years. In this time, he told me, he had made a good living, paid his rent, and saved about $2,000. He kept from twenty-five to thirty cows on the farm, and paid $300 a year rent. I asked him to give me some points in the management of his dairy, and he said: "I always kept good cows and fed them well. I feed all my cows so well that they must either fill the milk pail, or get fat, and if the cow gets fat, she goes to the butcher. I never could make any money, without feeding my cows so well that they must either give a large quantity of milk, or I would make beef of them. I never would keep a poor cow."

It would appear from this that his plan of high feeding was one of the ways by which he tested his cows. If a cow used her food for making milk instead of flesh, she was a good cow for his purpose. If she used her food for making flesh, he did not want her. He sold his milk to the creamery, and he wanted to make a large quantity of milk, and did not feed to make butter fat. He made considerable winter milk, and fed liberal rations of grain when the cows were not on full feed in the pastures. He did not have a silo, but he raised large quantities of fodder corn. When the pastures began to fail, late in the summer, he began to feed the corn, with a little grain. He continued to feed this fodder corn through the fall until early in the winter, but of course increased the grain rations as the grass failed. When the corn was gone, he had good early cut hay.

In this man's success it will be noticed that the main essentials were good cows, liberal feeding, growing large quantities of fodder corn to feed his cows when the pastures failed, thus saving a good part of the money that would have been paid for grain to keep up the flow of milk, without the corn or other soiling crop. We can see how his plan of farming could have been improved by building a silo for his corn, growing oats and peas for the early soiling crop, and clover to help balance the ensilage ration, and in this way save a larger part of the feed bill.

I know another man who has rented a farm for several years. He has made a good living in this time. He owns his cows and always keeps good ones. I think this one thing is the basis of his success, for he practices the old plan of farming, and does not use a silo, but he is a man of good judgment in dairy matters. These men I have mentioned are careful, economical, industrious, and have good habits. If these men can make a good living and pay rent, it would seem that something is wrong with the farming of those who own good farms, and are unable to make a comfortable living.

My observation has shown me that success in dairying, as in other vocations, depends more than anything else on the man. The great need is for educated and trained men, who can both plan and execute plans. A man with good health, good habits, a clear head, and a mind trained for his vocation, so he can make a practical and profitable use of what science has done for him, must succeed.

RAISING COWS FOR MARKET.

Cows for several years have been high in the dairying sections of this state. In my locality, only ordinary cows are now selling for forty to fifty dollars, while thoroughbred stock brings considerably more. As some farmers are situated, I would think there is good money in breeding and raising cows for market. This business requires less work than dairying and calls for less expenditurre.

THE GRAVITY CREAM SEPARATOR.

The gravity cream separator is now being introduced in this vicinity. The agent is telling such a good story, that many farmers will try it. Some are asking for information in regard to it. They want to know if it will get all the butter fat, or as much as any separator, out of the milk, and if the skim milk is injured for feeding, by adding so much water to it. This separator has certainly simplicity and cheapness to recommend it, but no separator is cheap or profitable, unless with it one can get all the butter fat that can be got out of the milk. I have had no experience with the gravity cream separator, but if I am correctly informed, it will not do this. The fact that they are not more universally used, shows their deficiency, for people will not pay $100 for a separator, if one can be obtained for one-tenth of that sum, that will do as good work. Some experiments are being made here with the gravity separator, and until the results are fully known, I would go slow in buying the separator. W. J.

Delaware Co., N. Y.

There is no call for further experimentation. This process for raising cream is not a success and never will be. A common shotgun can is just as good as this so-called separator.—[ED. DAIRYMAN.

"Keeping Cows for Profit."

A Treatise on Up-To-Date Dairying.

This is the well chosen title of a new work on practical dairying. We understand that a large issue of this little publication is being gratuitously circulated with the compliments of The De Laval Separator Co., 74 Cortlandt St., New York, which concern offers to send a copy to every reader of HOARD'S DAIRYMAN upon request.

The book treats of dairying as a manufacturing *business* and discusses its problems from the standpoint that every dairy farmer is just as much a *business man* as though engaged in any other manufacturing or commercial undertaking. It iscompiled in a terse, practical manner, is easily readable, and can hardly fail to be interesting and instructive to every one in any way concerned in dairying. It is splendidly printed, handsomely illustrated, and altogether pleasing.

The book begins with a brief review of the history of dairying, shows the relative percentages of the various component parts of the different dairying products, takes up the production and marketing of such products in one form after another, and closes with a pertinent reference to private dairying.

In a historical and statisti cal way it tells much that is interesting. In this connection it is authoritatively stated that fully one-half

"What's in a Name?"

Everything when you come to medicines. A sarsaparilla by any other name can never equal Hood's, because of the peculiar combination, proportion and process by which Hood's Sarsaparilla possesses merit peculiar to itself, and by which it cures when all other medicines fail. Cures scrofula, salt rheum, dyspepsia, catarrh, rheumatism, loss of appetite and that tired feeling.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Best Food for Infants

Nature planned that infants should have only milk for at least the first year of life. But thin milk, skimmed milk, will not nourish. It's the milk that is rich in cream, or fat, that does the work. This is because fat is positively necessary for the growing body.

Scott's Emulsion

contains the best fat, in the form of Cod-Liver Oil, for all delicate children.

They thrive greatly under its use. Soon they weigh more, eat more, play better and look better. It's just the right addition to their regular food. The hypophosphites of lime and soda in it are necessary to the growth and formation of bone and teeth.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

of the butter produced in farm butter making, by the practice of older dairying methods, is made and marketed at an actual loss to the maker.

The book fairly teems with practical facts and epigrammatic expressions appealing to the dairy farmer, as for instance:

"It should not be assumed that dairying is being overdone and soon likely to become unprofitable. The contrary is the case."

"The home consumption of dairy products, particularly with greater industrial prosperity, is largely increasing from year to year.

"The European markets for these American products are only now being fairly opened up. The exports, which are as yet small, will within a few years amount to one-third of the total production, not only affording a sufficient market, but insuring the maintenance of prices."

"Farm dairying communities are everywhere among the most prosperous, intelligent and progressive in the country."

"Modern dairy farming is just as much a *business* as any other commercial or manufacturing undertaking. It affords the same opportunities. In a practical sense it is a *manufacturing* business. The land, the feed, and the degree of care used are the dairy farmer's raw materials. The cow, the cream separator, churn, butter-worker, cans, coolers, and other utensils are his tools and machinery. The sale of his milk, cream, or butter is the marketing of his product. The prosperity of his business is largely of his own making, just as is that of any other."

"Dairying upon the lines of fifteen years ago is now a losing occupation. Dairying upon the basis of five and ten years ago now does well to make ends meet. Profitable dairying of to-day must be up-to-date and be kept so."

"The selection of the practical dairy cow of to-day is not so much a question of particular breed as of individual productiveness. This will be found to vary in every herd of every breed. In breeding it is an established maxim that 'The bull is half the herd.' The bull should always be pure-bred and selected from a family from which the cows are of established dairy excellence."

"Cheese-making in the United States has not held its own in dairy advancement, as compared with other ways of marketing dairy products. It is seldom practical unless there is some other means available of utilizing the milk profitably during the seasons when such is not the case in its cheese factory sale."

"The success of the creamery business, like that of any other, depends on good management. The creamery patron must understand *that this concerns him*, since he is not going to get more for his milk than the creamery management makes out of it in its conversion into butter and marketing."

"It is undoubtedly a fact that any one practicing dairying to-day, on however big or little scale, by the employment of one of the older gravity methods of cream raising without the help of ice or cold water, is doing so at so great loss in skimming at all times, and in quality of product a good part of the time, *that profit is simply impossible*. Still, thousands are blindly pursuing such a system."

"Hardly any point is of greater importance in successful butter making than marketing the product in a business-like manner. This naturally begins with the packing of it. Appearance counts for a great deal in marketing butter, as in everything else."

One of the most interesting chapters is that devoted to skim milk, of which the use of the centrifugal cream separator has made a new by-product in dairying, with a much wider field of usefulness than was either thought of or possible in the practice of gravity setting. This is mainly due to its freshness and sweetness in centrifugal separation.

While the purpose of its distribution is no doubt an advertising one, in a considerable degree, there is much that is commendable in the little book, and we think it bears out the introductory statement that it is dedicated to every owner of a cow in the hope that it may afford some beneficial hint or suggestion to all who may take the trouble to look over its pages.

Pedigree and Individuality.

The question as to whether pedigree or individual merit should have the most influence in the selection of an animal, is always open to discussion.

Dr. Twitchell in the Maine *Farmer* writes in reply to the following criticism:

"Dr. Twitchell is a strong arguer for individual merit in an animal, rather than pedigree. He generally seems to us to exaggerate individual merit as a basis for feeding, at the expense of heredity. It is certainly established, we take it, that individual merit alone is no guaranty of prepotency. It takes a long line of selection and cultivation to establish a reliable strain or family. And we should suppose that an unfavorable specimen from an established family—say of cows of great milking records—would be more likely to produce a good daughter to sustain the family reputation, than an individual cow of no family, although she herself might be a prodigious milker. The absolute necessity of heredity in the breeding of animals for any given purpose is one of the modern canons of the business. Individual merit may be insisted on, but by itself it furnishes no security. —Lowell, Mass., *Weekly Courier*.

Because we have so strenuously urged a study of individual merit as of prime importance in measuring the worth of an animal as a producer, it by no means follows that pedigree is ignored and the editor of the *Courier* errs in his assumption. It may be that individual merit has been exaggerated but not with that purpose, but to offset the greatly exaggerated claim for pedigree.

Until through long generations of breeding in continuous line, there is evidence that traits have been established, the business milk or butter producer must make his selection through a sharp and clear appreciation of individual merit. For this to be possible, a certain conformation is to be insisted upon, because there must be harmony in structure for the greatest production. Pedigree does not insure merit, but as one approaches lines of breeding where the family traits have been most carefully preserved and the thought of production most forcibly impressed, this statement needs qualification. The man as a breeder and the same man as a producer of milk or butter simply as a business occupies an altogether different field. If the two positions are mingled then the study of merit and pedigree both claim attention.

The farmer who is engaged in milk or butter business must measure his cows as individuals, solely from the standpoint of quantity and quality. This is individual merit. These cows may be accidents and therefore of little value as breeders, but in the harmony of structure and purpose of the animal she yields to her environment and is profitable to her owner. Her calves may or may not be, all depending upon the potency of the male to impress his individual and inherited powers upon his offspring. When the cow is bred the owner becomes a breeder and the study of pedigree must already have claimed his attention else the selection of the male may prove a failure. More even than this do we believe it necessary to make a sharper study of structure as related to purpose, and of individuality as stamped in every part of the creature, in order that the power of heredity may be felt in increased output of future generations.

A dairy cow is of no value unless she yields a profit over cost of production. An "unfavorable specimen" may prove a good breeder, but would the editor of the *Courier* advise her use, over a great producer? Her blood lines may be as good, but the fact that she fails in individual merit lessens the chances for her to improve the herd. The trouble is, breeders have clung to too many "unfavorable specimens" and because their offspring have improved, assumed these to be the equal of favorable specimens.

The position of the writer has always been that improvement comes from the power of heredity, that pedigree is to be the reliance of the breeder who attempts to plant a family, but that there must go with this a clear and sharp study of the individual and her structure as related to the work she is to be called upon to perform. Too many milk and butter makers are still pinning their faith upon pedigree; too few upon individual merit. As the necessity grows for increase of output there is a corresponding necessity for a study of he machine as a machine and back of that her individuality. G. M. T.

THE exports of butter this year are much in excess of last year. For August they were 6,184,513 pounds, against 956,719 pounds in August, 1898; for the eight months ending Aug. 31, they were 20,603,574 pounds, against 9,046,691 pounds for the same time the previous year; showing a gain of 11,556,883 pounds. This taken together with the increased prosperity at home accounts for the higher prices this year.

Time Tells The Story.

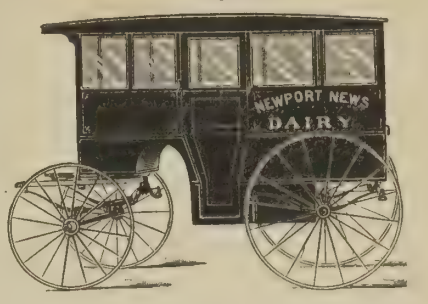
There is a big difference between the cost of making a first-class sewing machine, embodying the best of materials and workmanship, and one which is made in the cheapest manner. The buyer of the cheap machine soon pays the difference of price in the constant cost for repairs, to say nothing of its annoying inefficiency.

Singer Sewing-Machines do good work during a lifetime.

Sold on instalments.
Old machines taken in exchange.

The Singer Manufacturing Co.,
"Sewing-Machine Makers for the World."

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

That Robber Cow

eats up the profits of two good cows every year. Just so the "setting system"; or some cream separators may leave enough cream in your milk to pay for two



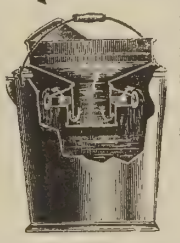
Empire Cream Separators

The Empire leaves scarcely a trace of fat in skim milk, and is the lightest running separator made.

Six sizes of hand power machines, $40 and up. Illustrated catalogue, *free*. Agents wanted,

U. S. Butter Extractor Co., Newark, N. J.

THE IDEAL MILK PAIL



Is the best, cheapest and most practical pail and strainer on the market. Write for circular and special price to

THE
National Specialty Co.,
RACINE, WIS.
Agents Wanted in every Co.

Be Careful



FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for ***DE LAVAL ALPHA SEPARATORS.***

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Chaffing Alfalfa Hay for Cows.

The Dairyman's Views Confirmed by Colorado Experience.

ED. HOARD'S DAIRYMAN:—Have been too busy to write. Will finish the last cutting of alfalfa on 120 acres, Saturday, if nothing prevents.

Regarding cutting (chaffing) of alfalfa for cows, I am persuaded the DAIRYMAN is right. Part of last winter, I cut alfalfa, and am much pleased with the result; saves about one-third of the hay; takes less manger room and the ration can be made out to a pound. I did not wet it last year, but will this, as I know the hay will brighten, soften, and all dust will be avoided and the grain will adhere.

With the cut hay, the cows will eat and lay down and rest. With the long hay it takes about one-third the cow's time to eat, with the same result, as a poor pasture takes all a cow's time, and with a good one, they can rest a part.

We cannot "take in" all the teachings of the DAIRYMAN. Takes a month to digest what some numbers contain. Was not brought up on such strong, well balanced facts. But we are gaining both in knowledge and "cents." The fact is, the DAIRYman is the most thorough teacher we were ever under. S. T. AND WIFE.

Caddon, Colo.

The Feeding Problem.

Cornstalks—Wasting Feed—Water.

ED. HOARD'S DAIRYMAN:—One of the principal factors in deciding the question of dairy profits is this: The amount of grain and coarse feed or roughage which the land can contribute to the support of the animals composing the herd.

He who buys much feed, of whatever kind it may be, realizes full well that it costs a good deal to keep a herd of cows. If dependent entirely upon buying at market rates it is doubtful if a profit could be made in the dairy under ordinary circumstances. The greatest profits are being gained by those who make the farm produce the bulk of what is fed out.

An appalling waste is going on all around us in regard to one of the very best of foods for dairy cows, *i-e.*, the waste of corn stalks. Not one farmer in ten utilizes these as he ought. If fed whole, even after caring for them properly in the field and housing from inclement weather, a large proportion is still unavailable by reason of the inability of the animals to get at them. The leaves, tassels and husks are eaten, leaving the long stalk intact, to be thrown out upon the manure heap, thus practically throwing away considerable of the food value of the plant Cut or shredded, nearly all of the stalk is devoured. A farm of eighty acres ought to grow everything consumed by twenty-five head of cattle and the teams necessary to work the land. Corn or oats may be exchanged for wheat bran and gluten meal, since these two are almost indispensable adjuncts to successful dairying.

Something else may be substituted for the gluten, but the bran is considered by the writer as absolutely indispensable for best results in feeding dairy cows.

It is a very easy matter to waste feed in attending to the wants of our farm animals. Look about the barns and see the hay trampled under foot, the grain scattered here and there. See the stacks of hay, straw, or corn stalks put up in such a manner that the rain and snow beats into them, thus causing decay and waste. See the horses standing idle in their stalls eating timothy hay and grain three times a day, (pulling from the mangers and trampling under foot a goodly share of the former) when good, bright straw with a little grain would keep them in good condition at far less expense.

One word of caution may not be out of place in regard to feeding straw to horses. Feed with it bran or some other laxative ration. If fed with corn continually, trouble may be anticiptated by way of constipation and colic.

The matter of economy in feeding is worthy of thorough investigation. The question is not to see how little one may feed and succeed in keeping the animals alive until spring, but how to so utilize every particle of the hay, grain and other provender as to get the very most out of it. There is enough wasted on many farms every winter to keep every animal on them in good condition from fall till spring.

One way in which much good feed is inexcusably wasted, is in making it do the work of boards and battens, in keeping the animals warm. It seems impossible to make some men see this, but it is true. In a warm stable (which does not necessarily mean a foul, unventilated one) dairy cows give more milk on a given amount of feed. This has been demonstrated beyond question, time and again. If they are not protected in this way, nature provides for her own by claiming a share of the food which goes to supply the deficiency in contributing to the animal heat.

It will not take an intelligent person very long to see that it is very much cheaper to warm the stable with building paper, or with straw stuffed inside the siding, this being held in place with strips of board or lath, than to supply the necessary amount of heat with hay and grain.

Many farmers call it all a piece of nonsense to warm the drinking water for stock in cold weather, yet to fail to raise the temperature to 55° or 60° is certainly going to require considerable of a drain on the bodily heat of the animal in warming it. As an illustration of the effect of drinking cold water, watch a thirsty horse drink his fill of it, and then note how suddenly his hair stands on end and he begins to shiver.

I have not the slightest hesitation in making this statement: Where cows are obliged to drink icy cold water, the total expense of putting in and operating a tank heater of some kind will be more than offset in a single season by the saving in feed. That is, the cows will do enough better with the amount of food given them to more than pay for warming the water which they drink.

It would seem by the number of questions answered from week to week, in the columns of this paper, that it is inexcusable for any one to feed other than balanced rations to their cows. Yet as a matter of fact there is a great waste going on all around us in this very way. The proportion of intelligent feeders, those who are not wasting feed by giving it to their animals in wrong combinations and wrong proportions, is discouragingly small indeed.

It has been remarked that no business man would expect to succeed if he practiced such unbusiness-like methods as the farmer. A certain amount of waste may be unavoidable in all lines of business, but it should be our study to reduce this to a minimum.

Michigan. W. C. ROCKWOOD.

Fall Manuring.

ED. HOARD'S DAIRYMAN:—It is a practice, far too common, to wait until a crop is about ready to be planted before applying manure to the soil in which it is to be grown. In some cases this might be the best way, but in many others it is not. There are numberless practical tests being made on the farms of the country every year and if we can but learn the lessons they teach, and practice upon them, there will doubtless be a great gain to many of us who till the soil.

There are very few manures of any kind, either home made or commercial, that are in an immediately available condition. Nitrate of soda is one of these exceptions. It is as soluble in water as common salt, and the nitrogen is almost at once taken up by the plant. Within two or three days from the time this chemical was applied to a growing crop (if the soil was not dry) I have often noticed its effects. The color of the oats, corn or whatever the crop might have been, took on a darker cast, showing that the nitrogen was at work.

It is not so with more than a very few manures of any kind. They need time to become dissolved and thoroughly mixed with the ingredients of the soil, which must necessarily take place before they can be available plant food.

Stable manure, and all others that are made on the farm from vegetable matter, must decay before they can possibly be assimilated by the crops to which they are applied. If they are hauled out on the field this fall or winter, and plowed under, they will be worth twice as much to the coming crops than if they are left until next spring. I think of a case of exactly this kind, where one part of a field was manured last fall and the rest the past spring. The cultivation was the same all over the field, but difference in the corn crop is greatly in favor of the part that was manured in the fall. It could be told to the very row, by the color and size of the growing crop, and the yield of grain was materially better.

For many years past it has been my plan to haul the manure from the stable and feed lots direct to the field while it was as fresh as convenient to handle, no matter at what time of year it might be. I want no leaching of the manure in the lots that can be avoided, but that whatever good there may be in it to go directly into the soil. Piling up manure and allowing it to heat is very wasteful because much of the nitrogen is made volatile and passes off into the air, where it is lost to the farm. Any handling of coarse manure that can be avoided is a needless expense. It is certainly less work to clean out the stables, directly, putting it on a wagon or sled, and taking it to the fields at once than to rehandle it a time or two as must be done where it is thrown into a heap and afterwards loaded and hauled away. There might be some old wagon or sled, devoted to this purpose on the farm, leaving it where the manure can be thrown on to it at any time when cleaning out the stables.

Muriate of potash, phosphate rock, and other forms of chemical manures, containing potash and phosphoric acid are much more efficient, and hence more economically used if they are applied in the fall. That is just the time to do it to the best advantage possible. The chemicals will become dissolved by the winter rains and be in a far more acceptable condition to the crops than if in a fresh state.

Sometimes they are a detriment rather than a benefit to the crops, because of their action upon the newly planted seeds or tender rootlets. Under some conditions they have a caustic effect. I know of my nearest neighbor the past season killing his melon seeds by putting these very materials in the hills abundantly at the time of planting. The second planting in the same hills went likewise. He blamed the seed-man, one of the best in the country, with sending him poor seeds. In talking with him about his failures, I asked him about the fertilizers applied and at once suggested the remedy, which was to mix in a lot of fresh soil that had not been fertilized. Upon doing this and planting from the same lot of seeds the third time, he had a good stand, but the melons were very late.

H. E. VAN DEMAN.

Program of the New York Dairymens' Convention, Cortland, N. Y. December 13, 14 and 15.

First day, December 13—Arrangements and classification of exhibits and judging of the same.

Second day—Morning session, 10 o'clock: Address of welcome, Hon. Joseph E. Eggleston, Cortland; response, George G. Royce, Gouverneur; President's address, S. Brown Richardson, Lowville; address, ex-President J. S. Shattuck. Afternoon session, 1:30 o'clock, Question box; "Condition of Cheese and Butter Factories in New York State," Prof. H. H. Wing, of Cornell University; discussion; "Conformation of the Dairy Cow," ex Governor W. D. Hoard of Wisconsin; discussion. Evening session, 7:30 o'clock: "Cattle Foods," Prof W. H. Jordan, Director state Agricultural Experiment Station Geneva; discussion; "The Model Creamery Buttermaker," Jared Van Wagener, Jr., Lawyersville; discussion.

Third day—Morning session, 9 o'clock: Election of officers; question box; "Tuberculosis Control Legislation in New Jersey," Franklin Dye, secretary New Jersey state tuberculosis committee; discussion; "Tuberculosis and the Assembly Investigating Commission," D. P. Wittier, chairman Assembly Tuberculosis Investigating Committee; discussion, "Problems in Cheese Making," George A. Smith, dairy expert, State Agriculturial Experiment Station, Geneva; discusion. Afternoon session, 2:30 o,clock: Question box; "Silage the Year Round," E. B. Voorhees, Director New Jersey Agricultural Experiment Station; "The Oleo Question," George L. Flanders, first Assistant Commissioner of Agriculture, Albany; discussion Evening session, 7:30 o'clock: Introduction of resolutions; "Dairy Products as Substitutes for Meats," Miss Anna Barrows, editor American Kitchen, Boston; discussion; address ex-Governor Hoard; "True Ratio of Profit." adjournment.

Indiana State Dairy Association.

ED. HOARD'S DAIRYMAN:—The annual meeting of the Indiana State Dairy Association will be held at Cambridge City, Ind., Dec. 7th and 8th, 1899. A recent meeting of the executive committee outlined an interesting program, which will be announced shortly. H. E. Van Norman.

LaFayette, Ind. Secretary-Treasurer.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade was very small, but 900 pounds being placed on sale. Bids of 23½ cents for the lot were declined, and the call closed without a sale. The Quotation Committee announced a firm market at 24½ cents.

The sales for the corresponding week of the three preceding years were as follows:

Nov. 7, 1898, 10,200 lbs. of butter sold at 22c.
Nov. 8, 1897, 18,420 lbs. of butter sold at 23c.
Nov. 9, 1896, 69,960 lbs. of butter sold at 18½@19c.

The New York market Monday was reported firm at 25 cents. H. C. B.

Elgin, Ill., Nov. 6, 1899.

Princess Wayne 7th's Record.

A Criticism.

ED. HOARD'S DAIRYMAN:—In your issue of Oct. 20, you gave an acconut of a performance of Princess of Wayne 7th, owned by T. G. Yeomans and Sons. Mr. Hoxie, in figuring out the net profit of the milk yielded by the Princess during the seven day's test, figures by the rules laid down by the Holstein-Friesian Association. Under these rules he states that the prices of feed are fixed as follows: "Wheat bran, $10; corn meal, $12; oil meal, $18." I do not think wheat bran can be bought on the market for less than $14 in car lots, nor corn meal for less than $16. Oil meal is worth $20 in the east. These prices mean an increase of $3.33 per average ton of feed given to the Princess and would materially cut down the net profit which Mr. Hoxie seems to think was realized from her milk.

The rules of this association cannot change the prices of feed, and the feeding value of wheat bran, corn meal and oil meal, as well as any other marketable product, when considered in connection with the net profits yielded by the animal to which these nutrients are fed, is governed altogether by the price the feed will bring in the market. When corn meal is selling for $16 a ton I cannot think it is proper to place a value of $12 a ton on it in order to figure out a large profit for the Princess. FRANK SIMPSON.

Ridgway, Pa.

While it is true that the rules of the Holstein-Friesian Association cannot change the market prices of feed stuffs, it is indispensable that certain arbitrary prices should be agreed upon and that these should be uniform in all parts of the couutry, regardless of local markets, where the net profit of a cow in New York is to be compared with the net profit of a cow in Minnesota. And as we observed at the time, we consider the scale adopted a fair average for a series of years and all sections of the country, with the exception, as noted, that pasturage is much too high and this more especially for a cow that is receiving a liberal grain allowance. Of course, with all the figures given anyone can figure out the net profit at local market rates for feed.

Cheese Makers' Division of the Ohio State Dairymen's Association.

ED. HOARD'S DAIRYMAN:—At the last meeting of the Dairymen's Association there were organized a Cheesemakers' Division, Buttermakers' Division, and Milk Producers' Division. These divisions are now arranging for their first annual meeting which will be held in connection with the Dairymen meeting, next February, at Townshend Hall, O. S. U. Grounds, Columbus, Ohio. The indications are that this meeting will be unusually interesting and instructive, and on behalf of the Cheesemakers' Division, I would like to call the attention of the cheese

makers of the state to the fact that some of the best authorities on cheese making will address the meeting of this division; also papers from members of the division, followed by the discussion of such topics as may suggest themselves, will make up a program that no one interested in the advancement of Ohio cheese and cheese making can afford to miss. Also that the dairymen committee on premiums have arranged for cash premiums as follows: Best sixty-pound creamery butter, best five one-pound print butter, best full cream American cheese, Cheddar, Flats or Young Americas, and on best Swiss cheese. We would like to have every maker prepare his exhibit and make arrangements to attend. Those attending will have the privilege of visiting the dairy school, as it is in session at that time.

For further information address

L. D. SMITH,
Secretary Cheesemakers Division.
Silo, Ohio.

Bringing Up Both Farm and Dairy.

A farmer friend of the writer took a farm of 160 acres, and started in dairying with a dozen cows—all the land would support at the time—and by judicious methods he worked his herd up to forty. That is the number of cows he can feed off his former poor farm. He not only kept in view the question of maintaining the standard of his herd, but he had to improve his soil year by year. Such a thing is possible, and when it is accomplished it deserves mentioning. There are plenty who fail to hold their own in this respect, and let both cows and land degenerate year after year. The products of the dairy should never be raised and sold at the expense of the land. Sooner or latter the accounting time must come.—N. E. FARMER, New Hampshire.

WORK on the dairy farm, when conducted as it ought to be, is confining and everlasting. The dairyman must be at home night and morning every day in the week. Close attention must be given to every detail of the business. But the pay is commensurate with the work. The dairy districts are the prosperous districts. Where dairying is general you find good houses and good barns. The dairyman gets his cash every month instead of twice a year. He is able to pay cash for what he buys, and consequently he is able to buy where he can buy the cheapest and get the lowest prices. He is a desirable customer to have.

DAIRY MARKETS.

ELGIN, Ill., Nov. 6.—Fifteen tubs offered at 23½c and refused; committee reported the market firm at 24½c.

CHICAGO, Ill., Nov. 6.—Butter—Extra creamery, 24c per lb; firsts, 20@22c; seconds, 16½@17½c; thirds, 15½@16c; dairies, choice to fancy. 20@21c; firsts, 18c; ladles, fine, 14@15c.

Cheese—Full cream, twins, good to choice, 11¾@12c; off grades,9@11c; Young Americas, 12@12½c; Swiss,10@13c; Limburger,10@11½c; Bricks, 10@12c.

Eggs—Market firm, the supply of fresh being small; such stock sold at 18@18½c, loss off and cases returned.

Bran—In fair request and prices steady at $12.50 per ton f. o. b. and $12.25 billed through.

Cattle—Several thousand less cattle arrived than the trade expected, and the quality was poorer than usual. All desirable native beef cattle sold 10@15c higher, and the commoner grades ruled strong to a shade higher. Exporters bought quite liberally at $5.60@6. Two 1,455-lb yearling steers sold at $6.75, and half a dozen loads averaging 1,293@1,390 lbs., sold at $6.50. Most of the natives sold at $5.30@6.15; corn-fed Westerns sold at $4 45@6.40; bulk, $5.50@6; Missouri, Texas, $4.50@5.05; straight fed Texas, 9.6@1,068 lbs, $4,65@4.75; grass Texas, 810@ 904 lbs, $3.55@3.85; native cows, $2@4.50, bulk $2.50@3.35; heifers, $2.85@5.50, bulk, $3.50@4.25; distillery bulls, 1,197@1,257 lbs, $4,15; stags, $3.75@5.10; veal calves, $6@7.50, and feeding cattle, $3.10@4.40.

MILWAUKEE, Wis., Nov. 6.—Butter—Creamery—Fancy prints, per lb., 23½c; extras, 23½c; firsts,22@23c; seconds,20@21c; imitations,19@20c; Dairy—Selections, 18@20c; lines, 16@18c; ladles 15@16c. Receipts light, being 7,185 lbs., while choice is wanted and prices are strong.

Cheese—American full cream—Oct. flats,11½c; July, Aug. and Sept., 11c. Limburger, 11@11½c; Swiss, drum, 12½@13c; block, 12½@13c; No. 2, 10½@11c. Market easy; receipts 7,600 lbs.

Eggs—Fresh, per doz., 16½@17c, loss-off cases returned.

FOND DU LAC, Wis., Nov. 6.—Offerings 838 Twins, and 715 Daisies; market easy at 11c for Twins and 11½c@11⅝c for Daisies.

MUSCODA, Wis., Nov. 6.—Offerings on the board today: 1,500 boxes of Twins in car lots sold at 11c; local lots at 10⅞c.

BRILLION, Wis , Oct. 27—Offerings were 1,200 boxes Daisies at 11¼c; 500 boxes Flats at 11¼c; 450 cases Young Americas, at 11¼c; and 40 cases Young Americas at 11½c.

HILBERT, Wis., Oct. 28—The sales to-day were 135 cases Young Americas at 11¼c and 136 boxes Twins at 11¼c.

PLYMOUTH, Wis., Oct. 31—Sales to-day 925 Twins at 11c and 285 Young Americas at 11¼c; market slow.

SHEBOYGAN FALLS, Wis., Nov.,—Fourteen factories offered 781 boxes of cheese on the Call board to-day and all except two lots were sold as follows: 370 cases of Young Americas at 11¼ cents; 155 at 11⅛ cents; 60 boxes Twins at 11 cents, and 140 Daisies at 11¼ cents. Market weak.

MANITOWOC, Wis., Nov. 1—Offers of cheese at the Dairy Board of trade to-day were: 500 boxes Daisies, 150 boxes Twins, 700 boxes Young Americas. Daisies and Twins sald at 11c; 550 boxes Young Americas at 11c; 150 at 11¼c.

BALTIMORE, Md., Nov. 6—Butter—Market firm. Creamery separator, extra, 25@26c; extra, first, 24c; creamery, first, 23c; creamery, imitation, extra, 19@20c; ladle, extra, 17@18c; Western store-packed, 13½@14c.

Eggs—Market firm; strictly fresh stock, 20@21c.

ST. LOUIS, Mo., Nov. 6—Butter—Firm; creamery, 19@24½c; dairy, 15@21c.

Eggs—Steady; 15c.

KANSAS CITY, Mo., Nov. 6—Butter—Creamery, 20@22c; dairy, 18c.

Eggs—Fresh, 15c.

CINCINNATI, O., Nov. 6—Butter—Steady; 25c.

Cheese—Steady; good to prime Ohio flat, 12½c.

Eggs—Firm; 17c.

NEWARK N. J., Nov. 6—Market steady, 25c for extra creameries Receipts increasing

WASHINGTON, D. C., Nov. 6—Market firm. Extras, 25c; choice firsts 23½c; fine imitations, 20c.

PHILADELPHIA, Pa., Nov. 6.—Butter—Solid-packed separator creamery, extra, 24½c; firsts, 23c; seconds, 19@23c; lmitation creamery, extra, 19@20c; firsts, 17@ 8c; seconds, 15@16c; ladle-packed, extra, 17@18c; firsts, 16c; seconds, 15c. Print butter, Creamery, extra, 26c; firsts, 25c; seconds, 20@23c.

Eggs—Pennsylvania and nearby, 22c; Western. 21@21½c; Southwestern, 20c; Southern, 19@20c.

NEW ORLEANS, La., Nov. 6—Butter market firm; 25c for high grades; others unchanged.

BOONEVILLE, N Y., Oct. 27—On the board to-day 40 boxes of large colored and 180 of white cheese were sold at 11c.

CANTON, N. Y., Oct. 29—To-day 1,600 boxes of cheese were sold at 11½@11⅝c; and 700 tubs of butter at 23c.

FULTON, N. Y., Oct. 29—To-day 18 factories were represented with 1,020 boxes of cheeee. Large sold at 11¼c. Small sold at 11½c.

OGDENSBURG, N. Y., Oct. 30—There were 1,573 boxes of cheese offered to-day, but no sales. The highest buyers would give was 11⅜c for Twins.

WATERTOWN, N. Y., Oct. 28—The cheese market to-day was very dull. Few buyers were present. The official and curb sales were: Large white, 500 boxes at 11½c; small singles, 500 at 12¼c; Twins, 90 at 12c.

UTICA, N. Y., Oct. 30—The sales of cheese on the Utica board to-day, as officially reported, showed a considerable falling off from those officially reported last week. The sales officially reported to-day were 7,337 boxes, about two-thirds of which were large and one-third small sizes. Prices for large were 11¼@11½c, and for small, 11¾@12½c.

The transactions on Nov. 2, 1896, were 4,431 boxes with the ruling price 9¾c. The transactions on Nov. 1, 1897, were 4,160 boxes with the ruling price 8c. The transactions on Oct. 31, 1898 were 4,944 boxes with the ruling price 8c.

There were 85 packages of butter sold to-day at 24½c.

LITTLE FALLS, N. Y., Oct. 30—Many factories have already closed, and more than half of all in this section will have done so before the close ot this week. The sales reported to-day were 3,673 boxes at 11@12c.

NEW YORK, Nov. 6.—Butter—Receipts, 5,505 pkgs; firm; western creamery, 17½@25c; June creamery, 17@23c; factory, 14½@17c.

Cheese—Receipts, 1,185 pkgs; quiet; small September fancy,12½@13¾c; finest October,12@12¾c; large September fancy,colored, 12¾@12½c; large October, finest, 11½c.

Eggs—Receipts, 7,524 pkgs; firm; western ungraded at mark, 14@18c.

NEW YORK MARKET.

NEW YORK, Nov. 4.—Butter—Receipts for the week, 25,138 packages; exports for the week, 685 packages. Market is about same as last week; receipts continue light; trade quite moderate and prices are firm all through the list. Special creameries, strictly fresh and fancy, sold to the trade (grocery) at 24c, but only a small proportion of the butter arriving pass this inspection, and a good many of the fresh creameries this week, sold at 23@23½c; fresh dairy make has about stopped coming, finest tubs sold at 22½@23c, and fair to good at 19@21c; imitation creameries in very light supply and wanted at 17@20c. We note sales of several hundred tubs of June make creameries at 21½c, and some lines of really fine quality at 22@22½c. Market closes with light stock of all grades of butter, and holders very firm. We quote: Creamery, extra,21½c; medium, 21½@23c; poor, 18@20c; dairy, extra, 22½@23c: medium, 20@21c; poor, 15@18c; ladle, extra, 17c; medium, 16@16½c; poor, 15@15½c,

Cheese—Receipts for the week, 28,316 boxes; exports for the week, 3,237 boxes. There is a firm tone to the market, but to do actual business lower prices than quotations have to be accepted. Exporters are out of the market, trade is light, and most of the trading done this week was for speculative account. October cheese are offered at 11½@12c, while fine September makes are held at one cent a pound higher. We quote: Full cream, large, extra, 12¼@12½c; medium, 11¾@12c; poor, 10@11c; small, extra, 12½@12¾c; medium, 12@12¼c; poor, 10@11c; part skimmed, extra, 10½@11c; medium, 8@9c; poor, 5@7c; skimmed cheese, poor, 5@7c.

Eggs—Receipts for the week, 41,059 cases. Arrivals of strictly fresh eggs are very light and demand good at full prices. Ice house and other grades are very plentiful at lower and irregular prices. We quote: New York, Pennsylvania and Western, strictly fresh, 21½@22c; ice house and other grades, 15@18c. DAVID W. LEWIS & Co.
177 Chambers St.

LIVERPOOL, Nov. 6—Butter—Finest United States, 96s; good, 73s.

Cheese—American finest white, 54s 6d; American finest colored, 56s.

BALTIMORE MARKET.

BALTIMORE, November 2. —Butter—The warm weather prevailing since our last issue has had its effect upon business in this line, and would have caused considerable disturbance in values under ordinary conditions, but at this time the shortage in the milk supply that was first manifested in Illinois, Iowa and Wisconsin has spread to other states, seems to be traveling east and is felt even here in Maryland dairying sections to such an extent that it prompts the prudent trader to look futher than the climatic condition of to-day and lay up something for a probable scarcer time. The receipts for all styles of fresh goods have been unusually light in consequence of this general shortage of milk, and as the temperature is against the moving of the supposed surplus of summer make stored in the west a fictitious scarcity is developed because of the inroads made upon storage goods in the east. All the receivers expect an increase in the current make shortly, to follow the increase of milk from fresh cows and the grain feeding of the farrows and strippers, so it is deemed unwise to advance the prices and thus, temporarily even, disturb a healthy, if light, consumptive demand absolutely essential with exports at such a low ebb. Store-packed and rolls have been in quick demand, and with the light supply in their favor, even the poorer grades are quick sellers.

Creamery separator, extras, 24c; firsts 22½@23c; seconds,20@21c. Creamery gathered cream extras, 21@22c; firsts, 19½@20c: seconds. 19c. Creamery, Ohio, extras,21@22c; firsts,19½@20c; seconds, 19c, Creamery Imitation, firsts, 17@18c; seconds, 15½@16c. Iowa & N. W. Ladle, firsts, 16@17c; seconds, 15c. Ohio & Indiana Ladle, firsts, 16@17c: seconds, 15c. Ohio Rolls, firsts, 15@16c; seconds, 14c. W. Va. Rolls, firsts, 15c; seconds, 14c. Ohio & W. Va. Storep'd, firsts, 15c; seconds, 13@14c. Creamery Blocks (2 lb.), extras, 25½@26c; firsts, 24@25c; seconds, 22@23c. Creamery prints (½lb), extras, 25½@26c: firsts, 24@25c; seconds, 22@23c. Md., Va. & Penn. Prints, extras, 21c; firsts, 20c; seconds, 18@19c.

Cheese—Receipts fair; demand good; market firm. N. Y. State—Cheddars, fine, 12½@12¾c; choice, 12@12¼c; fair, 11¼@11¾c. Flats, fine, 13@13¼c; choice, 12½@12¾c; fair, 12@12¼c. Small, fine, 13½@13¾c; choice, 13@13¼c; fair, 12¼@12¾c. Ohio—Flats, fine, 12¾@13c; choice, 12½@12¾c; fair, 11½@12c. Ohio Picnic, fine, 13@13½c; choice, 12½@12¾; fair, 11¾@12¼c. Skims, fine, 10@11c; choice, 9@9½c; fair, 8¼@8½c. Swiss, fine, 12@12½c; choice, 1.½@11¾; fair, 10½@11c.

Eggs—Fresh eggs have been in very light supply; the demand for this kind is active; all invoices of unmixed strictly fresh eggs have met with prompt sale at 20c; our market is not only firm, but quite bare of fresh stock, and we do not hesitate to advise liberal shipments of fresh eggs.
301 Exchange Place. G. M. LAMB & BRO.

Latest quotations for fancy creamery: Buffalo, 24c; St. Paul, 22½@23c; Minneapolis, 22½@23c; Detroit, 24c.

An "Alpha" Disc Cream Separator and good management means creamery success.

The use of any other cream separator and good management means the substitution of an "Alpha" disc machine very soon; or else it means a poor separator and poor management and certain failure.

One or the other of these results is as certain as the law of gravity, and while circumstances differ in different cases there never has been and never can be any other ultimate outcome.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Smallest size of dairy separator and car load clover hay. E. W. AMSDEN, Ormond, Fla.

Experienced cheese and butter maker wants position this winter. Address L, care HOARD'S DAIRYMAN.

For Sale—Ten new milch, grade Guernsey cows. RAY C. BICKNELL, Fort Atkinson, Wis.

Wanted—A first-class butter maker. Apply No. 16, care Hoard's Dairyman. 39-3

For Sale—One first-class Sharples separator, capacity 300 lbs. per hour. I will guarantee this machine to be in first-class order, having been run but five months. Reason for selling, have closed out my farm. Price $65. GEO. E. STICKNEY, Box 363, Boston, Mass.

Wanted—A first-class butter maker and dairyman. Give references and state wages. Address OLIVER G. GRIDLEY. Mycenae, N. Y. 39-tf

Attention—An experienced butter and cheese maker and practical farmer, with best of recommendations, and wanting to make change, would like a situation in dairy or creamery in the south or west. Give full particulars in first letter as to work, wages, etc., and answer, addressing No. 10, care Hoard's Dairyman. 39-2

At Half Price.—Bull calf dropped August 15, 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Tamworth boars. Also a good farm. Write at once. E. CLYDE HAMMOND, Cresco, Iowa.

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Get in on the Ground Floor.—This applies to two classes of people. Those who are interested for the purpose of investment or speculation, and those who for any reason desire to change their business locations. To any person in either class the new towns located and owned by the Chicago & North-Western Railway Company along its new lines of railroad now being constructed, offer the most tempting inducements. Prices of lots in these towns are still absolutely on the ground floor, and are sure winners either for investors or locators. The North-Western also owns nearly one-half million acres of splendid timber land, adapted to general farming, which is for sale at very low prices. Write for information to J. F. Cleveland, Land Commissioner, Chicago & North-Western Railway Company, Chicago. 38-2

Improved Train Service Between Rockford and Watertown and Waukesha and Milwaukee, via the North-Western Line. By the addition of new trains on the above line, passengers can now leave Fort Atkinson at 8:42 a. m., arriving Watertown at 9:30 a. m., and Milwaukee at 10:45 a. m. respectively, and convenient service returning. Commodious day coaches. For particulars inquire of agents Chicago & North-Western R'y. 38-3

Excursion Tickets to Football Game at Milwaukee, Wis., via the North-Western Line, will be sold at reduced rates, November 11, limited to November 13. The game will be between the teams of the Universities of Wisconsin and Illinois. Apply to agents Chicago & North-Western R'y.

Cedar Hill Jersey Notes.

ED. HOARD'S DAIRYMAN:— Just home from three days' work at farmers' institutes. I had the pleasure of meeting Prof. Holden, of our State Agricultural School, and was very much interested in what he told me of the college work.

When he told me things that his boys were learning in a day or week, it made me feel that I was born forty years too soon. What his boys learn in a day, my father never knew, while I have been half a life time learning many of them, and many of them I do not yet know. In my case I am always anxious to advance in any line of agricultural or dairy work, but I find the average farmer is not even willing to make the effort to attend the farmers' institutes that are being held for him at the government and state expense. From the car window on Monday last I saw thousands of acres of corn standing in the fields, corn that owing to late wet spring was far from ripe when frost caught it. It will not be corn that can go on the market, so must be consumed at the farms. If these crops of corn had been cut and shocked at once how much greater would be their value. As it is there will be but little value derived from the crop.

These same farmers refused to attend the institute and learn the value of corn as fodder or ensilage.

I visited the creamery at Mt. Sterling, and found that 100 pounds of butter daily was all that could be gotten in the surrounding country. The butter-maker told me that the cows in the country, owing to short pastures, had practially gone dry as far as any profit was concerned. If the farmers had fed these same cows some of the corn crop as soiling, that now is ruined, they would have realized as much for it as it would have been worth if it had matured good corn.

Rushville, in Schuyler Co., has added a new feature to its institute work and it is a good one, that is, to have an exhibit of corn, potatoes, pumpkins and other things. These representative grains and vegetables are scored by some one who is familiar with the work, making an object lesson very valuable. At Rushville Prof. Holden scored the corn and potatoes and was fully competent to give reasons for every point he made or cut.

After acting as traveling instructor in dairy, creamery and breeding work for some years, as the DAIRYMAN readers know, I have settled down for good. But now I find the thing is reversed. If I will not go to them they come to me, which is only a source of pleasure to myself and family. We are always willing to assist, and in visiting our farm the practical working of our system is readily seen and any good or weak points easily learned. We have now a weak point that is readily seen by any one at all familiar with ensilage or silos. It is in having a silo a great deal larger than our milch herd requires. We are daily compelled to take a large load of ensilage to our hog lot and to the pasture where our young stock is, in order to have ensilage that is fit for our cows. We want very much to economize our ensilage, but can not do so under the circumstances.

"BUFF JERSEY."

The Convention of Dairy and Food Commissioners.

(Farmer's Review Special Report.)

The National Association of State Dairy and Food Departments, which met in Chicago last week for its third annual meeting, after a series of most interesting and profitable sessions, adjourned to meet six months hence in the city of Milwankee. Hon. Levi Wells Dairy and Food Commissioner of Pennsylvania, was elected president for the ensuing year, and Hon. John B. Noble, Dairy and Food Commissioner of Connecticut, secretary and treasurer.

Among the resolutions passed by the associaton were the following:

Resolved, That this association hereby respectfully request Congress to enact a law providing that, when dairy, or dairy and food products are imported or brought into a state or territory, they shall immediately become subject to the laws of the state or territory, the same as though they were made or manufactured within the state or territory, and shall not be exempt therefrom by reason of being introduced in original packages.

Resolved, That this association hereby requests Congress to enact a law to prevent the false branding of dairy or dairy and food products as to the state in which they are or were produced or manufactured.

Resolved, That this association condemns the use of all preservatives in milk and cream.

Resolved, That this association recommend to the Congress of the United States, that the internal revenue tax on oleomargarine be increased from two cents to ten cents per pound.

Resolved, That this association emphatically favors the passage, by Congress, of a national pure food law, which shall place, substantially, the same restrictions upon the trafic in food proproducts in the District of Columbia, the territories, and in transit from state to state, as are now imposed upon the trafic in such products, by the states of Massachusetts, Connecticut, Ohio, New York, Michigan, Wisconsin and other states.

It was not a large meeting, but a representative one, as delegates from twelve states were present.

These meetings bring together commissioners from widely separated states, and afford them an opportunity which they greatly appreciate for an exchange of ideas and comparison of methods. Concerning the object and aim of the association, the retiring president, Hon J. E. Blackburn, Dairy Commissioner of Ohio, said in his farwell addsess: "I believe this association has reached a point where it is doing a great deal of good, and all I ask of you is, that each member will keep up the social relations that have been developed by this meeting, and in the future, before any one of us makes a decision on any vital question affecting a large number of commercial interests, let that man,



IOWA KING OF ST. LAMBERT A. J. C. C. 42807.

Broken to saddle and harness. Property of E. N. COBB, (Buff Jersey), Monmouth, Ill.



Round Silo 25 x 27 feet. Capacity 250 tons. Cost about $175.00.
Octagonal Silo 14 x 28 feet. Capacity 150 tons. Cost $350.00.
Erected by E. N. COBB, Monmouth, Ill.

before he takes up his pen to decide, write to all the rest of the members and see what their experience has been on that proposition."

Perhaps the most unanimous and strongly expressed conviction of this meeting was, that manufacturers of all articles, sold in original packages, should be required to label them for just what they are, so that the consumer could have the privilege of buying or refusing adulterated goods at his option.

Hon. E. A. McDonald, Dairy Commissioner of Washington, said: "When every package is strictly labeled, showing just what it is, we will not have any difficulty in placing our goods in foreign markets." Hon. William Mason, who addressed the convention on the subject of pure food, said, after relating some of the incidents of the pure food investigation made in Chicago by the congressional committee, of which he was chairman: "We have a duty greater than war, a duty to protect the consumer who is willing to pay, and a duty to the honest producer who is willing to make honest goods."

The subject of preservatives naturally received considerable attention. Mr. A. S. Mitchell, the chemist of the Wisconsin department, read an able paper on the subject, in the course of which he said: "The question of the injuriousness of salicylic acid has been decided beyond debate. It retards digestion. By far the greatest injury results from its use in bottled grape juice intended for invalids. The claim is frequently made that foods are sterilized and thus improved by preservatives. We do not want sterilized foods. Of the myriads of bacterial forms, but very few are disease-producing. If our alimentary canals were thoroughly sterilized we probably would not thrive. The argument that disease germs are destroyed by antiseptics, has no foundation. Diseases rarely get into the system through milk unless water has been added. The argument that you can prevent typhoid by the use of preservatives should have no weight with an honest milkman.

"In regard to boracic acid, the position is taken by a good many physiologists that it is a question whether or not small amounts of the most harmless of these boraric acid combinations should not be used in certain meats which cannot be very well transported, which are very prone to decomposition (especially fish), and that, when they do decompose, produce poisons such as ptomaines."

"Boracic acid is perhaps the least offensive of any of these preservatives as used in food. As to the demand for its use in foreign trade, I will simply quote from an editorial taken from the *Cork Constitution*: 'An effort will be made by the Irish members to prevent borax-cured bacon. The use of borax in milk is illegal at present on the good ground, according to medical opinion, that it is injurious to health.'

"Speaking of the preservation of game, you can go to the cold storage warehouses and find buffalo steak that is as sweet as it ever was in this world that has been there since the exhibition at the World's Fair. No. The process is practicable by the use of liquid ammonia and we don't need to use preservatives in our meats, butter or other dairy products.

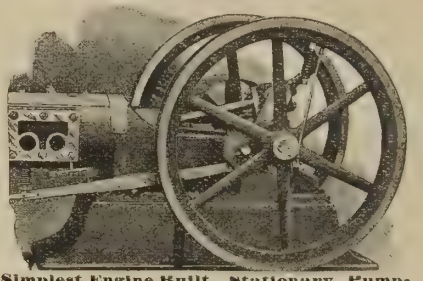
"Salt, though a mineral, differs from other chemicals in that it is present in the bodies of animals and is as necessary to health as food. Animals will die without it. They will not die without preservatives. An excess of salt is at once made evident to the consumer by the taste. Venders are the only ones deriving any benefit from preservatives.

"The incorporated society of medical officers of health in Great Britain strongly disapprove of the practice of adding chemicals to food, and agree that if such preservatives are used, a full disclosure should be made to the purchaser. Dr. Wylie takes the same stand. Dr. Prescott, of Ann Arbor, has also testified that preservatives are injurious.

Sodium sulphite is used considerably in chopped meat. The researches of Dr.

GARLAND STOVES AND RANGES
"The World's Best"
Sold by First Class Stove Merchants Everywhere.

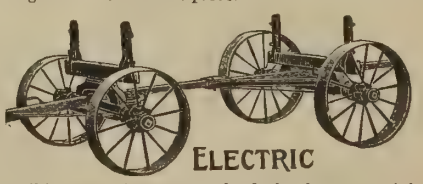
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Jacobi demonstrated that it was not regarded as an innocuous substance, as it produced blood poisoning.

"On the question of formaldehyde, Sanborn states in the account of his experiments that it retards digestion.

"Mr. Taylor, of London, states that when formalin is added to milk casein it was found difficult to be dissolved; that is, that the casein becomes so much harder to dissolve that a strong mineral acid refuses to dissolve it readily."

Cottage Cheese.

What to do with the skim milk, is about the biggest unsolved question before the dairyman at the present time.

Not everyone has the conditions or the market for disposing of his product in the manner described in the following article, but there must be a few who could find a profitable market by following the methods here given:

"In a previous letter, mention was made of the butter making operations of Leslie Fuller, Bramans Corners, Schenectady County, New York. In a letter received from him since then, he gave an account of his method of converting skim milk into cottage cheese, which he is able to dispose of at a good price.

Mr. Fuller uses a portable creamery and practices the Swedish system of cream raising, therefore his skim milk is sweet and in the best possible condition when drawn from the creamery and from under the cream, thus producing the final separation of the cream from the milk.

He has a small, almost miniature cheese vat, made on nearly the same general plan of large self-heating vats used in large dairies and small cheese factories. The milk vat is made of tin and sets in a galvanized iron water vat.

The heating is done by a kerosene oil lamp with three burners, but to save time the water to fill it is first heated on the cook stove.

The skim milk from the portable creamery is put into the milk vat before breakfast, and a kettle of hot water is poured into the water vat. The morning's skim milk is allowed to stand in the milk vat till evening, then the skim milk of the milk set in the morning for cream raising, is drawn from under the cream and put into the milk vat, and at the same time the buttermilk from that day's churning is also put in. Then another kettle of boiling water is put into the water vat.

By the morning the contents of the milk vat is curdled, then the water is drawn off from the outer vat into kettles and used for heating, and by the time the milking is done the water in the kettles is boiling hot, and is again poured back into the water vat.

Then the lamp is lighted, the burners turned low, and the lamp placed in position, at which time the family go to breakfast. Soon after that meal is finished—say ten or fifteen minutes—the temperature of the water is up to 110 degrees, and the lamp is then turned out. But before that time, or as soon as the milk room is reached, after breakfast, the curd is cut in inch cubes, which allows the whey to separate from it. The whey is dipped into a large pail and emptied into a flour sack. The latter is held over a large pail till most of the whey runs out, when the sack is hung up two hours to allow the whey to more completely drain out.

Now it will be seen that the milk vat is again empty. The skim milk from the portable creamery, *i. e.*, that from the milk set for cream-raising the evening before, is put into the milk, and the operation gone through six times each week.

On Friday, the day before the cheese is to be delivered, there will be six sacks of curd. They are then cut into small pieces and worked by the hands, something like mixing bread, as Mr Fuller expresses it, and salt is at the same time mixed in. The salting is done by taste, but by weight would, to the writer, seem a better way. Mr. Fuller thinks a machine for grinding the curd would be an improvment.

After the curd is salted and mixed, it is moistened just enough with sweet milk to make the bits of curd stick together, when it is formed by the hand into balls, though Mr. Fuller is thinking of getting a mould for that operation.

These balls of cottage cheese weigh a little more than three-quarters of a pound each—or about ten pounds to the dozen.

They are then packed into boxes four inches high inside, with hinged covers, nicely painted outside. Each time, before packing the balls in, the boxes are lined with white wrapping paper. A large printed label is pasted on the cover of each box.

Mr. Fuller has four customers at Amsterdam, N. Y., eleven miles from his home, to which he delivers the cheese every Saturday, and finds the demand greater than the supply. One of his customers keeps a meat market and the other three are grocerymen. One of his customers wanted the entire production, but Mr. Fuller prefers to distribute it through the city.

Mr. Fuller estimates that his skim milk made into cottage cheese brings him $1 per hundred pounds. Then he has left the whey, which, mixed with middlings, makes excellent feed for hogs and hens, and by putting in a little oil meal makes a fine feed on which to raise calves. He can truthfully be called a manufacturing farmer.—*Metropolitan Farmer*

Does It Pay to Feed Liberally?

(Press Bulletin.)

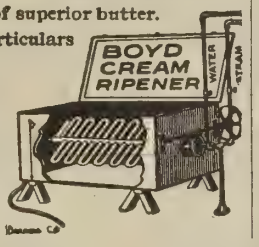
At a Farmers' Institute, Tonganoxie, Kansas, a dairyman gave in his report on producing milk for the Kansas City market from common cows, picked up through the country. So far as possible these cows were fresh in the fall. During the winter they receive a ration consisting of a mixture of fourteen to sixteen pounds of bran and corn meal and what clover, hay and sugar cane they will eat. In summer they receive in addition to pasture and soiling crops, four to five pounds of bran. By this system of liberal feeding, a two year's record shows an annual income per cow of $70.99, the milk being sold at an average of eight cents per gallon.

Last year at the Agricultural College our best cow cost us $32.80 for feed, the highest of any cow in the herd and about $3.50 above the average of the herd, and yet the profit from that cow over the cost of feed was $24.12 above the average of the herd. Does it pay to feed liberally? With a good cow it surely does Had the herd referred to above, or the best cow at the Agricultural College been stinted in feed, it would have been an extravagant piece of economy that would have resulted in a diseased pocket book. The dairy cow is a hard working animal and should be fed accordingly. D. H. Otis.

Kansas Experiment Station.

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The Best Washing Powder.
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Write for full particulars at once.
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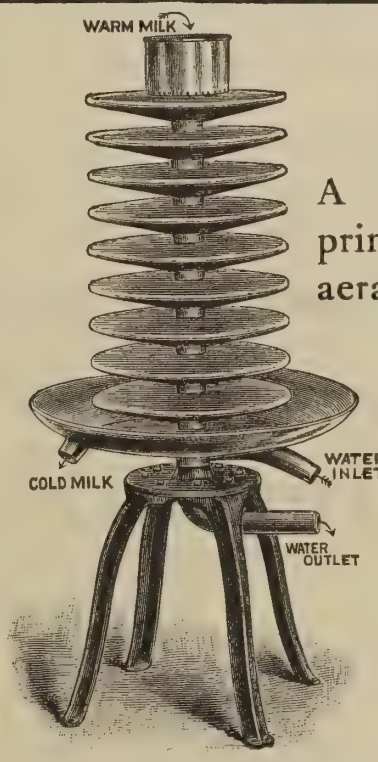
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They have largest possible capacity with minimum power Crush and grind corn, husk on and all, and all small grain singly or mixed. Have self-sharpening plates. Free—Catalog 1.
FOOS MFG. CO., Springfield, Ohio

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The NATIONAL Cream Separator

In buying a Separator you want the best. The *National* is the closest skimming and the lightest running Cream Separator in the world. Substantially built, readily cleaned, and easily managed. We will send you a *National* on Ten Days' Trial, and if it don't do just what we claim, ship it back at our expense. Try it in competition with any other make, and judge for yourself. Send for our free catalogue.
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A milk cooler built on scientific and correct principles. Cools more milk in less time and aerates it more thoroughly than any other cooler.

REID'S NEW CIRCULAR Cooler and Aerator

has the greatest cooling capacity, the most perfect circulation of cold water and scientific method of aeration. It is the simplest in construction and easiest to clean.

REID'S CORRUGATED MILK COOLER still leads all other coolers of its class for efficiency, convenience and economy of space.



Write for circular and catalogue of creamery supplies.

A. H. REID, 30th and Market Sts., PHILADELPHIA, PA. and CEDAR RAPIDS, IOWA.

The Manufacture of Hand Cheese.

ED. HOARD'S DAIRYMAN:—Can you let us know in your paper how to make hand cheese in large quantities? The market for the same seems to be very good this time of year.

We have been trying to make them by the guide of Monrad's A. B. C. in cheese making, but this book is hardly plain enough. If you have a better formula (or book) please let us have it. E. G.

Topeka, Ind.

[Answer by J. H. MONRAD.]

A large number of cheese, such as "Harzer," "Thuringer," "Dresdener," "Beer cheese," "Mainzer," and many others must be classed under the common name of "hand cheese," (to which also belongs the Danish "Appetit" cheese.)

The skim milk is mixed with the butter milk in a heavily tinned cheese "boiler" and thoroughly stirred. The temperature should be about 90° F., and the mixture is left for twelve to eighteen hours (*never* in a copper boiler not properly tinned, as that may poison the milk.)

The next morning it is heated to 122° under *constant* stirring for one to one and one-half hours, after which the curd is left for two hours in the boiler (swung off the fire) to separate. The whey is then removed with a syphon, without otherwise disturbing it, allowing the curd floating on top to settle slowly.

When the whey is removed, the curd is placed in a trough (curd sink) to cool, whereby it loses its sticky character. (No temperature given.) It is next ground in a curd mill (very unlike those used for cheddar cheese making) which consists of two smooth wooden or stone rollers, running at a different speed, so fixed that the space between them may be regulated. Underneath the mill is a canvass carrier, which sends the ground curd to the press.

Salt (3 to 5%) and "caraway" (1-5 to 1-2%) is added while the curd is ground.

The press is a large, square box, with a leverage pressure, in which a strong canvas bag fits, and here the curd is spread evenly. The pressing takes, as a rule, a day, but it is essential to watch that the curd does not get so dry that it will not hold together if pressed in a ball by the hand.

The forming is mostly done by hand, but lately machines have been invented. To make the flat, round cheese (like the Mainzer hand cheese) tin hoops of the same height and diameter, as the desired cheese, are used. These are placed on a board, and a lump of curd is thrown in and pressed and smoothed evenly with a knife, after which the hoop is removed and the cheese left to dry.

Long, round cheese, like the Dresdener, Beer and Thuringer caraway cheese are rolled by hand on a smooth board, and, after forming, dried on a plank in which there are half round grooves corresponding to the diameter of the cheese, and by turning them the round shape is maintained.

To form the long, rectangular cheese, like the "Berliner cow cheese," a long frame is used, into which the curd is filled, and after it is partly dried, it is cut in narrow strips.

The drying of the cheese is done in summer in the open air, otherwise in warm rooms. Small sheds, covered with roofing paper, are used in the open air, and these should not be wider than the length of the drying boards, and not larger than seven feet high and thirty feet long. They consist of posts on which are nailed the slats on which the drying boards rest. The slats commence about twenty inches from the ground and are about four and one-half inches apart. On the long side, and one end, the space between the slats may be closed with loose boards to protect against rain and during the night.

Ventilation must be provided in the heated winter rooms, so as to remove the moisture, which will otherwise become slimy and mouldy, and these rooms are provided with stands to hold the drying boards; but these stands must not be close to the walls, as the air should circulate freely.

The cheese should be partly dried, from six to twelve hours in the molding room, which should have a temperature of from 53° to 57°. Then they are kept six to twelve hours in the first drying room, which is kept at about 86°, and after that in the second drying room kept at about 110°.

In the latter they are kept until they break in two easily, but yet are not so dried that they show a hard, glossy consistency. The time depends on the size of the cheese and the more or less original dryness of the curd. While drying, the cheese is turned once or twice; this is done either by hand singly, or by having a spare drying board and placing this firmly on top of the cheese, turning the whole board at a time.

After the drying, comes the ripening in the cellar. Experience has shown that a better cheese is obtained and dry mold is evaded when the cheese are washed.

Soon after they are moved from the drying room to the cellar they are covered with a grayish dirty slime and become dark brown. If a fine golden yellow color is desired, they are dumped into a vessel filled with water and stirred by hand; this removes the gray slime. After this they remain in the cellar until they get a thin yellow skin, when they are packed and shipped.

The worst enemy of these cheese is the mold, dry and wet, the latter being much less dangerous, as it only adheres to the outside and is easily removed.

The dry mold attacks the cheese which has not sweated (developed a shiny cover), but may be prevented in most cases, by washing. If it should nevertheless occur it is a sign that the room is too full of mold spores and this must be thoroughly disinfected by closing doors and windows air tight, and burning a few pounds of sulphur. After the sulphurous acid has acted for a few days, the walls should be whitewashed, and all drying boards cleaned in boiling water.

The various kinds of cheese receive for 100 pounds of curd the following addition:

"*Olruntzer Beer Cheese*," in summer, 5 to 6 pounds; in winter, 4 to 5 pounds salt.

"*Mainzer Hand Cheese*," in summer 4.5 to 5 pounds; in winter, 4 pounds salt.

"*Dresdener Beer Cheese*," in summer, 4 pounds; in winter, 3.5 to 4 pounds salt, and 0.5 to 0.6 pounds of carroway seed.

"*Harz Cheese*," in summer, 4 pounds; in winter 3.5 pounds salt, and 0.2 to 0.3 pounds of carroway seed.

"*Berliner Low Cheese*," in summer, 4 pounds; in winter 3.5 pounds salt, and 0.2 to 0.25 caraway seeds.

Other kinds are flavored with thyme, pimento, hops, etc.

The curd mill and press box as well as a small hand form for single cheese (which looks like a lemon squeezer) may be bought of M. Steiger Frankfurt, A.M., Germany, and for an extensive manufacture there is a molding machine, turning out 3,000 cheese per hour. The pressed curd is salted and flavored in a mixer and then worked in the machine which reminds one somewhat of a drain tile machine. It cost in Germany about $300 and I presume sixty per cent must be added for freight and duty. It is made by P. Fraiser Grosz, Gerau Hessen Darmstadt, Germany, and is claimed to do with two men what otherwise took six to seven men.

It will be seen that these cheese require quite an apparatus and a great deal of patience, but like all other cheese, they are also make quicker of a more or less (generally less) good quality.

The Danish "Appetite" cheese, another form of hand cheese and the only one which I have made personally is made as follows: Take half skim milk and half buttermilk, heat it to about 95° and let it coagulate. Then heat it under constant stirring to 125° and strain the whey from

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An **Ideal Dairy Sire**, carrying 75% of the blood of **PEDRO 3187.**
R. C. GREEN, Albion, Wis.

Marquilla's Major 40804.
SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
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$50 **A BULL CALF,** solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month, 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR. Solid color, well grown, robust. Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. - J. P. BRADBURY, Pomeroy, Ohio.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

PAIR POLLED JERSEY CALVES.
Yearling heifer served Oct. 4, '99. Bull calf born July 22, '99. Price $150.00 f. o. b. Write to
JAMES R. ORR, Cedarville, Ohio.

FOUR SOLID COLOR BULL CALVES
out of tested Dams, and sired by Diploma's Combination, sire of two tested cows.
Also a few heifers for sale.
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ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Registered Jersey bulls from 10 to 20 months old. Sired by Ida's Rioter of St. L. 18th, No. 42252, and Le Brocqo of Clearview, No. 45794. These are all prize winners at all the Fairs showed at this fall. Do not write unless you want a calf. CLEARVIEW STOCK FARM, J. S. CAMPBELL, Prop., Butler, Pa.

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First Check for **$60** GETS HIM!
Eurotas blood close, also through Rampo 4679. All dams for five generations tested. Seven months old. Solid fawn; all black points. Young bulls cheaper for 30 days. Must sell for lack of stabling.
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Brown Bessie Herd.
RECORDER 29239 son of **Brown Bessie** and Diploma 2nd 36374 are head of the herd. A few choice grandsons and granddaughters of **Brown Bessie,** from tested dams, are offered. Also cows bred to above bulls. Write for printed pedigree. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

FOR SALE!
Grandson of the Greatest Sire of Butter Cows,
Exile of St. Lambert 13657
Now Sire of 79 Tested Daughters.
Solid fawn color; ten months old, and a good individual. His dam has a test of 15 lb. 8½ oz. of butter in seven days.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
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out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

JERSEYS.
Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

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640 ACRES Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

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A. J. C. C. Bull Calves
Sired by Chilton of St. Lambert 39689, by Matilda 4th Sire out of Ida's Alpha, test 25 lbs. 15¾ oz. in 7 days. For description, etc., address
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JOLIET, ILL.
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A. J. C. C. BULL CALF FOR SALE!
Dropped Aug. 2, 1899. Solid color; black tongue and black switch.
SIRE:—A full brother to Exile's Lulu 49948, that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test.
DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

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Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
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SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720, Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry.** W. B. HARVEY, West Grove, Pa.

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

the curd (may hang the latter in a bag to drain.) Then place the curd, after kneeding it fine, in a trough or jar, in a warm place, (about 85 or 90°) where it will ferment. It will become yellow on top and rise like bread dough, and every day it should be kneeded well, once or twice. In from four to eight days it has acquired the desired sharpness and is then salted and flavored (caraway seed) to taste and formed in little cones (like the Swiss Sap Sago) weighing one-third or one-half pounds. As molds, common little flower pots may be used. The cheese is dried in a few days and put on the market. J. H. MONRAD.

Winnetka, Ill.

Dairy Work in the Maritime Provinces.

A Difference in Dairymen.

ED. HOARD'S DAIRYMAN:—The unexampled fine weather that has prevailed in the Maritime Provinces during the autumn thus far, has greatly benefited the cheese industry. The temperature in the curing rooms has been kept up without the aid of much artifical heat, and cheese makers were free from guarding against the common sudden changes of temperature usual at this season. Curing rooms need to be kept at 60 to 65° at this season. The neglect of this precaution, by a few makers, has caused some very soft goods to be placed on the market. Several thousand boxes were boarded at Charlottetown (the only cheese board in the Maritime Provinces) last week, but few sales were made. Sellers asked 11⅝ cents, but only a few hundred boxes were sold at this figure, buyers not feeling justified in paying the price It is said that some cheese buyers in these Provinces made a lot of money this season, there being a steady raise in the market every month since May. One buyer, who held his purchases for a month, made a clear gain of two cents a pound, and gains of one cent to one and a half were common. This was a season when it would have paid the co-operative factories to ship on their own account; this few, if any, did.

It is wonderful the contrast that may be observed in the management of two dairies on either side of the fence; this was brought home to the writer very plainly only a few days ago.

Two men living side by side, having six cows each, one was furnishing 120 pounds of milk to the factory daily, while the other was sending but sixty pounds. Having business with these two farmers, I sought to find out the reason of this. At first I was led to believe that the one had his cows calve in the late summer or autumn, while the other's cows had calved in spring. Such, however, was not the case. The cows of both adjoining farmers had calved in the spring. The difference in the amount of milk furnished by each of the farmers, lay in the care given the cows.

The man who furnished daily 120 pounds, had his cows in at night, since the beginning of October, while the other never had his cows stabled at all. One was feeding heavily of a luxuriant patch of fodder corn, while the other had no corn at all. One supplemented his corn fodder with sheaf oats and about a peck of raw potatoes, fed in the stable night and morning, while the other, though having large quantites of both sheaf oats and potatoes, never fed any to his cows.

The one was making about $1.20 daily from his six cows, while the other was hardly making sixty cents from his six, and yet the latter knew what his neighbor was making, and what he was feeding, and the care he was giving his cows; still his eyes were shut to all this.

He will soon, if not already, drop off from the factory, and begin drawing his potatoes several miles to market on a soft earth road, for sixteen cents a bushel, and feed his oats to these horses while doing the hauling.

Another farmer whose place I was at, said; "Dairying has been a God-send to me at least. As you see, I live fifteen miles from the nearest market. Before the factory was started here three years ago, I grew large quantities of oats and potatoes. I used to haul the potatoes to market in the following January after cropping, but the quantity I used to lose by rot was pretty large, almost every year. Sometimes the price would be good at this time, and often the price would hardly pay for the hauling. If I could have my potatoes early in spring, the price then would be pretty good, but owing to the distance and bad roads at that time, I could not do that. I used to raise large quantities of oats, some of them I would sell in the spring of the year for seed, but in most cases I would have to haul them fifteen miles to market, getting for them, the past ten years, an average of about twenty-eight cents per bushel, killing my horses, and losing my own time, when I should be working on my farm. Now I do not do this any more. The factory has changed all that. I have not drawn a load of oats or potatoes to market for the last three years. I now take my light wagon and drive once a month to town with my milk check to get it cashed at the bank, and purchase my necessaries. I now put in all my time on the farm. I feed very much less oats to my horses, as they do little heavy hauling. Everything I raise, except wheat, I feed to the cows. I have fourteen. Our factory opened for work June 1st, and so far (Oct. 15th) my milk amounts to $250, and there are seven months yet to go on, as we are putting in a creamery plant in our factory this fall. I have no silo, but shall depend for feed for my cows principally on sheaf oats, clover hay and marsh hay. I do not thresh my oats now, only a little I need for seed, and some for the horses. I shall also feed large quantities of mangels. I do not raise many potatoes now, mangels taking the place." J. A. M.

There Are Many of Like Mind.

Mr. Geo. E. Pike, of Gouverneur, N. Y., writes us Oct. 27th as follows:

"GENTLEMEN:—The copy of the "Dairy Calf—Breeding and Raising" came by mail, the copy of Prof. Henry's new book by express, and now our feeding problem is answered in this week's issue of the DAIRYMAN. We appreciate your kindness very much. Your friends in this section are numerous as is evidenced by your increasing subscription list.

I cannot see how any man who has a mortgage on his farm, can afford to get along without the DAIRYMAN, and I am sure such farmers as are free from debt of their own endeavor must be subscribers This is not taffy, but an honest opinion from one who tho' not a farmer himself, is intensely interested in agricultural pursuits. We hope other St. Lawrence Co. farmers may get as much help from you as we have already received."

A Change of Seed.

What I want to say now is this, that so far as I can learn, and I will give you abundant proof in a moment, the sowing of seed in a new locality, a locality new to the seed, brings out the tendency to variation, evidently by the plant trying to adjust itself to the new conditions. If it succeeds in this effort, it becomes a suitable plant and suitable variety or strain for that locality. I have heard a great deal about the advantages of a change of seed; but indiscriminate change of seed is a dangerous practice; and the theory that seeds necessarily run out and require to be changed from locality to locality, is misleading.

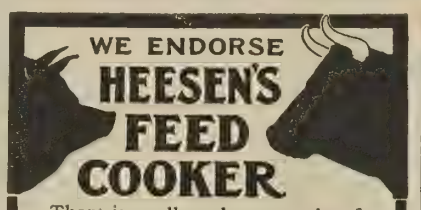
Selections of seed from the best quality and most productive variety or strain in the locality, as seed for that locality, is the right plan and practice.

Now, I want to give some evidence.

I spoke of the effect of a change of conditions—the effect in producing variations. That is admitted everywhere—everybody knows it. Since that is so, how can the variation be controlled into a direction that will leave the most profit for the farmer? That is the point. The selection of seeds from plants which have adapted themselves to the conditions in which they are to grow, will give a crop which becomes superior, and better able to adapt itself fully to the conditions of that place, the longer the selection is continued from year to year. A selection of seeds from heavy yielding crops year after year in the same locality, will yield larger crops than by any other method or practice known in the handling of seed.

PROF. ROBERTSON.

In the above Prof. Robertson brings out a most valuable truth for the consideration of every farmer. The old question, "Is the seed adapted to the locality?" seems to be ignored by many farmers in their haste to try seeds from a distance. A much better way is for each farmer to select his seeds from the strongest growing specimens on his own farm, that show by their strength that they are fully at home on that soil. Seed corn should be selected, not by the appearance of the ear alone, as many do, but by the strong vigorous character of the parent stalk. Every farmer can greatly increase the productiveness, of his timothy for instance, if he will go through his meadows before cutting, and select the heads from the strongest growing stools, sow this and pursue the same plan the next year. In a few years he will have a seed that will delight him. The same plan can be pursued with all grains and grasses.


WE ENDORSE
HEESEN'S FEED COOKER
There is really only one cooker for the practical farmer—that is, if he wants the most economical in first cost, fuel and repairs; the most durable, convenient and simple; the quickest in heating, and absolute full measure—that is the HEESEN. If you don't believe it, let us send you our booklet on what a feed cooker should be. *We absolutely guarantee satisfaction.* Seven sizes—15 to 70 gals.
Sold only direct from factory to farmers.
HEESEN BROS. & CO.,
26 High St., Tecumseh, Mich.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON. Monroe. Wis

SHORT-HORNS
Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale. Write or come and see us.
WALTER LITTLE, Janesville, Wis.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.



The Tinned Steel Milk Cans
MADE BY THE
Buhl Stamping Co.,
Are the easiest to clean and last the longest. Write for our hand book,
"A STUDY IN MILK CANS."

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

HOLSTEINS FOR SALE. 123.
...vy milking Cows, fine Heifers and richly ...d Bulls ready for service at very reasonable prices, high quality considered. Write now stating just what you want to
DELLHURST FARM, Mentor Ohio.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis


Registered Holstein-Friesian Cattle. Best families of the breed, Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¾ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

READY NOW
A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,

MEADOW LAWN HERD
Holstein-Friesians.
Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them.
C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN CATTLE
Owned by JONES & RANDALL, Hustisford, Wis. 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

5 HOLSTEIN BULLS 5
For Sale, ranging from 10 months to 2 years old. Two of these animals from dams with records of 60 and 71 lbs. milk in one day, testing respectively 4.5% and 3.6%. All of these bulls are exceptionally well bred and will improve any herd that they head. Will be sold at reasonable prices. Choice Chester-Whites for sale. W. R. GATES, Fort Atkinson, Wis.

Prices Greatly Reduced
On account of lack of stabling for bulls, we will offer in the next 30 days five yearling Holstein-Friesian bulls and 15 bull calves at prices within reach of dairymen. Cow men who are in need of bulls and appreciate high quality of stock, and strive for improvement, should take advantage of this opportunity, as over 20 head, young stock, mostly bulls, sold from this farm, at an average of $100 per head this year, going from New York to San Francisco and Mexico. Write for pedigrees and prices, or visit if possible. VALLEY MEAD FARM, Monticello, Wis.

HERD OF
Holsteins For Sale.
Thirty head of registered Holstein-Friesians, all females except the bull at the head of herd, for sale on easy terms on five years' time if desired, with equal annual payments at 5 per cent interest, or will rent herd to responsible and experienced parties. Correspondence solicited.
ALPHEUS M. SMITH,
100 Washington St., CHICAGO, ILL.

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

Cow Pea Vine Hay.

ED. HOARD'S DAIRYMAN:—The cow pea merits consideration as a hay producing plant. Of the many legumes adapted to southern conditions, this one stands peerless as a forage or hay yielder, as—

1. It makes an enormous growth of vines.

2. It may be termed a "sure crop" and a prolific yielder of a hay marvelously rich in protein.

3. It is thus superbly adapted to the production of muscular energy, milk, and flesh in the various classes of domesticated animals.

There are many varieties of cow peas. Those best adapted for hay are the Unknown, Blackeye, and Whip-poor-will. Cow peas may be divided into two general classes: Runners and bush varieties. The runners are especially valuable, where the crop is to be pastured off the land by hogs or other live stock, or plowed under. The bush varieties are especially useful for seed. The running varieties are valuable for hay when bulk is considered, but they are difficult to harvest, owing to the tangled nature of the vines. If planted early in the season the bush varieties will produce a vigorous growth of vines, and as they are upright in growth, they are much easier to harvest and cure into hay.

The cow pea is a gross feeding plant, and as many of our clay subsoils are stiff, the land should be deeply broken and thoroughly pulverized. A fine tilth is of the utmost importance in any soil. The amount of food in the seed is limited, but this must suffice until the plant establishes itself in the soil. The failure of cow peas on some soils may be traced to indifferent preparation. As the cow pea is a heavy feeder, it draws freely on the phosphoric acid and potash of the soil. It is necessary, therefore, to supply these fertilizing elements in a liberal manner, especially on thin lands, which it is proposed to improve systematically. We advise the use of 200 to 400 pounds of Tennessee acid phosphate, and 50 to 100 pounds of muriate of potash, per acre. On soils rich in potash, the use of superphosphate, since the plaster in it unlocks the potash in insoluble compounds, alone may suffice Many of our stiff clay soils would for the same reason be greatly benefited by lime.

Two methods of sowing cow peas present themselves: First, broadcasting; second, drilling. For hay we prefer to drill eighteen to thirty inches apart. In this way we can distribute the seed more evenly, and the peas are more inclined to bunch and consequently do not mat so badly as when broadcasted. When broadcasted they serve to smother out weeds in a very effective manner. Whatever method is followed, the aim should be to leave the land as level as possible after seeding. This is very important as it enables the mower to cut closer, and the hay will be cleaner. The amount of seed used will vary from four quarts to two bushels, depending on the method of sowing practiced. We advise the use of plenty of seed. We have known of many failures and of some very poor crops, which resulted from stinginess in this particular. It is important to have the stems fine, as this makes much better hay.

Cow peas are ready to make into hay when the lower leaves and pods show a yellowish tinge. They may be used as a soiling crop, before this stage is reached. If the crop is allowed to stand longer, the leaves become brittle and the stems hard and fibrous. As a result, the latter are less digestible and not readily eaten, while the loss of leaves or pods would be particularly serious, as they are richest in protein.

When the right stage is reached for hay making, we prefer to cut down a considerable area, and allow the peas to wilt in the sun. The next step is to rake up and put in large cocks from ten to fifteen feet in diameter. The pea vines should now be left to heat and cure in these cocks. If cocked when they are rather green, it is generally necessary to partly open the cocks once or twice, and let the surplus moisture evaporate. If proper care is observed, there will be little difficulty in fair weather, in making a first-class quality of hay. As it may take several days for curing, it is well to use large hay caps to protect the cocks. These are preferably, of paper, and can be secured at a small cost. In case these cannot be obtained it will be well to use a quantity of rough grass, straw or hay to cover the cocks.

There are some who claim that cow pea hay can be made in a simpler manner, namely, to cut the hay, allow it to partially wilt, and then draw it to the barn and store it in large bays. It is there left to heat and cure, the great mass having sufficient weight to exclude air, on the principle of silage. There is some danger, however, of fire-fang, and even of fire in the barn from spontaneous combustion, as has been shown in several well authenticated cases. The first method is preferred at this station. Cow pea hay is not more difficult to make than good clover hay, where proper precautions are observed.

The yield of cow peas varies from 20,000 to 35,000 pounds of green vines per acre, and from three to five tons of cured hay, depending on the soil, season, etc. It has been estimated that average crops of cow pea hay, oats and corn yield about 3,800, 1,600 and 1,200 pounds of digestible matter respectively per acre. It thus appears that cow pea hay furnishes almost twice as much digestible matter per acre as an ordinary crop of corn and oats combined. Nor is this all. It would require a yield of three hundred bushels of oats, including straw, and 175 bushels of corn and fodder per acre to produce the protein in an average crop of pea vine hay.

To bring this matter more clearly before the reader, we present the following table showing the digestible constituents in one ton of the following well known food stuffs:

		Digestible.			
	Dry Matter.	Protein.	Carbohydrates	Fat.	Nutritive Ratios.
	lbs.	lbs.	lbs.	lbs	lbs.
Legumes.....					
Alfalfa.....	1832	211.6	746.6	27.6	1:3.6
Cowpea.....	1786	215.8	768.0	30.2	1:3.9
Red Clover.....	1694	131.6	707.0	33.2	1:5.9
Hay from.....					
Orchard Grass.....	1802	95.6	838.0	28.0	1:9.5
Timothy.....	1736	57.8	874.4	28.6	1:16 2
Ky. Blue Grass.....	1576	95.2	746.6	39.0	1:8 9

This shows that cow pea vine hay is not excelled in feeding value by any of the closely related legumes. It indicates, also, that the hay when fed alone is too rich in protein to give the best results. It should, therefore, be mixed with some coarse forage

DROPPED DEAD.

The man with heart trouble never knows when his time may come. When he leaves home for work he may never return alive. He may drop dead on the



street, in his pulpit, in his office, over his work bench. Heart disease is no respecter of persons. The Christian minister is liable the same as anyone else.

Rev. C. L. Mundell writes:

"I suffered from that dreadful tired feeling and weakness, and in 1893 I lost my health altogether. I went to one of the best doctors in the state and he said I had heart, stomach, liver and kidney trouble. His treatment did me no good. I tried different kinds of patent medicines but got worse all the time. If I walked up hill or a little fast it seemed as though my heart would jump out. I had almost given up all hope, and my money was all gone; was scarcely able to make a living. Finally I wrote Dr. Pierce and following his advice I purchased at my nearest drug store a bottle of Dr. Pierce's Golden Medical Discovery and a bottle of his 'Pleasant Pellets.' This was a year ago and now I am happy to say that I am in the enjoyment of perfect health. I am so glad of my health that I cannot say too much. I first return my sincere thanks to Almighty God and then to Dr. Pierce.

"I would not do without your 'Pellets' for *one hundred dollars ($100.00) per month.*

"Do not think I am exaggerating. My statement is true and if any doubt it they can write to Pinegrove, Ohio, where I live, and if any should think this an assumed name and that such a man as *C. L. Mundell* does not exist, they may look in the minutes of Providence Association, or in the Baptist Year Book, in the list of Elders, and they will find my name."

Constipation and Biousness are radically cured by Dr. Pierce's Pellets.

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

IT'S AS GOOD AS ANY AND BETTER THAN MANY.

Alderney Butter Color.

FREE FROM ALL SEDIMENT.

DOES NOT FADE.

ALWAYS UNIFORM.

GIVES PERFECT JUNE TINT.

Samples Sent Free to any Buttermaker.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO, No. 14 North Clark St. BOSTON, 98 Commercial St. PHILADELPHIA, 109 So. 2nd Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

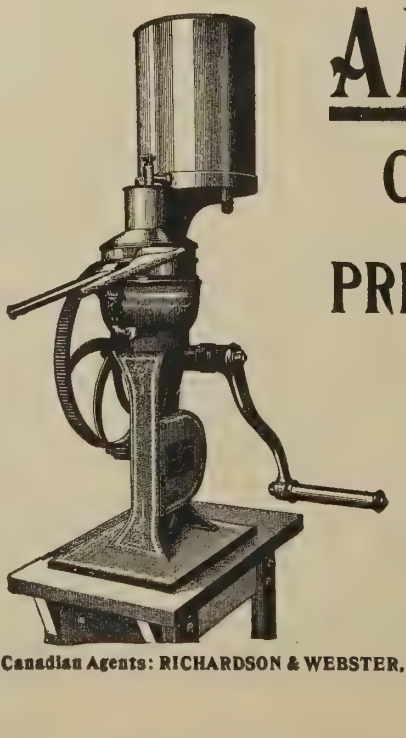
Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York. Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

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First Premium and Diploma at the St. Louis Fair, as the . . .

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or grass, or a large portion of the protein will be lost, because of the inability of the animal system to assimilate it. Its value as a hay on the Southern farm is unrivaled, and for the purpose of growing young stock it is without a peer. These facts should enable us to more thoroughly appreciate the merits of this wonderful plant, and give it that place in Southern agriculture which it rightly deserves. ANDREW M. SOULE.

Tennessee Ag'l. Ex. Station.

National Creamery Buttermakers' Association.

ED. HOARD'S DAIRYMAN:—A meeting of the Executive Committee of the National Creamery Buttermakers' Association was held at Elgin, Ill., Oct. 25, 1899, at the office of the secretary. Present, Pres. W. K. Boardman, Geo. E. Haskel, F. B. Fulmer and E. Sudendorf, Mr. Brandt being unable to attend.

The Secretary read a communication from the Union Commercial Club, of Lincoln, Neb., inviting the association to hold their next annual meeting in the city of Lincoln, Neb., and making the following proposition:

The city to furnish suitable halls for exhibition of machinery, holding of butter display, an auditorium for holding the sessions, including janitor, police service, light, heat, and water, also a contribution of $1,000 cash to be used in the premium fund.

There being no other offers from cities, it was moved by Mr. Fulmer, and seconded by Mr. Haskel, that the proposition be accepted, and was unanimously carried.

It was moved by Mr. Haskel, and seconded by Mr. Fulmer, that the next convention be held from Feb. 19 to Feb. 23, 1900; unanimously carried.

The secretary was instructed, by the committee, to communicate with the different supply houses, commission merchants, transportation companies, and others directly or indirectly interested in the creamery business, inviting them to contribute towards the premium fund of the next convention.

The committee unanimously decided that the following prizes be offered at the next convention:

For the best package of separator butter, and for the best package of gathered cream butter, each a solid gold medal suitably engraved. For the second best package in each class, a silver medal suitably engraved. The butter maker scoring highest of all will receive, in addition to the gold medal, $100 in cash. The winner of the above, however, will not participate in the pro rata. The buttermaker scoring second highest of all will receive, in addition to the silver medal, $50 in cash. The winner of the above, however, will not participate in the pro rata.

The association will give to the state delegation having the highest average score, a beautiful silk banner, to cost not less than $100, providing that there are twenty or more entries from that state. The association will give to the buttermaker scoring highest from each state, having twenty entries or more, a silver cup valued at $50, providing he is not the winner of any first or second prize, and providing his butter scores 95 or over.

The association will also give a diploma of merit, which will be a work of art, to all exhibitors whose butter scores 90 and over.

In addition to the above valuable prizes, the sum of not less than $4,000 will be divided pro rata, as follows: $1,500 to be distributed among those scoring over 90 to 94 inclusive; $2,500 to be distributed among those scoring over 94.

It was also unanimously resolved that only one tub of butter from any one creamery be allowed to compete for the special premiums, and that no special or side premiums be allowed.

There being no further business to consider, at this time, the meeting was adjourned to call of the president.

The committee will at once get to work and expect to prepare the most interesting program ever offered.

The city of Lincoln is preparing to receive the buttermakers of the United States with the most lavish hospitality. Their hotels are ample to afford first-class accomodations for all, and nothing will be left undone to make the stay of our members long to be remembered.

The committee asks every buttermaker to become a member, and not only send a tub of butter, but attend in person. Railroad rates will be announced in due time, and will be within the reach of all. Any further information will be cheerfully answered on application. E. SUDENDORF, Sec.

Sowing Rape and Sorghum.

ED. HOARD'S DAIRYMAN:—L. L. Stevens would like to ask Buff Jersey, through the columns of the DAIRYMAN, how he sows the rape seed among the corn, how much per acre, and will it taint the milk? What kind of seed to call for? Also will Kansas Farmer be kind enough to give us a few pointers in regard to raising sorghum for stock feed, the kind of seed to plant and how much per acre, and oblige a reader of HOARD'S DAIRYMAN.

Lima, Rock Co., Wis.



JOHN PHILIP SOUSA.

Among the famous contributors engaged for the 1900 volume are:

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Besides Two Hundred others—Soldiers, Sailors, Statesmen, Clergymen, Travellers, Men of Science, Men of Affairs, and the most gifted writers of short stories.

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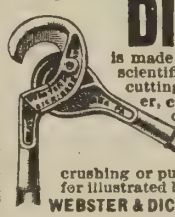
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Dairy Straws from Ohio.

The Modern Uses of Corn Fodder.

ED. HOARD'S DAIRYMAN:—While we like to write upon the later adaptations employed by practical, wide-awake dairymen we always feel that the struggling fellow beneath likes to be noticed and not totally ignored; and since he will not take an advanced step, is it not wise to speak of him and his mode of business in a way that will encourage rather than discourage him.

Now that the season of caring for corn stover is at hand, why not give him a chapter upon its value as feed, and the best mode of caring for it and feeding it out.

A few farmers have known its value for years, but the great army of them, as a mass, have not, and do not yet comprehend what a ton of well cared for stover contains, as a food plant. Those who have watched the progress of the Marsden process of resolving stover into its several commercial values have been made wiser and more careful handlers of this crude waste of the corn field.

At least they have received a broader comprehension of what its absolute waste from the farm has meant in the past and what it means for the future.

The value of the stover bids fair to out value the grain, at least it is patent that it contains feed values that will supply better the wants and needs of the animal body than that of the grain when resolved into its different uses.

The glazed outer coating or shives that we boys keyed up and made hideous noises from, the Marsden Co. grind up and sack and sell for feed. Even after the leaves, tassel, and shuck have been removed each one hundred pounds of stalk contains eighty per cent of feeding value which is, as we said, ground up and put onto the feed markets. It is high in carbohydrates, yet in meal form is made the base of many valuable feeds for cows, fattening cattle, hogs and poultry and containing more real elemental value than timothy hay. It is sad to reveal the fact that the day is so near at hand that the small American boy must be denied the pleasure of the early idols of his fathers, yet he may console himself that the new process has brought to his rescue other sources of pleasure. From the pith large quantities (in bulk) of cellulose is made for the packing of coffer-dams in war vessels and that from any or all of the cellulose of the stalk high explosives and smokeless powder are made so that while we raise corn, nations can go to war and the farm boy can celebrate the 4th of July. In the absence of other fuel he need not freeze while the smouldering heat from the ear will drive out jack frost, and after reading his agricultural journal made from corn stalk pulp, after a fine grade of varnish has been extracted from it, he can turn in and sleep on a "corn-shuck" mattress, and dream. What next! Corn is king! We take off our hat to her yet remain loyal subjects to our Republic.

The siloist has done much toward solving the problem of waste; in fact has come nearest to it, yet he does not even represent the cross mark in the tally of dairy farmers, hence, the other four, or more, want the best possible results out of their crude stover, and after once reading of the amazing values it contains, they should at once bend their best energies toward its early preservation away from storms. So many means of storing have been devised and published, that it is hardly in taste to enumerate them—only that while in shock in the field, it should be huddled and tied together for protection against storms.

There is nothing equal to barn shelter, and we would prefer stacking hay to stacking stover, and feel that money was saved by the exchange, especially if it is to be cut up on a cutter.

For several years a large bulk of our stover has been barn stored and cut for feed, and with one feed a day of clover hay and one of stover, get splendid results out of the practice. While the sugars in stover have little or no commercial value, they represent high starchy feed values. These values are liberated by mastication and chemical action, the latter from the saliva and other gastric juices, and the animal heat produced by the carbohydrates in the food consumed.

Naturally, stock eat the leaves first, not that they are any more nutritious than the stalks, but are in better condition for mastication. The cutting of these along with the stalks, assists their consumption in an equal degree one with the other. To induce our cows to eat cut stover, have tried different lengths, ranging from one and a half inches to one-half inch, but have always been fearful of the short cuts, if fed dry, as we have known serious results from impaction of the stomach, by swallowing it unmasticated. There is more waste from the one and a half inch cuts, but no bad results, as the mastication is more perfect.

By way of experiment, we have fed the short cuts, after saturating with hot water and letting stand twelve hours, with grain ration mixed, and our cows cleaned up the entire mass, and gave most excellent results in flow of milk. Again, we have given the cut fodder a liberal sprinkling of hot water, and let it stand twenty-four hours, and raised its own heat to a good warmth by fermentation, then mixing ground feed with it. This will give tiptop satisfaction. Either comes up close to ensilage, and along with good clover hay we think the average dairyman can make it pay to purchase a good cutter, and save its price twice on a dozen cows during one winter.

It has been estimated that an average acre will yield two and one half tons of stover, and that the average farmer has been only getting sixty cents per acre out of it, or twenty-four cents per ton, while it is worth the price of timothy hay if converted into easily masticated animal food, which here is worth $8, f. o b.

The Marsden Co. pay about an average of $4.00 per ton for the season, or near $10 per acre, f. o. b., and are aiming to sell the digestible by-products in meal form, back at a price that will enable it to be fed at a profit.

The fact that these by-products can be made the basis of numerous feeds calculated to induce the dairy cow to produce milk and butter fat, the beef animal to lay on fat, the hog not only to fat but grow, and the hen to lay eggs or fatten as broilers is significant.

The reading of these facts should stimulate, in the mind of stock feeders, a high regard for the miraculous inherent forces that have lain dormant for ages, in the much despised and wasted corn stalk, and induce them to approach as near as it is possible in utilizing a high percentage of the values as represented. Their utility means cash, and certainly was intended as the profitable margin of corn growing. Is this not true?

Ohio. GEO. E. SCOTT.

Cost of Making Cheese.

ED. HOARD'S DAIRYMAN:—Please notice that in your comments on my article in your last paper, you say that I am willing to make the cheese for fifteen cents per hundred less, which is true; but I am emphasizing to my patrons the fact that while they are getting their milk made up ten per cent cheaper, they will also get ten per cent more cheese from the milk, if they will furnish A 1 milk and the cheese maker will make just as much, as we have the ten per cent more cheese from the milk. In all of my work with the patrons I am trying to impress them with the fact that intelligence makes more milk than any one other thing; that is it takes intelligence to get the right cow, intelligence to feed her, and intelligence to care for the milk, and personally I do not believe that we will ever attain to that intelligence necessary to successful farming until the fundamental principles of agriculture are taught in our schools.

Hartford, Mich. DAVIS HAVEN.

Prof. W. A. Henry On the Work of the National Dairy Union.

At the late meeting of the Wisconsin Dairymen's Association the matter came up of raising funds to aid the National Dairy Union in its work of promoting legislation in Congress against oleomargarine. On this Prof. Henry spoke as follows:

"It looks as though $10,000 is quite a sum of money to put up when Congress ought to give us what we are asking for, but let me tell you, friends, you cannot get legislation without effort. There are certain expenses necessarily attached to this kind of work, and bills must be paid. A lot of work has been done in these matters before, and each of the men doing the work paid his own expenses. There must be two or three million postal cards sent out; there must be millions of pages of printed matter. The men on the other side are lining up their forces,—one man in this state got $5,000 to go down to Washington and work there for them. We stood in Washington, some of us, with Congressman Cook, waiting at the door of the Finance Committee's room. Two other gentlemen were walking near there in great anxiety. The clerk came out from a room and he said to Mr. Cook, 'They are on your bill now.' 'How is it coming out?' 'I don't know, Allison is holding back.' Just at this moment one of these gentlemen spoke up and said, 'You will never get your bill out of there.' Mr. Cook says, 'We will.' 'Well,' he says, 'if you do get it out of there you will never get it out of the senate.' 'Yes, we will.' I pulled Mr. Cook aside and asked him, 'Who is the little fellow?' 'That is one of the paid attorneys, his name is Wilkins.' I might say that he has been indicted since then.

We can take it for granted that they have millions to pay, and if we don't beat them, you might as well sell your cows; and we can beat them as we beat them on the filled cheese business, if we stand together. It cost this association hundreds of dollars to make that fight. This state ought to put up $2,000 to spend, not on Mr. Knight's or Gov. Hoard's salary, for they are drawing no salary, they are giving their time, but to help along this work. Everyone who has cows is affected from three to five dollars a year on each cow, and you can all afford to put in a little something, and that will aggregate a large amount. Then we must not forget that we want to put in hundreds of thousands of postal cards into Washington, until those men down there say, 'Let up, and we will pass your bill.'"

Non-Producing Animals.

While live stock form an indispensable factor to successful husbandry, it would be very easy to so handle them that they would soon rob the farmer. No quicker method of producing this result in an insensible way can well be imagined than by keeping non-producing animals upon the farm. They soon eat their heads off, so to speak, and when this is done they begin to draw upon reserve sources, and to consume them to no purpose.

We find those non-producing animals among all classes of live stock. But nowhere do we find them more frequently than among the horses kept upon the farm. As soon as horses reach a workable age, they should, when at all possible, be set to work. They should be transformed from non-producers into producers. The keep of a horse for a year, under almost any conditions is costly, hence, if several horses are carried from year to year, without in some way being made a source of revenue in some degree, they will soon be a serious burden to the farmer, who is so unfortunate as to own them. In not more than two or three years, and in a less time probably, they would consume food worth more than the entire value of the horses. The aim therefore should be to get rid of surplus horses at the earliest possible moment, after they have become non-producers. It would be far better to take a very low price for them than to keep them as non-producers. And when horses must be kept, the aim should be as far as possible to keep them producing, that is to say, to keep them doing what work can be done in the winter season. If manure can be drawn in winter, more time is given to use the horses at other work in summer. In fact, when close attention is given to the utilization of horse labor in winter, the work of the farm can be conducted with a smaller number of horses than would otherwise be required.

But we also frequently find non-producers among cattle. We find them frequently among breeding stocks and among dairy cows. As soon as cows have reached that age, when they ought to breed or to give milk, they become non-producers if they fail to do so, and the moment they become non-producers, they become a bill of expense. They should be disposed of. It would be better to sell even a fairly promising animal at a moderate price than to keep the same for a whole year without any return in the hope of future production. To keep them would only be justifiable in the case of valuable purebreds, or more than ordinarily valuable cows in the dairy.

And with purebreds, serious mistakes are frequently made by keeping young animals too long, in the hope of getting higher prices for them. This mistake is more frequently made with males than with females. The breeder fixes his price in his own mind. It may be that he cannot get it, and rather than take the low price he refuses to sell. He keeps the animal a whole year, and then it may be he has to sell for a less price than could have been secured a year before. The keep of the animal has been lost for a whole year. Now if a dozen animals have been thus kept, the loss in one instance will be multiplied by twelve. It soon becomes very serious. In fact, so serious has it proved, in instances not a few, that it has led to the bankruptcy of the owners.

The same line of reasoning may be applied to swine and also to sheep. A sow becomes in a sense a consumer of food and a non-producer as soon as she fails to breed, or as soon as she fails to breed regularly, and to furnish good litters. Likewise a ewe is a bill of expense, if she fails to raise a lamb that will pay the cost of production. The same is true of fowls past the age of ability to produce eggs freely and regularly.

But there are various other ways in which the expense of keeping animals may become expensive. This is true of steers for beef, kept till the age of forty-eight months, when they can be made ready for market at the age of thirty months. And it is also true of animals that are being fattened, which are fed on after that period, when they have ceased to make good gains.

This question is greatly important. It means a great deal to every farmer. There are various leaks upon the farm. But it is questionable if there is another source of loss that will equal that which arises from keeping animals on the farm which are non-producers, or which only produce indifferently when they should produce an ample revenue. A careful watch should, therefore, be kept over the whole question of production, with every animal kept upon the farm. As soon as it becomes a non-producer, or even an indifferent producer, the propriety of disposing of it should at once be considered.—*The Farmer.*

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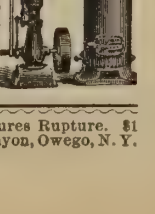
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Feeding Buckwheat Screenings.

ED. HOARD'S DAIRYMAN:—D. B. F., Fairchild, Wis., writes to the station: "I can purchase at low price, buckwheat screenings consisting of about half buckwheat fragments and half pigeon-grass and other weed seeds. What is the value of such material for feeding dairy cows, and what would the grain resemble in analysis?"

As I have shown in Feeds and Feeding, buckwheat grains are nearly as rich as corn in protein, and less rich in carbohydrates and fat. Their value for feeding is, therefore, a little below corn—probably they are worth about four-fifths as much. The hulls of buckwheat grains are of no more feeding value than chaff. We have no analyses of pigeon grass seed for guidance, but as it is a grass of the same nature as millet and sorghum, we may suppose that it has considerable feeding value.

In an experiment at the Minnesota Station, Hayes fed pigeon grass seed to one lot of lambs, wild buckwheat to another lot, and cracked corn to a third, as concentrates, giving all alike a ration of hay. It was found that it required over 800 pounds of wild buckwheat seeds or pigeon grass seeds to equal in feeding value 523 pounds of corn.

In an experiment by the writer it was found that pigs would not eat pigeon grass seed satisfactorily, unless it was cooked; after cooking it was readily eaten, and gave about the same returns as corn meal.

If the feeding materials which our correspondent can procure, are in themselves clean and free from dust, I should rate them at about three-fifths the value of corn meal for feeding the dairy cow, provided they are ground to a fine meal. In all cases, seeds like these should be ground before feeding, for they are not only more available in that form, but there is then no danger of spreading pests through the fields, in the droppings of farm animals. W. A. HENRY.

Wisconsin Exp. Sta.

CONCERNING OUR ADVERTISERS.

Mr. N. H. Gentry, of Sedalia, Mo., the famous hog breeder, says that he put in a Bowsher mill seven years ago, after having first tried several other makes. This summer he put in a larger and later improved one. The mill is made by the N. P. D. Bowsher Co, South Bend, Ind. They certainly could not ask for a stronger endorsemsnt of the machines.

THE PREVENTION OF ANTHRAX.

Anthrax cannot be cured, but can be prevented by means of Anthrax Vaccine, and danger of its spread can be avoided by vaccination. This is the most contagious, virulent and fatal of all diseases that attack cattle, sheep, horses, mules and goats The disease is also communicable to man through handling hides or wool of affected animals. A booklet that is published and sent free by H. K. Mulford Company, chemists, of Philadelphia and Chicago, devotes several pages to this terrible scourge. It describes precautions to be taken and gives easily understood instructions for using Anthrax Vaccine, which gives protection against the disease. The fearful ravages of Anthrax makes great beyond measure the debt which stockmen owe to science for this safeguard. Everyone interested in live stock should study this little book carefully.

BETTER FARM POULTRY.

Intelligent interest in fine poultry is becoming more general from year to year. Evidence of this is the marked improvement of the Poultry Press and the attention paid to the subject by the more general farm papers.

No small credit for this is due to the breeders of poultry who have for years advertised their stock, maintained exhibits and contributed in many ways to arousing and stimulating the attention of the public at large. One of the names familiar to readers of HOARD'S DAIRYMAN is John Bauscher, Jr., of Freeport, Ill., whose card appears in another column. Mr. Bauscher has an immense establishment and makes a specialty of Farm Bred Stock. He publishes a very complete and expensively prepared manual at a merely nominal price and solicits correspondence. Intending purchasers will do well to write him before buying.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

INDIGESTION.

I have a valuable Guernsey bull, that for three months past has had indigestion. Belches up soon after eating, often with a whistling sound. Chews the quid but little.

Elsinore, Cal. J. S.

ANSWER.

Give the bull one ounce of fluid extract of golden seal and half a dram of nux vomica in two ounces of old whiskey and four ounces of cold water, one dose each day for three days only. Then rest four to five days, then give a dose a day for two days only, rest six days, then give one dose only, and if well, all O. K. It not, repeat this process in two weeks or so. Be careful as to the quantity, etc.

This is for a full sized and aged bull, so act accordingly.

FAILURE IN MILK.

We have a part Jersey cow that was fresh the first of November last. She is young and healthy, always milked well till about four months ago she commenced to fail in her front teats and soon went dry. The hind ones are all right and there is a second one now very near dry and I think a third one is starting. They are well fed and milked by one supposed to be a good milker. M. B.

Mongolia.

ANSWER.

There are so many and peculiar freaks in the cow's milking as to puzzle the best informed on the subject. Hard, imperfect milking and unsteady as to time cause many troubles with the cow's flow of milk.

I don't think the teats are in fault. It is high time all the teats were dry. Twelve months surely is time to be dry.

EPILEPSY.

Have lost several pigs in the last few days. They are from 2½ to 3½ months old. Apparently, they are well until they commence to eat, when they begin choking, will fall over, lie a while, and perhaps get up and eat some more. Have turned them out since, and still they are no better. Am feeding bran and low grade flour, equal parts by weight. G. E. M.

ANSWER.

I think your pigs are suffering from epilepsy. There are several other porcine diseases which give the same symptoms, so nearly as to be perplexing in making a correct diagnosis. All these diseases are next to, or quite incurable. You need a practical or well informed man to make an examination. Cold water over the head is a ready help when the fit first comes on. The medicines, if any, are belladonna, strychnine, etc., too dangerous for the layman to meddle with, always.

CLOVER BLOAT.

Is there any known prevention for clover bloat, where stock have access to clover at all times? H. L. S.

Bozeman, Mont.

ANSWER.

No, there is not, especially at this season of the year. Clover in October is always quite dangerous to horses and cows. Smut is nearly always present in fall clover, especially in old pastures, and much caution is always needed at this time of year.

CAKED BAGS.

What is the cause of my cows having trouble with their bags? They have been on pasture, have fed two quarts of corn and cob ground with one third oats and two quarts of bran twice a day and what millet they would eat. It was so dry I cut the millet before it headed out much of any. Since which time two of my best Jersey cows have had trouble with their bags; one-quarter would cake up and appear feverish and one would hardly get well before another would swell; they give very little milk. I changed back to feeding corn meal last night, but tonight one cow is very much worse; her bag is very hot. She walks stiff or lame on one side The other cow seemed not to want to move around much. The millet they are eating heat in the mow, was a little green, but looks all right now, but is some dusty; a kind of white dust seems to rise when it is pitched from the mow.

Lake Co., Ohio. D. J. W.

ANSWER.

Your corn cob mixture is all wrong. It is indigestible in any form. I think the cause is the spoiled millet. Millet is not a fit food for milch cows, never. Stop cob meal and the millet at once. Give a pound and a quarter of salts to each full grown, full sized cow and repeat it in four to six days if needed, and even to a third dose if necessary. Smut in the millet is the cause of the lameness, etc. Bathe the udders in cold water for quite a long time twice a day, first day, then only once a day. Be sure to keep from a draft of air. After the bathing, rub dry; rub several minutes each time. I think this will be all you need, or you may give the cows each, sixty grains of iodide of potassa in a little cold water, for ten to twenty or thirty days, if needed. The thorough physicking is of great importance in all such cases.

FAILURE TO BREED.

Jersey cow (young) dropped calf in December, '98. Bred soon after; did not retain semen; strained considerable; was bred in April with same results. Has not been bred since. On examination, when in heat, found womb closed tight and gathered in a hard bunch. E. R. D.

Merrimac Co., N. H.

ANSWER.

The continuous report about the os uteri being closed is tiresome. It should always be closed excepting at the time of heat. In your case, if the statement is correct, y u need an expert to explore and find the true conditions in the case. If there is a tumor as described, nothing short of an operation will avail. If you are correct, there is an abnormal growth which must be removed. This is all I can do in such a case.

TREATMENT OF ABORTION.

There has been much in the columns of the DAIRYMAN about the treatment for abortion, but I should like to ask some questions.

As it appears to us, the disease is more often carried by the bull through serving a cow already carrying the germs.

1. Should the bull be washed just before or just after service, or both, and what ingredients are best for said wash? We have used creolin. Is the bull simply washed on the outside parts? We can see no other way.

2. After a cow has aborted, how soon should she be served? Should an injection be used immediately after an abortion? Also should an injection be used immediately before service, and if so, are these two injections all that are necessary? What is best for these injections? We have used creolin, one tablespoonful to one quart of water. How far should the tube be inserted in giving an injection to cow?

3. What is good to sprinkle around the barn. Is copperas as good as anything and if so, in what proportion? We burn the calf and all the offal from the cow, that we can.

Madison Co, N. Y. M. E. V.

ANSWER.

The bull idea is not correct. Of course, if a bull immediately after serving an aborting cow, is put to a cow soon afterward he might do mischief, still in your cases he is not to blame, I think.

Washing before and after service would be a sateguard, at least it is cleanly. Castile soap and warm soft water in which put one oz. of the Tilden's Bromo Chloralum to a quart of water.

Reach up into the sheath with short pared finger nails and small hand.

Not under three months.

No; castile soap and the bromo chloralum as above, as far as you can easily reach. Tilden's Bromo Chloralum, one to eight of water is the best disinfectant in the drug market. Burning is all right, always. I know of nothing to recommend as good and sure a remedy as the remedies advertised in the DAIRYMAN.

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H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

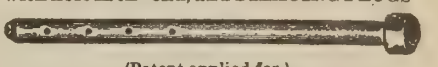
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

FLEMING'S LUMP JAW CURE



Trade Mark.

LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

Horse Owners! Use GOMBAULT'S Caustic Balsam

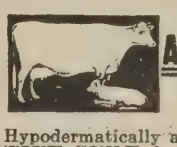


A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

LACE CURTAINS FREE

These beautiful Royal Lace Parlor Curtains are of the newest Savoy design, three yards long, 36 inches wide, are washable and will last a life time. You can get two pairs of these choice curtains, (same design as in cut), and four beautiful Sash Curtains (one yard square each) FREE by selling our GREAT COLD REMEDY and HEADACHE CURE. Cures Cold in One Day! Relieves Headache at Once! We will give the curtains absolutely free to anyone taking advantage of the great offer we send to every person selling six boxes of our Tablets. If you agree to sell only six boxes at 25 cents a box, write to-day and we will send the Tablets by mail postpaid. When sold, send us the money and we will send four Sash Curtains, unhemmed, so they may be made to fit any window, together with our offer of two complete pairs of Royal Lace Parlor Curtains, enough to furnish a room, same day money is received. This is a grand opportunity for ladies to beautify their homes with fine Lace Curtains of exquisite design. All who have earned them are delighted. Address

NATIONAL MEDICINE CO., 1010 Chapel St., New Haven, Conn. Box 150 L

Book Farming and Farm Help.

ED. HOARD'S DAIRYMAN:—Years ago when I was a little girl, back in the backwoods school house on meeting Sunday, sat an old man, who, when the preacher said anything that pleased him, brought out a hearty Amen! and the more it pleased him, the louder came his Amen! And the kid glove article by the *Oshkosh Gentleman* went so directly to the right spot that I felt a good deal like the old man in meeting, saying, Amen!

It has been a puzzling thing to me when we, as farmers, pay our hired men and all the bills, why we should not be able, like other business men and women, to say how it should be done. My hired men think they are putting me down to the lowest notch when they tell me I am book farming.

One of them believes in shallow fall plowing; I was taught that deep plowing in fall was best, consequently I have pretty near to stand behind the plow, if I am a woman, to make them do it. One of them thinks that if one bushel of seed is good on an acre of low land, two would be lots better, and as a result of such folly, my grass seed and, in fact, the whole crop, was a failure on the low land, because he knew more than a woman who did book farming.

When I make a blunder, as long as I have to foot the bills, I can "grin" and bear it, but when the hired hands make me lose a couple of hundred dollars, as they do sometimes, by not doing as they are told, it goes terribly against the grain of human nature to grin and bear it.

Another thing has struck me very forcibly, lately: Why are our young farmers without a trade, with families to support, renting their farms and moving into town, to bring up their young children on its streets instead of on their farms? Is it the fault of their wives, or are they afraid of hard work; are we not making some serious blunders in this world, and then laying the blame for the result on a long suffering Providence? Not long ago I was discussing a case of this kind, with a business man, and I remarked in regard to the party, is he not making a serious mistake? What is he thinking of? And the reply was: "He is not doing the thinking; his wife does the thinking."

Seriously I think young farmer's wives make a great mistake when they take their families and husbands off the farm. We can live, with less expense, far better than our city sisters, on the same income. We can live, if we try, just as happy lives there as elsewhere, if we are only willing to make the best of our surroundings. Dissatisfaction never brings content with our surroundings, any more in cities than on farms. Farm isolation is only a myth which scores of us are following to our sorrow. The poorest education we can give our boys or girls, that to dig, as they express it, for a living, is degrading. Work of any kind is not degrading, only as we make it so, but if we are not able to do the kid glove work, let's pull off our gloves, and go in for all there is in us, in what we have to do.

ONE OF THE WOMEN FARMERS.

Handsome Is That Handsome Does.

ED. HOARD'S DAIRYMAN:—You may not be good lookers but your courtesy and favors and teachings of HOARD'S DAIRYMAN changed my red, all-purpose cows to a nice little bunch of sixteen Jerseys and will put in five more. Have been running seven weeks and for the past two days have been compelled to turn down trade on Arnold's Pure Aerated Jersey bottled milk. It sells like pop-corn balls at a country picnic.

Where shall I go for a Guernsey bull?

Clinton Co., Mo. O. T. ARNOLD.

We are quite content to be judged in the matter of "good looks" by the old standard and to allow our readers to be the judges.

For a Guernsey bull, read the advertisments of Guernsey breeders in HOARD'S DAIRYMAN. They are printed for the special benefit of Mr. Arnold and others who want to buy Guernseys.

Transfers of Guernsey Cattle From October 1 to 15, 1899.

BULLS.

Benano 6241, D. W. Clark to A. A. Oakes, Farmington Falls, Me.

Coroner 6082, Robert W. Lord to Nathan Dane, Kennebunk, Me.

Clcohette's Wrangler 6230, Count Oliver 6229, Count Primrose 4531, H. B. Stehman to Wm. M. Knight, Winfield, Ill.

Dewey of Windsor 6248, Collen B. Meirs to A. E. Hutchinson, Windsor, N. J.

Erwin Brown 4896, T. Newbold Bowne to H. W. Comfort, Fallsington, Pa.

Ferdinand King 6231, Robinson's Select 5895, J. B. Duke to G. R Cook, Trenton, N. J.

Golden Cortez 6239, M. B. Rowe to Z. M. Waters, Jr., Goshen, Md.

Granville 6037, S. G. Howd to F. B. Clark, East Hartland, Conn.

Klondike 4971, J. B. Duke to Bernard Meyers, Finderne, N. J.

Langtry's Marvel 6232, J. B. Duke to A. Tiger, Chester, N. J.

Landlord 4th 6236, O. W. Sanford & Son to C. L. Underwood, East Brookfield, Mass.

Lord Philomen 5956, Howard B. Tuttle to Samuel Marvin, Cornwall Bidge, Conn.

Mohonk 6246, John C. Higgins to E. T. Gill, Haddonfield, N. J.

Mohonk 6246, E. T. Gill to U. F. Le Duc, Chesterfield, Mass.

Ogunquit 6105, Robert W. Lord, to Edgar B. Lord, West Lebanon, Me.

Prince Deputy 6237, Frank Stahl to U. G. Nagle Lewisburg, Pa.

Stratford Boy 4617, Edward Fullmer to John Hass, Cleveland, Wis.

True Type's George Dewey 6245, Elliott Warren to A. H. Rainer Troy, Ala.

COWS.

Attractive 7274, Blue Bonnet 6052, Dola 6540, Mrs. Langtry 3149, Myosotis 6059, Noon Tide 6427, Ruth Cleveland 6429, Stranford's Nameless 12152, Weeping Maid 12126, J. B. Duke to Bernard Meyers, Finderne, N. J.

Alice Twitty 8101, Thomas Briggs to National Farm School, Doylestown, Pa.

Anna M. 2nd 10540 Edward Fullmer to John Hass, Cleveland, Wis.

Blue Bell of Somerville 8364, Cherokee Rose 7589, Dola's Estill 12127, Mistrust 3553, J. B. Duke to G. R. Cook, Trenton, N. J.

Chestnut 11434, Groth 9369, Thorn 8843, James M. Codman to Harold H. Blake, Concord, N. H.

Clochette of Riverside 8089, Clochette's Primrose 12112, Meadow May 8992, Mernalette 5723. Oliva of Riverside 9325, Polly of Rosendale 10276, Polly's Vestal 12113, Red Rose of Homestead 11626, Rose of Homestead 12627, H. B. Stehman to William M. Knight, Winfield, Ill.

Fairy W. 9590, Lialette Princess 7315, Charles Edwards to Mark Hughes, West Grove, Pa.

Jastra 6957, J. M. Fox to R. L. Patterson, Butler, Pa.

Julienne 6959, J. M. Fox to S. M. Robinson, Parker, Pa.

Papanti's Ballett Girl 11496, Papanti's Coquette's Beauty 11499, Papanti's Daisy's Pet 11498, Papanti's Lady Sweetheart 11497, Papant's Sweetheart 11493, Washita's Coquette 11492, Washita's Coquette's Lass 11495, Washita's Daisy 12155, Washita's Sweetheart's Pet 11494, W. E. C. Eustis to Robert & Herbert Scoville, Chapinville, Mass.

Stranford's Empress 12128, J. B. Duke to A. Tiger, Chester, N. J.

Verta Opie 9928, Walter Brooks to James T. Mayhew, Pittsgrove, N. J.

Peterboro, N. H. WM. H. CALDWELL, Sec.

ILLUSTRATION.

GROUND CORN IN FEED.

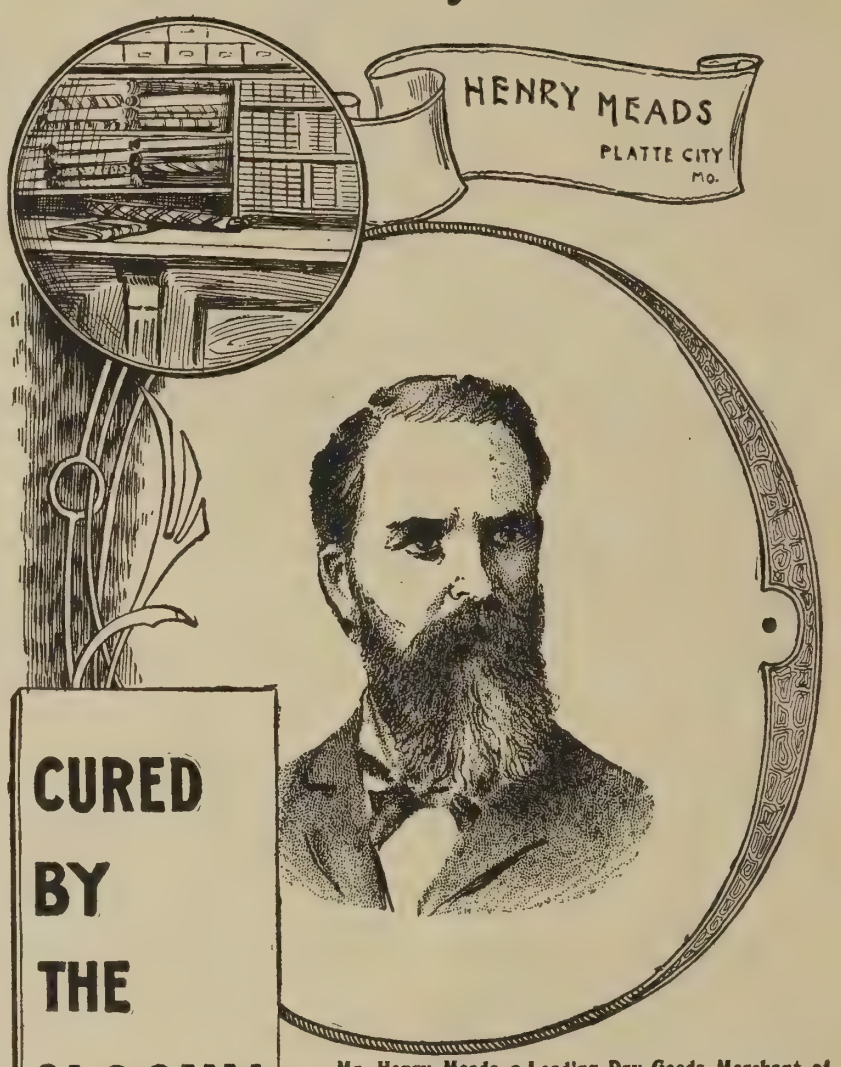
Farmers who have tried it, as well as experimenters in colleges and experimental stations, are agreed that a saving of from twenty to forty per cent is effected by the grinding of ear corn for live stock. Every farm, therefore, as a matter of ordinary business economy, ought to have a feed mill. The farmer needs a mill simple in construction, with no complicated parts to get out of repair, easy of operation, and made of good, honest



material. Such a mill is the Peerless Feed Grinder, manufactured by W. J. Adam, Joliet, Ill. The Peerless is the result of long years of trials and tests, to eliminate the useless parts, and to retain the most simple and practical working parts. The large number of satisfied users of the Peerless is the best indication of its success, and the best recommendation for it. It will grind any grain grown in any condition. It runs easily, the power being applied direct without any gearing, pulleys belts or shafting to attend to. It is in short what its name implies—the Peerless grinder f r the farmer. Every man who feeds stock, whether many head or few, should send for the Peerless Feed Grinder booklet. It is sent free by W. J. Adam, Joliet, Ill.

SLOCUM CURES

Weak Lungs, Consumption, Asthma, Bronchitis, and all Pulmonary Diseases.



CURED BY THE SLOCUM TREATMENT

Mr. Henry Meads, a Leading Dry Goods Merchant of Platte City, Mo., says:

"In the Fall of 1896 I contracted a severe case of nervous bronchitis, which grew rapidly worse. Three physicians treated me, but I obtained no relief. No one knows how I suffered. I would wake up between twelve and two o'clock every night, and cough so hard that I could not lie down, and was obliged to sit up till morning. For days at a time I was deprived of my voice, and I had despaired of a cure. Hearing so much about the Dr. Slocum treatment I sent for a full free course, and was decidedly better within a month. Now, after several months' treatment, I am fully cured, and shall be glad to have you refer to me at any time. Several of my friends have been cured of pulmonary troubles."

Dr. Slocum's treatment is a positive cure for consumption, weak lungs, bronchitis, catarrh, stubborn coughs and colds, throat and pulmonary troubles, asthma, tuberculosis, la grippe and its after effects, and all complications which cause wasting away.

A system that destroys the deadly bacilli and heals the mucous surfaces—a system that cures by building healthy flesh and imparting vitality to every tissue. It cannot fail, as has been proven in thousands of instances in every State.

If you are a sufferer, it is your duty to try it. If you have suffering friends, it is your duty to post them.

FREE To further demonstrate the marvelous powers of his world-famed treatment, Dr. Slocum has decided to send to all who apply the full **FREE** course treatment, consisting of four separate preparations, the same as cured Mr. Meads. Simply send your express and Post Office address to Dr. T. A. Slocum, 98 Pine Street, New York, and state that you read the announcement in HOARD'S DAIRYMAN.



1900 DAVIS 1900
CREAM SEPARATOR

Makes the work easy and profitable to the dairy farmer. Agents wanted. Catalogues. free.

DAVIS CREAM SEPARATOR CO.
88-90-92 W. Jackson St.
CHICAGO.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

What a Farmer's Boy Can Do



He can qualify himself for a position as a first-class Locomotive, Steam, Electrical or Civil Engineer without leaving the farm until he is ready to enter his new occupation and

EARN A GOOD SALARY

Our system of teaching by mail will give any boy a technical education. Write for pamphlet and state what you wish to study.

International Corres. Schools, Box 1342 Scranton, Pa.

HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for 50 CENTS.

Will be sent as a premium for

ONE NEW SUBSCRIBER.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY,
27 Beaver Street, NEW YORK.

The Loomis "CLIPPER" Well Drill

The standard well drilling machine of America. Strongest, fastest, easiest to handle, and will **make the owner more money** than any other well drill. For full particulars address

LOOMIS & NYMAN, TIFFIN, OHIO.

WELL DRILLING MACHINERY

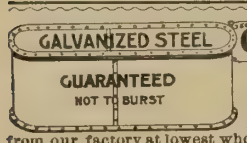


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Machines are portable, and drill any depth both by steam and horse power. Twenty different styles. Send for FREE illustrated catalogue. Address

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GALVANIZED STEEL OKAY TANKS.

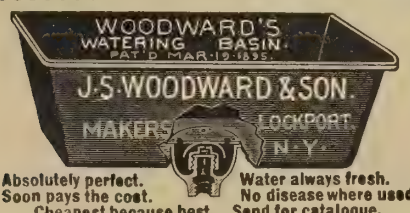


Can't Leak or Rust. Made any size or shape **Made only by us** and **sold** you **direct** from our factory at lowest wholesale prices. Catalog Free. C. E Banta Mfg. Co., Box 874 E, Chicago, Ill.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best. Water always fresh. No disease where used Send for catalogue.

Anti-Septic Basin

Pat Oct. 6, 1896.



FOR STOCK.

Porcelain lined, pure and clean. No filthy valves, no splashing over, no rust. Thousands in use. Round bottom and proper depth.

D. H. BAUSMAN,

Bausman, (Lanc. Co.) **Pa.**

Manufact'r Water Wheels. Tanks, Pig Troughs, Poultry Troughs, Etc.



Shipped Subject to Inspection.

It costs you one cent for a card to write us and you get full particulars. Agents wanted.

FREELAND MANUFACTURING CO., - NILES, MICH



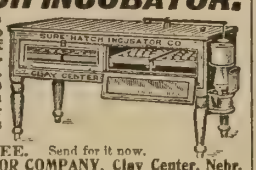
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Catalogue 4 cts.

Hatches Chickens by Steam. Absolutely **self-regulating.** The simplest, most reliable, and cheapest first-class Hatcher in the market. **Circulars FREE.**

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SURE HATCH INCUBATOR.



True to its name. It is made to hatch and does hatch. No excess heating in center of egg chamber. Entirely automatic. Hundreds in use. **Common Sense Brooders** are perfect. Let us make you prices laid down at your station. Our Catalogue is chock full of practical Poultry information. It is **FREE.** Send for it now.

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Pressed Steel Wheels.

For Farm Wagons and Trucks. Have all the Latest Improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the BEST metal wheels on the market, buy them from **The Arnold Metal Wheel Company,** Lock Box 28, New London, Ohio.

Catalogue and prices on application



Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

WRITE US

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HAVANA, ILLINOIS



Steam Feed Cooker

OLDEST, CHEAPEST, BEST.

15,000 SOLD. Sent on one week's trial to responsible farmers if desired. Get our prices and description.

J. K. PURINTON & CO., Des Moines, Iowa.

Farmer's Improved FEED COOKER



Is superior to all others in Safety, Durability and Cheapness of cost and operation. Scientifically constructed. Heavy cast iron lining in furnace. Boiler of heavy galvanized steel. Stands high from the floor and can be put up in the barn or summer kitchen with safety. Made in 3 sizes. Every one guaranteed or money refunded. For descriptive book and prices send 2c stamp. Address, **ACME MFG. CO., Quincy, Ill.**

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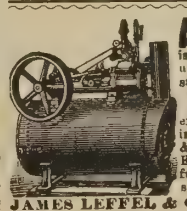


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KALAMAZOO Feed Cooker

Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

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A GOOD ENGINE

is undoubtedly the best power for farm use. Best for cutting and grinding feed, sawing wood, pumping—for anything.

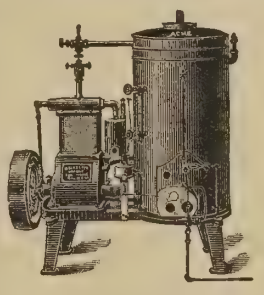
THE LEFFEL ENGINE

excels for this purpose as well as for use in dairies, creameries, cheese factories, &c. Horizontal or upright. 3 h.p. up. Easy to handle and keep in order. Least fuel and most power for the money. Send stamp for **"Book on Engines."**

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ON THE MARKET TEN YEARS.

The Acme Engine



Still LEADS

1 TO 6 Horse Power.

For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

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REDUCE YOUR COAL BILL

BY USING The No Scale Company's

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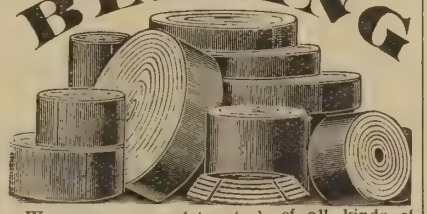
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LAST CHANCE AT OLD PRICES.

Hardened Steel Landside Double Board Plow, hard as glass,

12-in., at $8 00, 18-in., at $11.00. Big Catalogue for 1900 ready Jan'y 1, **free.** Buy now before the advance in prices. Write now and get ready for spring work.



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Hard Steel Castor Coulter with Plow, $1.75 extra.

HAPGOOD PLOW CO., Box 489, Alton, Ill.

Only Plow factory in the United States selling direct to farmers.

ICE CUTTING



Made in three sizes.

made easy with our Double Row Steel Ice Plow. Cuts faster, easier and with less labor than any plow made. Cuts any size and depth. Pays for itself in less than 2 days. Marks and cuts the field at the same time. Send for catalogue and prices.

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DOUBLE CAM BRADLEY STEEL HAY PRESS

One horse can operate it. Very easy for two. Send for circular.

NOT A COG NOR CHAIN ABOUT IT.



Simplest Press Made.

Lifting Jack goes with each Press. Powerful—puts full weight into box car. Tracks with a wagon; 2 horses draw it on common roads.

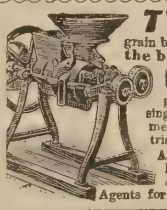
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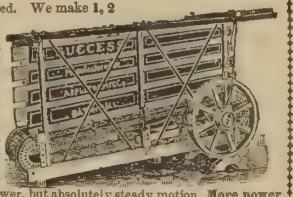
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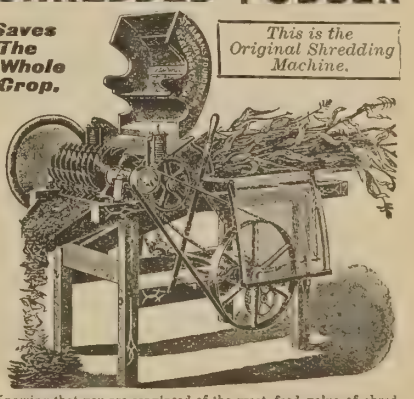
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This is the Original Shredding Machine.



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They are a pronounced success. They **shred faster, finer** and leave the product in better condition **for feeding or baling** than any other machine made. We prove these statements by those experienced in the usage of such machines. We mail **Facts About Shredders FREE.** Write for it at once.

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Best for the Table,
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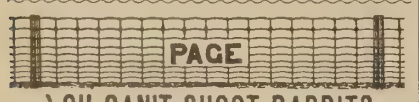


or hogs or both this season? There is no better fence made for surrounding feed lots, barn yards, or the farm in general than

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Perfectly smooth, all interwoven, safe for stock. SOLD DIRECT TO FARMERS AT WHOLESALE. Nobody can buy it any cheaper. Write for circulars and special discounts.

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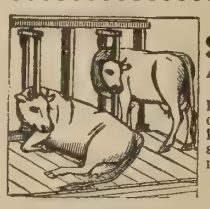
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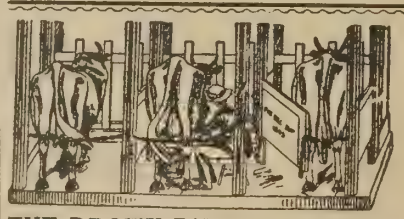
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Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials.

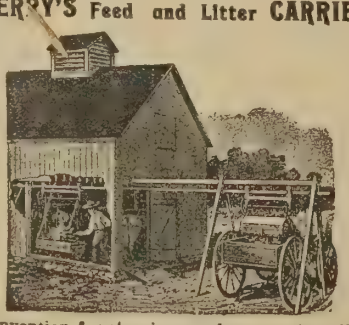
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An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

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20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,

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Write us for our Catalogue, which fully illustrates and describes this wagon and to other styles.

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A POWERFUL **Disinfectant** That is ODORLESS, NON-POISONOUS. Used in Creameries, Cheese Factories, Dairies and Stables.

IT DOES NOT Create an Oder to Destroy One.

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I have used "Purifine" in cleansing milk cans and bottles and find it will remove the bad odor left by old sour milk more effectually than anything I ever tried.
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Applied with large quantity of water, which makes it **cheap and convenient of use.** It is invaluable to the cleanly dairyman or factory operator. Once try, you'll never be without.

SEND $1.00 FOR SAMPLE GALLON by Freight.

This powerful disinfectant creates no odor of its own, but will keep creamery, cheese factory and dairy pure and sweet. TRY IT ONCE.

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VOLUME XXX. FORT ATKINSON, WIS., NOVEMBER 17, 1899. NUMBER 40

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Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

The Best Cow On Earth

can not live on air; she must have good feed and plenty of it or she will be of little value to the owner. Likewise a creameryman's business cannot thrive without a good supply of milk the year around. If a cow is hungry and scents grass across a forty acre field, what does she do? She goes after that grass at once. If a creameryman needs milk and knows there is plenty of it a few miles away from his factory, what does he do? Well, that depends on the creameryman. Some of them sit down and wait for the milk to come. Result—a creamery for sale. The wide-awake, hustling creameryman goes after that milk and always carries a well lined purse, while his "waiting-for-something" neighbor complains of hard times. Somebody says "you can't haul milk only about so far, no matter how badly you need it." That's the point exactly; don't try to haul the milk; spend less money and haul the *cream.* Sell every distant patron a *Farm Separator* and buy the cream. You don't need additional capital to do this. We can tell you how to provide the farmers with separators and make money while you are doing it. Are you interested? If so, write us.

When you buy a new piece of machinery would you like to have something fine, something thoroughly up-to-date, made from the best material and elegantly finished, —something first-class in every particular? We are prepared to furnish it at reasonable prices.

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CREAMERY MACHINERY AND APPARATUS.

The School of Experience.

When a man pays good hard earned money for his experience there is no doubt in his mind as to the results. The results of dear bought experience are invariably carefully observed. This is no less true in the purchase and use of separators than elsewhere in business pursuits If a creameryman really wants, however, to avoid the expense of buying separator experience he may do so by first buying a

Sharples Tubular Separator.



If he once does this he has settled for all time in the most satisfactory and money-saving way, the separator question. This at least is the experience of those who have tried it, in witness whereof we quote the following letter:

Platteville Cheese and Produce Co.
MFG'S AND DEALERS IN
Fine Creamery Butter and Cheese.

PLATTEVILLE, WIS., Sept. 3, 1899.

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We are skimming from 2500 to 3000 lbs. of milk per hour, and it takes a very small amount of steam to run it and it skims down to two one-hundredths. It leaves the cream in a fine, smooth condition and without any foam on it. Our butter has improved fully 10 per cent in flavor and quality since we ran it, and the Tubular will be the only separator we will use hereafter.

Respectfully yours,
F. KROG.

Remember That it is a hollow bowl. That it spins on air. That it requires no repairs. That it makes only smooth, free-from-froth cream. That it is a clean skimmer of large capacity and that it is **absolutely "burst proof" and safe.**

Send for Catalogue No. 46.

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P. M. SHARPLES, West Chester, Pa., U. S. A.
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Grade up Your Herd..

The expense of feeding a profitable cow is no more than the cost of feeding an unprofitable one. ***It costs comparatively nothing*** to find out whether each member of the herd is profitable. The

NO-TIN... Babcock Tester

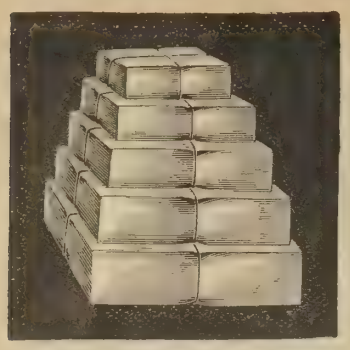


will give exact information. Is substantially built of cast iron, and made to use the ordinary Babcock bottles.

TEST EVERY COW and if she is not profitable, do not keep her. It is the best low priced tester in the world. Send for Catalogue, No. 71.

Elgin Manufacturing Co., Elgin, Ills.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.



"Quaker Brand" Parchment Paper

FINEST QUALITY.

Every receiver of butter should insist that the package be lined throughout with parchment. Every shipper should use liners; the butter reaches market in better shape and will bring a higher price.

Our liners are heavy and of best quality.

These are the most economical supplies a creamery man can buy.

Our facilities for getting out orders for

Printed Parchment

are unsurpassed. Special designs gotten up on request.

Why not wrap your prints in paper having distinctive design which will make your butter easily recognizable in any market?

It will cost you but little extra. It will pay you.





"Ideal Jar Cup Finish.

IN OUR MILK DEALERS' SUPPLY DEPARTMENT can be found everything necessary for the Dairy or Milk Depot. Try our "IDEAL" Milk Jars and Caps. We know our Jars are stronger, of better shape and color, than any other. Write for our special Milk Dealers' Price Current. Also our little booklet, "*Suggestions to the Milk Dealer*," Free.



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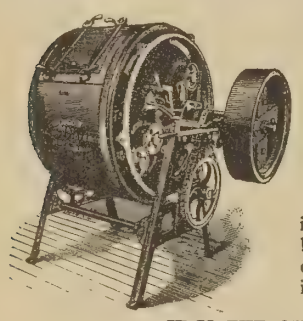
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Waterloo, Iowa. Omaha, Neb.

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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

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Creamery Apparatus,

Pasteurizers, Milk Weighers and Alpha Cream Separators, write to

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Refrigerating Machines for Creameries, Meat Markets, Hotels and Ice Making Plants.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

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is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

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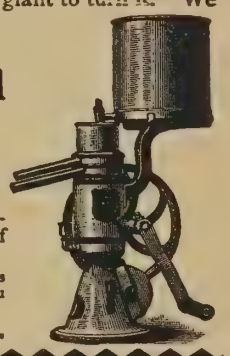
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A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the Empire machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

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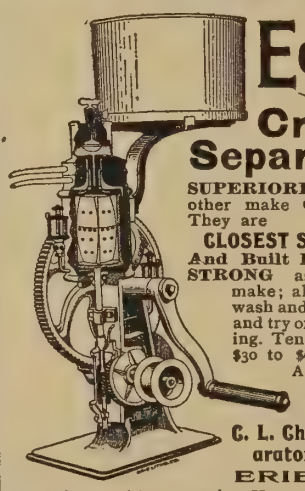
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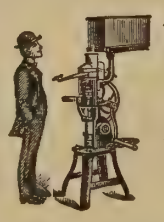
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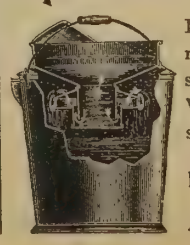


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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

It is estimated that 4,300,000 cows would be necessary to produce an amount of butter equal to the quantity of oleomargarine manufactured and used in the United States.

D. A. Macpherson, the noted Canadian manufacturer of cheese, lately shipped six cheese to England, which weighed 1,000 pounds each. These cheese were for exhibition at the London dairy show.

According to the Kansas Experiment Station, a partial churning of the milk delivered to the college creamery is one of the reasons why accurate testing cannot be done. Much of this trouble comes from partly filled milk cans; the constant jarring of the wagon is sufficient to partly churn the contents of a can that is not completely filled. The result is incomplete sampling with a consequently low test for fat. Of course the remedy is to always fill the cans to the limit.

One of the St. Louis milk dealers recently stated in an interview that what was wanted to ensure clean, healthy milk was "clean cow stalls, pure feed for the cattle, and *scrupulously* clean milking utensils." Simple enough, isn't it? Yet simple as it is, every milk dealer, every creamery and cheese factory, every buyer of butter and cheese knows that it is a condition very hard to secure.

If every producer of milk would comply with this simple condition, there would be scarcely any poor milk, butter or cheese.

The mischief with all three of these products, starts in nine cases out of ten, with the ignorance, indifference or carelessness of the man who handles the cows.

A HINT TO MILK MEN.

Different boards of health in the United States are arousing the consumers of milk concerning the liability of a spread of infective diseases through the ignorance or criminal carelessness of milk producers and handlers.

It is very greatly to the interest of all milkmen that no such scares as have occurred in various places, shall occur by reason of their negligence. The *New York Herald* announces that six cases of typhoid fever have been traced to a certain milk dealer, in the city of Elmira, whose wife had been ill with this disease. It also cites the epidemics of typhoid in Bay Head and Montclair, N. J. in 1894; in Stamford, Conn. in 1895, and in Patterson, N. J. in 1897. It asserts that in all these instances the typhoid microbe was present in the contaminated water, which was used for washing the milk cans.

All this is but another most powerful argument for the necessity of rigorous cleanliness on the part of those who produce and handle milk.

The wise dairyman "foresees the evil" and provides against it, but the "foolish pass on and are punished," and in nearly all instances they bring punishment upon others as well.

Maine Feeding and Breeding Queries.

Ed. Hoard's Dairyman: I would like you to criticise this feed for cows. A friend of mine is using it. He takes one bag each of oats, barley, corn and India wheat, ground together, and feeds a peck a day to each of his cows, along with mixed hay. I suppose the bags hold two bushels each, but as he does not weigh the different kinds of grain of course there is nothing very definite to figure on. In case he could buy bran at the same rate per ton that he pays for corn, would he do better to use the corn?

I notice on page 707 that A. J. Philips says that "A hustler" whacked up $125 for a special dairy bull, instead of paying $50 for a "common animal," which he considers a very praiseworthy action. Would not it have been more praiseworthy if he had "whacked up" $250 and still more so if he had "whacked up" $500? If he had "whacked up" $1,000 or $2,000, where could Mr. Philips have found words fit for the occasion? As a matter of fact are the best things always the most costly? I have understood that salvation itself is free except in cities and villages.

I have known the agent of a certain noted stock to buy scrub thoroughbred cattle at a small price, and immediately after they were bought they were held at a high figure because they were from Mr. So & So's celebrated herd. H. B. W.

India wheat is an unknown quantity, but assuming that it does not vary materially from common wheat, the grain mixture above described will have about ninety per cent of dry matter and digestible nutrients as follows:

	Per Cent.
Protein	9.00
Carbohydrates	64.00
Fat	3.20

If the mixed hay is clover and timothy in equal parts, and each cow eats twenty pounds, it will require about fourteen pounds per day of the grain mixture to bring the digestible protein up to 2¼ pounds. We cannot say what a peck of this mixture will weigh, but probably not more than ten pounds and it follows that the cows do not receive sufficient protein to enable them to do their best. Substituting bran for corn would remedy this defect in part, and ten pounds of clear bran would carry as much protein as fourteen pounds of the mixture; or six pounds of the mixture and two pounds cotton seed meal.

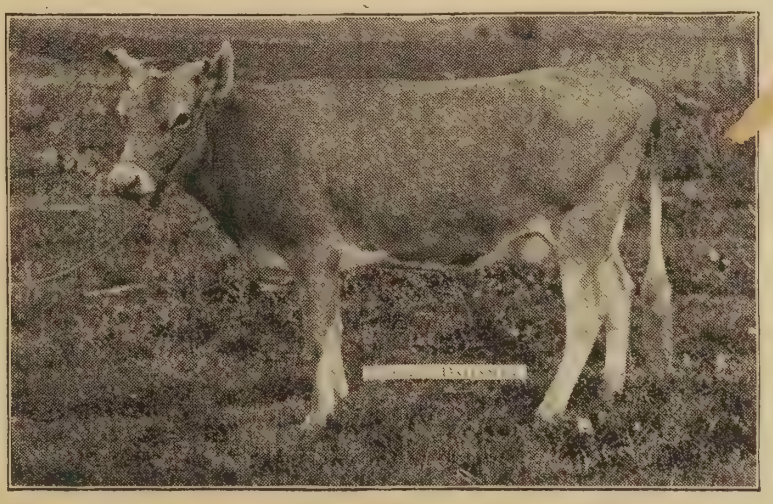
It seems hardly fair to us to assume that because Mr. Philips commended a man for paying $125 for a bull, he thereby left the inference that price was the only factor in determining the quality of a sire; but all the same it remains true that one cannot expect to purchase a good bull at the price of a scrub.

Breeders of fine cattle, or any other animals, who combine business talent and good judgment, are continually on the lookout for good bargains in purchasing as well as in selling, and if they hear of a well bred animal, especially if it belongs to a fashionable strain, they often buy much below real value and by making its merits known, are able to sell at greatly enhanced prices. This is strictly legitimate business, provided no false representations are made in either case.



GALVINA, A. J. C. C. 97346.

Winner of the prize for pure bred cows at the Washington State Fair. Yield of milk, 57 lbs. 10 oz., testing 5.21% fat.



REPUTE, A. J. C. C. 125263.

First Prize for two-year-olds at Washington State Fair.

Feeding Good and Poor Rations.

Thirty-four Per Cent More Profit.

The New Jersey Experiment Station in a recent Bulletin, gives an excellent illustration of the value of different rations and shows the results from "good" and "poor" rations. The rations had the following compositon:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
Good ration	20.91	2.34	10.56	.76
Poor ration	20.95	1.00	12.70	.33

From the actual results obtained the following illustrations are drawn:

To illustrate the advantage of feeding a good ration more clearly, we will suppose that a farmer feeds the poor ration, as given above, to thirty cows for six months, and that they produce during this time 2,500 pounds of milk each, or a total of 75,000 pounds, and that the labor and food required cost 1 cent per pound of milk, or $750. At 1.5 cents per pound, which is the wholesale price for milk in New Brunswick, the 75,000 pounds would have sold for $1,125. The difference between the cost and selling price of the milk, then, from the thirty cows would be $375.

If, instead of feeding the poor ration to his herd, the farmer had fed the good ration, as previously described, he would have obtained, on the basis of the experiment, 34 per cent more milk from the thirty cows during the six months, or a total of 100,500 pounds, which at 1.5 cents per pound would have sold for $1,507.50. The cost of producing the milk per pound would have been one cent, the same as for the poor ration; 100,500 pounds would, therefore, have cost $1,005. We have, then, a difference of $502.50 between the cost and selling price of the milk from thirty cows when fed the good ration for six months, as compared with $375 when fed the poor ration for the same time, a gain in profit of $127.50. The same capital is used in both cases, and practically the same amount of labor required. In other words, the farmer has increased his profit thirty-four per cent by simply feeding a better ration.

RETURNS FROM TWENTY COWS WELL FED GREATER THAN FROM THIRTY COWS POORLY FED.

Looking at the question from another standpoint, we will suppose that a farmer feeds thirty cows for six months on the poor ration, and obtains 2,500 pounds of milk per cow, or a total of 75,000 pounds, and makes a profit of $375, as above. Then we will suppose that he reduces his herd from thirty cows to twenty, and feeds the good ration for six months. On the basis of the experiment, he will produce just as much milk from the twenty cows on the good ration as he did from thirty cows on the poor ration, because of an increase in yield of thirty-four per cent. The profit, however, will be greater, because, in addition to the gains already indicated, his expenses will be reduced, first, in the decrease in interest due to a smaller investment, and second, in the decrease in labor required for handling twenty instead of thirty cows. At a reasonable estimate, the gain would be increased from $375 to $500, or the expenses decreased by $125.

PUT THE COW AHEAD OF THE PLOW.

F. D. Coburn, Secretary of the Kansas State Board of Agriculture, has a most pithy way of thinking and talking. By the way, he is one of the most capable and successful secretaries of agriculture in the whole country. May be his close, practical way of thinking has much to do with his success. It usually has.

In a short letter to the *Farmer's Advocate* he puts into two paragraphs a complete epitome of history. This is what he says:

Hitching the plow ahead of the cow has strewn the western prairies with wrecks; where the cow is worked in front prosperity follows.

The man with the cow is a missionary and philanthropist. He should lead the procession.

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Coming Events.

Kansas Dairymen's Association, Manhattan, Nov. 22-24, 1899.
Missouri Dairymen's Association, Holden, Nov 27-8-9
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Maine Dairymens' Association at Lewiston, December 11-13.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.

THE United States is not the only country where the adulteration of food is common. In England a so-called "milk extract" is on the market. By its use four gallons of milk can be extended to five—the stretching being accomplished by means of a gallon of water and some of the powder.

THE OLEOMARGARINE SITUATION IN MICHIGAN.

Mr. F. D. Culver, agent of the Creamery Package Co., who has been making quite an extended trip in Michigan, informs us that fully 75 per cent of the hotels he visited in that state, furnish their guests with oleomargraine, when butter is called for. Through the aid and comfort the counterfeit butter makers have been receiving from the Supreme Court of Michigan, matters are becoming somewhat discouraging for the producers and consumers of honest butter. What Michigan needs more than anything else is a thorough arousing of the farmers against such iniquity. It finds its stronghold among the politicians of the state, who will continue to shield it and jockey with the people on this question, just as long as there is not a strong public sentiment against it. A little old fashioned independence on the part of the farmers which would tell the leaders of all parties what is what, would change the attitude of some of their politicians mighty quick.

The leaven is working and party leaders in all states who have been secretly using their influence in favor of this great oleo fraud will hear "something drop" in the near future. Honest industry cannot always stand meekly under such constant favoritism in favor of fraud and deceit as has been the practice with those men who occupy high places in law and politics by the very suffrage of the great mass of men they distinguish against.

THE milk supply of St. Louis is in a bad way. According to the report of the city milk inspector, there were 513 analyses made in nine months; of these eighty-nine samples were found to be free from adulteration.

The other 424 samples were found to be watered, skimmed, preserved, and otherwise maltreated. Out of 331 samples taken from retail stores in the city, 237 were found to contain foreign adulteration, and only forty-two were good normal milk.

The average St. Louis milk must be a wonderful compound from the chemical standpoint, but we doubt its value as a food.

Calculating Feeding Rations.

ED. HOARD'S DAIRYMAN:—The figuring out of rations for dairy cows is never easy to the beginner, and many attempts have been made to simplify the process. The mode of procedure here given is that used by the writer, in his college classes, and is somewhat different from that given in text books.

The simplest form of problem is that in which but two fodders are to be used. In working more complex problems, the first attempt is always to reduce them to this simple form.

An example of this simplest form would be the question:—Make a proper ration for a dairy cow in milk, using timothy hay and linseed meal.

The Wolff-Lehmann feeding standard for a dairy cow is:

2.5 pounds digestible protein.
13.0 pounds digestible carbohydrates.
0.5 pounds digestible fat.

This ration has a nutritive ratio of 1:5.7.

According to the tables given in Henry's "Feeds and Feeding," timothy hay contains, in one hundred pounds:

2.8 pounds digestible protein.
43.4 pounds digestible carbohydrates.
1.5 pounds digestible fat.

Linseed meal contains:

29.3 pounds digestible protein.
32.7 pounds digestible carbohydrates.
7.7 pounds digestible fat.

The method we use is, first to find the proportion of these two that will give the desired nutritive ratio, then the quantities required to furnish the proper amount for one animal for one day.

Since we will probably use the less quantity of linseed meal, we use 100 pounds of this in the first trial ration, and some multiple of this for the timothy hay. In this case we will use 200 pounds of timothy for the first trial:

	Protein.	*Carbohydrates.*	*Fat.*	*Nutritive Ratio.*
100 pounds linseed meal..	29.3	32.7	7.0	
200 pounds timothy.....	5.6	86.8	3.0	
Totals	34.9	119.5	10.0	1:4.1

This gives a nutritive ratio of 4.1, when we wanted 5.7. It is evident, then, that we need to use more timothy.

Add 100 pounds more of timothy to the total as it stands, gives the second trial ration:

100 pounds timothy.....	34.9 2.8	119.5 43.4	10.0 1.5	
Totals.....	37.7	162.9	11.5	1:5.1

The addition of the second 100 pounds of timothy has raised the nutritive ratio from 4.1 to 5.1. We want to raise it 0.6 more, to 5.7. One would suppose that it would take just sixty pounds more of timothy to give the desired result. But it is always true that, when changing a nutritive ratio from a narrower to a wider ratio, it always requires more than would be expected from the foregoing calculations. We will, therefore, add eighty pounds instead of the sixty pounds:

80 pounds timothy.....	37.7 2.2	162.9 34.7	11.5 1.2	
Totals	39.9	197.6	12.7	1:5.7

We have now learned that a mixture of 100 pounds of linseed meal with 380 pounds of timothy hay, gives the desired nutritive ratio. The next thing to be learned is, how much of this mixture will be required for a day's feed.

The mixture weighs 480 pounds, and contains 250.2 pounds of digestible material; this latter figure being found by adding 39.9, 197.6, and 12.7.

A day's ration for a milk cow is sixteen pounds of digestible material. We have then the proportion:

250.2:16::480:31, equals the weight of the mixture for one day's feed.

250.2:16::100:6, equals the weight of linseed meal in one day's feed.

250:16::380:25, equals the weight of timothy in one day's feed.

The next most simple problem is that in which three substances are to be used; but two of them are to be in a certain definite ratio.

Make a ration of timothy, linseed meal, and wheat bran, in which the bran shall be twice as much, by weight, as the linseed:

100 pounds linseed meal 200 pounds wheat bran..	29.3 24.4	32.7 78.4	7.0 5.4	
Totals.....	53.7	111.1	12.4	1:2.6

Use this analysis of the combined grains as the analysis of a single fodder, and the problem is now reduced to the first form, of uniting two substances to form a ration.

Suppose the problem is to make a ration of timothy hay, corn fodder, cotton seed meal and wheat bran. It will seldom happen that the problem in actual practice has not some qualifications. One would know how much cotton seed meal he wanted to feed, or considered safe to feed, and would usually have a definite idea of the proportions in which he desired to feed the hay and corn fodder.

If two pounds of cotton seed meal per day is considered the limit, then this part of the problem becomes:

Standard ration.....	2.50	13.00	0.50	
Supplied by two pounds cotton seed meal.....	0.74	0.34	0.24	
To be supplied by the remainder of the ration....	1 76	12.66	0.26	1:7.5

If equal parts of hay and corn fodder are to be used, the rest of the problem is the same as the second one above. If the hay is to be limited to ten pounds per day, as is a common rule where hay is expensive, its digestible portions would be subtracted as the cotton seed meal was, and thus the problem reduced to but two quantities.

Suppose the problem comes in this form: Make a ration of timothy hay, wheat bran and linseed meal, using eight pounds of grain per day. The eight pounds of mixed wheat bran and linseed meal will contain approximately five pounds of digestible material, leaving eleven pounds of digestible matter to be supplied by the timothy. A hundred pounds of timothy contains 47.6 pounds of digestible matter; it will therefore take twenty-three pounds of timothy to contain eleven pounds of digestible matter. The problem, so far, will stand:

Standard Ration.....	2.50	13.90	0.5	
Supplied by 23 pounds of timothy hay.....	0.64	9.98	0.32	
To be supplied by the grain of the ration.....	1.86	3.02	0.18	1:2

Working as first, we find that a mixture of two parts of linseed to one part of bran has a nutritive ratio of 1:2. Hence, the eight pounds of grain is to be composed of five and a third pounds of linseed meal and two and two-thirds pounds of wheat bran.

The same general plan will be followed on the other problems that might arise.

The advantages of the present method are that it gives, with the fewest figures, the ratios in which the materials are to be fed. In most cases this is what is desired to be known, the actual quantities varying with the number of animals and the individuality of each.

There is also less liability of making mistakes with the decimal point, which is the most common error of students in figuring rations.

W. W. COOK.
Colorado Experiment Station.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

A TEXAS RATION.

Please give me a balanced ration of the following feeds: Corn meal, $15 per ton; cotton seed meal, $17 per ton; wheat bran, $16 per ton; oats, 20 cents per bushel, 15 cents per hundred for grinding; hulls, $4.00 per ton, as bulk for mixing feed; sorghum hay, my own raising; prairie hay, $6.00 per ton. A. J. U.

Paris, Texas.

Under the conditions named, we should be disposed to try about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. sorghum hay..	11.94	.30	7.46	08
5 lbs. prairie hay.....	4.38	.18	2.09	.07
5 lbs. ground oats....	4.45	.46	2.37	.21
3 lbs. cotton seed meal	2.75	1.12	.51	.25
Totals.....	23.52	2.06	12.43	.61

Add four to six pounds hulls.

A MISSISSIPPI RATION.

My grown cattle weigh from 600 to 850 pounds. Please give me a balanced ration for them with sorghum and pea vines hay at $8, cotton seed $9, cotton seed meal $20, corn meal $18, wheat bran $20, cotton seed hulls $3.50, each per ton. J. W. McL.

Durant, Miss.

We cannot advise you to feed either the whole cotton seed or the cotton seed hulls, but recommend that you mix two parts by weight of bran with one part each of corn meal and cotton seed meal and feed from four to eight pounds daily, in connection with all the hay each cow will eat without waste.

COW POX.

The above inquirer had trouble last winter with "risings or boils" on the udders of his cows. After spring opened and the cows were turned to pasture this trouble so largely disappeared as to be practically unnoticeable, but with the advent of "fall weather" again the disease is making its re-appearance. We diagnose the malady as cow pox. It is emimently infectious and is easily conveyed from one cow to another by the hands of the milker. Dr. Horne has repeatedly prescribed for this disease and we beg to refer the inquirer to back numbers of the DAIRYMAN for information as to its proper treatment. See page 589 of the present volume, and especially remember that prevention is always better than cure. See to it therefore that the milker after handling an infected cow thoroughly washes his hands in *hot* water and with soap before going to another cow.

TUBERCULIN TESTING OF COWS.

If I were to advertise tuberculin tested milk, it would be of great advantage to my business and I would like to have all my shippers submit their cattle to a tuberculin test, and inform the public about it.

Whom will I get to test them, and what would the expenses amount to?

Could I promise that it would not harm the cattle?

Hope you will be kind enough to enlighten us dairymen, who are doing business in the large cities, on this very important subject.

F. P. W.

Would advise you to write to the State Veterinarian of Illinois for information as to proper person to make the test and its probable expense. We do not know his name

or address, but think a letter addressed "State Veterinarian, Springfield, Ills., care of Secretary of State" would reach its destination. Nearly all of the modern veterinarians are posted in the use of the tuberculin test as are also all the graduates from the agricultural colleges. It is not by any means a difficult operation, but requires care and close attention.

There is positively no danger of resulting injury to cows that are free from tuberculosis, but it has been claimed, but on rather insufficient evidence, we think, that the test has a tendency to hasten the development of latent tuberculosis. The fact that all our own cows have been tuberculin tested is assurance of our faith in its harmlessness.

A PENNSYLVANIA MILK MAN.

Have eight average milch cows; sell all the milk. Have clover hay and corn stover, but not quite enough of either—can get more. Have one-half acre turnips and mangle-wurtzels. I can get wheat bran at 90 cents per one hundred pounds; wheat middlings at 90 cents, corn meal at 95 cents, buckwheat middlings at 85 cents, chop, corn and oats, at 90 cents, oil meal, old process, at $1.50. I see gluten meal recommended for milk, but do not have it nearer than Buffalo, 130 miles away—do not know its price. Would you advise me to get some? Now make out the most profitable ration. J. D.

Titusville, Penn.

See answer to Subscriber, Quincy, Ill. Add more clover hay to the formula there given, so as to give each cow all she will eat.

Feed the roots immediately after milking, never just before or at the time of milking.

TESTING MILK FOR KEEPING QUALITY.

Can you give me a test to use on milk when it arrives, as to its keeping quality. I know of one St. Louis dairy that has a test which they apply on receipt of their milk from train, which tells whether milk will keep for the next twenty-four hours.

Carlyle, Ill. R. H.

Use Farrington's Alkaline Tablets, to be had with full directions for use of any dealer in general dairy supplies, or of the manufacturers, Charles S. Baker & Co., Chicago, Ill. Milk containing over 0.2% acid as shown by the test will sour rapidly. If it contains 0.3% acid it will coagulate on boiling. This boiling test is used in Europe in selecting milk for city use.

Above will also answer inquiry of F. W., St. Louis, Mo.

CHARACTERISTICS OF THE AYRSHIRES.

Please give the characteristics of the Ayrshire cattle. How would this breed cross with milk Durhams or Holsteins for milk and beef? J. W. McC.

King Co., California.

The characteristics of the Ayrshires are, (1), as might be expected from the land where they originated, great hardiness and ability to "rustle" for the necessaries of life, and (2), large milking capacity. They do not commonly give as much milk as the Holsteins or as rich milk as the Guernseys and Jerseys.

We do not advocate cross-breeding.

COB MEAL.

What do you think of corn, ground cob and all, and mixed with bran for milch cows? Do you consider the value of the cob worth the grinding or more? H. A. W.

Monticello, Minn.

As will be seen by referring to the table on page 754, pure cob meal has but little feeding value, especially in localities like Minnesota, where the carbohydrates are so plenty and cheap. But when one has only corn to feed, the cob finely ground with the grain dilutes or extends it so that it is more easily and more thoroughly digested. Bran mixed with the ground corn answers the same purpose, and we would not advise grinding the corn and cob together to mix with bran, if there was an extra charge for grinding the cob.

WHAT AND HOW MUCH TO FEED.

I have bran and Quaker Dairy Feed. Do you suppose I ought to have something else to this to run a successful dairy or not? Please tell me how, and how much of all kinds of stuff to feed. E. N. G.

Selins Grove, Pa.

We discussed the Quaker Dairy Feed question somewhat last week, and can add nothing to what was said then. If one will use enough of the feeds named, he may expect good results; but it should be remembered that a quart of bran weighs only ten ounces, whereas a quart of oats weighs a pound. When one feeds bran without considering how light it is, or shelled corn without considering how heavy it is, he is liable in the first case to feed too little, and in the second case to feed too much. With only timothy hay for roughage, one would need to feed not less than twelve pounds (eighteen quarts) of bran per day.

SWINE FEEDING.

I am a subscriber to your paper, and would like very much for you to give a ration for pigs. No milk or whey to feed, but depend on what can be bought at feed store.

Booneville, N. Y. J. O.

Something will depend upon the disposition to be made of the pigs when fattened. If they are to be sold on the general market, which pays too little attention to quality, and only considers weight, there is probably no better combination than ground corn and wheat middlings, equal parts of each by weight, mixed into a slop, not too thin, with plenty of clean, fresh water for drinking purposes. The amount to be fed must be judged by the feeder. Give all they will eat with relish, but never so much as to get them off feed.

If the pork is for personal use, we strongly recommend adding barley to the feed. Our own experience verifies what is written in the books, that for both flavor and texture there is nothing quite so good as barley. But it takes about eight per cent more barley than corn to produce a given gain.

AN INDIANA CASE.

I have lately subscribed for your paper. Am well pleased with the few numbers I have so far gotten. I have also lately started in the dairy business—retailing. The question of scientific feeding discussed in your paper, is of deep interest to me. Hence the question I wish to ask. Fall pasture has been out of the question with me. Fortunately I planted three acres to sugar corn; put the corn into shocks; have been cutting corn and fodder together in cutting box and giving each cow twice a day about one-half bushel of this with about two gallons clean bran over or mixed with the cut corn, and in addition all the good clover hay they eat up clean. What would you add in the line of feed stuffs to get best flow of milk and how formulate it? I pay $14 per ton for wheat bran; corn meal can be had for $16 per ton; shelled oats, thirty-five cents per bushel; clover hay, $5 per ton. Don't know as to cotton seed meal. Have ten cows. Best ones give three and one-half gallons per day.

Spencer, Ind. J. D. B.

Four gallons of bran will weigh approximately ten pounds and with the corn fodder and clover hay will make a fairly satisfactory ration. Clover hay at the price stated is the cheapest feed named and we would encourage the cows to eat all they will. To this end put full half of this hay through the cutting box, moisten and let it heat up for a few hours. For a single feed take about six to eight pounds of this moist, chaffed hay and add three pounds bran and one pound to two pounds ground corn, with a small tablespoonful of salt. Give the corn fodder as long as it lasts and all the long hay each cow will eat.

A PENNSYLVANIA FEEDING PROBLEM.

Find enclosed two dollars for the new book on Feeds and Feeding, by Professor Henry, and will also ask you for feeding ration. I have bran at $17 per ton and shorts at $18 per ton, and corn and corn fodder cut in half-inch lengths. Will mix the grain ration with the cut corn fodder and wet it with cold water in the evening for morning feed and in the morning for evening feed. I have a notion to buy a forty gallon feed cooker and cook the corn and cut it up and feed it that way and mix the bran and shorts with the cut fodder. What proportion of bran and shorts will I mix with the fodder to give best results? Can get oil meal, old process, for $1.50 per hundred; have timothy hay cut before it got ripe. I have been feeding bran, corn chop, cob and all, half and half in bulk; thought it was too much corn with timothy hay and corn fodder. W. A. E.

Ligonier, Pa.

It is probable that the chief value of the cob in corn and cob meal is to extend the more concentrated pure corn meal or ground corn. When the latter is fed with bran, the bran serves the same purpose equally well and possibly better. We have never tried cooking feed of any kind for cows, partly for the reason that we are not convinced that it is improved, and partly for the reason that it involves a good deal of extra labor and bother.

We think it would be expedient to use some oil meal with the other feeds named, notwithstanding its excessive price. When half the dairymen of the land have silos so that they can give cows succulent feed in winter there will be less demand for oil meal and it will be decidedly cheaper, unless the foreign demand should increase.

Our suggestion for a ration would be:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. timothy hay	8.68	.28	4.34	.14
10 lbs. corn fodder	7.10	.37	4.04	.12
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. oil meal	1.82	.59	.65	14
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	24.67	2.15	12.68	.67

GLUTEN MEAL AND FEED.

Page 754 of the DAIRYMAN is worth many times the price of the paper for one year. Kindly tell us what is gluten meal and gluten feed. M. D. M.

Woodworth, Wis.

Thanks for the compliment. Page 754, which gives the table of feeding analysis, with pertinent explanations represents no little labor. We think it worthy of preservation by every reader.

Gluten feed and gluten meal are the kiln dried refuse or by-products of starch and glucose factories. A kernel of corn may be divided into four parts, namely, the outer layers or bran, beneath these a layer of cells rich in gluten or protein, and within this the starch cells. Near the base is the germ. In making starch or glucose, only the starch cells are used, and when all the remainder is kept together, we have the product called gluten feed; but if the different materials are kept separate, we have corn bran, germ meal and gluten meal.

A KANSAS RATION CRITICISED.

Would you kindly suggest a proper ration out of the following feeds: Wheat bran, $12 per ton; corn meal, $12 per ton; oil cake meal, $1.30 per 100 pounds; oats, 20 cents per bushel.

My hay is a mixture of prairie and clover grasses, early cut, of which I feed all they will clean up night and morning, with corn fodder (or stover) at noon. Am feeding for grain ration about eight pounds bran, divided in two feeds per day. My cows are Jerseys and Jersey grades, weighing from 700 to 900 pounds.

We make butter, supplying private families for 25 cents the year round. G.

Bourbon Co., Kan.

The present plan of feeding is very good indeed, and only a fair trial will determine whether it can be improved. The principal fault with it, if any fault can be suggested, lies in the fact that the cows are required to work over too much material in order to extract the needed nutrients, and that there is no succulence or substitute for it. If the cows are not too far advanced in lactation, we incline to the opinion that it might pay to modify and increase the daily grain allowance, making it consist of 4 pounds bran, 2 pounds corn, 2 pounds oats and 1 pound of meal.

If this suggestion is tried, we would be much obliged for a report of the ensuing results.

BUCKWHEAT MIDDLINGS RECOMMENDED.

Will you please formulate me a ration out of the following feeds: Corn silage, also good dry fodder raised for fodder alone; clover hay at $6.50 a ton; wheat bran at $13.00 a ton; buckwheat middlings at $10.00 a ton; chopped corn at $15.00 a ton; wet brewers grains at about half the cost of bran considering the amount fed. I wish to buy as little hay as I have to, as I have a large quantity of fodder, and very little clover hay.

Do you consider it pays to cut up your fodder or feed it whole? SUBSCRIBER.

Quincy, Ills.

Buckwheat middlings is by all odds the cheapest feed named, but unfortunately these cannot well be fed without mixing with other ground feed, because alone they form a sticky paste when wet. We therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	4.18	.18	2.26	.14
5 lbs. clover	4.24	.34	1.79	.09
15 lbs. corn fodder	8.67	.38	5.18	.18
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
4 lbs. bran	3.42	.50	1.54	.12
Totals	24 00	2.28	12.11	.75

We consider the above as little as should be fed, unless to small cows and those that give but little milk. Add another pound or more of the buckwheat middlings, to such cows as can make good use of it.

Having practiced cutting much the larger part of our corn fodder and corn stover for years, we are decidely certain that it pays.

NEUFCHATEL CHEESE.

Please give a brief method of making Neufchatel cheese; temperature heated to, and kept at. Are sacks better to press it in than a cheddar cheese press? Can any flavoring be used in it. W. C.

Hartford, Conn.

The process of making and curing Neufchatel cheese is quite too intricate to be described here. It is not pressed in sacks or cheddar hoops, but in little cylinders about two and one-half inches in diameter and three inches high. If further information is desired send fifty cents to this office for a copy of Monrad's A. B. C. in Cheese Making, which not only treats of this particular subject, but gives the processes employed in making Cheddar, Gouda, Cottage, Brie and other fancy cheeses.

Above will also answer the inquiry of R. J. C., Attleboro, Mass.

PUMPKINS.

Will you give your readers the feeding value of field pumpkins? I have never seen it published, and there is a difference of opinions among farmers and cow keepers.

Moberly, Mo. W. H. ELLIOT.

Field pumpkins contain about the following amounts of digestible nutrients:

Protein	1.0 per cent.
Carbohydrates	5.8 per cent,
Fat	0.3 per cent.

This is approximately the same as given for rutabagas.

Prof. Henry in "Feeds and Feedings" says:

"For dairy cows the pumpkins are excellent fall feed, none being more highly relished; for swine, in the first stages of fattening, they are useful, either fresh or cooked with meal.

There is a tradition among farmers, that pumpkin seeds increase the excretion from the kidneys, and should be removed before feeding. In the dispensatory the pumpkin seed is given as a vermifuge, with no reference to any other property. Since the seeds contain nutriment they should not be wasted."

HOME GROWN FEEDS.

Will you give me a ration from the following feeds. I want to feed for butter. Cows weigh 750 to 1,000 pounds. I have plenty of the following feeds raised on the farm. What I would like to know is what proportion to mix the grain before grinding: Rye,

forty-two cents; wheat, sixty-five cents; corn, thirty cents; oats, twenty cents. We sell our butter for twenty cents. Bran is eighteen dollars per ton, would have it to buy. I have raised on the farm clover hay, timothy hay and corn stalks, wheat and oat straw. Have no cutter. J. S W.

St. Joseph Co., Mich.

In regard to replies by mail, see notice at head of this department. It is not a question of compensation, but of time. The latter, all of it, belongs to the readers of the paper as a whole, and to use part of it for personal gain would not be just.

With the rough fodder mentioned, it would require fully fourteen pounds of rye, corn and oats, in any combination that could be made, to bring the digestible protein up to standard. There is no other way, if these cows are to be fed for best results, for most net profit, but to exchange some of these grains for feeds high in protein—such as cotton seed meal, linseed oil meal, or something of that character. One pound of linseed oil meal is worth as much as three pounds of the grain mixture, and one pound cotton seed meal equals four pounds of the mixture. As an average for the entire herd, each cow being fed according to her capacity to respond, the daily allowance should be about six pounds of the grain mixture as above, and two pounds cotton seed meal, with what roughage each will eat, and the more clover hay for milch cows the better.

SANITARY MILK PAIL.

I would be pleased to know what is a "sanitary milk pail," i.e., how constructed and whether same can be had from dealers? H. L. S.

Bozeman, Mont.

There have been a number of forms of milk pails suggested, with a closed top, containing some kind of cotton or cloth strainer, through which the milk is strained before entering the pail, and thus freed from impurities as soon as possible. You will find a pail of this kind advertised in the columns of the DAIRYMAN.

QUAKER DAIRY FEED.

I send you today a sample of Quaker Dairy Feed, and would like to know if this is a good feed for dairy cows. With this I feed, corn meal, dried brewers grains, cotton seed meal, and ensilage of splendid quality. Will you please make me a suitable ration for fine Jersey cows? I also have good hay to feed this winter. A. C.

Washington, D. C.

It is quite impossible to keep up with the manufacturers in the matter of new names for feed. The sample has been received and we judge it to be of fair quality, probably two-thirds as valuable as wheat bran. Before buying it in any quantity, we would demand a guaranty from the manufacturers as to its analysis. We need a law in every state, and in the District of Columbia, requiring these mixed feeds of all kinds to be sold as mixed fertil zers are sold, with some definite assurance as to quality. In this particular instance, the other feeds named render it unnecessary to resort to kinds of uncertain values, as the following will show:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs silage	6.27	.27	3.39	.21
10 lbs hay	8.68	.28	4.34	.14
5 lbs dried grains	4.59	.79	1.82	.25
3 lbs corn chop	2.67	.24	2.00	.13
2 lbs cotton seed meal	1.84	.74	.34	.17
Tolals	24.05	2.32	11.89	.90

BREWERS GRAINS.

What do you think of brewers grains as food for dairy cows, and also as food for beef cattle and hogs.

Would also like to know relative value of brewers grains as compared with oats, $18.00; corn, $15.00; bran, $15.00 per ton.

We understand brewers grains are being kiln dried and sold for feed in the United States. THE C. & M. D. Co.

Montreal, Que.

See table on page 574 for relative values. Fed in moderation these dried grains are good for cattle and horses, and presumably for hogs also. They should be soaked before feeding and would mix ground corn or bran with them. Wet grains when fresh are also unobjectionable in fact, although some boards of health and condensing companies prohibit their use. They go off in quality very rapidly and when kept in stock are apt to contaminate the stable and mangers.

PLAN FOR CALF STABLE.

W. H. B., of Concordia, Mo., asks for suggestions in regard to building and arranging a stable for thirty-five to forty fall calves. He is erecting a building 24×32 feet and sixteen feet high and is apparently of the opinion that such a structure will afford ample room for that number of calves. We are unable to concur in this view, unless he divides his building into two stories, and puts half the calves on the second floor.

We have had best success by giving each calf a small, separate box stall. The younger the calf the smaller may be its apartment. A space 3×5 feet would probably answer. With a building of the size above given we would build on both sides a series of box stalls, each 4×5 feet; and in front of them another series each 3×5 feet, separated each from the other by a passage two feet wide. This will leave a central alley four feet wide, with narrow passages leading to the back pens or stalls. Make the divisions between these back pens movable so they can be taken out if necessary and thus throw two compartments into one. Leave a convenient opening in each stall for the calf to put its head through to drink milk out of a pail, and a small rack in one corner to hold hay. Put the slats of partitions between stalls so close together that calves cannot even put the tips of noses through. This arrangement will accommodate twenty-eight calves, and it is possible that before more room is needed some of the calves will be large enough to move to other quarters and placed in regular stanchions.

A NEW JERSEY RATION.

Please tell me the best ration I can make out of plenty of good corn, wheat bran and oil meal, and for roughage, some mixed clover and timothy hay, and good, bright corn fodder. No silo I am sorry to say. Cows are mostly Guernseys, registered and grades.

Moorestown, N. J. E. W. S.

How to feed and what to feed will depend upon the stage of lactation, and the natural ability of the cows to respond. Consider, for just a moment, why we feed, and these facts become apparent. For cows in fairly good flow of milk, the following would be quite a moderate ration, doubtless too much for some and not enough for others:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay	8.53	.48	3.96	.16
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs. bran	4.40	.63	1.93	.15
3 lbs. corn chop	2.67	.24	2.00	.13
2 lbs. oil meal	1.82	.59	.65	.14
Totals	23.37	2.11	11.78	.65

A MISAPPREHENSION CORRECTED.

In your issue of Nov. 3rd, page 754, you give analyses of feeding stuffs, also daily allowance of cows, horses and young dairy stock.

Is there not a mistake in the amount of nutrients required for young dairy stock?

Does it require more of the nutrients for a three months calf than for a two-year-old as stated in the estimates? B. W. G.

Please notice that the figures given are for one thousand pounds of live weight, and not for each animal.

MILKING QUERIES.

Does it affect the milking qualities of a cow to milk her with one hand, or in other words, to do the whole milking in the same way, as is done in stripping a cow? Do you think if the person doing the milking takes half the milk from the cow in this way, that she will hold her milk, and gradually dry up? I am in hopes to get more of my customers to take your paper. Farmers are slow to take hold of new papers, or dairy papers.

Minerva, Ohio. T. E. B.

All the "authorities" agree that milking should be performed in the most expeditious manner posssble without doing injury to the udder or teats, and that to do otherwise tends to lessen the flow of milk. When the editors were boys they had their first lessons in milking with cows far advanced in lactation, so that they might not by their slow and inefficient methods "dry off" the fresh cows.

We may add that the good milker does not do the "stripping" with one hand.

Argument for Dairy Farming.

The Net Gain for the New Method of Farming as Compared With the Old Time Ways.

ED. HOARD'S DAIRYMAN:—At the recent meeting of the Farmers' Congress at Boston, it will be remembered Prof. Robertson in his address referred to the satisfactory progress made in dairy farming in Prince Edward Island. The marked progress of the industry in the Island the professor attributes to government co-operation. In 1892 there was but one co-operative factory in operation; and this one being started by the professor himself, while to-day, there are almost fifty, and the total output of these factories will, for 1899, equal fully a half million. Previous to the inauguration of dairy farming the farmers produced chiefly oats and potatoes. Wheat never cuts much of a figure in the Maritime Provinces. While a good deal of spring wheat is grown and the quantity is increasing yearly, yet not nearly enough wheat is produced for home consumption, hence these provinces are large importers of flour. Beef raising, for the last twenty-five or thirty years, cut but a small figure either, so that previous to the inauguration of dairying, our farmers depended altgether on oats and potatoes. True, pork has always been a prominent feature of Prince Edward Island farming and is to-day of greater magnitude than ever; and hay in the adjoining provinces has been an important factor.

Now, there will probably be some 300 farmers in the Province of Prince Edward Island that equal various amounts to over $200 in cash as receipts for milk sent to the cheese factories since opening in spring, June 1st, to say nothing of what these men will make in addition during the winter from November 1st forward, where factories are turned into creameries. It will be interesting to figure the amount of potatoes that a farmer must needs sell to equal $200. At present prices of sixteen cents per bushel, to make $200 there would need to be sold 1250 bushels. That would mean about thirty-two horse loads to be drawn to market, and think of the time and wear and tear of man and horse; and besides it is doubtful if little or any cash could be got for those potatoes. Island merchants handling potatoes, seldom pay any cash, certainly not this fall, and take them only in a trade way against goods or against an account, so that the sixteen cents paid does not in reality mean more than fourteen cents in cash.

To make $200 by selling oats one must needs draw to market twelve two horse loads, amounting to 715 bushels, which, at the prevailing price of twenty-eight cents per bushel, would yield the amount. But the factory patron has not got to draw his product to market at all. They come to his gate for it, and he only has to draw his milk check to market once a month.

There is another phase of the subject which must not be overlooked.

In drawing thirty loads of potatoes to market the farmer is drawing in them the increment—the fertility—of his farm, six cents worth in every bushel, to the amount of $75.00. In drawing the twelve loads of oats to market, fertility to the value of $90 is thus being parted with forever. The farm is being sold off by the bushel. The dairyman, on the other hand, in selling $200 worth of cheese sells fertility to the value only of $17.

The amount received does not, therefore, represent the net proceeds of the transaction, for he has parted with a certain amount of his capital, that is of the stored up fertility of his soil and if he does not take this into his account he makes the same mistake a merchant would, should he estimate his profits by the amount of cash which he received and neglected to take account of stock. The accounts will, therefore, stand as follows;—

(a)	
1250 bushels potatoes at 16c	$200
Less fertility parted with	75
Net	$125
(b)	
715 bushels oats at 28c	$200
Less fertility parted with	90
Net	$110
(c)	
One ton cheese at $200	$200
Less fertility parted with	17
Net	$183

To (a) and (b) must be added the cost of drawing. In the case of (a) thirty loads of potatoes to market, which, at $3 a load would leave but $35. In the case of (b) twelve loads at $3 a load would leave but $74; while in the case of the cheese no such transaction as the cost of marketing appears. In order, then, to come out square with the man who sells a ton of cheese for $200, one must in reality sell some 2,000 bushels of oats,

"One Year's Seeding, Nine Years' Weeding."

Neglected impurities in your blood will sow seeds of disease of which you may never get rid. If your blood is even the least bit impure, do not delay, but take Hood's Sarsaparilla at once. In this course there is safety; in delay there is danger.

Hood's Sarsaparilla Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Scrofula and Consumption

People tainted with scrofula very often develop consumption. Anemia, running of the ear, scaly eruptions, imperfect digestion, and enlargement and breaking down of the glands of the neck, are some of the more prominent of scrofula symptoms—are forerunners of consumption. These conditions can be arrested, consumption prevented and health restored by the early use of

Scott's Emulsion

Your doctor will tell you so.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

and in the case of potatoes one would have to sell some 6,000 bushels.

It is hard to persuade the farmer to abandon time honored practices and adopt methods with which he is unfamiliar. If the farmer, instead of selling off his crops, feeds them to live stock on the farm as far as possible, a large proportion of the fertility is retained on the farm, and if the business is carried on to the point when feed is purchased in addition to that grown on the farm, a considerable addition may in this way be made to the fertility of the farm. Buying feeds, well up in protein and nitrogen, and feeding them in conjunction with the roughage and bulk food grown on the farm to dairy cows is one of the best ways.

Prince Edward's Island. J. A. M.

Round Barn and Silo.

ED. HOARD'S DAIRYMAN:—J. P. viz., page 376, inquires about the round barn and silo- though rather out of season it is not devoid of interest. I have given the subject considerable thought and am a firm believer in the plan named as to the great economy in its construction and its convenience, utility and value thereafter. Messrs. Helly Bros., of Healcottsville, N. Y., who had seen some of my writings on the subject last winter, wrote me for particulars, which I gave at the time.

A few days ago I received a letter from them, stating in substance that at the time of writing in February last, they were planning to build a barn 60×60 feet; that my plan induced them to change their plans from the sixty square to one round and seventy feet in diameter, with a round silo in the center, twenty-two feet in diameter, the lower story being stone, eight feet high, and the silo extending into the earth only four feet as they struck rock—were designing to have the silo some eight to ten feet in the earth.

The further plan of the basement was an alley or driveway for a horse and cart, eight and a half feet wide around the outside, then a circle of stalls or stanchions, heading to the center, forty-nine in number, and also stalls for four horses, with ample room at the heads of the stock for mangers, feeding and other purposes.

These gentlemen express themselves as pleased with their barn, and the economy of the round plan over the square one, to wit: A barn sixty feet square is 240 feet around. One seventy feet in diameter of the round form is 220 feet around—just twenty feet less distance around the round barn. Hence it takes less material to build it, and the lumber is all short—mainly, not over sixteen feet in length is required, while the square frame calls for long timbers of greater cost. The area enclosed in the square barn of sixty feet, is 3,600 feet. That of the round barn, seventy feet in diameter, the area enclosed is 3,675 feet—seventy-five cubic feet more for each foot in height—equal to 2,250 feet in a barn thirty feet high.

A round silo in the center of a round barn surrounded with stock, keeps the silage from freezing to any great extent and the silage is nearer to the heads of the stock than any other plan otherwise devised, and adds great strength to the building, cyclone proof I claim, if properly constructed and doors securely closed in time of trial. It is adapted to a building forty feet in diameter, (hardly less) and so on to a greater diameter, according to the amount of stock to be sheltered and to provide storage room for their forage and bedding. I will give plans to any reasonable number of inquirers through the DAIRYMAN. Inquirers should state the number and kind of stock they wish to provide for; the site on which to build, whether level ground or in the side of a bank and how high the bank is, also if they wish to use any growing timber for a part of the frame, or if they will depend entirely upon sawed lumber.

Brethren and friends, you have given me rather a cold shoulder on this round barn and silo in the center, but it is coming to the surface; its merits are great. The only objection I can see is that the odor of the stable will vitiate the forage above, something hardly any one will consider. I have a manure cellar below the cows; manure dropped through the floor. Cellar, non-freezing, manure hauled out any time. Forage above cows; no known damage from forty-five years use, little or no trouble but milk fever.

Rocky Run, Wis. UNCLE FRED.

Acorns as Food for Cows.

ED. HOARD'S DAIRYMAN:—Better let acorns alone as a food for milch cows; there are several objections to them as a food for cows. As such, acorns are out of the question. I have never secn a cow eat acorns that was not in a starving condition, or nearly so. When I was an Illinois farmer on the Desplains, near Chicago, I had lots of opportunity for observation. Our hogs, which ran wild, got in good soft condition on acorns. But we used to carry corn to the woods and throw it around. This helped a little. Cows will not eat acorns unless in an abnormal condition. DR. WM. HORNE.

Janesville, Wis.

Babcock Test and Churn Yield.

A writer, in the New England *Farmer*, writes as follows:

"The reason for feeling so positive about it is that there is no difference of opinion about facts; on these there is perfect agreement. The whole controversy seems like a petty quibble over words,—whether 'six' or 'half a dozen' is right. Such a question is too puerile for grown up men to indulge in. Four propositions can be laid down to which no one can take any exceptions.

"I. The amount of butter produced from a certain amount of milk depends on (1) the amount of raw material—butter fat, and (2), also on the skill and honesty of the manipulation.

"II. Of these two elements, the amount of butter fat depends upon the cow, and the skill and honesty of the manipulation upon the buttermaker.

"III. Consequently, if we ascertain the amount of butter fat produced, we have measured accurately the performance of the cow, and that too without the introduction of any other outside elements.

"IV. An accurate analysis of a fair sample of milk determines absolutely the amount of butter which an honest and skillful buttermaker will get from that milk. This is just as true as if the butter was actually made. Furthermore, this is the fairest test of the cow for it eliminates the possibility of any uncertain elements, for which she is not responsible, varying the result from that which would be reached by honesty and skill.

"It is all well enough to sneer at 'mathematical butter' and to indulge in all sorts of verbal gibes and sarcasms at 'butter which has never been made.' Sneers and ridicule are not argument. The fact remains as stated above. The principle is just as true as it is in measuring land. The measurement of a base line and the angles from the ends of that base line to a far distant point will furnish us data from which can be computed the distance to that point with perfect accuracy, even though the foot of man never travelled to it. The measurement is even more accurate than if the distance had been actually traversed with line and chain because of physical difficulties in the way of such measurements.

"Of course where persons want to be absolutely accurate in the use of language, it would not be true to say that butter was actually produced when it was not, but amount estimated by analysis and weight is as accurate as amount actually made. As we said before, a dispute over this is wholly a quibble of words, for as to the fact there can be no difference of opinion.

"I have used the expression, "skill and honesty" in the work of making butter, and wish to emphasize particularly the word "honesty" because there is much variation in the composition of butter and within narrow limits this is due to the skill of the maker; beyond this, his honesty is involved. The butter inspector of the Chamber of Commerce, a few weeks since, brought to me for analysis, a number of samples of butter. In one the amount of moisture was 7.5%; in another it was 33.2%.

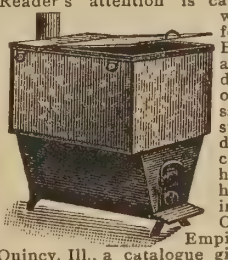
Can anyone claim that butter with 33.2% of water in it is honest butter or honestly made?

"Would anyone contend that if each of two cows produced an equal amount of butter, one testing 7.5% of water, and the other 33.2%, both animals should be adjudged as having made the same record?

"Why cannot our good friends of the agricultural and dairy press let up on this senseless discussion as to the churn and the Babcock? The merit of the cow is in the amount of butter fat produced; this amount can be ascertained in two ways. Why fight over methods when with skill and honesty the result is the same either way? It is immaterial whether that amount is ascertained by actual manufacture of the fat into butter, or whether it is computed by scales and the Babcock. The result is the same in either case, but the chances of error or of unfairness to the cow are greater in the case where the greater amount of human skill and honesty is involved.

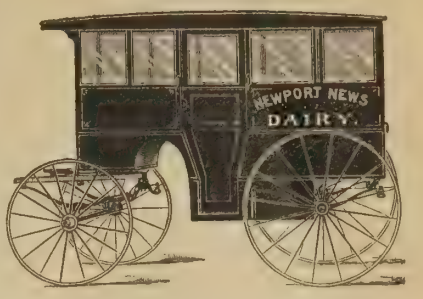
"Be fair to the cow."

Farmers' Handy Feed Cooker.



Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



Solfiline

Does your harness rot, break or tear? Give it a good dressing of **SOLFILINE.** It closes up the pores, knits the fibers together and greatly increases the strength. A harness will wear twice as long if so treated. It's equally as good for boots and shoes. Applied to soles and uppers it keeps out every particle of water and dampness. Ask your dealer for Solfiline. If he does not have it send us his name and 25c. and we will send you a sample can free.

MILWAUKEE CHEMICAL WORKS,
Dept. E. Milwaukee, Wis.

FOR SALE

The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms. two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

H. A. DAVIS,
631 Pa. Ave. N. W., Washington, D. C.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Figgis 76106, The Great Hood Farm Prize Winner.

The accompaning picture of the great Hood Farm cow Figgis, will have special interest for our readers at this time, as she was in the Hood Farm show herd this fall and proved a great prize winner. She is one of twenty daughters of Sophie's Tormentor owned by Mr. Hood.

The prizes won this season by Figgis at five different fairs under five different judges were as follows:

Third prize, Exposition and Industrial Fair, Toronto, Ont.

First Prize, as best cow over three years old, and champion cow over two years old, Wisconsin State Fair, Milwaukee.

First prize, as best cow over three years old, and sweepstakes as best cow or heifer, any age, Indiana State Fair, Indianapolis.

First prize, as best cow over three years old, Illinois State Fair, Springfield.

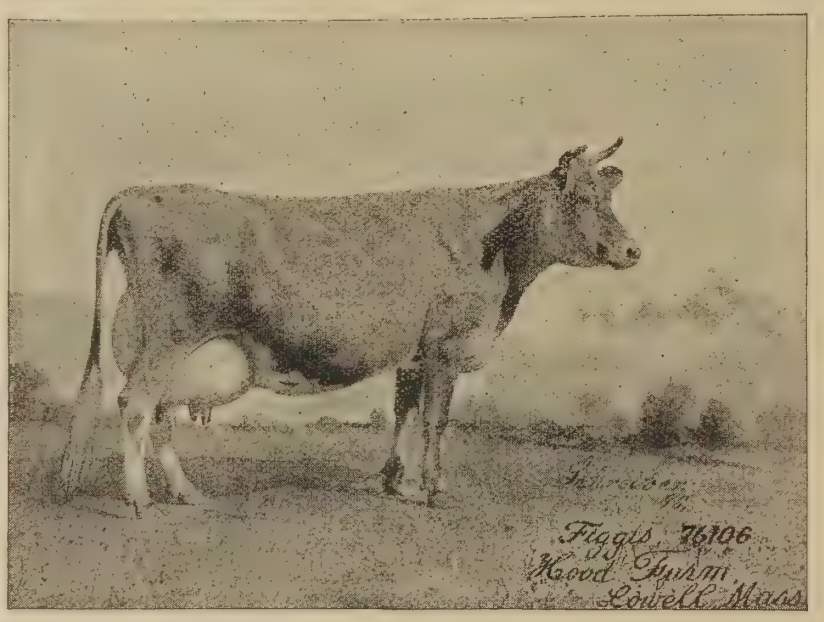
First prize, as best cow over three years old, at the great St. Louis Fair, St. Louis, Mo.

She did not freshen until a day after the Jerseys were shown at Toronto.

Figgis was shown in the east in 1899 and won first prize in the aged cow class at both the York Co. Fair, Saco, Me., and the Danbury Fair, Danbury, Conn. She was also in the first prize herd at these places. She is a beautiful light golden fawn in color. She has shown, and will show for herself, so a description of her points is needless. That she is entitled to greatness is proven by her breeding. Sophie's Tormentor, her sire, has sixteen daughters in the fourteen pound list. He is by imported Tormentor, the sire of forty-one tested daughters, and out of imported Baron's Sophie, record, 19 pounds, 15⅞ ounces; an extremely handsome cow, carrying a large and beautifully shaped udder and milking between forty and fifty pounds in a day. Figgis' dam, Birdsey's Surprise, has a test of 14 pounds, 2 ounces and was sired by Pedro of the Valley, who has six daughters in the fourteen pound list. He is a full brother of Rhoda Hudson, the dam of Torono, the son of Sophie's Tormentor in use at Hood Farm, and Torono's full sister, Sophie Hudson, has a weekly record of 19 pounds, 12½ ounces and milked 50 pounds, 14 ounces in twenty-four hours. In ten months she gave 11,496 pounds, 2 ounces milk, which tested 716 pounds, 14 ounces butter.

Pedro of the Valley was sired by Catono, a bull that was imported in his dam, Ona, 22 pounds, 10½ ounces, fifty-four pounds of milk in one day, and he is out of Rosabelle Hudson, 15 pounds, 12 ounces, the dam of three in the fourteen-pound list. Catono has thirteen daughters with butter records of over fourteen pounds. Rosabelle Hudson is also closely related to Landseer's Fancy, being by a son of Young Fancy, and out of a daughter of Landseer. The maternal granddam of Figgis was Flashy Jessie 2nd, by John Le Brocq, and her dam is Flashy Jessie, test, 17 pounds, 15 ounces, a great granddaughter of Pierrot.

Figgis, like all the daughters of Sophie's Tormentor, gives a large quantity of rich milk, and is a very economical butter producer.



FIGGIS, A. J. C. C., 76106.

Property of Hood Farm.

Names of Gluten Feeds.

ED. HOARD'S DAIRYMAN:—Seeing in some of your replies to letters that you were confused about nomenclature of glucose and other feeds, we respectfully offer you some information. In the first place, it is impractical to make a farmer call feed by the manufacturer's name, because farmers do not adapt themselves to changes. In this county, gluten feed is called gluten meal, sugar feed, starch feed, sugar meal, starch and gluten feed; also called glucose feed. No one can help it if these farmers insist on so naming things they buy. Gluten meal proper, is never mis-named.

The glucose germ feed—or least nitrogeneous of the three—has, until lately, been called by the Glucose Co., "Chicago chop feed," but as its analysis has recently been raised to 13% protein, through extraction of the oil, they now call it "fancy corn bran." This chop feed or fancy corn bran is mis-named as follows: Chop feed, light feed, sugar corn feed, sugar feed, corn germ feed, light gluten feed, light sugar feed, etc. The dealers handling this feed have always had to buy it from the previous names, and the confusion, if any, has existed only in the buyers' mind, because we are sure that a dealer buying anyone of these feeds knew its analysis, or could easily obtain the same.

Buffalo, New York. CHAPIN & CO.

Advertise Your Small Separator.

ED. HOARD'S DAIRYMAN:—There are doubtless, among your readers, quite a number who have small hand separators and who would like to dispose of them and get larger ones. The writer knows of two parties at least who would like to buy such separators, but who do not feel like buying new ones, as their herds are increasing and they will in the future want larger ones. Will those who have such for sale cheap, advertise them in the column of "reading notices." Now, Mr Editor, if you will insert this it may bring you a little business and help a number of your subscribers.

Florida. W. H. M.

The above suggestion is a good one and it applies to many other things the dairy farmer has to sell or wants to buy. It has been a wonder to us that the DAIRYMAN has not been taken larger advantage of in this respect, for it might constitute a large medium of exchange to its more than 30,000 subscribers.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 12,600 pounds. Bidding opened at 24½ cents and advanced to 25½ cents, but dropped back to 25 cents at which price all sales were made. The Quotation Committee declared the market firm at 25 cents.

The sales made were as follows:

Factory,	*Pounds.*	*Price.*
Evansville	2,400	25c.
South Wayne	2,100	25c.
McConnell	600	25c.
Dundee	2,400	25c.
Total	7,500	

The sales for the corresponding week of the three preceding years were as follows;

Nov. 14, '98, 11,280 lbs. of butter sold at 22c.
Nov. 15, '97, 53,460 lbs. of butter sold at 22½c.
Nov. 16, '96, 29,700 lbs. of butter sold at 20@20½c.

The New York market, Monday, was reported firm at 25 cents. H. C. B.

Elgin, Ill., Nov. 13, '99.

Editors and Farmers.

Col R. J. Redding, of the Georgia Expt. Station, who has been the moving spirit of the Georgia Dairymen's Association, in his annual address before the late meeting of that association at Grantville, paid the following well deserved tribute to the editors of his state:

"The newspapers of our state are very earnest and helpful in their efforts to co-operate with and encourage the farmers in developing a better practice, a self sustaining system. They have done a great work, and especially of late years. All honor and praise to them when they so often and so generously turn from the flesh pots of politics to graze with the farmers in the sweet fields of cow peas, and Bermuda grass. Sometimes they make mistakes, but they are of the head and not of the heart, as for instance, when they advise the farmers to sow starch seeds in the 'dark nights of October,' or to turn over their melons once a day to prevent the seeds from settling to one side. But in the main they are right and correct and mean well, and they do a vast deal of good. I only wish that every editor was also a good farmer. I want, however, to ask the newspapers not to encourage the farmers to sell hay and grain, unless they can get more for them in that form than in any other. Tell them to raise all the hay they can and feed it to live stock—to milch cows, beef cattle, horses, mules, sheep and goats rather than sell it as hay. When a farmer sells hay and grain he sells off the cream of his soil; when he feeds hay to cows and fat steers he returns the fertilizer strength of the hay to the land, and what he sells in the form of butter and beef, pork, etc., is hardly missed from the fattening soil.

DAIRY MARKETS.

ELGIN, Ill., Nov. 13,—To-day 125 tubs were sold; market firm at 25c.

CHICAGO, Ill., Nov. 13.—Butter—Extra creamery, 24½c per lb.; firsts, 20@22c, seconds, 16½@17½c: thirds, 15½@16c; dairies, choice to faucy, 20@21c; firsts, 18c; ladles, fine, 14@15c.

Cheese—Full cream, Twins, good to choice, 11¾@12c: off grades, 9@11c; Young America, 12@12¼c; cheddars, 11½@11¾c; Swiss, 10@13c; Limburger, 10@11½c; Bricks, 10@12c,

Bran—Firmer and sold at $12.50@12.75 per ton; offerings light and demand fair.

Cattle—Receipts were estimated at 27,000, the fourth largest run on record. The general market for native steers was 10@15c lower, yet trade was active, and very few remained in first hands at the finish. Native steers sold at $4.10@6.65; bulk, $5.20@6.10. A load of 1,446-lb. Herefords sold at $6.65, with 1,388-lbs. at 6.60. Grass Westerns sold 10c lower, at $4@5,50, the outside price being the highest of the year for rangers. Straight Texas declined about 10c, selling at $3,85@4.60. Corn-fed Texas steers sold at $4.70@5.20. Native butcher and canning stock active and steady, and feeding cattle were unchanged. Several carloads of 1,198@1,310-lb. distillery bulls sold at $4.25@4.30. Canning cows, $2.50@3; fat cows, $3.50@4.50, and good to choice heifers, $3.50@5. Feeding cattle sold largely at $3.50@4.50 for mixed and selected lots.

MILWAUKEE, Wis., Nov. 13.—Butter—Creamery—Fancy prints, 24½@25c; extras, 24½c; firsts, 23½@24c; seconds, 21@22c; imitations, 19@20c; roll, 16@18c; dairy, selections, 20@21c; lines, 17@19c; ladles, 16@17c. Market firm and unchanged, with a good trade for choice; receipts are 6,595 lbs

Cheese—American full cream, October Flats, 11½c; July, August, and September, 11c; Brick, 11½@12c; Limburger, 11@11½; Swiss, drum, 11½@13c; block, 12½@13c; No. 2, 10½@11c. Market easy; receipts, 19 000 lbs.

Eggs—Fresh per doz., 16½@17c, loss off, cases returned. Fresh, scarce and firm; receipts 202 cases.

FOND DU LAC, Wis., Nov. 13.—Offerings, 457 Twins and 450 Daisies; market quiet at 11c. for Twins, and 11¼@11½c for Daisies.

SHEBOYGAN FALLS, Wis., Nov. 8.—Fourteen factories offered 798 boxes of cheese on the call board today and all were sold as follows: Four hundred cases of Young Americas at 11⅜ cents; 128 at 11¼ cents; 122 Twins at 11 cents, and 148 Daisies at 11⅝ cents.

MANITOWOC, Wis., Nov. 8.—Offerings of cheese at Dairy Board today were: 600 boxes Daisies, 150 boxes Twins, 600 boxes Young Americas. All offerings Daisies, Twins and Young Americans sold at 11c.

PLYMOUTH, Wis., Nov. 7—Cheese -The offerings were 625 Twins at 11c, and a few Americas at 11¼c. The market is slow.

BRILLION, Wis., Nov. 3—Cheese—Offerings on the Board, today, were, 1,560 Daisies at 11c; 585 Twins at 11c; 375 Young Americas at 11c

MUSCODA, Wis., Nov. 6—Cheese—Offerings on the Board, today, 1,500 boxes Twins in car lots sold at 11c; local lots, 10⅞c.

APPLETON, Wis., Nov. 2—Cheese—The offerings today, were 313 Cheddars and 333 Twins. Sales: 40 Twins at 11c. Market dull.

HILBERT, Wis., Nov. 4—Cheese—The sales, today, were 180 cases Young Americas at 11c, and 70 boxes Twins at 10¾c.

NEW YORK, Nov. 13.—Butter—Best, 25c; firsts, 23@24c; imitation creamery, 21c. Receipts, 4,957 packages.

Cheese—Fancy September, 12½@12¾c for small; 12@12½c for large. Receipts, 2,622 packages.

Eggs—23c; held stock, 16½@17c; limed 15½@16c. Receipts, 7,533 cases.

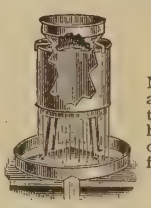
If You Have Your Share of $18,000

ahead of you, and the momentum of hundreds of thousands of dollars' worth of magazine and newspaper advertising behind you, and the unique prestige of **The Ladies' Home Journal** AND **The Saturday Evening Post** with you, you should be a pretty enthusiastic and successful subscription agent.

We will allow a liberal commission for every subscription sent in by a duly appointed agent. The sum of $18,000 to be distributed among 764 agents is simply a premium on success. This premium money will be paid on April 15, 1900. Full particulars will be sent immediately upon receipt of your application.

The Curtis Publishing Company, Philadelphia

THE .. YOUNG **AERATOR** .. And .. **COOLER**



Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

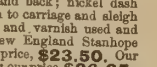
W. H. YOUNG, Box 135, Aurora, Ill,

CUTTERS AND BOB SLEDS.



Swell body Cutter, upholstered in silk. Price, **$14.95.** The Portland Cutter shown here is large, roomy, very comfortable and nicely designed. Runners, knees and shafts second growth, steam bent hickory; braces, Norway iron clipped on; upholstering, 14-oz. English broadcloth with springs in cushion and back; nickel dash and side rail. Painted in best manner known to carriage and sleigh manufacturing. Nothing but best lead, oil and varnish used and water rubbed, elegant glossy finish. Our New England Stanhope Cutter—a beauty. Retail price, **$45.00**; our price, **$23.50.** Our new style Jumper Cutter; Retail price, **$70.00**; our price, **$26.25.**

4-KNEE BOB SLED Price, $10.90; 6-knee, $12.90



Reach, knees, raves and bolsters made of well seasoned oak and maple; Runners, steambent; knees mortised top and bottom; 40-in. shoes, turned heel, short roller reach, giving easy, free bob motion. Nicely painted, striped and varnished. Guaranteed highest grade made and equal to any sold at double our price. Genuine Mandt steel knee oscillating sled. **$14.30. Detachable Sleigh Runners**—Instantly makes a sleigh of your cart, buggy or delivery wagon; fit any axle; carry up to 3,000 lbs. Price per set, **$4.95** to $10.30. **Blankets and Robes**—A Burlington stay-on blanket, ¾ wool lined, **$1.15.** Full lined stable blankets up to $2.30. Burlington Storm or Lumbermans blankets, **$1.45** to $3.70. **Our Storm King**—14-oz. duck, 20 rows stitching, full **wool lined,** lame leathers and tug straps. Retails at $6; our price. **$2.98. Fancy Plaid Wool and Block Weave, $1.85** to $4.70. Our 5-A Sterling, 80x84 in., Wt. 6 lbs., **$1.85**; retail price, $3.00. **Plush and Wool Lap Robes**—$1 to $6. A. M. Buffalo Robes, $8.40 to $10. We will save you 50 per cent or more on blankets and robes. If we do not, or you are not satisfied, return and get money back. Send for our **free 336-page catalogue.**

Marvin Smith Co., 55-57-59 N. Jefferson St., K 18, Chicago



Pat. In U. S. and Canada.

THE EUREKA DEHORNING CLIPPER

has shortest leverage, greates power, the only reciprocating knives, smoothest cut, will not crush horns, knives cannot interlock, interchangeable parts. Superior to all others. Fully guaranteed; catalog free. **The Eureka Dehorn'g Clipper Co. Ltd.,** South Lyon, Mich., U. S. A., or W. S Young, McPherson, Kan.

Carpet Stretcher for 30 Cts. Big money to Live Agents.

Address, **J. C. KEITH, Battle Creek, Mich**

Fur Robes and Coats—We will manufacture them from your cattle and horse hides cheap Samples free. MILFORD ROBE TANNERY, Milford, Ind.

BOONEVILLE, N. Y., Nov. 3.—Cheese—There were no sales of cheese on the Board of Trade today. It was said that 11c was offered, but it does not appear to have been accepted.

WATERTOWN, N. Y., Nov. 4.—Cheese—Sales of 2,000 boxes large white at 11¼@11½c; latter price for September; 400 boxes small singles at 12c,

CANTON, N. Y., Nov. 4.—Butter—300 tubs at 23@23½c.

Cheese—Sales 1,700 boxes at 11¾c.

SINCLAIRVILLE, N. Y., Nov. 4—Cheese—Sales 300 boxes at 11½@11¾c.

PHILADELPHIA, Pa., Nov. 13—Butter—Supplies were small, and the market ruled firm with a good demand. Solid packed, extra, 25c; firsts, 24c; prints, fancy, wholesale, 27c; jobbing, 28@31c.

BALTIMORE, Md., Nov. 13—Butter—Market firm; separator, extra, 26@27c; extra, first, 25@26c; creamery, first, 23@24c; creamery imitation, extra, 20@21c; Western, store-packed, 15@16c.

Eggs—Market firm; strictly fresh stock, 21@22c.

ST. LOUIS, Mo., Nov. 13—Butter—Creamery, 20@25½c; dairy, 16@22c.

Eggs—Steady; 15c.

KANSAS CITY, Mo., Nov. 13—Butter—Creamery, 20@22c; dairy, 18c.

Eggs—Fresh, 15c.

CINCINNATI, O., Nov. 13—Butter—Firm; 26c.

Cheese—Firm; good to prime, Ohio flat, 12½c.

Eggs—Quiet, 17c.

WASHINGTON, D. C., Nov. 13—Butter—Market firm. Extras, 25½c; fine, firsts, 23@24c; choice imitations, 20c.

NEWARK, N. J., Nov. 13—Butter—Market firm, 25½c for extra Elgins. Receipts moderate.

NEW ORLEANS, La., Nov. 13—Butter—Quiet, easy, 26c. Weather warm. Storage creameries, 23@24c.

Cheese—Steady; creams, 12½c.

Eggs—Storage, weak at 16c.

BOSTON, Mass., Nov. 13—Butter—Firm, 25c.

Cheese—Steady, 12½@13c.

Eggs—Market unsettled on all grades except fresh.

Latest quotations for fancy creamery, Buffalo, 25c; Minneapolis, 25c; St. Paul, 24½@25c; Detroit, 25c.

NEW YORK MARKET.

NEW YORK, Nov. 11—Butter—Receipts for the week, 26,197 packages. Exports for the week, none.

Continued light arrivals, and fair demand from local and out of town buyers caused increased firmness, and slightly advanced prices on all grades of butter. At the close there is a scarcity of strictly fancy butter, light stock of good, useful table goods, and a tendency to advance prices all through the list. We note sales of extra fresh creameries at 25c with a small premium added for few favorite marks, good to fine qualities sold at 22@24c, finest selection of dairy tubs brought 23@24c. Imitation creameries sold quick at 18@21c. In freezer goods there was active trading, several long lines best creameries sold at 23½@23¾c, and many lots of really good ones at 22@23c. June ladles of fine quality are wanted at 17c. We quote:

Creamery, extra, 25c; medium, 23@24c, poor, 19@20c. Dairy, extra, 23@24c; medium, 20@22c; poor, 18@19c. Ladle, extra, 17@18c; medium, 16@16½c; poor, 15@15½c.

Cheese—Receipts for the week, 20,560 boxes. Exports for the week, 4,302 boxes.

The trade report a very quiet week, both here and in the interior; the stocks of fine cheese held here, were bought at a price too high to show a profit if sold now, and receivers are indifferent about taking on the October makes, unless they can be bought at prices below the views of factorymen, and show a profit for handling on arrival here.

Exporters bought some parcels, part skims, at prices ranging from 8@8½c, but did nothing in full cream cheese. Most of the sales to home trade were of October goods at 11½@12¼c. We quote:

Full cream, small, extra, 12¾c; medium, 12@12¾c; poor, 11½@11¾c. Full cream, large, extra, 12¼c; medium, 11¾@12c; poor, 11@11½c.

Eggs—Recipts for the week, 34,889 cases.

The supply of strictly fresh eggs is not enough to supply the demand, and prices are advanced about two (2c) cents per dozen since our last. Refrigerator stock is plentiful, and freely offered at 14@17c. We quote:

New York & Penn. strictly fresh, per dozen, 25@26c; Northern & Western, strictly fresh, 24c; Other grades, so called fresh, 18@22c; Refrigerator stock, 14@17c. DAVID W. LEWIS & Co.
177 Chambers St.

BALTIMORE MARKET.

BALTIMOBE, Nov. 9, 1899.—Butter—Trading in this commodity is fast assuming its usual conditions, but there are still some disturbing influences at work, which prevent an absolute return to the normal, chief among these is the plentiful supply of near-by butter, dairy and creamery, roll, solid packed and prints; and the bulk of it is tainted with garlic in great or less degree, even the sweet or unsalted parcels that are prepared for the Hebrew trade are not free of it; and as the cutters or retailers use this defect to break down the prices as much as five cents per pound below the market value of western and eastern products not tainted, and then give their customers the advantage of the reduction, it breeds discontent among the trade that reject garlic as they would coal oil or some foreign taint, and makes the obtaining of even a slight profit over contract prices based on the doings at Elgin Board, a difficult undertaking. Then again, there are tons of near-by rolls—much of it made in creameries, or individual creamery plants—that grade away ahead of the class in which they are sold, and this is another factor going to make the lot of a butter dealer not a happy one. Receipts of western creameyy are composed largely, of separator makes, and are not easy sellers at the advanced figures; gathered cream products are in very light receipt, and so are imitation creamery and ladles, but the demand continues active, and has to make out by taking some Junes and other held stock. The brisk demand for store-packed and rolls continues, and everything is placed on arrival.

Creamery separator, extras, 25c; firsts, 23@24c; seconds, 21@22c. Creamery Gathered Cream, extras, 22½@23c; firsts, 21@22c; seconds, 19@20c. Creamery, Ohio, extras, 23@24c; firsts, 21@22c; seconds, 19@20c. Creamery Imitation, firsts, 18@19c; seconds, 16@17c. Iowa & N. W. Ladle, firsts, 17c; seconds, 16c. Ohio & Indiana Ladle, firsts, 17c; seconds, 16c. Ohio Rolls, extras, 17c; firsts, 15@16c; seconds, 14c. W. Va. Rolls, extras, 16c; firsts, 15c; seconds, 14c. Ohio & W. Va. Storep'd, firsts, 15c; seconds, 13@14c. Creamery Blocks 2 lbs., extras, 26½@27c; firsts, 25@26c; seconds, 23@24c. Creamery Prints (½ lb.), extras, 26½@27c; firsts, 25@26c; seconds, 23@24c. Md., Va. & Penna. Prints, extras, 22c; firsts, 21c; seconds, 19@20c.

Cheese—Receipts are fairly liberal; market firm on all the finer grades.

N. Y. State Cheddars, fine, 12¼@12½c; choice 11¾@12c; fair, 11@11¼c. Flats, fine, 12¾@13c; choice, 12¼@12½c; fair, 11¾@12c. Small, fine, 13¼@13½c; choice, 12¾@13c; fair, 12@12½c. Ohio—Flats, fine, 12½@12¾c; choice, 12¼@12½c; fair, 11@11¼c. Ohio Picnic, fine, 12¾@13c; choice, 12@12½c; fair, 11@11½c. Swiss Cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—The receipts of choice fresh eggs continue exceedingly light; while the demand for this kind is active far in excess of the supply; market firm at 22 cents. Cold Storage—Our quotations are for closely candlded stock and not at case count.

301 Exchange Place G. M. LAMB & BRO.

LIVERPOOL, Nov. 13—Butter—Finest United States, 94s; good, 73s.

Cheese—American finest white, 54s 6d; American finest colored, 56s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—A first-class butter maker. Apply No. 16, care Hoard's Dairyman. 39-3

Wanted—A first-class butter maker and dairyman. Give references and state wages. Address OLIVER G. GRIDLEY. Mycenae, N. Y. 39-tf

Attention—An experienced butter and cheese maker and practical farmer, with best of recommendations, and wanting to make change, would like a situation in dairy or creamery in the south or west. Give full particulars in first letter as to work, wages, etc., and answer, addressing No. 10, care Hoard's Dairyman. 39-3

At Half Price.—Bull calf dropped August 15, 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Berkshires—One extra yearling boar. Spring and summer pigs, either sex, for sale. L. E. CONNELL, Fayette, Ohio.

For Sale—Eight A 1 cows and horse and harness. A National Low Down milk wagon, good as new and a feed cooker that was used only three months. Also 2nd hand buggy. Reason for selling, intend to go to school. Address W. S. SHAUL, Williamsburg, Iowa.

Do You wish to correspond with a first class cheese and butter maker, 20 years experience in New York and 10 years in Iowa. Capable of selling goods as well as making. Address J. H. H., care HOARD,S DAIRYMAN.

Wanted—Dairy farm, near thriving village, that pastures and cuts hay for 30 to 40 head cattle. Retail market for milk prefered. WM. EGGLESTON, Corinth, N. Y.

For Sale—Size 2. a Disbrow Combined Churn and Butter Worker, comparitively new, capacity 75 gals. cream. Having acquired cream trade, have no use for churn. Address, BOX 20, Nora, Indiana, 40-2

Wanted—A man and wife to work on dairy and stock farm in North Dakota. Wife must be a good house-keeper, as she will have charge of the house. None need apply who cannot give high grade references as to habits and ability. Address, B. PARSONS, Evansville, Ind. 40-3

Wanted—One hundred tons of well cured clover to be delivered in Chicago in car lots as required. Address, W. C. 22nd St. Post Office, Chicago, Ill. 40-4

"Garland" Stoves and Ranges last longest and use the least fuel.

No time like now.—The new lines of railroad now in process of construction by the Chicago & North-Western Railway Company are at present affording opportunities to get in and grow up with a country that is sure to grow, that are not likely to occur again. The new lines penetrate the richest regions in Western Iowa and Minnesota, where there was ample room for a railroad. The towns along these new lines, located and managed by the Railway Company, are to-day offering rare chances for investments or locations. The country is rich and the towns will surely thrive. Prices of lots are still low. Investors and business men of all classes will find it to their advantage to investigate. The choice timber lands of Northern Wisconsin and Michigan are also well worth looking into. Apply for particulars to J. F. CLEVELAND, Land Commissioner, C. & N. W. R'y, Chicago, Ill. 40-2

Improved Train Service Between Rockford and Watertown and Waukesha and Milwaukee, via the North-Western Line. By the addition of new trains on the above line, passengers can now leave Fort Atkinson at 8:42 a. m., arriving Watertown at 9:30 a. m., and Milwaukee at 10:45 a. m. respectively, and convenient service returning. Commodious day coaches. For particulars inquire of agents Chicago & North-Western R'y. 38-3

To Los Angeles and Southern California.—Every Friday night, at 10:35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California. In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey. These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only $6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Geo. H. Heafford. General Pass. and Ticket Agent, Chicago, Ill. 37-sp

A PRACTICAL SEPARATOR EXPERIENCE

Which Every Owner and Operator May Well Read.

(COPY.) LITCHFIELD, MICH., Sept. 23, 1899.

CREAMERY PACKAGE MFG. CO.,
Chicago, Ill.

Gentlemen :—

I have been thinking for some time that a statement was due you from me in regard to the "Alpha" Separator that we bought of you last June. In the first place, I will admit that I have been (until within a year) prejudiced against the "Alpha" machine, not from any experience that I had had with them, but from being told that they clogged easily and when they commenced to clog much of the fat was carried over into the skim milk, and that they were very difficult machines to clean; three very bad features in a separator, if true. Last winter it was my good fortune to be able to attend the Dairy School at the Experiment Station at Madison, Wis., where I had opportunity to experiment with nearly all the standard separators now in use, and found that the "Alpha" was far in the lead every time.

This spring when I found that we were obliged to put in a new separator I had a desire to test the comparative merits of the "Alpha" and the "Tubular" machines, with the intention of buying the best. I therefore wrote you and the "Tubular" agents to that effect. Your genial and efficient representative, C. G. N. Smith, answered in person and contracted to put in an "Alpha," guaranteeing it to skim closer under all conditions, nearer to its rated capacity, at a lower temperature, and produce a cream of better quality than any separator on the market, or no sale. The "Tubular" agent answered by letter, saying in part that they hadn't time to make tests but would like to sell us a machine if we would buy it on their guarantee. Later they did send a man here, but he simply reiterated what they had written. He also said that there was no use of their putting a machine in here, as they were always unsuccessful in competing with the "Alpha" where the Secretary or Manager was a graduate of a Dairy School, as all the professors and students were in favor of the "Alpha." The "Alpha" arrived as agreed, and our friend Smith also to help set it up and start it, but we were not quite ready, and he, being in a hurry as usual, went his way and left us to set it up alone. We set the separator and intermediate on a good Portland cement foundation and started it on July 2nd. For two weeks I gave it the most thorough test possible in every way, running at a speed of from 5400 to 6200 per minute, separating from 1800 to 2700 lbs. per hour, with a temperature ranging from 60 to 80 degrees, allowing it at times to clog up until nearly all the skim-milk came out through the cream spout. Under all these varied conditions I was saving a sample of skim milk every fifteen minutes, and at the end of each day's run made a composite test of these samples, and at the end of two weeks had an average of .01 of 1 per cent of fat left in skim-milk, separating on an average over 8000 lbs. of milk per day. When I have run the bowl at stipulated speed and milk at proper temperature, I have never been able to find more than a trace of fat in skim-milk, and I have run through over 10,000 lbs. of milk in bad condition without bowl clogging. As to cleaning, I would as soon clean it as any bowl I ever saw.

After calling the Directors of the Company together and making known to them the above facts, they voted to a man to instruct the Secretary to purchase the "Alpha" machine without further trial, only regretting that they had fooled away so much time and money on other separators than the "Alpha"; voting it to be not only the "Alpha" but the "Omega" as well in so far as perfection in a separator can go.

Asking your pardon for using so much of your time, I am,

Truly yours,
C. N. HOLKINS, Sec'y and Mgr.,
Litchfield Butter Co.

Every user of a separator who knows what he is doing or may be interested enough to find out, must have a similar experience, and there are still hundreds of users of "hollow-bowl" separators who may profit largely to themselves and patrons through doing so.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Butter and Oleomargarine.

The Differences in Their Composition and Nourishing Properties.

We copy below from the *Dietetic and Hygienic Gazettee* a most temperate discussion of the relative merits of butter and oleomargarine—strictly speaking, oleostearine—as human food. While we are making the present fight against oleomargarine on strictly moral grounds, it is well not to forget that this falsely named substance—fraud and deceit are its constant companions—while it may look like butter, taste like butter and smell like butter, is decidedly and specifically inferior to butter, in that it lacks the nerve sustaining and nerve strengthening elements that butter possesses.

Doctor Cutter, the author of the article which follows, writes not in the interests of dairymen, but from the standpoint of the physician and in behalf of his patients and others who look to him for professional advice in matters of the highest importance.

In its original publication, this article was one subdivision of what might be termed an essay, whose genearal title was "Motherhood," and naturally enough, the author places special emphasis upon the necessity of butter in the food for furnishing the special fatty acids demanded for the highest welfare of the expectant mother and her unborn child.

If he is right in his facts and their application—and we venture to say he cannot be successfully contradicted—what becomes of the specious but ignorant plea that oleomargarine is pre-eminently the poor man's butter? If there is one thing more unconditionally indispensible than any other to the happiness and welfare of the poor man and the future well-being of the nation, it is that his children shall be born healthy and with a constitution suitably nourished in its prenatal state. So far as science has yet advised us, this nourishment, in some of its most essential features, must come largely, if not exclusively, from some of the fatty acids which are the products of the wonderful metabolism that occurs in the mammary gland.

But it is full time we let Doctor Cutter speak for himself, which he does as follows:

"Butter is mentioned 1898 years before the Christian era. It is, then, a substance with which the human race ought to be well acquainted, and its physiological and pathological effects on the human economy ought to be well understood by the medical profession. But it is one of those ethical things that are used because others use them; and one does not wish to be acting contrary to the customs of the people among whom he dwells, especially in the matter of foods.

But of late public attention has been called to butter in a new direction, namely, that of chemistry and chemical manufacture. It has been found that the consumption of butter is so large that it pays to manufacture an artificial product which affords a larger margin of profit to the makers, so that now we find legislatures making laws about oleomargarine, and eminent chemists coming forward and saying that the new product is just as good as natural butter. On the other hand, we find microscopists taking the opposite position, that it cannot be the same, as it does not have the same morphological elements, and often has been found to contain foreign substances, as tapeworm eggs, and forms of animal life evidently derived from drinking waters.

To the physician, butter is a matter of great importance, and as the writer has not seen any decided expressions of opinion from this class of professional men, he ventures to write what he thinks might be stated from this standpoint.

Butter is an animal food from the blood of kine by the wonderful phyto-chemistry of the protoplasm of the epithelia of the mammary gland. This we call milk. Under the microscope, milk just secreted is made of infinite numbers of oil globules of varying sizes, from the almost invisible to some one-hundredth of an inch in diameter. The small ones dance about with molecular movements as if they were endowed with life. These when separated by rising to the top, or by the centrifugal machine are called cream. When this cream is subjected to churning motions, the oil globules are broken up, and a mass, like puddled iron, results. Under the microscope fresh butter appears to have no specific form elements, a homogeneous mass, somewhat granular but well defined.

We are then obliged to look to the chemist for information as to its nature. According to Cumming (American Journal of Medical Science, July, 1858,) cow's milk butter consists of ten oily substances, to wit: (1) olein, (2) butyrin, (3) caproin, (4) caprin; (5) myristicin, (6) palmitin, (7) stearin, (8) rutin, (9) lecithin, (10) caprylin. In the actual state of chemical knowledge, it is impossible to state the precise use of these several oils.

Now to go further, oleomargarine is claimed to be a perfect substitute, by chemists, for butter. We have understood that it was mainly made from beef tallow added to other butter; sometimes with the stomach of pigs (Piper). Sometimes muscular fibers are found in the oleomargarine (Piper). If this is so, we fail to see the propriety of the name. The fat acid of the tallow is mainly stearin. Margarine is a fat peculiar to human fat. We don't see why it is claimed for beef fat. So that this butter ought to be called "oleostearine." Taking this nomenclature, we have then two elements to compare with ten elements as found in normal butter.

If this it so, it is difficult to see how any one can say that the artificial product is as good as the natural. This is more apparent when we consider the substance, "lecithin." This is phosphorized oil, and a peculiar constituent of the nervous system. Gobley found it in the yolk of the egg, hence it is named "lecithin." It has been found in the human blood in the proportion of five ten-thousandths; in the blood of pregnant women, ninety ten-thousandths have been found, and in the blood of the umbilical artery, seventy-five ten-thousandths. This lecithin is then nerve food par excellence. It is used for nerve growth and activity. An infant three months old receives about forty-six grains daily (Cumming, *loco citato.*)

Perhaps this explains why children are so eager for butter. It does not justiy the position of those who deny butter to children, sometimes paying them money to abstain, on the ground that it produces "humors." This is a popular impression; in my opinion, it was fathered by the father of lies. I have been in the habit of encouraging the free use of butter by children. In one family the child that used the most butter would eat, if allowed, one-fourth of a pound at a meal. There never was any so-called "humor" developed, nor have I come across such cases. It has been said that the oleomargarine can not be detected by the sense of taste, smell, or sight; hence, it must be just as good as the natural product. No doubt, many look to the gratification of the senses of taste, smell, and sight in butter eating; and history shows that mankind in civilized countries judge food from the standard of sense. This is most remarkably seen in the use of flour. Custom says, that flour bread to be good, must be white, light and sweet. To meet this standard the gluten cells, the nerve food, have to go. But it is a question of whether we have a right to select butter and flour from the esthetic standard alone, and entirely ignore the chemical, physiological and pathological standpoints of view. It seems to be wisdom to get all the evidence as to butter and flour from every rational standpoint, and then base our judgment of them as foods, on the combined evidence, not leaving out the esthetics.

If our butter is to be made from oil and tallow, simply because it can be the means of making money for the manufacturers, and because the artificial product can deceive the taste, touch and smell of the most experienced, it is time for physicians, at least, to stop and consider the object of food, which is to furnish us with healthy bodies and bones, muscles, nerves, blood vessels; with force to run them, so that soul and spirit, surrounded with a glorious hale body, may enjoy its existence, as our Creator intended it should.

To conclude: Butter is a good nerve food. Oleomargarine honestly made, may not be unhealthy; but it cannot, in our opinion, for the reason given, take the place of the normal product of the mammary gland. If it does, would it not be cheaper for families to spread tallow on their bread, than to almost throw it away in the scavinger, later perhaps to be manufactured into oleostearine?

Coagulation of Milk.

It has often been the case that the manufacture of certain kinds of cheese has failed when made outside of the section of country where it originated.

Sometimes the reason for failure has been found; more often it is unknown. The following extract well illustrates what small differences in the milk may bring success or failure:

Before the meeting of the French Academie des Sciences, a paper by Dr. Pages was read, relating to the variations in the latent period necessary for the coagulation of milk—that is to say, the time which elapses between the addition of the substances which cause coagulation and the solidification of the mass.

Under normal conditions, and, consequently, outside the sphere of adulteration, the period varies to a considerable degree. As regards animals of the same species, the causes of the variability may be due to the animal itself, or to its hygienic surroundings, or to its food, or to influences acting on the milk after it has been drawn. As regards the influence of age, the milk of a young animal will coagulate in a shorter period than that of an adult animal. In other words, young milk coagulates sooner than old milk, and this difference increases on boiling.

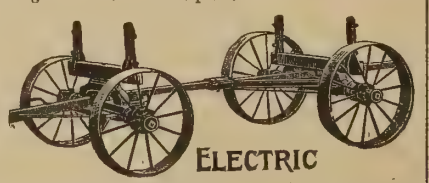
In general, recently secreted milk also coagulates more quickly than milk which has remained some time in the milk bag. Similarly, the milk which is drawn last coagulates sooner than that which is first obtained.

Regarding the effect of food stuffs on the subject in question, there are some which produce milk of extreme sensibility to the action of coagulating substances. Such are many artificial foods, beet root and bran, but especially lucerne, and its aftermath, even more than its first cut. On the other hand, other foods have the opposite effect. Such are many species of meadow grass and hay, and forage of a fruitescent or aborescent nature.

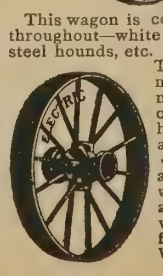
To examplify our foregoing remarks, the following instance is given: Two Normandy cows calve at the same period. One cow is fed in the Brie district near Paris, on green

Farm Wagon Economy.

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This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy Ill.

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are very different from those of the past. Very few users of sewing machines know the *technical differences;* patents *have* expired on generic features, but "the world moves," and radical improvements have been made in sewing machines, so that the one of to-day shows a tremendous improvement on its predecessor. Women who have used both kinds quickly realize the difference between a cheaply made imitation of some ancient type and the modern light-running machine which is easily adjusted, does all kinds of work, and is always ready to go. The Silent Singer of to-day is the latest result of constant improvement in mechanical excellence. For practical use it compares with the old-time sewing machines sold at department stores much as a modern railway train surpasses a stage-coach of the last century.

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HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2 25

lucerne and bran, and the other on the fine herbage of the permanent pasture of Normandy. The result is a considerable difference in the latent period of coagulation of the two lots of milk obtained.

Skilled Normandy dairy farmers have tried, without success, to make Brie cheese at home, even when those coagulating substances, which are successfully employed in the Brie district, have been transferred to Normandy without delay, and used under the most favorable conditions. The milk would not coagulate sufficiently quickly at the relatively low temperature, which is one of the essentials in the manufacture of Brie cheese. The material, for instance, which easily coagulates the evening milk, within a few hours at Sucy, near Paris, will require the whole night, to have the same effect at a village near Cherbourg, with the result that spontaneous acidification acts more or less on the milk before it coagulates.

The length of this latent period of coagulation is the principal—but not the only—cause why the lucrative manufacture of Brie cheese cannot be adopted in Normandy.

Home Products.

ED. HOARD'S DAIRYMAN:—Dwarf Essex rape, if properly produced, may safely be enumerated among that list of farm products, that make it possible for one to adhere quite closely to that old time and primitive custom of producing upon the farm all that is required to maintain the farm, family and its animals.

In other words, Dwarf Essex rape comes along at a time when the one who is raising much young stock, as calves, pigs and lambs, must, of a necessity, furnish some succulent food, or be quite dependent upon the by-products of the mill, (which at present are out of sight.)

Having for some time practiced raising a large bunch of calves, together with a good many pigs, I became apprehensive lest the maintaining of them through summer months and long drouths, would soon place the balance in favor of the cost of production; so accordingly felt my way with a small plat of the above named feed.

The experiment has been highly productive of good results. This season, with a bunch of ten calves and twelve shoats, we have gone through this unprecedented drouth, with comparatively no outside cost, and, as neighbors have remarked, calves and pigs looking fine on turnips, or, rather, rape. Our plat was sown on clean land and quite rich, about May 10th; the middle of June we had a luxuriant pasture, and since that time we have fed the rape down a number of times, and at present it shows signs of another growth.

Next season, it is our purpose to sow a long plat and make into small fields by temporary panel fences, and then turn into it alternately. We feel like saying, great is the feeding power of rape. C. H. WHITCOMB

Niagara Co., N. Y.

The Borden Condensed Milk Establishments.

There are sixteen Borden condensed milk plants now in operation, eleven of which are condenseries and five bottling plants. They are scattered over New York, and Illinois. The bottling works supply fresh milk direct to the consumer. An idea of the immensity of this department may be gained from the knowledge that the Bordens own one thousand horses and nine hundred delivery wagons. They cover New York, Brooklyn, Yonkers, Newark, Jersey City and New Rochelle, besides Chicago and the suberbs of these cities. The number of milk bottles broken and lost last year amounted to a million and a half.

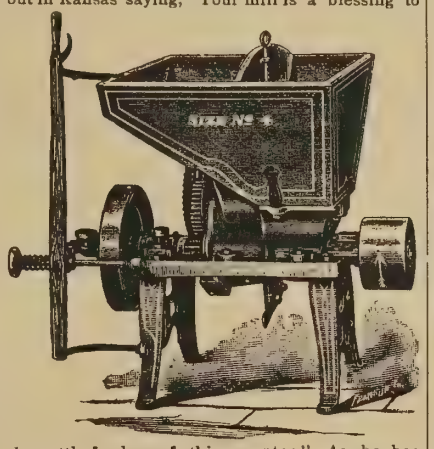
The Borden condensed milk is used in every quarter of the world. It followed the stars and stripes to Cuba and the Philippines, and got there as soon as the flag did. It is used almost exclusively in the army.

The process of manufacture of the Borden condensed milk is interesting. The milk unloaded by the farmer is first sterilized, and then forced into a vacuum pan by the pressure of the atmosphere. It is then boiled at a low temperature, the vapor caused by the heating being drawn to a spray of cold water which causes it to condense when coming in contact with it. This process is continued until the batch has reached the desired consistency, meanwhile sufficient granulated sugar is added to preserve the milk solids. The mass is then drawn into forty quart cans and cooled to the proper temperature, after which it is filled into the one pound cans. The cans are hermetically sealed with solder and packed in cases of four dozen each, and the condensed milk is ready for market.—*Ex.*

ILLUSTRATION.

ANOTHER COMBINATION.

It is a little refreshing to know that the "Combination" referred to is not a trust. Only a new size added to the well known line of "Combination mills made by the N. P. D. Bowsher Co., South Bend, Ind. This kind of combination is not apt to work harm to the public welfare. Indeed, it is just the reverse, if we may believe even a part of the strong testimonal letters that appear in the descriptive circular. Among them we notice a letter from a prominent banker and stockman out in Kansas saying, "Your mill is a blessing to



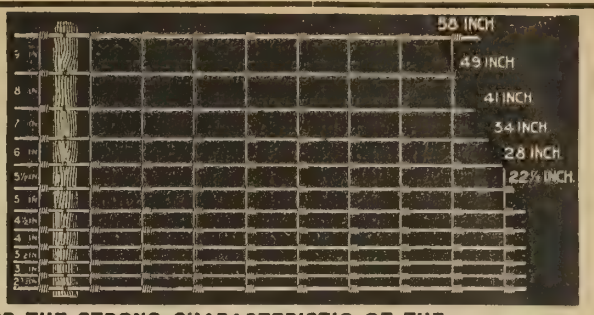
the cattle-feeders of this country." As he has ground over 100,000 bushels of ear corn, alone, this man evidently knows what he is talking about.

The Bowsher Mills are now entering their eleventh season. Each year has seen an increase in the sales, a feature in itself that indicates a good article. The firm writes us that the higher price for cattle has already resulted in much more feed being ground, and that additional workmen and new tools are constantly being added at their factory to keep pace with the demand for mills. Any of our readers who invest in a Bowsher Mill may know that they get a mill that is in no sense an experiment, but a machine that is dependable in every way; and one that has always been kept in the very first rank.

The size shown in the cut is a comparatively new addition to the Bowsher line, and is suitable for use with from six to eight horse power. All the Bowsher mills are justly celebrated for their light running qualities, the why and the wherefor for which is explained in their printed matter. Any of our readers interested can have their handsome booklet for the asking.

The address of the manufacturers is The N. P. D. Bowsher Co., South Bend, Ind. They also make "Sweep" mills. Their line of belt power mills embraces sizes covering all requirements from two to twenty-five horse power.

Stays Up



THAT IS THE STRONG CHARACTERISTIC OF THE

AMERICAN FIELD AND HOG FENCE.

Once well stretched it stays in place and holds its shape. Cannot be broken by animals, or by expansion and contraction. Cannot rust, because of the heavy galvanizing. Made entirely of large wires. Sold by our agents everywhere. If you can't find an agent in your town write to

AMERICAN STEEL & WIRE CO., Chicago or New York.



FAST GRINDING

and perfect grinding is best done with this

Scientific Grinding MILL.

It is double action as both top and bottom plates revolve. Grinds ear corn, all small grains. Supplies power for other purposes at the same time. Other styles 2 to 50 h. p. Before you buy send for our descriptive catalogue, I.

FOOS MFG. CO., Springfield, Ohio.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884–'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

Our Ice Plow



Made in 3 Sizes.

will do more work, run easier, and with less labor than any plow made. Does the work of ten men sawing by hand. Marks and cuts at one operation. Will pay for itself in two days. Cuts all sizes and depths. Send for catalog and prices.

JOHN DORSCH & SONS, 212 Wells St., Milwaukee, Wis.

DON'T BUY COTTON SEED MEAL

Unless guaranteed analysis is attached to each bag.

The American Cotton Oil Co.'s

Cotton Seed Meal carries a red tag showing Guaranteed analysis to be not less than

Ammonia	8.50%
Nitrogen	7.00%
Protein	43.00%
Crude Fat and Oil	9.00%

See that the name of the American Cotton Oil Co. appears on the red tag.

Send for literature, free, to

THE AMERICAN COTTON OIL COMPANY, 27 Beaver Street, NEW YORK.

HARVEY'S ANTI-SUCKING BITS

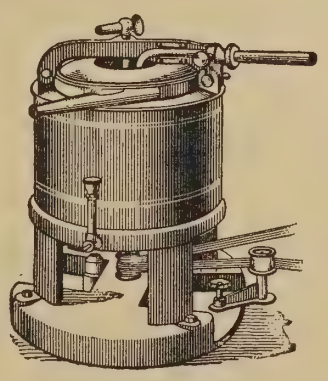
For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for **50 CENTS.**

Will be sent as a premium for

ONE NEW SUBSCRIBER.



You Can't Get Behind Facts.

Facts cannot be obliterated by smoothly worded advertisements, by exaggerated claims on paper or promises of superior results.

The REID IMPROVED DANISH SEPARATOR

has stood the test of time, winning by merit the approval of successful creamerymen throughout our land.

The REID Separator and Pasteurizer Win at a Canadian Fair.

At the Toronto Industrial Exhibition, both first and second prizes for Creamery butter were awarded J. C. BELL, Winchester Creamery, Ont., who uses the **REID Separator and Pasteurizer.**

"The Reid Improved Danish skims **cleaner** and **more** in the same length of time than any separator that I ever used."—E. R. DANIELSON, The Franklin Creamery Co., Franklin, Minn.

"The Reid Improved Danish Separator does the **best and most work with the least expense.**"—E. R. GOLDTHWAIT, Norwalk, Cal.

"The Reid Improved Danish **will do more work and do it better** than any other separator we have ever seen."—WINCH & BEAMIS, Marilla, N. Y.

"The Reid Improved **costs less for repairs** than any other separator."—NEW ERA COMPANY, New Melle, Mo.

Write for Separator and Pasteurizer Booklet or Reid's New Illustrated Catalogue of Creamery Supplies, free.

A. H. REID, 30th & Market Sts., PHILADELPHIA, PA., CEDAR RAPIDS, IOWA.

A SMOOTH SWINDLER.—BEWARE OF HIM.

We are indebted to Messrs Miller & Sibley for the following telegram, and trust its publication may serve to protect all our readers from being imposed upon by this rascal:

ED. HOARD'S DAIRYMAN:—A smooth swindler is operating among live stock owners.

His plan of operation is to represent himself as a heavy buyer. He stays long enough to make his intended victims feel that they are acquainted with him.

He pretends to buy a number of animals, and then endeavors to get the sellers to identify him at some bank so that he may cash worthless checks and drafts.

The one who identifies him becomes responsible for him. Beware of him.

MILLER & SIBLEY.

Cost of Sorghum Syrup in Iowa.

ED. HOARD'S DAIRYMAN:—It may perhaps interest some readers of the DAIRYMAN to know what it costs to produce sorghum syrup, under northern Iowa conditions, and ordinary farmer's care. The crop which formed the basis for the following statement was produced in 1899 on good clay soil:

ITEMS OF COST.

Plowing one acre	$ 1.00
Harrowing and marking one acre	1.00
Planting one acre	.50
Hoeing (once) one acre	4.00
Cultivating	2.00
Harvesting and hauling	15.00
Seed	.50
Interest and taxes	3.50
Fertilizer and labor	2.00
Mill charges at 15c per gallon	24.00
Totals	$53.50

ITEMS OF PROFIT.

160 gallons syrup at 35 cents	$56.00
1 acre seed for fowls	5.00
Totals	$61.00
Net profit per acre	$7.50

McGregor, Ia. F. H.

HOW HOGAN WORKED IN THE HAZELWOOD DAIRY.

Dairying is a serious business, and so HOARD'S DAIRYMAN has to be a serious paper, dealing all the time with plain, hard facts. But that is no reason why we should not all enjoy a delicious bit of humor, especially when it comes in the dairy line. Why shouldn't there be just as much fun in dairying, as in anything else? Well here is telling how a wild Irishman, Hogan by name, worked for the Hazelwood Dairy. Read it and enjoy a good laugh, while you are milking the cows:

Did you ever hear how I worked for Hazelwood? 'Tis worth listenin' to, for it's the quarest expayrience I iver had.

I came straight from the ould sod to Spokane, for me brother Mike had a job up at Lean Pup Idono—I mane Cur de Lean, Idaho, stuffin' air into a rhematic drill. The first job I got was on the Hazelwood ranch, playing valley de chamber to their big bull. That ranch is the quarest place I ever struck. Instid of lavin' their barns en their natural and right odorieferness, they clane and swape 'em out countless toimes ivery day, thereby wastin' much strength, toime and good smell. Nor is that the worst. The lads that has the milkin' to do has to clane and scrape and brush thimselves up every milkin' toime as if they was goin' to see their best girl. Did you ever hear ov sich nonsince? They say that they do all this iverlastin' fussin' to kape out the bugs, the mick-robes—Irish bugs I should judge by the name.

"How do you know they'se mick-robes round?" says I to Mr. Smith, the big man that does be runnin' the ranch. "Ye can't see 'em," says I. "Ye can't see the divil," says he, "but you know he's 'round, don't ye?" Faith he had me there. "But what's the use ov all this clanin' nonsince?" says I. "To kape the milk swate and save the Spokane babbies," says he. "What the use in workin' the min to death to save the kids?" says I. "'Tis the American way," says he.

Ye niver saw such a man in all your loife for clanin' and boilin, and stamin' and scrapin'. By gar, he spinds more toime in clanin' things than he does in doin' the wurk. If he could, he would take out ivery atom of the milk, scrub it aff and put it back before he sint it to town. He would so. I stood him and his ways as long as I could, but whin he said I must sand-paper myself, if I wanted to hold me job, for gold-dust and bilin' water was too mild a tratement for such as me, I quit 'im right there. I also trun a chunk of coal at 'im, and thin had a loively and interesting toime tryin' to beat the collie pop to town. I'll never woruk for Hazelwood again, nor buy a drop of milk, a sup of crame, or a bit of butter from 'em. They're too clane—too clane entoirely.

Awnless Brome Grass.

(Press Bulletin.)

The Experiment Station of the Kansas Agricultural College, has received numerous inquiries from various localities in the state, as to the value of Awnless Brome Grass as a forage grass. This grass is receiving so much notice in the agricultural press, that a short account of it is here given for the benefit of our readers.

Awnless Brome Grass, or Hungarian Brome Grass (*Bromus inermis*) is a native of the dry sandy regions of Europe and western Asia. It is a perennial, about the size and somewhat the general appearance of Meadow Fescue or English Bluegrass. It spreads by creeping, underground stems or root stocks. It has been tested by many of the experiment stations from Canada and North Carolina to Mississippi and Calfornia. All recommend it highly for dry, sterile, light or sandy soil. It will not succeed well on wet land, but is one of the best grasses for resisting drouth. Its chief value is for permanent pasture, though at many of the stations it has yielded a good crop of hay. In the South it is sown in the fall for winter pasture, but in the North it is sown in the spring. This experiment station now has in progress an experiment testing the relative merits of spring and fall sowing at Manhattan. At present we are unable to state positively, the value of Brome Grass for pasture in eastern Kansas, but from the experience in surrounding states, we can recommend it for trial. The Garden City Grass Station reported very favorably upon it when tried there a few years ago. At a future time we will give the results of our trials, and we should be pleased to have our correspondents inform us as to the results of their own trials.

Much of the seed upon the market, at present, is imported from Europe, and has not proven as satisfactory as that grown in this country, as it is not so pure; but home-grown seed is not now available for general use. With good seed, the amount sufficient to sow an acre is from fifteen to twenty pounds. It frequently happens that an apparently poor stand allows the weeds to flourish the first year, but that, nevertheless, the second year's growth is favorable. For this reason, judgment should not be passed upon the success of the trial until the second season. Ordinarily, it is not best to pasture the grass the first season. A weedy field should be mowed in summer.—Kansas Experiment Station.

Buy When Others Sell; Sell When Others Buy.

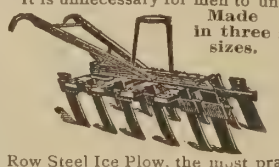
The above maxim is said to be the one by which a Pennsylvania farmer became quite rich. When horses were cheap and farmers wanted to sell, he bought horses; when cattle were cheap, he bought cattle. These he kept and bred till stock was higher, and then he sold at a handsome profit. While assisting at

ILLUSTRATION.

HOW TO CUT ICE.

Ice cutting no longer presents the difficulties that it once did.

It is unnecessary for men to undergo the hardships of labor and long exposure that was once imposed upon them.



Made in three sizes.

There is a machine to do the work now. The Dorsch Double Row Steel Ice Plow, the most practical one ever introduced. It does the work of ten men, marks and cuts at the same time. It is a marvel in speed and economy and brings satisfaction wherever used. John Dorsch & Sons, 212 Wells St., Milwaukee, Wis., will send a catalogue of ice plows and tools to any one writing for same.

Marquilla's Major 40804.

SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs. 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.

W. R. THOMAS, Bellmore, Ind.

$50 **A BULL CALF,** solid color, out of Marion Drew II., 108,548, 231 lbs. milk in 7 days. 957 lbs. in a month. 7293 lbs. in a year. Milk tested 5½% butter fat. Sire Pero Pedro 44922, a grandson of old Pedro, out of a grandaughter of Old Pedro, with a record of 601 lbs. of butter in a year. GEO. A. BUCKSTAFF, Oshkosh, Wis

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR. Solid color, well grown, robust. Dam, 22 lbs. in 7 days.

CHARTER OAK HERD. J. P. BRADBURY, Pomeroy, Ohio.

St. Lambert Jerseys, all ages, both sexes. Some from tested cows at low prices. W. J. HUSSEY, Mt. Pleasant, Ohio.

ALBION JERSEY HERD is headed by

Pedro's Prince Phillis 42298,

An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.

R. C. GREEN, Albion, Wis.

FOUR SOLID COLOR BULL CALVES

out of tested Dams, and sired by Diploma's Combination, sire of two tested cows. Also a few heifers for sale.

J. E. TYRRELL, Marysville, O.

Registered Jerseys.

Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.

JOS. T. HOOPES, Bynum, Md.

FOR SALE.

Registered Jersey bulls from 10 to 20 months old. Sired by Ida's Rioter of St. L. 18th, No. 42252, and Le Brocqo of Clearview, No. 45794. These are all prize winners at all the Fairs showed at this fall. Do not write unless you want a calf. CLEARVIEW STOCK FARM, J. S. CAMPBELL, Prop., Butler, Pa.

The Hillside Jersey Farm affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address F. E. BRYANT, Carlsbad, New Mexico.

Introduce Milking Jersey Stock INTO YOUR HERD

by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."

FILSTON FARM, Glencoe, Md.

Grandson of Pedro 3187

First Check for **$60** GETS HIM!

Eurotas blood close, also through Rampo 4679. All dams for five generations tested. Seven months old. Solid fawn; all black points. Young bulls cheaper for 30 days. Must sell for lack of stabling.

W. F. McSPARRAN, Furniss, Lancaster Co., Pa.

Hood Farm Jerseys Brown Bessie's son 34550—75 per cent of his blood in a yearling bull. Drooped Oct. 19, 1898. Has some white markings. Sire, Brown Bessie's son, the sire of 8 in 14 lb. list. Dam, Brown Bessie 10th of H. F.. test, 14 lbs, 8½ oz., and with first calf she gave in 10½ months 5,281 lbs. 10 oz. milk testing 380 lbs. 9 oz. butter; by Brown Bessie's son. Write for prices to HOOD FARM, Lowell, Mass.

Brown Bessie Herd.

RECORDER 29239 son of Brown Bessie and Diploma 2nd 36374 are head of the herd. A few choice grandsons and granddaughters of Brown Bessie, from tested dams, are offered. Also cows bred to above bulls. Write for printed pedigree. State what is wanted.

H. C. TAYLOR, Orfordville, Wis.

FOR SALE!

Grandson of the Greatest Sire of Butter Cows,

Exile of St. Lambert 13657

Now Sire of 79 Tested Daughters. Solid fawn color; ten months old, and a good individual. His dam has a test of 15 lb. 8½ oz. of butter in seven days.

P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.

This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.

SOME CHOICELY BRED

Bull Calves

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to

GEO. F. WESTON, Supt., Biltmore, N. C.

JERSEYS.

Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.

Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

FOR SALE!

— CHOICE —

A. J. C. C. Bull Calves

Sired by Chilton of St. Lambert 39689, by Matilda 4th Sire out of Ida's Alpha, test 25 lbs. 15¾ oz. in 7 days. For description, etc., address

G. N. KERSTEN, Chilton, Wisconsin.

ARDEN HERD OF

JERSEYS.

JOLIET, ILL.

H. N. HIGINBOTHAM, Prop.

J. D. THOMPSON, Supt. FRED STORY, Herdsman.

Pedro's Handsome Prince, No. 42794.

Sixteen Tested Cows in Herd.

Young Stock for Sale. Write for Particulars.

A. J. C. C. BULL CALF FOR SALE!

Dropped Aug. 2, 1899. Solid color; black tongue and black switch.

SIRE:—A full brother to Exile's Lulu 49948. that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test.

DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

MILLER & SIBLEYS JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¾ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**

Franklin, Venango Co., Pa.

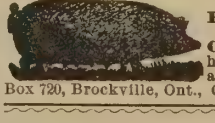
The Lone Tree Jerseys

THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.



Pure Bred Tamworth Pigs, Bacon curers choice. Pure Bred Ayrshire Cattle, largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720, Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.

A Top Pedigreed POLAND CHINA SOW, bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

farmers' institutes in various parts of the state, the remark is very frequently made that farmers will not milk their cows when crops are good or beef is high. When beef is high there are a great many dairy farmers, who use beef sires in order to get "good calves." On the other hand, when beef is low and butter fat brings a fair price, these farmers want to know which is the best breed to use in grading up a dairy herd.

We have no bones to pick with those who are engaged in producing high class beef; it is good business and we all rejoice in the higher prices that gladden the heart of the stock feeder; but we do have a bone to pick with the men who, like Kansas weather, are continually changing from one thing to another, and then declare that there is no money in milking cows. Such a practice is like a young man spending four or five years in preparing himself for a lawyer, and after practicing a year or two, finds there is a greater demand for doctors than for lawyers and decides to practice medicine. By the time he obtains a little knowledge of the medical profession, he finds that the tables have turned and now there is a greater demand for lawyers. In the meantime he has lost the knowledge and experience he would have gained as a lawyer. Thus he goes through life fluctuating from one thing to another, and finally discovers that he has not made a success of anything.

Thus it is with the man who changes from milk to beef stock and vice versa to suit the times. Either occupation is an art of its own peculiar secrets of success, and there are very few men who can make a success of both, any more than men make a success both as lawyers and doctors. Find out what you are fitted for and stick to it.

The man who stuck to the beef business a few years ago when cattle were low, and did what he could to increase his herd, is the man who is coining money to-day. So the man that to-day is holding on and increasing his dairy stock, is the man who will make money when the tables again shift and dairy stock is in demand. No one man or no one business has a monopoly on all the pleasures and profits. All honor and success to the man who studiously stays by his chosen profession through thick and thin.—*Kansas Farmer.*

J. H. Monrad on Tuberculosis, in Denmark, and Pasteurization.

J. H. Monrad has furnished a very readable article to the Chicago *Times-Herald* on the tuberculous scare. Some very interesting points on the manner the disease is treated by the dairymen of Denmark was given which we reprint as follows:

Denmark—England's butter cellar—has taken the lead in a great many dairy questions and credit should be given to Dr. Bang for his work on this line. 'Twas he who first demonstrated practically that tuberculosis in cows is not inherited. This he did by testing a herd on a farm, separating the animals reacting from the healthy ones and simply placed a board partition between them. And then, with a few precautions, he raised healthy calves from the reacting cows by removing them and either feeding them on milk from the healthy cows or pasteurizing that of their mothers. It is thus shown that it is absurd to kill a valuable cow which is reacting but able to produce a healthy calf and a large quantity of milk, which can be made perfectly innocuous by pasteurizing.

Dr. Bang also demonstrated that the greatest danger of spreading the disease lay in the modern system of creameries, where all the milk is run through a centrifugal cream separator and the skim milk returned to the patrons. In this way one sick herd may and does contaminate fifty or a hundred.

It was also demonstrated that in running the milk through the separator an unusual large number of tuberculosis germs were thrown into the slime or rubber-like sediment gathering on the side of the bowl. Creameries were notified to burn this at once and to pasteurize the skim milk before returning it to the patrons.

The Copenhagen Milk Supply Company started with one veterinarian inspecting the farms from where they got their children's milk, but ended by employing five, inspecting all the herds and stables of their milk shippers, but this is another story too long to tell here. Every move was voluntary, and only lately has a law been enacted which provides for the compulsory pasteurization of all skim milk and buttermilk.

DR. STORCH'S PRACTICAL TEST.

This could not be done until Dr. Storch invented a quick, reliable test, which enables the authorities to find out whether or not the milk has been heated to at least 185 ° Farenheit. (This test, by the way, was suggested by a discovery of Dr. S. M. Babcock of Madison, Wis., whose name is a household word among dairymen, and whose milk test has made the city milk control—as regards watering and skimming—practical). No doubt bacteriologists will claim that there is no certainty of destroying all of the germs, but Dr. Bang's experiments have proved this to be all right practically.

The law provides free testing of any herd by the state veterinarians provided the owners are willing to keep those reacting separate. In short, the government is willing to help those who are willing to help themselves. In Sweden a sum of 50,000 crowns has been appropriated to defray the expenses of the test (but not traveling expenses) and to give premiums to those who utilize it best.

Virtual sterilization may also be obtained by heating to 160 °, then cooling to about 80° and leaving it for a few hours; and then reheating it to 160° and cooling it as low as possible. "This intermittent" pasteurization is practiced by Mr. Dahl of Norway on milk shipped to England, but is too expensive and troublesome. Whatever temperature used, it will be found that the quicker the milk is cooled the less the "boiled" flavor will be. A neat little apparatus for pasteurizing milk for babies is sold by the druggists for $5, but anyone can also do it with the means at hand. Where the milk is heated in a can and where an ice cream freezer is obtainable it will be found a very practical cooler. If the milk is heated during constant stiring to 190° Fahrenheit and kept at that temperature for, say, fifteen minutes, it can be cooled very quickly to 50° by using about four pounds of ice to the quart, and it will then have a very slight "boiled" flavor. In this connection let me warn the consumers against these milk dealers who use preservatives of whatever kind. There is quite as much danger to children if these are used as in the tubercule germs.

Disinfecting Stables in Epidemic Abortion.

When abortion has become epidemic in a herd of cows, treatment of the surroundings is as important as that of the animals and should be just as systematic and thorough. Following is the method given by the Bureau of Animal Industry, Washington, D. C.

The first recommendation is the disinfection of the stable with a one per cent solution of sulphuric acid. In preparing this solution do not put the water in the acid, but add the acid very slowly to the water and stir it constantly, keeping a good piece off when stirring it. Take a broom, and with this thoroughly scrub the stable. The fœtus and membranes should be destroyed at once by burning. Separate the aborting cows, let one man take care of them, and keep him away from the others. The disinfection should be repeated in both stables every two or three days. Besides this, wash the vulva, back, hips, and root of tail with the following solution: One dram of corrosive sublimate, one ounce each of alcohol and glycerine, and four gallons of pure water. Dissolve the corrosive sublimate in the alcohol and glycerine and then mix thoroughly with the water. This mixture is very poisonous and should be kept in wooden or glass vessels out of the way of animals or children. This treatment would be a good thing to accompany the carbolic acid treatment.

Concerning the Work of the Separator.

The question is often asked, "What is close skimming for a separator?" Until we we had the Ohlson test bottle, writes G. B. Lawson, in the *Creamery Journal*, testing the skim milk was something like telling the temperature of the cream, by sticking the finger into it, to find out if the cream was cold enough for churning, as our grandmothers used to do. I remember the time when we used to churn, and never thought about using a thermometer, but that was with a little dash churn on the farm, when we only made butter for home use. Now, with all the modern appliances, we can tell to a fraction of a hairbreadth how much butter fat we waste in the skim milk, and also in the buttermilk. When the separators first came into general use, it used to be considered close skimming if only two-tenths were left in the skim milk, and that was a great saving in butter fat from the old style of deep setting by the gravity system, unless you had plenty of ice to use in the water. But after the dairy school was started, the professors found out that with a loss of two-tenths per cent of butter fat in the skim milk, when a creamery received 10,000 pounds of milk a day, the annual loss would be more than the price of the best separator on the market, and that was too much for the patrons of the creamery to lose. Now, with the improved separators, the butter maker who cannot run them and leave not more than a trace of butter fat in the neck of the Ohlson test bottle is not running the separators as they should be run, and as they can be if they are properly operated. In doing close skimming, there are three things that must be taken into consideration—feed, speed and temperature. As it is centrifugal motion that does the skimming, the higher the speed the better the skimming will be up to the rated speed of the separator. Of course they can be speeded too high, but I find it is a good plan to run them up to the full speed of the manufacturer's guarantee, and keep them at that speed all the time the milk is running through them.

Most makes of separators will do the best work if the milk is at about 80°, and at this time of the year, when you have the most strippers' milk, it is better to be higher than lower. If you want to do close work, it is better not to feed too fast. Not many separators will skim clean up to their rated capacity. It is better to keep under than to go over their rated capacity. I saw some skim milk tested lately, that only showed one-third of a gauge on the Ohlson test bottle. As each gauge on the test bottle represents one-twentieth of one per cent, that is skimming about as close as can be done with almost any kind of separator. The speed of the separator at the time was 5,000 revolutions per minute, temperature of milk 80°, and it was run through at the rate of 2,000 pounds per hour.



SAVE FEED.

Feed is fuel to the animal economy. It is burned up to supply internal heat. If it is heated (cooked) before it goes into the animal's stomach it saves that much fuel (feed).

Electric Feed Cookers

save feed, save money and produce better results. Made of best cast iron with steel linings; boiler made of extra heavy galvanized steel. Capacity 25 to 100 gallons. Circular and price free.

Electric Wheel Co., Box 130, Quincy, Ill.

Banner Root Cutters

CUT BEETS, MANGELS, Turnips, Carrots,

and all other ts and vegetables for s feeding. CUT F .

Choking Impos le.

Run easy, have self feeder, separate dirt from cut feed. Five sizes, hand and power.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

Largest Root Cutter makers in the world. *Catalogue free.*

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.

GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** **Farm Supt., Madison, N. J.**

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM, **Rhinecliff, N. Y.**



Keep Your Milk Sweet...

By using *TINNED STEEL CANS* Made by the

Buhl Stamping Co.

Our Handbook is mailed free to dairymen who ask for it.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. **FRED TSCHUDY & SON, Monroe, Wis.**

SHORT-HORNS

Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale. Write or come and see us. **WALTER LITTLE, Janesville, Wis.**



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to **DELLHURST FARM, Mentor Ohio.**

Holstein-Friesians

MECHTHILDE BULLS FOR SALE. Address **M. W. BARDEN,** Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. **WM. O. JACKSON & SONS, South Bend, Ind.**

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¾ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F. Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

MEADOW LAWN HERD
Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

5 HOLSTEIN BULLS 5

For Sale, ranging from 10 months to 2 years old. Two of these animals from dams with records of 60 and 71 lbs. milk in one day, testing respectively 4.5% and 3.6%. All of these bulls are exceptionally well bred and will improve any herd that they head. Will be sold at reasonable prices. Choice Chester-Whites for sale. **W. R. GATES, Fort Atkinson, Wis.**

Prices Greatly Reduced

On account of lack of stabling for bulls, we will offer in the next 30 days five yearling Holstein-Friesian bulls and 15 bull calves at prices within reach of dairymen. Cow men who are in need of bulls and appreciate **high quality** of stock, and strive for improvement, should take advantage of this opportunity, as over 20 head, young stock, mostly bulls, sold from this farm, at an average of $100 per head this year, going from New York to San Francisco and Mexico. Write for pedigrees and prices, or visit if possible. VALLEY MEAD FARM, Monticello, Wis.

The Big 4 at Brookside.
THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.

HENRY STEVENS & SONS, Lacona, N. Y.

Markham Manor Farms. **Simonsville P. O., Andover, Vt.**

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

Northern New York Pencillings.

Milk Shippers Union.—Hydraulic Separators.—Milk Consumption of New York City.

ED. HOARD'S DAIRYMAN:—I don't know whether it is "within the memory of the oldest inhabitant," or not, but it is not within mine, that a time was when Jefferson County factory cheese was out-selling that of our Canadian neighbors just over the St. Lawrence; but it has come—it is now—or was, last week—by fully half a cent per pound. Of course, it must be the home trade demand that causes the difference, since the New York and Montreal cables Liverpool quotation are the same. It is also true, for the first time within a period of several years, that the Watertown market has been below that of Western New York as instanced by the sale of large cheese in Cuba, last Tuesday, at fully a half cent above Watertown quotations. There seems to be but one remedy for Jefferson County cheese eaters and those of the Queen's dominions over the river—they must eat more of the product.

No sooner does there appear a chance for the milk shipper receiving an additional price for his product, through the increased consumption of it in the cities, or the perfection of the Five States Milk Association, than along comes something to upset his calculations. No sooner do the indications point to higher prices, han the railroads rush to the aid of the New York Milk Exchange, by extending their milk routes. Two years ago it was said by some of the institute workers that the shipping stations had reached their limit, owing to distance. Since then, however, they have been largely increased in Northern New York, and the end does not yet seem to be in sight. Within the past few days the New York Central has begun the erection of a large station at Morristown, St. Lawrence Co., just across the river from Brockville, and it is not at all improbable that others will be erected at other points on the Ogdensburg branch, between Morristown and Philadelphia. Indeed, there is nothing to prevent the erection of these stations at all the principal railroad points in Northern New York; and, unless the extra demand for milk in the metropolis ceases or the new organization obtains control of the market there, the lines of stations will surely be extended to other points. There is no class of freight so easily handled or which returns more remunerative profits to the railroads than does milk, or which can be more rapidly transported. Such being the facts, the railroads are going to reach as far out as possible for it. One of the Vanderbilts said, once on a time, "The public be damned"—that is, the papers of that date said he said it. But no matter, it is quite evident that the railroads don't care a fig for the milk producers except for the chance to "milk" them as long as there is a nickle in their lockers. For one, I have but little confidence in the claims being put forth on the part of the Five States Association that its perfection will ensure the farmers much, if any, greater price for their milk.

What with the great amount of capital back of the milk exchange in New York, and the aid the railroads are willing to give it, the chances are that we will read some morning that the new organization has aborted; but let us hope for the best.

It seems to be all "grist" that comes to the office of some of the so-called agricultural papers, and there are some writers who are ready to fly in the faces of the experiment station bulletins, no matter to what topic they are devoted. For instance, Mr. Greiner, the New York editor of the eastern edition of *Farm and Fireside*, comes to the aid, in his department of the paper, of the aquatic cream separator. He does not claim that it is a separator at all, but that it is better than the shallow pans and as good as the deep setting creameries once in use by many dairymen; therefore, unless one has something better, it is good business to invest in one.

Well, suppose that it does or will skim lower than Prof. Wing, of Cornell, said it would, what of it? Why should our friend, or any one else, buy it? Suppose it has all the advantages he claims for it, which it has not, why should one pay from 300 to 500% more for it than it costs to make it? Why pay such a price when any tinner would be glad to make one just like it, or equally as good, for three dollars, of which not less than one dollar would be profit? Knowing all this, why should a writer, of such note, endorse such a transparent humbug, and why should papers which pretend to be published in the interest and for the benefit of the farmer, print the ads. of such frauds, unless for the immediate cash returns they receive.

Of course, the intelligent portion of the farming element know better than to invest in such catch-penny affairs, but there are a whole lot of farmers, who are not built that way. They are everlastingly looking for a make-shift—something cheap that will replace a legitimate thing. They are all the while looking for cheap fertilizers, stable absorbents, cattle foods, farming implements, seeds, general-purpose cows, or other farm stock, cream separators, and so on to the end; and it is this class of farmers who take this class of farmers' papers, read their shoddy ads., and invest in these so-called separators. It is gratifying, however, to note the absence of these ads. in the DAIRYMAN, and other high grade agricultural and dairy papers.

According to the contents of a circular letter issued by President H. T. Coon, of the Five States Milk Producers' association, the month of June, last, was a record breaker, so far as the receipts of milk go to make it one in New York City. He says: "Of milk alone, the daily supply was 287,738 cans, this being 2,885 cans more than in June, 1898. The excess of cream and condensed milk was 378 cans. All of which means that the amount of crude milk supply was 4,745 cans, daily, in excess of the corresponding date in 1898. The price received by the producer was fifteen per cent higher."

No doubt the statement is correct; but, that the increase of fifteen per cent in price was due to the influence of Mr. Coon's company, or of making the increase permanent, is yet to be proved. Possibly the Milk Exchange put up the price then, as it has again, since then, for the purpose of counteracting the influence of the the new association, but there is no proof that such was the case, or that the advance in the price of milk to the dairymen, was due to the formation and action of the new comer, as the Exchange has had spasmodic

When witnesses are examined the Court insists that they shall tell only what they *know*, not what they think or believe. Time and again the wandering witness is brought back to the point by the stern voice of the judge: "Madam we are not interested in what you *think*, we want to hear what you actually know."



There's no such trouble experienced with the worthy women witnesses to the cures wrought by Dr. Pierce's Favorite Prescription. They *know* what they are talking about. Women who suffered from painful irregularities, from inflammation, ulceration, displaced organs, bearing-down pains, or any other form of female disorder, which undermines the health and shatters the nerves,—such women know when they are well and why they are well. They do not hesitate to say: "I know 'Favorite Prescription' cured me." There are half a million women witnesses like these:

"I am enjoying good health, thanks to your kind advice and valuable remedies," writes Mrs. Anna Willy, of Northville, Spink Co., S. Dak., (Michigan House). "I suffered very much with female weakness and other ailments for more than two years, when I wrote to you for advice. After carefully following your advice and taking six bottles each of Dr. Pierce's Favorite Prescription and 'Golden Medical Discovery' I am now a well and happy woman."

"I had been a great sufferer from female weakness" writes Mrs. M. B. Wallace, of Muenster, Cook Co., Texas. "I tried four doctors and none did me any good. I suffered six years, but at last I found relief. I followed your advice, and took four bottles of 'Golden Medical Discovery,' and eight of the 'Favorite Prescription.' I now feel like a *new woman*. I have gained eighteen pounds."

Sick women can consult Dr. Pierce without charge, and thus get the benefits of his long experience in diseases peculiar to women. Write freely. Write fully. Your letter will be treated as a sacred confidence, and its answer will be written with fatherly friendliness, as well as medical knowledge. Write without fear as without fee.

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

HIGHEST STANDARD.

Alderney Butter Color.

There is never a time when it fails to satisfy even the most critical, because it always maintains its HIGH STANDARD of PURITY, STRENGTH and UNIFORMITY.

Hundreds of Dairymen Endorse It as the BEST Color.

Let us send you a Sample Free for your inspection.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO, No. 14 North Clark St. BOSTON, 98 Commercial St. PHILADELPHIA, 109 So. 2nd Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York. Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and **S. M. BARRE,** Winnipeg, Man.

The Improved United States
...TRIPLE CURRENT...
CREAM SEPARATORS
WIN ON THEIR MERITS.

They Do Not have to have Prejudiced Judges in order to make Records. They Prove their Superiority in Practical Use. The following Letters will give some idea of their Popularity:

2639 lbs. per Hour. Test .025.

LYONS BUTTER AND CHEESE FACTORY,
Lyons, N. Y., June 13, 1899.

We, the undersigned, have two U. S. No. 1 Steam Turbine Separators. They took the place of a No. 25 Sharples' Tubular Separator which we have rejected after a month's trial.

We are very much pleased with the U. S. Machines, as they do all and more than they are guaranteed to do. This morning we ran through the two machines in 1½ hours 7917 lbs. of milk, which is 2639 lbs. per hour for each machine, and the skim milk tested .025, and the cream was 35 per cent. cream; temperature of whole milk 84°.

To say that we are pleased with these machines is expressing it very mildly. In our opinion there are no machines that can equal the U. S. for every day work and durability.

L. A VANDERBILT, Buttermaker.
JOHN PAYLOR, Director.
WILLIAM FACER, Vice-President.
G. H. BALTZOL, Treasurer.

(The Lyons Creamery used DeLaval before trying Sharples.)

Skims Over Capacity and Very Clean.

BORODINO, N. Y., Aug. 2, 1899.

We tested the skim milk yesterday, taking a sample at different times during the run, skimming about 5,500 lbs. of milk in 1 hour 32 minutes, an average of 3,600 lbs. an hour, and the Wagner test bottle showed fat only the size of a pin head.

O. I. HAYFORD, President & Manager,
Borodino Creamery.

Used One Year Without Any Repairs and Does Just As Good Work As Ever.

BERKELEY, IA., May 11th, 1899.

We find the No. 1 U. S. Separator all that it was recommended. After using it one year without one cent of repairs it is doing just as good work as ever. It is easily cleaned We use it on all kinds of milk. We cheerfully recommend the U. S. Separator to all in need of a separator.

A. W. OTIS, Clover Lawn Creamery.

De Laval Replaced by a United States.

WESTERLY, R. I., Jan. 9, 1899.

On Sept. 1st. 1898, we put in a No. 1 Improved U. S. Separator (Steam Turbine) in the place of a DeLaval Separator which had only been run **a little over a year and was all shaken to pieces.** The U. S. is all O. K., and runs without the least jar, although it stands on the same foundation upon which the DeLaval stood, and the latter shook the whole building.

The U. S. will separate over 2,500 lbs. per hour without leaving any fat in skim milk. We have tested the skimmed milk several times and have only found from a mere trace to **.02 of one per cent of fat** in it. We know of no better proof of the close skimming qualities of the U. S. Separator than the following incident:

While running the DeLaval we were furnishing a firm in Providence with skimmed milk and no fault was found with it so long as we run that machine, but very soon after we commenced running the U. S. Machine, the party informed us that they would prefer to buy new milk of us, as our skimmed milk was no better than water.

Up to this time we have not put out one cent for repairs upon the new machine, and it runs with half the oil that the old machine required.

WESTERLY CREAM CO.

When in need of Anything in the Dairy or Creamery Line, write us before purchasing elsewhere. Good Goods at Reasonable Prices. Illustrated Catalogues, Free for the asking.

VERMONT FARM MACHINE CO., = = = Bellows Falls, Vt.

cramps of generosity, at times, these many years. But just now there does not seem to be much of a "rise" over the price of last year, to the dairymen who are shipping their milk to the big village of Manhattan.

If this reported increase in the receipts of milk and cream in New York is true, what an increase of mortality, caused by tuberculosis germs, there must be among the unfortunate inhabitants of the various boroughs of the three islands. Why not? How can it be otherwise, with nearly 5,000 cans of milk, or, say 200,000 quarts daily, increase. If this increase keeps up, and the increase increases in like ratio, how long a time will have passed, before every milk consumer—including Dick Croker, all the Tammany braves, Lem. Quigg, and the entire gang of Roosevelt's investigating commissioners will have been "worked off"—called hence by the tuberculosis "critter" they imbibed in their lacteal food constituents? It's an awful condition that confronts 'em down there, and I hope that brother Witter will hurry up his report to the Goverument, ere there is much more increase in the amount of milk shipped to these people. Surely, the undertakers ought to be pretty busy there, now-a-days, and the force of grave diggers greatly augmented in the big cemeteries, although the papers, the various boards of health, and the dozen or two of pap-suckers who operate under the name tuberculin injectors and experts, are as silent as so many sphinxes in the desert.

C. W. JENNINGS.

Belleville, N. Y.

Much in Little.

ED. HOARD'S DAIRYMAN:—On page 732, issue of Oct. 27th, in discussing dairy markets editorially, you say that "the milk that will make one pound of butter will make two and one half pounds of cheese."

I never made a pound of cheese so am writing wholly for information, as I have often read your condemnation of the ten pounds per hundred" contract of cheesemakers. But by your remarks I judge a maker safe to guarantee ten pounds per cwt. from four per cent or better milk. Am I right in this? If so, where is the so-called cheese cow at?

I like to read the articles written by J. W. Kitchen, M. D. Am convinced that he will ultimately become a power for good to the dairymen in his community, as I see by his last article that he is beginning to recover from the state of coma, induced by his severe contact with the problem of feeding protein to butter producing cows, for profit. But seriously the doctor 's talking right out in meeting and asking himself these questions, that many of us have not dared to honestly face, but have been willing to "drift," is conducive of much good. Dr. Kitchen is well enough informed, if he will only stop to think, to know that "poor but extended pastures," as he says in his last they have and upon which they will be able to raise large cows, owing to the pastures being poor and extended is a fallacy because that is the very kind of pastures that produce the Western cayuse and the Texas steer, which used to weigh at three years old as much as 700 lbs. The Shetland pony is also a native of such pastures.

While the facts are that the large Holland cattle are the direct result of being furnished a large amount of good feed without using much energy to obtain it; so with the Percheron, the Clyde and Shire horses, the Lincoln, Cotswold, etc., among sheep.

Unless I am mistaken in the results of my long experience in dairying and live stock rearing, the Doctor will find it an impossibility to grow a large framed cow by a continuous "disproportion of carbohydrates in the rations" as he asserts.

For my part I am glad the Doctor is attacking the knotty problems in his thorough, scientific way, for he will all the sooner realize the fact that he is treading the pathway laid out by Voorhees, Collier, Roberts, Haecker, Smith and Henry, beside the great and only "DAIRYMAN" (HOARD'S.)

Howell, Mich. W. H. SEEYLE.

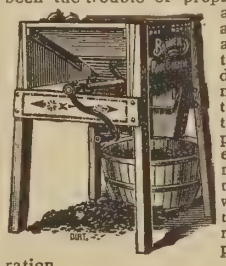
Answering the above we would say that the reason the DAIRYMAN condemns the system of contracting to make one pound of cheese for ten of milk, which is foolishly entered into by some Wisconsin cheese makers, is not that there is not a pound of cheese in good four cent milk, but rather that the maker, is thus left to the mercy of much poorer milk. The reports of the Wisconsin cheese instructors show that the milk taken at factories where such system is in vogue falls much below four per cent. Indeed such a system puts a premium on poor milk and encourages indifference, carelessness and in some cases absolute dishonesty on the part of the patron. No cheese maker should make such a contract without another contract from each patron that his milk shall contain four per cent of butter fat.

But all such systems are mere makeshifts. There is only one fair, square system that will put responsibility just where it belongs and at the same time produce the right sort of education and training in true dairy principles and practice, in both cheese maker and patron." That is the receiving of the milk by the Babcock test and the employment of a maker who has skill, courage and energy to do his full duty.

When cheese factory patrons become true dairymen, as we hope some day they will, they will see the necessity of adopting a system that shall have a good effect on themselves; that will lead them out in the ways of sound dairy knowledge in the production of good cows and good milk.

ILLUSTRATION.

The only objection that has ever been urged to the feeding of root crops to live stock, has been the trouble of preparing the feed in such a manner as to obviate all danger of choking, and in such a shape as to be easily and readily digested. With the removal of these difficulties, root crops are certain to become more popular than ever, for every farmer and dairyman who has given the matter any attention whatever, appreciates the important place the root crops occupy in a properly balanced feed ration.



The Banner Root Cutter, made by O. E. Thompson & Sons, Ypsilanti, Mich., is the only root cutter we know of which prepares roots for feeding to live stock in a thoroughly satisfactory manner. In the first place. it does the work rapidly and shrives off a long, thin, half-round shaving, instead of cutting the roots into irregular pieces difficult of consumption and digestion. These shavings are readily eaten by even young lambs.

The cutters are provided with a self-feeding device, which keeps the roots pressed against the knives, and a shaving grate which shakes up the roots on their way to the knives, thoroughly separating all adhering particles of dirt, etc. The material and workmanship is of the very best. They are durable and strongly made, and with ordinary care will last a life time.

Send to O. E. Thompson & Sons, Ypsilanti, Michigan, for catalogue and prices.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmers Handy Wagon that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

Shelter and Feed for Winter Hogs.

Perhaps the man who can write most confidently regarding the proper methods of managing swine, is the man who has had the least experience. As experience widens, fresh problems keep arising, and there are so many unsolved problems hovering around us the present time, that one feels considerable diffidence in attempting to commit his ideas to paper. It is one thing to say that such and such methods give rapid gains, and quite another thing to say that the same methods will give a first-class quality of bacon. The cry that has gone up regarding "soft bacon," and the conflict of opinions regrading its cause, have had their effect in making thoughtful people cautious regarding their statements. If every feeder could follow his hogs through the packing house, he would probably find that some of his pet theories received a rather rude shaking up. Some members of packing houses have given farmers very explicit instruction as to how they should feed their hogs; but during the past summer a very successful breeder and feeder of swine, sent to the packing house a batch of hogs which had been fed according to methods approved by the firm to which he sent them, and was astonished when he received word that his hogs had been improperly fed, some of them being decidedly soft, and few of them absolutely firm. This incident is related merely to show that while the packer has, no doubt, mastered all the intricacies of his end of the business, there are, evidently, a few things which he does not know regarding the apparently simple operation of feeding a pig. It is true that investigations are in progress, but investigating is necessarily slow work, and so there is still a large field to be explored. This long introduction is intended to explain why it is not possible to deal with the question of wintering pigs as fully as is desirable.

The winter housing of hogs is not an easy problem to deal with. The main difficulty is encountered in getting enough exercise for the animals. When a man has comparatively few hogs, he can master this part of the difficulty fairly well; but when the numbers are large and comprise all ages, sexes and breeds, the real magnitude of the question is appreciated. Our buildings are not well adapted to provide exercise, and in the winter we are compelled to confine animals more closely than we would desire. We have been able to obtain very satisfactory growth, but have not yet convinced ourselves that we are producing bacon of the best quality. A piggery, above all things, should be dry and warm. We have had best satisfaction from wooden buildings, and prefer wood to anything else for the walls of the building. We have some cement floors, with planked sleeping places, which are giving very fair satisfaction; but our farrowing pens are floored with plank.

For pigs just after weaning we find nothing better than wheat middlings and skim milk. Sometimes we cannot get all the skim milk we want, and have to divide the limited supply among those most needing it. We have used ground oil cake and ground flax seed in very small quantities, steeped with the middlings; but though they are better than nothing, they do not equal milk. Of the two, probably the ground flax seed is the better, but it should not constitute more than about five per cent of the total food. By the time the pigs are about three months old a little ground grain is usually added. We like barley for this purpose, and often add a few oats ground as finely as possible.

Soon after this, a few roots are added to the ration. We have fed roots cooked and raw, and have very little preference, except that sometimes cooked roots are eaten a little more readily. We prefer sugar beets, but turnips and mangels are also good. When potatoes are fed, they are always cooked. When fed raw, the roots are pulped and mixed with the meal ration, after which the whole mass is moistened. As to quantity of roots, we have fed to growing pigs as high as fifty per cent of the total ration; that is to say, equal quantities by weight of roots and meal mixture. This, however, is an excessive quantity, and probably the roots should not exceed twenty-five per cent of the total weight of the ration (25 pounds roots to 75 pounds meal mixture). In these matters, however, the feeder must be guided by the condition and the whims of appetite of the pigs.

We have fed clover hay in limited quantities, principally to breeding sows. They are given an occasional feed of cut clover hay mixed with a little meal and steamed. It gives variety to the ration, but roots are our main dependence for bulky food.

Hogs intended for fattening usually have their supply of roots reduced when they reach about one hundred pounds live weight. Sometimes the roots are cut off altogether, but this depends upon how rapidly it is desired to force them. If the hogs are somewaht thin, and it is desired to increase the proportion of fat, as well as secure growth, few, if any, roots are fed. For fattening we prefer a mixture of grain. Equal parts by weight of peas, barley, and wheat middlings or shorts have given very good satisfaction. Sometimes a few oats are included. We feed three times a day, and in deciding upon quantity we are guided entirely by the condition of the hogs. They usually have their feed cleaned up in less than half an hour after feeding. Food is almost invariably given in a well moistened condition. We have not found any decided advantage from soaking food over mixing it as required.

We aim to give the hogs as much space as possible, but up to the present the amount of exercise has not been what we would like. If we discover some method of overcoming this difficulty, we shall be pl ased to report. —G. E. DAY, in *Farmers' Advocate.*

Value of Cleanliness.

Nearly 100 Per Cent Better Results Than in a Dirty Neighboring Creamery.

It is often difficult to convince a dairyman that cleanliness has a value in money, and that soap, water and scrubbing brush ever return an equivalent in cash. To such doubters the following example will be of interest:

An instance of the actual financial value of cleanliness, says the *Irish Homestead*, in the handling and make-up of butter, has come under our notice this week. There are two adjacent parishes in Munster, not a thousand miles from the county Cork, in each of which there is a creamery. In one of these creameries the conditions which produ e clean, presentable butter are lamentably absent, and the price which, on a recent occasion, was obtained for the product of the creamery in question was 60 shillings per cwt. only. In the neighboring creamery, while washings and scourings, careful handling, and cleanly habits were the rule, the butter fetched no less a price than 113 shillings, at the same time, and under the same conditions of market, etc., as determined the price in the previous case. In other words, through neglect of the simplest and most



Protect Your Feet From The Cold and Wet.

All Knit "BALL-BAND" WOOL BOOTS, are the best.

They are the most comfortable and will wear twice as long as others. "Ball-Band" Socks and Rubbers are the same high quality as the All-knit Boots. They have superior features not found in others. Be sure that the trade-mark "Ball-Band" is on every pair. There are more imitations and counterfeits this season than ever before. We make all our own rubbers and are not connected in any way with any Trust. Insist upon getting "Ball-Band" goods from your dealer and take no others said to be "As good as," etc. Mishawaka Woolen Mfg. Co., Mishawaka, Ind.



QUAKER DAIRY FEED

MAKES MONEY

Modern machinery is all right, but modern methods are better. Your cows should make money for you every day. Buying the right feed and using it in the right way is more milk at less cost, and is worth far more to worry about than whether your mower is the latest. Get Quaker Dairy Feed. It is the best for milk—makes quantity, quality and profit.

QUAKER DAIRY FEED

Quaker Dairy Feed is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal.

SOLD ONLY IN SEALED AND BRANDED SACKS

Specimen Balanced Ration

Corn Silage	20 pounds	Oat Straw	3 pounds
Hungarian Hay	5 pounds	Gluten Meal	4 pounds
Quaker Dairy Feed	9 pounds		

Calculated for a cow of 1,000 pounds live weight.

Modern Dairy Feeding—An invaluable book, containing scientifically proportioned rations, including every form of roughage and every variety of feed. Sent postpaid on request. Scientific advice on feeding—FREE. Address

SCIENCE DEPT., THE AMERICAN CEREAL CO., 1348 Monadnock Bldg., Chicago, Ill.

TESTED BY THE MILK PAIL — THE PAIL TELLS THE TALE

CONSULT OUR SCIENCE DEPARTMENT

Greater Capacity

THAN ANY OTHER TWO-HORSE SWEEP FEED MILL. . . .

SEE THAT WHEEL?



2 BIG MILLS IN ONE

In a mill having the sweep attached to the outside shell, it invariably follows that the sweep tilts the shell, wearing the buhrs on one side and allowing whole kernles to pass through on the other. It only requires a glance at the cut shown for anyone to appreciate the advantages of our oscillating sweep; the wheel traveling on a metal track close around the mill not only carries weight of the sweep, but also of the main shell, obviating any tilting of the buhrs, which insures a uniform grade of meal.

We make four Styles and Sizes of Sweep Mills. Write for Catalogue.

A BIG MILL ON A BIG BOX.

MFG. BY

DAVIS GASOLINE ENGINE WORKS CO., Waterloo, Iowa.

elementary conditions of butter making, nearly 100 per cent on the actual selling price was lost to the creamery in ——, but, no we forbear them the pain of printing their name.

CONCERNING OUR ADVERTISERS.

AN ECONOMIC AND SANITARY REQUISITE.

Stockmen and dairymen throughout the world recognize the fact that their interests, particularly in the line of economy, are best served by an early recognition of tuberculosis in their cattle. Neglect to ascertain the existence of the disease is particularly reprehensible because the means of detection is within the reach of every stock and dairyman at a cost which is practically nominal. If the disease exists, it becomes unmistakably apparent; if the animal is free from disease, the injection of tuberculin produces no bad effects, and the animal's health is not injured.

Mulford's tuberculin is employed by leading veterinarians everywhere because it is invariably reliable, of absolute purity and every bottle is of uniform strength. Write to H. K. Mulford Co., Philadelphia or Chicago, for a free book which contains a vast amount of valuable information for stockmen and dairymen.

QUALITY AND PRICE.

We believe that every purchaser of whatever commodity seeks primarily two things. These are quality and price. It is a question in the minds of most people whioh of these should be placed first in their importance. In other words, do the majority of buyers demand quality first, leaving price as a secondary condition, or do they demand first price, leaving quality as a secondary condition?

Leaving aside any speculation on these points, we are certain that it is possible to-day to bring about a happy combination of both high quality and low price if the purchaser but knows where, of whom and how to buy. These facts have been brought out and these conclusions arrived at by reading the advertisments of one of our regular patrons, whose advertisement appears in this issue of our paper. We refer to the Marvin-Smith Company, of Chicago, Ill. These people are dealers in a general line of agricultural implements and farm supplies of every kind. The individual members of the concern were brought up upon the farm and own and operate a large farm at the present time They are therefore well qualified to know the requirements of the farmer. They have brought together in a catalogue of 336 pages with profuse illustration, a line of machinery and articles which they know from experience to be farm necessities. Their sole object has been to secure to their patrons the best obtainable article at the lowest procurable price. In this way they are not influenced or biased by personal prejudices as the manufacturer of a single article might be.

What we have said above will be found equally true of other lines appearing in their catalogue. Perhaps the crowning feature of the Marvin-Smith Co., however, is their method of doing business. Having selected their line well and carefully, they evidence their faith in their goods and their prices by shipping goods anywhere subject to approval. Any article in their catalogue will be shipped to your order and if not found entirely satisfactory and as represented, may be returned to them at their expense, and they will refund your money. Further, they guarantee to save you money on every purchase you make. Our readers will certainly find it to their advantage to write these people for their new fall and winter catalogue. If you already have one get the new one anyhow, as it is much enlarged and extended and embraces many new articles.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

ABORTION IN HERD.

My cows have been aborting for the past ten months, some in the fourth, fifth, sixth and seventh month. They get every care and attention. Some have carried their calves the full time. Those that do abort do not clean well. I have been injecting a solution of carbolic acid and water into the vagina of those that aborted as well as sprinkling the stable with chloride of lime. Some young pigs are kept in a shed contiguous to the cow stable. I have often observed the cows like to lick the lime off the walls of the stable. Some time ago in your paper, I noticed that bone meal was recommended as a cure for abortion. I am getting some, and would like to know through your valuable paper how it is fed to the cows.

North Nation Mills, Ont. ENQUIRER.

ANSWER.

The pig and the cow have no place together. Such a mixture is highly wrong, always. Your so-called carbolic acid is quite sufficient to cause abortion, and has no business around a cow stable, never. Retention of the placenta, or a portion of it, is quite often the result of abortion. Chloride of lime too is dangerous to cows in calf, as it is quite a nauseating, bad smelling stuff. Besides, there are several better disinfectants and deodorizers, and safe ones too. I have no faith in any kind of bone as a prevention of any form of abortion. But bone meal is quite safe, and in many cases of abnormal appetite, etc., is much relished by cows. Select one of the specially put-up remedies advertised in the DAIRYMAN All the efficacious drugs going into a proper remedy for abortion are too potent to be intrusted to the layman. I have had several instances of doing wrong by naming some of them to inexperienced persons, who neither know, or seem to care to know, just what to do.

About an ordinary teacupful of bone meal, if good, will be about O. K.

HABIT OR TOOTHACHE.

Will you please tell me what is the cause and what will cure a cow from pressing her nose against the manger when being milked.

Mason City, Ill. H. C. C.

ANSWER.

Most likely a habit only. May be from toothache. Have the mouth examined by a competent person and find out just what is the matter and act accordingly.

LUMP ON NECK.

I have a cow that has a hard lump on her neck close to the hollow back of her ear. It was small a few days ago but gets larger. The kin has not been broken and it does not seem possible that she has run anything in it. O. V. K.

Pleasant Plain, Iowa.

ANSWER.

Really it is out of my power to say what the trouble is, more than you yourself describe. I should incline to believe it to be the result of some accident. It may be and is highly possible,—yes, probable—that she has run something into the flesh of the parts you name. Rub hard with four ffs. ammonia, two ounces; oil cedar, two ounces; sulphuric ether, one ounce; fish oil, ten ounces; no vegetable oil. Give immediate full dose of physic. This is never wrong and always is good, excepting in a low, poor condition and general weakness.

DISEASED QUARTER.

One of my cows is sick. She gives bad milk out of one quarter and it hurts her very much when I milk her. She eats all right, but she can hardly walk; seems awful stiff behind and has fever in that quarter.

East Akron, Ohio. J. P. H.

ANSWER

Above all and everything, a full and immediate dose of physic as per head of this column and repeat and re-repeat in four or five days. Rub that quarter with six parts of tincture of camphor and two, only, parts of common turpentine. Rub hard twice the first day, then only once a day for three days.

Attend, at once, to the thorough physicking, as recommended. After the physicking, if the milk still is faulty, give two teaspoonfuls of nitre, each morning for ten to thirty days, as may seem needed.

COW WITH COUGH.

I have a cow which has a cough; has had it for two or three months, more or less. Cough is dry, and usually worse right after eating or drinking. She feels good, milks splendid and eats real well.

A SUBSCRIBER.

ANSWER.

Almost all coughs are worse immediately after eating. Having existed for three months points to some permanent obstruction in the trachea, the esophagus or an irritation of the larynx or pharynx. To find the identical location a personal examination is needed to arrive at a correct diagnosis. I think doctoring out of all place as it would annoy the cow, be quite a trouble and do no good, but harm, unless doctored advisedly as stated.

LUMP IN UDDER.

My cow has a hard place in her left hind quarter. She has had four calves, has never been dry, never had any udder trouble until this summer. A week or so before she calved there was a hard place come in the right fore quarter. It seemed to go from one quarter to the other and then would disappear. I rubbed it with sweet oil. After she calved her udder has been all right until a few days ago I noticed the hard place again. It seems to be up in the udder above the root of teat. It does not seem to hurt her any. The milk looks all right. After the teat is milked out can still feel the hard place. Have another cow that has been a little lame all summer in one hind leg. It seems that quarter is sinking or getting shorter. RENEWAL SUBSCRIBER.

Lawrence Co., Illinois.

ANSWER.

1. I think your high feeding has something to do with the tumefication you name. I would reduce the food for a while at least. Give immediate full dose of physic and repeat in six or seven days if needed. After this, paint over the hard parts with tincture of iodine twice a day for a few days. Each morning give eighty grains of iodide of potassa in a little water as a small drench, for from ten to twenty days, as seems to be needed.

2. You had better get a veterinary surgeon to make an examination. You may have one of two dangerous diseases, viz., anthrax or tuberculosis. The state veterinarian will be proper.

ABORTION AND NYMPHOMANIA.

I have a fine heifer that is coming four years old next spring. She dropped her first calf when twenty-one months old. She did well and was served when three or four months along. After she had carried her second calf about five or six months, she aborted; the cause of which I think was from fighting some young cattle, she was running with in the yard. This occurred in January last; since she aborted, she has failed to come in heat. She seems well and is in good flesh; has been giving milk since she was first fresh, but there is a very offensive discharge comes from her, almost constantly.

I also have two mares, five and six years old, they are sound and seem all right, but do not come in heat. I have had one of them opened up, and have taken her to the horse every three or four days, for four or five weeks. Since then have had her to the horse as much as eight or ten times, but can do nothing with her. C. E. G.

Townville, Pa.

ANSWER.

Fighting in pasture and cow yard is the cause of many abortions, etc. Inject Bromo Chloralum, one part, and water (tepid) eight parts. Do this twice a day for a few days, then inject only once a day, or until the discharge stops. Thoroughly wash and keep washed all the hind parts, especially under the tail and the vulva.

You are doing all you can to permanently ruin your mares as breeders—opening up you say. This is a disgrace to an intelligent man. This fad has permanently ruined some of our best equines, and still many times more of our bovines. Such constant and persistent serving is monstrous, and adds strong fuel to the fire of sexual desire. Stop service, and wait until next season, then write me again, if you wish, and give me plain and exact symptoms.

MICA AXLE GREASE lightens the load—shortens the road.

helps the team. Saves wear and expense. Sold everywhere.
MADE BY STANDARD OIL CO.

Second-Hand SEPARATORS

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.
P. O. BOX 56, WEST CHESTER, PA.

Personally Conducted California Excursions

Via the Santa Fe Route.

Three times a week from Chicago and Kansas City.
Twice a week from St. Paul and Minneapolis.
Once a week from St. Louis and Boston.
In improved wide-vestibuled Pullman tourist sleeping cars.
Better than ever before, at lowest possible rates.
Experienced excursion conductors.
Also daily service between Chicago and California.
Correspondence Solicited.

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...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure SCOURS in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO.,
159 Chambers St., New York

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

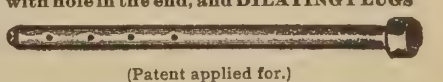
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

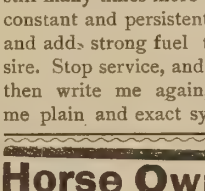
My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O.

FREE CURE FOR Trial package of three special medicines Free. **ASTHMA**
Dr. W. K. WALRATH, Box 622, Adams, N.Y.

Horse Owners!



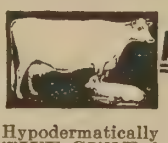
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A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland O.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a POSITIVE CURE for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

Cows barren 3 years MADE TO BREED.



Book Free. **Moore Brothers,** Albany, N. Y.

A Modern Dairyman's Methods.

ED. HOARD'S DAIRYMAN:—I was never more impressed with the fact that old fashioned farming no longer pays, than on listening to an account of the management of a dairy lately given me by the proprietor, who lives in one of the south towns of Erie county.

The dairy is kept almost wholly for milk, as the owner has a route in Buffalo, and another in a smaller town near him. With the need so plainly before him of a constant supply of milk of about even quantity the year round, the owner set himself to studying the situation. He found the old fashioned farmer all about him, even in the milk business, selling his product to the city dealer and letting the quantity regulate itself according to the weather or time of the year, without any provision whatever for meeting the emergencies of dry summers, and the natural decrease of milk on the arrival of cold weather.

There are plenty of this class of farmers everywhere yet, and western New York has its share. They somehow manage to live, but are always complaining that farming does not pay, and their surroundings are evidence in abundance that the sort of farming they carry on not only does not pay, but is a disgrace to the fair land they occupy.

My friend finds high-grade Jerseys most to his mind in the milk trade. They are heavy, strong and healthy, and yield to his system well. He has some thoroughbreds, but has had difficulty with them occasionally, especially from getting too fat when not in milk, and refusing to breed. It is quite possible that his system rather favors that fault, but he is positive that it is the only one worth following, which I will give in brief.

Keep the cows in the best possible condition by looking to the feed resources very sharply. As it will always happen that natural feed, summer as well as winter, will run down in quantity or quality, or both, it will be necessary to resort to partial soiling, so he sows corn liberally early in the season, preferring southern white dent or white flint. This is cut by machinery and fed to the cows in the fields just at night, when the flies are out of the way. They will then eat up every bit of it. After the first cutting, a second crop about as good as the first, will sprout from the stumps. No other forage has been found that will begin to meet the needs of the dairy like this corn.

In winter the flow of milk is kept up mainly with mill feeds, and our dairyman is in favor of fattening feeds more than some are, for his theory is that if a cow goes dry, and it is thought best to send her to the butcher, she ought to be ready to go at once. To be obliged to wait for fattening her is to take all the profit out of her. To qualify a cow for a long stay in the herd she must be equal to practically constant milking. About the best cow he has, now past eight years old, has been dry but a few weeks, less than a month, if I remember, during the whole time since dropping her first calf. Most cows can be brought up to this requirement, he finds, by proper feed, which must be feed that is rich in quality and all that the cows will eat.

This rushing style of handling pays, at least in this case, and pays so well that the owner declares it the only style that is worth adopting. But how about danger from disease from high feeding, especially milk fever? I made inquiry. The dairyman had gone through this stage of the business, and was posted. He had lost cows from it.

The treatment is not to feed any meal or rich food for sometime before calving; and for several days previous, to fairly starve them. "If I have any reason to fear milk fever," said the dairyman, "I give the cow nothing at all but water, for days. It will carry her through."

After this, and very close to it, is to keep the cows well supplied with water, keep them and their surroundings absolutely clean in winter and treat them gently with uniform handling.

JOHN CHAMBERLIN.

Erie Co., N. Y.

Creamery Rules in Belgium.

The following rules are in force at a Belgium co-operative creamery.

We wonder what the effect would be if such a set of regulations were enforced at a creamery in this country. There is no doubt that it would result in the production of a fine quality of butter, and as a secondary result an improvement in the general methods of dairying among the patrons of the creamery. But how many co-operative creameries are there where such a set of rules could be enforced or adopted by the patrons?

1. Each patron declares twice a year, January and July, how many cows he owns.

2. The management has the right at any time, without notice, to send a veterinarian, an agricultural engineer, or a delegate, to inspect the health of cows, the sanitary condition of stable, utensils, etc.; also to have the cows milked in their presence and take samples for analysis.

3. The milk must be delivered as it comes from the cows at least once a day.

4. Milk showing less than 2.4 by the Gerber or Babcock test may be refused.

5. Milk from sick cows, milk from cows having calved within eight days, from cows due to calve within three weeks, milk with any abnormal odor or taste is not received. It is also prohibited to deliver milk from other patrons as if coming from the deliverer's farm.

6. If any patron desires to increase or decrease his delivery by one hundred pounds per day, he must give notice two weeks before.

7. The greatest cleanliness must be observed, as follows: "The cows' bags must be washed, the first squirt of milk thrown away, all utensils kept perfectly clean, milk removed from the stable immediately after milking, strained, and night and morning's milk not mixed."

8. The receiving hours are fixed by the management, but two days' notice given of any change.

9. The management determines the manner of taking samples.

10. Patrons have a right to be present during the testing.

11. Payments are made twice a month.

12. Until notice is given, the patron must take back the skim milk.

13. All milk deliveries must follow instructions of the dairymen.

14. It is not allowed the patrons to use any of the utensils in the creamery unless necessary, and the user is responsible for damages.

The dogs used in hauling the milk must be provided with muzzles, and owners are responsible for any results for not doing so.

The breaking of any of the rules is followed by a fine of twenty cents; if repeated within six months, forty cents; and the third time expulsion may follow.

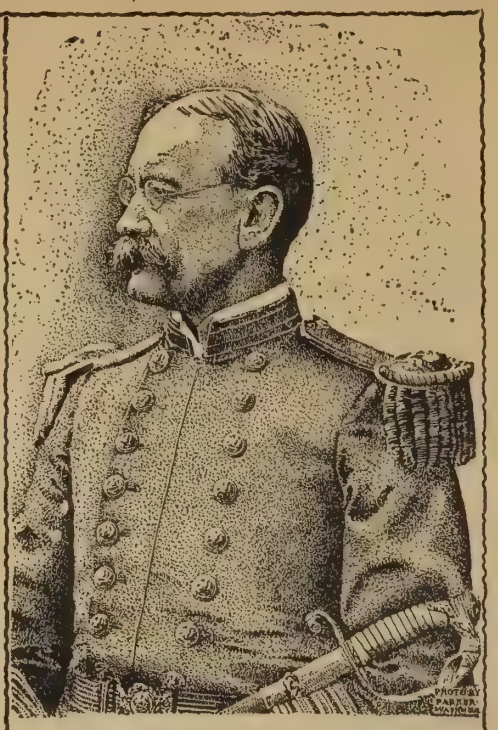
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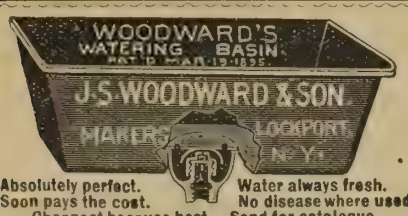
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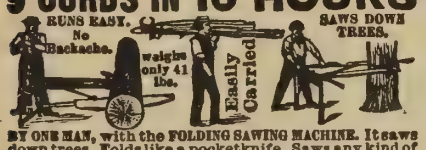


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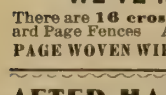
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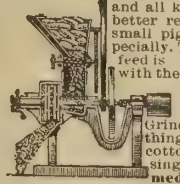
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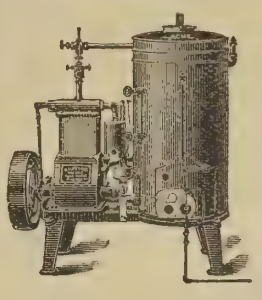
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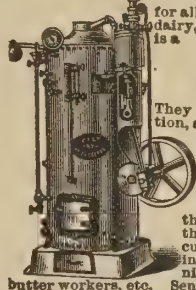
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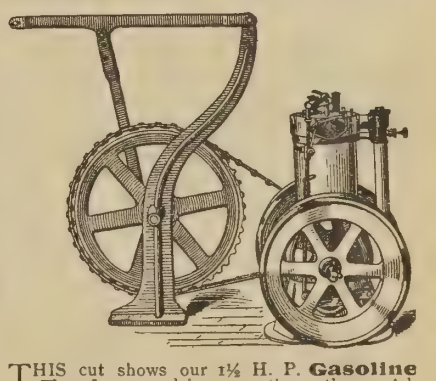


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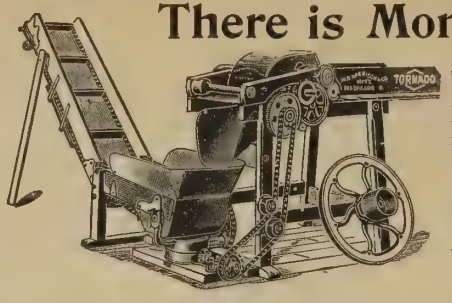
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THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.

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WE BOUGHT

The Omaha Exposition

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—Send us your bill for our estimate—

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Chicago House Wrecking Co. CHICAGO, ILL. or OMAHA, NEB.



Scott's Perfect Swinging And Self Closing **Cow Stanchion**

Each cow shuts herself in place.

CIRCULARS FREE.
B. C. SCOTT,
211 Beach Street,
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THE IMPROVED VICTOR Incubator

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POULTRY FOR 1900 How to make it pay better than ever, the contents of our new **POULTRY GUIDE.** Tells a thousand things every hen owner should know. **Treats the whole subject.** 180 new and original illustrations, recipes, poultry houses, etc. **Worth $25, but sent for only 15 cents to pay postage.**



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An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

HATCHING IN 10 DAYS



would be an improvement on the old way, but WE can't do it. We CAN furnish an **INCUBATOR that will hatch** all hatchable eggs, and do it with less attention than any machine made. It does it because it is made right and has all late improvements. Sold at a low price and guaranteed. **Catalogue in 5 languages, 6 cts.**

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INCUBATORS THE CYPHERS.
One Style Only, OUR BEST.
Warranted to last **Ten Years** without repairs and to out-hatch during three trials any other incubator—bar none; **THIS OR YOUR MONEY BACK. Built for business —sold on honor.** 16-page illustrated circular and price list **FREE.** Poultry Manual and Catalogue No. 123 (160-pages, 8x11in.) entitled, "How to make money with Poultry and Incubators" sent postpaid for 15 cts. in stamps—worth dollars. Address nearest office.
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Chicago, Ill. Wayland, N. Y. Boston, Mass.

"The Salt That's ALL Salt."

Is a title denoting unequaled purity.

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Has analyzed the leading dairy salts of all countries, and given the results in a special bulletin which shows that

Diamond Crystal Salt

is the only salt in the world above 99 per cent. pure.

OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

DIAMOND CRYSTAL SALT COMPANY,
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The New Book

FEEDS AND FEEDING

By Prof. W. A. HENRY,
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THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

4 YEARLY Subscribers at $1.00 Each ($4) will Secure It as a Premium.

Of this Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book."

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.



A PRACTICAL POULTRY BOOK One which covers every detail of the industry from incubation to market is our **20th CENTURY CATALOGUE.** It will teach you from the practical experience of others what it would take you ten years to learn. Among other things it tells about the latest improvements in the world famous **Reliable Incubators and Brooders.** Sent for 10c to pay postage. **Reliable Inc. & Brdr. Co. Box B 51 Quincy, Ill.**



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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., NOVEMBER 24, 1899. NUMBER 41

If You Have CREAMERY BUTTER to sell, write

J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.

REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

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Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**

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Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color

Guaranteed the Purest, Cheapest and Best in the Market.

100 FIRST CLASS PRIZES

Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**

Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Sharples Superior Specialties.

It is poor policy to buy an inferior article because it is cheap, and it is the height of folly for a creameryman to buy second grade machinery when he can obtain the very best goods on the market from us at the same prices which others are asking him to pay for machinery which has been on the "back number" list several seasons. While competition has been endeavoring to control the creamery trade by forming a trust, we have held our customers by constantly improving the quality of our goods and by furnishing them with the best to be had at the lowest possible prices. Among other superior articles we ask you to consider

THE TUBULAR CREAM SEPARATOR

which has repeatediy proven itself far ahead of any other separator made. A lack of space prevents a description of the Tubular here, but we will send you full particulars on request.

THE RUSSIAN BABCOCK MILK TESTER

is admitted by all authorities as being the most reliable Tester made. The Russian is absolutely accurate, automatic in its action, and much more rapid than any competing Tester.

THE SQUEEZER COMBINED CHURN AND BUTTER WORKER

has been brought to the highest point of excellence. Simple in construction, easily operated, easily cleaned, and enabling the finest quality of butter, it is not strange that the "SQUEEZER" is recognized as the leader of all combined churns.

THE ALL-OVER BUTTER PRINTER

is something new,—a printer which prints all sides of a butter brick in less time than the ordinary printer prints one side.

THE SHARPLES DAIRY SEPARATORS

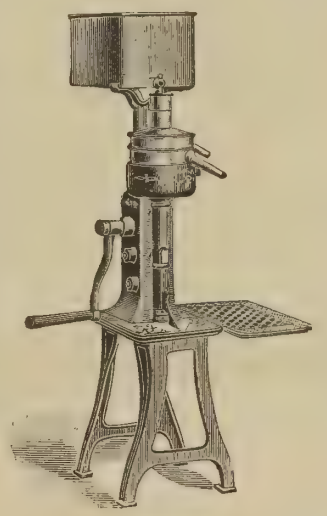
are the only practical separators for farm use and the ones which a creameryman can sell to his patrons without fear of being bothered to death on account of complaints which always come from farmers who have been induced to use the complicated machines of our competitors.

Write for catalogue and circulars.

THE SHARPLES COMPANY,
28, 30 and 32 S. Canal St.,
CHICAGO, ILL.

The Man With 20 Cows.

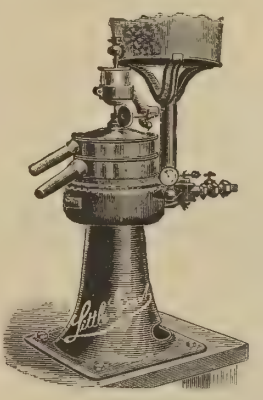
The advantages of the use of the machines here illustrated are so great that with our



Sharples Safety Hand Separator

(Capacity 300 to 600 lbs. per hr.)

and 20 cows a man can make more and better butter than he can make from 25 cows in any other way. The advantages are obvious:—They embrace the saving of the feed and care of the extra five cows, the saving of the money invested in them and the interest on the same. Then there is the added advantage of having the skim milk from your own cows, free from any tubercular or other disease germs, fresh and sweet to feed your calves, pigs, etc. Other advantages are found in the fact that you get absolutely all the butter fat that can be gotten from the milk in any way, and that the cream is more even and churnable. That means that you recover all of the butter in the act of churning. Then, too, the quality of the butter is so greatly improved that you always get the top of market price. Should you have a larger herd, really the only separator to use is a



Sharples Little Giant Separator.

It is a power machine with a capacity of 300 to 600 lbs. per hour, but does not require an engine to run it. The simple introduction of a steam jet from an ordinary farm boiler supplies the necessary power. This is the separator that is being so extensively used in the Moody-Sharples System of advanced farm dairy and creamery practice in Iowa, U. S. A. It is a remarkably close and even skimmer and turns out the highest grade of smooth, velvety, churnable cream. All this means a greatly improved quality of butter and correspondingly better price. When used as a dairy separator it possesses all the advantages enumerated in the first part of this advertisement. When used in connection with the **Moody-Sharples System** its advantages are practically innumerable, all embracing economy of management and increased net earnings. We have brought together the **Moody-Sharples System** facts and published them in a neat booklet for mailing to interested parties. Write for a free copy.

Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.

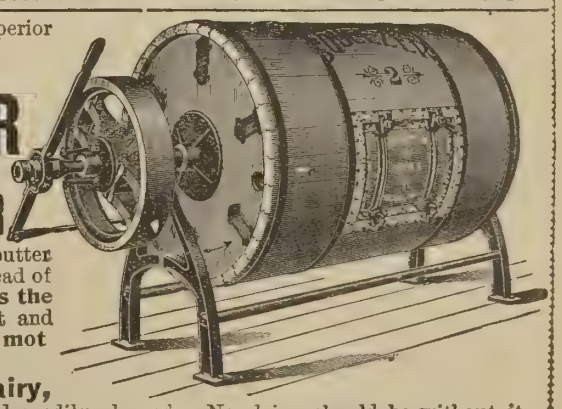
P. M. SHARPLES, West Chester, Pa., U. S. A.

D. DERBYSHIRE & Co., Brockville, Ont.

The Machine that will Build a Butter Trade.

Because it will make a superior quality of butter.

THE **SQUEEZER** COMBINED **CHURN AND WORKER**



squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

Made for the Dairy,

and is easily operated and readily cleaned. No dairy should be without it.

Will do Exhaustive Churning at any Temperature.

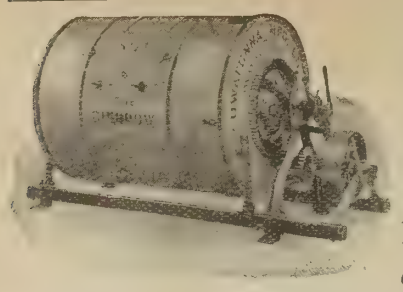
We are prepared to repair all cream separators and employ highly skilled men for this work.

Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

JOHN JAMISON, ESTABLISHED 50 YEARS. **Butter, Cheese, Eggs, Poultry.**

Water and Market Streets - - - PHILADELPHIA, PA.

I reach every outlet and have a constantly increasing trade. REFERENCES: Dun and Bradstreets; Corn Exchange Bank, Philadelphia.



A Successful Creamery

Must have the best of machinery throughout. Competition is so close now-a-days, both as regards quality and cost of production, that unless you are prepared to operate your plant with a minimum of labor and loss you will surely make a failure. No creamery outfit is complete without a

DISBROW

Combined Churn and Worker. The best and most successful creameries use them. They make more and better butter than old style churns and workers.

Write for more facts.

OWATONNA MFG. CO.,

SOLE MANUFACTURERS. *OWATONNA, MINN.*

Creamery Package Mfg. Co.,

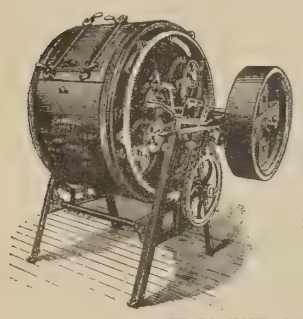
GENERAL SALES AGENTS,

BRANCH HOUSES:— Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

1, 3 and 5 W. Washington St., CHICAGO, ILL.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



BABCOCK TESTER.

FOR LATEST IMPROVED

Creamery Apparatus,

Pasteurizers, Milk Weighers and Alpha Cream Separators, write to

A. H. BARBER MFG. CO.

229 S. Water St., CHICAGO.

Refrigerating Machines for Creameries, Meat Markets, Hotels and Ice Making Plants.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

PARKE, DAVIS & COMPANY, Detroit, Michigan.

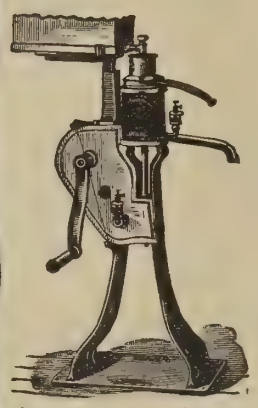
BRANCHES: New York City, Kansas City, Mo., Baltimore, Md., New Orleans, La., Walkerville, Ont., and Montreal, Que.

The Reasons for the Superiority of the

Improved United States Separators

are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

The rapid increase in sales is phenomenal. None can truthfully boast of such a record.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

PRINTED PARCHMENT BUTTER WRAPPERS

Are an established factor in the CREAMERY BUSINESS to-day. Protect your special brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. **Our STANDARD** weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

A. G. ELLIOT & CO.,

Manufacturers, Importers and Dealers in Paper of Every Description. **Philadelphia, Pa.**

GENESEE BUTTER SALT A flaky grain, very soluble, will not wash out (like fine salt) and brings out the best flavors in the butter.

GENESEE CHEESE SALT Trifle coarser than Butter Salt, of the same quality and is cheaper than common salt because it goes further and produces better results.

Genesee German Cheese Salt (Deutscher Kafe Salz) has no equal for Swiss, Limburger, Brick, etc.

Genesee Salt Never Lumps nor Hardens.

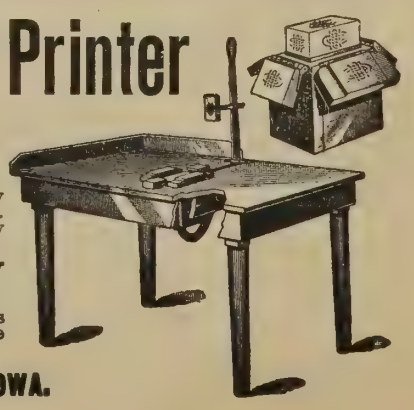
F. A. TRIPP, Chicago, Ill. **GENESEE SALT CO.,** New York, N. Y.

Self Gauging "All Over" Printer

The distinctive feature of this new Printer is that it

Delivers a Perfect Cube Printed on all six sides

if desired, as shown in the cut. It is also especially adapted for printing butter at a varied temperature. When adjusted the weight of the prints is strictly accurate.



The Self Guaging "All Over" Printer is Capable of Very Rapid Work,

making it a most desirable printer for large dairies or creameries. Write us at once for descriptive circular and price list.

HANEY-CAMPBELL CO., DUBUQUE, IOWA.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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All countries in the Postal Union $2.04 a year; not in the Postal Union $2.56.

Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

SWEET skim milk, sour skim milk, rotten skim milk; which are you feeding? The first is worth from twenty to twenty-five cents per hundred pounds. The second but little less, if you can be sure of the quality and careful of the quantity. The third is bad from every point of view. It will not pay to bring back from the factory, because when you have it, it will contaminate your milk cans, sicken your stock, kill young animals and make your feeding places and utensils a center of contamination, a source of bad smells and contamination of all the good feed it may come in contact with.

It would be better to dump such milk into the first sand bank on the road, than haul it home under the impression that it is of any value.

THE HIGHER STANDARD.

HOARD'S DAIRYMAN has persistently labored to induce the dairy farmers of this continent to adopt a higher standard in the conduct of their business. It has believed that the great hindrance to progress and profit in every thing connected with the business, from the cow to the creamery and cheese factory, and beyond them to the dealers, has been *too low a standard*. It has noticed for years, that the *demand* of the consumer has been for better products than the producers have been willing to give. Indeed, it has been the demands of the market which has compelled the farmer, and all the agencies after him, to accede to a higher standard of production.

The DAIRYMAN believes that this "higher standard" is absolutely necessary to ensure a living profit, to prevent loss on the part of the producer.

It sees everywhere that it is the poor cow, the poor, low standard ideas of the man who owns her, the low standards of excellence in their product that is bringing loss and waste to the dairy farmers of the country. Any man with half an eye can see this if he will but look at the facts. He can see that the "low standard" men are not making the money that the men are, who, from the cow up, have higher, better standards of doing things. He can see that it is the poor butter and cheese that sell for a price away below the cost of its production. He can see, if he will look, that this great flood of poor product was made by men and women who worked under a low standard. He can see that these low standard ideas entail an enormous loss on the farming class.

Who is he working for? Certainly not for the consumer, for he takes his product only under the crushing protest of a ruinously low price.

He is certainly not working for his own product, his own education, his own advancement in the scale of manhood and respectability among his fellows.

No man grows in his pocket, his own self respect or the regard of his fellow men, who makes a product that he ought to be ashamed of, if he knew what was what.

Prof. Marshall, of Harvard University, in writing on the labor question, speaks of the great object of Labor Unions to be a "higher standard of life" in their work, and in their homes. He defines this higher standard as "a kind of existence which implies increased energy and self respect." There is a wonderful sight in that. Go among the dairy farmers in any state, and it will be seen that the great inspiring cause of individual profit and progress is a higher standard of "energy and self respect."

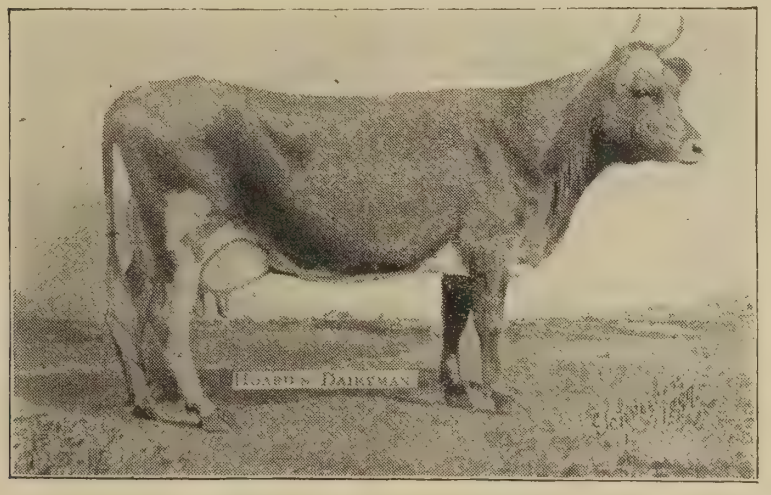
Such men show it in the character of their farms, their cows, their stables, barns and sheds, and finally in their homes and their bank accounts.

The farms we are ashamed of are being run by men, who are governed by a low standard. They have but little dairy knowledge and less faith. Their constant motto is, "It Don't Pay."



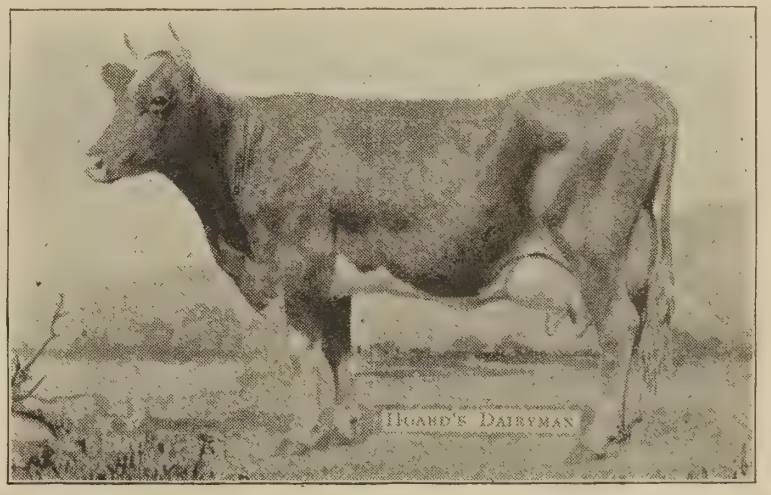
MAINSBOY, A. G. C. C. 3789.

Property of E. W. STRAWBRIDGE, Moorestown, N. J.



BUTTERCUP.

Property of E. W. STRAWBRIDGE, Moorestown, N. J.



ECONOMY, A. G. C. C. 6748.

Property of E. W. STRAWBRIDGE, Moorestown, N. J.

The dairy farmer who enlists under the flag of a "higher standard," commences with his own ideas first. He elevates them. He believes it will pay to "do all things well." He has faith, pluck and steadfastness. He is the most valuable citizen of this Republic. "May his tribe increase."

Three New Jersey Guernseys.

ED. HOARD'S DAIRYMAN:—I send you a picture of thoroughbred but unregistered Guernsey cow Buttercup, the property of Edward R. Strawbridge, of Moorestown, New Jersey. She freshened with her third calf the last month in winter of 1898 and 1899, so was about seven months in milk, when this photograph was taken. Her record has been

For thirteen milkings in last week in winter	243	lbs.
Three spring months	1,335	"
	1,293	"
	1,352	"
Three summer months	1,176	"
	1,175	"
	1,237	"
First fall month	1,130	"
This month up to the 20th inclusive,	871	"
Total	9,812	"

This is for about eight months of milking, if my addition is correct. She is still giving thirty-two pounds or a little over per day. I am sorry to say we have no silo and this cow is not forced; in summer she had about four quarts bran a day besides pasture and sometimes a few corn stalks. Ordinary feed, seldom over four quarts at a feed, usually bran and cerealine, or bran and corn meal, sometimes a little oat meal or cotton seed with hay; we think her remarkable.

Economy 6745 was nearly fresh, and we are keeping her record. Mainstay heads our herd, and was bred by H. McK. Twombly, of Madison, New Jersey, and is a son of Sheet Anchor 2934 and Rutila's daughter 6670. We have on our farm twenty-nine Guernseys, either registered or youngsters to be registered and eight unregistered, making a total of thirty-seven. We feel it a real loss to the breed, that Buttercup's registry is lost. Her former owner assured me she was a thoroughbred, but the necessary data cannot be found. Only one Babcock test had been made of her milk since this calving, up to the 20th of this month, and that was over 4% fat. E. W. STRAWBRIDGE.

Moorestown, N. J.

The best comment we can make on the above records is, to suggest a comparison of them with the pictures of the cows. We print these records and accompanying ilustrations simply to pile up the evidence concerning the relation of form to performance.

A BANNER YEAR IN CHEESE.

The *Commonwealth*, of Fond du Lac, Wis., in speaking of the past year in cheese making in that (Fond du Lac) county, gives some quite interesting statistics.

There are about fifty cheese factories in that county, and fully as many creameries. Thirty-five thousand, three hundred and fifty boxes of cheese have been sold on the local board of trade, and the whole season's output will equal $200,000.

Prices paid this year, are thirty-three per cent higher than last year. At the commencement of the season, cheese sold for 7½ cents. The style of cheese known as "Daisies" have sold as high as 12½ cents, and Twins have sold for 12 cents. The ruling styles of cheese made in that county are Young Americas, Daisies and Twins, but the latter have nearly driven out the former. Daisies range ⅜ to ½ cent higher than Twins. Daisies weigh about twenty pounds, and are put up one in a box. Twins are so called because there are two in a box.

As soon as the milk gets colder than the atmosphere, the vapor in the air will condense on the surface, as dew gathers on a cold pitcher, and the impurities and odors from the atmosphere will be absorbed by the milk or cream on it.

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Coming Events.

Missouri Dairymen's Association, Holden, Nov 27-8-9
Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Polled Jersey Cattle Company, Cedarville, Ohio, Dec. 6, '99.
Maine Dairymens' Association at Lewiston, December 11-13.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13. 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.

THE governor of Texas has issued a proclamation, declaring quarantine against breeding cows from the states of Illinois, Iowa, Wisconsin, Pennsylvania, Michigan, Minnesota, Massachusetts and Vermont, being shipped into Texas, without examination. A permit and bill of health from a veterinarian of the Bureau of Animal Industry is required for each animal.

The above states in return are protected against Texas fever by quarantine. Each state is evidently willing to bear the ills it has, but is distrustful of those possessed by other states, and we may expect a quarantine war until this question of contagious diseases of animals is treated in a broader and more scientific manner than at present.

BETTER COWS.

There are a large number of dairymen who have finished their season's work; have faithfully performed the various routine operations of the dairy, and find themselves at the end of the year with an empty, or a very thin pocket book.

Most of this class will repeat the work next year with the same result, and concluding, as many others have done before, that "dairying don't pay," will go into beef just as the market is beginning to be well filled, and prices on the downward grade. The consequences will be, that "beef don't pay." A few dairymen, however, will recognize the fact that something is the matter with their animals, and will do some vigorous thinking on the ways and means of improving their herd. When a man has recognized the fact that it takes two hundred pounds of butter to pay for the food and keep of a cow for one year, and a little figuring shows him that his herd is bringing in, for each animal, thirty to fifty pounds below that figure, it dosen't take long to see that there is a big leak somewhere that must be stopped, if he is to keep his business on top of the business sea.

A manufacturer with unproductive machinery, throws it out and makes room for better as soon as possible. The dairymnn with the unproductive cow must also make room for the better animal, and set himself to work to get better ones. How shall he do it? If he wants to start in the right path with least waste of time and money, he must breed them. Get a bull of one of the four dairy breeds and stick to that breed. A general-purpose breed may be cheaper at first, but more expensive in the end. A beef bull will only lead him still farther from the straight and narrow dairy path. Milk he must have, and the sooner he yokes up with a good dairy animal, the sooner will he get his milk, and consequent butter fat.

The animal that will supply both beef and butter fat equally well, may exist, but the present outlook is, that she is too scarce for any dairyman to look for with hope of success.

OLEOMARGARINE AND A CONGRESSMAN.

Honorable George W. Steele represents the 11th Indiana district in Congress. He has served several terms, and is accounted an exceptionally able man, and well posted in public affairs. He is a member of the Ways and Means Committee, and also a member of the Board of Managers of the National Homes for Disabled Volunteer Soldiers. Withal he is, we believe, a veteran of the civil war and a member of the Grand Army of the Republic. One would suppose that such a man would be able to take a comprehensive and statesmanlike view of the oleomargarine situation, both as it affects the general welfare, and especially in regard to its use in Soldiers' Homes. It is apparent, however, that he has been too busy with other matters, of possibly greater importance, to give this question the consideration it really deserves.

A representative of the National Dairy Union chanced to meet this Congressman the other day, and was not a little shocked to hear him say that he bought thousands of pounds of oleomargarine for use in the Soldiers' Homes, offering the worn and utterly invalid excuse, that it was impossible to buy butter that gave satisfaction. We are quite familiar with this excuse in Wisconsin, as it did service for a year or two for the managers of our Veterans' Home in trying to save a few dollars by serving oleomargarine to the old soldiers, and the soldiers' wives and widows that Wisconsin is there caring for. In 1896 a visiting committee of the Grand Army of the Republic, consisting of Honorable Edward Scofield, present Governor of the state, former state Senator, R. J. Flint, and the associate editor of HOARD'S DAIRYMAN, reporting on this matter to the annual state encampment used, these words:

At the time of your Committee's first visit to the Home, it was discovered that oleomargarine was served upon the tables in lieu of butter, and the attention of the superintendent was called to the law of the state upon that subject, and its immediate discontinuance recommended. * * * * but the use of oleomargarine was not discontinued until nearly five months thereafter.

Your Committee are of the opinion that this action of the management of the Home was wholly without justification or excuse. * * * * Disregarding every other consideration, it may safely be asserted that the people of Wisconsin are not willing that its ex-soldiers or their widows shall be supplied with inferior articles of food.

We beg to be excused from further comment on this matter in this report, but submit a resolution on the subject and recommend its adoption.

Resolved, That this encampment has heard with much regret, that the managers of the Wisconsin Veterans' Home have suffered oleomargarine to be served to the inmates of that institution, and takes this opportunity to express the hope that a similar practice may never be repeated.

This report and recommendation received the unanimous approval of the encampment, and from that time to the present, not a pound of oleomargarine has been used in that institution, and there has been no trouble in obtaining a plentiful supply of good butter. Doubtless, this has added somewhat to the annual per capita expense, but the state of Wisconsin is rich enough, and generous enough, and proud enough not to feed its soldier wards upon butter substitutes that its best and wealthiest citizens would not tolerate upon their own tables.

It appears that the National Dairy Union representative tried to bring this phase of the subject to Mr. Steele's attention, by asking him if he used the same style of butter (?) on his own table. The reply was, "No I don't. I can afford to buy butter"—thus quite unwittingly shifting the ground of defense for using oleomargarine in the Soldiers' Home from inability to get good butter, to a question of economy, and intimating that the United States was less able to provide for the men who gave everthing they had, except life, to save the existence of the imperilled nation, than was the member of Congress to provide for his family. We do not know that this is not true; but a nation that can afford to anticipate the payment of its obligations, bearing only three and four per cent interest, and allow a bounty of twelve per cent or more as an inducement for the holders to present them for redemption, can hardly be justified in pleading poverty, or even inability to furnish butter to the inmates of its Soldiers' Homes.

Very properly the Union's representative did not let the matter rest here, but pushing the inquiry further, asked Mr. Steele where he obtained the butter for his own use, and was answered, "I buy it of a woman in the country, at 25 cents the year round." And then followed the question, "If oleomargarine is of such a character as you claim, and cannot be distinguished from butter by taste, smell or sight, could you tell the difference if this dairywoman should bring you oleomargarine instead of butter?" And the perfectly candid answer was, "I don't suppose I could," and was followed by the declaration, "but I have always bought butter for my family, and I always shall."

What we ask of Mr. Steele and the other members of Congress is, that they shall, in their wisdom, enact such legislation as will make it possible for all other people who would be glad to follow Mr. Steele's example, but are not as favorably situated as he is, for selecting the persons from whom to make their purchases, to make sure that they get butter, and not some cheaper imitation.

If he or they can devise some law, other than the taxing of the colored article, that will be equally effective in this direction, they may count upon the hearty approval of every friend of honest goods at honest prices, and for the same reason the opposition of the men who make and sell oleomargarine, well knowing that nine out of every ten pounds is disposed of to the final consumer for butter, and at the price of butter, thus bringing unjust and dishonest profits. Is this right? Is it in the interest of good morals? Is it wise statesmanship? Does it tend to improve or degrade the general standard of citizenship? Are such practices entitled to the protection of Congresses and courts? Is it wise statesmanship to allow these to continue?

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	Digestible nutrients: Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

BOOKS ON CATTLE JUDGING.

Please refer me to some book which gives a system of judging of the milch cow. I hear many terms in your paper on this matter which are meaningless to me. I want light on the subject. E. M. S.

North Powder, Ore.

We regret to say that there is no book on this subject that we can recommend. About as satisfactory brief desriptions of the different styles of cows as we know of are found in the Holstein-Friesian pamphlet on Advanced Registry. The novice, however, should not attempt to cover the whole subject at once or think it can all be learned from books. The best plan we know of is to study the pictures that appear in this paper from time to time and note in what respects the best cows agree and how they differ. After this go about cows and endeavor to see how they conform to these models. Learn first, to distinguish the beef cow from the dairy cow. Observe the marked difference in the thighs and that the back bone seems to rise up and form a ridge, being especially prominent between the haunch bones or "hooks" and to the rear of this point, and constituting the pelvic arch. A beefy shoulder and crops are also objectionable in the dairy cow.

FROM AN OREGON DAIRYWOMAN.

Would you kindly give me a ration from the following feeds: Mixed hay, mostly oat, $6.00 per ton; bran, $14.00 per ton; shorts, $16.00 per ton; oil meal, $25.00 per ton; carrots, $5.00 per ton.

I enclose samples of bran at $14.00 per ton; city shorts at $15.00 and country shorts at $16.00 and $16.50.

Dairymen around here claim that it is better to feed shorts at $16.00 per ton than bran at $14.00 per ton. Please which is better?

My brother, he being only a boy, and I are as yet rather inexperienced in dairying. We have nine cows; mostly grade Jerseys.

We are readers of the DAIRYMAN just a short time, but we find it to be such a help to us that we would not do without it.

Milwaukee, Oregon. MARTHA BOSS.

Samples received. The bran is most excellent in quality—clean, light and flaky, as good as any we ever saw. We detect little difference in the two samples of country shorts, as indeed there could not be, if the quality is fairly well measured by the prices. The city shorts are much darker in color, owing partly to the fact that re-ground bran is mixed with them, and probably some weed seeds and mill sweepings. We consider the bran the best bargain at the prices quoted, and suggest the following as constituting a good average daily allowance for these nine cows:

Formula for ration.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
18 lbs. hay	16.40	.77	8.36	.27
10 lbs. carrots	1.14	.08	.78	02
8 lbs. bran	7 05	1.00	3.09	.24
1 lb. oil meal	.91	.29	.33	.07
Totals	25.50	2.14	12.56	.60

If the cows are much under 1,000 pounds in weight it is doubtful if they will eat the full amount of hay above specified, and it is not expected that either it or the grain will be accurately weighed out each day. The rule for hay is to give

each cow all she will eat with relish, and no more; and for the bran and oil meal find out by weighing how much the measures used for each will hold. It will probably require fully seven quarts of the bran to weigh four pounds, and nearly three-quarters of a quart of the oil meal to weigh one pound. Add a little salt—about a dessertspoonful—to each feed. This will not only serve as an appetizer, but will materially assist in the digestion and assimilation of the nutrients in the feed, especially the protein.

A KENTUCKY RATION.

I want a ration for twenty-two cows, of the following feed: Clover hay, $10 per ton; corn and cob meal (corn at 40 cents per bushel, I do the grinding my self) and corn stover of 15 cents per shock; oil meal and cotton seed meal are about $25.00 per ton. I am replacing my big cows with Jerseys, when I can get an extra good one and have a registered Jersey bull, but in order to keep up my contract I have to put in some scrubs, at a very high price. I ship to a creamery in Cincinnati and am paid according to butter fat. My milk averages from 4.1% to 4.5% and I get about 8½ cents per gallon, clear of shipping.

I have about 125 tons of clover hay and raised the corn myself. Is there any thing that I can substitute for bran? Wheat is only sixty-five cents per bushel. Would there be more money to ship less milk of a better quality than to handle so many scrub cows and be troubled looking them up?

Crittenden, Ky. H. R.

Milk at 8½ cents per gallon is practically a cent a pound, or $1.00 per 100 pounds. Corn stover at fifteen cents per shock may be very dear or very cheap, depending upon its quality and the size of the shock. There is usually great waste in feeding stover, unless it is shredded or run through a cutter. With nearly three times as much clover hay as twenty-two cows can eat, we are much inclined to the opinion that it would be better to sell the stover and invest the proceeds in oil meal, and in that event would suggest the following as a good, daily average allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
6 lbs. corn and cob meal	5.34	.38	3.78	.21
2 lbs. oil meal	1.82	.59	.65	.14
Totals	24.10	2.33	11.59	.69

At the prices named, this ration will cost sixteen cents, and the cow that yields sixteen pounds of milk daily, just pays for her feed. These figures give a basis for determining whether your scrub cows are a source of profit or loss.

A MASSACHUSETTS RATION.

Will you formulate an economical and balanced ration for me from the following feeds:

I have nice early cut timothy hay; ensilage with the corn picked off; corn on the cob to grind; bran is worth $20 per ton; gluten, $25 per ton; cotton seed meal, $26 per ton.

Rowe, Mass. E. W.

We can do no better, we are sorry to say, than recommend a trial of the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6.27	.27	3.39	.21
10 lbs. hay	8.68	.21	4.34	.14
4 lbs. bran	3.42	.50	1.54	.12
4 lbs. gluten meal	3.67	1.03	1.73	.24
Totals	22.04	2 08	11.00	.71

We have given the timothy hay only its average value. Perhaps, having been cut early, it will be so appreciably better than the average as to make a better ration than the above figures would indicate. If the milk from these cows is to be used for home butter making, the above allowance of gluten meal may produce a butter not quite so firm as may be desired. In that event, substitute some cotton seed meal for a part of the gluten meal—enough to give the butter the proper texture.

A GEORGIA RATION.

Kindly give me rations from following: Wheat bran, $19 per ton; rice bran, $11 per ton; wet brewers grains, $2.75 per ton; cotton seed meal, $18 per ton; cotton seed hulls, $4 per ton; rice straw, $3 per ton.

Savannah, Ga. SUBSCRIBER.

"Subscriber" requests us to give four formulas from specifications containing a part of the feed stuffs named above, but concludes by asking for a formula from the above which will give him "the best as well as the cheapest rations." We will try to comply with the latter request, but must beg to be excused from doing more. We should try the following selection, namely, rice bran, brewers grains, cotton seed meal and rice straw, with more or less cotton seed hulls, depending upon how the cows will relish the rice straw and how much they will eat of it. As we have no analysis of rice straw we will assume it to be about the same as oat straw, and in that case the following amounts would make a good and cheap ration:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. rice straw	9.08	.12	3.86	.08
20 lbs. brewers grains	4.86	.78	1.86	.28
10 lbs. rice bran	9.03	.53	4.51	.73
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	24.81	2.17	10.57	1 26

If necessary to bring up and sustain the milk flow add from one-half to one pound more cotton seed meal.

WITH BREWERS GRAINS.

Will you give me balanced ration using brewers grains (wet), fresh from brewery every week. Have mixed hay and ensilage; cotton seed meal, $26; gluten (Chicago), $25; coarse bran, $20; corn meal, $18. Would like to use all the brewers grains I could to make up ration. S. Y.

Connecticut.

Brewers grains will scarcely keep in good condition for a full week in moderate weather. If fed regularly, tight feeding boxes should be used and these be frequently taken out and thoroughly cleaned. We suggest the following as a fair daily average allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. hay	8.53	.48	3.96	.16
20 lbs. grains (wet)	4.86	.78	1.86	.28
4 lbs. ground corn	3.56	.32	2.66	.17
2 lbs gluten meal	1.83	.52	.87	.10
Totals	24.06	2 36	12.15	.85

A NEW YORK RATION.

I have a small herd of young Jersey cows, mostly heifers, half of them registered. They test from 5.4 to 8 by Babcock test and give a good flow of milk. I have clover and timothy and well eared shredded ensilage. Will have to buy the most of their grain. I have some oats and corn ground and mixed. They are each worth $17.00 per ton; bran, $18.00. I can get gluten meal same price as bran. Would you advise my feeding it, or give less bran and part gluten meal? Please say in what proportion.

Now I would like very much for you to form a balanced ration for me from the feeds mentioned, oats, corn and bran. Some say grain cannot be fed at a profit at prices above. What is your opinion? C. E. B.

Silver Springs, N. Y.

Under the circumstances we would prefer to exchange the corn and oats for bran. We are fully aware that this will appear like heresy to the great majority of farmers, but we would like to see the experiment tried. The principal demand for grain in combination with silage and the clover and timothy hay will be to furnish protein and this will come cheaper in bran than in corn and oats, and, of course, much cheaper in gluten meal than in either. But it is not prudent to feed more than two and a half to three pounds of gluten meal and then it should be well diluted. If the corn and oats are fed, it would require about three pounds of bran and two pounds of gluten meal to supply the necessary protein. But by using bran and gluten meal we can get along as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. hay	8.53	.48	3.96	.16
6 lbs. bran	5.39	.75	2.32	.18
2½ lbs. gluten meal	2.30	65	1.09	.27
Totals	21.40	2.14	10.17	.79

This is a moderate ration for small cows. If they will eat more, increase the silage by five pounds and add a pound or more of oats. It certainly will not pay not to feed grain.

BUCKWHEAT BRAN AND MIDDLINGS.

In your answer to A, Watervliet, Mich., on page 750, yon speak as if buckwheat bran with a fair proportion of middlings in it would be a desirable feed if it could be bought at a low figure.

On page 781, Prof. Henry in his answer to D. B. F., Fairchild, Wis., says: "The hulls of buckwheat grains are of no more feeding value than chaff."

I can buy a buckwheat feed consisting of half and half, by weight, of hulls and middlings for $11 per ton. Is it worth that with wheat bran selling for $18.50? Please formulate a ration for me from the following feeds: Corn fodder, corn stover, wheat bran, oat straw, a limited quantity of timothy hay, potatoes and turnips for roughage. Bran at $18.50; gluten feed, $19.00; corn meal, $18.00; middlings, $18.50; buckwheat as before mentioned, $11.00. Two of the cows were fresh in October; the rest fresh last spring. They will be served in December as fast as they come in heat. L. R. S.

Ballston Lake, N. Y.

We should not dissent very radically from Professor Henry's views as to the feeding value of pure buckwheat bran (hulls) as an exclusive grain feed. They contain a good deal more nutriment than chaff, but are hard to digest and consequently use up a good deal of the energy they contain in getting it out, resembling somewhat in this respect a tough, knotty stick of wood, which costs as much in its preparation, as it is worth for fuel. But the case is somewhat different when they are mixed with the middlings as in that event the mutually assist each other. We incline to the opinion that such a mixture at $11 would be fully cheaper than bran at $18. At all events it would be expedient to give this mixture a trial, and to that end we recommend the following combination:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. corn fodder	7.10	.37	4.04	.12
10 lbs. corn stover	5.95	.17	3.24	.07
10 lbs. buckwheat mixture	8.84	1.47	3 19	.37
2 lbs. gluten feed	1.84	.41	.97	.07
Totals	23.73	2.42	11.44	.63

Some of the fodder and stover will be rejected and thus leave a demand for more or less straw and possibly some of the hay.

MUSTARD MEAL FOR FEED.

I send you analysis of mustard seed meal and would like an explanation of the term "crude proteids," and your opionion of the meal as a food for cows.

How does it compare with gluten feed, either to be mixed with bran and fed with ensilage, well eared, and mixed hay.

Macedon Center, N. Y. M. C.

The compounds containing nitrogen, are not all alike in their chemical composition or nutritive value. In some cases they are of no value as nutrients, although they contain nitrogen. In the analysis sent, these different bodies found in the mustard seed, are lumped together as crude protein and a digestion experiment might show a large per cent of these nitrogenous bodies to be indigestible. Mustard seed or meal is not recognized as a feed, owing to its containing the substance which gives it its value as a condiment. In a small amount it is probably fed in connection with and as an impurity in linseed meal, but in any amount it would be impossible to use it, although the analysis shows high feeding value.

A MICHIGAN RATION CRITICISED.

I am arranging to feed a herd of forty milch cows during the coming winter a daily ration, per thousand pound cow, as follows:

Silage, 30 pounds; oat and pea hay, 5 pounds; corn stover, 10 pounds; corn and cob meal, 5 pounds; wheat bran, 4 pounds; cotton seed meal, 2 pounds.

Will you please advise if this ration will figure out about correctly as to needed digestible nutrients. I of course understand that the usual judgment must be exercised by the herdsman in feeding this ration to the individual cows, which experience alone will supply with each herd. If in your opinion a decrease should be made in any of the articles above mentioned I would prefer it taken as nearly as possible from the cotton seed meal, as I have all other commodities on hand sufficient to go through the winter on the basis mentioned, excepting the cottonseed meal, which must be purchased.

Assuring you of my high appreciation of your valued paper, without which no good dairyman should try to exist. C. J. H.

Detroit, Mich.

Assuming that the feeds named are of average quality the proposed ration shows the following particulars:

	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs silage	7.92	.39	4.20	.21
5 lbs oats and pea hay	4.27	.46	1.93	.06
10 lbs stover	5.95	.17	3.24	.07
5 lbs corn and cob meal	4.44	.32	3.15	.18
4 lbs bran	3.52	.50	1.54	.12
2 lbs cotton seed meal	1.84	.74	.34	.17
Totals	27.95	2.58	14 40	.81

The first thought in connection with these figures is that they afford an extra liberal supply both of dry matter and its contained digestible nutrients. Whether there is more of either than will suffice as an average for a herd of forty cows, averaging a thousand pounds in weight, will depend altogether upon the individual capacity of the cows and the character of their environment. In a warm stable and not exposed to storms or compelled to drink ice cold water, less feed will be required than under less favorable conditions. Again, a herd averaging less than twenty pounds of milk per day cannot profitably consume as much feed as when the average yield is thirty pounds or more. Further than this the character of the feed and the less energy required for its digestion will sensibly effect the amount to be given.

In view of these and other considerations that might be mentioned we do not think the grinding of the ear corn into corn and cob meal is any addition to the ration. On the contrary, if the corn was shelled and only the grain ground, thus reducing the amount to four pounds per day, it is possible that somewhat better results would follow. We consider it probable also that some of the corn stover will not be eaten, and in these ways the total dry matter and the carbohydrates will be quite sensibly diminished, without materially reducing either the protein or the fat.

The remaining question is whether the protein and fat are so much in excess of average requirements that some of the cotton seed meal could be profitably withdrawn It is our opinion that the amount of these nutrients remaining after deducting the cobs and uneaten protein of the stover ought to suffice for the cows in greatest flow of milk, and hence the cotton seed meal could safely be reduced for all but the best cows when at their highest yield. Actual experience will determine how far this reduction can go, but we would not advise making the total digestible protein less than about 2¼ pounds per day as an average for the entire milking herd.

SUGGESTIONS FOR A NEW YORK MILKMAN.

I am running a big dairy, which supplies my milk route. I feed heavy, and of course aim at quantity of milk, though I get the quality too. My cows are mostly high grade Jerseys, or other heavy milking breeds. I

feed each cow a ration of three quarts corn meal and four quarts wheat bran, with all the clover hay she will eat. It is quite possible that this ration is not as well balanced as it might be. Would you kindly set me right in the DAIRYMAN, and oblige. K.

Erie Co., N. Y.

As nearly as we can estimate, three quarts of corn meal will weigh 4.4 pounds, and four quarts of bran should not weigh to exceed 2.5 pounds. If this allowance of grain is the total for twenty-four hours, as the use of the word ration would indicate, we suppose the cows eat about twenty pounds of hay daily. But this would not be considered very heavy feeding, as in that event the total dry matter would be only 23.06 pounds, containing digestible nutrients as follows:

Protein	2.03 pounds.
Carbohydrates	11.05 "
Ether Extract (crude fat)	.61 "

We therefore incline to the opinion that the grain, as specified, is the allowance for each of two daily feeds, and in that event the amount of hay consumed would not vary much from fifteen pounds daily. Such a ration would contain approximately 24.94 pounds dry matter, in which there would be the following digestible nutrients:

Protein	2.36 pounds.
Carbohydrates	13.15 "
Ether Extract (crude fat)	.80 "

Even this would not be very heavy feeding although the amount of grain is comparatively large, as it contains almost as much dry matter as the roughage. Whatever the result might be in practice, it would be an improvement theoretically to dispense with, say, four pounds of the corn meal, and add one and one-half to two pounds of linseed oil meal. Another and favorite grain combination, especially in Wisconsin, would be equal parts by weight, of bran and (Buffalo) gluten feed, using six to ten pounds daily, according to the ability of the several cows to respond. A cow that has been milking more than six months cannot profitably use as much feed as when she is fresh or nearly so.

A WISCONSIN RATION.

Please formulate me the most economical ration for cows, Jersey grades, weighing from 750 to 1,000 pounds, for butter. Some are fresh and part have been milking all summer. Clover hay, $5 per ton; bran, $13.80 per ton; corn meal, $15.60 per ton; oil meal, $33 per ton; sheaf oats, $8 per ton (only have enough for five pounds per day for each cow). Have plenty of good clover hay and want to feed all I can of it and not buy any more mill feed than is necessary to give the best results. Have no silo yet but hope to in near future. T. J. W.

Vesper, Wis.

For the fresh cows feed daily about fifteen pounds clover hay, five pounds sheaf oats and eight pounds bran; for the strippers, omit the sheaf oats and reduce the bran, according to amount of milk given; and in both cases do not follow too literally the specification as to amount of hay, but feed all each cow will eat, be the same more or less.

DOES IT PAY TO THRESH OATS?

Does it pay to thresh oats, to feed stock in winter, that are between six months and a year old, when it costs nearly four cents a bushel to thresh them and about three and one-half cents a bushel to get them ground ready to feed? J. J. F.

Malone, N. Y.

This question was discussed at the last meeting of the Wisconsin Dairymen's Association, and Mr. Charles Thorpe said: I can get the best results of all from oats and I like to feed them unthreshed to any kind of stock. We as farmers, are doing too much work; we are at too much expense to get this feed before our animals. If we thresh those oats we have got to grind them, and that entails another expense. If we thresh them in the fall, we have got to send all our help around to the neighbors to pay back the threshing bills just exactly at a time when we want to do our work at home. So I am feeding oats without threshing or grinding. I have heard folks say it was a wasteful method, but I say it is not. The first thing the cow gets hold of is the head; they have got to chew that and before they get through, there is no more waste than in any other feed. I have been feeding all my stock the past two years that way and my horses never looked better. I have fed them oats in the bundle. They have their bedding, their grain and their hay all together and all they have got to do is to throw it out when they get through. If you are putting up oats to keep for hay, build a foundation just as you would for a corn crib and put pans over your posts; stack up the oats in long ricks, twelve by thirty, widen them out and cover them with boards, and you won't be troubled with mice. If you just stack them, cover them up.

DANGER OF ACCLIMATION FEVER.

I want, very much, a pair of the Holstein-Friesian cattle I see advertised with you but fear acclimation.

Do you think I would take a great risk in getting calves three or four months old from your state to be shipped to Mississippi?

Miss. J. W. McL.

It is claimed that the danger of fever to cattle from the north shipped to the south is very much lessened if the shipment is made after frost has killed the ticks which cause the fever, and the cattle are placed in uninfected stables, pastures and yards, and that this danger is much less to young animals than to those full grown. Thousands of cattle have been thus shipped and become acclimated, but others have died.

For prices and other information write to the breeders who invite correspondence by their advertisements in this paper, or insert a small "ad" of your own inviting offers.

A MISSOURI RATION.

I am feeding six pounds of bran and nine of corn and cob meal and all the fodder that they will eat. Some of the cows are almost dry. They don't give over a quart at a milking, but I think they will be fresh in a month or two.

Lagrange, Mo. J. T. W.

This is quite too much feed for cows that give but little milk and are expected to freshen in six to eight weeks. In fact, such cows require little or no grain, if they will keep in good condition on roughage.

We cannot give a formula without knowing what kind of coarse fodder can be had and what other grain feed in addition to bran and corn is available.

A NEW YORK RATION.

I have sugar beets, carrots, potatoes, good clover hay, cotton seed meal, ground oats and corn meal. My cow will eat slops from the house. She is a full blood registered Jersey, nine years old.

Sanitaria Springs, N. Y. G. H. R.

We recommend feeding this cow daily, about 20 pounds roots, 4 pounds each of ground corn and ground oats and 1 pound of cotton seed meal, with all the clover hay and house refuse she will eat. We also suggest that she have a daily allowance of salt.

FEEDING BEFORE FRESHENING.

The same inquirer asks:

My cow is about to freshen; do you recommend giving cow that is in good flesh any grain before she calves? I keep her up nights, give her plenty of hay and provide a good soft bed. Wish to raise the calf. Some of the farmers here give their cows, about to freshen, some bran for about two weeks. My cow makes about 14 to 15 pounds of butter per week, when she is in good feed. Have an Empire separator.

We cannot recommend feeding grain to such a cow for the two weeks before calving. There is always danger of milk fever in such cases, and one of the preventives is a spare diet. Another, is to see that the bowels are in good order. This we try to bring about by feeding laxative foods, and if this does not avail, would use laxative (not purgative) doses of salts. After the calf is born, be especially careful to keep the cow out of drafts, and avoid cold water for drinking. Take the chill off, and give often, but not too much at once. A little bran stirred in the water is good, and after a few hours a small, warm bran mash may be offered. And withal, keep her free from excitement. In other words, treat the cow with the same kind of consideration, if not to the same degree, that should be accorded to the human mother.

PASTEURIZING CREAM.

Will you please tell me through your paper, some particulars about pasteurizing cream. What the probable cost would be, what implements I should need, and at what price; also at what price the cream could be sold in cities. M. W. S.

Bolton, Conn.

The cost of pasteurizing cream, and the kind and size of apparatus required, will depend entirely on the amount you wish to treat. On a small scale, anything under twenty-five gallons, it can be done by using two tin cans, one for holding the cream, the other for a hot water bath. Place the can holding the cream in the larger can, and fill the outside can with hot water. Place on stove or heat the water by steam jet, until the cream in inner can is heated to 155°-160° F., stirring the cream slowly all the time to insure even heating, and using an accurate dairy thermometer. Keep the cream at the above temperature (155°-160° F.,) for twenminutes. Then remove cream from heat, and set in a tub of cold water, and cool as rapidly as possible to 60° F. Much of the success of pasteurizing cream depends on the rapidity with which it is cooled. Care should be taken not to let the temperature go above 160° F., or a cooked taste will be noticed in the cream. For treating larger amounts of cream, there are special forms of apparatus manufactured, of which prices and descriptions can be obtained from dairy supply houses.

The price obtained for the cream will depend on your local conditions, but in any case it should be but little, if any above that obtained for raw cream. The endeavor to obtain a high price for pasteurized cream, has usually been a failure, whereas it has met with a good sale, if the price is reasonable.

GAS IN THE SILO.

I would like to ask you a question in regard to the poisonous gas found so disastrous at some experiment station this fall. Three men, I believe, were killed by going into a silo before it had been quite filled.

My silo has of course been filled and closed for two months, and I have not begun using. Is there any possible danger of this gas being found in silo this long after filling, or during the time we are feeding out of silo? C. R. J.

Hannibal, Mo.

A silo is always giving off more or less carbonic acid gas, but the greatest amount, and consequent greatest danger, comes at the time of filling, before the silage has settled and been covered. At this time the fermentation is the most rapid and the gas is generated in large quantities. After the first heating is over there is less gas formed, but still enough to be dangerous, if the silo is in a pit in the ground, or if the silo doors are so far apart that when a man stands on the silage, the door is above his head. With such conditions there have been several narrow escapes from suffocation. See that your doors are not over four feet apart, and that they are opened as fast as the silage is taken out, so that the gas can flow out.

REMOVING GARLIC TAINTS FROM MILK.

Will you please tell me how to destroy the taste of grass or garlic in butter? We have tried various things, such as a little saltpetre in bucket when milking, and letting the cows stand from two to three hours; have also used small quantity of pure cider vinegar in the cream when churning it. P. P. E.

Jefferson, Md.

The following method of removing objectionable odors from milk, has been highly recommended:

When a separator is used, run the tainted milk through it, making a reasonably rich cream. Add to this cream, twice its own bulk of water, hot enough to raise the temperature of the mixed cream and water to 160°, and in which an ounce of saltpetre to each three gallons of water has been dissolved, and then run through separator again. This gives a fine, thick cream, free from weed odors, and withal, effectively pasteurized. This last condition makes it necessary to add a starter for ripening the cream, if butter is to be made.

If a separator is not used, then running the hot milk or cream over an aerator will remove such taints, although it is slower than the separator method, and may have to be done a second time. The use of vinegar will only make things worse by adding another outside flavor to the butter.

"A Good Name At Home

Is a Tower of Strength Abroad." This truth has been perfectly verified by the history of Hood's Sarsaparilla, which effected its first cures in Lowell, Mass., where it is made and where it still has a larger sale than all other blood purifiers. Its fame and cures and sales have spread abroad all over the world, and it is universally recognized as the best blood medicine money can buy.

Hood's Sarsaparilla
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Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

SEVERAL CALIFORNIA QUERIES.

Can you give me a profitable feed ration for cows four months till calving, and making one to one and one-half pounds butter per day, from the following feeds: Oat hay, $10.00 per ton; alfalfa hay, $10.00 per ton; browsing on bushy land; wheat, bran, $27.00 per ton; corn meal, $27.00 per ton; oats, ground, $30.00 per ton; shorts, $1.50 per hundred; oil cake, $2.00 per hundred?

How near calving time can I feed heavy, without danger to my cows?

Is there danger of feeding too much oil

Strong Bones

In speaking about Scott's Emulsion for children, you should not forget that it contains *lime* and *soda*, just what the child must have to form strong bones and good teeth. It's this forming time you want to look after.

Growing bodies must have an easily digested fat. Just think how much of it there is in milk, as cream.

Scott's Emulsion

is even more easily digested than cream. It's surprising how children thrive when given it.

Don't keep the children living on the edge of sickness all the time. Make them strong and rugged, plump and hearty. Scott's Emulsion of Cod-liver Oil and the Hypophosphites of Lime and Soda will do this for them.

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67 Main St., Cortland, N. Y.

cake, close to calving, say one pound per day?

In speaking of feeding oil cake, bran, corn meal and so on, you mean so many pounds dry, do you not?

My cows weigh eight to nine hundred pounds.

What do you consider the best separator, DeLaval or U. S. triple current? Do you think the smallar sizes do as thorough work as the larger size?

As this last year has been a hard one here on account of drouth, and feed very high, please give me a balanced ration any way, as I have to carry them through.

Butter twenty-five to thirty cents, per pound and rising. F. H. J.

Escandido, Cal.

If you can chaff a part of the hay to mix with ground corn or corn meal, the most economical ration that could be fed would be eighteen pounds alfalfa hay and eight pounds ground corn. In the absence of a feed cutter to chaff the hay, bran must be mixed with the corn meal, and in that event some oat hay may be fed, if the alfalfa is scarce, as per the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. alfalfa hay	1.99	1.32	4.75	.14
6 lbs. oat hay	5.47	.26	2.78	.09
4 lbs. ground corn	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	23.54	2.40	11.74	.52

Alfalfa hay is reckoned among the slightly laxative feeds, and if this should prove to be the case with this inquirer, he will need little or no oil cake. It is, however, not a bad plan to keep some oil cake on hand to use in case of necessity for sharpening the appetite and aiding digestion.

We would prefer not to feed cows heavy during the last month of gestation, and for the last two weeks would make the allowance decidedly low in grain, though we should apprehend little danger from a pound of oil cake.

Our formulas are based upon the natural, ordinary conditions of the feed.

We cannot decide for others between rival machines, or offer any suggestions in that behalf. We believe the truth to be that either of the separators named will do so good work, that whichever is chosen will be satisfactory. As a rule, when properly operated, the small machines average better than the large ones.

FEEDING HOLSTEIN COWS FOR TESTING.

C. R. C., Galesburg, Ill., writes: "Have clover and timothy hay but no silage. Please name a good ration for Holstein cows, which we propose to test for the Advanced Registry."

Since the cost of the ration is not a matter of prime importance, our inquirer can make use of a variety of feeds with advantage. Oats will be found excellent in this case, and a little oil meal should also be used. A good many dairymen when trying to get large returns make use of field peas to some extent, though these need not necessarily be purchased in this case. Bran should be used quite freely, for it is one of the safest feeds available, and much relished by the cow. It not only furnishes protein but phosphoric acid and other mineral matters as well, all so essential in milk production. Be sure to select clean, flaky bran. If some starchy matter is needed, choose heavy middlings, rather than what is now termed "shorts" for the latter feed is not always satisfactory, consisting, as it does at times, of ground-over bran, with the dirt and sweepings of the mill added. For concentrates try four parts bran, two parts ground oats, one part heavy middlings and one part linseed oil meal, by weight. Do not feed too heavily at first, but increase the amount as conditions warrant, keeping close watch of animal and excrement. Start with a pound and a quarter of concentrates for each hundred weight of animal, and increase this to two pounds per hundred weight daily, if the cow can stand so much. She should be able to take this amount of feed for a time at least, if of strong constitution and in prime condition—some cows will take considerably more. For roughage give all of the clover and timothy hay, corn stover, etc., the cow will eat in addition to the grain allowance here recommended.

W. A. HENRY.

Wisconsin Agricultural Experiment Station.

GLUTEN FEED *vs* CORN. AN ILLINOIS PROBLEM.

I have enough clover and timothy mixed hay to feed all my cows will eat at night, and oat straw for roughage through the day. I also feed each cow eight pounds bran and six pounds corn and cob meal per day, in two feeds. Now I must buy my corn at 25 cents per bushel, or I can get old process linseed meal at $28.00 per ton; bran is $12.00 per ton.

I also have some silage, enough to feed twenty pounds per cow for 200 days.

Carlyle, Ill. R. H.

The dairyman's great need for his cows is protein, "that part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the *casein* (or curd) of *milk*." The amount of protein required will therefore vary somewhat with the size of the cow, but much more with the amount of milk she is yielding. The average is about two and one-fourth pounds per day. The best authorities now agree that there is no better measure of the relative value of feed stuffs for milch cows than to compare their respective amounts of digestible protein. Corn averages about 7.9 per cent of digestible protein, bran 12.6 per cent and gluten feed 20.4. To bring up the protein content of a ration, gluten feed is worth almost two and three-fourths times as much as corn. Corn at 25 cents per bushel will cost nearly or quite $10 per ton when ground. Gluten feed can be bought for less than $20 per ton. Why not use gluten feed in place of corn, and then feed about as follows as an average:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrient.		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	4.18	.18	2.26	.14
10 lbs. mixed hay	8.53	.48	3.96	.16
5 lbs. oat straw	4.54	.06	1.93	.04
4 lbs. bran	3.52	.50	1.54	.12
5 lbs. gluten feed	4.61	1.02	2.42	.18
Totals	25.38	2.24	12.11	.64

WELL SAID.

In the ancient days navigators knew but little of the ocean. Consequently they sailed close to shore. The principles of navigation had not been worked out and recorded. Today, ships are sailing everywhere and almost every rock and shoal is a matter of record. This thing has been brought about by a great host of observers, thinkers and writers who made a record of what they saw—and had thought out.

So it is today in exploring the great field of dairying. When we run across a sound statement of principles we like to make a record of in our log book—the DAIRYMAN. The following is a piece of such work from Mr. C. I. Hood, the Jersey breeder. It applies as a statement of principles to all breeds.

Science decrees that only that cotton mill which has the best machinery and appliances of all sorts shall, in the fierce competition of these latter days, make a profit. To the truth of this the just opening struggle between the manufacturing centers of New England and the South is bearing witness. Science has no less decreed that only the most economically productive dairy cow can be of profit to the dairy farmer. And such a cow has to be more than the sporadic "phenomenon," the freak of the breeder's luck, which gives an enormous quantity of milk under forcing, and for a single week, or possibly month. Such a cow must have a record, both by right of heredity and the right of performance. By both only can she claim a warrant for a faith in her posterity. And the same are also demanded of her consort, with even more emphasis. The sire must have pedigree or he cannot claim prepotency. And heredity for both sire and dam must evidence persistency and profit—for profit cannot come without persistency. In other words, only that cow can be profitable that shows a net excess of product over cost for the entire year, and for successive years. A month or two of large yield in fresh lactation, or under high feed, and a rapid dwindling after that, and early "going dry" does not make a profitable cow. It is the cow that yields a large average of rich milk and whose year's work shows a large margin over her "keeping," and who can be expected (barring accident) to do this every year, that the dairyman must look to for business success.

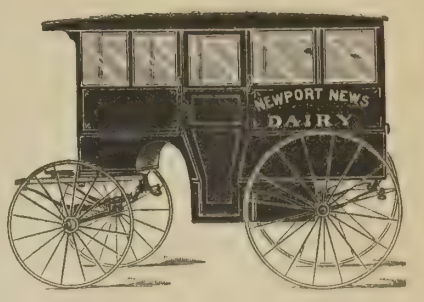
Kansas State Dairy Association.

ED. HOARD'S DAIRYMAN:—We have been fortunate in securing Hon. F. D. Coburn for our meeting. He will deliver a lecture on the subject, "A Visit to an Eastern Milk Farm."

This lecture will be given at the evening session, convening at 7:30 p. m., Nov. 23d, at the Annual Convention of the Kansas State Dairy Association, Nov. 22, 23, and 24, Manhattan, Kansas. A large attendance is expected. W. F. JENSEN.

Sec. Kansas State Dairy Ass'n.

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of all things is the best with which to oil shoes. One treatment makes sole and upper absolutely waterproof. Can't have wet or damp feet with

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treated shoes. Makes shoes last twice as long. For sale at all dealers. If not found there, send us 25c and the name of your dealer and we will send you a can FREE.

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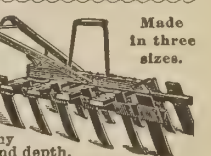
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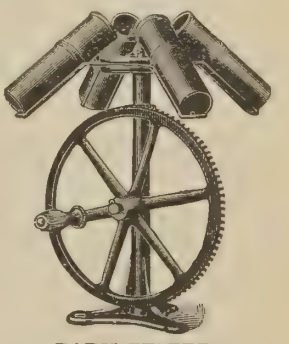
made easy with our Double Row Steel Ice Plow. Cuts faster, easier and with less labor than any plow made. Cuts any size and depth. Pays for itself in less than 2 days. Marks and cuts the field at the same time. Send for catalogue and prices.

JOHN DORSCH & SONS, 212 Wells St., Milwaukee, Wis.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

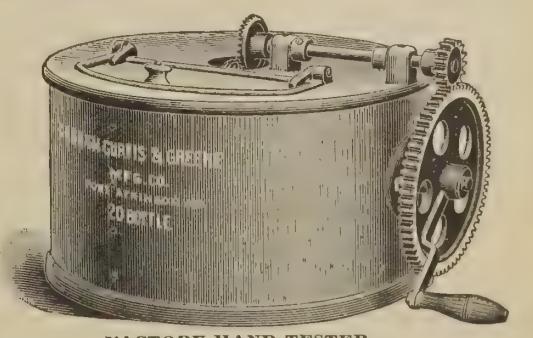
We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



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Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

If any of the older readers of HOARD'S DAIRYMAN, or their descendants, have copies of the paper issued prior to April 19, 1889, with which they are willing to part with, Prof. Wing, of Cornell University would be glad to correspond with them. See his request in the column of "Reading Notices."

The new law for controling the adulteration of cattle feeds, goes into effect in the state of New York on December 1st. This law requires that every package of concentrated feeds shall have a statement attached to it giving weight, manufacture and chemical analysis of the contained feed. There are also certain provisions with which the manufacturer or dealer must comply with before he is allowed to sell concentrated feeds.

It is to be hoped that a strict enforcement of this new law will result in a decided increase in the quality of concentrates sold to farmers. Adulteration of cattle feeds is one of the easiest of frauds and one from which the eastern farmer has been a great sufferer. It is to be hoped that this is the beginning of the end of such work.

WHERE IGNORANCE IS BLISS.

We omit the last half of the familar quotation for the reason that a concrete example presents itself and we are enabled to point with distinct certainty to the place and the man where ignorance is bliss in the highest degree, or, to use a mercantile phrase, bliss *net*, that is, bliss without discount or qualification. And, what is more, the man admits it and, as one might say, glories in it. That man is Col. L. S. Hardin who hails from Kentucky, and, we may add in order to preserve the unities, is also a frequent contributor to the columns of the *Jersey Bulletin*.

In the issue of that paper for November 15th, under the title "Analyzing Pelvic Arch," he delivers himself as follows:

I want to exchange a word with Brother Hoard himself about "minarets." He says I illustrate the old adage, "Where ignorance is bliss 'tis folly to be wise," and that I would not know a herd of pelvic arches if I met them coming down the pike. Perhaps I wouldn't. Here is where the trouble comes in: Governor Hoard not only invented the science, or sign, or whatever it is that he calls "pelvic arch," but he also invented that name and perhaps got it copyrighted. Now anybody who invents a name can have that name mean anything he pleases. See?

Let us try and analyze the governor's invention. Webster says: *Pelvis*—the open, bony structure at the lower extremity of the body; *pelvic*—pertaining to the pelvis; *arch*—a curved line or part of a circle. Now with all this ready made wisdom, what is a "pelvic arch?" Perhaps his arch goes downward, or sideways, but I thought it went top side upward.

Now, governor, let me confess to gross ignorance of what you do mean, but I am a fellow of fair average ability to understand, and if you will by pictures or otherwise put this profound subject within my comprehension, it may not only do me good but help some others of your readers. To tell you the simple truth I never did half believe you knew yourself what you were talking about. But that's neither here nor there; what the world is anxiously waiting for is this blessed sign out of the northwest by which men can tell good cows with their eyes shut, by feeling of their rumps. If you have kept your eyes open you must have seen that I am not the only one who thinks your pelvic arch means a hump on the rump. Of course we can not see the pelvis, and there is no arch, but an irregular ring of bone; then where does the arch come in? Does it stick out anywhere? Perhaps we are working on the wrong end of the cow.

It is comparatively unimportant that the good Colonel misquotes and misrepresents us, because there is left us, God willing, a few more years in which to correct the false impressions thus made, but it is little less than scandalous for him to take such liberties with the great American lexicographer and the able men who have been engaged in perfecting and modernizing the great work which Noah Webster gave to the English speaking and reading public. Not having ready access to the Colonel's library, we cannot say what he may find in the pocket dictionary which he has probably consulted, but in the latest edition of "Webster's International Dictionary of the English Language" we find the following:

Pelvic—Of, pertaining to, or in the region of, the pelvis.

Pelvis—The pelvic arch, or the pelvic arch together with the sacrum.

We find, further, in the same authority, that the anatomists technically restrict the *pelvic arch* to the two or more bony, or cartilaginous pieces of the vetebrate skeleton to which the hind limbs are articulated. Confined to this strictly technical description the pelvic arch would show itself with more or less prominence at the back above and between the haunch bones or hooks, but with pardonable liberty we have ventured to include the spinal column to the rear of this specific point, as it literally both pertains to and is in the region of the pelvis. See?

Col. Hardin may call this a "minaret" or a "hump on the rump" or whatever he pleases, but if he will examine cows, he will find this arch or rise or whatever he may be pleased to term it, conspicuous by its absence in the beefy animals. We do not pretend to be able to state positively why this difference exists, but it has seemed to us at least plausible to suggest that it was an effort of nature to provide a bony structure or form at this point best adapted for sustaining the extra weight which accompanies the large and well and continuously filled udder.

ANNUAL MEETING OF THE AMERICAN GUERNSEY CATTLE CLUB.

The annual meering of the American Guernsey Cattle Club will be held at the Fifth Ave. Hotel in New York, Wednesday, Dec. 13. Several matters of great importance to Guernsey breeders will come before that meeting, among which may be enumerated the following:

Changing the constitution whereby the annual meeting may be held at a more favorable time of year. The DAIRYMAN would suggest, in this connection, that it would be better to empower the Executive committee to call the annual meeting at such time and place as the circumstances and their judgment would decide.

One thing is certain, the annual meeting should be held earlier in the season, say, October or the early part of November, before the dairy meetings of the several states are being held. Also, the place of meeting should be more central, so as to allow more of the western members to attend. Buffalo or Cleveland would, either of them, prove a convenient place of meeting, for the general membership of the club.

The results of the past year's competitive Home Butter Tests, Secretary Caldwell announces, will be given at the coming meeting, and he promises that some of them will prove exceedingly fine.

A very important matter will be the report of the Committee appointed last year, to revise the Scale of Points for judging Guernsey cattle. The committee, consisting of President James M. Codman, Secretary W. H. Caldwell, and W. D. Hoard, have completed their revision and, in doing so, have introduced several new features and definitions. This new Scale of Points will be submitted for the consideration of the Club. It would seem there was enough in view to call out a large attendance.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 3,900 pounds. All bids were at 26 cents, and the entire offering sold at that figure. The Quotation Committee, however, thought the conditions did not warrant the price, and announced the market firm at 25½

MINNEAPOLIS, MINN., April 18, 1898.
The Cincinnati Corrugating Co., Piqua, Ohio.
Gentlemen:—We have yours of the 2nd inst. regarding the effectiveness of your **Patent Edge Corrugation**, and in reply would say that this material gives excellent satisfaction, both to ourselves and to our customer. It makes a very nice-looking job and is certainly as water-tight when lapped one corrugation side lap as the ordinary sheets are if lapped one and a half or even two corrugations at the sides of the sheets. At the same time quite a percentage of material is saved. We remain, Yours truly,
THE GILLETTE-HERZOG MFG. CO.
By Frank J. Llewellyn, Chief Engineer.

Corrugated Roofing

Write for book of testimonials.

The Cincinnati Corrugating Co.
Box 550, Piqua, O.

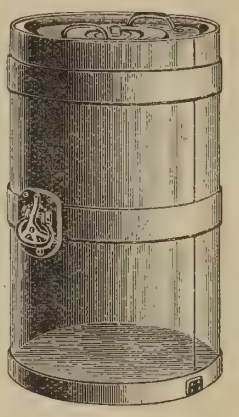
Factorymen



who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



EMPIRE STATE. —MADE SOLELY BY— UNION.

OAKES & BURGER, - Cattaraugus, N. Y.
Manufacturers of DAIRY APPARATUS AND SUPPLIES.



MILK CANS
—AND—
DAIRY TINWARE.
Write for CATALOGUE (Free.)

In buying these Cans you get the benefit of my improvements as a result of 35 years' experience.

I AM IN NO TRUST and having a large factory with modern equipment **can ship promptly.**

FRANK STURGES,
SUCCESSOR TO
The Chicago Stamping Company,
HARRISON, GREEN, PEORIA and CONGRESS STS.,
CHICAGO.

Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. The Rookery, CHICAGO, ILL.

60 Registered Jersey Cattle
At Public Sale On Fair Grounds, at
LINCOLN, NEB., on FRIDAY, DEC. 8, 1899.

Consisting principally of **Cows** and **Heifers,** many of which will freshen by time of sale. Also a few young bulls and bull calves. All the leading families are represented. Sale will be held under cover.

For Catalogues and Other Information address
COL. F. M. WOODS, Auctioneer. **J. D. MACFARLAND, Lincoln, Neb.**

cents. The sales made were as follows:

Factory.	Pounds.	Price.
Dundee	2,400	26
Derinda	1,500	26
Total	3,900	

The sales for the corresponding week of the three preceding years were as follows:

Nov. 21, '98, 6,960 lbs. of butter sold at 22c.
Nov. 22, '97, 23,040 lbs. of butter sold at 22c.
Nov. 23, '96 63,060 lbs of butter sold at 21@22c.

The New York market Monday, was reported firm at 26 cents. H. C. B.

Elgin, Ill., Nov. 20, '99.

The American Polled Jersey Cattle Company.

The annual meeting of the American Polled Jersey Cattle Company will be held at the Cliff House in Cedarville, Ohio, on Wednesday, Dec. 6th, 1899, at 10 o'clock a. m. CHAS. S. HATFIELD, Sec.

DAIRY MARKETS.

ELGIN, Ill., Nov. 20—Sales at 26c. The committee reported the market firm at 25½c.

CHICAGO, Ill., Nov. 20—Butter—Extra creamery, 25c per lb.; firsts, 24@22c; seconds, 16½@17½c; thirds, 15½@16c; dairies, choice to fancy, 21@22c; firsts, 18c; ladles, fine, 14@15c.

Cheese—Full cream, Twins, good to choice, 11¾@12c; off grades, 8@10c; Young Americas, 12@12¾c; Cheddars, 11@11½c; Swiss, 10@13c; Limburger, 10@11c; Bricks, 10@12c.

Eggs—Strictly fresh, cases returned, 18c.

Bran—Weak and 50c lower, with sales at $12.50 per ton.

Cattle—The choicest native beef cattle were steady to strong, while other native steers were mostly 10@15c lower than last week's closing. Two loads of 1,578-lb. Wyoming bred Angus cattle fed in Iowa sold at $6.90. A load of 1,546 lb. straight Texas sold at $6.70, the highest Texas since 1882, when best Texas reached $6.80 and best natives $9.30. There has been a wonderful improvement in the breeding of Texas cattle during the last few years. A car load of 1,454-lb. grass Western steers sold at $5.70, the highest grass rangers since 1884. Native steers averaging 916@1,709 lbs. sold at $4@6.70, bulk $5.35@6.15. A good many "medium cattle" sold 20c below last Friday's best time. Canning cows sold at $2.40@3; fat cows, $3.25@4.40; common to choice heifers, $3.25@5; bulls, $2.75@4.20; stags, $3.80@5; veal calves, $6@7, and feeding cattle, $3.25@4.75. The English live-stock market was active and ¼@½c higher than a week ago, with top American steers 13@13½c. Top a week ago, 13c, and a year ago, 14c.

MILWAUKEE, Wis., Nov. 20—Butter—Creamery—Fancy prints per lb., 25½c; extras, 25c; firsts, 23@24c; seconds, 21@22c; imitations, 19@20c; roll, 16@18c. Dairy—Selections per lb., 20@21c; lines, 17@19c; ladles, 16@17c. Market less strong, the high prices checking trade, though supplies are moderate, receipts being 4,350 lbs.

Cheese—American Full Cream—October Flats, 11½c; July, Aug. and Sept., 11c. Brick—New per lb., choice, 11½@12c. Limburger, 11@11½c. Swiss—Drum, 12½@13c; block, 12½@13c; No. 2, 10½@11c.

Eggs—Fresh per doz., 17c, loss off, cases returned.

MUSCODA, Wis., Nov. 20—Offerings on the board to-day, 1,134 boxes Twins; market quiet; car lots, 11¼c; locals, 11½c.

FOND DU LAC, Wis., Nov. 20—Offerings 495 Twins and 350 Daisies; market active at 11⅝c for Twins.

PLYMOUTH, Wis., Nov. 14.—Cheese The sales to-day were 828 Twins at 11c; and a few Young Americas at 11¼c.

SEYMOUR, Wis., Nov. 14.—Cheese—The offerings to-day were all sold; 342 Twins at 10⅞c; and 295 Daisies at 11¼c. The last meeting of the Board, this season, will be held Nov. 28.

SHEBOYGAN FALLS, Wis., Nov. 15—Twelve factories offered 620 boxes of cheese on the Call board to-day and all except 25 cases of Young Americas was sold as follows: 210 cases Young Americas at 11⅜c; 150 at 11¼c; 115 Twins at 11c and 120 Daisies at 11⅜c.

MANITOWOC, Wis., Nov. 15—Offers of cheese at the Dairy Board of Trade were: 450 boxes Daisies, 120 boxes Twins, 450 boxes Young Americas. All offerings sold at 11c.

NEW YORK, Nov. 20—Butter—Creamery, Western, extras, 26c; firsts, 24½@25c; state extras, 25½@.6c; firsts, 24½@25c.

Cheese—State full-cream, September, fancy, small, 12⅛@12¾c; large, 12¼@12½c; good to choice, small, 11½@11¾c.

Eggs—State, Pennsylvania and Western, 23½@24c.

LITTLE FALLS, N. Y., Nov. 12—Cheese—The bulls and bears had another contest to-day, the former endeavoring to maintain the price of full cream stock and the bears striving to bring prices down. All but a very few factories are now closed for the season. The sales to-day were 2,162 boxes at 11@12c, of which 762 were at 12c.

CANTON, N. Y., Nov. 11.—Cheese—There were 690 boxes of Twin cheese sold to-day at from 11½@11¾c; and 200 tubs butter at 23½c.

UTICA, N. Y., Nov. 13.—Cheese—Last week's figures for large sizes were maintained as were also those for small colored. The prices for small white averaged a little better than last week The extreme figure for small colored was obtained for September cheese. The Board decided to hold three more meetings. Following is a list of to-day's sales as officially reported: Lots, 96; boxes, 6,056; price, 11@11¾c.

The transactions on Nov. 16, 1896, were 6,173 boxes, with the ruling price, 9¾c. The transactions on Nov. 15, 1897, were 8,068 boxes, with the ruling, 7¾c for large, and 8c for small. The transactions on Nov. 14, 1898, were 4,819 boxes with 8½c the ruling for large, and 9c for small.

Butter—The sales of butter to-day were 22 packages at 23½c; 40 packages at 24c; 65 cases prints at 25c.

PHILADELPHIA, Pa., Nov. 20.—Butter—Solid-packed separator creamery, extra, 26½c; firsts, 25c, seconds, 22@24c; imitation creamery, extra, 21c; firsts, 18c; seconds, 16@17c; ladle-packed, extra, 17@18c: firsts, 26c: seconds, 15c; print butter, creamery, extra, 2 c; firsts, 26@27c.

Eggs—Pennsylvania and near-by, 23c; Western, 22@23c; Southwestern, 21c; Southern, 20c.

KANSAS CITY, Mo., Nov. 20.—Butter—Creamery, 20@25c; dairy, 18c.

Eggs—Fresh, 15½c.

ST. LOUIS, Mo., Nov. 20.—Butter—Firm; creamery, 22@26½c; dairy, 17@22½c.

BALTIMORE, Md., Nov. 20.—Butter—Firm; fancy creamery, 26@27c; fancy imitation, 19@20c; fancy ladle, 17@18c; good ladle, 16c; store packed, 14@16c; rolls, 16@18c.

Cheese—Steady; large, 13@13¼c; medium, 13¼@13½c; small, 13¼@13¾c.

Eggs—Steady; fresh, 22c.

NEWARK, N. J. Nov 20.—Butter—Market steady, 26½c for extra Elgins; fair receipts.

BOSTON, Mass., Nov. 20.—Butter—Market very firm, 26c for fresh; best Junes selling 23@24c.

Cheese—Steady, 13c.

Eggs—Market quiet, 17@23c.

WASHINGTON, D. C. Nov. 20.—Butter—Market firm; extras, 16c; fine, firsts, 24@25c; choice imitations, 21c; fancy June creamery, 25c.

NEW ORLEANS, La., Nov. 20.—Butter—Fresh creamery, 26½c; fine storage, 24c.

Cheese—Firm, 12@15c; skims, 10c.

Eggs—Weak, 15½@16c.

Latest quotations for fancy creamery:—Buffalo, 26½c; St. Paul, 24½@25c; Minneapolis, 25c; Detroit, 26c.

NEW YORK MARKET.

NEW YORK, Nov. 18—Butter—Receipts for the week, 26,808 packages. Exports for the week, 42 packages.

Receipts of good to fancy fresh creamery butter were quickly taken at full prices and at the close there is not enough strictly fine fresh goods arriving to supply the demand. Extra quality sold at 26c and firsts found plenty buyers at 24½@25½c. Fresh dairy and imitation creamery are in very light supply, hardly enough arriving to make prices. We note sales of fancy fresh N. Y. State Dairy at 24@25c. The scarcity and high prices for best fresh goods created better demand for June make freezer butter and free sales of finest at 24c and fair to good makes at 24@25½c. We quote:

Creameries, fresh, extra, 26c; medium, 24@25½c; poor, 18@22c. Creameries, June, extra, 24c; medium, 23@23½c; poor, 20@22c. Dairy, extra 24@25c; medium, 21@22c; poor, 18@20c.

Cheese—Receipts for the week, 24,494 boxes. Exports for the week, 8,907 boxes.

Trading in fine full cream cheese is very light and prices asked are above the views of buyers. Some demand from local and out-of-town dealers for under priced goods, say late October makes, at 11¼@11½c and early sharp cheese at 11@11¼c. Skimmed cheese were more inquired for this week with sales of finest at 10@10½c; good quality at 8@9c and full skims at 4@5c. Market closes easier both here and in the interior. We quote:

Full Cream, large, extra, 12@12¼c; medium, 11½@11¾c; poor, 10@11c. Full Cream, small, extra, 12¼@12½c; medium, 11¾@12c; poor, 10@11c. Part Skimmed, extra, 10@11c; medium, 8@9c; poor, 5@7c.

Eggs—Receipts for the week, 38,889 cases.

The market is unchanged. Fancy fresh eggs are scarce and wanted at our quotations. All other grades in full supply freely offered at prices ranging from 15@20c. We quote:

New York State & Penn., fancy, per dozen, 24@25c. Western & Northern, fancy, 22½@23c. Other Grades, per dozen, 15@20c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Nov. 16—Butter—The market is very firm on high-grade creamery and our advanced figures are easily realized when quality cannot be found fault with. Really, fancy quality forms a very small part of the current arrivals, however, and buyers are often compelled to accept a grade a shade off from superlative. The supply of choice fresh gathered cream goods is also less than the requirements of the trade, and some receivers are led to wonder what has become of those shippers who, in previous years, could be depended on to supply our market with that very desirable class of butter. Our figures are conservative on that grade, and could be exceeded a fraction on well-known marks. As to choice grades of imitation creamery, we must acknowledge there are none. The numerous favorite brands of Iowa, Indiana and Ohio packing, with which our buyers are familar, are now conspicuous only by their absence. Ladles are somewhat in evidence, and when clean flavored and fresh are salable at quotations, but such as would grade "extra" are very scarce. A few lots of roll butter are coming forward now, quality running fairly good and the demand is quite active. June butter has rapidly disappeared during the past month, and mostly to supply current demand for local consumptive wants. Store-packed butter is in light supply, and is quickly disposed of on arrival.

Creamery Separator, extras, 26c; firsts, 24@25c; seconds, 22@23c. Creamery Gathered Cream, extras, 23@24c; firsts, 22c; seconds, 20@21c. Creamery Ohio, extras, 23c; firsts, 21@22c; seconds, 20c. Creamery Imitation, firsts, 18@19c; seconds, 16@17c. Iowa & N. W. Ladle, firsts, 17c; seconds, 16c. Ohio & Indiana Ladle, firsts, 17c; seconds, 16c. Ohio Rolls, extras, 17@18c; firsts, 16c; seconds, 15c. W. Va. Rolls, extras, 16@17c; firsts, 15c; seconds, 14c. Ohio & W. Va, Storep'd., firsts, 15c; seconds, 14@15c. Creamery Blocks (2 lbs.) extras, 27c; firsts, 26c; seconds, 24@25c. Creamery Prints (½ lb.), extras, 27c; firsts, 26c; seconds, 24@25c. Md., Va. & Penna. Prints, extras, 24@25c; firsts, 22@23c; seconds, 20@21c.

Cheese—Receipts are fairly liberal; market firm on all the finer grades

N. Y. State—Cheddars, fine, 12¼@12½c; choice, 11¾@12c; fair, 11@11¼c. Flats, fine, 12¾@13c; choice, 12¼@12½c; fair, 11¾@12c Small, fine, 13¼@13½c; choice, 12¾@13c; fair, 12@12¼c. Ohio—Flats, fine, 12½@12¾c; choice, 12¼@12½c; fair, 11@11¼c. Ohio—Picnic, fine, 12¾@13c; choice, 12@12¼c; fair, 11—11½c. Swiss Cheese—fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—There is some little increase in the receipts of choice fresh eggs; the demand continues good for all fancy invoices; market about steady at 22 cents. G. M. LAMB & BRO.

301 Exchange Place.

LIVERPOOL, Nov. 20.—Butter—Finest United States, 94s; good, 73s.

Cheese—American finest white, 54s 6c; American finest colored, 56s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—A first-class butter maker. Apply No. 16, care Hoard's Dairyman. 39-3

Another "ALPHA" Sweep

— AT THE —

Minnesota Butter and Cheese Makers Convention.

Minnesota has rapidly become one of the great butter producing states of the West. No other state has made such great strides in modern dairying or come to the very front so quickly. Everybody familiar with Minnesota creamery work knows that this has been largely due to two causes: The leadership of the most aggressive as well as progressive men associated with the development of the dairying industry in her State Experiment Station, Dairy Commission, Farm Institute, and State Dairy Association work, and the nearly universal use throughout the state from the very beginning of her creamery expansion of "Alpha-De Laval" separators exclusively.

Nobody understands this better or appreciates it more thoroughly than Minnesota's creamery proprietors, buttermakers, patrons, and great dairy leaders. A Minnesota dairy convention of any kind is simply another name for an "Alpha-De Laval" convention, in so far as cream separators are concerned. "Alpha" success and "Alpha" prosperity in separator use are apparent on every hand, and a few users who from one reason or another are not yet users of "Alpha" machines are simply sorry for it and invariably come away from such a convention more than ever convinced that they cannot make a change too soon.

At the Sixth Annual Convention of Minnesota Butter and Cheese Makers, held the past week at Owatonna, the butter entries and butter awards constituted an "Alpha" triumph of the usual order. First Prize went to C. P. Bang, Blaine, Minn., with a score of 97, and Second Prize to Thor Moe, Winthrop, Minn., with a score of 96½.

Out of the 154 competitive entries 145 were exclusively "Alpha-De Laval" made. Of the remaining 9 entries, 2 were "U. S.," 1 "Danish-Weston," 1 Sharples "Tubular," 3 old style "Sharples," and 2 "Reid-Danish."

And by the way, it should be noted that this showing is not very much different from that now made at every competitive butter exhibit of representative character. In every case all the prizes go to "Alpha-De Laval made butter, while the showing of "Alpha-De Laval" machines in use in proportion to other makes is in keeping with the usual average in all progressive creamery localities.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts., CHICAGO.	74 Cortlandt Street, NEW YORK.	1102 Arch Street, PHILADELPHIA.

Good Farm Hands Wanted—Good wages paid. Address LITTLES DAIRY FARM, Kewanee, Ill. 41-4

Wanted—A reliable man to sell to the trade one of the best selling lines out. Liberal commissions, small and convenient sample case. Good side line. Address C. R. LOVE, 104 Second St. North, Minneapolis, Minn.

Hoard's Dairyman and Frank Leslie's Magazine for $1.75. Or substitute any other $1 00 magazine for either, (except Ladies' Home Journal.) We will duplicate any Combination Offer advertised. Renewals at same price as new subscriptions. Catalogue gives other bargains. ELTON G. RICE & CO., 171 La Salle St., Chicago. Ill.

Wanted—An experienced dairyman to superintend a large modern dairy near St. Louis. Good salary. Address, stating experience and references, "S." care of Hoard's Dairyman. 41-2

Wanted—At once, a first-class cheese maker. Must be man thoroughly experienced in the business. Single man preferred. Give full particulars to save time, and state price. Living here costs $15.00 to $18.00 per month. Address Box 205 Brighton, Colo.

For Sale—Eight high grade Jersey heifers. Three about two years old; others about one year old. All sired by a great grandson of Brown Bessie. J. Q. EMERY & SON, Albion, Wis. 41-2

Dairy Farm to Rent—Consists of 230 acres. 40 to 50 milch cows; completely furnished with improved machinery. Rent with or without milk route. Located inside school district of city of 9000. Liberal terms to right man. Must have A 1 references. J.P.ANDREWS, Faribault, Minn. 41-3

Wanted—Work on dairy farm, to take full charge or otherwise, by middle aged man who understands the business practically and scientifically, either selling milk or making butter. Address, H. L. COOLEY, Box 459, Evart, Mich. 41-2

Position Wanted as manager of dairy farm by experienced man in milk business. Best of references. Address "G. B. S.," care of Hoard's Dairyman.

For Sale Cheap—Fine milk route, wagon, cans, etc. Cash income $200.00 per month. Address Lock Box 115, Kewanee, Ill. 41-2

Wanted—Copies of HOARD'S DAIRYMAN previous to Vol. 20, either bound or unbound, complete sets or single numbers. Address, stating what you have to offer, with price, H. H. WING, Cornell University, Ithaca, N. Y. 41-4

Any Creamery wanting a first-class butter maker of experience in managing a creamery, one that can furnish best of references as to reliability and work, address No. 25, care Hoard's Dairyman.

Attention—An experienced butter and cheese maker and practical farmer, with best of recommendations, and wanting to make change, would like a situation in dairy or creamery in the south or west. Give full particulars in first letter as to work, wages, etc., and answer, addressing No. 10, care Hoard's Dairyman. 39-3

At Half Price.—Bull calf dropped August 15, 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Berkshires—One extra yearling boar. Spring and summer pigs, either sex, for sale. L. E. CONNELL, Fayette, Ohio. 40-2

For Sale—Size 2. a Disbrow Combined Churn and Butter Worker, comparitively new, capacity 75 gals. cream. Having acquired cream trade, have no use for churn. Address, BOX 20, Nora, Indiana, 40-2

Wanted—A man and wife to work on dairy and stock farm in North Dakota. Wife must be a good house-keeper, as she will have charge of the house. None need apply who cannot give high grade references as to habits and ability. Address, B. PARSONS, Evansville, Ind. 40-3

Wanted—One hundred tons of well cured clover to be delivered in Chicago in car lots as required. Address, W. C. 22nd St. Post Office, Chicago, Ill. 40-4

Mexico—On Tuesday, January 23, a special vestibuled train of Pullman Palace cars, compartment, drawing-room, library, observation and dining cars will start from Chicago going to the City of Mexico and to the other prominent cities of the Republic and back to Chicago again without change, making the tour of all Mexico complete. The party will be strictly limited and absolutely first-class. Tickets include all expenses everywhere. The tour is under the personal escort and direction of Mr. Reau Campbell, General Manager of the American Tourist Association. For maps, books of the tour, tickets, etc., call on agents of the Chicago, Milwaukee & St. Paul R'y.

Puerto Rico—Three tours of the beautiful island of Puerto Rico are scheduled to leave Chicago January 11, February 15, and March 8. Special Pullman sleeping and dining cars will convey the party to New York, thence on board the splendid new steamships Ponce and San Juan, through and around the island by rail, automobile, carriage and boat. Tickets include all expenses everywhere. These select limited parties will be under the special escort of Mr. Walter Boyd Townsend under the management of The American Tourist Association, Reau Campbell General Manager, 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to Agents of the Chicago, Milwaukee & St. Paul R'y. 41-sp

No time like now.—The new lines of railroad now in process of construction by the Chicago & North-Western Railway Company are at present affording opportunities to get in and grow up with a country that is sure to grow, that are not likely to occur again. The new lines penetrate the richest regions in Western Iowa and Minnesota, where there was ample room for a railroad. The towns along these new lines, located and managed by the Railway Company, are to-day offering rare chances for investments or locations. The country is rich and the towns will surely thrive. Prices of lots are still low. Investors and business men of all classes will find it to their advantage to investigate. The choice timber lands of Northern Wisconsin and Michigan are also well worth looking into. Apply for particulars to J. F. CLEVELAND, Land Commissioner, C. & N. W. R'y, Chicago, Ill. 40-2

Barn Plan Wanted.

ED. HOARD'S DAIRYMAN:—I wish to build a cattle barn to hold sixty head of cattle, with silo in barn or adjoining. Will you kindly give me plan of convienent barn and answer the following questions through the columns of your paper:

Would you advise round barn with silo in center or square with silo at end or on outside? Barn to cost about $1200. I want milk cooling room and butter making room in barn. I ship milk to town and churn surplus. Please give inside arrangement plainly and full directions as to construction of silo and cow stalls. Would you advise stanchion or cow tie? Also give me balanced ration for my Jerseys, they are medium size. Am feeding for milk, wheat bran, corn meal and cotton seed meal, also mixed hay and shucks. How much for each per day? Would you feed the bran, meal and cotton seed meal dry, or would you cut the hay and shucks and sprinkle the meal over it?

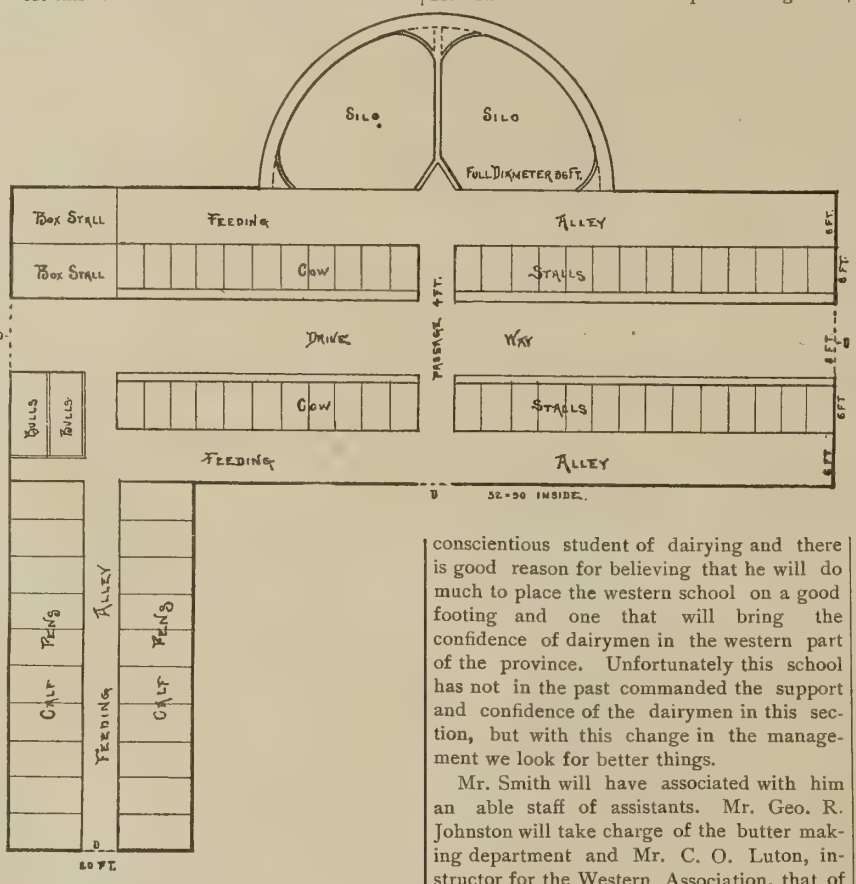
I enjoy your paper very much. J. J. H.
Virginia.

We reprint as an answer to this inquiry the ground plan of a barn which appeared in these columns several months ago. Where there is to be a milk and butter making room in addition to stable accommodations, we would not recommend a circular structure. In the plan submitted, partition off at the extreme end of the wing as much space as may be required for this milk and butter room. It was intended in making this design, that the silos should be located on the north side, as there they would least interfere with the admission of sunlight in the winter.

Full details in regard to silo construction have been so often given in these columns that it seems almost superfluous to repeat them at this time. The diagram shows the proposed shape and the manner in which the corners are cut off. The other main point is to secure strength and depth. To obtain the former set up 2×4 studding, 16 inches on centers and cover both inside and outside with two thickness of half-inch stuff with best quality of building paper between the courses. Where the ends of the semi-circle join the main structure, see that the outer siding is firmly nailed to a post so adequately tied and supported that it cannot give, or spring out of place. Let there be continuous openings from bottom to top of both silos in the V shaped space between them, with loose boards fitted to close them as the filling progresses, and to be removed as the silage is fed out. These boards must be doubled and have building paper between them to prevent the egress of the carbonic acid gas and the ingress of air. It would be only simple wisdom, before the construction of any silo by those who have had no experience in building them, to get a copy of Woll's Book on Silage. The expense is only one dollar. We keep a few of these books and others specially adapted to the needs of dairymen in stock, for distribution as premiums to subscribers, or forward them on receipt of publisher's price.

We can add nothing to cow stall and cow tie questions that was not published with illustrations on page 654.

A good combination for feeding would be one part cotton seed meal and two parts each bran and ground corn, all by weight, and feed daily from five to ten pounds per cow, apportioning to each cow according to her ability to respond. We always advise and practice cutting some (not all) of the long forage and mixing the grain with same.



Mr. Wheaton's Canadian Dairy Notes.

Government Assistance to Dairying—Canadian Dairy Schools—Cheese on Hand.

ED. HOARD'S DAIRYMAN:—At the close of navigation this season the agreements between the Dominion Department of Agriculture and the several steamship companies, which have provided cold storage facilities for the transportation of butter to the British markets, expire. It is, however, the intention of the Department to continue these agreements for another season at least.

At the request of the Hon. Mr. Fisher, Prof. Robertson discussed this matter a few days ago with the members of the butter and cheese section of the Montreal Board of Trade. The minister is desirous of learning whether anything further can be done to improve the transportation facilities for butter and to keep up the advance which has been made this year.

The members of the section referred to commended the government's efforts heretofore in behalf of the butter industry and requested a continuance of the assistance to a weekly refrigerator service to Liverpool, London, Bristol, Glasgow and Manchester, and a monthly service to Newcastle. It was also thought advisable that the Government should continue to have some control over the steamships with refrigerator service in order to serve it for Canadians and to prevent big firms like Armour and Swift of Chicago from absorbing it all.

At this conference Prof. Robertson made an important announcement in regard to the further extension of the system. In consequence of complaints that butter is often spoiled at stations because there was no cold storage chamber while it was waiting shipment the government is prepared to assist in establishing such chambers at six points upon the different railways to be selected by the butter and cheese section of the Board of Trade.

As is perhaps well known, the government's cold storage arrangements provide for the payment of a bond of $100 for the owners of creameries who put up cold storage rooms and keep them in use in accordance with the regulations of the department. This work is recognized as being very helpful in the improvement of the butter trade and the minister of agriculture announces that the payment of his bonds will be continued during the season of 1900. In order to create a greater interest in this work the department will send experts to many of the creameries during the winter to point out to those who have not yet put up cold storage rooms how best they may provide them at their creameries.

The rapid development of our creamery butter trade during the past few years amply justifies the government in continuing and further extending this work. In 1894 when there were no cold storage facilities, the exports of butter amounted to only 32,055 packages. Since that time there had been gradually provided, though the efforts of the government, mechanical refrigeration on steamships, refrigertor car service of railways, cold storage at creameries, etc., until in 1899, up to November 11, the exports were 444,376 packages, or fourteen times as much as in 1894. But in addition to this the quality has greatly improved. A few years ago Canadian butter was quoted in England at ten to fifteen shillings under Australian; this year it has been selling for higher prices in the same markets.

The Western Dairy School at Strathroy, Ontario, will open on December 4th next. Two courses, one for butter makers only and a regular full course consisting of instruction in butter making, cheese making, milk testing, home dairy, etc., are provided for. The first one which begins next month will be followed by the regular course which opens on January 4th.

Mr. Archibald Smith, late instructor in butter making at Guelph, and one of the inspectors for the butter and cheese association of Western Ontario, has been appointed resident Superintendent of the Strathroy school, to succeed Mr. F. J. Slightholm, who resigned last spring. Mr. Smith comes to this new possession with a wide and varied experience in practical cheese and butter making that should well qualify him for such work. He is a painstaking and conscientious student of dairying and there is good reason for believing that he will do much to place the western school on a good footing and one that will bring the confidence of dairymen in the western part of the province. Unfortunately this school has not in the past commanded the support and confidence of the dairymen in this section, but with this change in the management we look for better things.

Mr. Smith will have associated with him an able staff of assistants. Mr. Geo. R. Johnston will take charge of the butter making department and Mr. C. O. Luton, instructor for the Western Association, that of cheese making. Both are makers of long experience and should render a good account of themselves as instructors in these branches. A lady will be appointed later on to take charge of the home dairy.

Mr. Smith's appointment to the Strathroy School left a vacancy in the butter making department at the Guelph Dairy School. This has been filled by the appointment of Mr. James Stonehouse, of Post Perry, Ontario, as instructor in butter making. Mr Stonehouse is one of our oldest and most reliable buttermakers and is throughly qualified to take charge of this important department at the Provincial School.

The prize list for the dairy exhibit to take place in connection with the second annual convention of the Cheese-and Buttermakers Association on January 31st and February 1st, next, at Ingersoll, is now out. It provides for the disposal of $150 in cash prizes in cheese and butter classes besides a number of special prizes. There are also a number of prizes given by several of the dairy supply firms and the whole should serve to bring out a large and attractive exhibit.

This is the only exhibit of dairy products held in connection with our dairy conventions and consequently arouses considerable interest. It is made one of the chief educational features of the gathering and, differing from the exhibits at the fall fairs, the prize winning cheese is cut up and distributed among the makers present. Besides, where only one maker would see the exhibit at the fall fair, twenty would see it at an annual gathering of makers.

Now that the cheese making season has practially closed, many in the trade are at work endeavoring to estimate the amount of stock on hand, both in Great Britain and Canada. If the relation of supply and demand has anything to do in determining values, the combined deficit of the stocks on hand in both countries forms, as one trade journal puts it, "one of the most bullish statistical showings that has ever been experienced on either side of the Atlantic."

Some of the best posted men in the English cheese trade estimate that the shortage in their home make this season is twenty-five to thirty per cent of an average, or say 1,500,000 boxes. The stocks in Great Britain at the present time are estimated by these same parties at 350,000 boxes. At the close of the present season the stocks in Canada were put down at 350,000 boxes, or nearly double those of a year ago at the same time. But if we take these figures as being a little below the mark and to make sure, add on 50,000 boxes to each estimate, we have a total of 800,000 boxes in both countries to provide for eight months consumption. If the reported shortage in the English make is anyways near correct, there is a shortage of 700,000 boxes to make up.

This shows the cheese situation to be a particularly strong one, but whether it will cause much higher prices remains to be seen. There are those in the trade, however, who are looking forward to better things and see Canadian cheese touching sixty-five shillings in the English market, before this season's make is disposed of. However that may be, it is not likely that the farmer will get much benefit from these high values, should they be reached. The bulk of the

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fall cheese, especially in the east, is now out of the factorymens' hands. The ruling prices at the local markets range from 10¾ to 11 cents per pound which are considerably below the high values talked of. At most of the Western Ontario markets, factorymen are refusing these offers and are looking for higher figures for what they have to sell.

Toronto, Canada. J. W. WHEATON.

Feeding Corn Stalks.

ED. HOARD'S DAIRYMAN:—I don't know but some one will say "chestnuts" when they see that I am again harping on the same old string, but my excuse is, that there are still plenty of farmers who are in need of further urging to convince them that it is high time to abandon the old method of feeding corn stalks and adopt a better one.

Geo. E. Scott's article upon the modern uses of corn stalks, in the DAIRYMAN of Nov. 10, ought to awaken in the mind of every man, who reads it, an increased respect for the corn stalk. All that he says is true and much more might be told concerning the same. The time is not far distant when there will be no more such waste as has been going on in the western central states, where hundreds of acres of stalks have been burned simply to get them out of the way. The time is coming when cellulose factories will be established all over the corn growing country and not a stalk will be allowed to go to waste any more than the corn itself.

But what I set out to say is this: I wish every farmer, who is feeding whole stalks to his cattle this winter, would try and buy a cutting machine and see how much better it is to feed cut fodder than whole stalks. I admit that the first cost of such a machine is considerable, but with good care they will last many years. Ours was purchased nearly fifteen years ago and is doing as good work as ever now. The only expense for repairs has been the new knives. These need renewing not oftener than every eight years. Of course the machine has had the best of care, and is always under cover. All places liable to get loose or worn are looked after and kept in good shape to avoid unnecessary wear upon them. The first cost was $40.

So much for that part of the machine. Now for the power. Ours is the horse power once belonging with a threshing outfit and purchased for $15. That was fifteen years ago, and no doubt, one which will answer every purpose, could be bought second hand now for half that sum. That old horse power has performed excellent service all these years, the only thing to give out is the fellies of the wheels; but since it needs not to be moved around very much is still in good condition for work.

On any large farm there are two or more teams kept for performing the regular farm work. This power is fitted for ten horses but two good strong teams have run it for cutting fodder easily, although we usually put on three teams. When the knives are good and sharp and the track firm, four horses are not at all worried to cut fifteen or twenty minutes at a time. By the end of that time let them stop and rest a few minutes.

Our machine cuts and splits both at one operation. We prefer this to one which simply cuts the stalks into sections. It requires four men to operate it conveniently, one in the mow, one to pitch the bundles to the feeder, one to feed and one to care for the shredded fodder, although it can be managed with fewer hands if necessary. We usually cut a two weeks' supply at once.

Mr. Scott speaks of experimenting with the cut fodder, moistening it and allowing it to stand twelve hours before feeding. Last year I told our method, but since there are no doubt a large number of new readers this year it will bear repetition.

We have a tight floor sided up with matched lumber three feet around three sides, of suitable size to contain the feed for a large herd of cows. The cut and shredded fodder is placed thereon and sprinkled with warm water, the grain (bran and gluten), or whatever this may be, is scattered upon it, the whole shoveled over to mix all well together and covered with a piece of heavy carpet. There it stands until ready to feed. We mix once a day and put two feedings together. This ration is eaten up very clean, little being wasted.

After practicing this method for one month I do not believe any intelligent man would be willing to give it up and go back to the old way of feeding whole stalks. We have wintered forty milch cows on corn stalks fed in this way with no hay whatever until the first of April, and this, year after year.

As an experiment we tried the comparative merits of this feed and clover hay, feeding alternate weeks. There was no perceptible difference in the yield of milk, neither in its quality. Load for load I would as soon have well cured corn stalks as clover hay, provided they were fed in the manner described above. For cows not in milk or for young stock the grain may be omitted if desired.

I yield to none my appreciation of the benefits of clover to the farm and to the farmer. I know it does more for the soil than any other vegetable growth, but could I have but one of the two, corn or clover, would certainly choose the corn. It, plant and grain, comes nearest to supplying the place of an ideal production of the soil of any with which I am familiar.

I am well aware that the silo is the up-to-date method of treating the corn plant, rendering it succulent and palatable in unlimited quantities at a nominal expense. I know the job can be done up in the fall with none of the bother of cutting and mixing feed during the winter, but for all that, it must be admitted the silo is not practicable in all cases for all men. Besides that, there are those who hesitate about building a silo partly on account of the expense and partly because of the uncertainty they feel as to the success of the undertaking. It is not all one sided, and I know of men who do not want ensilage fed to their cows. To such I say cut your stalks and feed as described and see if the result is not perfectly satisfactory. I know of silos standing empty year after year because they are not built so as to keep the ensilage in good condition. A few failures of this kind disheartens a man and he is wont to go back to first principles. A good many of the earlier silos were not properly constructed and this created a prejudice against them.

But whatever manner is employed, all are better than feeding whole stalks which necessitates so much waste.

Michigan. W. C. ROCKWOOD.





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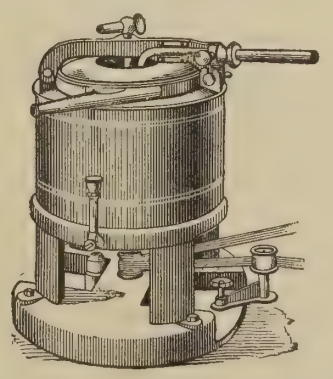
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Myerstown Pa., Oct. 9, 1899. I. YOST & SON.

Write for the Pasteurizer Book and Catalogue of Creamery Supplies.

A. H. REID, 30th and Market Sts., PHILADELPHIA, and CEDAR RAPIDS, IOWA.

Notes From Southern Michigan.

Corn Stover Barrack.

ED. HOARD'S DAIRYMAN:—We value corn stover above the best hay for milk production on our farm. For two seasons, when we first commenced dairying, we had no hay to feed our cows, and corn stover was fed morning, noon and night throughout the whole winter season.

After one year's trial of stacking the stover in small stacks (three loads each) we found too much loss in the quality of the feed, and vowed we would have no more of it.

The next summer, we went into the woods and cut white oak poles, ten inches in diameter, and from eighteen to twenty feet long. We next procured some hard wood bill stuff and built a barrack twenty by thirty feet, and eighteen feet to the eaves. This barrack cost us about $40.00. It is boarded upon three sides, and has a good roof, with about one-half pitch.

This barrack has paid for itself several times over since it was built. We use it to stack wheat bundles in July, the wheat being threshed before husking commenced. The corn stover lasts until about May 1st, so that this cheaply constructed barrack is utilized nearly the whole year round. In another issue, we will give a picture and diagram showing detailed construction.

BETTER CARE OF STOVER.

More pains are taken by a far larger number of farmers in this respect. HOARD'S DAIRYMAN, the leading farm journal, and the farmers' institutes are the primal cause for the great improvements along this line, noticeable in so many portions of the country. Years ago, many farmers in this territory, surrounding Battle Creek, secured and cared for their stover in almost "any old way," as there was usually more fodder than the stock would consume. Now there is such a demand for milk products in our city, and so many more cattle are kept, that corn stover is at a premium, consequently the farmer who unnecessarily wastes his fodder is called "slack," and sometimes a worse title is conferred upon him.

A few weeks ago, I took a trip into Southern Indiana, and found that some farmers still left their fodder standing, after snapping or husking the ears. It seemed a great waste to me, and especially as I was informed that dairying was "indulged in" quite extensively also. It must be I saw the exceptional cases, and I hope some dairy reader from Southern Indiana will rise up and prove that Hoosiers generally "stand by" their whole corn crop, until it is all properly stored for economical and profitable feeding out to stock, during the winter months.

BETTER STABLES FOR COWS.

I am always sorry to find cows kept in stables that are not even decent to keep any hog in, and, between you and me, dear reader, even a hog needs to have the best home he can secure during his short stay on earth.

Last week our Commission was asked by a dairyman in Southern Michigan to test his cattle for tuberculosis. One cow died and the post mortem revealed the disease. We applied the test and I was obliged to order the State Veterinarian to slaughter two more cows. The sanitary condition possibly had little to do in aggravating the disease in this particular case, as it was introduced by an infected animal purchased two years ago.

But the sight presented to us when we entered the stable, was sickening in the extreme. The stone basement was a veritable cellar. Hardly a ray of sunlight ever entered the four narrow windows so as to touch a single one of the large herd of cattle stabled therein. The drainage of this stable and surrounding yard was by simple filtration into the already clogged and not very porous soil underneath.

The cattle were kept on the north side of this basement, and the horse stable was directly overhead. This was the worst arrangement of all, for the urine would persistantly continue to percolate through the cracks in the planking of the horse stable floor. This foul smelling matter, in all stages of decomposition, dripped everywhere in the cow stable below. Several troughs had been placed in position over the cows' backs, to convey the bulk of the drippings to one side of the stable, where they were deposited on the floor. The ceiling of this cow stable was hardly high enough in some places for a man to stand erect.

I warned the owner of the inevitable result of such unsanitary conditions, and he will begin to make improvements as fast as possible. He stated that he knew "things were in bad shape," but had felt as though he could hardly afford the expense of such changes as he desired. This is an aggravated case, but I have seen many cow stables in various portions of Michigan that were just as bad as this.

Who says that dairy papers and farmers' institutes are superfluous, and of "no 'count eny how," when such conditions exist in so many places? It is true that many farmers who most sorely need the "helps" furnished by the above named mediums, are not yet receiving them red hot, or even cold. For this class seldom attends the institutes or reads farm papers. But better times and conditions are coming, even to such as these.

Calhoun Co., Mich. J. H. BROWN.

A California Opinion and Experience.

ED. HOARD'S DAIRYMAN:—I received the paper all right that I sent you trial subscription for and I consider it of so much value can't afford to allow my subscription to run out. It gives me the very information I wanted and so much need.

This is a dairy country and you can't make any thing else out of it. We must either follow this business, or get out of the country. I bought a small herd of six cows, without any other knowledge than what I could see, as I have no Babcock tester (which I must have at once) and for the twelve months just ended we sold 42,021 lbs. of milk, for which I received $463.04. Don't know whether you would call my experiment profitable or not. The six cows cost me $225.00 and have lately bought two more cows that cost me $100.00.

The feed that produced this milk was pasture and alfalfa hay. Now the question arises. Could I have increased my profit by buying grain or other feed at a cost of, bran, $24.00 per ton; ground barley and corn, $25.00 per ton? The test ran from 3.6% to 4.6%.

This fall I have put up a silo 10 feet in diameter and 20 feet high, and, as I am buying more cows, want to put up another silo twelve feet in diameter, which I will fill with corn, so I can keep a supply of this feed on hand. The silage is a little sour; suppose I put it up a little too green.

Now what could I sow to fill silo until I can raise corn again, which will be ready to put in in October, next. We sow grain here next month. Would barley, oats or wheat do for this purpose, or could I use first cutting of alfafa to advantage? This would be ready April next. Have put up eighty tons alfalfa hay from sixteen acres this season, notwithstanding the two very dry seasons just passed, and without irrigation either.

SAMUEL E. GARBER.

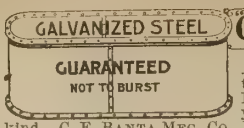
Los Angeles Co., California.

We congratulate Mr Garber on his success with cows the past season. Seven thousand pounds of milk per cow in twelve months with a cash income of $77 per cow, with only pasture and alfalfa hay for feed, abundantly justifies the statement that the region, which can show such results, is in very truth a special-purpose dairy country. When such returns are reported it is quite hazardous to express very positive opinions about what results would have followed if some grain had been added to the feed. A mixture of equal parts of corn meal and bran, fed in limited amounts, would have been more in accord with the accepted standards, and is certainly worthy of trial.

There has been some entirely satisfactory California experience with alfalfa for silage and as this will be the only crop available we should fill the silo with it. None of the hollow stemmed variaties of grain make satisfactory silage.

Fall Calves and Spring Pigs.

ED. HOARD'S DAIRYMAN:—I wish to call the attention of the readers of your most valuable paper to a few words on the above subject. I think it is now admitted by all the



OKAY TANKS. **ALL WE ASK** is, that you send for our Free Catalogue before you buy a Tank of any kind. C. E. BANTA MFG. CO., Dept. 874 E, Chicago.

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The Hillside **Jersey Farm** affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address F. E. BRYANT, Carlsbad, New Mexico.

Grandson of Pedro 3187

First Check for $60 GETS HIM!

Eurotas blood close, also through Rampo 4679. All dams for five generations tested. Seven months old. Solid fawn; all black points. Young bulls cheaper for 30 days. Must sell for lack of stabling. **W. F. McSPARRAN, Furniss, Lancaster Co., Pa.**

Your Own Price

For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood. **GEO. A. BUCKSTAFF, Oshkosh, Wis.**

Marquilla's Major 40804. SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs. 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price. W. R. THOMAS, Bellmore, Ind.

Brown Bessie Herd.

RECORDER 29239 son of **Brown Bessie** and Diploma 2nd 36374 are head of the herd. A few choice grandsons and granddaughters of **Brown Bessie,** from tested dams, are offered. Also cows bred to above bulls. Write for printed pedigree. State what is wanted. **H. C. TAYLOR, Orfordville, Wis.**

FOR SALE!

Grandson of the Greatest Sire of Butter Cows,

Exile of St. Lambert 13657

Now Sire of 79 Tested Daughters. Solid fawn color; ten months old, and a good individual. His dam has a test of 15 lb. 8½ oz. of butter in seven days.

P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.

This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere.

SOME CHOICELY BRED

Bull Calves

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to **GEO. F. WESTON, Supt., Biltmore, N. C.**

Introduce Milking Jersey Stock INTO YOUR HERD

by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." **FILSTON FARM, Glencoe, Md.**

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL. Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments. C. S. MACE, Manager.

Hood Farm Jerseys Combination Bull ready for service. Solid color, black points, first-class individual. Dropped Jan. 23, 1898. Sire, Mint. sire of 3, by Diploma, sire of 51, including Merry Maiden. Dam, Portfolio, test, 15 lbs. 5½ oz.; 2d dam, Portrait, 15 lbs. 2½ oz., dam of 2, full sister of Dear Keepsake, 25 lbs. 3½ oz., average 60 lbs. per day of the test. Write for price to HOOD FARM, Lowell, Mass.

ARDEN HERD OF

JERSEYS.

JOLIET, ILL.

H. N. HIGINBOTHAM, Prop.

J. D. THOMPSON, Supt. FRED STORY, Herdsman.

Pedro's Handsome Prince, No. 42794.

Sixteen Tested Cows in Herd.

Young Stock for Sale. Write for Particulars.

A. J. C. C. BULL CALF FOR SALE!

Dropped Aug. 2, 1899. Solid color; black tongue and black switch.

SIRE:—A full brother to Exile's Lulu 49948. that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test.

DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

MILLER & SIBLEYS JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **Franklin, Venango Co., Pa.** **224**

The Lone Tree Jerseys

THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**



Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720, Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

A 6 MOS. OLD Bull Calf 56¼ Per Cent **TORMENTOR.** Solid color, well grown, robust. Dam, 22 lbs. in 7 days. **CHARTER OAK HERD.** **J. P. BRADBURY, Pomeroy, Ohio.**

leading dairymen that fall is by far the best time for cows to come fresh. Then the calves can have nice, sweet skim milk through the winter, and be ready to go out on grass in the spring, and when the hard days' work of summer come, they will not be so much care, or suffer so much from the neglect they sometimes receive

Now a word about the last part of the subject. Every one who has tried it knows what a hard job it is to keep fall pigs through the winter, and keep them growing as they should. They must be kept so warm, and have different feed from what the farmer has at that time of year.

But now see how much nicer if they come in the spring, say the last of April or first of May. It is then warm and they need but little care. The grass is starting fresh and green, and the little fellows are tempted out of the nest when a few days old, to run and play and grow, just as fast as pigs can grow.

Then by the time they are four weeks old, the calves are weaned and out to grass, and the pigs can have all the milk they want. Kept through the summer on milk and grass with a little grain (say one-fifth or one-fourth of the ration); then a few bushels of corn in the fall (an acre or two of sweet corn near the hog lot to begin feeding from as soon as it is fit for table use) and by the time your pigs are six months old, they will be ready to sell, and I think for more clear money, by a good many dollars, and with a great deal less work than can be done with fall pigs.

Jackson Co., Mich. E. S. DUNBAR.

FLOODED WITH OLEO.

Denver Market Said to be Filled With Bogus Butter.—Luke Warm Opposition.

The following from the *Denver Post* shows what oleo will do when it has full swing. Let the enforcement of the laws be neglected and the same condition will be found in every city in the country:

"What has become of the promoters of the anti-butterine crusade which was being waged in Denver a few short months ago?" inquired a citizen who, in a peregrination among stores, had gazed upon piles of oleomargarine now being exposed for sale. He said he could find it in all the groceries of the city.

It only required a little investigation to learn that the man's assertion was correct. The butter counters everywhere are loaded with the stuff. In every case it is colored yellow, and appears as genuine as the article it is intended to represent. The flavor is as enticing to the appetite as the best creamery product, but the prices are at variance with the figures which the creamery owners have frequently said it costs to put real butter on the market.

While the inquirer was learning this, consumers were eagerly snatching up the supply, and it was apparent that they were indifferent. They did not stop to inquire into the genuineness of the article. The majority wanted butter at the lowest cost possible. Manufacturers of the oleomargarine had evidently recognized this public peculiarity and prepared to satisfy the most fastidious trade.

Nice-looking pound packages of oleomargarine were found in most of the stores for sale at twenty cents. It was as yellow as gold from annato, which constitutes the coloring matter, to the exclusion of other things used for that purpose. These packages were unbranded, and were not protected by papers. They were marked by a little cardboard at one side of the case holding them, "Creamery."

By the side of them was a pyramid of packages branded "Golden Star." They were wrapped in tissue paper, and the clerk said they sold for twenty-five cents per pound. The flavor was more like genuine butter; they looked more akin to a nice pound of the product of some of the well known Colorado butter making establishments than did the unpapered pounds of plain oleomargarine which cost only twenty cents, but good judges could recognize that each of these packages belonged to the same family. Those in papers were prepared for the higher class trade.

In another case were pounds of oleomargarine slightly colored but yet yellow, prepared to represent country butter. The price was said to be twenty-two and one-half cents per pound, and the clerk insisted that it had no equal. Would the customer taste it? He did, and mentally observed that it would scarcely melt in the mouth, much less in a frying pan over a hot fire. There was no doubting the identity of the stuff.

It was all in plain sight, and none of the merchants made any attempt to conceal the fact that the traffic in bogus butter was being carried on.

This seemed somewhat strange in the face of the state law, which declares that oleomargarine must be sold in uncolored condition.

Where are the officials and societies who a few months ago were waging such a warfare against the sale of oleomargarine?

What does good butter cost? The merchants say the creameries are charging twenty-six cents wholesale, and the retail price is thirty cents. It is said to be a prohibitory price to a great many people. Only the rich could eat genuine butter. In days gone by farmers sent to market what was called dairy butter, which served the smaller purses with a very acceptable substitute for higher priced goods.

No more dairy butter comes to market because the creameries have established depots through the country and gather up all the farmers' milk. It brings them more money than they formerly realized by making butter themselves. And since the creameries use all the milk, very little low grade butter comes on the market fr m the agricultural classes. The creameries several years ago turned out what they called first, second and third grade goods. That was when times were not so good as now. They are now said to be putting their entire output on the market as first-class grade

The oleomargarine manufacturers seemed to be filling a long felt want and the creamery men appeared to be entertaining no special grudge against them. While the public secures what it supposes is butter at a moderate cost it is making no pronounced protest.

Critical citizens, knowing what the people are buying, only regret that so much deception is being practiced on the unsuspecting community.

These conditions were called to the attention of a creamery manager and he responded: "Yes, we know that the market is filled with oleomargarine, but what can we do? No matter whom we put into prosecute violators of the law, it fails. Our agents are bought up. The oleomargarine influences find them. They make a bluff around f r a few months and then it's all off. But the people who buy the stuff seem satisfied, and so long as we are making and selling all the good butter that we can produce at good prices I don't know that we have any kick coming.

"At the present time the retail price of good butter is thirty cents. It cannot be bought for less, and the grades of stuff called butter which are being sold for twenty to twenty-five cents are oleomargarine. The public must be its own judge of what it wants."

"This oleomargarine business is very funny at times," remarked a wholesaler. "You can have no idea of the number of really first-class people who use this butter substitute.

"We have big customers from the hill—Capitol hill, I mean. The men make the household purchases by wholesale. They drop in here and buy it by the tub. Then they scratch the labels off the tubs, so that the women at home will not see them, and then the wives never know that they are not using the best creamery butter."—*Denver Post.*

Wisconsin Dairy School.

ED. HOARD'S DAIRYMAN:—The following instructors for the winter term of the Dairy School have just been appointed by the Board of Regents of the University of Wisconsin:

U. S. Baer, of Mauston, Wis., Head Instructor in Cheese Making; Julius Berg, of Sevastapol, Wis; Asst. Instructor in Cheese Making; John Kelty, of Boscobel, Wis., Asst. Instructor in Cheese Making; John R. Robinson, New London, Wis., Instructor at Separators; Thos. Corneliusen, of Huntley, Ill., Instructor at Separators; DeWitt Goodrich, Climbing Hill, Ia., Instructor in Butter Making; Roy L. Smith, Madison, Wis., Instructor in Pasteurizing; Lewis Engleman, LaPorte, Ind., Instructor in Milk Test ng.

The term of the school begins December 5th, and we are now receiving machines and apparatus for the use of the large class of students which we have already registered.

E. H. FARRINGTON.

Wisconsin Dairy School.

Who Pays the Freight.

Referring to your issue Nov. 10th, page 768, concerning prices paid dairymen in territory tributary to New York City, your article did not mention whether the freight on milk was paid by the New York purchaser or the dealer; in other words, do the prices mentioned by you apply at point of shipment or point of delivery. C. J. H.

Detroit, Mich.

We are not sure but think that the freight is paid by the dealer. You can obtain more definite informat on by addressing Ira Snell, Kenwood, N. Y.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!
84 Cows averaged 399 lbs. of Butter each in 1898. . .
Some Choice Young Stock For Sale.
ELLERSLIE STOCK FARM,
Rhinecliff, N. Y.

Ayrshire Bulls.
We have twelve thoroughbred **Ayrshire Bulls** for sale, of all ages up to 2½ years. They are exceptionally well bred and were raised on North Oaks Farm near St. Paul, of which J. J. Hill is proprietor, Full information as to prices and pedegrees will be given on writing to
W. C. TOOMEY,
Great Northern R'y Bl'd, St. Paul Minn.

FOR SALE.
Choice registered **Ayrshire Cattle.** Superior milking qualities. L. D. STOWELL, Black Creek, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

SHORT-HORNS
Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale Write or come and see us.
WALTER LITTLE, Janesville, Wis.

123 HOLSTEINS FOR SALE. 123.
Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to
DELLHURST FARM, Mentor Ohio.



The Best Investment
For you this summer may be a fresh supply of . .
BUHL Tinned Steel Milk Cans.
They do not leak, break or rust, and keep the milk cool and sweet.
Write For Catalogue.

Holstein-Friesians.
To dairymen who wish to enrich their herds, or to those who wish to go into **blooded stock,** it will be to their own interest to communicate with us before making any purchases. We are able to supply you with the right material and at prices that will prove a profitable investment from the start. Over **10 Cows and Heifers** have now been placed in our hands to sell, and **20 Bulls** of all ages. All recorded. Address, **KARLEN CO.,**
Valley Mead Farm, **Monticello, Wis.**

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to
Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¼ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F. Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

READY NOW
A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

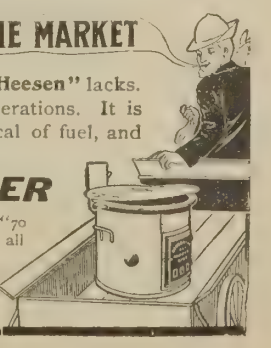
MEADOW LAWN HERD
Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them.
C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN CATTLE
Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

5 HOLSTEIN BULLS 5
For Sale, ranging from 10 months to 2 years old. Two of these animals from dams with records of 60 and 71 lbs. milk in one day, testing respectively 4.5% and 3.6%. All of these bulls are exceptionally well bred and will improve any herd that they head. Will be sold at reasonable prices. Choice Chester-Whites for sale. **W. R. GATES Fort Atkinson, Wis.**

Markham Manor Farms. **Simonsville P. O., Andover, Vt.**
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26 57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

THERE IS THE BEST FEED COOKER ON THE MARKET
No Cooker offers a single real advantage which the **"Heesen"** lacks. It is the simplest, never out of order, and lasts for generations. It is quickest in heating, holds fire longest, is most economical of fuel, and burns anything. Wood or coal.
THE HEESEN FEED COOKER
is Guaranteed Full Measure. We don't stamp 50 gallon size "70 gallons." The **"Heesen"** will save one-third purchase money, and all cost of repairs. Seven sizes—15 to 70 gals. *Money back if not satisfactory.* Sold only direct from factory to farmer. Send for catalogue.
HEESEN BROS. & CO., 26 High Street, Tecumseh, Mich.


Sanitary and Pasteurized Milk Supply.

ED. HOARD'S DAIRYMAN:—It will soon be two years since we began operations at our "Pasteur Milk Laboratory," located at 1120 18th St., N. W., in the very best part of this city. We started business with about five gallons milk a day, and have since worked gradually upward, slowly but surely, until we now are retailing from two delivery wagons nearly sixty gallons milk and four gallons cream daily; and while some creamery men and milk dealers may consider that a rather small affair, they must remember the peculiar features of this kind of enterprise, and the higher prices we have to charge for our milk, viz., ten cents per quart for our regular "sanitary" milk for family use, and twelve cents per quart for our "pasteurized" milk, especially prepared for young children, while the regular price for milk from the better class of dealers ranges from seven to eight cents per quart, and many sell milk here for even five and six cents, some of these cheaper milk dealers really furnishing as good milk as many who charge eight cents per quart.

I shall try to give such points and features of our business here, as may prove of some use to such milk producers and milk dealers, who not altogether make it their object in life simply to squeeze out all the dollars and cents from their customers with the least possible trouble to themselves, and without any regard to the purity and healthfulness of the stuff they sell, just so they get their profit out, and that as big as possible. It is sad to contemplate that surely the very large majority of milk dealers in the cities belong to the class mentioned, and only a very limited number care for anything else about the milk business, than the profit they can make out of it. That such is the case, is an undeniable fact, which everyone must admit to be true, who knows anything at all about the manner in which the city milk supply is generally carried on.

And yet, I feel very sure that the time is approaching when the very selfish and very conceited milk men will find out, to their sorrow, that it would have been greatly to their own advantage, in the long run, to have cared a little more also, for the benefit of their patrons! Fortunately, the eyes of our health boards and medical societies, as well as the public generally, are getting more and more open to see the terrible and absolutely criminal fraud which, day after day, is being practiced by a majority of those who retail milk in our large cities, and it certainly will only be a question of time when the new era shall commence when no milk or milk products shall be admitted for sale in the cities, which not only is unadulterated by skimming or addition of water or preservatives, but which also must be so clean that it will stand a certain test as to purity and freedom from any kind of contamination or disease.

That is one of the great advantages for a city in having one or more such sanitary milk supplies established, from which an absolutely pure and clean milk of the very highest quality, can be secured; for while it very properly may be claimed, that only a limited number of people can afford to pay the somewhat higher price for milk charged by such establishments, yet the indirect effect is very great. There are, for instance, a number of families who buy cheaper milk for household purposes, and only our milk and cream for the babies and, possibly, larger children; and every milkman will agree with me, that it surely is rather provoking to him to be told that his milk is too dirty and impure to use for anything but cooking and baking, and the cat. And it it was only the provocation in the matter, we could get over it, but many a family, even of smaller means, has found out that it really pays them better to buy the richest, purest, and best keeping milk and cream for all purposes, at a little higher price, and even rather use a little less of it, than it does to buy some cheaper milk, which every once in a while turns sour just when they need it sweet, and possibly is flavored with garlic or even worse aromas.

BEWARE OF GARLIC.

That stuff has cost us dear, and has done more to retard our progress than all other difficulties combined. This fall seems, all through this section, to have been more blessed with this delightful growth than has been the case for many years, at least I have heard a general complaint from milk producers in this line all over Maryland and Virginia. If it had not been for the lucky fact that a large majority of the people here are so accustomed to the stuff in spring and fall, that they look upon it (or rather eat it) as an unavoidable evil, I do not know what would have happened to our whole business; even as it was, we lost some of our best customers last month, and will have a big job on our hands to get them back again. Still with our late improvements in all directions, I feel confident that it only will be a question of time.

There was only one thing for us to do, and that was, to make such a radical change that garlic would be an impossibility. So we decided to change to another farm, and Nov. 1st, all our cows and implements were sold at auction, and we have now all our milk supplied from the only herd of registered Jersey cows near Washington; this herd is located on a most excellent farm of 300 acres, about five miles from Washington. In Virginia, 360 feet above sea level, supplied with excellent water from an artesian well, and in every respect sanitary. I hope in the very near future, to be able to give a detailed description of said dairy farm, and also to furnish cuts of buildings and cows for HOARD'S DAIRYMAN.

The herd at present consists of about forty milking, registered Jersey cows, and a very fine bull, besides a large growing family of the finest looking heifers and calves you can put your eyes on, which, in a not too far future, will make the cows number 100 or more; all are tuberculin tested, and regularly examined by a veterinary as to their general health. A separate stable is located at some distance from the one where the sanitary milk is produced, and any cow which at any time might show signs of sickness, of any kind, is at once removed to this so-called "cow hospital."

LESSONS FROM PAST EXPERIENCE.

We can and ought all to learn by our own experiences, but whenever we have a chance to learn from the experiences of others, it is much cheaper and quicker, too. Therefore, I shall mention some mistakes I think we made, when we started a dairy, during the two past years.

First, having no suitable farm or herd of

GOOD THINGS TO EAT.

What they are depends mostly on the condition of the eater.

Most anything is good to eat if a man is properly, healthily hungry.

Every man is properly hungry at more or less distinct intervals if he is healthy.



Corned beef and cabbage taste better to a healthy, hungry man than terrapin and *pate de foi gras* to the jaded appetite of a dyspeptic. The enjoyment of eating depends on the condition of the stomach, liver, bowels, and kidneys. If these do not do their work properly there accumulates in them undigested, fermenting, putrid, blood poisoning matter. The appetite cannot be healthy till this is removed. A machine will not run if it is all clogged up with dirt. The stomach cannot appropriate food unless it is clean, and so healthy hunger cannot come. The stomach cannot be clean if the liver and bowels do not dispose of the food passed along to them. If poisonous, effete matter is allowed to accumulate and congest the liver and bowels more or less of it gets into the blood, and is carried all over the body. Is it any wonder that it makes you sick?

Dr. Pierce's Golden Medical Discovery is designed to correct all disorders of the digestive and blood-making system and to drive all impurities out of the blood itself.

It restores lost appetite and vitality, builds healthy flesh and muscle, changes sickness to health, misery to happiness.

John A. Calloway, Esq., of No. 218 26th Street, Columbus, Ga., writes: "I had catarrh for four years and also liver and kidney trouble. In 1894 I was working at night and I broke out in lumps all over and when these left, the skin peeled off. My eyes were sunken and I had pimples and brown spots on my face. Now these are all gone, and I believe I am entirely well. I have a good appetite, but before I commenced taking your 'Golden Medical Discovery' I had no appetite at all. Now I am like a child—ready to eat at any time of the day or night."

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

IT'S AS GOOD AS ANY AND BETTER THAN MANY.

ALDERNEY BUTTER COLOR

Acknowledged by All who use it to be

Superior in STRENGTH, PURITY, BRILLIANCY and UNIFORMITY.

If you are not using it, we want you to try it. We will send a sample Free on request.

THE HELLER & MERZ CO.,
55 Maiden Lane, New York.

CHICAGO: 14 N. Clark Street. BOSTON: 98 Commercial Street. PHILADELPHIA: 109 S. Second Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Coler Law of New York. Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

AMERICAN



Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and **S. M. BARRE,** Winnipeg, Man.

our own, we contracted with another party to furnish us a certain amount of milk of a a certain standard, as to fat and purity, separated, cooled and delivered according to specifications. We paid a good price, twenty cents per gallon, for milk containing not less than 4% fat, (the average wholesale price here is 10 to 12 cents,) but knew what we should retail for, as soon as we had a trade worked up, and the profit was plain; but, alas, the other party soon found it did not even pay him, at that price, to hunt for tuberculin tested cows, build a stable and buy most of the feed; a business which is only profitable for one of the parties interested, will soon be unprofitable to all. So after about a year's work, we had to buy the party out, who owned the cows, and give him an interest in the whole business, but we soon found that, while this had put us in shape as to always being able to get cows enough to supply all milk needed, we soon found that the farm end of the enterprise more than ate up all profits made at the city end; to run a dairy farm with hired hands will never pay. And this brought us at last, to make the change begun November 1st. I only wish we had been able to start that way at once.

SUPPLY NOT ONLY THE PUREST, BUT THE RICHEST MILK AS WELL.

Here was another mistake made at the start, namely, only to guarantee 4% fat in the milk. This was done by advice of the physicians, because, generally, 4% is sufficient for special infant's milk; but if you wish to build up a first-class trade generally, and depend upon supplying the babies only, you must have a milk of such excellent richness, that you are ahead of any other dairyman supplying milk to the cities; or, at least, you must not let any one be ahead of you. And this was what we especially aimed at when we secured the milk from this pure Jersey herd. Now we are guaranteeing 5% instead 4% butter fat, and if the milk is too rich for anybodies babies, well, they can easily remove part of the cream and use it for other purposes And while we now pay twenty-two cents per gallon for this milk, and the profit is a little less, I am perfectly confident that before this winter is much advanced we shall have gained trade enough, by our superior quality, to more than make up for the reduced profit.

Therefore, I advise any progressive dairyman, who intends to start a special "sanitary" milk supply in any city, first, to make sure that he has the cows and the feed to make the best milk of, stables which will keep them comfortable at all seasons, and *no garlic*. Don't forget the last item, or it will ruin all.

WHERE SHOULD PASTEURIZATION AND BOTTLING BE DONE?

I have been somewhat in doubt as to whether it would be best to have the "laboratory" established at the dairy farm or in the city; and I still believe this must be depending on various local conditions and circumstances. As a general rule I believe, that if the farm and dairy are not located very close to the city, that it will be best to do as we now do, viz., run all the milk as soon as milked through a separator for purification, and then over an effective cooler and aerator, thus bringing the temperature down below 50° F. This work has to be done right at the dairy farm; then haul the milk at once, morning and evening, to the "laboratory" in the city, the cans well protected against outside heat or extreme cold, and then have the pasteurization and following cooling done there, as well as the bottling of all milk and cream, whether pasteurized or raw. It would not only be a great deal of expensive trouble to have all milk hauled a longer distance, from the country, all in bottles, which in hot weather, even, would have to be surrounded with crushed ice in the boxes, but there is quite a point in having a plant established right in the best part of a city, where you are able to invite customers to call and see for themselves how neat and carefully everything is handled. We have started in this way, and I think we did right. But while we thus far only have had a rented building for our work, I have no doubt, that, as the business grows, it will pay us to build our own plant, and I expect it will not be so very long before we shall be able to do so. Then we know that every improvement made is our own, and we will be able to have everything just perfect in every way. It will cost a good deal to do all this, but it will, necessarily, pay in the end, as this kind of milk business has the right kind of patrons, who appreciate what is neat and handsome.

Washington, D. C. J. MOLDENHAWER.

Progressive Dairy Farming.

[Extracts from address before New York Farmers' Institute.]

I often hear farmers express the opinion that scientific farming, as presented by the farm institute instructors and the agricultural papers, is not sufficiently practical for them to make a living by. I think the class of farmers who believe this are in the majority in every locality in which an institute is held. It seems to be the mission of the farmers' institute to convert these farmers, and give them a new faith in progressive and scientific methods. Whatever the farmer may think about what is called "scientific farming", however much he may doubt its practicability, it is a fact, that in all parts of the country there is a need of something that will help the farmer out of his present condition, for it is only the few who own their farms clear from debt, and are making a comfortable living.

Farmers are slow to realize that in the last twenty-five years there has been a great change in the conditions of dairy farming. The world has been moving, and many farmers have failed to adjust their farming to the new order of things. These farmers must change their methods, because the old plan of farming will not meet the requirements of to-day. It is not a question whether he wishes to do so or not, but he must face the fact that he is compelled to do so or fail. Those good old times when the farmer could have his cows all fresh in milk in the spring, and make his butter at home only during the summer months, let his cows all go dry in the winter, and could maintain the fertility of his farm sufficient to grow his crops and allow a part of the fertilizer to go to waste, and still make the business profitable, are past, and will never return. The market now demands his dairy products fresh from the farm or factory, and of a high and uniform grade, and because of increasing competition, the prices of these products have become so low, that with the eastern farmer, it has become a problem how to produce them and leave a margin that will enable him to live.

When dairy products sold for a higher price, there was some profit in feeding western grain; but with lower prices, this has become less profitable, and the time has come when the eastern dairymen must grow nearly all the food for their cows on the farm, and keep only the cows that return to him the largest amount of butter fat, if butter is made. To grow these crops on his farm that will save him the greater part of his grain bill, the farmer must not depend on commercial fertilizers, for this is an out-go he cannot well afford, but he must make and save all the manure possible on the farm. In a word, he must keep up the income from the dairy as high as possible, and reduce the cost of feeding the cows and the crops to the lowest cash outlay, possible. To the extent he can make the crops of the farm feed the cows, and the manure from the cows feed the crops, he makes the business profitable.

The successful dairy farmer of the future must be a man with progressive ideas, a man who can think and plan, a man with executive ability. Dairy farming now requires more intelligence and skill, and we see the need of the education and training the farmer's boy gets at the agricultural schools. The great need in the farming of to-day is more science and more capital. It needs the men with clear heads, good habits, and with push and enterprise. In the culture and betterment of the man, we get at the basis of all improvements and reforms.

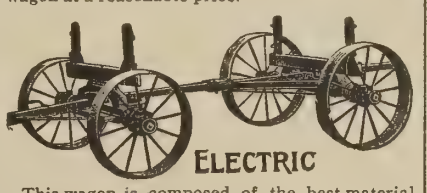
The progressive dairy farmer of to-day will study the conditions which exist in regard to markets and their demands. He will study how to place his products on the market in the best condition to meet its demands, and to reduce the cost of production as low as possible. He will study his farm, and if it is adapted to the kind of farming, he will grow ensilage corn, oats and peas for a soiling crop, clover and oats or wheat in four year rotation. He will adopt a more intensive system of farming. He will find which are his poor cows by testing or weighing the milk. He will produce the most milk at the time when it brings the highest price and at the lowest cost. He will raise his own cows instead of buying them, for he cannot buy the kind of cows he wants. He will make the surroundings of his cows in winter as near like those in summer as possible, and, with ensilage, he will produce milk nearly as cheap in the six winter months as he can during six summer months. He will understand that his cows need succulent food in winter, and he cannot add water to dry food and make as much milk as he can with green or succulent food, containing the same amount of water.

When the pastures become dry and short, he will supplement them with soiling crops instead of grain. He will know that the butter fat in the milk is not fixed by the food the cow eats, but by her breeding. He will learn the elements in the different kinds of foods, and so combine them as to form a balanced ration; also if he keeps his animals warm in the winter, he can feed more protein, and make them more profitable. He will feed clover hay to balance the ensilage in the ration fed. He will provide himself with the best implements for planting and cultivating his crops, and the best utensils to use in the dairy. He will liberate plant food in the soil by frequent cultivation, and add plant food and humus to it by growing and plowing under cover crops when practicable, and he will avail himself of all the helps he can get from the agricultural papers, experiment stations and conventions. W. J.

Delaware Co., N. Y.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



ELECTRIC

This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy Ill.



THE IDEAL MILK PAIL



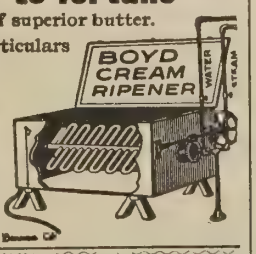
Is the best, cheapest and most practical pail and strainer on the market. Write for circular and special price to

THE
National Specialty Co.,
RACINE, WIS.
Agents Wanted in every Co.

BOYD CREAM RIPENERS stand ready

to aid you to fortune with fame as a maker of superior butter.

Write for full particulars at once.



CORNISH & COMPANY,
ST. PAUL, MINN.
Creamery Machinery, Sharples Improved Separators.

IT IS A FACT



that the best results in feeding stock of any kind are attained with ground feed. To grind feed most successfully requires

SCIENTIFIC Grinding Mills.

They have largest possible capacity with minimum power. Crush and grind corn, husk cob and all, and all small grain singly or mixed. Have self-sharpening plates. Free—Catalog I.

FOOS MFG. CO., Springfield, Ohio.

The Best Paid Agents

are the energetic ones who secure subscribers to

The Ladies' Home Journal
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The Saturday Evening Post

We allow liberal commissions for all subscriptions, special rebates for large clubs, and at the end of the season (April 15, 1900) we shall distribute $18,000 among the 764 best agents.

As the JOURNAL alone has over 800,000 subscribers, and as we allow a commission on renewals, it is obvious that a part of an agent's work is very easy, while, in view of our extensive advertising, none of it is "uphill" work.

Write for full particulars.

The Curtis Publishing Company, Philadelphia

THE YOUNG AERATOR And COOLER



Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

W. H. YOUNG,
Box 135, Aurora, Ill,

Skim Close



Don't waste butter fat. The best, easiest, most economical way to skim your milk is with the National Hand Separator. Saves enough cream to soon pay for itself. The easiest running separator made. Costs nothing to test it.

Ten days trial free.

Write for book about the

NATIONAL Hand Separator

and learn how to increase your profits and lessen your labor. Mailed free.

NATIONAL DAIRY MACHINE CO., Newark, N. J.

AGENTS WANTED. All Inquiries Answered.

THE BEST FOR THE DAIRY,

be it large or small, is the celebrated

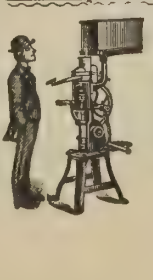
Kneeland Omega Separator



Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,
42 Concord Street, Lansing, Mich.



1900 DAVIS 1900
CREAM SEPARATOR

Makes the work easy and profitable to the dairy farmer. Agents wanted. Catalogues free.

DAVIS CREAM SEPARATOR CO
88-90-92 W. Jackson St.
CHICAGO.

POWDERED MILK.

With considerable regularity the public is informed that a chemist has discovered a new method for reducing milk to a powdered form, that this product will fill a long felt want, that it is a wonderful food product, and that patents are pending in all foreign conntries. The latest is from Denmark, where a Mr. Wimmer is going to revolutionize the milk business by precipitating all the food elements in milk as a solid mass, the water being allowed to drain away, etc.

Details of process cannot be given on account of patents pending. This reminds us that the same thing was going to be done down in Elgin, Ill., some six months since; is being done in New Jersey at the present time and an examination of dairy literature will show that the milk industry has been destroyed in the same way many times in the last twenty years. It will be interesting to see what the outcome of this new process will be. It is also interesting to note that to unload a process of this kind on the dairy community of this country, it must be discovered the other side of the water, by a German or Danish chemist. This gives it a financial standing not otherwise obtainable and the process is easily disposed of to some credulous dairyman, who gains experience if not profit. There is no doubt that there is room for a limited use of powdered milk if prices are such that it can come into competition with the raw product. This is a question of price, not of processes. These last are plentiful as peas, and powdered milk can be made regardless of patents. In any case, "make haste slowly."

A LESSON IN HONESTY.

An official of the Dominion government rejoices, quite properly, over the fact that while in 1868 Canada sent half a million dollars' worth of cheese to Great Britain, in 1898 it sent seventeen and a half million dollars' worth. In the last mentioned years the American exports of that article to Great Britian were valued at only three and one-fifth millions. Nor is that the worst of it. The English consumed a dozen years ago twice as much American cheese as they do today. The Canadians have taken away from the dairymen of this country what at one time bid fair to be a prosperous trade. This can be explained in two ways. It is possible that the home demand for cheese has increased more rapidly than the supply. It is to be expected that during hard times less cheese will be consumed at home and there will be more to send abroad. Thus during the fiscal year 1894 seventy-three million pounds were exported, against thirty-eight million pounds for the fiscal year 1899, when the consuming capacity of Americans was much greater than it was five years previous. The other explanation, a less pleasing one, is that the quality of American cheese has deteriorated so much that the English do not care to have it. It is claimed that too much of the cheese sent abroad has been what is known as "filled" cheese—lard being one of the ingredients—and that the Canadians have acquired the English market by reason of the fact that they send an honest article there. The dairymen can say whether this is the correct explanation. But whether it is or is not, the Canadian cheesemakers have built up a most profitable industry for themselves.—*Chicago Tribune.*

Our cheese making industry was seriously threatened because of a fraud. We lost nearly all of our grand English trade because of dishonesty—cheating the consumer with a counterfeit. The dairymen of the country rose up in their might and forced the passage of laws in the National Congress against the filled cheese fraud. There were plenty of men and newspapers then to jeer at us and say the "filled" article was just as good as any and that it was all class legislation, inspired by the farmers because of their selfishness. It was the "poor man's cheese," "cheap food," and all that rot, that so many newspapers indulge in today concerning the twin fraud, oleomargarine.

The butter industry of the United States is threatened with extinction because of a cheat and swindle in the form of a counterfeit, as was the cheese industry. There are plenty of editors, judges and professional men, generally so far blind as not to see that when a great industry like dairying is threatened with displacement by a counterfeit masquerading in stolen garments, in reality the prosperity of the country is threatened. If they had an ounce of real patriotism or loyality for honest industry they would be found demanding with the dairymen that all counterfeiting and adulteration of food shall be extinguished, for such practices are destructive of both the health and prosperity of the nation.

In Return for Nice Things Said.

Suggestions for a Michigan Ration.

ED. HOARD'S DAIRYMAN:—Inclosed please find one dollar in renewal of my subscription to your paper, which I consider the only perfectly balanced ration for a dairyman's mind. While it contains all the essential ingredients, it is plain enough to be thoroughly digested, and consequently will return the largest per cent of money fat, and I notice through its use an improvement in dairy form as well.

Now, in return for saying these nice things, I wish you would favor me with a ration for my cows. I live in that neck-of-the-woods where the rain has failed to fall either on the just or unjust, and my barn is minus its usual store of hay, but for my thirteen cows I have corn, corn stover and straw a plenty. I also erected a silo, this season, nine by fifteen feet, and about eighteen feet settled corn silage therein. Clover hay is worth $10.00 per ton; bran is worth $16.00 per ton; I have no quotations on cotton seed meal.

Davisburg, Mich. J. K. T.

We assure J. K. T. that his unique way of expressing his opinion of HOARD'S DAIRYMAN is very gratefully received, and if there were no other compelling reasons, (which there are) would stimulate our best efforts to suggest a satisfactory method of feeding. We estimate that he has sufficient silage to allow feeding fully thirty pounds per day to each cow, and have some left for other stock. We do not see how he can work in his corn, corn stover, or straw, unless he gets some gluten or cotton seed meal to make up for their deficiency in protein. Our first suggestion, therefore, would be as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. clover hay	8.47	.68	3.58	.17
9 lbs. bran	7.93	1.13	3.47	.27
Totals	24.32	2 20	11.25	.65

If corn stover is used, try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
5 lbs. clover hay	4.24	.34	1.79	.09
10 lbs. corn stover	5.95	.17	3.24	.07
6 lbs. bran	5.29	.75	2.31	.18
1½ lbs. cotton seed meal	1.38	.56	.35	.13
Totals	24.78	2.21	11.89	.68

A Horn-Fly Trap Experiment.

(Press Bulletin.)

How to furnish better protection to our dairy herds and cattle against the attacks of the horn-fly is a question of growing importance in this state. The losses, from the decrease of butter-fat and flesh, through the attacks of this pest, certainly demand that some sort of relief be furnished to our stock. During the past year, the Kansas Experiment Station has carried on a series of experiments with this object in view. Among the many measures employed, considerable time was spent in trying to construct a "trap" which would catch and kill the flies, and not merely repel them, as is often the case with so many of the "horn-fly mixtures."

The general plan of our trap was to pass the cattle through a dark space or room. At the center of the room, in the roof, was a glass cupola, the sides of which were composed of four window sashes, with a large pane of glass for a roof. All the joints were made tight so as to leave no opening through which the flies could make their escape. A few feet from the entrance and exit doors of the room were roofed screens, allowing the cattle to pass in and out, but cutting off the direct light from the outside, thus making the space immediately below the cupola extremely light as compared with the rest of the room. As the animal passes under the cupola it enters through the exit doorway, which is lined with a series of brushes, sweeping all parts of the body. The flies, being disturbed and brushed off, would, it was hoped, be attracted by the greatest light and would, therefore, swarm up into the cupola.

To catch the flies in the cupola, small tin troughs, containing kerosene, were attached firmly to the base of each pane of glass. The troughs were one inch deep, one inch wide, and of the length of the distance from side rail to side rail of the window sash. The flies, in dancing up and down the window panes, will at some time or other strike the bottom rail of the sash, but when troughs are attached they will, instead, fall into them and be destroyed by the kerosene.

By this style of "horn-fly trap" we were able to kill but about one fly out of twenty upon the cattle. After passing fifteen cows through several times in succession, only three hundred flies were caught in the troughs of kerosene. Quite often the troughs would be nearly filled with other species of flies, where only one horn-fly would be captured.

This style of trap, however plausible it may seem, was certainly not a success. It was never possible to get all the flies to remain on the cows till the brushes were reached. Invariably, after the cows had entered the room for two or three feet the flies would suddenly rise up and pass out at the entrance doorway. They did not seem to like to enter the dark room. By equalizing the light a little in the room with that on the outside, a trifle larger percentage of flies was secured. But if too much light was admitted from the doorway, the light in the cupola was not sufficient to attract the flies, but instead, the flies upon being brushed off, would follow after the cattle, and again renew their attacks.

Kansas Experiment Station,

He Finds Much to Commend.

ED. HOARD'S DAIRYMAN:—I have read the DAIRYMAN closely for five months, and have seen nothing to condemn and much to approve. Am glad that I can have a paper that so closely watches the interests of the dairymen, and that furnishes so much valuable instruction.

I have as little use for the general-purpose farm paper, as I have for the general-purpose cow. I think that this class of farm papers are largely to blame for stampeding the farmers from butter to beef, from beef to

What a Farmer's Boy Can Do



He can qualify himself for a position as a first-class Locomotive, Steam, Electrical or Civil Engineer without leaving the farm until he is ready to enter his new occupation and

EARN A GOOD SALARY

Our system of teaching **by mail** will give any boy a technical education. Write for pamphlet and state what you wish to study.

International Corres. Schools, Box 1242 Scranton, Pa.

Public Sale of

Holstein-Friesians!

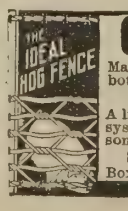
The Entire Herd of . . **48 Cows and Heifers** on the farm of the late Judge Phelps, at **Hanover, Rock Co., Wis.,** will be sold to the highest bidder, on

Wednesday, Dec. 6th, 1899.

This herd represents 25 years of careful breeding and offers a rare opportunity to buyers. Address

D. O. FLINT, Manager.

Virginia Farms for Sale—Good land, good neighbors, schools and churches convenient. Mild, healthy climate, free from extremes of both heat and cold. Low prices and easy terms. Write for free catalogue. R. B. CHAFFIN & CO., (Inc.) Richmond, Va.



GOOD FENCE!

Makes good neighbors. Why not have both when you can make the best for

20 to 35 Cents a Rod.

A little inquiry into the merits of our system of fencing will repay you handsomely. Write to-day for free Catalog.

KITSELMAN BROTHERS,

Box 57 Ridgeville, Indiana, U. S. A.



Nothing else adds so much to the charm of the drawing room or boudoir as the softly radiant light from CORDOVA Candles. Nothing will contribute more to the artistic success of the luncheon, tea or dinner. The best decorative candles for the simplest or the most elaborate function—for cottage or mansion. Made in all colors and the most delicate tints by

STANDARD OIL CO.

and sold everywhere.

Mortgage Lifters

That's what dairymen call our light running hand separators, because they increase the yield of butter about 25 per cent. and improve the quality, which means higher prices. We **guarantee** the



Empire Cream Separator

to run with less power than any other of the same capacity. Skims cleanest in every test.

Six sizes of hand separators, $40 and up.
Illustrated catalogue, *free.* AGENTS WANTED

U. S. Butter Extractor Co., Newark, N. J

Second-Hand SEPARATORS

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.

P. O. BOX 56, WEST CHESTER, PA.

Personally Conducted California Excursions

Via the Santa Fe Route.

Three times a week from Chicago and Kansas City.

Twice a week from St. Paul and Minneapolis.

Once a week from St. Louis and Boston.

In improved wide-vestibuled Pullman tourist sleeping cars.

Better than ever before, at lowest possible rates.

Experienced excursion conductors.

Also daily service between Chicago and California.

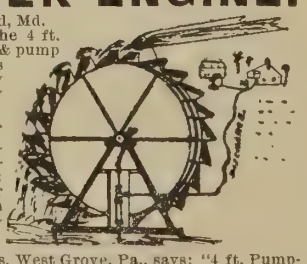
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The Atchison, Topeka & Santa Fe R'y,
109 Adams Street, CHICAGO.

WHAT PEOPLE SAY about our

WATER ENGINE.

Medford, Md.
We have the 4 ft. water Engine & pump set up and it is working very satisfactory indeed.
D. Englar, Jr.



Tho. E. Kershey, Lancaster, Pa., says: "Much better than 2 wooden ones used before."

T. D. Hoopes, West Grove, Pa., says: "4 ft. Pumping works satisfactorily."

ALL SIZES for POWER or PUMPING. Harness your stream to do your work. **D. H. BAUSMAN, Bausman, Pa.,** Mfr. Antiseptic Basins, Pig Troughs, Tanks, Smoke Stacks, Etc.

The Loomis "CLIPPER" Well Drill

The standard well drilling machine of America. Strongest, fastest, easiest to handle, and will **make the owner more money** than any other well drill. For full particulars address

LOOMIS & NYMAN, TIFFIN, OHIO.

pork, from pork to wool, then to mutton, then all to wheat, then back to the dairy again. Why not select the line for which we and our farms are best fitted, and stick to it?

Please continue the DAIRYMAN to my address. D. P. LEONARD.

Hillsdale, Mich.

Transfers of Guernsey Cattle from October 15 to 31, 1899.

BULLS.

Arawan's Duke 6274, Jos. Evans to Jacob L. Evans Marlton, N. J.
Butler's King 6251, Mrs. H. Hayward to J. S. Hartzell and C. H. Wible, Brownsdale, Pa.
Bert S. 6014, M. W. Segar to Asa Sweet, Kingston, R. I.
Beau Sabreur 6261, H. McK. Twombly to Dr. Charles R. King, Andalusia, Pa.
Ben Dewey 5481, H. B. Williams to W. G. Jamison, Medina, Wis.
Dick of The Buttonwoods 6264, I. R. Scott to S. Morris Jones, West Grove, Pa.
Dick of the Buttonwoods 6264, S. Morris Jones to Z. Haines, West Grove, Pa.
Dewey of Maplewood 5280, George Howland to Isaac S. Hazard, Middletown, R. I.
Flavius 6252, James M. Codman to Harold H. Blake, Concord, N. H.
Florismart 6277, H. McK. Twombly to Thomas B. Wanamaker, Meadow Brook, Pa.
Gold Basis 2d 6262, H. McK. Twombly to E. T. Gill, Haddonfield, N. J.
Golden Mustard 6234, Robert & Herbert Scoville to M. I. Wheeler, Great Barrington, Mass.
Hubbardston Nonesuch 6255, E. C. Damon to S. E. Lane, Hubbardston, Mass.
James Steerforth 6125, A. Sydney Logan to Wm. M. Paul, Moorestown, N. J.
Knollton 6192 S. T. Noyes to Thomas Watkins, Littleton, N. H.
Lord Salisbury 5562, James P. Brown to George Cochran, Ryegate, Vt.
Leicester Boy 6267, Amos Gardiner to E. T. Gill, Haddonfield, N. J.
Leicester Boy 6267, E. T. Gill to H. T. Ludden, Spencer, Mass.
Mikado of Shirley 6249 A. M. Smith to Reeves Flitcraft, Woodstown, N. J
Nubienne's Zac Taylor 4081, Collin B. Meirs to Mrs. E. B. Patterson, Greenville, Del.
Prince of Winimore 5019, A. Judson Smith to W. T. Thorp, Grampian, Pa.
Primeval 4812, C. R. Bridgman to L. G. Moon, Stanley, Wis.
Prince Butternut 6124, A. Sydney Logan to J. B. Borshore, Fredericksburg, Pa.
Quince of the Elms 6258, Robert W. Lord to A. W. Gilman, Foxcroft, Me.
Rupert De Lisle 6027, A. Sydney Logan to Elwood Evans, Haddonfield, N. J.
Tilton 5147, E. Lewis Moore to W. E. Marchant, Holliston, Mass.
Victorion 4135, Lester W. Clark to Robert & Herbert Scoville, Chapinville, Mass.

COWS.

Autumn Flower 6721, Fleur de Brumaire 6722, A. Sydney Logan to John Y. Calvert, Wyola, Pa.
Bonny Taylor 11558,, Corella of Ridgeview 12240, Molly of Belvan Heights 11196, Charles B. Case to William H. Ivins, Tullytown, Pa.
Butternut 3216, Flower of the Cove 4272, Hetty Hutter 9975, Lady Colleena 11727, Nellie Tostevin 11028, St. Jones's Daughter 11029, Zoe Avenel 9964, A, Sydney Logan to Wm. M. Paul Moorestown, N. J.,
Colleen Bawn of Dover 7230, A. Sydney Logan to H. W. Comfort, Fallsington, Pa.
Dora of Slocumville 12166, M. W. Segar to the Rhode Island College of Agriculture and Mechanic Arts, Kingston, R. I.
Daphne of Chester 11726, Rugia Perry 11903, Smilacina 11728, A. Sydney Logan to M. Harvey Ivins, Penn Valley, Pa.
Flax 12156, James M. Codman to Harold H. Blake, Concord, N. H.
Freida of Wyndlawn 7971, Zena of Green Bank 10587, Z. Haines to E. R. Strawbridge, Moorestown, N. J.
Faucette of Goshen 9970, Fostevina Belle 11030, A. Sydney Logan to J. B. Boshore, Fredericksburg, Pa.
Jig 8433, C. M. Weld to Eben Bacon, Boston, Mass.
Lu of Hill Top 10827, S. T. Noyes to Thomas Watkins, Littleton, N. H
Lady Sullivan 10183, Shellbark's Beauty 6727, John Maul to Chas. Solveson, Nashotah, Wis
Lady Muriel 9830, Lucile 7473, Queen Bess of Whiteside 9831, C. R. Bridgman to L. G. Moon, Stanley, Wis.
Lady Orrie 12023, J. B. Palmer to George W. Osborne. Gonic, N. H.
Little Dairo 12024, J. C. Palmer to B. E. Osborne, Gonic, N, H.
Minnie Townley 12120, S. L. Hoxie to Thos. M. Tice, Deerfield, N. J.
Minnie Townley 12120, Thos. M. Tice to James T. Mayhew, Pitts Grove, N. J.
Pride of Seneca 11977, Horace C. Disston to Richard K. Barnes, Charlestown, Md.
Trudie S. 9829, Charles Richardson to D. B. Wiley, Greene, Me.
Peterboro, N. H. WM. H. CALDWELL, Sec.

CONCERNING OUR ADVERTISERS.

NECESSARY QUALITIES IN FEED COOKERS.

A sensible little book on the subject is printed for free distribution by Messrs. Heesen Bros. & Co., of Tecumseh, Michigan. It takes up the questions of best form and materials, principles of heating, economy, convenience and safety These matters are convincingly treated in a way that makes the book of value to any farmer who is interested in getting the best results from his live stock. Write Heesen Bros. & Co., Tecumseh, Mich , for a copy, and say that the publishers of this paper advised you to.

OF VALUE TO HORSEMEN.

Do you turn your horses out for the winter? If so, we want to call your attention to a very important matter. Horses which have been used steadily at work, either on the farm or road, have quite likely had some strains whereby lameness or enlargements have been caused. Or perhaps new life is needed to be infused into their legs. Gombault's Caustic Balsam applied as per directions, just as you are turning the horse out, will be of great benefit; and this is the time when it can be used very successfully. One great advantage in using this remedy is that after it is applied it needs no care or attention, but does its work well and at a time when the horse is having a rest. Of course it can be used with equal success while horses are in the stable, but many people in turning their horses out would use Caustic Balsam if they were reminded of it, and this article is given as a reminder.

The Sure Hatch Incubator Company, of Clay Center, Nebraska, are carrying their ad. for the new season's business in these columns. We request our subscribers to read it. These people have not been in the incubator business as long as some others of our advertisers in this line, but the high quality of their machines is attested by the success they have made. It is generally supposed that a man or a machine is most successful away from home. If home success is a recommendation, and we believe it is, then the Sure Hatch people have many reasons for congratulation as their machines are used very extensively in their own county and state. Read the ad. and then write them; they may have just exactly what you want.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

HARD MILKING.

We have a fine four-year-old Guernsey cow that has had three calves. The two front teats of the cow milk very hard; can hardly start the milk at first, but it comes a little more freely towards last of milking; cannot be milked without being tied fast. Was so when she first came in. The trouble is not at the eud of teat. O. S. C.

North Aurora, Ill.

ANSWER.

Get the easiest milk tube and dilating plugs. The latter is your permanent cure. I know of nothing else to do that would do good.

POOR APPETITE.

I have a calf six months old, I feed some milk yet. I feed her some fine corn stalks, good hay and oats. She does not eat well, and is in poor flesh. She gnaws the woodwork in her stall, bleats often; bowels generally loose. L. W. W.

Paw Paw, Mich.

ANSWER.

Stop corn stalks; examine the mouth, and see if there be not a bad tooth, or teeth, and have them removed at once. Your symptoms point to an affection of the teeth. If you find no defect in the teeth, write me again, if you wish.

NYMPHOMANIA.

My mare, now nineteen years old, has excessive spells of being in heat, backs against anything, and rubs her flanks or presses her tail against herself, squeals and waters and sometimes kicks at other horses or partition. Lately, she has begun to nose the other horse when hitched double, and when started will begin to kick. C. L.

Waukesha Co.

ANSWER.

I know of nothing equal to the anti abortion and nymphomania medicine advertised in the DAIRYMAN. This is a positive ovarian and uterine sedative and sure antaphrodisiac, viz , a deaden of sexual desire. You can try four drams of false unicorn and half a dram of gelsemium in four ounces cold water. One dose each morning until the excitement stops. Wash all the extremities in cold water every morning for a few days as an adjunct.

LUMP JAW.

November 1st I noticed the left side of my cow's jaw enlarging; felt hard, extended from just below the eye to throat latch, and down nearly to mouth. Thinking probably it was lump jaw, I sent for a veterinarian. He came Thursday and pronounced it lump jaw. He advised drenching with iodide of potash, teaspoon level full dissolved in half pint water twice per day. I have been doing so, beginning Thursday evening. The jaw has been getting larger every day, until now the eye is nearly closed, and swelling extends back on the neck. Do you think lump jaw can be cured if taken in its earliest stages? Do you think the body of said cow is healthy? Veterinarian said, cut her head off and she was perfectly sound. N. W.

ANSWER.

No, actinomycosis can not be cured, and if it could, any man who attempted to breed from such an infected animal ought to be punished. There is no cure, and surely we do not wish a cure if possible. The abscess is not the disease, but the result of the disease; lumpy first, abscess second. I have in fifty years, nearly, dried up many running sores on the angle of the jaw, but they all broke out again in time. No, the meat is not fit for food.

ABORTION.

I have had four cows calve about four to six weeks before their time. One calved in March, and in July, one Nov. 7, '99; all were dead. The feed in March for rough feed, mixed hay, corn fodder, corn, oats, wheat, and bran equal parts; two in July, nothing but grass, but the Nov. F. A. Jersey has been fed the Akron feed, but about four weeks ago bloated terrible. I gave her about one quarter of a pound of baking soda on her tongue so as not to drench her and in a few minutes she was relieved. NEW SUBSCRIBER.

ANSWER.

I know nothing equal to the advertised remedies for abortion, in the DAIRYMAN. The drugs of any real account, are so potent as to be dangerous in the hands of the layman. I have too many proofs of this to try further. Besides, I don't know of any form of doctoring with any sort of mild drugs. As a general precaution and help, thoroughly wash all the surroundings in boiling water; wash the hind parts of all the aborting cows with water as hot as bearable. Disinfect with Tilden's Bromo Chloralum, one to eight of cold water, liberally.

COUGH.

Have a cow that has had a slight cough for some time. Fed some smokey hay which seemed to increase the cough, although she has not had the hay for three weeks, she coughed more than ever. It seems like an irritation in the throat. She is very hearty, eats well, is very fleshy, due to calve the 29th, of December. E. P.

Middleboro, Mass.

ANSWER.

You were much to blame for feeding such abominable stuff. Well might the poor creature cough. Immediate full dose of physic; after the physic give three drams of lobelia, fluid extract, in three tablespoonfuls of tepid water. Stop the filthy hay. Let the fluid just trickle over the tongue very gently.

SCOURS.

I have a fine Jersey cow that was taken scouring about eight weeks ago. She got some better and I thought she was getting all right but she has been getting worse now for about a week. She has a good appetite, her eyes are bright, but she is getting quite poor. Her passages are not offensive and look like finely chewed hay and water. I have been giving her Chamberlin's cholera and diarrhœa medicine for the last three days and she seems a little better this morning. I am feeding her prairie hay and oats.

Columbus, Kan. E. B. D.

ANSWER.

One quart of slippery elm tea, one quart of caraway seed tea, pretty strong, best Jamiaca ginger, three teaspoonfuls. Two doses first day, then only one until not needed. When the diarrhœa stops, if she does not eat well, write again.

COW GIVING STRINGY MILK.

I know of a fourteen-pound cow that is for sale which occasionally gives stringy and bloody milk. Would you buy her? Can anything be done to prevent it? Would heifers raised from her be likely to do the same? SUBSCRIBER.

Ontario.

ANSWER.

No, I would not buy such a faulty cow. She will be dear—more than likely—at any price. Hereditary taint and transmission would be likely to ensue. The persistence of nature to transmit defects, is quite a proven fact.

VERMINOUS BRONCHITIS.

My young cattle seem to have some trouble in their throats; seems to be a lump in throat or windpipe, which seems to choke them. I have three head which seem to be afflicted in the same way. T. McG.

Atkins, Iowa.

ANSWER.

You have the genuine and unmistakable symptoms of verminous bronchitis. If not this, I know not what to ascribe the condition you name. This is called husk, hoove, half a dozen different local names. This disease is one needing the personal examination and attention of an expert, a genuine one. Feed liberally of the most nutritious food, any or all of the good oil cakes, or oil meal. Give each morning a tablespoonful of salt, or the same amount of oil of turpentine, *well* mixed with milk or white of an egg or two. Fumigate in a close room with sulphur scattered upon live coals. Make the fumes as strong as consistent with the capacity of endurance of the animals. The attendant must keep with them and be cautious. Look to the old infected pastures, etc.

Horse Owners! Use

GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full direction for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O

FLEMING'S LUMP JAW CURE



Trade Mark.

LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of thispaper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

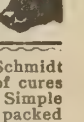


ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

Cows barren 3 years

MADE TO BREED.



Book Free. **Moore Brothers,** Albany, N. Y.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

...ANTIABORSIO...

WILL PREVENT ABORTION in Cows and Cure **SCOURS** in Calves.

One Gallon will Treat Twenty Cows Three Months. These are established facts, not experiments.

Our Remedies are Liquid Germicides, applied by sprinkling in closed stables. Cures by inhaling fumes which destroy the germs of disease.

Send for Free Booklet and Testimonials.

ANIMAL GERMICIDE CO.,
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ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

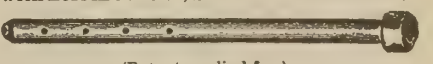
Prevents Abortion and cures Nymphomania–failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J. B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

FREE CURE FOR ASTHMA

Trial package of three special medicines Free.

Dr. W. K. WALRATH, Box 622, Adams, N.Y.

Rheumatism, Neuralgia, Gout, Lumbago AND OTHER DISEASES CAUSED BY URIC ACID IN THE BLOOD positively cured. Send for Booklet

THE SWISS-AMERICAN CO

OR WINDSOR ONT., CANADA. 4 OPERA BLOCK, DETROIT, MICH., U.S.A.

Cedar Hill Farm Notes.

Barn Building.—Cutting Corn and Oats.—Capons.—Breaking a Bull.

ED. HOARD'S DAIRYMAN:—One year ago the first of this month, we began to haul material for improving Cedar Hill Farm. At this writing we have one and two teams on road daily, hauling material for an addition to our cow barn, thirty by forty-eight feet. This building makes the fourth one we have put up in the last twelve months, not counting the hen houses. This cow barn is after our own ideas of what a cow barn should be. Our first instruction to the contractor was to provide ample light, and light we will have. There is no one thing so necessary, and so much overlooked in constructing cow barns as light. A cow confined in a barn that is semi-twilight in the middle of the day, cannot and will not do well. On the other hand, give her plenty of light, and when she has to be confined in barn owing to storms or cold, she will not shrink in milk production.

This barn will accommodate sixteen heifers and fifteen cows. They will be fastened with self-locking swing stanchions, standing facing a feed alley. This alley, as well as the ones behind the cows, will be four feet in clear; the space from floor to ceiling will be eight feet; the sides of barn will be of novelty siding on heavy felt paper; above cows will be store room for various feeds, or mill stuff. A track over head will be fitted with truck to handle sacks from wagons, saving heavy lifting. We now have barn room for all of the Jerseys on farm, and expect to make good use of our manure spreader, during next five or six months.

Our water supply for all stock will be tempered easily during cold months by steam from creamery boiler. The wind mill pumps the water from a deep well into a cistern, and in this cistern we will have a three-quarter-inch pipe from boiler, which will keep water just as we want it. Hydrants lead to various places on the farm. The cows get their supply on south side of the barn, out of way of cold winds.

As soon as our new barn is finished, we will cut what shocked corn we have with our ensilage cutter, at same time we will run through sheaf oats, mixing, half and half, as near as we can. The cutter sets so that the cut feed is delivered in barn. If we could do so handily, we would have a large box made tight, and put this cut feed in it, and steam it for the cows. I am sure it would pay.

Our capons are a very orderly set of fellows these days, and are getting down to business, laying on rich juicy meat. It is a pleasure to see them.

Our creamery is now fully fitted with shafting and piping for running all machinery from separator to sausage cutter and grind stone. We cook food for our chickens and hogs; heat water, and clean the clock with steam.

We have our No. 3 Baby separator arranged so we can run it either by steam or hand power. To do this, we clamped a twelve-inch wooden pully on the cog wheel, leaving on handle. When we wish to start separator for steam, we start the separator with the crank, then start engine and put on belt. To stop we throw off belt. When we, for any cause, do not wish to use steam, we only have to use crank as of old.

The picture of our horseless cart in DAIRYMAN issue of the 10th has brought us letters of inquiry as to how we broke the motor. Our boys just hitched him up and droye off, that was all the breaking he required, aside from his experience in our tread power.

Illinois. "BUFF JERSEY."

There is no need for either the professors or the laymen to show up the weak points of either the churn or the Babcock, though it is far wiser to acknowledge their existence than to hide them. What is wanted is honest co-operation between both these dairy implements, which will never be accomplished by abusing one implement and praising the other. The two worked together like a charm at Chicago, giving entire satisfaction, and it seems to me that all those in authority should work together in maintaining the standard then established instead of throwing down one side of the bars to give easier access to ignorant or fraudulent work. —L. S. HARDIN, in *Jersey Bulletin.*

If they worked together like a charm and gave entire satisfaction as Mr. Hardin states, then what is the use of requiring the additional labor of separating, ripening, churning, working, salting and weighing, to verify what is acknowledged to be an accurate test?

THE YOUTH'S COMPANION

The Fireside Friend in Half a Million Homes.

Special Subscription Offer for 1900.

THOSE who subscribe at once, sending $1.75, the price of a year's subscription, with this slip or the name of this paper, will receive all the remaining issues of The Companion for 1899 FREE, and then all the issues for the 52 weeks of the new year, until January 1, 1901. This offer includes the gift of the New Companion Calendar for 1900—an exquisite souvenir of the last year of the century.

TT 111



BISHOP HENRY C. POTTER.

Send us your address on a Postal and we will mail you our Illustrated Announcement Number, containing a full prospectus of the Contributors and Contributions engaged for the new volume.

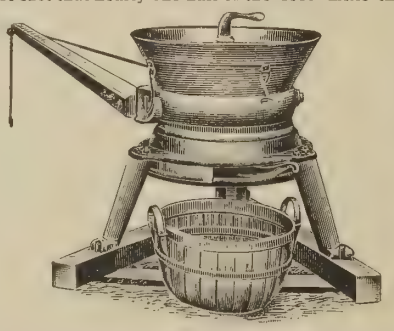
BISHOP Henry C. Potter, who will contribute to The Companion an admirable paper on "Ambitions: True and False," is but one of more than 200 famous soldiers, sailors, statesmen, scholars, travellers, trappers and story-writers who will enrich the pages of the 1900 volume.

THE YOUTH'S COMPANION, Boston, Mass.

ILLUSTRATION.

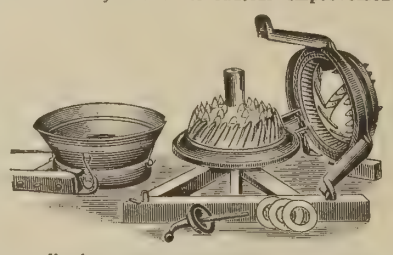
MAKING FEED GO FAR.

One of the best signs of the times, as an indication of the more careful, scientific methods now employed on the farm, is the rapidly increasing number of feed and grinding mills which are being purchased and used. It shows that the American farmer is becoming a more careful and scientific feeder. Another good indication is the fact that nearly one-half of the feed mills in

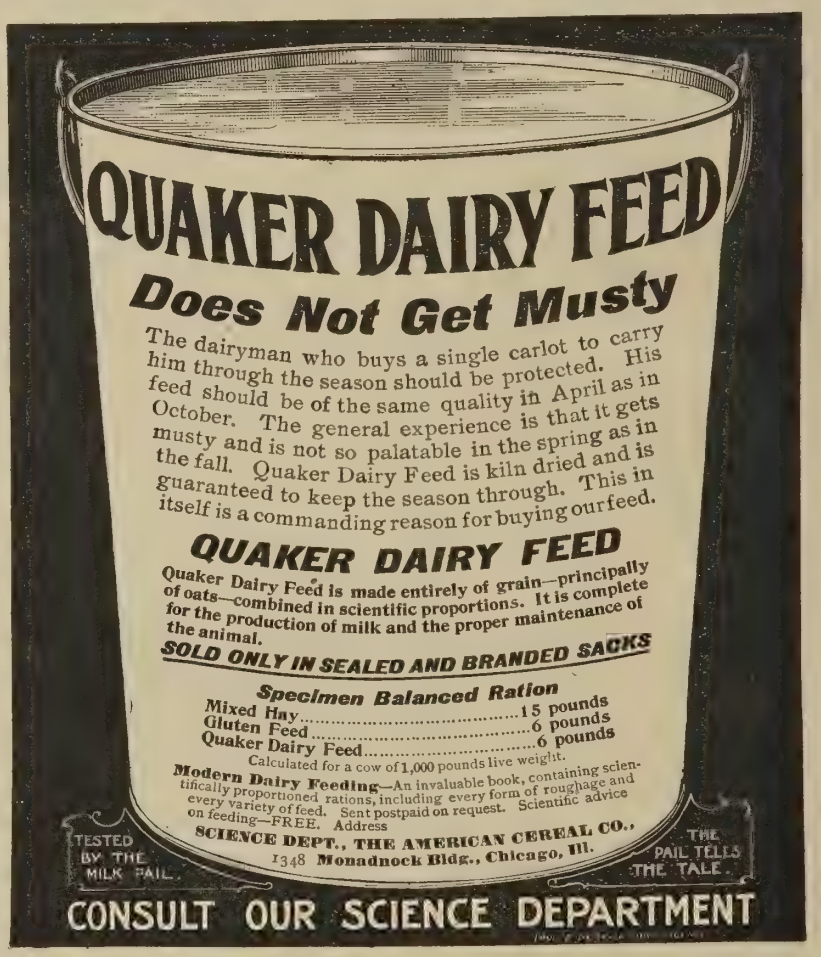


use on the farm to-day, are the old reliable Scientific, made by the Foos Mfg. Co., Springfield, Ohio, which shows that farmers are intelligent buyers, knowing a good thing when they see it.

The accompanying illustrations show the exterior and interior construction of the new Scientific Sweep Feed Mill, which has made two radical improvements this year; one is a phosphor-bronze graphite ring bearing a really wonderful invention, which practically does away with all friction all the weight and strain of the grinding being carried on this bronze ring having pockets filled with graphite. Cramping of the grinding plates is thus rendered impossible. No oil is needed as the graphite furnishes all the lubrication necessary. Another radical improvement



over all other sweep mills is the perfect ease with which the grinding plates can be removed when worn. There are no bolts, no set-screws nor keys to fuss with; all you have to do is to lift off the worn plate and drop the new one in place. You can't get it wrong; a boy can do it. This mill grinds ear corn, old or new, wet or dry, corn mixed with other grain, shelled corn, oats, etc., and owing to the peculiar dress of the buhrs or grinding rings, produces a better quality of feed with less work than any other mill made. Do not fail to send to the Foos Mfg. Company, Springfield, Ohio, for their new catalogue describing this mill, together with grinding mills of all kinds, corn harvesters, shellers, farmers' tools, etc.



HARVEY'S ANTI-SUCKING BITS

For Cows and Calves.

A Specially Constructed Hollow Bit to Prevent Cows and Calves from Drawing Milk.

Will be sent postpaid for 50 CENTS.

Will be sent as a premium for

ONE NEW SUBSCRIBER.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

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BRAND NEW

We have on hand 25,000 squares Brand New Steel Roofing. Sheets either flat, corrugated or "V" crimped.

Price per square of 10x10 feet or 100 square feet..... **$1.75**

No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.

Write for our free catalogue No. 20 of general merchandise bought by us at Sheriff's and Receiver's Sales.

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Fur Robes and Coats—We will manufacture them from your cattle and horse hides cheap Samples free. MILFORD ROBE TANNERY, Milford, Ind

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.



Catalogue 4 cts.

THE IMPROVED VICTOR Incubator

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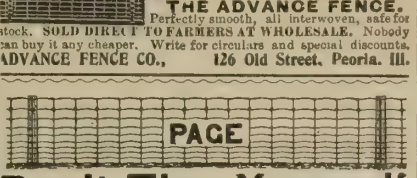
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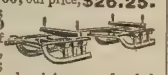
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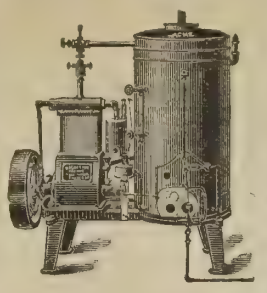


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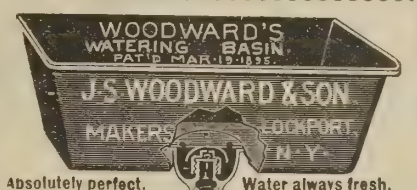
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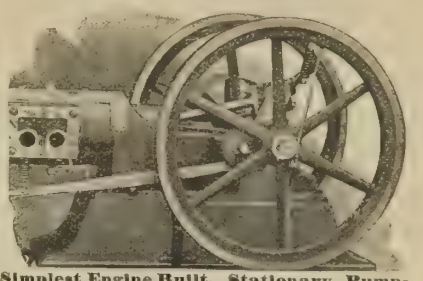
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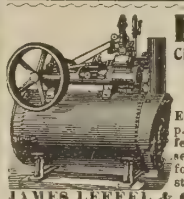
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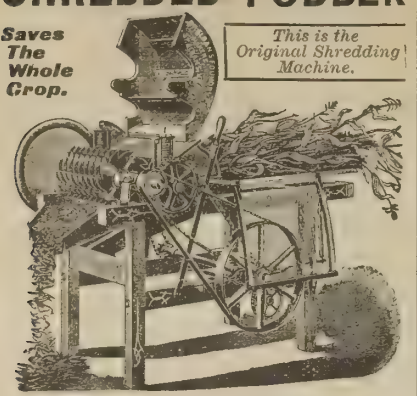
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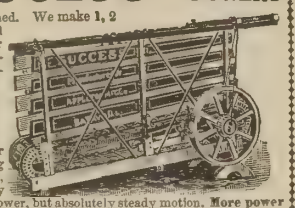
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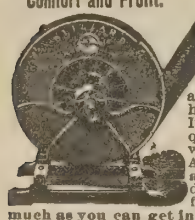
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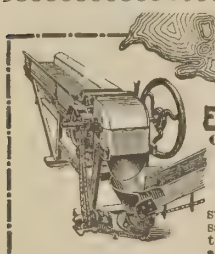
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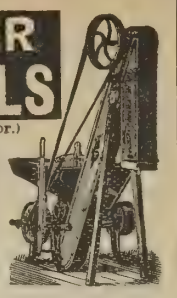


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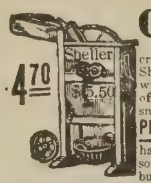


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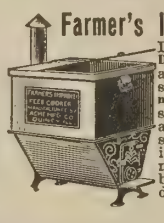
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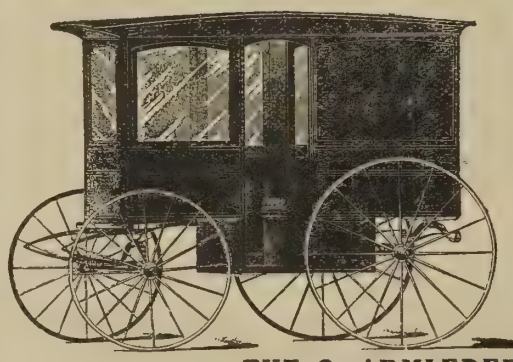
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Respectfully solicit the Agency of CREAMERIES in the New York market.
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CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
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Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Sharples Superior Specialties.

It is poor policy to buy an inferior article because it is cheap, and it is the height of folly for a creameryman to buy second grade machinery when he can obtain the very best goods on the market from us at the same prices which others are asking him to pay for machinery which has been on the "back number" list several seasons. While competition has been endeavoring to control the creamery trade by forming a trust, we have held our customers by constantly improving the quality of our goods and by furnishing them with the best to be had at the lowest possible prices. Among other superior articles we ask you to consider

THE TUBULAR CREAM SEPARATOR

which has repeatediy proven itself far ahead of any other separator made. A lack of space prevents a description of the Tubular here, but we will send you full particulars on request.

THE RUSSIAN BABCOCK MILK TESTER

is admitted by all authorities as being the most reliable Tester made. The Russian is absolutely accurate, automatic in its action, and much more rapid than any competing Tester.

THE SQUEEZER COMBINED CHURN AND BUTTER WORKER

has been brought to the highest point of excellence. Simple in construction, easily operated, easily cleaned, and enabling the finest quality of butter, it is not strange that the "SQUEEZER" is recognized as the leader of all combined churns.

THE ALL-OVER BUTTER PRINTER

is something new,—a printer which prints all sides of a butter brick in less time than the ordinary printer prints one side.

THE SHARPLES DAIRY SEPARATORS

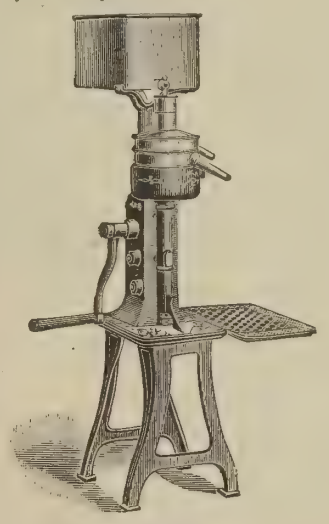
are the only practical separators for farm use and the ones which a creameryman can sell to his patrons without fear of being bothered to death on account of complaints which always come from farmers who have been induced to use the complicated machines of our competitors.

Write for catalogue and circulars.

THE SHARPLES COMPANY,
28, 30 and 32 S. Canal St.,
CHICAGO, ILL.

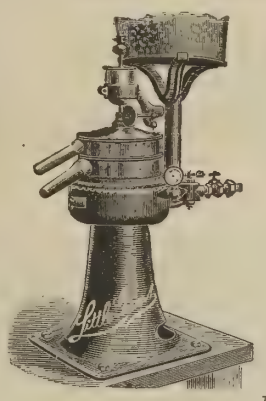
The Moody-Sharples System

will net the farmer from eight to twelve cents more per hundred pounds of milk produced by his dairy, than either of the older methods, and this without including the increased value of skim milk by this system. This system means simply that each farmer owns a



SHARPLES DAIRY SEPARATOR

and has a skimming station right in his own home. The advantages of this arrangement are obvious and numerous. It saves all the hauling of the whole milk to the creamery and the skim milk home. This hauling alone adds about 2½c per pound to the expense of making the butter. The skim milk is kept at home, where it properly belongs, fresh and sweet and in the most valuable feeding condition. This milk, being from your own herd, is free from any disease germs arising from contaminated herds or from the common skim milk tank. Then, too, the saving in time is something deserving grave consideration. Now as to the separators: Only the Sharples Dairy Separators are used in this **Moody-Sharples System.** These are of two kinds, both of which are shown here. The **SHARPLES SAFETY HAND** and the **LITTLE GIANT SEPARATORS.** The first, as its name indicates, turns by hand, but is so constructed that a pulley may be placed on either side for power when desired. The capacity is 300 and 600 lbs. per hour. The other machine is driven by a steam jet from an ordinary farm boiler—which has many other important functions and uses in a dairy—and requires no engine to run it. The capacity of this machine is 300 and 600 lbs. per hour also. Both are unequalled for closeness and economy in skimming. We have gathered together and published in a neat pamphlet the experiences and advantages of this Moody-Sharples System and mail it free to all interested parties. Send for a copy.

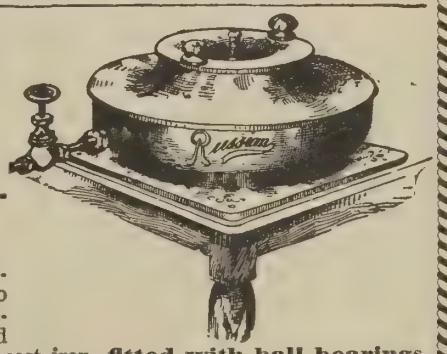


Write for Catalogue No. 46.

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P. M. SHARPLES, West Chester, Pa., U. S. A.
D. DERBYSHIRE & Co., Brockville, Ont.

....IT HAS MADE ITS REPUTATION....

THE **RUSSIAN BABCOCK TESTER**



is in use in the best and largest creameries in the United States.

It does rapid work and does it accurately. It is built for the man who has become tired of the old rattle-trap tin tester that must be renewed every year or two. It is made of cast iron, **fitted with ball bearings and accurate glassware.** Send for illustrated Catalogue, No. 51.

We are prepared to repair all cream separators and have the most experienced men for this kind of work.

ELGIN MANUFACTURING CO., ELGIN, ILL.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.

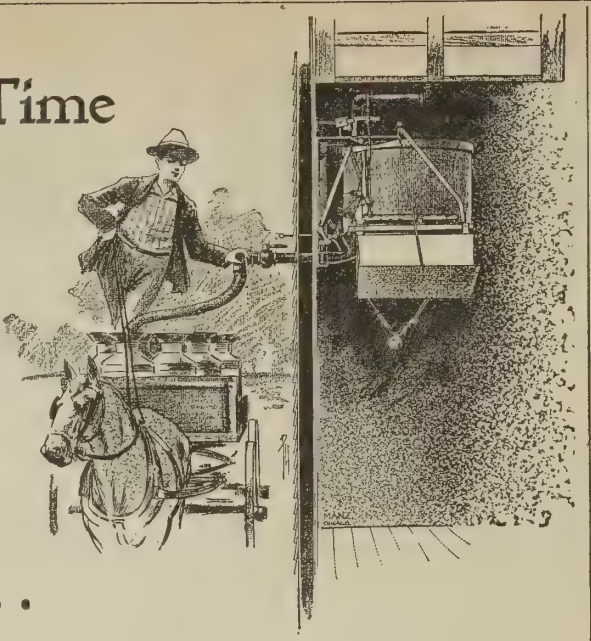
You can Measure Time

With a clock.

You can measure cloth with a yard stick.

You can measure grain with a peck measure.

But liquids cannot be measured by any of these methods. **The only absolutely accurate standard** under all conditions is that of WEIGHT.



Our IDEAL WEIGHER . .

Distributes Skim Milk on this Basis. It is Convenient, Accurate and Rapid. We are so sure that it will please you, that if after using it 30 days it does not, you can send it back.



"Ideal Jar Cup Finish.

IN OUR MILK DEALERS' SUPPLY DEPARTMENT can be found everything necessary for the Dairy or Milk Depot. Try our "IDEAL" Milk Jars and Caps. We know our Jars are stronger, of better shape and color, than any other. Write for our special Milk Dealers' Price Current. Also our little booklet, "*Suggestions to the Milk Dealer*," Free.



Printed Pulp Cap.

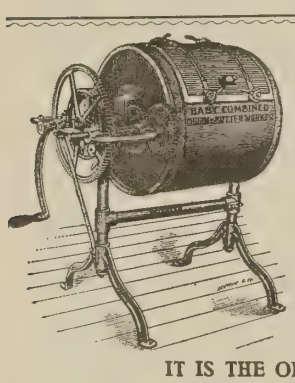
Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

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BRANCH HOUSES:— Minneapolis, Minn. Waterloo, Iowa. Kansas City, Mo. Omaha, Neb.

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We are General Agents for Hansen's and W. & R. Butter Color.



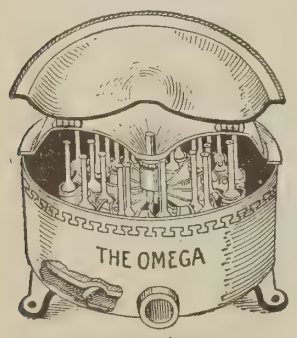
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.



BABCOCK TESTER.

FOR LATEST IMPROVED

Creamery Apparatus,

Pasteurizers, Milk Weighers and Alpha Cream Separators, write to

A. H. BARBER MFG. CO.

229 S. Water St., CHICAGO.

Refrigerating Machines for Creameries, Meat Markets, Hotels and Ice Making Plants.

YOU CAN PREVENT BLACKLEG

among your cattle by the use of Parke, Davis & Co.'s **BLACKLEG VACCINE.** Every lot is tested on cattle and found reliable before a single dose is put on the market. It will prevent **BLACKLEG** if fresh product is used, the same as vaccination prevents Smallpox in the human family. Operation simple, and easy to perform. Specify P. D. & Co.'s, and get the kind that is always reliable. For sale by all druggists. Write us for literature and full information, free on request.

PARKE, DAVIS & COMPANY, Detroit, Michigan.

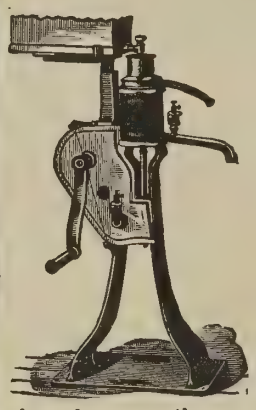
BRANCHES: New York City, Kansas City, Mo., Baltimore, Md., New Orleans, La., Walkerville, Ont., and Montreal, Que.

The Reasons for the Superiority of the

Improved United States Separators

are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



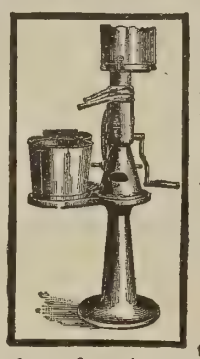
For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS

embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

The rapid increase in sales is phenomenal. None can truthfully boast of such a record.

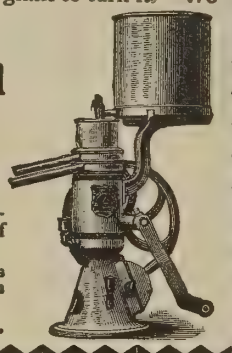
VERMONT FARM MACHINE CO., Bellows Falls, Vt.



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators

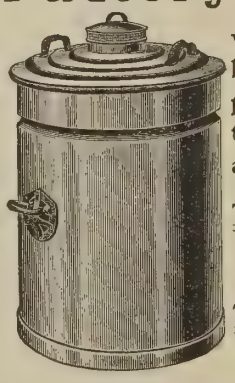


to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Factorymen

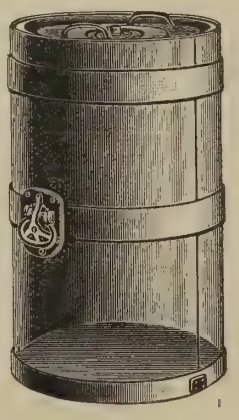


EMPIRE STATE.

who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



UNION.

—MADE SOLELY BY—

OAKES & BURGER, - Cattaraugus, N. Y.

Manufacturers of DAIRY APPARATUS AND SUPPLIES.

PRINT BUTTER Should be wrapped in . . . GOOD

Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

OUR readers will remember that in August we gave the record of the two-year-old Jersey heifer, Queen Felch 4th, owned by the senior editor of this paper, from Jan. 10th to Aug. 23d. In that length of time the heifer gave 5,690 pounds of milk, averaging five per cent butter fat or the equivalent of 330 pounds of butter. The heifer completed her record on the 12th of the present month. Her milk yield from Aug. 23 to Nov. 12 has been 1,104 pounds, averaging more than 5 per cent. But we have taken the average of the butter fat for the entire season to be 5 per cent, although it exceeded that figure. Her total milk yield, was 6,794 pounds; butter fat yield 339.70 pounds; butter equivalent, 396.31 pounds. Here is a two-year-old heifer giving in ten months considerably more than double the amount of milk that the average cows of the great state of Wisconsin yield. But this is not all, for she came within fifty-four pounds of producing three times as much butter as does the average cow of this state. The heifer is an illustration of the value of heredity, and also of the value of feeding a balanced ration. She has been kept on a moderate ration of bran, gluten meal and oil meal, about seven to eight pounds a day, except through the summer weather when she has had a light feed of about three pounds of bran a day.

A CHANCE FOR JUDGMENT.

We present this week cuts of two Guernsey cows, the property of L. V. Axtel, of Perry, Ohio.

It would be difficult to find more beautiful or more typical representatives of the Guernsey breed, and their records at numerous state fairs show how highly they have been held by the various judges who have passed on them.

Some time since the DAIRYMAN asked its readers to judge on two animals of the Jersey breed. The result was a very interesting discussion of the relation of form to performance.

Here we have a still more difficult problem, in that the close resemblance of the animals will tend to deceive the eye. But in spite of this we ask the readers of the DAIRYMAN to pass judgment on these animals and let us know which they consider is the better cow, and on what grounds they base their decision.

Notes from the Sigworth Farm.

Oleo—Smear Case—Fall Pasture—Exercising the Bull.

ED. HOARD'S DAIRYMAN:—A customer of mine showed me a sample of what she called patent butter and said her family liked it but she did not relish it. I looked at the package and it was oleomargarine, from Chicago.

This, my first known acquaintance with our friend, I smelt of, then tasted, then took a slice of bread and plastered it liberally and ate it and I am compelled to say it was better than most butter sold through the stores and, had I not known what it was, would have thought it fair dairy butter. It was better than the butter I had for dinner that day at one of the first-class hotels. With butter at twenty-seven cents it is impossible for a common laboring man, with a large family, to supply them with butter, so it is either oleo or none, as a difference from ten to twelve cents per pound is quite an item.

Now is it right and fair to deprive these people of a product they relish? I say no, but let us try to compel it to be sold for what it is and without coloring, and if hotels use it, compel them to post notices to that effect.

The DAIRYMAN, of Nov. 10th, quotes Mr. Fuller on making cottage cheese. We call it smear case, and have built up a good trade in it. Buttermilk makes the nicest, but we do not have enough of that so we mix sweet milk with it. We always skim our milk while sweet and when it is all sour we set it on the back of the stove, and soon as the curd separates from the whey we put it in a clean, thin, muslin bag and let it drain until it is dry, then pack it in one quart, paper oyster pails and sell for ten cents per quart and if the customers want it we furnish cream to mix with it.

Smear case is a Pennsylvania-Dutch dish and with saur kraut (we have two barrels of the latter) and mush is found on Pennsylvania farmers' tables. In fact, as good and healthful a breakfast as I want is fried mush and smear case.

Nature is balancing up things a little this fall; pastures were dried up during the summer and early fall, then about the first of October, when the rains set in, they took on a wonderful growth and now, November 16, we have had no snow and but a few light frosts and our dry cows and young stock are running in the pasture and refusing to eat fodder, and although we have stabled our cows for a month we have fed but very little hay or fodder. Right here I want to give a little experience in feeding some corn that we had planted for soiling and did not need and let glaze. When we cut and shocked it I was away for a week and the boys supplanted the corn by a lot of pumpkins and when I returned wife said our milk had shrank about one-half and we would not have butter enough for our customers.

This latter is a condition I do not like. I do not want the women after me, so I began feeding some fully matured, but not large eared, corn without being husked, about twelve ears per day to each cow. This with their usual mess of bran made a quite liberal ration. The next week we almost doubled our butter yield.

I have put two hundred and fifty shocks of corn in my barn, and I intend letting my cows and horses husk it for exercise this winter, and by letting small pigs follow after I think I'll not only save the cost of husking, but also the toll. Buff Jersey's idea of working the bull is all right if you have lots of time to spare. A good horse is easier handled, and will do twice as much work. Now I have a light chain forty feet long with a ring at one end and tie at the other. I have a pointed iron bar 1½ inches round, five feet long. This bar I jam firmly in the ground, near a shade tree, I use my orchard, put the ring over it, then carry him his feed and water, or move him every few days. You do not need to unfasten him to serve a cow. I have used this plan for fifteen years, and can pull up my stake and Mr. Bull will pull his chain to the next tree, and it is all done in a minute.

Franklin, Pa.

How does the above writer know that he was served with butter at that "one of the first-class hotels?" The probabilties are that it was oleomargarine.

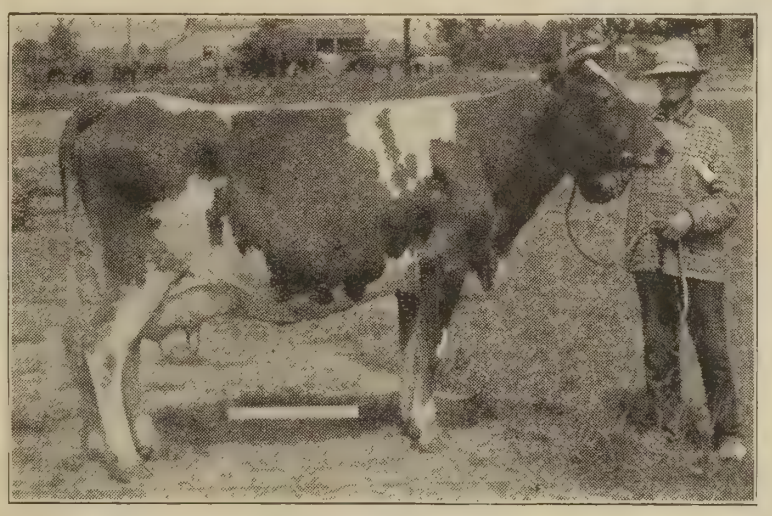
Further, what basis has he for saying that the common laboring man cannot supply his family with butter at twenty-seven cents per pound? How much butter does a family need to consume per week?

In the report of the Storrs' Agricultural Experiment Station for 1895, are the records of the actual consumption of various food stuffs by families. One of these, covering a period of nine and two-thirds days, is a farmer's family in Vermont, consisting of one man 84 years old, another 44, another 20, a woman 44, two boys 17 and 13, and two girls 10 and 2—in all eight persons, but all of them did not take three meals per day at home; the total number of meals being 179—or the equivalent of eight persons for seven and one-half days. In this time, this family used three pounds of butter. If oleo could be had for ten cents less per pound than butter, the saving by its use would amount to the extravagant (?) sum of four cents per day, or one-half cent per day for each member of the family. If economy must be practiced, let the laboring man eat more cheese and less high-priced meat.



COUNTESS OF LEVEL GREEN, A. G. C. C. 4198.

Property of L. V. AXTEL, Perry, Ohio.



MY LADY BALTIMORE, A. G. C. C. 7829.

Property of L. V. AXTEL, Perry, Ohio.

SCIENCE, FALSE AND TRUE.

For some unknown reason, the men who look with scorn upon book farming and experiment station science, are just the ones who pay out money eagerly if a fake is presented to them, wrapped up in a mist of scientific jargon. This is especially true if a few chemical terms are mixed in to give it the appearance of a scientific explanation. The following is a good example of a scientific explanation that does not explain:

"The separation of the globules of butter by the — — churn is accomplished by a steady current of air being forced through a tube * * * * * which immediately dissolves the albumen capsules, liberating the butter * *. The oxygen in the air is taken up by the hydrogen in the milk which forms peroxide of hydrogen which immediately dissolves the albumen capsules enclosing the butter globules, thus liberating the butter."

This sounds very intelligent, but it is all "sound," signifying nothing.

It would be hard to put together a sentence containing a more incorrect explanation of the formation of butter. Here is another explanation from the same circular:

"In the first place, Nature never intended that milk should sour or become putrid before the butter should be extracted, as Nature makes no mistakes, and if the souring of milk had anything to do with the formation and detail of the production of fat oils (butter), Nature would not have completed the production in the udder of the cow, on the contrary, the souring of the milk or cream, meaning the putrid decomposition of the milk or cream, makes it a scientific impossibility to separate chemically pure butter from the milk or cream, after the chemical change begins to take place.

The farmer says: "I know that, but what are we going to do? We could churn sweet cream from now until doomsday, and never get butter. We do not believe it is possible to separate, with any kind of a machine, all the butter contained in sweet cream."

By the aid of such stuff as the above, dairymen are tricked out of their money and induced to buy a machine that is discarded in a few weeks.

Why is it, that when called upon to decide between helpful, scientific advice as given by the experiment stations and such science(?) as the above, the farmer so frequently selects the false and pays heavily for it as well? The men who put out such circulars are after money. Their science is the science of getting money out of the farmer, and they succeed only too well.

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Coming Events.

Pennsylvania Dairy Union, December 5-6, 1899, West Chester, Pa.
Indiana Dairyman's Association Dec. 7-8, Cambridge City.
Pennsylvania Dairymen's Association, Union, Dec. 5-6, 1899.
Polled Jersey Cattle Company, Cedarville, Ohio, Dec. 6, '99.
Maine Dairymens' Association at Lewiston, December 11-13.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.

THE New York and Jersey City milk dealers have combined and formed an association or trust under the name of the Pure Milk Company with a capital of $30,000,000, on paper. This is probably a reply to the $30,000,000 capital of the Five States Milk Association. The outcome will be well worth watching. There is no doubt that the New York dealers have had the milk producers of the five states at their mercy. It will be a big fight, with the victory uncertain.

From the New York Catskills.

What Kind of Corn for Silage.—Ration Formula.

ED. HOARD'S DAIRYMAN:—Kindly prescribe ration for medium sized Holstein cows, all of whom have been in milk for three months, and some of them for five and six months. I have only first quality timothy and clover hay for roughage. Can purchase grain as follows: Bran, $19.00 per ton; corn meal, $20.00; wheat middlings, $20.00; cotton seed, $20.00.

I have always been a very careful reader of your excellent paper, and have derived much benefit from such reading. I have a silo, but the past season proved a failure, as the frost came very early and ruined the corn for silage.

It is a mountainous country here among the Catskills, but I think dairying is profitable even here. Will you kindly let me know what variety of corn I should grow, also whether the corn should be planted in hills or drilled in. We find that we get more stalks to the acre by drilling it in, but get no ears whatever. Now then, the question is, would a less amount of stalks to the acre and plenty of well eared corn, or more stalk and less corn furnish the most feeding value; the latter plan or the former? Is well eared corn enough more valuable to make up for the absence of the stalks? Do you recommend graining cows during the time they are dry before calving?

I have been in the habit of plowing in the fall, and drawing the manure on the land direct from the stables. Is this the correct method, and do I lose any of the value of the manure? J. H. B., JR.

Green Co., N. Y.

Experience seems to have demonstrated that the corn plant does not come to its best estate, except as a fair amount of ears are developed. And especially for silage of good quality is it necessary for the plant to reach a fair degree of maturity. Therefore all the authorities agree that for best results a variety of corn should be planted which will ripen fairly well—reach at least the roasting ear stage—and should not be so thick on the ground as to arrest the development of a moderate sized ear on each stalk.

We do not recommend feeding grain to dry cows, unless necessary to keep or bring them in good condition.

The trend of authority at the present time is against bare fields in winter, or at any other time, but if one plows in the fall, he should seed with something that would make a covering crop. This, of course, is impossible where one plows late in the fall, as we are now doing in Wisconsin.

If the land is fairly level, there will be no appreciable loss of fertilizing value by drawing manure direct from the stable from day to day.

We suggest as an average daily allowance for cows, that have not shrunk too much in milk, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	16.06	.96	7.92	.32
4 lbs. ground corn	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	24.98	2 52	12.47	78

Ice-House Questions.

ED. HOARD'S DAIRYMAN:—Would like to ask the readers of the DAIRYMAN a few questions. My ice-house is 11 feet square and 10 feet high, but don't keep the ice well. I was thinking about digging down about six or seven feet, and wall it up with brick so the sills will rest on the wall. My house is on a northern slope with splendid chance to drain

Have any of the readers of the DAIRYMAN ever tried this plan, and will they be kind enough to tell me through the columns of the DAIRYMAN, the best dairy paper that is printed, how this plan works? L. S. C.

Shelbyville, Ill.

It is very doubtful whether this plan will keep the ice from melting, unless an air space is made between the sides of the pit and the ice. The earth is a good conductor of heat, and thus would be a source of great waste. We wish that some of the DAIRYMAN subscribers, that have had experience, would write and give us the benefit of it. What is the best way to pack ice at small expense?

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	Digestible nutrients: Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

AN IOWA RATION.

I am feeding a mixture of 500 pounds gluten meal, 500 pounds bran and 1,000 pounds oats, with a very little wheat, and for rough feed, timothy hay or shredded corn fodder. I wish to know the proportion to make a balanced ration with oats at 21 cents a bushel, corn at 25 cents, gluten meal $18 per ton, and bran at $10 per ton.

I would as soon use some corn if it will do.

Janesville, Iowa. J. E. R.

Oats at 21 cents per bushel, will cost when ground, not far from $14.50 per ton, and one cannot afford to feed them when bran can be had at $10. Also it is a difficult matter to find place for corn in a ration where the roughage is timothy hay and corn stover. By consulting the answers to correspondents who have clover hay or other roughage comparatively rich in protein, it will be seen that we often recommend the use of corn.

In the formula which follows we have taken this inquirer's letter just as he writes it, specifying gluten *meal*, which has fully 30 per cent more digestible protein than gluten feed. The visible distinction between these is that the former has no corn bran or corn hearts, both of which appear in gluten feed.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs timothy hay	8.63	.28	4.34	.14
10 lbs shredded stover	5.95	.17	3.24	.07
8 lbs bran	7.05	1.00	3.09	.24
3 lbs gluten meal	2.75	.77	1.30	.18
Totals	24.43	2.22	11.97	.63

A TEXAS RATION.

Please give ration for cows from the following feeds. Cotton seed meal, $20.00 per ton; dried brewers grain, $15.33; cotton seed hulls, $6.00; sugar cane or sorghum, $9.00, and wheat bran, $18.00. M. L. R.

San Antonio, Texas.

We suggest a trial of, say, 2½ pounds cotton seed meal, 4 pounds dried grains, 3 pounds bran and 5 pounds hulls, all to be mixed and fed half at night and half in the morning, with as much of the cane hay as each cow will eat, which will probably be from 15 to 20 pounds.

ANOTHER CORN BRAN.

In the issue of November 17, M. D. M. asks about gluten meal and feed, and you explained how a kernel of corn may be divided. We have here a distillery, which is selling what they call "corn bran," which is what is left on the screens in grinding. It has the hearts, some small pieces of corn, and still remaining to the hull or bran a portion of the next layer of, or part of, corn, as divided by you and called gluten.

Can you give me any information as to what its digestible nutrients are? Can get it at $8 per ton. Have bought a carload of mixed feed or bran and middlings run together as ground. Can you give me its digestible nutrients? Have Prof. Henry's book on "Feeding," but the first mentioned feed is certainly much richer than the corn bran generally on the market, and I know not in what proportion the refuse of wheat is middlings and bran. B. P.

Hartwell, O.

Prof. Voorhees, at the New Jersey Experiment Station, found that in 100 parts of corn (see Prof. Henry's "Feeds and Feeding," page 124) there were 5.6 parts skin (bran), 10 2 parts germ (hearts), and 84.3 parts starchy parts. Assuming that there is enough of the gluten and starch in the material described by our correspondent to equal one part of the germ, 100 pounds of it would contain 90 pounds of dry matter, in which there would be approximately the following amounts of digestible nutrients:

Protein.....8.5 pounds.
Carbohydrates.....60.7 pounds.
Fat.....5.7 pounds.

It would appear from these figures that this feed would correspond very closely with oats in feeding value, and would be cheap at the price stated.

We do not succeed in finding any table, which gives the relative amounts of bran and middlings that result from making flour from wheat. It is probable that these vary quite considerably with the quality of the wheat and the system of grinding and bolting. It would not be a very difficult matter to take a sample and with a seive having a proper mesh separate the bran, and by weighing this and the middlings separately ascertain exactly their proportions.

A WASHINGTON RATION.

A. M. F., Redmond, Wash., has mixed clover and timothy hay, ($7.00); and can buy bran, ($16.00); shorts, ($18.00); oil meal, ($40.00), and wants formula for ration for cows fresh this fall, and weighing 800 to 900 pounds.

We should aim to feed about ten pounds of bran daily, and just as much of that mixed hay as each cow would eat, and be extremely careful not to put more hay before any cow than she will eat without waste.

A NEW JERSEY RATION.

Please formulate a ration from the following: Corn fodder, corn meal, buckwheat, middlings, $16 per ton, wheat bran, $20 per ton; could have corn and cob meal by hauling nine miles and giving one-eighth for grinding; can grind my own corn meal; or would it be cheaper to buy oats at 32 cents per bushel in place of middlings or bran.

Locktown, N. J. G. R.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn stover	14.90	.43	8.10	.18
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. buckwheat middlings	4.37	1.10	1 67	.22
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	25.46	2.32	13.03	.64

If the stover is neither cut nor shredded, it will be necessary to feed much more than is specified in the formula, in order to compensate for what is rejected.

A MICHIGAN RATION.

Please give me a balanced ration, (cows weigh from 700 to 1,000 pounds,) from the following feeds: Cotton seed meal, oat feed or shorts, and corn cob meal for grain, and for coarse feed, shredded corn fodder; have wheat straw that I can feed if you think I had better, but have no hay. J. M.

Salem, Mich.

Where one has only corn stover and wheat straw for roughage he must expect to feed more liberally of grain than when he has clover hay. The cow is not so much of a machine that she can turn out a satisfactory quantity of milk unless supplied with the proper raw material for making that milk. We therefore suggest a daily allowance which shall average for each cow, say, 5 lbs. oat shorts, 6 lbs. corn and cob meal and 2 lbs. cotton seed meal; to be supplemented with all the corn stover and wheat straw they will eat.

A QUESTION OF FEEDS.

I mail to you to-day two small samples feed marked No. 1 and No. 2. Have bought No. 2 at different times under different names; am not familiar with No. 1. Which do you consider the better feed for milch cows, No. 1 at $16.60 per ton or No. 2 at $15 per ton? Also what is the proper name for each? I contemplate buying a feed grinder and using shelled corn at forty cents and oats at twenty-

eight to thirty cents per bushel in preference to either No. 1 or No. 2 for six cows. Do you consider it advisable, provided of course that I can always get as pure an article as "samples" at this same ratio with corn and oats? C. L.

Chicago.

Sample No. 1 appears to be a good quality of gluten feed. Sample No. 2 we are unable to name but are suspicious as to its being of equal value to No. 1. It seems to have an excess of bran in it, and to be a preparation of white dent corn and corn bran. It would be well to send a sample to the Illinois Experiment Station and have its value determined.

It will depend on whether you have another source of protein. If you have no clover or concentrates high in protein, you cannot feed a balanced ration with only corn and oats to add to the usual roughage. If you have plenty of oats, it will pay to sell some of them and buy bran, or other concen trated feed, rather than go to the expense of grinding.

WILL IT PAY TO FEED GRAIN WITH ALFALFA HAY?

F. M. F., of San Felipe, Cal., has an abundance of first quality alfalfa hay and mangels for his cows, and can buy rolled barley and wheat bran, each at $18; wheat middlings, $21; corn meal, $27; oil meal, $30; cocoanut meal, $25. He asks whether it would be profitable for him to feed any of the above, and if so, how much, when milk brings $1.05 per hundred.

We cannot say positively, but all the analogies indicate that it would be profitable. There are two leading facts to be considered in every feeding problem.

One of them is that a cow requires for her best work a definite quantity of feed, both in weight and bulk That we cannot determine accurately, in every instance, just what this should be, or cannot always conveniently furnish it,is no reason why we should not approximate to it as closely as possible.

The other fact is, that there is a best proportion in which to supply the different nutrients. Nobody knows, to a certainty, as yet, what this proportion is, and the probabilities are that it will vary more or less with varying circumstances, and possibly with individual cows.

The storage capacity of a cow's stomach will allow her to eat about twenty-five pounds of dry hay or straw in twenty-four hours. In that amount of alfalfa hay there will be on an average about the following amounts of digestible nutrients:

Protein	2.75 lbs.
Carbohydrates	9.90 "
Fat (ether extract)	.30 "

By consulting the tables on page 754, it will be seen that this is somewhat more protein and less carbohydrates and fat than the standards call for. We are of the opinion that such a distribution of nutrients would be found very ineffective in Wisconsin, but are somewhat less positive as to results in California, or other mild climates, where it requires less carbohydates and fat to keep up the body temperature. We should be very glad to have F. M. F. try the experiment for a month or more of feeding half of his herd a mixture of equal parts by weight of bran and corn, at first two pounds per day, and gradually increasing to six or eight pounds, and note first, how much less hay they eat, and, second, how much more milk they give, and report results for publication in HOARD'S DAIRYMAN.

A WISCONSIN RATION.

Short on hay, but have plenty silage, oat straw, gluten feed, oats and barley and of course can buy good bran, but as oats have ten per cent more feeding value at the same price, I presume it is advisable to feed oats in conjunction with some bran. Is this correct? H. R.

Stone Bank, Wis.

If we assume that these cows will eat forty pounds of silage and six pounds oat straw in twenty-four hours, there will remain to be furnished by other feeds about 1.7 pounds digestible protein, 4.5 pounds digestible carbohydrates and .37 of a pound of digestible fat, and the problem is to get these nutrients as cheaply as possible. It will require fully four pounds gluten feed, five pounds oats and four pounds barley, or five pounds gluten feed and five pounds bran to furnish these nutrients, and the question is, which will cost more, one pound gluten feed and five pounds bran, or five pounds oats and four pounds barley, both ground. We can only say, compare the two formulas which follow and make your own choice:

I

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
6 lbs. oat straw	4.55	.07	2.32	.05
4 lbs. gluten feed	3.69	.82	1.94	.14
5 lbs. oats	4.45	.46	2.37	.21
4 lbs. barley	3.56	.35	2.62	.06
Totals	26.81	2.22	14.85	.74

II

40 lbs. silage	10.56	.52	5.60	.28
6 lbs. oat straw	4.55	.07	2.32	.05
5 lbs. gluten feed	4.61	1.02	2.42	.18
5 lbs. bran	4.41	.63	1.93	.15
Totals	24.13	2.24	12.27	.66

WEIGHT OF SKIM MILK AND WHOLE MILK.

One of your readers asked me how it was that milk with the cream out, or skimmed milk, weighed more than new milk with all cream in. I could not answer correctly. I told him I would write the DAIRYMAN for an answer. Many out here doubt it. So will you be kind enough to tell us all about it?

Colorado Springs, Colo. G. S. P.

Skim milk weighs more than whole milk, because the fat in the cream is lighter than the mixture of water and the other milk solids. When the fat is removed the residue is heavier than when the fat is mixed with it, just as a bushel of a mixture of corn and bran is lighter than a bushel of corn alone.

The following table shows the weights of the different liquids per gallon:

	Pounds.
Water	8.33
Milk	8.60
Butter fat	7.50
Skim milk	8.70
Cream, 20 percent fat	8.46
Cream, 50 percent fat	8.10

It is seen that the more fat milk contains the less it weighs per gallon.

A KENTUCKY RATION.

I can get mixed bran, i. e., wheat middlings mixed with straight bran, at same price as straight bran. At the same figure, isn't mixed bran better and cheaper? If so, please send balanced ration combining corn meal and clover hay and mixed bran at $22 per ton. Is cotton seed meal for butter production an economical feed? If so, please make up ration combining this with above feeds. H. T., Jr.

Fayette, Ky.

If cotton seed meal can be had at less than $30 per ton, and it ought to sell in Kentucky at about $20, we should use it well up to the limit of safety, instead of all bran or mixed bran and middlings at the price named. Doing this, bran would be preferable to mixed feed and the following might be used as a suggestion:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.26	7.16	.34
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. bran	1.76	.25	.77	.06
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	24.10	2.51	10.79	.71

Do not start in with two pounds cotton seed meal at first. but commence with less than a pound a day and increase gradually, taking not less than two weeks to get up to the full amount. We specify corn and cob meal in order to increase the bulk of the ration. If pure corn chop is used, reduce the amount by a pound and add a similar amount to the bran.

It may be observed by some of our readers that the carbohydrates are below the standard, but this is a Kentucky ration and in that climate less feed is required for maintaining the body temperature than would be required further north.

A VIRGINIA RATION.

Will you please give me a balanced ration for my Jersey herd? Cows weigh from 700 to 900 pounds each. I have the following feeds on hand: Wheat bran and middlings, cost $16.25 per ton. Shall also have some cob meal. Have corn silage, mixed clover and timothy hay, corn stover, wheat and rye straw. D. B. H.

Lincolnia, Va.

We do not see how a satisfactory ration can be made from the above feeds, without the addition of cotton seed meal or some other similar feed stuff carrying a high per cent of digestible protein. As well attempt to make bricks without clay as to secure a satisfactory milk flow without a proper amount of protein in the feed supplied to the cow. Therefore we suggest for trial as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6.27	.27	3.39	.21
5 lbs. hay	4.27	.24	1.98	.08
5 lbs. stover	2.98	.09	1.62	.04
6 lbs. bran	5.29	.75	2.32	.18
2½ lbs. cotton seed meal	2.30	.93	.43	.21
Totals	21.11	2.28	9.74	.72

Most likely the cows will eat some straw in addition to the above.

ALFALFA FOR SILAGE.

Could I increase the flow of milk by siloing the third crop of alfalfa hay, and by feeding it to my milch cows as ensilage instead of hay? If so, kindly advise me how to prepare the alfalfa for siloing. The third cutting of alfalfa hay is considered far superior for milch cows, in this section of the country, than either the first or second cuttings. We don't get a fourth crop here. F. A.

Montclair, Col.

If the third cutting of alfalfa is so much superior to others for hay, and the season for cutting it is propitious for hay making, we would continue to make that into hay, and use one of the other cuttings for silage, choosing that one which it is most difficult to make into first quality hay.

There is no special preparation required. Cut the alfalfa when in fullest blossom, haul it to the silo, run it through the cutting box, elevate into the silo, spread quite evenly, keeping the sides the highest, and compact the outside by tramping more there than elsewhere.

If your alfalfa is very dry, it may be necessary to add water to it when being put in the silo. Ten to twenty gallons of water per ton of alfalfa, distributed as evenly as possible over the cut alfalfa, will soften it and enable it be packed closer.

Whether the flow of milk is materially increased, will depend upon several considerations aside from feeding some silage in lieu of all hay, but it is universal experience that there is no way in which milk can be produced at so little expense, as by liberal feeding of good silage.

IT CANNOT BE DONE.

Please formulate me a ration from "D" ships, hominy and gluten meal; another with barley screenings added.

J. W. YOUNGS.

Without knowing what kind of roughage is available, it would be a veritable leap in the dark to attempt to suggest what kind, or the amount, of concentrates to use. Moreover, "D" ships and barley screenings are altogether too uncertain in composition to warrant one in prescribing their use.

A VIRGINIA RATION.

Will you please give a balanced ration made from the following feeds: Whole corn silage; wheat bran, $18; gluten feed, $19; cotten seed meal, $25 and cut corn stover, with wheat straw at will. What values should I put on the silage and corn stover. Raised about 10 tons silage and 10 barrels corn per acre. H. T. P.

Virginia.

Cotton seed meal should not cost $25 per ton in Virginia. When it sells at that price there, somebody is making unconscionable profits.

Nothing is given with which to compare the relative values of silage and stover. We count 2 to 2½ tons of silage equal to one ton of timothy hay in feeding value. Of course much depends upon quality.

For cows not too long in milk and of reasonable dairy ability the following would be the minimum daily allowance in addition to straw at will:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6.27	.27	3.39	.21
10 lbs stover	5.95	.17	3.24	.07
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. gluten feed	4.61	1.02	2.42	.18
Totals	21.24	2.09	10.98	.61

HOW MANY COWS ON EIGHTY ACRES?

How many cows can I keep on eighty acres of land where corn will go sixty bushels to the acre, clover two to three tons to the acre, but land too rich for oats, all goes to straw. Would have a rotation of corn, barley and clover, cutting the latter for hay one year, and pasturing it the second year, and following with corn after manuring.

Hillsboro, Wis. G. K. R.

A man could easily keep forty cows on eighty acres of such land, but what with horses and other stock, and some general farming, it would be better to commence with a smaller number.

HOW LARGE A SILO.

The same inquirer asks:

How large a silo would I need, and how much corn would I have to plant to fill it? I would have about forty tons of clover hay in addition to silage. Bran is worth from $10 to $14 per ton.

Two silos are much better than one. One silo, sixteen feet in diameter and twenty-four feet high, will hold sufficient silage to feed thirty cows two hundred days, which will suffice for winter. But there will come the summer drouth and other exegencies, which cannot be in any other way so successfully met, as with silage. Therefore, a second, but smaller silo should be built for summer, say, fourteen feet in diameter and same depth. Eight acres of corn should fill the larger silo, and five acres the smaller one.

We would recommend for winter use, if your cows are in full flow of milk, as they should be, about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. clover hay	8.47	.68	3.58	.17
4 lbs. bran	3.54	.50	1.54	.12
4 lbs. gluten feed	3.65	.81	1.94	.14
Totals	23.69	2.36	11.26	.64

Give in addition as much other coarse fodder as cows will eat.

He asks further:

Which would pay best, raise the steer calves, (I have a Durham bull and native cows) and feed them on skim milk and barley, or have the Jersey or Guernsey, and feed the milk and barley to pigs, and veal the calves?

If one proposes to make a business of dairying and wants to keep cows for profit, he ought to set about getting a herd of dairy cows. He cannot get such a herd with any certainty by using a Durham bull, but should have Guernsey, Holstein or Jersey. We cannot choose among these breeds for other people. Each has merits peculiar to itself.

COST OF SILO.

The two silos above described, if built on the stave pattern, will require not far from 6,000 feet of lumber and nine M. shingle, and from sixteen to twenty hoops of ⅝-inch round iron.

A FLORIDA COW SHRINKS IN MILK.

I have a fine, large Jersey cow brought from North Georgia a year ago, this being her first summer in Florida. The party who owned her wrote me she would give four gallons when fresh, and milk right up to freshening again. She had her last calf early in

the fall of '98. I bought her in November. She was then giving eight to ten quarts, and kept i up until recently; without any apparent reason she is failing fast. Eats well and is in good order, and will not freshen until February 10th. I feed her a ration consisting of Quaker Dairy Food, bran, cotton seed meal, and cotton seed hulls and crab grass hay, and she has some pasture. Is there anything more I can do to bring her back to milk, for now of all times of the year, we need the milk. E. W. A.

Ormond, Fla.

A cow that will give four gallons of milk when fresh, ought not to shrink to eight or ten quarts three months thereafter, but could well be excused for shrinking that much in twelve months. A cow that has been giving milk fourteen months, and is due to freshen within three months more, cannot be expected to give very much milk, and when she commences to fall off, it is practically impossible to keep up the flow. Probably this cow has acquired the habit of milking about twelve months, and habit is as strong with cows as with men. We cannot suggest any modification of the feed that would be likely to do any good.

ILLINOIS RATIONS.

Please give best ration for Jersey cows to produce most milk economically, also for service bulls and for fattening dry cows.

Have corn stover, corn, oats, (ground) mangels, good oat straw and bran. No hay; it is very high here. Also give rations with mangels omitted.

Bran, $14.00; oil meal, $27.00; gluten feed, $17.00. S. X.

Warrenville, Ill.

With only corn stover and oat staw for roughage it will not be expedient to use either corn or oats for the grain part of the ration. We therefore suggest as follows, premising that a considerable proportion of the stover and straw will not be eaten:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs stover	11.90	.34	6.48	.14
10 lbs oat straw	9.08	.12	3.86	.08
20 lbs mangels	1.82	.22	1.08	.02
5 lbs gluten feed	4 61	1.02	2.42	.18
5 lbs bran	4.41	.63	1.93	.15
Totals	31.82	2.33	15.77	.57

When the mangels are omitted substitute one pound, or more, of oil meal.

For the fattening cows, omit the gluten feed and put ground corn in its place. Give all each animal will eat with relish, commencing light and increasing gradually.

For the service bulls, stover and straw *ad libitum* and oats enough to keep in fair flesh and good spirits.

AN IOWA RATION.

Will you please formulate me a ration for milch cows from the following: Good millet hay, corn fodder or slough hay; ground corn, 25 cents per bushel; ground oats, 18 cents per bushel; gluten feed, $15.00 per ton; wheat bran, $10.00 per ton?

Bran is rather scarce and hard to get. Would prefer using as much gluten feed as practicable. W. H. McW.

Odebolt, Iowa.

If one can buy thirty-two pounds of ground oats for 18 cents, he does not need to take much trouble to get bran at $10.00 per ton.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs, millet hay	9.23	.45	5.17	.13
10 lbs. corn stover	5.95	.17	3.24	.07
6 lbs. gluten feed	5.53	1.22	2.90	.21
5 lbs. oats	4.40	.46	2.37	.21
Totals	25.11	2.30	13.68	.62

The slough hay, if of good quality, may be substituted in part for the millet and corn stover, and bran take the place, pound for pound, for part of the oats.

A KENTUCKY RATION.

Being a new subscriber to your paper, I would like you to give me a ration for my cows, for producing milk. Clover and timothy hay mixed at $8 per ton; plenty of good corn fodder or stover; ship stuff at $13 per ton, and corn at 40 cents per bushel. Would you recommend buying corn bran at $10 per ton?

We live in the blue grass region of Kentucky, but do not have any dairies. Would like to know something to aid me in the business. We don't know anything about cotton seed and gluten as food in this part of the country. S. W. G.

Mt. Sterling, Ky.

There is no reason why cotton seed meal should not be known and used quite freely in Kentucky. There are dozens of places in the south, some of them in Tennessee, where this meal is a staple and constant product, and could be shipped into Kentucky much cheaper than it can be sent, as it is, further north. Write to the American Cotton Oil Company, whose advertisement may be found on page 39, for particulars as to price and cost of freight. Common corn bran is not as cheap at $10 as wheat bran at $13.

With the feeds at hand, when cows are in standard flow of milk, they ought to receive approximately the following daily average allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. hay	8.53	.48	3.96	.16
10 lbs. stover	5.95	.17	3.24	.07
12 lbs. ship stuff	10.58	1.45	6.00	.46
Totals	25.06	2.10	13.20	.69

Two pounds of cotton seed meal, costing in the neighborhood of two cents, could well be substituted for six pounds of ship stuffs, costing nearly twice as much, by adding slightly to the hay or stover.

AN IOWA RATION.

Will you please formulate a ration for us. Our cows are Durhams, and we want this ration to use when they are fresh.

Corn fodder with or without corn, or some timothy hay, millet and prairie hay for roughage. Some beets, ear corn, oats, if it will pay to use them, but we have no mill to grind feed. Can get bran at fair figures, and can grind millet seed in place of oil meal, it you think it best.

We have been taking the DAIRYMAN for almost a year, and don't see how we could get along without it. R. Y. & SON.

Greene, Iowa.

Millet seed ground will not serve the same purpose as oil meal, and we have quite contradictory reports as to its value as a feed for milch cows. We should not hesitate to try it in a small way, but cannot, unconditionally, recommend its use. The following will serve as a guide, not alone when feeding the specific stuffs named, but as well when those not named are substituted:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn fodder	7.10	.37	4.04	.12
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs. prairie hay	4.38	.18	2.09	.07
8 lbs. bran	7.05	1.00	3.09	.24
2 lbs. oil meal	1.82	.59	.75	.14
Totals	26.30	2.31	13.21	.64

When twenty pounds of beets are fed daily the cows will simply eat less roughage, and should have less placed before them.

A DIFFICULT PENNSYLVANIA FEEDING PROBLEM.

With wheat bran at $18.00; corn meal, $18.00; buckwheat middlings, $12.00; timothy hay, $15, please make a ration and state how much to feed both night and morning. A. J. P.

Bradford, Pa.

With timothy hay at $15 per ton we should feed just as little as we could prevail upon the cows to be satisfied with. Bran is cheaper at $18. But cows must have some roughage, and therefore unless there is straw of some kind or corn stover, some hay must be fed, regardless of cost. We incline to the opinion that situated as he is A. J. P. can do no better than to mix four parts of bran with two parts of buckwheat middlings and one part corn meal, all by weight, and give each cow all she will eat, which will probably be not far from fourteen pounds and in addition let her have all the hay she will eat. If the grain mixture will bear more buckwheat middlings without becoming so sticky as to be unacceptable to the cow, increase the proportion of this article, as it is by all odds the cheapest of the feeds.

Ordinarily we should recommend feeding half the grain at night and half in the morning, and preferably make the same division of the forage, but where cows are accustomed to a noon foddering it is perhaps better to humor this habit. But when the grain feed is as heavy as above suggested we would prefer to divide it into three feeds.

NEBRASKA QUERIES.

1. Which is the best and cheapest hay feed, sorghum hay at $6 per ton, prairie hay at $4 per ton, or sweet corn fodder at $6 per ton?

2. Which of above feeds will produce the most milk?

3. Is Standard Stock food good feed for milch cows? We have no gluten feed in this part of the country, but can get all other kinds we need. J. McK.

Stanton, Neb.

1. Prairie hay, provided it was cut early, and has been properly cured and taken care of.

2. Neither, unless supplemented with suitable grain feeds.

3. We have had no experience with the article named; do not know what it is composed of and, therefore, can give no answer to the question, that would be satisfactory to ourselves, and much less to others. Some of the experiment stations have analyzed several of the condimental foods which have been put upon the market, and report them to be but little, if any better than pure oil meal. It is always safe to try such things at first in a very small way, and then be guided by one's own experience and wisdom.

With first quality prairie hay, we should use, as an average, about eight pounds bran and two pounds oil meal or cotton seed meal.

CHEESE YIELD.

I want your opinion as to what makes the difference between my dividend from the factory and what I should receive for my milk, figuring according to HOARD'S DAIRYMAN, viz., 2.7 pounds cheese for every pound butter fat.

My test is 6%. Cheese 11.87c per pound, making milk, according to HOARD'S DAIRYMAN, worth $1 92 per 100, less expense, 15 cents, which leaves $1.77 net. My statement calls for $1.66.

I have plans nearly completed for the manufacturing of an automatic milk weighing and registering scale which I shall have patented. With it a dairyman can keep a record of any number of cows for any length of time on one small sheet. Is there any demand for such a scale that could be sold for, say $6? Will send you one when completed.

Nunda, N. Y. C. I. H.

The figures given show the yield where the best conditions can be obtained, both as to quality of milk and skill of maker. If they are not at their best, the yield of cheese and consequent dividend will both fall below the required point. Poor making is not the only cause for a reduced cheese yield. The numerous species of bacteria that affect the milk, especially in hot weather, act by reducing the amount of casein that can be thrown down by the rennet with a consequent reduction of cheese yield.

This is especially true of the bacteria that produce gassy curds. Dirty milk means a poor yield as well as poor flavored cheese. Lastly, watered milk is responsible for some of the losses in the cheese vat. Your loss may be due to one or all of the above causes; each contributing its share and the whole together making a perceptible difference in your monthly check. Dairymen must learn that dirt spells loss in the quantity, quality and value of dairy products and that the black sediment in the milk pail or ring of dried milk in the can is just as expensive as if they had spilled part of the milk on the ground.

It is impossible to say how much demand there would be for such an instrument.

"Uneasy Lies the Head That Wears a Crown."

But such are not the only uneasy heads. Overworked housewives, harassed business men, anxious teachers, ambitious students — all ages and both sexes are uneasy with aches, pains, impure blood, disordered stomachs, deranged kidneys and liver. For all such, Hood's Sarsaparilla is the effective and faultless cure. It infuses fresh life and health into all parts of the body through purified, vitalized and enriched blood. Try it.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Many machines have created a want which was unknown before their appearance. Only a trial will tell.

MOVING SILAGE.

I have a quantity of pea ensilage some distance away. Can it be moved into my silos and not materially injure its keeping qualities? W. B. O.

Verona, N. Y.

We do not know that moving silage in quantity and re-storing it in a silo has ever been tried, and we should hesitate about being the first to make such an experiment. On the contrary we should move only so much at a time as could be fed out in three or four days, more or less, as the results would seem to justify.

SILAGE VS. ROOTS.

I wish to construct a silo to hold sufficient feed to give twenty cows a ration once a day for six months. How many cubic feet should it contain? I expect to use corn for silage. Do you advise growing roots for dairy feed? If so, what kind? What is the average yield

Weak Lungs

When your throat and lungs are perfectly healthy you needn't worry about the germs of consumption. They don't attack healthy people. It's the weak, debilitated, inflamed membranes that are first affected. Hard coughs and colds weaken your throat and lungs and make consumption more easy.

If your lungs are weak

Scott's Emulsion

is the best remedy you can take. It soothes and heals and gives tone and strength to these delicate membranes. In this way you can prevent consumption. And you can cure it also if you haven't had it too long. Keep taking it until your lungs are strong and your weight restored.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY
67 Main St., Cortland, N. Y.

per acre and what kind of a place should be constructed for their preservation during winter months? H. S. J.

Anamosa, Iowa.

To feed twenty cows six months will require about fifty-six tons of silage and this will take a silo 15×20 feet.

Except as an appetizer and to give the animals a change of feed, it does not pay to grow roots for cow feed. Twice the weight of food (dry matter) can be raised in the form of corn, as of roots per acre, and at about one third the cost. Of course this statement is only true in a corn growing country. In the northern part of this country or in Canada the ratio of yield to cost would be different.

The average yield of roots and corn per acre is as follows:

	Green Weight
Rutabagas	31,695
Mangels	15,375
Turnips	28,500
Sugar beets	17,645
Fodder corn	39,645

Roots can be kept in any dry, cool place, away from frost. A deep cellar or a trench in sandy soil well covered to keep from freezing is sufficient.

AN OHIO RATION.

I have 8 tons millet hay, 200 bushels oats in the straw, 1,000 shooks of fodder, with feed cutter for cutting same Can buy oil meal at $27; wheat bran, $19; gluten, $18; and corn is worth 28 cents per bushel. My cows weigh from 1100 to 1500 pounds, and there are twenty-five of them. How shall I feed?

Marble Cliff, Ohio. G. L. R.

We advise grinding the ear corn (cob and grain) and feeding six pounds of that and six pounds of gluten feed, half of each at night, and half in the morning, mixed with a part of the cut corn stover. This stover should be cut in advance, thoroughly dampened and allowed to lie in a covered pile for twenty-four hours, before feeding. In addition, give five to eight pounds of the millet hay or oats in the straw, and as much more of the cut stover as the cows will eat. If with this style of feeding, the bowels get dry and semi-costive, add to the above enough oil meal to correct these conditions.

BUTTER STAMP.

Can you tell me where I can get a butter stamp with my name on, to use on my tub butter? I don't see any ad. for such stamps in your paper. G. E. R.

New Albans, Pa.

Apply to the dairy supply houses.

AN OHIO RATION.

Please formulate me a ration from the following feeds: Well eared silage, mixed (timothy and clover) hay, bran at $15.50 per ton; hominy, $17; oil meal, $25; oats, 30 cents per bushel and corn, 25 cents per basket. B. F. R.

So. Newbury, Ohio.

Oats at 30 cents per bushel will cost approximately $20 per ton when ground, and are therefore too expensive for feeding as compared with the prices for bran and oil meal. A "basket" of corn is so indefinite in quantity that we cannot compare it in price with other feeds; but this is not very material in the present instance, because it is to be presumed the silage carries as much corn as can be profitably fed. We therefore suggest the following:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21½
10 lbs. hay	8.53	.48	3.96	.16
10 lbs. bran	8.81	1.26	3.86	.30
Totals	25.26	2.13	12.02	.67

ABORTION.

The same inquirer is having some trouble with abortion, and, like all the rest of us, wonders what causes it, and in the hope, we suppose, that we can tell, he gives full details of his manner of feeding. We see nothing in the feeding that would be likely to cause this trouble. Some forms of abortion are, without question, infectious, while others are not. We had some of this trouble a few years ago,—quite too much of it, in fact—but it skipped about in such odd ways, that we could not attribute any case to any other which had preceded it. We tried various remedies, which sometimes seemed to be efficacious, and, at other times, signally failed.

If we were to recommend anything, we certainly would not know what to choose, but would quite as soon try one or more of the remedies advertised in the DAIRYMAN as anything else. We do not think any of them will do any harm, which is much more than can be said of all remedies, and they may prove specific for the kind of abortion in your herd; and it is our judgment that there is no remedy which will fit all cases.

When one has infectious abortion in his herd rigorous disinfection must be followed. An article on this subject is already in type, and will appear this week, or in an early succeeding issue.

MAKING BUTTER OR SELLING MILK.

Which is the most profitable to the farmer, butter dairying or milk dairying? Can you give me the number of dairy cows in the United States; the amount of milk produced, the value of the same; the amount of butter produced, the value of that, and any ideas that may suggest themselves to you on the butter side of the question will be thankfully received. I notice in the DAIRYMAN the statistics for your own state, but would like to get a general idea of the subject. B. A. E.

Pa.

There is no way of determining until the location and conditions are known, the relative profit from the two systems of dairying. If you are so situated that your milk is shipped to Philadelphia or New York, it is probable that taking the value of the skim milk into account and the constant drain of fertility which comes from shipping milk, that making butter will be the more profitable in the long run. If, however, you are near and can supply a small city with milk at retail, you will probably make more money at milk dairying. But it all depends on your local conditions.

The number of dairy cows in the United States in 1895 was about 17,000,000, producing 1,750,000,000 gallons of milk, valued at $157,500,000, and 1,375,000,000 pounds of butter, valued at $275,000,000.

From an Indiana Dairyman.

ED. HOARD'S DAIRYMAN:—We have been taking the DAIRYMAN for about eight months, and with the aid of this valuable paper have solved many questions regarding dairying, such as rations, butter making, different breeds of milk cattle, etc. We live on a farm of seventy-five acres, two miles out of city. Our residence with outbuildings, barn, crib, granary, tool-house, etc., is located on a hill of four or five acres of rich sand. This is cultivated in early vegetables and mangels for cattle. The remainder of farm is a black loam, and is farmed in corn, wheat and hay. We also have a fine lot of poultry, 175 or more Plymouth Rock chickens, and think the finest of the kind that can be had. In addition to all this, we milk seven cows, and I want to say once more, with the aid of your paper, we make the little dairy of seven cows pay a handsome little profit. We supplied ourselves with a Sharples Safety Separator last spring that has up to date given entire satisfaction.

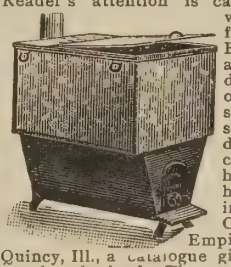
In summer months our cream goes to the leading ice-cream man of city at fifty cents per gallon. Skim milk goes to our poultry and pigs, and astonishing how Mr. Pig thrives on skim milk. We have given the feeding problem for this winter more attention than usual. We have 600 bushels of mangels raised on one acre of ground, 2 tons of bran, 5 tons of clover hay, 100 shocks fodder and an abundance of oat and wheat straw. Now wishing the DAIRYMAN a wider circulation in the future, and assurance of our personal friendship, we beg to remain,

FRANK KOLLER & BRO.

Washington, Ind.

THIS year there were 1,550 licenses issued for selling oleo, retail, where 891 were issued last year. This means for one thing that there is to be nearly two pounds of oleo sold this year for one last year. Your chance of getting oleo in place of butter is twice as great, and your chance of selling butter in Chicago is ——?

Farmers' Handy Feed Cooker.



Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Oh

Stock Feeders,



Dairymen and Farmers who know from experience that grinding saves fully half the grain; that ground feed is easiest digested and assimilated and that its feeding saves nervous force and energy should *look into the merits of these*

Scientific GRINDING MILLS.

They crush and grind ear corn, and all small grains singly or mixed. This style, plain sweep mill. We also have other styles plain and geared mills for horse, steam and other suitable power. Before buying a grinding mill of any kind send for our FREE catalogue I.

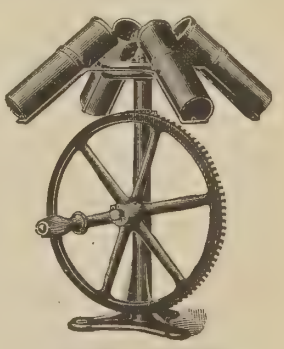
The Foos Mfg. Co., Springfield, Ohio.

CHERRY'S Feed and Litter CARRIER



An invention for cleaning out barns and feeding stock. The most practical device of the present day. Send for circulars to **D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.**

Be Careful



FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for ***DE LAVAL ALPHA SEPARATORS.***

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

From a California Milkman.

Herd Increases from Seven to Fifty Cows in Three Years. No Previous Experience. Has Studied in the Dairyman and Elsewhere.

ED. HOARD'S DAIRYMAN:—Please send me a ration for cows, from the following: Alfalfa hay, $10 per ton; corn meal, unbolted, $24 per ton; wheat bran, $20.50 per ton. Also another with corn silage.

I have never seen an analysis of pumpkins, pie melons, etc. I could not keep cows without the DAIRYMAN. Started in three years ago, on a retail dairy with seven cows, and am now milking fifty, and have to buy milk besides.

I came out of a store and did not know anything about the dairy business, but have studied the DAIRYMAN and other dairy literature, until I have a very good dairy. Last year my cows averaged twenty-five pounds per day per cow in milk.

Santa Ana, Cal. J. T. R.

We wish some of our California readers who have tried our suggestions as to feeding ground corn and bran with alfalfa hay would report the results. If they have not been favorable, we certainly do not want to repeat them. On the contrary, if such feeding has proven profitable, hundreds of other dairymen are entitled to know it.

In the absence of such reports, for a more certain guide, we can do no better than suggest a trial of, say, 20 pounds alfalfa hay (more or less, according to the appetite of each cow) and from six to ten pounds of a mixture of wheat bran and ground corn, equal parts by weight. If a part of the alfalfa could be chaffed for mixing with the corn, we should prefer that to bran, and use all corn.

With silage, the only difference would be feed less hay. The amount of either must be governed by the relative amounts of each available, and the total of both should be governed by the appetite of the individual cows.

The analysis of pumpkins was given on page 789. Pie melons are an unknown quantity in all the feeding tables to which we have access, but it is presumed they do not differ very much from pumpkins.

Mr. R's. experience for the past three years ought to be an incentive to others. That he was without previous experience would ordinarily be accounted a disadvantage, but perhaps he was all the more teachable on that account. One of the most stubborn obstacles to overcome is the inertia occasioned by knowing so many things that are not true.

New York Notes.

ED. HOARD'S DAIRYMAN:—It is astonishing to find so many farmers who still cling to their old ways and refuse to be dragged out of them. The ways they find of justifying their refusal to profit by better ideas and practices, are exasperating to the outsider, but they answer the purpose just the same. One farmer who has the silo question hinted to him, now and then, is never weary of calling attention to the fact that a neighbor of his has a silo that he never filled but once. It stands now unused, and is a wonderfully fine text on which to base an argument against silos in general.

The really amusing point in the case is, that the reason for not using the silo is not known, but the fact that the owner keeps a dairy is supposed to be enough to know. There is not one of his neighbors who would take his advice on any subject, except the silo.

This same dairyman has a way of keeping up his dairy that ought to set him forth as the only instance in the business, but I am afraid for all that, that a careful search would disclose a good many of about his class. It is said that for many years he has never raised a calf, though he often replaces certain cows by others, always depending on chance of miscellaneous purchase for keeping up the herd. Now, if anyone supposes that western New York is a fertile field for the discovery of remarkable or merely good dairy cows, he is very far wide of the fact. Really, how the list is kept filled with anything is a good deal of a mystery. A neighbor told me, not long ago, that he had made a long journey across country in search of calves, and failed to find one for sale.

So it would seem to be a certainty that the dairyman who is wholly dependent on such a district for his cows is not good enough in his line to make him an authority on much of anything in that branch of the business, and especially on such a little understood device as a silo.

The fact is that western New York is, or has been, too fertile and adapted to general farm business for its good, now that it has become next to impossible to make a profit on the old lines. What could be done once ought to be done again and all the time, so the effort is continued. When I drop down into a broad specialty, it is pretty likely to be the raising of fine calves. The district would profit by them at least, and if I could raise them as fast as one can pigs, they would not be too plenty for some time, considering the needs of the dairies.

So I was very sorry to find that the Jersey heifer that came fresh a few days ago brought forth her calf dead, from no apparent reason. We rather fancy fall calves. If they are handled right they are ready to eat hay early in the winter, there are no flies to gnaw them and they suffer less from scours, which are to a great extent a summer disease and probably are the worst disorder to which calves are subject. When a late calf once takes to feeding, the battle is about won. It will be a sleek, lusty animal next season.

Speaking of flies, I am reminded of the report of the experiments of the Kansas Station, as I saw it in the DAIRYMAN. Without having gone any further than to have thought on the subject a good deal, I am convinced that the experimenter is still at work on erroneous lines, though he came around in the right direction when he gave up all idea of merely brushing the flies away. They must be killed, though at shorter range than is reached by allowing them to fly where they like, after getting them into the trap. Let the trap be a sort of square funnel, instead of the shape adopted, so that the flies are all inside of it before they know it. Then the brushes could be used to hold them inside till the animal is out of the trap. If now, the trap could shut up like a bellows, or a camera and crush the flies, it would be a success.

The man who succeeds in inventing a really practical fly catcher is sure of a fortune, as well as a place among the benefactors of the race. JOHN CHAMBERLIN.

Erie Co., N. Y.

A New York Ration Reviewed.

Feeding for Profit.

ED. HOARD'S DAIRYMAN:—I am with the majority, for I have, as yet, no silo. Have a good lot of early cut hay (not much clover in the mixture), some oat straw and corn stover. I expect to cut the stover, and I want to use the straw. For several evenings I have tried to figure out a ration, and after making a full dozen trials have concluded to submit for your judgement the one given below. My estimates are based on the Cornell Bulletin, No. 154.

Cost of bran, $18 per ton; cotton seed meal, $25; oil meal, $28; gluten, $19. My oats I can sell now for 35 cents per bushel, and corn is worth 46 cents or more. I can use the corn for poultry feed, and I cannot figure out a profit in feeding cows more of the corn and oats than I have allowed.

	Dry.	*Protein.*	*Carbohydrates.*
10 lbs. hay.....	8.70	.28	4.65
5 lbs. straw.....	4.55	.06	2.02
5 lbs stover	3.00	.085	1.72
5 lbs. bran.....	4.40	.61	2.265
2 lbs. oats and corn...	1.78	.171	1.332
1¼ lbs. cotton seed...	1.15	.465	.555
1¾ lbs. gluten.....	1.61	.3395	1.107
Totals.....	25.19	2.01	13.65

Ratio: 1:6.78. Cost of 10 pounds grain, 9.75 cents.

This makes a good many sorts. Can you suggest less? Is there any way to feed more roughage and oats and corn profitably? Am a beginner in this matter, and have got my incentive from the DAIRYMAN.

My object is not necessarily to get the largest milk yield, but the best profit. Cows are only moderately good ones on an average. Some are good and some do not pay their way, I am thinking. Last winter I fed six pounds per day of grain, one-third each of corn, oats and bran; for a time, hay, straw and stover, (uncut), followed by hay and millet, then hay. A few of the cows reached 30 pounds milk when fresh, but by April 20th, the average was 23 pounds with a range from 18 to 30 pounds.

Milk sells now at 2¾ cents per quart, but will soon decline, I believe, judging from former years, and in June has gone down to 1¼ cents. I want to figure for the best profit. H. H. L.

Bainbridge, N. Y.

It will not pay to feed 35-cent oats when other feeds can be bought at the prices named; and we should use little or no corn when it will sell for 46 cents or more. An additional half-pound of cottonseed meal would be quite as effective in the above ration as the 2 lbs. oats and corn; and 5 lbs. bran with 5 lbs. gluten feed could be adopted for the total grain allowance and reduce the cost a trifle. It is quite posstble that a little oil meal added, a pound or less per day would more than return its cost. This would be practically certain, if, without it, the discharges from bowels are hard and dry.

Do not omit the daily allowance of salt.

Malt for Dairy Cows.

ED. HOARD'S DAIRYMAN:—F. W. G., St. George, Wis., writes inquiring if malt is a good feed for dairy cows, especially those whose milk goes to the cheese factory.

Malt is made by softening the barley grain and allowing it to germinate slightly through the action of moisture and gentle heat. Under this action the starch contained is converted into a soluble substance. The grains are then dried and the sprouts removed. Malt is a very palatable food article for stock and is much relished by them. Carefully conducted experiments by Lawes and Gilbert, of England, show, however, that the treatment the barley grain undergoes in converting it into malt does not increase its food value, so that there is no advantage in feeding it over giving the barley grain direct.

The writer of this reply wonders if our correspondent does not mean malt sprouts, a by-product in malting. The tiny dried sprouts from the malt-sprouts accumulate in great quantities where malt is produced, and these are sold to stockmen for feeding purposes. Malt sprouts are a fairly satisfactory food for stock, but must not be fed in large quantity. Allow each dairy cow about two pounds of the sprouts daily, soaked with water before feeding, or mixed with silage which will furnish the required moisture. Malt sprouts are rich in protein, and hence are a desirable feeding stuff so far as that constituent is concerned.

W. A. HENRY.

Wisconsin Agricultural Experiment Station.

American Butter in England.

There is a market for American butter in England, but it must be the kind of butter that England wants. Shipping anything, just to relieve the market here, will never build up a demand for American butter. The Englishman knows what he wants and is not going to buy any thing else if he can help it.

An interesting trial shipment of American butter arrived on the London market this week per the St. Paul, and was on view in Tooley street. It represented variously treated butters from four different dairy states, namely, Nebraska, Illinois, Minnesota and Iowa. All the butters were made from separated cream, excepting two from gathered cream, and it is curious that the latter turned out the worst of the whole parcel.

The consignment from Minnesota and the unbranded butter from Nebraska, made a particularly good impression, and, although not quite equal to the best colonial, show a marked improvement on the states' butter hitherto received, and no doubt careful study of the market requirements will enable these shippers so to improve their quality as to compete successfully against the highest grades now reaching this country from Canada. The dairying industry has been rapidly developing in the United States during the past few years, but hitherto American butter has been coming over very spasmodically, the manufacturers evidently studying their home requirements exclusively, and simply sending over such surplus as was not wanted on their market; without paying particular attention in the preparation of these shipments, to the altered conditions required for English taste. With the increased output of dairy produce, the importance of this market has now attracted the interest of the more enterprising firms, who hope by cultivating the English taste to secure a permanent foothold here.

A TRIBUTE TO HOARD'S DAIRYMAN.

Under the head of "Advancement of Dairymen in Northern New York", the *Standard*, of Watertown, N. Y., has the following to say:

"A few years ago C. W. Jennings, of Belleville, compiled statistics of the gross and net earnings of the cows of the town of Ellisburg. These figures were reported to HOARD'S DAIRYMAN and the different breeds, the care they received, and who owned them, were commented upon in a plain and fair manner. Many copies of HOARD'S DAIRYMAN were taken throughout the town,

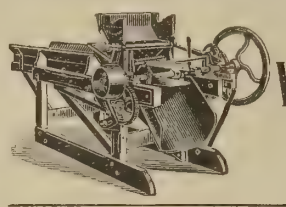
MINNEAPOLIS, MINN., April 18, 1898.
The Cincinnati Corrugating Co., Piqua, Ohio.
Gentlemen:—We have yours of the 2nd inst. regarding the effectiveness of your **Patent Edge Corrugation,** and in reply would say that this material gives excellent satisfaction, both to ourselves and to our customer. It makes a very nice-looking job and is certainly as water-tight when lapped one corrugation side lap as the ordinary sheets are if lapped one and a half or even two corrugations at the sides of the sheets. At the same time quite a percentage of material is saved. We remain, Yours truly,
THE GILLETTE-HERZOG MFG. CO.
By Frank J. Llewellyn, Chief Engineer.

Corrugated Roofing

Write for book of testimonials.

The Cincinnati Corrugating Co.

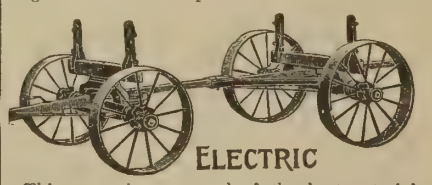
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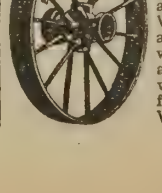
WHEN SELECTING A CUTTER OR SHREDDER,
we invite you to get a catalogue of
Wilder's Ensilage Machinery
Machines with Self-Feed Tables, Swivel or Straight Carriers, Front-Cut or Cylinder Machines, Shredders or Splitters. OUR PLAN of SELLING will please you. Write to
J. K. WILDER & SONS, Monroe, Michigan.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy Ill.

and probably no series of articles did so much towards awakening the dairy interest throughout the town as did those. Today very few farmers are content to use anything but the highly bred sires, and many are working into the thoroughbred cows of the best breeds. There has probably never been a season when the farmers of northern Jefferson and St. Lawrence counties so thoroughly examined the thoroughbred stock at the Jefferson County fair, and came to southern Jefferson county to secure pure bred sires, as during the season just closing.

Walter Fero, at the Muscoda, Wisconsin, cheese factory, inserted a small bottle in a cheese which he manufactured sometime ago, in which was placed a note asking the person who cut the cheese to kindly write to him, stating how it was liked and how much it cost. Last week he was rewarded by receiving a letter from M. J. Whitfield, a merchant of Rockville, Texas, informing that he cut the cheese the 16th day of October, paid fourteen cents per pound for it, and that it was the finest cheese he ever purchased. The cheese was sold on the 13th of June, 1897, and the price that day was seven and three-fourth cents.

DAIRY MARKETS.

ELGIN, Ill., Nov. 27—Butter—On the Board today, 109 tubs were offered, and 97 sold at 26½c; committee reported the market firm at 26½c.

CHICAGO, Ill., Nov. 27—Butter—Creamery, extra, 26c; cold storage creameries, 22@22½c; firsts, 21@23c; seconds, 17@18c; imitation creameries, fresh, from unsalted butter, 18@20c; dairies extra, (Cooley's), 22c; firsts, 19c; seconds, 16@17½c; ladles, 16@17½c.

Cheese—Steady. Full cream Cheddars, 11@12¼c per lb.; Twins, 11¾@12¼c; Young Americas, 12c; Swiss, 13c; Limburger, 11½@12c; Brick, 11c.

Eggs—Steady. Stictly fresh, per dozen, cases returned, loss off, 17½@18c; ice-house, 12@13c; seconds, $2.75@3.25 per case; checks, $2@2.50 per case.

Bran—Quiet. but steady, and sold at $12.50 per ton.

Middlings—Quiet and sold at $12.75 per ton in bulk, and $13 in sacks.

Cattle—Receipts were a third smaller than most of the trade expected, being over 12,000 smaller than a week ago. With so small a run the feeling was decidedly stronger, with average prices 10@15c higher. The choicest beeves were no higher, while in some instances sales showed 20@30c advance. Sixty-eight head of 1,448-lb. Short-horns, and twenty-nine 1,521-lb. Galloway steers sold at $7. The next highest was practically $6.55, with comparatively few good enough to bring over $6. Inferior to good, 940@1,500 lb. steers sold at 4@5.75; bulk, 4.70@5.50. Corn-fed Westerns sold at $4.25@6.15; bulk, 5.30@5.75. Grass westerns sold at 3.75@4.85 for cows and heifers, and 4.50@4.75 for steers. Corn-fed Texas averaging 1,057@1,218 lbs. sold at $4.60@5.25. Fat cows and heifers advanced 10c and canning stock ruled steady. Good to fancy cows and heifers sold at 3.50@5, and canne s largely at 2.50@2.80. Bulls sold at 2.75@4.15, some 1,221-lb. stillers at 4 15. Veal calves sold at 6@7, and feeding cattle at 3.25@4.60.

MILWAUKEE, Wis., Nov. 27—Butter—Creamery, fancy prints, per lb., 26c; extras, 25½@26c; firsts, 24@25c; seconds, 22@23c; imitations, 20@2 c; roll, 16@.8c. Dairy, selections, 20@22c; lines, 17@19c; ladles, 16@17c. Market advancing under light receipts—6,175 lbs., but high prices check trade.

Cheese—American Full Cream, Oct. Flats, 11½@12c; July, Aug. and Sept., 11c; Brick, 11@11½c; Limburger, choice, per lb., 11@11½c; Swiss, drum, 14½@13c; block, 12½@13c; No. 2, 10½@11c.

Eggs—Fresh, per doz., 17c; loss-off, cases returned.

FOND DU LAC, Wis , Nov. 27—Cheese—Offerings 195 Twins, and 100 Daisies; market easy at 11⅞c.

PLYMOUTH, Wis , Nov. 21—Cheese—Sales today: 830 Twins at 11c and a few Americas at 11¼c.

APPLETON, Wis , Nov. 16—Cheese—The offerings to-day were 178 Cheddars and 186 Twins; sales, 55 Cheddars at 11c,

MANITOWOC, Wis., Nov. 22—Cheese—The offerings were all sold as follows: 530 Daisies, 100 Twins and 400 cases Young Americas all at 11c.

HORTONVILLE, Wis., Nov. 16—Cheese—Offerings were 102 Cheddars, 658 Twins and 80 Daisies. 11c was offered, but all refused to sell.

BRILLION, Wis., Nov. 17—Cheese—Sales at the Dairy Board, 1,200 Daisies all at 11c, 365 Flats at 11c, 300 Young Americas at 11c, 135 Young Americas at 11¼c.

SHEBOYGAN FALLS, Nov. 22—Fifteen factories offered 700 boxes of cheese and all were sold as follows: 125 cases Young Americas at 11½c; 307 at 11⅜c; 40 at 11¼c; 9 Twins at 11⅜c; 118 at 11¼c and 110 Daisies at 11½c.

NEW YORK, Nov. 27 -Butter—Creamery Western extras, 27c; firsts, 25@26c; state extras, 26½@27c; firsts, 25@26c.

Cheese—State, full-cream, small, September, fancy, 12½@12¾c; large, 12¼@12½c.

Eggs—State, Pennsylvania and Western, 23@24c.

BOONEVILLE, N. Y., Nov. 17—Cheese—There were no salesmen present on the Board. today, and no sales were reported. The final meeting of the Board will take place next Friday.

FULTON, N. Y., Nov. 19—Cheese—Today 15 factories were represented with 1,015 boxes of cheese. Large sold at 11c, and small sold at 11¼c.

OGDENSBURG, N. Y., Nov. 18—Cheese—The only sales today were 11 boxes of Twins at 11¼c. The Board adjourned until the first Saturday in May next.

NORWICH, N. Y., Nov. 18—Cheese—The sales today were: Small colored creams, 1,000 boxes at 12c; small, white Creams, 100 boxes, at 12c; Skims, 500 boxes, at from 10½@11½c. Dairy butter sold at 23c, and creamery at 24@25c; one lot at the latter figure.

WATERTOWN. N. Y., Nov. 18—Cheese—On the board to day the following sales of cheese were officially reported: Large white, 1876 boxes at 11¾c and 470 boxes at 11¼c; small singles, 120 at 11¾c.

UTICA, N. Y., Nov. 20—Transactions in cheese were as follows: Large colored, 1,492 boxes at 11c, 160 at 11¼c; large white, 670 at 11c, 110 at 11¼c; small colored, 770 at 11½c, 165 at 11⅝c; small white, 520 at 11½c, 365 at 11⅝c, 585 at 11¾c, 150 at 11⅞c. Total, 4,987 boxes, against 4,79. last year, 5,334 two years ago and 4,419 three years ago. Sales of creamery butter were 10 packages at 23c, 25 at 24c, 10 at 24½c, 25 at 25c, and 30 cases 1-lb. prints at 26c.

LITTLE FALLS, N. Y., Nov. 20—These sales of cheese were made: 291 boxes small white at 11c, 210 boxes at 11¾c, 295 boxes at 12c; 329 boxes small colored at 11c, 99 boxes at 11¾c, 175 boxes at 12c; 252 boxes Twins, colored, at 11c; 60 boxes at 12c; 333 boxes Twins, white, at 11c; 102 boxes at 12c.

Butter—15 packages creamery sold at 23c. A few packages dairy sold at 20@23c.

BALTIMORE, Md., Nov. 27—Butter—Market firm; creamery separator, extra, 28c; extra first, 26@27c; creamery first, 24@25c; creamery imitation, extra, 22@23c; Iowa and Northwestern ladle extra, 20@21c; extra first, 18@19c; first, 6@ 7c; western storepacked, 15@16c; creamery rolls, (1 lbs.), 25@26c.

Eggs Market quiet; strictly fresh stock, 20@21c.

PHILADELPHIA, Pa., Nov. 27—Butter—Solid packed separator creamery, extra, 27c; firsts, 26c; seconds, 22@24c; imitation creamery, extra, 2 c; firsts, 18c; seconds, 16@17c; ladle packed, extra, 17@18c; firsts, 16c; seconds, 15c. Print butter, creamery, extra, 28c; firsts, 26@27c; seconds, 23@25c.

Eggs—Pennsylvania and near-by, 24c; Western, 23c; Southwestern, 22c; Southern, 20c.

BOSTON, Nov. 27—Butter—Creamery, extra, 27c; western, extra, 26c; dairy, extra, 23@24c; imitation creamery, 19@20c; western ladle, 7½c; print creamery, 27c; box creamery, 25½c.

Eggs—Fancy near-by, 32@35c; choice fresh, 25c; Michigan extra, 24c; western, 20@21c; fair to good, 17@19c.

ST. LOUIS, Mo. Nov. 27—Butter—Firm; creamery, 22@26½c; dairy, 17@23c.

Eggs—Firm; 17c.

KANSAS CITY, Mo., Nov. 27—Butter—Creamery, 21@24c; dairy, 8c.

Eggs—Fresh, 16½c.

CINCINNATI, O., Nov. 27—Butter—Quiet; 27c.
Cheese—Steady; good to prime Ohio flat, 12½c.
Eggs—Quiet; 17c.

WASHINGTON, D. C., Nov. 27—Cheese—Market very firm. Receipts light. Extras, 27½c; choice firsts, 25@26c; fine imitations, 21c.

NEWARK, N. J., Nov. 27—Market steady 27@27½c for Extra Elgins. Receipts moderate.

NEW ORLEANS, La., Nov. 27—Butter quiet, firm; 27c; storage butter, 23½c.
Cheese—Cream cheese, 13c.
Eggs—Storage eggs, 16c.

Latest quotations for fancy creamery: St. Paul, 26c; Buffalo, 27c; Minneapolis, 26c; Detroit, 27c.

NEW YORK MARKET.

NEW YORK, Nov. 25—Butter—Receipts for the week, 27,143 packages. Exports for the week, 137 packages.

Receipts this week of fancy fresh creamery butter were extremely light, most of the receipts being off in quality, and the arrivals were quickly taken at our quotations, and at the close butter is scarce and wanted. Market went up one cent since our last and closes with a tendency to go still higher. Fancy fresh New York State Dairy butter in light supply, scarcely enough arriving to warrant quotations. We note sales of few small lots at 24 to 25 cents, and some a little off in quality at 22 to 23 cents. Owing to the high prices of fancy fresh butter there is an increased demand for June make, freezer goods and some sales are reported at 25 cents for finest, and 22 to 24 cents for fair to good. We quote:

Creamery, fresh, extra, 27c; medium, 25@26c; poor, 19@23c. Creamery, June, extra, 25c; medium, 23½@24c; poor, 21@23c. Dairy, extra, 24@25c; medium, 22@24c; poor, 19@21c. Ladle, 18@18½c; medium, 16½@17c; poor, 15@16c.

Cheese—Receipts for the week, 23,086 boxes. Exports for the week, 4,900 boxes. The market is unchanged on local account, but there has been more inquiry from out of town dealers, and the stock in the country has been well bought up to November make. Exporters have done very little. Most of the clearances this week consisted of through freight. Operations have been principally in large Skims. We quote:

Full Cream, large, extra, 12@12¼c; medium, 11½@11¾c; poor, 10@11c; Full Cream, small, extra, 12¼@12½c; medium, 11¾@12c; poor, 10@11c.

Eggs—Receipts for the week, 41,669 cases. The market is comparatively same as last week. Very few fancy fresh eggs arriving, and are wanted at our quotations. Other grades are in full supply and freely offered at 15@20c. New York State & Penn., fancy, 24@25c per doz; Western & Northern, fancy, 22½@23c; other grades, 15@20c

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Nov. 23—Butter—The general market continues quite firm with receipts of all grades extremely moderate. The steady advance in prices which has obtained during the past two months, while it has the effect of brightening the situation from the producer's standpoint, has on the other hand been discouraging to the retailer, for it has been difficult for him to realize a corresponding advance in his figures; still the aggregate of receipts is so far below the average, that receivers have no difficulty in placing all desirable grades at quotations. The quality of the extras now coming forward is more satisfactory. The taint of garlic, which lately prevaded some near-by creamery, has disappeared, and western extras are quite up to the standard for the season. Our figures may still be regarded as conservative on this grade; pet brands being held for a slight premium. The absence of choice gathered cream butter is still noticeable, and is inquired for daily, without any favorable response. This grade would sell quickly at quotations. Imitation creamery is still out of the market. Some Iowa and Indiana ladies are coming forward, but in small parcels, and of inferior quality. Western Roll butter would meet with eager purchasers, but it continues scarce; all grades wanted. The visible stock of storage butter is steadily diminishing, and sales are at prices quite satisfactory to holders. Store-packed butter still quite scarce and easily salable on arrival.

Creamery Separator, extras, 26@27c; firsts, 24@25c; seconds, 22@23c. Creamery Gathered Cream, extras, 23@24c; firsts, 22c; seconds, 20@21c. Creamery Ohio, extras, 23c; firsts, 21@22c; seconds, 20c. Creamery Imitation, firsts, 18@19c; seconds, 16@17c. Iowa & N. W. Ladle, firsts, 17c; seconds, 16c. Ohio and Indiana Ladle, firsts, 17c; seconds, 16c. Ohio Rolls, extras, 17@18c; firsts, 16c; seconds, 15c. W. Va. Rolls, extras, 16@17c; firsts, 15c; seconds, 14c. Ohio & W. Va. Store-p'd., firsts, 15c; seconds, 14@15c. Creamery Blocks, (2 lbs.), extras, 27c; firsts, 26c; seconds, 24@25c. Creamery Prints, (½ lb.), extras, 27c; firsts, 26c; seconds, 24@25c. Md., Va. & Penna. Prints, extras, 24@25c; firsts, 22@23c; seconds, 20@21c.

Cheese—Receipts ample for all trade wants; market firm, but quiet on all good to choice grades.

N. Y. State—Cheddars, fine, 12¼@12½c; choice, 11¾@12c; fair, 11@11¼c. Flats, fine, 12¾@13c; choice, 12¼@12½c; fair, 12¾@12c. Small, fine, 13¾@13½c; choice, 11¾@13c; fair, 12@12¼c. Ohio—Flats, fine, 12½@12¾c; choice, 12¼@12½c; fair, 11@11¼c. Ohio—Picnic, fine, 12¾@13c; choice, 12@12¼c; fair, 11@11½c. Swiss Cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—So far this week, there has been considerable increase in the offerings of so-called fresh eggs; what the trade wants is a strictly fresh egg; held or mixed lots will not fill the bill, as they can buy good marks of cold storage for less money; market steady at 21c. G. M. LAMB & BRO.
301 Exchange Place.

LIVERPOOL, Nov. 27—Butter—Finest United States, 94s; good, 73s.
Cheese—American finest white, 54s 6d; American finest colored, 56s.

CREAM SEPARATORS.

The man who owns or uses an "Alpha-Disc" De Laval Cream Separator knows that he has the very best the world has yet produced in the shape of a cream separator.

If the man who owns or uses any other machine knows anything about cream separators at all, he knows that he has something which is as out-of-date as a flail or scythe or which is made as it is simply to avoid the "Alpha-Disc" Patents, and made "cheaper" and sold "cheaper" on such account.

And if that man ever stops to test or to think, he must know that a "cheap" Cream Separator is the dearest thing he could own or use—for himself or his patrons, or both.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—A man and wife to work on dairy and stock farm in North Dakota. Wife must be a good house-keeper, as she will have charge of the house. None need apply who cannot give high grade references as to habits and ability. Address, B. PARSONS, Evansville, Ind. 40–3

Wanted—One hundred tons of well cured clover to be delivered in Chicago in car lots as required. Address, W. C. 22nd St. Post Office, Chicago, Ill. 40–4

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35–tf

Good Farm Hands Wanted—Good wages paid. Address LITTLES DAIRY FARM, Kewanee, Ill. 41-4

Wanted—An experienced dairyman to superintend a large modern dairy near St. Louis. Good salary. Address, stating experience and references, "S." care of Hoard's Dairyman. 41-2

Public Sale of Holstein-Friesians.—The entire herd of 48 cows and heifers on the farm of the late Judge Phelps, at Hanover, Rock Co., Wis., will be sold to the highest bidder, on Wednesday, Dec. 6th, 1899. This herd represents 25 years of careful breeding and offers a rare opportunity to buyers. Address, D. O. FLINT, Hanover, Wis.

Wanted—A good second-hand creamery outfit. Address P. O. Box 125, Parma, Jackson Co., Mich.

"Garland" Stoves and Ranges are the strongest heaters and quickest bakers.

Fine Dairy and Creamery opportunity, South. Inducements offered. P. O. BOX 281, Atlanta, Ga. 42-tf

For Sale—Jersey bull calf 10 mos. old. Average test of dam and sire's dam, 22 lbs. 4 oz. St. L. and St. H. blood Solid color. First draft for $40.00 takes him, half his value. FRANK X. HOFFMANN, Millersville, Sandusky Co., Ohio.

For Sale—One Empire No. 5 second-hand separator. Address MRS. S. KENDLEY, Shiocton, Wis.

H. G. S., Box 270, Savona, N. Y., desires to correspond with parties having choice registered and grade Guernsey cows and heifer calves for sale, 42-tf

An experienced buttermaker wants position. Address "L," care Hoard's Dairyman.

A. B. C. in Butter Making—For private dairymen, young creamery butter makers and managers. Sent postpaid on receipt of 50c, stamps or M. O. J. H. MONRAD, Winnetka, Cook Co., Ill. 42-3

For Sale—Eight high grade Jersey heifers. Three about two years old; others about one year old. All sired by a great grandson of Brown Bessie. J. Q. EMERY & SON, Albion, Wis. 41-2

Dairy Farm to Rent—Consists of 230 acres. 40 to 50 milch cows; completely furnished with improved machinery. Rent with or without milk route. Located inside school district of city of 9000. Liberal terms to right man. Must have A 1 references. J.P.ANDREWS, Faribault, Minn. 41-3

Wanted—Work on dairy farm, to take full charge or otherwise, by middle aged man who understands the business practically and scientifically, either selling milk or making butter. Address, H. L. COOLEY, Box 459, Evart, Mich. 41-2

For Sale Cheap—Fine milk route, wagon, cans, etc. Cash income $200.00 per month. Address Lock Box 115, Kewanee, Ill. 41-2

Wanted—Copies of HOARD'S DAIRYMAN previous to Vol. 20, either bound or unbound, complete sets or single numbers. Address, stating what you have to offer, with price, H. H. WING, Cornell University, Ithaca, N. Y. 41-4

Any Creamery wanting a first-class butter maker of experience in managing a creamery, one that can furnish best of references as to reliability and work, address No. 25, care Hoard's Dairyman. 41-5

At Half Price.—Bull calf dropped August 15, 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis 38-tf

Inoculation Against Texas Fever.

ED. HOARD'S DAIRYMAN:—For many years Texas fever has been the greatest obstacle in the way of shipping northern pure-bred cattle to the southern ranges. Heretofore the losses in cattle, shipped from the north, by this malady have rarely been less than forty per cent, and frequently seventy per cent or more. In the nature of the case, southern buyers could not pay satisfactory prices and run the risk of loss from Texas fever. To grade up their herds, they would willingly buy all of the surplus blooded stock of the north, every year at good prices, if by any means the ravages of this fever could be reduced.

For a number of years, Dr. J. W. Connway, of the Missouri Experiment Station, and Dr. M. Francis, of the Texas Experiment Station, with the help of the Missouri Board of Agriculture, have been working on this problem, with the result that a successful treatment has been found and put into operation. Already over four hundred blooded cattle have been inoculated and exposed to Texas fever on the ranches for an entire year, with a loss of less than eight per cent. During this time, a loss of sixty-five per cent has been reported in one lot sent without inoculation to an adjoining ranch. The climatic conditions and general treatment were similar in the two cases.

CAUSE AND NATURE OF TEXAS FEVER.

The cause of Texas fever is a micro-parasite which is found in the blood of southern raised cattle. The natural method of communication of this germ is by means of the Texas fever tick (*Boophilus bovis*), which abounds in the south. The disease can also be induced artificially in susceptible cattle by hypodermic injection of infected blood taken from southern cattle. When a susceptible animal is infested with ticks, or is inoculated with infected blood, the germs thus introduced attack the red blood corpuscles and destroy them in large numbers. This weakens the vital force of the animal and produces a large amount of broken down waste tissues which must be eliminated from the system. Such a condition demands increased action on the part of the tissues producing the red blood corpuscles, and larger capacity for carrying off the waste materials through the liver, kidneys, spleen and bowels. If the system of the animal is able to successfully cope with these exigencies, it will, thereafter, be immune to the disease, and able to resist the action of the fever germ.

HOW IMMUNITY MAY BE ATTAINED.

It appears so far as experiments have yet shown, that the only way of producing immunity is through an actual attack of the disease, in as mild a form as possible, from either infestation with ticks or by inoculation with infected blood. It is thought that southern raised cattle become immune while calves by repeated slight attacks of the fever caused by tick infestation. The Missouri station first made tests with twenty-one head of young calves by the tick infestation method, extending over three seasons. Several of the animals that had been well infested with ticks at the north were sent south, and proved to be immune. But on account of the necessity of maintaining quarantined pastures for using these ticks at the north, and the trouble of hand-feeding calves from non-immune cows, this method will probably not come into general use. Blood inoculation tests were begun at the same time, and have thus far proven to be more practical.

METHOD OF INOCULATION WITH IMMUNE BLOOD.

The supply animal may be either southern raised or one immunized artificially. The blood is taken from the jugular vein of the supply animal through a sterile canula, collected in a clean vessel, and immediately defibrinated by stirring with wire or glass whipper until the clot is removed. The blood is then transferred to a hypodermic syringe and injected in proper quantities under the skin at the neck or shoulder of the animals desired to be inoculated. All instruments used in this work are thoroughly sterilized, and the blood is used while fresh.

Size of dose.—The dose varies from one cubic centimeter to two and one-half or three cubic centimeters. Severe fever is often produced by a dose of one c. c., so the best plan is to give a comparatively small dose at first and repeat, if necessary.

Age for inoculation.—The best subjects for inoculation are young cattle from eight to twelve months old, weighing from 500 to 800 pounds. Young calves may also be inoculated while nursing their mothers. But animals recently taken from the cow and not well accustomed to grain diet do not do well. Animals more than twelve months old are much more difficult to immunize and it is certain that aged bulls and cows cannot be immunized as successfully as young stock.

Season of the year.—The most suitable time is at seasons when the animal will not suffer from either extreme, heat or cold, although this work has been done at all seasons of the year with success. If inoculated in winter, the cattle must be well sheltered. Cattle should be sent south in December or January, to prevent sudden gross infestation with the ticks there.

FEVER RESULTING FROM INOCULATION.

It must always be kept in mind that the inoculation fever is genuine Texas fever, and in some cases death will ensue. Some animals require very careful attention and nursing through the fever resulting from inoculation, and some medical treatment. Unless a fever more or less severe is produced by the inoculation, the animal will probably not become immune. In some cases, as many as three inoculations were made. After inoculation there is an incubation period of seven or eight days; then the inoculation fever begins and continues for eight or nine days, although in some cases it may not exceed four days and may be prolonged fifteen days. This is called the primary fever period, and the temperature of the sick animals will usually range from 104 to 106°. Maximum temperatures of 107 to 108° have been noted in a few cases. At the same time the fever rises, the percentage of red corpuscles in the blood begins to decrease, falling from the normal (about 35 % or 40%) to 20%, and in severe cases as low as 10% or 15%. At the close of the primary fever period, about the fifteenth day after inoculation, the temperature falls rapidly, and in severe cases the animal may die from collapse. From the fifteenth to the twenty-ninth or thirtieth days the animal will gain in strength, and the percentage of red corpuscles in the blood will return almost to the normal. About the thirtieth day after inoculation a secondary fever period often occurs, lasting seven or eight days. This period is usually not so severe as the primary, but the temperature often shows high elevation, and the destruction of red blood corpuscles occurs again. At the end of fifty or sixty days the inoculated animals are ready for shipment.

CARE OF CATTLE DURING INOCULATION.

It is necessary that the inoculated animals be well nourished during the fever and subsequently, since there is great lowering of the vitality of the animal, due to the destructive action of the micro-parasites on the blood corpuscles. In these experiments the food has consisted of ground oats, bran, crushed corn, linseed meal, clover and timothy hay. The effort is made to feed in a manner that will maintain a lax condition of the bowels, since the elimination of the waste products from the liver is mainly through the bowels. It is sometimes necessary to give salts to induce proper action or the bowels. Other medicines, such as stimulants and tonics, are used as indicated. The animals are kept warm and comfortable, in clean quarters, and in every way carefully nursed. They have grass at the proper season. After sending inoculated animals south, they are watched during the first season to prevent a relapse, and care is taken to avoid all conditions that lessen the vitality of the animal, as over heating, undue excitment or too much service.

FURTHER EXPERIMENTS NOW IN PROGRESS.

The Missouri Experiment Station is now inoculating at Columbia about 250 head of cattle, representing the Shorthorn, Hereford, Devon and Red Polled breeds. These will be exposed to the fever in the south next summer for the further test of the efficiency of this method of immunizing cattle against this disease. The success of this method has already had the effect of greatly increasing the number of blooded cattle bought in the north by Texas cattle-men, and will add much to the value of all blooded breeding cattle in the north. Through this means a large and important market which has heretofore been practically closed is now opened to the northern breeder. An illustrated Bulletin, No. 48, giving full particulars of these experiments is now being issued by the Missouri Station, and will be sent free to all parties interested upon application.



A Bunch of Grades Being Immuned by Tick Infection, Missouri Experiment Station.

Comments and Queries From Robinswood Farm.

Rarity of Great Cows.—Obstacles to Their Production.—The Relative Functions of Breeders and Farmers.

ED. HOARD'S DAIRYMAN:—The longer I live the more I am convinced of the difficulty of looking at a subject from the point of view of the other fellow. I am also convinced that to be a great breeder of dairy cattle a man must be endowed with exceptional attainments. Almost everyone believes that he can keep a hotel, yet ninety-nine out of a hundred, if they tried the business, would find that it requires a smarter man to make a good hotel keeper. I suppose most farmers believe that they can breed dairy stock successfully, but I am convinced that good breeders are few and far between. In order that I shall make no mistake as to the selection of the breed best suited to our local New Hampshire requirements, I have been making a round of visits to celebrated breeding establishments, and have seen and learned things that have given rise to much thought and reflection. I have been very much surprised and disappointed to find so few great cows in the hands of breeders. Almost every important breeding establishment which I have visited has one great cow, a few good cows, and many quite ordinary cows. I have been surprised to find on inquiry that the managers of most herds claimed that they did not know the average yearly yield of their herd. There are a few bright and shining exceptions to this rule. They could all tell me the weekly product of a few of their best cows, and the product of a long line of their ancestors, but they have had little to say as to the cost of producing large yields, either for a week or for a year, and if looks indicate performance, the most part of many of these thoroughbred herds would not begin to approach in practical performance that of innumerable cows I have seen in the fields of the country that I have ridden through.

Perhaps the prepotency of this defective looking part of these herds may overbalance their apparent lack of individual eminence. But for the most part they looked to me like degenerates, and I have been asking myself the cause of the existence of so few very good thoroughbred cows. I find it practically impossible to buy a very good thoroughbred cow in some of the breeds. Bulls are easy of requisition. A few very good grade cows can be bought at a very high price, but most of the purchasable female thoroughbreds do not seem worthy of purchase. What is the reason for this scarcity of high bred product? A study of the subject shows possible reasons of great intricacy and hard of determination.

In the first place, we have the marvels of hereditary influence at work. All the ancestors of a cow are exerting their individual influence, good and bad, and in breeding two individuals together it is somewhat like shuffling and dealing a pack of cards; the accidents of the shuffle may result in moderately good hands to all players, or poor hands to most of the players, and a very good hand to one only. Or all of the hands may be so composed as to play badly for all. It is impossible for all players to get very good hands. In cow breeding the sum total of ancestral influence may result in a dead level of mediocrity in which no one good point is accentuated. In other cases, the evil influences may have the ascendency, while it is only as the exception that good hereditary tendencies combine and are accentuated in the progeny, either in human beings or in cows. There is always the reversive tendency of atavism to produce the likeness of the unimproved type, whose thousands of years of habitual tendency is more prepotent than that of a few hundred years of more or less carefully carried out influences, which have produced the so-called improved types.

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HEART DISEASE

Some Facts Regarding the Rapid Increase of Heart Trouble.

Heart trouble, at least among the Americans, is certainly increasing and while this may be largely due to the excitement and worry of American business life, it is more often the result of weak stomachs, of poor digestion.

Real organic disease is incurable, but not one case in a hundred of heart trouble is organic.

The close relation between heart trouble and poor digestion is because both organs are controlled by the same great nerves, the Sympathic and Pneumogastric.

In another way also the heart is affected by the form of poor digestion which causes gas and fermentation from half digested food. There is a feeling of oppression and heaviness in the chest caused by pressure of the distended stomach on the heart and lungs, interfering with their action; hence arises palpitation and short breath.

Poor digestion also poisons the blood, making it thin and watery, which irritates and weakens the heart.

The most sensible treatment for heart trouble is to improve the digestion and to insure the prompt assimilation of food.

This can be done by the regular use after meals of some safe, pleasant and effective digestive preparation, like Stewart's Dyspepsia Tablets, which may be found at most drug stores, and which contain valuable, harmless, digestive elements in a pleasant, convenient form

It is safe to say that the regular persistent use of Stuart's Dyspepsia Tablets at meal time will cure any form of stomach trouble except cancer of the stomach.

Full sized package of these tablets sold by druggists at 50 cents. Little book on stomach troubles mailed free. Address F. A. Stuart Co., Marshall, Mich.

interuterine influences, interferences with local and general circulation in the fœtal calf, and this due to poor nutrition owing to disturbances in the general health of the dam or sire. We also remember the law of correlation which is continually at work, which law determines that the undue development of one anatomical part or function is accompanied by a reciprocal lack of development and inaction in other parts. There is also to be considered the disturbing effect of previous impregnations, a very interesting study in itself. Furthermore we have the results of injudicious in-and-in breeding, line breeding, and outcross breeding, unsuitable feeding methods, unhygienic sheltering, and lastly, but very important, lack of nerve in the culling out and rejecting for breeding purposes, of defective individuals on the part of the breeder. Is it any wonder that there are so few very good cows in existence? Of course, many of those influences are entirely beyond the control of the breeder and the best he can do is to strive for a happy conjunction of individual excellence in dam and sire, and historical excellence in their several pedigrees. But there are several things which an intelligent breeder does have under his control. He can exercise a vigorous selection in breeding. He can feed for a purpose and he can give the animals under his care good hygienic conditions. He also can breed for the interests of his patrons if he will. It seems to me that it would be more for the interest of the general dairy farmer if breeders were more free in reporting yearly tests and quantities and qualities of food consumed. Of what value to the average farmer is the report of a weekly test of a heifer with its first calf? It is comparatively an easy matter, by in-and in breeding to produce an animal which if fed from the start on concentrated, easily digestible food, to secure early maturity and a large week's yield. But how about the constitution of such an animal and its capacity to work up coarse fodder during a year, for a long life? Farmers ought to demand from breeders, animals that will be most likely to yield the largest net profit during a long series of years. I believe that the general practice of striving for extraordinary large yields of milk and butter has much to do with the disproportionate and unequal composition of breeders' herds.

What is wanted is herds of high average excellence. More attention should be paid to constitution and digestive capacity, even if there is somewhat less chance of brilliant examples of milk production. Neglect of the fundamental conditions of existence in favor of productive functions must inevitably defeat the object in view by mere over-grasping. I have been astonished to find how little attention is given by breeders to the matter of exercise in its effect on their product, and I regret to say that I have rarely found a breeder whose ideas as to feeding seem to be entirely up to the requirements of the best breeding product in dairy stock.

I am more and more convinced that there is no established breed entirely suited to the requirements of our New Hampshire region; that my first impression was correct that the Devons are more in adjustment with present agricultural development and practice in our region than any other breed, and which would hence prove more immediately profitable than any other breed for our farmers. But that is not to say that our farmers ought not to very greatly change their practice agriculturally, and hence be benefited more through the use of some other breed. As I said at the start, it is difficult to judge for the other fellow. The breed for me might not be best for him. But for most of our farmers, I am sure we want the special-purpose butter cow, and that we must do all in our power to grow digestible and palatable concentrates, and protein foods in particular, if we are to go to the front of the procession of dairymen. The farmers of a region ought to first determine the nature of the cow feeds they can grow to the best advantage, before they can intelligently demand of the breeder the kind of a cow best suited to their purpose. There is no sense, or cents either, so far as the farmer is concerned, in the breeders producing a cow which will give a phenomenal product during one week in early life if it has not the constitution and digestive ability to turn a large amount of the farmer's crops into milk products during the year, and over a large number of years. The breeder ought to produce, or try to produce, a cow capable of doing under forced feeding much more than it would be ordinarily called to do; but capability to perform great things only under conditions unprofitable to the farmer is a misapplication of energy and knowledge on the part of the breeder. The breeders have got to do their part, and then the farmer has got to learn that the function of breeding pure bred stock is a thing apart from ordinary butter and milk farming, and that a high bred bull, prepotent for certain good influences, is a product very costly to produce, but of almost inestimable value, and should always be prepared and anxious to pay well for such an efficient aid to their calling.

J. M. W. KITCHEN, M. D.

New Hampshire.

Lining Silos.—What Corn?

ED. HOARD'S DAIRYMAN:—Bran and oil meal are up to almost prohibitive prices here but am feeding pretty liberal of both to my ten head of Jerseys in order to keep the rations balanced. Thanks for that feeding table in recent number, just what I've been wishing for. If I pull through this winter on the high priced feed that I am compelled to buy, I am going to set to work the first thing in the spring to build a silo. Now a question or two in regard to it. Is it necessary with the stave silo to line it to make air tight, or do the hoops draw it together tight enough?

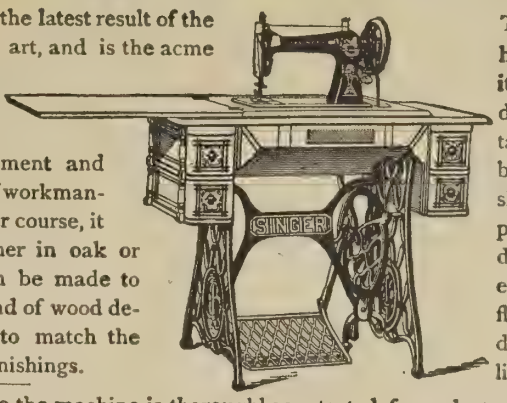
Is it necessary to have a special kind of corn, or will our ordinary field corn do?

Wishing the DAIRYMAN the greatest success, which it deserves. W. B. HOPKINS.

Mo.

It is not necessary to line a stave silo, as the hoops will enable you to draw the staves sufficiently to make the joints air and water tight. If you build your silo with studding and boards, then lining with a good quality of paper is necessary. Grow the corn that is best adapted for your locality. In your state this would probably mean any of the large dent corns, but even with you there would be a choice of varieties.

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This table is the latest result of the cabinetmaker's art, and is the acme of perfection in convenience, simple ingenuity of arrangement and thoroughness of workmanship. In regular course, it is supplied either in oak or walnut, but can be made to order in any kind of wood desired, finished to match the most ornate furnishings.

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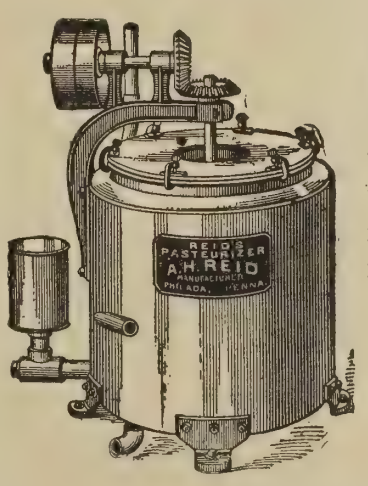
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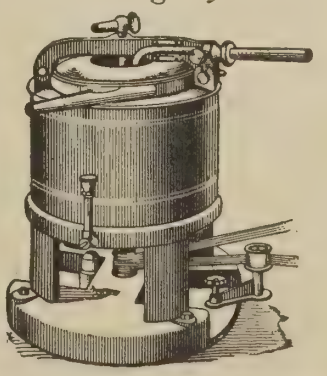
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And CEDAR RAPIDS, IOWA.

Delaware County Dairymen in Council.

ED. HOARD'S DAIRYMAN:—A convention of Delaware county dairymen was held Nov. 20-21, at Delhi, N. Y. It was held in connection with a state institute, and conducted by men from the state force, but the program was partly made up by giving local speakers a place upon it. Mr. D. P. Witter, one of the institute conductors, opened the meeting with a short address, and was followed by Mr. George Grant, of Delhi. His subject was "Should not the Net Profits of Farming be as Great To-day as in the Days of Our Fathers." The argument of the paper briefly stated was, that the profits of farming are now greater than ever before, because we can produce cheaper the articles we sell, while those we buy cost less than ever before. The reason why farmers remain in debt, and see hard times is, they spend more money than did their fathers and grandfathers. They do not practice the economy that their circumstances demand of them. The farmer now enjoys many conveniences and luxuries that his father did not, but he is often in debt for them. If his grandfather should come back to the old farm, he might see a fine house, well furnished, the daughter playing a piano, and the boy riding a bicycle, but he would probably find a mortgage on the farm. Farmers in debt would soon pay for their farms if they were as economical as their fathers and grandfathers.

Mr. R. Garison, of Walton, N. Y., said in his comments on the address, that he believed in economy, and only buying what you can pay for, but many farmers can have and enjoy many conveniences and luxuries, if they manage their farms in a way to make them profitable. He said: "I am glad the farmer can now go to church in a carriage instead of a lumber wagon. I am glad his daughter can have a piano, and his boy a bicycle. I am glad that he and his family can have more of the things that make life worth living."

Mr. D. P. Witter in his address on "Feeding and Caring for the Dairy Cow," said: "Increasing competition compels us to study lessons of economy more and more. We are not to look to higher prices to make our profits, but to cheaper production. We must begin to stop the leaks. If all the farmers in the state should save one cent a day, per cow, for the next six months, it would amount in the aggregate to eight million dollars. We are buying in this state every year, two million dollars worth of feed stuffs. We want to study how to save part of this, also how to get better results from what we do feed, by feeding better balanced rations. When caring for the dairy cow, we should consider her surroundings, and that she has become a different animal than she was in the condition which nature made her. We have placed her in an artificial environment. When feeding a cow in milk, we want what experiments have proved to be a balanced ration for milk production, then to consider its palatability and succulence. The cow in milk needs, to do her best, a ration composed of 2.5 protein to 12.5 carbohydrates, and 0.4 of fat. This makes what we call the balanced ration with a ration of 1:5.4. There is nothing else that will take the place of the protein, but protein may take the place of the carbohydrates to a certain extent. Protein is the most expensive element in the ration, and the cows should not be obliged to burn it to keep warm, for this is one of the functions of the carbohydrates. The most of the foods grown on the farm do not contain enough protein to make a balanced ration; clover hay is nearly a balanced food, but it is too bulky to feed alone. I have produced milk the cheapest, when I have fed a ration composed of ensilage, forty pounds; mixed hay, eight pounds; gluten meal, four pounds; wheat bran, five pounds. The ratio in this ration is 1:5.36."

Mr. Garison asked if it would make any difference in a ration for milk production, if it contained no fat, and its place was taken by the carbohydrates, or starch and sugar. Prof. Cavanaugh mentioned the experiment made at the Geneva Experiment Station, which proved that a cow could substitute starch and sugar for fats, in making butter fat.

Prof. Cavanaugh followed with his address on "The Chemistry of Plant Food." He first described nature's plan of providing the soil with humus by the growth and decay of vegetable matter, and how it is lost in cultivated soils. When we stir the soil and expose it to the air, the humus commences to burn, and the more we cultivate the soil, the more humus we lose. This is not a reason for not cultivating the soil, for cultivation, resulting in the burning of the humus make the conditions favorable to plant growth. The humus in the soil is what retains moisture and nitrogen. The cause of the deterioration of soils is this loss of humus. Not many soils are exhausted in potash and phosphoric acid, but they are deficient in nitrogen. One thing we learn by our study of the chemistry of the soil is, that we shall never restore worn out soils to their original fertility by the use of commercial fertilizers.

We must adopt some plan that will keep up the supply of vegetable matter, or humus, in the soil. $50,000,000 were spent for fertilizers last year in the United States. In these fertilizers we buy mostly potash and phosophoric acid. It is seldom that we need to buy these elements. What we need to do, to increase the fertility of the soil, is to provide it with more humus that enables it to retain moisture and nitrogen. The humus obtained by plowing under green crops, and from stable manure, is what our soils need, that their fertility be maintained.

The evening session was mostly taken up with a lecture on "What the State is Doing for Agriculture," by Prof. Cavanaugh, which was illustrated with the stereopticon; an essay by Mrs. R. B. Haddrow, and musical entertainment. Tuesday's morning session was opened with the question box, and the following asked and answered:

What will prevent abortion in cows?

Mr. Witter.—We know of only two things to do, use disinfectants, and do not use a bull in your dairy which has been with a cow which has aborted. Dr. Heckworth's disinfectant is good. It should be applied to the mangers once or twice a week with a brush. Mr. Van Dresser also said that he had great confidence in disinfectants. Mr. McDonald, of Delhi, thought the price of the disinfectant mentioned was too high. It costs three dollars per gallon, and the actual cost of making it is only a few cents. I have used lime water and carbolic acid, and have had no abortion. Mr. Van Dresser said he knew Dr. Heckworth's disinfectant to be good and would advise its use until we know we have something better.

Does a thoroughbred give better returns to the farmer who sells milk?

Mr. Van Dresser.—Sometimes good grades will make as much milk as thoroughbreds; but it is the thoroughbred blood in the grades which make them profitable. I would prefer to depend on thoroughbreds for with them we know "where we are at."

Mr. Witter.—We cannot get a grade without a thoroughbred to start with. When at Cornell University, I saw the records of the cows kept there, and these records showed the thoroughbreds were the most profitable.

If a cow has a cough, how can we know whether she has tuberculosis?

Mr. Witter.—If a cow has a cough, is running down, and continues to do so, she probably has tuberculosis. If she has it, you can do nothing for her. Sometimes a cow will cough when there is nothing serious the matter with her.

What kind of feed does the new pure feed law in New York State apply to?

Mr. Witter.—To mixed feeds alone. After December 1st, no dealer can sell mixed feeds without a guaranteed analysis. All whole seeds, and the unmixed meals from corn and wheat are free.

Following the question box was Mr. Van Dresser's address on "Establishing a Herd of Thoroughbreds." He said in part: "The first thing to be considered in establishing a herd of thoroughbreds is, what do you want them for? If it is the quantity of milk you want, then breed Holsteins; if you make butter, the Jerseys and Guernseys will suit you. In six states the cows only make on the average 125 pounds per cow per year. The farmers are keeping too many thoroughbred scrubs. I had a herd of such cattle, and they came near ruining me. I was in debt for my farm and I could not make my interest with the dairy of scrub cattle. I placed another mortgage on the farm, and purchased some thoroughbred Holsteins. With these cattle I bred up a herd of Holsteins, and

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Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

The Hillside Jersey Farm affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address F. E. BRYANT, Carlsbad, New Mexico.

Grandson of Pedro 3187
First Check for $60 GETS HIM!
Eurotas blood close, also through Rampo 4679. All dams for five generations tested. Seven months old. Solid fawn; all black points. Young bulls cheaper for 30 days. Must sell for lack of stabling.
W. F. McSPARRAN, Furniss, Lancaster Co., Pa.

Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

Marquilla's Major 40804.
SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs. 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
W. R. THOMAS, Bellmore, Ind.

Brown Bessie Herd.
RECORDER 29239 son of **Brown Bessie** and Diploma 2nd 36374 are head of the herd. A few choice grandsons and granddaughters of **Brown Bessie,** from tested dams, are offered. Also cows bred to above bulls. Write for printed pedigree. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

FOR SALE!
Grandson of the Greatest Sire of Butter Cows,
Exile of St. Lambert 13657
Now Sire of 79 Tested Daughters.
Solid fawn color; ten months old, and a good individual. His dam has a test of 15 lb. 8½ oz. of butter in seven days.
P. J. COGSWELL, Rochester, N. Y.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tubercu lin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

Hood Farm Jerseys
Bull from great producing lines. Dropped Sept. 10, 1898. Solid color. By Brown Bessie's Son, the sire of 8 in 14 lb. list. Dam, Modita, test, 16 lbs. 8 oz., dam of Costa Rica, 21 lbs. 6½ oz. in 7 days, 90 lbs 11¼ oz. in 31 days, the dam of Chirp, 19 lbs. 1 oz., and of Merry Maiden, champion sweepstakes cow at the World's Fair. Write for price to HOOD FARM, Lowell, Mass.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

A. J. C. C. BULL CALF FOR SALE!
Dropped Aug. 2, 1899. Solid color; black tongue and black switch.
SIRE:—A full brother to Exile's Lulu 49948. that was 6th in the World's Fair cheese test, 10th in the 30-day test, and 13th in the 90-day test.
DAM:—A tested double granddaughter of Exile, her dam and sire's dam both testing over 20 lbs. This youngster has 50% of the blood of Exile through three crosses. We have another of similar breeding with a little white undermarking on which a lower price can be named. Few offer better breeding than these. Pedigrees and prices on application. WINTERGREEN HILL FARM CO., Scottsville, N. Y.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455⅓ lbs. milk, 30 lbs. 2⅓ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. **224** Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STEACY. Box 720, Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR. Solid color, well grown, robust. Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. J. P. BRADBURY, Pomeroy, Ohio.

with these was able to pay both mortgages. No farmer, especially if he is in debt, can afford not to use a thoroughbred sire. Buy a sire from a cow whose qualities are well known. Pedigree without merit amounts to nothing. I always examine the calf when it is first born for indications of the dairy type. If it does not have them, I do not keep it. If you find the calf lacks constitutional vigor, do not keep it. Keep the breed that suits your purpose, that you are the most in touch with."

Prof. Cavanaugh gave the results of some of the experiments which were made at Cornell University in compounding rations for cattle, and advised farmers to send for *Bulletin* 154, which could be obtained from the University for asking for it. This gave the anaylses of all cattle feeds, and directions for computing balanced rations. To find the ratio of protein to carbohydrates in your ration, add the carbohydrates and the fats as given in the tables in the bulletin, but the fat may be computed as two and one-half more valuable than the carbohydrates, also add the proteids in the foods you are feeding, and divide the carbohydrates by the protein and you have the ratio.

One instance was given of a farmer who had been feeding a ration in which the ratio was 1 to 7. He was induced to study the subject of feeding, and by feeding a balanced ration, he reduced the cost of his butter two cents per pound.

At the beginning of the afternoon session, Mr. Witter briefly described the work done by the tuberculosis investigating committee. When their work is completed, the results which have been obtained will be given in their report.

Mr. R. Garison gave a talk on the silo, and told how he had been able to produce winter milk cheaper when feeding ensilage. Last year he fed ensilage until the first of April and then fed dry food. In changing to dry food there was a loss of one hundred pounds of milk per day with a dairy of fifteen cows. W. J.

Delaware Co. N. Y.

Letter from Northern Vermont.

ED. HOARD'S DAIRYMAN:—The season is now nearly past and the farmer should be able to determine very nearly what have been the results to himself.

Taken altogether it has been a favorable season. Generally the crops have been good and prices satisfactory.

It is true, that in a large part of the country, more generally than is often experienced in one season, the drought has prevailed with greater or less severity, yet notwithstanding this, the crops have mostly been abundant and quality good.

This is quite remarkable for such a season of severe dry weather as has been experienced in many places.

The hay crop probably suffered the most severely from this cause, but the other forage crops have, in most cases, been so abundant as to make up for the deficiency in hay. At least this has been the case in Vermont. The sowed grains gave an excellent yield, the potato crop was more than usually abundant and good, and there was a large acreage of corn, the greater portion of which was for fodder.

The pastures during the last half of the season were unusually short, and it requires much extra feed to keep the yield of milk in sight of where it should be. As a consequence butter, the staple product here, is in short supply and prices advancing.

Those with winter dairies and well prepared to care for them in the best manner, should receive good returns during the next few months.

I notice that now and then a correspondent speaks through the DAIRYMAN in relation to the encroachments on local dairy operations of the condensed milk business, the securing of cream for the trade, as well as extending the routes into new sections for the delivery of milk to the large cities. While this may interfere in places with the satisfactory working of a creamery or cheese factory, yet it is an indication of an increasing demand for more milk for all of these enterprises, and as such should leave a better opportunity, as it would seem, for the more profitable production of butter and cheese, from the diversion of so much milk into other channels. Taken in this sense it would seem that we should rather be glad that such is the case, at least taking the country together, as it is a sign of growth and prosperity.

What the DAIRYMAN is presistently striving to do, in imparting needful information to the farmers, both by word and illustration of the proper formation and development of the cow for the dairy, should be properly appreciated by those in whose interest this valuable instruction has been prepared. The portraits of typical dairy cows, as well as bulls, showing so plainly in illustration the points that can be readily comprehended, should be worth very much to the dairyman. With these aids they can quite intelligently make the application to their own dairies, and find in how a great degree the cows conform to the rules given, or in what particular point they can be improved.

What a change has been made in judging cattle at our fairs within the past twenty-five years. Now breeds are fully classified, and animals are judged by a recognized scale of points; then there was no such thing known.

The writer calls to mind a real occurrence at a Canada county fair, situated in a very good farming community, that occurred a score or more of years ago. A business man who lived in Montreal, took possession of the old ancestral farm and home, and did much to improve it in appearance, productiveness and value.

Among other things he imported some fine Ayrshire cattle from Scotland, and thus laid the foundation for an excellent herd. He took some of the representatives of this herd to the county fair. The prevailing stock in this section was composed of Durhams and natives. There was but one class in which to put all kinds or breeds for competition.

The judges in their efforts to properly perform their duties, adopted this novel plan. They took a line and measured the girth of the different animals; giving the first premium to the largest and so on down. The fine thoroughbred Ayrshires, of course, could not compete with the large sized Durhams, and so, notwithstanding their far greater value failed of receiving a prize. Of course, they were not exhibited at these fairs again.

From this incident it may be seen what an advance has been made in the practical knowledge that pertains to our dairying operations. Much of this is due to the intelligent and persistent efforts of such wide-awake journals as HOARD'S DAIRYMAN, and others, working steadily along with a well defined purpose in view. That these efforts may be more fully appreciated, and their benefits appreciated, is the wish of your correspondent. E. R. TOWLE.

Franklin Co., Vt.

The Other Side of Oleo.

The persistency with which the "poor man's butter" is made to take the place of the real article is not thoroughly appreciated, except by those who are employed to keep track of the slippery fraud. The following shows how the thing is done:

"I learned more about oleo than I did about butter," said a Assistant Dairy Commisioner White yesterday, returning from the National Dairy Convention in Chicago. "People in Chicago have forgotten the taste of butter. They have been fed on oleo so long that they don't know the difference.

"There are 800 federal licenses, to sell oleo in Chicago, and there is store after store where they sell nothing but "pure creamery butter," according to the placards, that handle nothing but oleo.

"It is put up in something like two dozen different forms in may be a dozen grades, and labled 'Elgin Creamery' and 'Wisconsin Creamery,' but I was glad I didn't see any Minnesota. Some of it sold as oleo at 16 cents, and may be the same grade is sold as butter for as high as 23 cents.

"The department stores are honest. They sell oleo on its merits. One store handles 27,000 pounds a month of oleo.

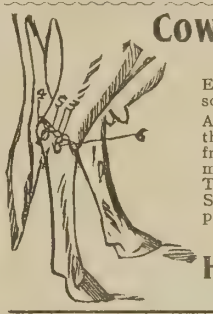
"But in only one restaurant where I ate was any real butter served.

"That isn't the whole of it. The oleo agents go round with samples mixed, as much as half, with pure butter—the best grade. And that, they say, is oleo, and ever so much better than butter. And the people who know butter only by the oleo they have eaten have to admit it. If that isn't a case of 'double cross' I never saw one. What with buying oleo that he thinks is butter, and getting samples of butter that he thinks is oleo, how is a Chicago man to know any better?

"They are just beginning to do better. They have a pure food and dairy law in Illinois for the first time, I believe, this year, and the first commissioner, who resigned for some reason, has just been succeeded by a new man. They will be all right when the department gets going.

"They have tried to correct the abuse on the simple basis of false representation, and have had, I think it was, ninteen cases dismissed. Now they ought to be able to regulate it.

"And as soon as it is possible for Chicago people to tell butter from oleo and *vica versa*, then it ought to be a good field for the Minnesota creamery men to work up a high-class trade. They have the better chance because, as far as I know, the reputation of the Minnesota butter has not been traduced by the sale of oleo under its name."



Cow Hopple

For Kicking Cows.

Either from habit or from sore teats. **Price 50c.**

Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars

Agents Wanted.

Henry Bassett,
Salem, New Jersey.

A Richly Bred Holstein AT HALF PRICE.

SIR MERCEDES JEWEL, dropped Sept. 4, 1898, a handsome fellow, nicely marked, about as much black as white, weighs about 800. Straight on back, low on legs, deep in rib, long in body. Very fine curved horns and rich golden hide. He is backed by 20 cows that averaged over 100 lbs. milk in one day, 57 cows that averaged over 90 lbs. milk in one day, 20 cows that averaged over 25 lbs. butter in seven days and 35 cows that averaged over 21 lbs. butter in seven days. 43 are recorded in the Advanced Register. We are short of stabling room and must sell at once. The first check for **$60** takes him Write at once.

Wisconsin Live Stock Association,
APPLETON, WIS.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

GUERNSEYS!

84 Cows averaged 399 lbs. of Butter each in 1898. . .

Some Choice Young Stock For Sale.

ELLERSLIE STOCK FARM,
Rhinecliff, N. Y

Ayrshire Bulls.

We have twelve thoroughbred **Ayrshire Bulls** for sale, of all ages up to 2½ years. They are exceptionally well bred and were raised on North Oaks Farm near St. Paul, of which J. J. Hill is proprietor, Full information as to prices and pedegrees will be given on writing to
W. C. TOOMEY,
Great Northern R'y Bl'd, St. Paul Minn.



Milk Cans...

We make all grades and patterns. Our Catalogue shows them.

WRITE FOR IT

BUHL STAMPING CO., Detroit, Mich.

FOR SALE.

Choice registered **Ayrshire Cattle.** Superior milking qualities. L. D. STOWELL, Black Creek, N.Y.

AYRSHIRES **Finely Bred and** from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd **Chester White Swine.** Correspondence solicited.
FRED TSCHUDY & SON. Monroe, Wis.

SHORT-HORNS

Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale Write or come and see us.
WALTER LITTLE, Janesville, Wis.

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to
DELLHURST FARM, Mentor, Ohio.

Holstein-Friesians.

To dairymen who wish to enrich their herds, or to those who wish to go into **blooded stock,** it will be to their own interest to communicate with us before making any purchases. We are able to supply you with the right material and at prices that will prove a profitable investment from the start. Over **40 Cows and Heifers** have now been placed in our hands to sell, and **20 Bulls** of all ages. All recorded. Address, **KARLEN CO.,**
Valley Mead Farm, **Monticello, Wis.**

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to
Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¾ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F. Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

MEADOW LAWN HERD
Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them.
C. W. HARRISON, Ringwood, McHenry Co., Ill.

HOLSTEIN-FRIESIAN CATTLE

Owned by **JONES & RANDALL, Hustisford, Wis.** 100 head to select from. From families rich in butter fat. Herd now headed by Barron Paulina De Kol. Stock for sale. Prices reasonable.

South Side Farm Co., **White Bear, Minn.,** have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Markham Manor Farms. **Simonsville P. O., Andover, Vt.**

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt**

The Big 4 at Brookside.
THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26 57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

The Standard Butter Company, of Owego, New York.

ED. HOARD'S DAIRYMAN:—At Owego, N. Y., is located the central or head creamery of the great Standard Butter Company. There are about forty creameries included, and under control of the company, which are presided over, and managed by Mr. A. Chase Thompson, one of the owners. There are now twenty-seven *owned* by the company, and they have nine or ten rented ones. Formerly they operated a few more, but they did not pay, and were cut out.

During a recent visit to the county, for the DAIRYMAN, it was my good fortune to find Mr. Thompson at his desk, one morning, and to have the pleasure of interviewing him, as a "send off" to similar ones with others, among whom were the Taylor's and Mr. Forsythe.

Where are your creameries? I asked of Mr. Thompson.

They are all in this state except one, which is in Michigan. There are fifteen in Tioga county. The others are in Tompkins, Cortland and Chenango. Butter is all sent here, some finished, some in granular form, then finished here.

Do you buy all the milk, or are some of the creameries co-operative?

We buy it all, about sixty per cent, on the Babcock basis. The balance is pooled at the New York Milk Exchange prices.

How many patrons in all, at these creameries?

About 2,000, I think. That is my estimate now. I could tell, however, just how many, by referring to the books.

How large are the herds, and what is the average number of cows, do you think?

They will run from ten to forty. Probably the average is not above, if it will reach twelve per herd.

What about their yield, and what is the quality of it?

Some of them test high. I will get a list for you, all testing above four per cent. Some, however, do not make much winter milk, and their yield is low, especially those who do not make any preparation for carrying the cows over the drouth season.

How far each way does your territory extend?

We get none east of Owego, most of it comes from the north, along the Lehigh Valley and the E. C. & N. roads, about fifty miles along each.

Are you making paper sizing from the skim-milk?

Yes, we have a separate plant on an Island in Owego Creek, where we make it. The curd is all precipitated at the creameries, then shipped here and finished. We are now making about a ton of finished curd a day. I will take you over and show you the plant. It is an old sheepskin tannery, rebuilt and remodeled, and I am now perfecting some improvements in the machinery, by which I hope to greatly improve the product.

Do you make any milk sugar from the whey, after extracting the casein?

None, whatever. It will not pay us. We return all the whey to the patrons of the creameries, if they want it.

What "milk zone," as it is called, are you in, and what prices are you now paying for pooled milk.

This is what is known as the 32 cent zone, which means 32 cents per can for freight to New York, with five cents added for transportation across the river, making thirty-seven cents for forty quarts. Today we are paying 2¾ cents per quart, which is equivalent to $1.30 net per 100 pounds.

How far west do the shipping stations extend, along the Erie R. R.?

To Hornellsville, Steuben county, and there is a prospect of their immediate extention to the Salamanca, a distance of 414 miles from New York City; and there is no hindrance, if the milk can be obtained, to a still further extension. Farther west, however, would begin to interfere with the Buffalo markets.

You are close to the Pennsylvania line here. Why is it you do not get any milk from there?

Well, we did get some at one time, but the quality was too poor for our business. They are not above being too cleanly just along the line here. So we don't cater to that trade.

Your patrons are receiving a price just now, equal to fully twenty cents per 100 pounds above that paid for pooled milk, to Jefferson County creamery patrons. I don't understand how you are able to do it, unless you get a much higher price for butter.

We get, I suppose, a better price, because we have a different trade from the ordinary creameries, and yet we could not afford to pay it if it were not for the paper sizing we are making. That alone lets us out.

Are any of your patrons kicking because they are not receiving higher prices? If our Belleville factory patrons were receiving the price you pay for ordinary pooled milk, they would think they were in clover.

Oh, yes! Some of them would kick if they got five cents a quart. They are never satisfied.

It is stated by the Five States Association, is it not? that there is a great gulf between the Tioga county farmer who furnishes the milk and the man with the dinner pail or pitcher who buys it in New York. In other words, that the Exchange is milking them at a great rate. Is it true that all milk is selling there for eight to ten cents per quart, the Exchange and dealers pocketing all above that which the farmer receives, which would mean, at present prices here and there, from five to seven cents per quart?

No, sir. There is not a scintilla of truth in it, if we except a few herds, that do not represent 10% of the milk shipped. The average price in New York is not above five cents, which does not afford any such per cent of profit as is claimed. Much of it is actually sold for less than three cents. For instance, the firm of Seigel, Cooper & Co., a great department store, is now selling hundreds of cans—not quarts, but forty quart cans—of milk daily, at the rate of two quarts for five cents. There are some uptown peddlers who retail it from wagons for five to six cents per quart, and there are some herds, only a very few, like Morton's and the Havemeyer dairies that sell for eight to ten cents. But there is not enough of them to cut any ice, so far as high prices are considered, in the market.

What about the future of the so-called Five States Milk Association? Is it going to materialize and turn the milk world up side down, and is it true that the recent advances



Four Doctors Failed.

Think of a woman being sick and suffering six years when she might have been well all that time!

Think of her taking the treatment of four doctors and getting no better.

Think of the pain she endured—of the uselessness of her life in those six long, dreary, miserable years.

Think of the distress of a refined, modest woman during the useless examinations and treatment of four different doctors who each and all failed to give her any comfort.

Think of all this and then think that she was finally cured—completely, wholly, permanently cured right in the privacy of her home without the abhorrent "examinations" and local treatment so uniformly insisted upon by home physicians—cured just as she might have been six years before.

These are simply the facts in the case of Mrs. M. B. Wallace, of Muenster, Cook Co., Texas, who writes:

"I had been a great sufferer from female weakness. I tried four doctors and none did me any good. I suffered six years, but at last I found relief. I followed your advice, and took four bottles of 'Golden Medical Discovery,' and eight of the 'Favorite Prescription.' I now feel like a *new woman*. I have gained eighteen pounds."

Dr. Pierce's Favorite Prescription is a medicine made for just one purpose—to cure disorders or diseases of the feminine organism. It is the only preparation of its kind introduced by a regularly graduated physican—a skilled specialist in the diseases of women, whose thirty years of successful practice are a guarantee of health to all sufferers who consult him.

Every woman may write fully and confidentially to Dr. R. V. Pierce, Buffalo, N. Y., and may be sure that her case will receive careful, conscientious, confidential consideration, and that the best medical advice in the world will be given to her, *absolutely free*.

In addition to this free advice Dr. Pierce will send a paper-bound copy of his great 1,000-page book "The Common Sense Medical Adviser," to any one who will send 21 one-cent stamps to pay the cost of mailing. French cloth-binding, 31 stamps.

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

A TRIUMPH OF SCIENCE.

To economical and up-to-date Butter Makers, the Best Color to use is the

ALDERNEY
BUTTER COLOR

It contains all the requirements to make perfect butter and is declared by all who use it, as a triumph of science.

LET US SEND YOU A SAMPLE—IT'S FREE.

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Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

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There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

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AMERICAN
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First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

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Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and **S. M. BARRE,** Winnipeg, Man.

in the price of milk has been brought about through its influence in New York?

In my opinion, it will never amount to anything nor has it brought about any advances in the price of milk. They came from natural causes, mostly because of a stringency in the market, brought about by the terrible drouth which extended almost across the continent, and which shortened the supply, thus raising the prices. At the same time, the demand for milk in New York and adjacent cities has all the time been increasing owing to the increase of the number of consumers. If last year's fall rise in the price of milk was due to the influence of the Association, why did it not keep the price up? Why did it allow prices to drop in January, when the increase of product did not seem to warrant it? It's all bosh. It has never, in my opinion, influenced the market, nor ever will; at least not at present. I know Mr. Lattamer claims it has, and will further influence prices, and that the dairymen are going to realize from half a cent to a cent a quart more than they have heretofore, but we fellows who are handling milk in the quantities, know better.

You say you run a number of rented creameries. Who supplies the butter makers for them?

We furnish butter makers for about a dozen; the others are furnished by the owners of the plants.

How many pounds did you make, all told, last year?

A little more than 3,000,000 pounds. This year, notwithstanding the dry season, we shall nearly reach the 4,000,000 figures.

How do you account for this advance, with the drouth to face?

Well, we have a creamery or two more; then the dairymen are making more fall and winter milk, thus allowing the cows to go dry during a greater part of the drouthy season. There is evidence of quite a marked progress on this line among some of our patrons, and which begins to be felt by us.

Are you getting all the milk now that you want?

No; I have just returned from a trip up the Erie, as far as Jamestown, where I went in search of more milk, but could not get it. A Mr. Adam, of New York, is also here now, looking for an extra supply for his customers. But, from all sources or directions, the reports are the same, no more to be had.

What are the future prospects, then, for prices of milk and butter?

They are going to go higher for milk until the usual increase in January; in butter, till there is more in the market. I am looking for quite a spring in that line.

How is your butter packed, as a rule?

Nearly all of it goes in prints, varying in size from an ounce to a pound; but we send some in sixty pound tubs. We have some customers who want it that way, preferring to repack it in prints suited to their trade. Most of those cus omers have a stamp or monogram of some kind with which they stamp the print.

What prices are you now getting, and do you succeed in keeping the quality uniform?

We get from thirty to sixty cents; nothing less than thirty cents. Of course, the very small prints bring best prices because they cost more than do the heavier ones. The quality is very uniform.

Do you color all your output, or does some of it go uncolored?

Oh, no. Very nearly or quite one-half our shipments go uncolored; and, for some customers, the whiter they are, the better they suit. Some of the hotels and cafes require uncolored butter, it being a sort of fad with them.

This brand of butter is mostly made from Jersey and Guernsey milk, bought on the Babcock basis, and which tests very high in fat. In one of our creameries, of eighty-five patrons, the per cent of fat ran from 4.4 to 5.6% for October. Another creamery with sixty patrons, runs just about the same. There is scarcely a cow among these patrons which is not either a Jersey, Guernsey or high grades of those breeds. We also have some fine Holsteins which test as high as 4.0 %. There are some which also show 3.6% while others are down to 3.0%.

How many cows are represented here?

Probably 1,300 to 1,400. This is the center, and the shipping station here and at Tioga Center, cuts off a large number we would otherwise get. There are six of those stations, all within six miles of us.

How much does the price of butter fat vary during the seasons.

It varies with the market; so far, seventy-one cents has been the lowest; $1.30 the highest, and we pay ten cents per hundred for separator skim milk. During the June flush we make from four to five tons a day of sizing curd, which requires considerable milk.

There is scarcely a cow among those patrons, that is not either a Jersey or Guernsey and it is this butter that goes in prints from an ounce to a pound, none larger, and brings the best prices. This season the sea shore and other summer resorts' demand has been greater than we could supply.

Have you ever colored butter or known of it being done for the purpose of concealing defects in its manufacture, bad flavors or dirt? Do you think it is ever done?

Not at all. Such a statement is all sheer nonsense. Too much butter color, however, will give to butter a foreign flavor that is distasteful to most fine palates. So we guard against that defect.

Do you not color some of your butter bebecause the market demands it.

Certainly; we could not sell a pound of uncolored butter to some customers. It is colored, just as some cheese, to satisfy the eye of certain customers.

Do any of your patrons kick at the decisions of the Babcock, and, in estimating yield of butter from it, do you ever find much deviation from the churn?

None of our patrons kick. Some of them did at first, but they soon got over that. The result is, they now have cows giving much richer milk than they did when we first introduced the Babcock. Whenever I have had occasion to estimate the butter yield from the Babcock verdicts, where the churning was what it should be, I found both the churn and test fully agreeing. There need be no trouble in that direction. In fact, there is none, as shown by the harmony between the test and churn in hundreds of co-operative creameries all over the country. That question, I supposed, was settled sometime ago.

How much milk do you think these Guernsey and Jersey cows, which furnish your two crack creameries, give each per year? In my judgment, about 3500 pounds would be about the right figures. But there is a yearly improvement along that line. Much more grain has been fed and the stables made better during the last five years. Within that time, many thorough-bred sires have been put in the herds —mostly Jersey and Guernsey. There has been no special effort among owners of other breeds. More heifer calves are now being raised and better methods all along are followed.

Do these dairymen make many individual tests of their cows.?

There are nearly or quite 2000 patrons divided up among the creameries, and I could not name a man among them who makes individual tests of his cows. As a rule, they don't know the best from the poorest in their herds. All they know is from our statements of the test of their herd's milk.

Is not 3,500 pounds rather a light yield for such cows as you say compose these herds.

Yes, it would seem that they ought to give more milk, but we find as a rule, that cows giving milk testing so high a per cent of fat, give smaller yield than cows do testing less. But they give just as much fat as do some of the big milkers, and fat is what we are after.

What proportion of these patrons have silos?

Nearly all of them—say, 80%; a very large number of which have been built within the last five years.

Are there many sheep kept on these dairy farms?

Not many, but the poultry interest is rapidly growing and has become a great factor. But the pig does not seem to "be in it" to any great extent here.

Belleville, N. Y. C. W. JENNINGS.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle; gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.



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which are made of best gray iron castings and lined with steel plates, with boilers of extra quality galvanized steel. So made they require less fuel and heat quicker than all others. Made in three styles and five sizes, from 25 to 100 gallons capacity. Heavy stock—can fill orders instantly. Write.

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Feeding Steers. This feed makes quick, heavy growth. Steers fed on it develop evenly and furnish tender, juicy, sought after meat.

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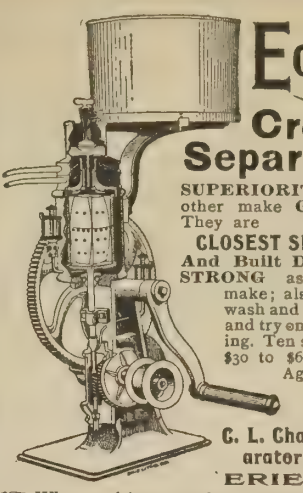
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SUPERIORITY over any other make Guaranteed. They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

Catalogue FREE.

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ERIE, - PA.

When writing mention HOARD'S DAIRYMAN



1900 DAVIS 1900 CREAM SEPARATOR

Makes the work easy and profitable to the dairy farmer. Agents wanted. Catalogues free.

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Second-Hand SEPARATORS

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.

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THE YOUNG AERATOR And COOLER



Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

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Box 135, Aurora, Ill,

GOVERNMENT POSITIONS

8,000 Appointments were made during the past year to Civil Service places, and a large number is pending for 1900. We prepared BY MAIL a large percent of the successful ones for the examination, and the lucky ones of 1900 will be largely those whom we assist. Let us assist you. Send for free catalogue, No. B-69. COLUMBIAN CORRESPONDENCE COLLEGE, 225 Pennsylvania Avenue S. E., Washington, D. C.

FOR SALE

The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms. two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

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THE EUREKA DEHORNING CLIPPER

has shortest leverage, greatest power, the only reciprocating knives, smoothest cut, will not crush horns, knives cannot interlock, interchangeable parts. Superior to all others. Fully guaranteed; catalog free. The Eureka Dehorn'g Clipper Co. Ltd., South Lyon, Mich., U. S. A., or W. S. Young, McPherson, Kan.

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THE SUPERIORITY OF THE

Improved United States

CREAM SEPARATORS

Is Constantly Testified To by Their Users.

The following letters tell their own story. Read them carefully, profit by the experience of others and do not be persuaded into purchasing some other make said to be just as good. Remember that THERE ARE NONE SUCH, as has many times been demonstrated.

Three Reasons Why the U. S. is the Best.

FARMINGTON, MINN., Sept. 14th, 1899.

After using a No. 1 Improved U. S. Separator in our creamery all summer I am pleased to write you that it is giving the best satisfaction of any machine I ever saw. My work has given me quite a knowledge of different separators, having run several Alpha De Laval, Sharples and Danish-Weston machines. After this experience it gives me pleasure to write that my choice is the U. S.

First, because in my creamery I have skimmed milk at a temperature of 72° and obtained a result of .02½ of 1 per cent of fat left in the skim milk as shown by a double neck bottle.

Second, I can run the cream as thick as anyone would wish to have it.

Third, it takes but little power and runs as smoothly as any separator made.

FARMINGTON CREAMERY CO.,
Per M. M. HJERMSTAD, Pres.

Runs Full Capacity and Skims to .03 of 1 Per Cent.

GOTHA, MINN., Sept. 18th, 1899.

We are using two No. 1 U. S. Separators in our creamery here. Running at full capacity they leave only .03 of 1 per cent of fat in the skim milk.

Our machines run fine and give the best of satisfaction.

J. E. LARSON, Buttermaker, Gotha Co-Op. Creamery.

Not Over .025 Loss in Skim Milk.

PEARL VALLEY FARM,
Pearl Creek, N. Y., June 30th, 1899.

This is to certify that I have run a No. 1 U. S. Turbine Separator three weeks. I find by testing the skim milk at different times that the test does not exceed .025 of one per cent. I am of the opinion that every one in need of a separator will make no mistake in buying a U. S. Previous to running this machine I owned and run a No. 3 U. S. Separator for two years.

W. A. HAWLEY, Operator and Proprietor.

Runs to Full Capacity and Leaves Only a Trace of Fat.

TURNER CENTER, ME., May 6, 1899.

We have been using one of the No. 2 United States Steam Turbine Separators in our creamery since Nov. 1898. It runs very steadily, is up to its rated capacity, and repeated tests show just a mere trace of fat left in the skim milk, not over .02. The pressure regulator is a perfect device for controlling the speed.

H. B. WHITMAN, Operator,
W. C. WHITMAN, Director,
Turner Creamery.

Whenever in need of anything in the Dairy or Creamery line, be sure to write us before purchasing elsewhere. Highest quality at reasonable prices.

VERMONT FARM MACHINE CO., = = = Bellows Falls, Vt.

"Devlled Butter."

Pray what is "Deviled Butter?" 'Tis a name
I do not care to use with daily bread,
If I can help it, for the devil's shame
O'er all he makes or touches has been spread.
What's "Deviled Butter?" You have seen the stuff
That's traded out at country stores—'twill stand
Until so strong that grocers gray and tough
Will only touch it with their nose in hand.
Then comes the devil in some mortal guise,
And buys the stuff and melts it o'er the fire—
The odor rises nearer to the skies
Than he who works the fraud can e'er aspire.
Then, after roasting it, they drop the fat
On ice to give it semblance of a grain.
And then to heap insult on top of that,
With aniline the filthy stuff they stain.
Then, marked "Fresh Creamery"—its lying face
Made up by human devils—slyly then—
It sneaks, a fraud, into the market place,
To live upon the names of honest men.
—*Rural New-Yorker.*

A Practical Dairyman On the Feeding Question.

The editors of HOARD'S DAIRYMAN are all the time emphasizing the necessity—financial necessity—of paying especial attention to the question of feeding the dairy cow in a both practical and scientific manner. There is a great lot of men who think that to be scientific, to know why this or that is done, from the best reason of the thing, is not practical. This is a very costly and wasteful mistake. If we know all we can of any thing, we shall make mistakes enough.

John Armstrong, of De Smet, South Dakota, is a thorough going dairy man. He has taken up the study of the feeding problem, and he tells the story of his experience in a plain, convincing manner. Read what he says, and see if it does not agree with the constant teachings of HOARD'S DAIRYMAN:

There is one tool experience has taught us, we, like many other farmers, had not used enough, that is, the lead pencil. It always seemed to me that farmers are not just like other business men; they do not think enough, and do not keep accurate accounts. So if one was to ask what that steer or hog cost him, nine out of ten farmers could not tell you.

Suppose you should asks why he feeds corn or barley or oats to an animal, he could not give you an intelligent answer. As a rule, they do not study the feeding values of the foods they use, or in other words they do not feed a balanced ration. One should know the digestible nutrients in all the foods used on the farm, so that he can feed intelligently.

All animals need a certain amount of food to keep up the waste going on in the system, such as keeping up the animal heat, and the wear and tear of the body. Now, we will take a milch cow for example. To have her do her best at the pail, she must have food not only to keep up the heat and wear of the body, but also enough to manufacture the milk from, or in case a steer, to grow and lay on fat.

And right here let me say that the experiment stations and institutes in the different states are doing a grand work for the farmer in investigation along this line. And every farmer should try and use the knowledge gained through those experiments. I make the assertion, that at least one-third of the foods used in this state is wasted, owing to the lack of knowledge on this subject.

It has been fully demonstrated that an animal to do its best must have, at least, two pounds of protein to twelve pounds of carbohydrates and fat per day. This is called a balanced ration for a cow weighing 1,000 pounds.

A ration that is best adapted to a work animal is 1 to 7 or 8, and for a milch cow or an animal fattening, 1 to 6; that is, one pound of protein to six pounds of carbohydrates and fat.

This balanced ration idea has been worked out of the experience of practical stock feeders and dairymen, in connection with the work of the scientists. And it has been found profitable to take heed of it, not only in feeding your animals for growth and milch cows, but in feeding hogs, sheep and cattle when fattening them. It has been found that to feed such animals, exclusively, corn for their grain feed, is not economy, although corn may cost less per hundred pounds than any other grain. The following table shows the average amount in pounds, and tenths of pounds in dry matter, and digestible nutrients in one hundred pounds of the following feeding stuffs:

DIGESTIBLE NUTRIENTS.

	Dry matter.	*Protein.*	*Carbohydrates.*	*Fat.*
Corn	89.0	7.9	64.7	5.0
Corn and cob	89.0	6.4	56.3	2.9
Oats	89.0	9.2	44.7	4.2
Barley	89.1	8.7	66.1	1.6
Wheat	89.5	10.1	57.3	1.7
Rye	88.4	9.9	65.5	1.1
Millet	86.0	8.9	45.0	3.2
Brewers grain	24.3	3.9	9.3	1.4
Bran	88.1	12.8	44.1	3.0
Shorts	87.9	12 6	45.4	3.4
DRY FODDER OR HAY AND STRAW.				
Corn fodder	57.8	2.5	34.6	1.2
Corn stover	59.5	1.7	32.4	0.7
Millet	92.3	4.5	51.7	1.3
Prairie hay	87.5	3.5	41.8	1.4
Timothy	85.8	2.8	43.4	1.4
Barley straw	85 8	0.7	41.2	0.6
Oat straw	90.8	1.2	38.6	0.3
Rye straw	92 9	0.6	40.6	0.4
Wheat straw	90.4	0.4	36 3	0.4

A study of the above table will enable the careful feeder to compound a balanced ration, but in order to make the matter more plain, we give below a comparative table of the different foods, based on the percentage of digestible protein contained in them. We give the value of bran and shorts per ton, and other feeds per bushel of ground feed. Deduct 4 cents per bushel for grinding:

When bran is	$6.00	$8.00	$10.00	$12.00	$14.00
Shorts are worth	4.80	6.40	8.00	9.60	11.20
Barley	.11	.15	.18	.22	.25
Oats	.07	.09	.12	.14	.16
Corn	.12	.15	.21	.25	.29
Rye	.14	.19	.24	.28	.33
Wheat	.15	.21	.25	.30	.34
Millet	.13	.17	.22	.26	.30
HAY AND STRAW FODDER PER TON.					
Prairie hay	$3.00		$4.50		$6 00
Timothy hay	3.00		4.50		6.00
Corn fodder	2 29		3.44		4.59
Millet hay	3.44		5.16		6.88

A study of these tables will show the stockman, by comparison with what he is feeding, whether he is using the proper preparations to obtain the most economical results.

In our experiments we find that bran and shorts are very economical feed for all kinds of stock. We fed it largely to our milk cows, calves and hogs the past year. We feed the cows an average of ten pounds of ground feed each, per day, with twenty pounds of good prairie hay. We generally feed grain to the first of June, and commence again about September 1st. I kept an accurate account with my cows, the past year; they averaged over 6,000 pounds of milk each, which made 301.5 pounds of butter.

Putting a fair valuation on the calves and pork fed from the skim milk, after deducting all cost of feed, my cows net me $62.50 each, clear of all expense. We are working to get a herd of cows that will produce at least 400 pounds of butter each, a year.

In conclusion we would ask the farmers to use the lead pencil more than they do; if you are milking cows, find out by keeping an accurate account with each cow what she charges you per pound for butter. Try feeding a balanced ration. I would rather have a good dairy of twenty-five cows than the best bank in the state, (for I have had experience in both).

By the use of manure from our cows we have doubled the yield in our cultivated land. To succeed, we must try to do the right thing in the right way, and at the right time.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 6,540 pounds. Bidding opened at 25½ cents, and advanced to 26½ cents, at which price all sales were made. These sales were reported, the market being declared firm at 26½ cents.

Factory.	*Pounds.*	*Price.*
McConnel	720	26½c.
Red Clover	1,800	26½c.
Big Foot	2,100	26¼c.
Dundee	1,200	26½c.
Total	5,820	

The sales for the corresponding week of

the three preceding years were as follows:

Nov. 28, '98, 10,500 lbs. of butter sold at 22c.
Nov. 29, '97, 11,580 lbs. of butter sold at 22c.
Nov. 30, '96, 42 000 lbs. of butter sold at 23@23½c.

The New York market Monday was reported steady at 27 cents. H. C. B.

Elgin, Ill., Nov. 27.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

ABORTION.—HEAT AFTER SERVICE.

Is it possible for a heifer to abort and not have it noticed?

Can a cow be in heat several times, and served each time, and be with calf from a former service. E. W. A.

Ormond, Fla.

ANSWER.

Yes.

Yes.

FOOT AIL.

I have a cow that has sores on both hind feet; they are between the split of the hoof; they are hard scabs; come off sometimes and bleed; they have been on for about nine months. A READER.

Camden, Ind.

ANSWER.

Foot foul is the result of neglect; filth is the prime cause. Soak the feet in warm water and then thoroughly cleanse them with tar soap and hottish water, then throughly dry them. Pyroligneous acid, six ounces, oil of tar, half an ounce; fish oil, 12 ozs. Soak a piece of tow, or cotton batting, thrust it to the bottom. Do this for three dressings. Then soak a piece of same in compound myrrh and aloes, and crowd this gently to the very bottom for several days; then dress with calamine ointment for a few days. Calamine ointment is made of two parts of impure carbonate of zinc, 2 oz; pure lard, 6 ozs., well mixed.

NYMPHOMANIA.

I have a fine Jersey heifer about twenty-three months old. For the last three months she has been taken to four different males, and to-day she is in heat again. Can it be possible she is with calf, and come around regular every twenty days? A. B.

Paducah, Ky.

ANSWER.

Your cow is a nymphomaniac, and must be treated accordingly. Read the advertised remedies in the DAIRYMAN.

BITTER MILK.

Our cow, a Jersey four-year-old, gives bitter milk. W. T. E.

Oshkosh, Wis.

ANSWER.

First, ascertain and remove the cause, which is, no doubt, in some portion of the food. Give immediate full dose of physic, and if needed, repeat in four to five days, and still repeat if the cure is not effective in ten days. The cause is, no doubt, is some toxic plant in the food, of what nature or kind, I am, of course, unable to define without examination.

RHEUMATISM.

I have a five-year-old cow, which cannot fetch her hind feet front, only with difficulty when she walks. Sometimes her foot will push out back, and it is difficult for her to bring it forward, and when she can walk her best she does not seem able to pick up her feet, but rather drags her toes. Her stifles snap at times when she moves. She is hearty and well otherwise. E. S. M.

Dryden, Md.

ANSWER.

You are likely to have a bad case of lumbar rhematism. If so, rub hard with sulphuric ether, three ounces; oil of cedar, three ounces; common turpentine, two ounces; fish oil, ten ounces. Keep well corked, and out of the sun and heat. Shake violently each time of using. If in good condition give full dose of physic and one (1), only, dram of nux vomica. In four days after this give four (4) only drams of blue flag in four ounces of old whiskey and four ounces of cold water. One dose a day for two days; then one dose each alternate day for four doses; then one dose every four days until not needed.

RESULT OF GARGET.

I have a cow that, when she freshened last spring, got garget in one quarter of her bag. I bathed it and put medicine on it, and had to milk her with a milk tube for about four or five weeks. After a while she got all right, but milked harder in that teat, and is a little shy for milk in that quarter. Is she likely to get it when she freshens again? If not, is that quarter liable to go back or will it come out all right? E. E. A.

Onondago Co., N. Y.

ANSWER.

Yes, you will require extra care and attention, when approaching parturition, or she will be likely to be affected again, and this time worse than before. Keep bowels free. Rub with camphorated spirits, strong, six parts; common turpentine, two, only, parts. Use much massage, rubbing, kneading gently, squeezing gently.

You must use an easy milk tube, if one is needed.

FAILURE TO BREED.

We have a registered Jersey cow that aborted July 7, 1898; was due to calve Aug. 29, 1898. In November ('98), she was bred, and has been in heat every three or four weeks; was not bred every time, but has failed to get with calf. Several other cows that aborted about the same time have dropped healthy calves this year. All were bred to the same bull. We had her examined by our veterinarian, when she was in heat, and found her womb was closed; used belladonna to dilate the neck of the womb. That was several months ago. Have used the belladonna once since, but she does not get with calf. She is still giving some milk, but is getting fat. J. M. M. & SONS.

Shippensburg, Pa.

ANSWER.

There is nothing I can recommend but to stop sexual desire for three to four months. Then when she again comes in heat, serve her once, and then keep her alone beyond the sight, hearing and smell of a bull or cow in heat. To do this, I have nothing to offer, in any sense, as good as the special remedies advertised in the DAIRYMAN; nothing as safe and cheap as these, if you select wisely. Please read and make your own selection. I have been in the habit of recommending various remedies to be compounded by the owner. In doing this I am sure I have not done for the best interests of the owners—no medicine is of any use unless it is of a potent nature and compounded scientifically.

LUMP IN UDDER.

I have a Jersey cow with a hard lump, cone-shaped, in her udder just above front teat. What is it? L. A. D.

Gunston, Va.

ANSWER.

Just what you say it is, a hard tumefaction. Paint over the hard spot only with strong tincture of iodine two or three times a day for awhile. If a large, full-sized cow give seventy grains of iodide of potassa in a little cold water as small drench for ten to thirty days. Use massage. Physic the cow thoroughly for some time to come, it will surely help the case.

SORE FOOT.

I have a young cow that has a raw sore in the heel of her left fore foot between the hoofs; it is also sore at the front part of foot between the hoofs. I suspect it is fouls, but do not know. She is so bad that she cannot step on it. This morning I washed it in a strong solution of crude carbolic acid and warm water and then sprinkled in pulverized charcoal. A. G. W.

Binghamton, N. Y.

ANSWER.

Fouls is right. If as bad as you say, poultice with carrot poultice and flax seed, equal parts, and one-twentieth finely pulverized charcoal. Give full immediate dose of physic. After poulticing twice or so, wash thoroughly down to the bottom with tar soap and water as hot as can be borne, 115° F. Then soak tow or cotton batting in pyroligneous acid, eight ounces; fish oil, twenty ounces; oil of tar half an ounce, to be well mixed. Remove the cause or stop doctoring as it will be useless. It is a bad sign as to the management when any such ailments are present.

MANGE.

I have a cow soon to calve, that has flat, scabby warts coming on her teats, and on examining her I find two scabby spots the size of a nickle on her hind quarters. The hair has fallen out at these spots, but they are dry and do not bleed nor seem sore. She had been stabled almost all of her life, but in a clean, well ventilated, comfortable barn. C. M. TAYLOR.

Lynchburg, N. D.

ANSWER.

I think you have mange. If near parturition, you had better wait until afterwards before doctoring, as it might intefere with the cows tranquility. You can dress with almond oil and spermaceti, half ounce each, and one ounce pulverized gum myrrh. Write again after she calves, if needed, and you so wish.

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A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from **Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING.** *Impossible to produce scar or blemish.*

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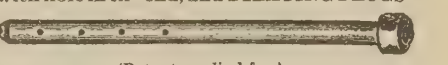
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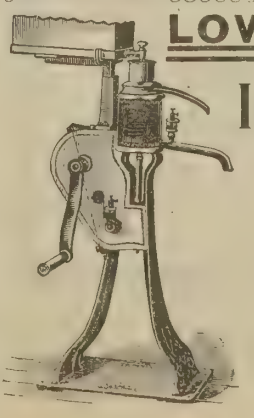


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J. G. CHERRY COMPANY,
Cedar Rapids, Iowa.

Infectious Abortion in Cattle.

[Press Bulletin.]

The term abortion means the expulsion of the offspring before it can live outside of the womb. The expulsion of the offspring after it is capable of an independent existence and before the full time of pregnancy is up is called premature parturition.

Isolated cases of abortion occur here and there, and their causes are almost as numerous as the cases of abortion. Injuries, catching cold, general disease, improper diet, certain drugs, excessive inbreeding, etc., may be mentioned as prominent causes.

Sometimes abortion occurs in dairy herds in the manner of a plague; many or all animals in a stable may be affected and none of the above class of causes can be observed to have acted. This is infectious abortion and is caused by a specific organism or group of organisms. The disease is transmitted from animal to animal by direct contact. The genital organs of the male or female, walls, posts, bedding, or any other object which is in easy reach and is likely to come in contact with these regions, may act as carriers of the contagion and thus aid in spreading the disease.

Symptoms—Since we cannot hope to check the progress of a case of contagious abortion, once infection having taken place, the premonitory symptoms will not be mentioned.

The symptoms of the act of abortion are plain enough in most cases not to need discussion. During the first three months of pregnancy, however, the abortion may take place and never be suspected if the small fœtus is not found. Soiling of the tail with mucous, blood, etc., will then indicate what has taken place. Sometimes the udder becomes tense, and frequently milk is secreted.

Treatment—The best treatment, which unfortunately cannot always be resorted to, consists in the complete separation of all pregnant animals from the rest. Immediately after delivery (whether normal parturition or abortion) remove the afterbirth and burn it. Burn all the litter with which it or any of the fluids have come in contact. Disinfect the animal's stall with 5% solutions of carbolic acid, and irrigate the vagina and uterus with a 1% solution of creolin twice daily until all unnatural discharges cease.

For irrigation, use a large funnel to which is attached a one-half inch rubber tube five feet long and with a smooth, hard rubber nozzle six to eight inches long at its end. Fill the funnel and tube with the liquid, insert the nozzle and regulate the pressure of the liquid by raising or lowering the tube.

In addition to this, wash the region of the external genital organs of all pregnant cows every day with a 3 to 5% solution of carbolic acid or a *one-tenth of one per cent* solution of bichloride of mercury. Disinfect the entire stable twice a week with a similar solution. Internal applications of thirty drops of carbolic acid dissolved in a pint of water and given as a drench every other day to pregnant animals is recommended as successful in some cases.

Finally, burn all suspicious manure, avoid contact with infected animals and breed to males from herds known to be free from the disease; but never breed to such a male without previously disinfecting the genital organs of the female by injecting gently, into the vagina, a few quarts of a 1% solution of creolin. By following these directions minutely we can hope to control the disease in the course of a year.

If aborting cows are not of special value as milkers, or for other purposes, fatten them for beef.—Kansas Experiment Station.

Relieving Choked Cattle.

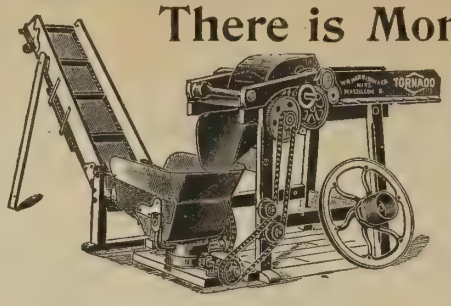
Choking in cattle is usually caused by swallowing a potato, apple, piece of turnip or carrot, or a piece of corn cob. No matter in which part of the gullet it is lodged it causes great distress. The animal coughs, saliva runs from the mouth, eyes bulge out, back is arched and bloating also takes place. If it is in the upper part of the gullet the animal soon dies from suffocation. If it is in the middle or lower part the animal may live for several days. If it is in the upper part of the gullet give a little oil and then rub the hand up and down the throat to scatter the accumulation. It may be necessary to give a little oil several times, and continue the rubbing, as it may take some time to overcome the choking. In case no oil is at hand a similar attempt may be made by pouring down some water. If the obstruction can not be forced up or down by oiling and rubbing the gullet, use a probang, which is made of spiral wire covered with leather and which will bend with the neck. There is also a gag to put in the mouth, with a hole in the center through which the probang passes. Oil the probang and let one man take hold of the animal's horns or ears, while another passes the probang through the hole in the gag and back into the gullet. Press gently until the object is felt, then by steady pressure it will pass into the stomach. Too much force should not be used for fear of rupturing the gullet. No unyielding article should be pressed down the gullet, as it is almost sure to rupture it. If a probang is not convenient take a piece of rope about three-fourths to one inch in diameter, fray out a little of the end and tie a piece of string around it to form a soft knot, grease this well and it will supply the place of a probang. In cases where an animal can not be relieved by this treatment, cut down on the gullet with a knife, making an incision and removing the material. Clean the wound and bring the edges of the gullet together firmly and sew with silk thread or catgut, letting the ends hang out of the external wound, bring the edges of the skin together, put a bandage around and keep it wet with cold water for twenty-four hours, and it will usually heal. Give the animal soft food for some days, and if a probang was used and the gullet not cut give soft food two or three days.—Dr. D. McIntosh, in *Denver Field and Farm*.

When Milk is Scarce.

Dr. Somerville, professor of the Dunham college, England, has recommended the following home-made calf meal, from experiments recently carried out in the North of England. It is said to contain the same proportions of digestible food constituents as new milk, has been tried with satisfactory results, and will be further used. It is cheap and highly nutritious, and seems to suit the calf's stomach. Calf meal: Flour, one part by weight; ground linseed (no oil extracted,) two parts by weight; ground linseed cake, three parts by weight To prepare it for calves: Take two and a half pounds of the "meal" as a day's allowance for each calf, scald with boiling water, afterwards adding more water so as to make two gallons from the weight of meal. This gruel is recommended to be given in a tepid condition at three meals to young calves, adding a little salt, and sweetening with sugar before serving. It should gradually be made to take the place of new milk after the first fortnight. Taking flour at $5.75 per barrel, ground linseed at three cents per pound, and ground linseed cake at one and three-quarter cents per pound, a calf would cost only about forty-four and a half cents per week to be fed.

New York and Chicago Milk Business.

The New York milk exchange has raised the price from $1.40 a hundred pounds, or 3.02 cents a quart, to $1.50 a hundred pounds, or 3.24 cents aquart. These are gross prices, which are paid to the producer on delivery of the mil k to the city. The average deduction for freight and ferriage is thirty-one cents, which leaves a net price of $1.20 a hundred pounds, or 2.57 cents a quart. The increase in the price is due to the increasing scarcity of the supply, because of the drouth. A committee of the Chicago Milk Dealers' Association has fixed the price for November and December at seven cents a quart, and a further increase may be made during the other winter months. The advance is due to that made by the producers to dealers, of from thirty-five to forty cents a can.

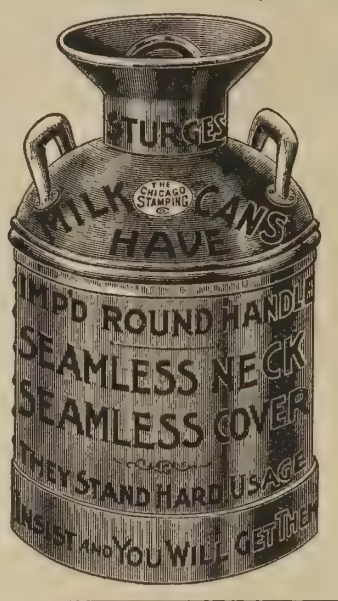


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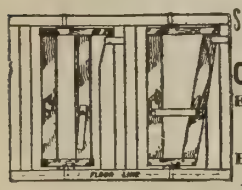
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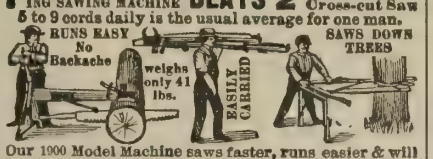
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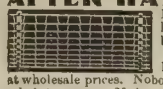
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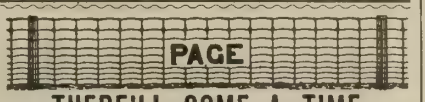


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It's the one that is sold direct to the farmer at wholesale prices. Nobody can buy it cheaper than you can. Entirely interwoven. No loose ends. Circulars and special discounts free.
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THERE'LL COME A TIME

When you'll need a Hog Fence. Our 8 wire 24 inch high, pattern **has proven** very satisfactory.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

WRITE US
Metal Wheel Co.
HAVANA, ILLINOIS



SAVE THE MONEY

you are spending on repairs and buy new wheels. It is cheaper and in every way better. We sell
4 Buggy Wheels, 7-8 in. Steel Tire for $7.50
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Special Wheels for Milk wagons—Steel tires 1¼x⅜ **$11,25.** Write for price list **No. 84** containing directions for measuring.
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Our Incubators

have all the latest improvements, are sold at **very low prices** and **guaranteed to please** every customer. Send **6 cents** for our 150 page catalogue, which contains **full descriptions** of our extensive line and tells **how to raise poultry successfully.** Plans for poultry and brooder houses.
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A SONG OF SUCCESS



would make another good name for our
20TH CENTURY POULTRY BOOK
It deals with all those subjects which tend to success in the poultry business, treated by the masterful hand of experience. No subject neglected, it hits them all. It's practical; can be adopted by everybody in the poultry business. Tells about the renowned **Reliable Incubators and Brooders.** Book sent for 10c to cover postage
Reliable Incubator & Brooder Co., Box B51, Quincy, Ill.



Farm Raised Poultry

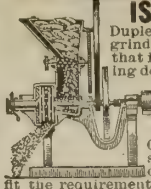
Pay the buyer because they are **strong, vigorous, healthy and will breed healthy stock.** All **FARM RAISED** Our large Poultry Guide explains all, and tells how to make big **money** with poultry. **Worth $25.** Sent for only 15c.
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INCUBATORS THE CYPHERS.

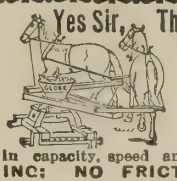
One Style Only. OUR BEST.
Warranted to last **Ten Years** without repairs and to **out-hatch** during three trials any other incubator—bar none; **THIS OR YOUR MONEY BACK. Built for business—sold on honor.** 16-page illustrated circular and price list **FREE.** Poultry Manual and Catalogue No. **123** (160-pages, 8x11in.) entitled, "How to make money with Poultry and Incubators" sent postpaid for 15 cts. in stamps—**worth dollars.** Address nearest office.
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Chicago, Ill. Wayland, N. Y. Boston, Mass.

THIS GRINDER



IS THE KELLY DUPLEX
Duplex means that it has a double set of grinding plates or burrs. That means that it is the **fastest grinder made.**—doing double the work of any mill of similar size. Requires only **light power.**

CRUSHES AND GRINDS
Ear Corn, Cob, Husk and All.
Grinds cotton seed and all grains single or mixed. Makes coarse, medium or fine feed as desired and to fit the requirements of the animal to be fed. Simple, easy to operate, durable. Send for free Catalog No. **80**
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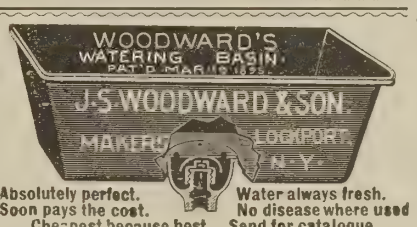
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Equalizes the load; each horse must pull his own share. Great Gain in capacity, speed and comfort. NO GEARING; NO FRICTION. GIVES YOUR HORSES A CHANCE. Only one set of grinders needed for all kinds of work. (Also make 7 sizes belt power mills; 2 to 25 horsepower.)
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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it.
Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. **Spring** clevis eases draft and saves harness. **Automatic Lock** on rear wheel. Celebrated **"Garden City Clipper"** bottoms used.
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BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.



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Water always fresh. No disease where used. Send for catalogue.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to
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GUARANTEED NOT TO BURST

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The Standard of America!
Strongest! Takes least power! Carries heaviest tools! Drills much faster! Most convenient to handle! Will last longer **and make the owner more money** than any other Well Drill on earth.
We also make many other machines for drilling wells of all diameters and depths. Machines for Horse, Steam, and Gasoline Power. **Write for full particulars.**
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LIGHTNING WELL MACHY

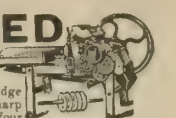


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STEAM PUMPS, AIR LIFTS, GASOLINE ENGINES
WRITE FOR CIRCULAR No 6
THE AMERICAN WELL WORKS
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Send us your bill for our estimate.
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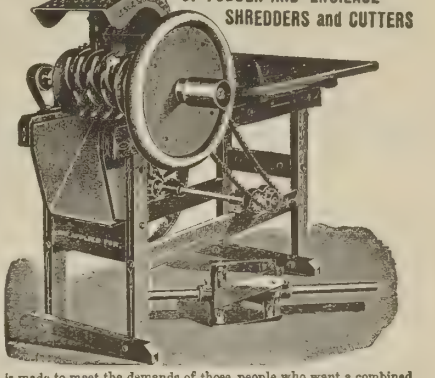
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with the **WOLVERINE Cutter and Shredder.** Knives and cutting bar selected oil tempered tool steel. Cutting bar has 4 cutting edges; when one edge dulls simply turn it over and get a new sharp edge; that makes the life of this machine four times greater than the old style. Shredder head made of saw steel, **interchangeable with knife head. Safety** fly wheel. **Stop feed lever. Adjustable** knife and shredder head. Made in 13 sizes. Largest cuts a ton in 5 minutes. **Swivel Carrier.**
SNAPPING ROLLS to snap off the ears, are furnished on three sizes of shredders without any extra cost.
RUNS EASIER, cuts faster, lasts longer than any other machine made. **Prices low.** We have **no agents.**
TRY THEM —if not as we say, **return them at our expense.**
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A full line Feed Cookers, Robs, Cutters, Blankets, Robes. Send for **FREE** fall catalogue giving latest prices.
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THE "LESLIE" LINE

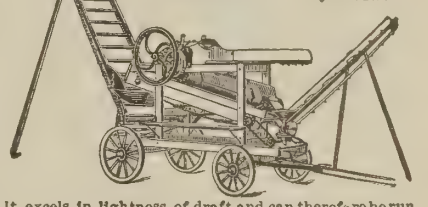
OF FODDER AND ENSILAGE SHREDDERS and CUTTERS



is made to meet the demands of those people who want a combined machine that **really combines. A shredder that will shred**—not chew, bruise and haggle the feed—**and a cutter that will cut.** The **shredder head** in the machine and the **cutter head** lying on the floor are **interchangeable,** and either or both are supplied as ordered. This is the only true shredder made **requiring only low speed.** Equipped with any length of straight or angle carrier to order. **Remember that this machine covers the whole field of cutting and shredding.** Write us for circulars, testimonials, &c.
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Is the only one made which successfully fills the demand for a satisfactory, strong and durable husking machine, low enough in price to be within reach of every farmer.



It excels in lightness of draft and can therefore be run to do a satisfactory amount of work with less power than any husker made. If you want a **husker, sheller, ensilage or fodder cutter, shredder, wood saw, grinder, sweep power, tread power, wind mill, etc.** we can furnish you the best. Our 160-page catalogue will convince you. **IT IS FREE.**
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dollars saved by the use of the
PEERLESS MILLS.
Unrivalled in capacity and quality of work. Will grind ear corn and all grain to any degree of fineness. Will make family meal or feed.
Agents Wanted Everywhere.
Send for free circulars, prices, etc.
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Free for the asking, our new Sweep Mill and Feed Cooker Catalogue, describing large line of plain, duplex and geared grinders for one, two or four horses. We ship from Omaha, Kansas City, St. Louis, Indianapolis, Bloomington, Minneapolis.
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FEEDS AND FEEDING

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THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

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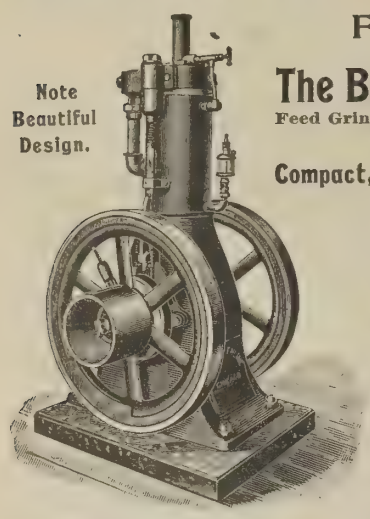
"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

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FOR GAS OR GASOLINE.



Note Beautiful Design.

The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

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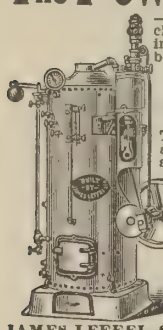
3 Actual H. P., On Time	$160.00
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Price includes Gasoline Tanks and full set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

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SOLE MAKERS,
239-241 So. Jefferson St., **Chicago, Ill.**
Horizontal Engines made in larger sizes.

The Power Question

—for farm use, dairies, creameries, cheese factories—anything requiring light power, is best settled by buying one of these



LEFFEL ENGINES.

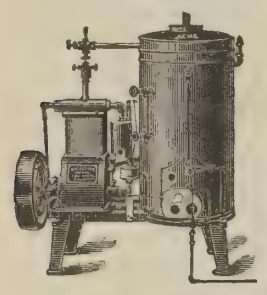
They are made in both horizontal and upright pattern, with engine attached to boilers. Being very simple and direct in construction they are economic of fuel and **great developers of power.** Best for **cutting and grinding feed, sawing wood, pumping water, separating cream, churning, &c.** Made of the best material throughout they are durable and long lived.

Send stamp for our **Book on Engines and Power.**

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The Acme Engine



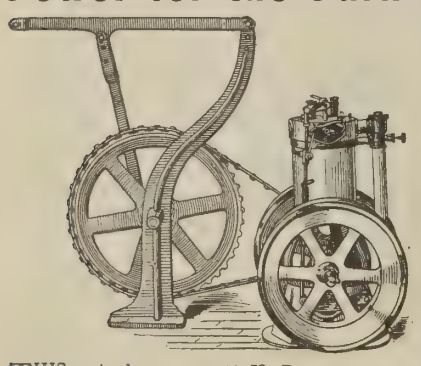
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1 TO 6 Horse Power.

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OLDEST, CHEAPEST, BEST.

15,000 SOLD. Sent on one week's trial to responsible farmers if desired. Get our prices and description.

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WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

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is a money saver on every farm. It increases the grain you have by making it more palatable and digestible.

THE FARMER'S FAVORITE

is a thoroughly reliable cooker at a reasonable price. Furnace made of best gray iron; boiler of best galvanized steel. It is of special value for cooking feed for all kinds of live stock and poultry; for heating water for scalding hogs, etc. Excellent for evaporating Maple sap, boiling down syrup, "sugaring off," etc. Just the thing for boiling down cider. Don't buy until you get our circulars and prices.

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Stock thrives best, fattens fastest, and you save one-third to one-half feed by cooking with the

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Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

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Most reliable, most efficient,

VERTICAL ENGINES & BOILERS



No **Farquhar** boiler has ever exploded. Also standard agricultural implements generally. Send for catalogue and prices to

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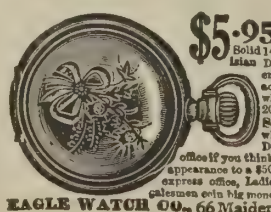
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Solid 14K Gold Plated Case 3 Parisian Diamonds, and Rubies. American movement Jeweled & accurately regulated stem wind & set. Warranted for 20 years.

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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
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A Perfect Milk Wagon



On a Perfect . . . Short Turning Gear

WE make the only drop center wagon that has a self-balancing, short turning gear. All parts are wrought iron forgings. It is so plain and simple that it can't get out of order and if any part should break, any country blacksmith can easily repair it. All other wagons of this kind have complicated gears, and mostly made of cast iron.

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GENESEE BUTTER SALT A flaky grain, very soluble, will not wash out (like fine salt) and brings out the best flavors in the butter.

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Our **STANDARD** weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

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Avoid Fishy Flavors

Wisconsin Agricultural Experiment Station

finds that fishy flavors are "attributable to the action on the butter fat of the chlorides of the alkaline earths in the salt." The station also finds that

Diamond Crystal Salt

contains less than one-fourth of one per cent of these impurities. See Bulletin No. 74.

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HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., DECEMBER 8, 1899. NUMBER 43

University of Ill

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W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
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Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Sharples Creamery Machinery.

TWO SOULS MADE HAPPY.

WHO? The Creameryman and the Farmer.
HOW? By the Moody-Sharples System.
WHY? Both are Making Money.



Capacity 300 lbs
Price $75.00.

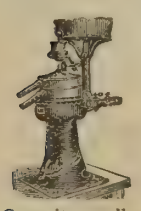
The Moody-Sharples System Creamery at Nashua, Iowa, has been a success from the start, but more so to-day than ever before, and this notwithstanding the fact that it has had to meet the competition of numerous other creameries in that vicinity and to fight a disappointed separator manufacturer who spent thousands of dollars in trying to kill the enterprise because his rattle-trap disk separators were not adapted to this system and had been rejected by the proprietor of the Creamery. The success at Nashua can be duplicated in any other dairy district because the **the system is right.**

The way to make sure of success is to start right and after you get started keep right. Don't start a Moody-Sharples Creamery by furnishing the creamery patrons with complicated, short-lived separators which can only be kept in running order by an expert and which require more time and care from the good housewife in cleaning machines than is required in caring for the milk. Use a strong, well built, simple and durable machine which can be understood and operated by anyone with ordinary intelligence. **The Sharples Dairy Separators are that kind.** A model of simplicity is the **SHARPLES W. H. S. DAIRY,** low in price and in many ways superior to competing machines for which a much greater price is asked.



Capacity 300 lbs.
Price $100.00.

The majority of the human family want the best of everything and in all probability the greater demand will always be for the latest machine with all improvements. The very best hand separator ever sold by anyone is the **SHARPLES SAFETY HAND SEPARATOR** as shown at the left, complete with stand, milk shelf and supply can. The machine can also be run by power attachment, the change being made by adding a power pulley to the shaft. It is made in two sizes, capacity 325 lbs. for size No. 1, and 600 lbs. for size No. 2. The **Safety Hand** Separators are beauties and in every way superior to other hand separators.



Capacity 300 lbs.
Price $125.00.

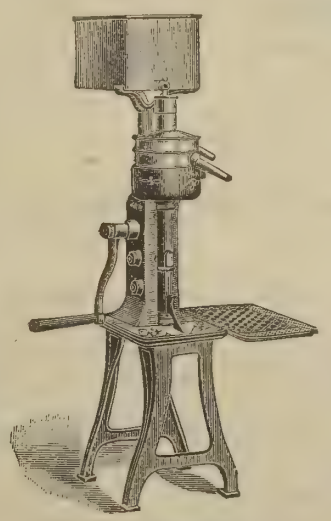
Some dairymen will prefer a power separator which can be set up in a small space and operated in connection with a small boiler or feed cooker. Our **LITTLE GIANT SEPARATOR** is the only successful turbine dairy separator. It requires no labor in its operation, is just as simple as a hand machine, and is just the sort of separator to make the dairyman happy, as it hums a merry tune while skimming the milk. The **Sharples Little Giant Separator** is made in two sizes, the No. 1 skimming 325 lbs. of milk per hour, while the No. 2 has 600 lbs. capacity.

The creameryman who is not making a success of his business should adopt the **MOODY-SHARPLES SYSTEM,** and the buttermaker who desires an up-to-date creamery of his own should write us for particulars as to how he can get a Moody-Sharples Creamery by putting forth a little energy and determination.

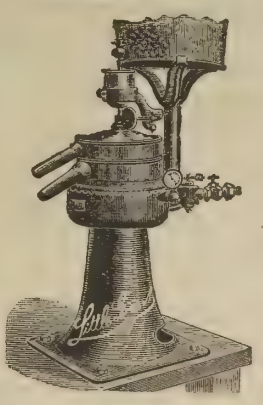
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CREAMERY MACHINERY OF ALL KINDS.

Sharples Cream Separators

lead all separators in true merit. This is true to so great an extent that wherever known, the name Sharples is accepted without question as a synonym of simplicity, durability and general effectiveness. This makes the Sharples machines undeniably the standard of separator excellence. Should you desire a machine that is easy to handle; easy to run; easy to clean; that makes the smoothest and most churnable cream; cream that is free from bitter froth and which will make the best and highest priced butter; that requires little oil and no repairs, and which is absolutely safe, buy the Sharples Dairy Separators.



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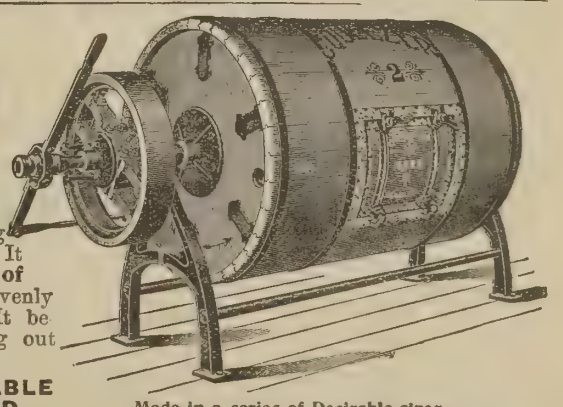
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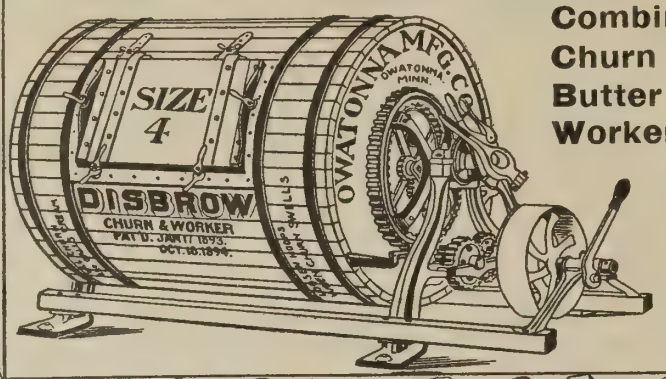
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in your dairy and compare results. If you do not make enough extra butter to pay for it in 6 months, we will not ask you to keep it.

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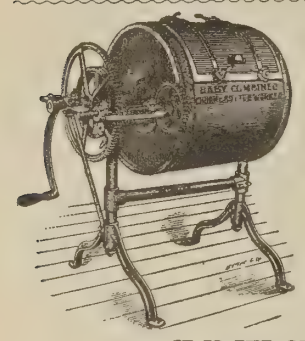
and more of it—a higher price and more to sell—at least $10 per cow per year added profit—if you use

The Kneeland Omega Cream Separator.

Has every good quality of competing machines, besides costing less, running a-half easier, being simple, strong and perfect in its work. Every claim guaranteed, or money refunded. No risk in buying one on such terms. **Agents wanted.** Catalogue and our book "Good Butter, and How to Make It," free. Send for them. Address,

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A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.



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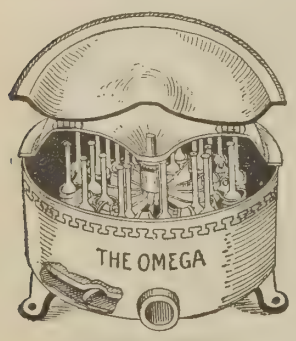
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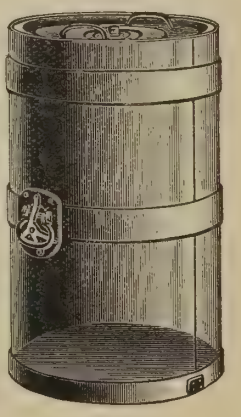
who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.



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YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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AN ARTIFICIAL PRODUCT.

The Rockford (Ill.,) *Morning Star* in giving favorable comment to the editorial, "Cheese as a Substitute for Meat," which appeared in the DAIRYMAN of Sept. 1, has the following to say on the evolution of the cow:

The cow is, all things considered, the most marvelous food producer invented by man, for the modern cow of the dairyman is as much a human invention as are the shepherd dog and the greening apple, the originals of which were the wolf and the crab-apple.

When men understand in its fullness the above idea that the modern cow is an artificial product, they will also see clearly the necessity of constant vigilance on their part in breeding, feeding and care-taking, in order that the cow does not lapse back to her primary character. It is fair to say that there are a vast number of men keeping cows who are utterly unfit for the business. They lack comprehension of what they must do; consequently their cows cannot do what they should do, to do well.

SWINDLING THE PATRONS.

The farmers about Union Grove, Wis., are mourning the loss of $8,000 due them from a cheating creameryman, who has fled.

Every little while this same experience comes up and still the cheating goes on.

We will venture to assert that not one in fifty of those farmers are real students of dairying, or are readers of sound dairy literature.

Go where one will, it will be seen as a curious fact, that the men and communities who get most seriously taken in and swindled, are those who pay the least attention to their dairy education. They do not hold a creamery proprietor to strict discharge of his obligations. If investigation is made, in almost every such instance it will be found that the farmers had a habit of conducting their business loosely and allowed the creamery proprietor the same privilege.

We have seen instances where the creamery was owing the patrons for four months' milk, and everybody as helpless as children before the situation.

This all comes from the habit so many farmers have, of getting along with just as little knowledge of their business as they possibly can. By their actions they say: "It won't pay to read and study upon dairy questions." "It won't pay to make a study of what are good, sound business methods." "It won't pay to look upon dairy farming as a business-like business, to be conducted from top to bottom as a real business man would conduct it—this won't pay and that won't pay,"—until one is forced to think that they believe that the only thing that will pay, is to know as little as possible about dairying. The risk is too great to continue in this way. We knew of an instance where one business-like farmer saved a whole community from total loss for several months' milk by his understanding how the business should be conducted. He had gained that knowledge by being a reader of dairy literature and he was the only man in the community out of *over one hundred farmers*, who thought it paid to spend a little money and time on his own education in dairy lines.

Hundreds of thousands of dollars have been taken out of farmers by creamery sharks in hundreds of communities. Not one of those farmers thought it would pay him to post up on this dairy question a little to see if he was being swindled.

Yet in one instancea subscriber of HOARD'S DAIRYMAN tried to stop his neighbors from rushing into the trap and he read an article from the paper, at the meeting, setting forth the truth of things in clear language. He was told that they did not need a dairy paper to tell them how to manage cows or run a creamery. They paid $7,000 for the privilege of knowing so much that wasn't so.

A community of farmers, who take pains to keep posted on dairy matters, is rarely taken in by a poor creamery, or a swindling creamery man.



GRADE JERSEY, QUEEN OF LOGAN,
Property of C. E. BULL, Denver, Colo.

A DIFFERENCE OF OPINION.

As a commentary on the cut of Queen of Logan that we give on this page, we publish two letters. The first one is from the owner of the cow; the second one we will leave anonymous, merely using it to illustrate certain differences of opinion and conditions of mind with which different men may view the dairy question. The first letter is as follows:

ED. HOARD'S DAIRYMAN:—I mail you a photograph and record of one of my cows, "Queen of Logan," which you are at liberty to use as additional evidence to convert over "dual cow" brethern.

I consider "Queen" quite free from that beefy nature from which we "special-purpose" dairymen desire to escape. She is six years old, supposed to be one-half each Jersey and Durham. Her rations were about 50 pounds wet brewers grain, 25 pounds alfalfa, 4 pounds corn chop, one pinch salt, except from June 1st to September 1st, chop and alfalfa omitted, and prairie pasture in its place. From November 15th to April 15th, my cows are in the stable continuously, except to walk about forty feet to water twice a day. They get little or no exercise, except when in pasture.

This record is not sent as one that cannot be beaten, but as she was selected from a bunch according to the DAIRYMAN'S teachings of "dairy form," and as I have other cows selected in the same way, with similar records, you may know that your efforts have not been wasted. Neither has my dollar a year for the DAIRYMAN for the past five or six years been thrown away. I would be pleased to hear comments and suggestions. After eight years experience as a dairyman, I say we want "dairy form" for dairy work.

Denver, Colo. C. E. BULL.

This cow gave in one year, 12,084 pounds of milk with an average test of 3.86% fat, sufficient to make 537.23 pounds of butter for the year. We could hardly ask for a better commentary on the relation of form to performance, or a more successful application of theory to practice.

In dairying, as in other things, all men are not of the same mind as the following letter well shows:

ED. HOARD'S DAIRYMAN:—Please send me $1.00 and I will tell you more about dairying than I expect you know. I have been in business for forty years. I think I know enough about the business to learn you.

* * *

Neufchatel Cheese.

ED. HOARD'S DAIRYMAN:—I will, perhaps, be overstocked with milk in the spring months, and always did work off my surplus by churning a "high-grade" butter, and selling "first-class" buttermilk, and never lost money by being over stocked, and I almost forgot to mention it: I also make an extra fine "cottage cheese" by heating fresh sweet milk to 85° F. and adding rennet, and after it is ready to handle for sale, I grind it through a sifter of my own invention, and I can, or did, always sell more than I could make. I am a little afraid, though, that next spring I will, perhaps, be over stocked more than ever, as my business increases very fast, and I necessarily receive more milk now, and will have a greater flow than last spring.

Now I would like to know this: If I cannot sell all my cottage cheese and buttermilk, I would like to make "Neufchatel cheese," and I want to know, could you tell me in your next issue how it is made.

St. Louis, Mo. F. R. W.

The fresh morning milk's (about 90°) is set in a stone jar, holding about forty pounds or less, and only rennet enough to coagulate it in about twenty-four hours, is added, when standing in a room of about 60°, and, "hence, it is necessary to use a reliable rennet extract." The jar may be covered with a woolen blanket or the like, to keep the temperature uniform.

When coagulated, the whole mass is poured into a piece of cheese cloth, which is either placed in a basket or hung up on four supports fixed for that purpose. Here it is left twelve hours to drain. Then the cloth is gathered together round the curd, and placed in a square wooden box, with perforated bottom and sides, and a pressboard put on with weights, say a few stones, and if more weight is needed a small lever press. It is pressed for twelve hours, and then kneaded by hand *on dry cloth* into a uniform stiff paste; and it requires experience to know the right consistency.

If it is too moist, new dry cloths are placed under it, and it is worked until dry enough. But if too dry, it is a sign that either too much rennet has been used, or the curd has been pressed too much. In this case some new curd is added and carefully mixed with the other.

When of the right consistency, it is put into the molds, little tin cylinders of 2½ inches diameter and 3 inches high; as far as that goes, any little empty tin can may be used by unsoldering the top and bottom. After smoothing both ends, it is taken out again, and salted on the outside by strewing the salt on both ends, and lightly rolling them between the hands covered with salt.

They are then placed on a draining board, of any kind that is handiest, and left for twenty-four hours. In the drying room are lath shelves, on which smooth, dry straw is placed, and the cheese are laid there without touching each other. They are turned often enough not to lose shape or stick to the straw, and in two or three weeks they are covered with their "first skin," which is, when the white mold showing after five or six days, turns into a blue mold. They are now taken to a cellar with similar shelves, where they are placed on end on the straw, and turned every three or four days. After three or four weeks in this place, red spots begin to appear, and the cheese is ready for the market. It takes 6 pounds of milk to 1 pound of cheese.

This cheese, like all kindred cheese, is hard to produce uniform, unless special rooms are provided, and I describe the manufacture just to give an idea about the principle. Experimenting in the making does not cost much, as two or three gallons of milk is all that is required, and the outfit need hardly cost anything.

Instead of straw, the wooden mats or "splashers" made of the same kind of wood as matches, may be used for drying the cheese on.—From MONRAD'S A. B. C. of Cheese Making.

An Oregon Cheese Factory.

The Proprietor Takes an Interest in His Patrons.

ED. HOARD'S DAIRYMAN:—We have just opened a cheese factory at this place and for the time we have been running, have done remarkable well, satisfying all patrons, and made some money as well, and to further enlighten the patrons, I would ask you to formulate a balanced ration from the following feed: Bran, $15; shorts, $16; ground barley, $20; ground oats, $20; oil meal, $28 clover hay, $8; and a few silos. Among the patrons, we have been paying since September, 25c per pound, for butter fat, the factory averaging $1.06 per cwt. for milk. Enormous crops of Golden Tankard mangel wurtzels can be grown here; what feeding quality have they?

We will hold a farmers institute here, on the 17 and 18 of December next, devoted almost exclusively to dairying. L. S

Gresham, Ore.

When it is impracticable to raise corn and have a silo to supply succulent feed we unhesitatingly advise raising roots, but where the corn plant flourishes, the beet crop is not profitable. A ration composed of 25 lbs. silage, 12 lbs. clover hay and 10 lbs. bran, fed to good cows, will give good returns. With beets in place of silage, more hay will be required and shorts may be substituted for a part of the bran. With neither silage nor roots, increase the clover hay to 20 lbs and add 5 lbs. bran and 3 to 4 lbs. ground barley.

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Maine Dairymens' Association at Lewiston, December 11-13.
South Dakota Creamery Buttermakers' Association, Dec. 12-14, Mitchell.
South Dakota Dairy Association, Dec. 12-14, Mitchell.
Washington Dairymen's Association, North Yakima, Dec. 28-30, 1899.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb. 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson
Prince Edward Island, Marshfield.
Michigan Dairymen's Association, Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

THE milk supply of the city of St. Louis needs regulating. According to reports, there are about 10,000 cows kept inside the city limits. They are fed entirely on brewers refuse, and kept in close, filthy stables. There are but two model dairies outside the city, having about 200 cows each.

DURING the past three months, four new factories for the manufacture of oleomargarine, have been built. These are at Kansas City, Mo., Indianapolis, Ind., Pittsburg, Pa., and Louisville, Ky.

This makes in all eighteen factories for the manufacture of oleo in the United States. The oleo flood is rising rapidly, with little or no obstruction to its progress. Dairymen should remember that there is enough raw material to make a substitute for every pound of butter now produced in this country, and unless something is done, and that quickly, it will be too late to make any successful objection to the progress of the greasy flood.

UNPROFITABLE DISHONESTY.

In 1890 the United States exported dairy products to the value of over $13,000,000. In 1898 the exports had fallen to a little over $9,000,000. For this loss of millions yearly we are indebted, mostly, to filled cheese, and what we have so lost the Canadians have gained. The trade that endeavors to compete in a closely contested market by means of poor or adulterated goods, will invariably lose in the long run. The Canadians had the commercial sense to prohibit the manufacture of filled cheese and the foresight to make and ship only a good, pure article. In consequence their foreign sales have grown from $500,000 to $17,000,000 per year and the market is still growing.

How long will it take for our cheese exports to recover from that few years of filled cheese? A generation perhaps, or even longer. The European consumer is conservative in his likes and dislikes and once deceived in the quality of a food product, his confidence is not easily regained.

LOOK OUT FOR THE COWS.

It goes almost without saying the man who is progressive enough to subscribe for and read HOARD'S DAIRYMAN, does not need any "chirking up" (as the old Yankees used to call it) on the subject of taking good care of the cows at the beginning of winter.

But we all need "chirking up" at times, and a recent ride through one of the most populous dairy districts in Wisconsin convinced us that even old dairy farmers could throw away money and not know it.

It is altogether too common a practice to allow the cows to range the fields after quite cold weather has set in.

There are two main objections to it:

1. The frost bitten feed they pick up is an absolute disadvantage to them from the butter stand point, for it is hard and woody, much of it, and besides it does not produce fine flavored butter. It is a well understood fact that much finer butter is produced in winter when the cows are feeding on clean grain and good, sweet fodder than in the late fall when their feed is not of that character.

2. Owing to the fact that the feed is short, the cows are compelled to be constantly on the move. They take altogether too much exercise. This fact taken in connection with the poor character of the feed shrinks the milk flow very perceptibly.

This is always a bad thing to allow.

One of the truest signs of a well posted manager of cows is his efforts to keep his cows from shrinking in their milk flow, all he can. This he will do in the drouths of July and August, by providing himself with a summer silo, or some good succulent soiling feed.

In the late fall and early winter, he will open his winter silo early, if he has no summer silage left, and keep the cows full fed all the time. He will commence stabling them at night as soon as cold, uncomfortable nights set in, nights that would prove uncomfortable to him standing still, without a light overcoat on.

Probably a large proportion of his cows are fresh in the fall, and he understands keenly that if he allows them to be checked in their milk flow, he can never hope to get them back again to that point, and so he will lose a certain amount of money on them all winter long.

The keystone to this whole question of the management of cows, is *keeping up the milk flow*, and by other good judgement, cleanliness, etc, keeping up the good flavor of the milk.

Sheepskin Hay.

A New Brunswick Feeding Inquiry.

ED. HOARD'S DAIRYMAN:—I own a small farm in N. B., keep sixteen cows and sell milk. Cut hay for them on low or intervale lands that overflow two or three times a year. Crop grows very thick and close to the ground and known here as sheepskin (resembling a fleece of wool) and is very full of sap, usually taking two or three days to cure. Cattle very fond or it. We feed as follows: 7 lbs. of hay to each after milking at 5 a. m. About an hour later, 3 lbs. of wheat middlings, previously moistened, to which is added two pails of water and about 3 lbs. more hay. At 12 o'clock cows are turned in yard for exercise, and what water they will drink. They are left out for an hour in fine weather, but returned immediately if stormy. While they are out 5 lbs. of clean oat straw is placed in mangers. At 5 p. m., after milking, 7 lbs. of hay and 6 qts. sliced roots mixed with 3 lbs. wheat middlings are fed. Can I improve on this ration? Feeds selling here as follows: Wheat middlings, $20; bran, $18; corn meal, $22; cotton seed meal, $28; intervale hay, $2 to $5; timothy and clover, $7 to $8. Will it pay to cut the hay, moisten with water, mixing the other feeds with it, and feed less frequent? What would be a balanced ration of above feeds?

Bloomfield, N. B. G. R.

At the prices named we should use some cotton seed meal. Unless the "sheepskin hay" is richer in protein than the mixed clover and timothy, which is hardly probable, the cows are now receiving an insufficient amount of protein, and protein can be had much cheaper in cotton seed meal at $28 than in middlings or bran at the prices quoted. We do not quite like the plan of feeding middlings or any other kind of grain in the form of a drink. It would be all right to cut a part of the hay and mix the grain with it as suggested, but it is a good plan to feed some long forage as well. We also think it would pay to mix bran with the middlings, so there shall be equal weights of each. We would not consider 3 lbs. bran, 3 lbs. middlings and 2 lbs. cotton seed meal too much grain for the daily average allowance per cow, and unless mixed with moistened cut hay as suggested, would feed the grain dry.

Judgments Reported.

Under the title, "A Chance for Judgment," we printed on page 827 illustrations of two Guernsey cows from the herd of Mr. L. V. Axtel, Perry, Ohio, and requested our readers to pass judgement upon them and give reasons for their preferences.

The following replies have been received and others will doubtless follow.

ED. HOARD'S DAIRYMAN:—Your paper of the 1st is just at hand. At the National Creamery Convention held at Topeka, I saw Prof. Haecker show the good and bad points of three or four cows and heifers of different sorts. That is the only "dairy cow" judging I ever saw. Since then I have been studying my own cows and trying to get the points clear in my mind. So I venture to make a greenhorn's guess that My Lady Baltimore is the better cow. My reasons are:

1st. I think the nervous type is more highly developed as indicated by greater prominence of the back bone, particularly at the rump.

2nd. Should judge that there was greater width across the hips.

3rd. Her face profile shows a "Roman" cast and leaner look, and my best cows have the same form of face.

4th. Her barrel is longer between the fore shoulders and hips.

5th. Her milk veins are very prominent.

6th. Her udder is of much the finest form, extending high up toward the vulva, and does not curve in towards the top, also extends much farther forward.

H. V. NEEDHAM.

Leavenworth Co., Kans.

You had about as well ask the difference between John Smith and John Smyth as to ask the difference between Countess of Level Green and My Lady Baltimore. But to my mind I would prefer the former, for her greater depth from hip to udder, and her bag is a little better set on and is better developed in front than the latter. But My Lady Baltimore makes up her deficiency to some extent in having a more beautiful head and greater style. I am in the condition of a little girl of my neighbor, who had a new-born brother. She, at once, entered into negotiations with me to trade her brother for a beautiful little pup, but when I delivered the pup, she looked at the pup and then at the little baby brother alternately, and in a thoughtful manner, said, "I want them both." JOHN MORGAN.

Hendricks Co., Ind.

There certainly is a very close resemblance in the two cows, Countess of Level Green and My Lady Baltimore. Do not like the straight face on My Lady Baltimore, but think her the better cow. Believe she has the advantage in depth of barrel, development of fore udder and height and curve of pelvic arch. To me this is a very enjoyable feature of your paper. H. S. HOPKINS.

DeKalb Co., Ill.

Cheese as a Food.

The agitation for the use of cheese in a more extended way, is bringing out criticism from the consumer's standpoint, and as he is the one the cheese is made for, it would be well to read, note and follow his suggestion, if possible:

A discussion has been started by a hotel paper on the use of cheese as a diet. It lays the blame on the cheese makers because the latter do not make cheese that is fit to eat, and that is put on the market in a green state. A dairy paper replies that the grocers are as much to blame as the makers, that they do not show enterprise enough to build a curing room, and buy up good green cheese and cure it for sale. It appears to us that it is entirely out of the question for the grocers to do this. The writer in the dairy paper quoted knows that the matter of curing rooms is a large one, that it requires a good deal of knowledge along dairy lines for a man to fully appreciate the value of the little things entering into the curing of cheese. If our cheesemakers find it difficult to make proper curing arrangements, what are we to expect of the city grocer? Besides, if the grocer should construct curing rooms, he would never be sure that he could get cheese that would cure into first-class, salable cheese, for he would be powerless to control the details of making. This question of selling green cheese is discussed at about every cheese makers' convention we attend. The makers justify their selling of cheese uncured by saying that the grocers demand it, for they know that they can sell that kind of cheese without loss. Most of the cheese that is ripened and put on the market is so sharp that the public will not buy it, and a well-ripened cheese is in the minds of most people a sharp cheese. Our makers do not seem to have learned yet the secret of putting on the market a well-ripened mild cheese. Of course some of our cheese makers do make such cheese, but we refer to the general mass of cheese makers. Certainly the sale of cheese is greatly curtailed by the fact that most of the cheese on the market cannot be eaten except at a risk of disarranging the whole digestive system of the eaters. How the difficulty is to be overcome is a problem for the cheese makers' conventions to solve.

Buttermakers, Attention.

Make a note of the date of the National Convention at Lincoln, Nebraska, February 19-23, 1900.

We want every buttermaker, creameryman and dairyman in Illinois that can possibly arrange to go, to send their names to one of the undersigned, so that we can arrange suitable transportation; a special train for Illinois if possible. JOSEPH NEWMAN, Vice Pres., Elgin, Illinois.

E. SUDENDORF, Sec'y, Elgin, Illinois,
E. L. MC ADAMS, Comm. on Transportation, Chicago, Illinois.

Will it Pay to Buy Grain?

A Searching Feeding Inquiry from Iowa.

ED. HOARD'S DAIRYMAN:—I would like the following questions answered: Will it pay me to purchase feed to make a balanced ration, for my cows, (when I have plenty of good ensilage and mixed clover and timothy hay,) with butter, netting during the winter, probably 17 to 20 cents?

I can buy oats at 19 cents; bran and shorts, $12.50, and old process oil meal $25. Now will it pay me to buy enough of any of the

above feeds to add to what I have on the farm, or do the best I can with the feed I have in plenty, and get a less quantity of butter. Two-thirds of my cows are grade Guernseys, balance, common stock; with three-fourths of them fresh since September 1st.

My ensilage was very heavily eared and put in in fine shape, and is A1. I am now feeding 30 lbs. ensilage, 5 lbs. shorts and all the hay they will eat. H. R.

Postville, Iowa.

So much depends upon the condition the cows are in, as to whether permanent shrinkage has been established, that it is impossible to answer this inquiry by a simple yes, or no. We are satisfied, as well from personal experience, as the testimony of others, that it does pay to buy and feed grain, practically the whole year through, with the possible exception of the few weeks in summer when pastures are at their very best, and the two months when they are dry or are being dried off; apportioning the amount according to the capacity of the cow to respond. When a cow is giving 25 to 30 lbs. of milk daily, she necessarily needs more material out of which to make that milk, than she does when her daily yield is 10 to 15 lbs., just as a horse needs more grain when at heavy work, than he does at light work. Why is it that men cannot feed a cow with as good judgment as they feed horses, hogs and steers?

If these cows are now giving 12 to 15 lbs. of milk daily, why not try the experiment of adding 4 to 5 lbs. of bran to their present allowance, or the same amount of oats. Try this with 4 or 5 representative cows at first, adding one pound the first day, another the fourth, another the seventh and so on, keeping strict account of the additional expense and the value of the increase in milk if any, remembering that it takes some little time for the additional feed to manifest itself.

But as intimated above, do not expect as favorable results from an increase in feed now as would probably be seen if the cows had been on full feed all the time since freshening.

No Uncertain Sound.

The Minnesota Butter and Cheese Makers Association, at their recent meeting at Owatonna, unanimously passed the following resolutions

WHEREAS, The question uppermost in importance to the buttermaker and dairy interests is the movement now on foot to check and stamp out the gigantic fraud in the sale of butter substitutes made by counterfeit butter now going on in this country to an extent which we view with grave alarm, therefore, be it

Resolved, That we pledge ourselves and our association to do everything in our power to aid the National Dairy Union in its fight against butter-colored oleomargarine which is now being organized for and will be undertaken in congress at the coming session.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

A NEW YORK RATION CRITICISED.

I am feeding the following, yet our cows are not doing as well as they sometimes have. The ration figures about right. I have the bran and cotton seed on hand: 40 lbs. well-eared ensilage, 7 lbs. mixed hay, 3 lbs. bran, 4 lbs. malt sprouts (soaked), 3 lbs. cotton seed. What changes would you advise, if any? Of late, I have had two or three cases of clotted milk, whether caused by feed or not, I cannot tell. F. E. R.

Seneca, N. Y.

For cows not doing as well as they should, we think the above allowance is much more than they can profitably use, and that it may be the cause of the clotted milk. We see no reason why fully 2 lbs. of the cotton seed meal may not be omitted, and would reduce the malt sprouts, and add to the bran at least a pound each.

A CONNECTICUT RATION.

Please formulate me a ration for five dairy cows of wheat bran, ground oats and corn (mixed) and timothy hay.

Would you advise me to feed cut corn fodder three times a day? G. W.

Kensington, Conn.

It is simply impossible to make a satisfactory and economical ration from the feeds named. What is needed is more protein than any reasonable amount of bran, and oats and corn will furnish, and probably the cheapest source from which this protein can be derived is cotton seed meal. We therefore suggest for trial as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. timothy hay...	8.68	.28	4.34	.14
10 lbs. corn stover...	5.95	.17	3.24	.07
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. corn and oats..	3.56	.34	2.08	.17
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals.....	23.55	2.03	11.54	.67

Cut the stover a day or two or three in advance of feeding, dampen and let lie in a pile, covered with blankets or straw, to heat and soften. Put about 5 lbs. of this before each cow, morning and evening, and scatter over it that cow's allowance of grain for that meal, and let her mix to suit herself. In this way it is possible to feed one cow 2 lbs. of grain, and another 6 lbs., according as each has the ability to respond, whereas if the grain was mixed with the stover before feeding, each cow would practically receive the same amount of grain, regardless of the return she made for it. After this is eaten give what hay and additional stover each cow will eat, making the heaviest feed at night.

FOR A BUCKEYE SUBSCRIBER.

An Ohio reader, who wants to be known as a Buckeye subscriber, lives in a portion of that state where dairying is considered only a side issue, but he has 10 cows, plenty of corn stover, 4 tons clover hay, and a large stock of wheat straw. Corn is worth 25 cents per bushel; oats, 23 cents, with 3½ cents added to each for grinding; bran is $14, oil meal, $26; gluten feed, $16 (by carload); clover hay, $8, and he must feed his cows until May 1st.

If his cows were fresh in the fall and are of fair dairy ability, they will need to eat about as follows.

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
20 lbs. stover.....	11.90	.34	6.48	.14
5 lbs. clover hay.....	4.24	.34	1.79	.09
5 lbs. bran.....	4.41	.63	1.93	.15
5 lbs. gluten feed....	4.61	1.02	2.42	.18
Totals.....	25.16	2.33	12.62	.56

MILK BY THE POUND OR GALLON.

I have taken your paper about six months and find out now I cannot get along without it. I think every man that owns a cow, ought to take it for her sake as well as his own sake. There are lots of questions I want to ask, but I see, by close watching and reading, some other fool has asked them.

Some tell about selling milk by the can. How much is a can? Some sell milk by the pound or hundred. How much is a pound? I buy about twenty-six to thirty gallons of milk a day and it takes up lots of time to measure it all out by the quart and gallon. I would like to buy it by the pound if there is a correct way to get at it for both parties. They say it is a pint to the pound, but I can't make it work. G. H. M.

Adams Co, Neb.

Except in certain localities a can of milk is 32 quarts, weighing 60 lbs. But the term is very loosely used as almost all milk is now bought by the hundred pounds, the same as other articles of food. All creameries and cheese factories buy their milk by the hundred, with satisfaction to all parties. A gallon of milk weighs 8.60 lbs. a quart 2.15 lbs. and a pint 1.07 lbs. Thus a quart of milk weighs one and one-half ounces more than a pound, and the pint and gallon in the same proportion.

DISTRIBUTION OF NUTRIENTS IN CORN STALKS.

In reply to an Ohio subscriber who asks the above question, we submit the following estimate of the percentage distribution of nutrients in well cured and well housed corn stalks. We do not find any published tables which give this information and cannot claim for the figures that follow anything more than a hasty approximation. They are sufficiently accurate, perhaps, to show where great waste occurs, if the entire stalk is not harvested, or where, in feeding, certain parts of the stalks are rejected.

Of the total nutrients in corn stalks (corn stover) there is

In the	*Of the Protein.*	*Of the Carbohydrates and fat.*
	%	%
Butts*.....	26	50
Top stalks.....	14	10
Bottom blades.....	20	11
Top blades.....	12	7
Shucks.....	25	20
Tassels	3	2

*That portion of the stalk below the ear.

A VERMONT CONDITION.

I have been a reader of your paper for nearly a year, and I consider my dollar well invested, for no other dairy paper seems to get down so close to the practical part of dairying.

I send you two samples of feed—one of so-called "mixed feed," and one of "spring bran," to find which is the better feed at the prices named on the samples. Personally, I prefer the bran, but it may be mere prejudice.

I milk eleven cows, all six months in milk; they will all give milk until March, and I want to know what to feed to get the most from them. At present they are giving 125 pounds per day on 2½ pounds of corn and cob meal, and 2½ pounds of spring bran, with all the bright, early cut mixed hay they will eat, and an occasional feed of bright oat straw. They are large cows, mostly Durham and Ayrshire cross. They test from 3.4 to 6.6%, the average being 5.35%.

Will you kindly formulate me a ration of the above named feeds and cotton seed meal at $1.25 per cwt? Hay is about $8 per ton.

Clarendon Springs, Vt. G. N. R.

We quite agree with G. N. R. in aversion to mixed feeds, unless they are accompanied with a guaranteed analysis as required in Maine, and about to be required in New York, and ought to be required everywhere. The sample of "mixed feed" sent us may be very superior, but it does not have that appearance.

It looks to us very much as though these cows were giving less milk than cows ought to give after milking only six months, but it is to be said for them that they are getting less feed than good cows ought to have. Whether it is possible to increase the flow materially, is decidedly uncertain, but it is well worth trying. To this end we would gradually decrease the allowance of hay, until it should not exceed 15 lbs. per day, and supply its place with oat straw. Concurrently with this add cotton seed meal to the grain allowance, a quarter of a pound at each feed, and increasing gradually as each cow responds. If not already doing so, adopt the practice of giving a little salt with each feed—a large teaspoonful or a little more.

MILK FEVER A SECOND TIME.

Will a cow have milk fever a second time? If so, can any preventive be used or precaution be taken before calving again, to ward it off? I have a heavy milking Jersey, due to calve March 18, 1900, that had milk fever with her last calf, but by close attention she came through, but has not been in best condition since. She is a very fine cow and well worth any trouble or expense to save. MRS. J. O. M.

Chesterfield Co., Va.

Cows that have had milk fever once are very apt to have it again. If the case were in our own herd we would not let the cow go dry at all, as it very seldom happens that a cow that is milked continously has milk fever. Try and get the cow in better condition by stimulating her appetite and giving her the best and most easily digested feed and little or no medicine. Get some first quality linseed oil meal and commencing with about four ounces, twice daily, increase gradually until she gets about two pounds in twenty-four hours. In addition, she may have bran, 4 to 6 lbs. and, if she can take it, 1 lb. to 2 lbs. ground corn.

THE BABCOCK TEST.

Will you kindly inform us regarding the method of using the Babcock test in determining the quality of milk?

LOS ALAMITOS SUGAR CO.,

Los Alamitos, Cal.

You will find the methods of using the Babcock test given in full detail in "Milk Testing," by Farrington & Woll. It can be obtained from this office for $1.00, postpaid.

"DAIRY FORTUNES."

A Wisconsin reader asks our opinion as to the merits of the book with the above title. It is not always an easy matter to rightly determine in such matters. Very much of this book may be highly commended and other parts of it must be read with a discriminating judgment, differing in this respect but little from most other books. A man who reads with a view to find fault and disagree with everything not in line with his own practices, will condemn this book; and the man who hastily adopts and attempts to practice its every suggestion, will be disappointed; but the man who will read and reason as he reads, will find it eminently helpful.

EATING THE AFTER-BIRTH.

F. L. F. of Elkader, Iowa, asks concerning cows eating the after-birth. On this point there exists a wide diversity of opinion. It seems to be an almost universal habit among cows. This would indicate on the face of it that the act was in accord with a demand of nature, and some writers on this basis advocate the practice.

On the other hand, there is a natural feeling of repulsion for such a practice among all intelligent people.

The DAIRYMAN cannot say specifically what should be the rule in this matter. So far as its editors are concerned with their own cattle, nothing of the kind is allowed, if it can be prevented.

SOME FLORIDA QUESTIONS ANSWERED.

In answer to E. W. A., Ormond, Fla., we would say that we do not consider two pounds of cotton seed meal per day would injure a cow there or elsewhere, if fed with bran, hulls, chaffed hay or something else to extend or dilute the highly concentrated meal.

Numerous cases have been known where a cow has been in heat and received service and thereafter bear a healthy calf from a previous service.

The probabilities seem to be that the other case reported was an abortion, and yet it seems almost impossible for such an accident to happen in a small yard and no trace of it be discovered.

PAST SEVENTY-TWO YEARS OF AGE.

I am now past seventy-two years of age—too old to be of much good. We are keeping about fifty cows, raising ten or twelve calves a year from registered Guernsey bulls. We get four cents per quart for milk at Camden. We are feeding corn cob meal and good

wheat bran or dried brewers grains; have plenty of corn and good stalks and timothy hay with some clover mixed with it. Would like more clover. Good wheat bran is worth $20 per ton; dried brewers grains, I think, about $18. We mix two bags of bran to one of cob meal. Our milk runs over the lawful percentage of solids. Can you give us a better way of feeding so as to make more milk. T. P.

Wrightstown, N. J.

If there was more protein in the feed for these cows, it is entirely probable the yield of milk would be increased. To get this additional protein, we would dispense with twenty-dollar bran and buy cotton seed meal, which should cost not to exceed twenty-five dollars per ton. We would then try something like the following combination for the average daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. hay	10.42	.40	5.21	.18
10 lbs. stover	5.95	.17	3.24	.07
4 lbs. grains	3.67	.63	1.45	.20
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	25.44	2.20	12.76	.76

The two pounds cotton seed meal furnish as much protein as six pounds bran, and hence will be much cheaper. But do not drop off the bran and add the cotton seed meal at once, but make the change as you would change the feed for a horse—not too much at a time.

SUMMER SILO.—GERMAN CLOVER.

I am thinking of building a round silo for next season 22 feet in diameter and 26 feet high, using 2×6 heart pine undressed. I keep from sixty-five to seventy-five cows.

I will thank you to criticise this plan. If you do not think well of my plans, suggest such changes as you think proper.

Will German clover make good ensilage for summer feeding? If not, what could I raise to fill silo in early summer? F. A. M.

Norfolk, Va.

We see no reason why such a silo should not be successful. The different plans are as numerous as the silos, and provided that the silo is tight, the only question is that of expense. We do not understand what is meant by German clover; it must be a local name.

A summer silo should be filled the year before. We know of no crop that will mature early enough to be used in the silo. The early summer crops, suitable for the silo, all have an excess of water, which will prevent successful use in the silo. This is specially true of clover, which should not be put in till the first heads have begun to turn brown.

ANALYZING FEED STUFFS.

J. W., Darien, N. Y., sends four samples of feed with the request that they may be analyzed and results published in these columns. Such work is entirely out of our line. If there were no experiment stations in the country, each with one or more trained and experienced chemists on its staff, we might find it necessary to fit up a chemical laboratory and take up that class of work, notwithstanding the great expense attending it. As it is, we find plenty to do in lines not so fully covered by the experiment stations and in reporting and applying to dairy problems the facts they discover.

Hence, when any of our readers find it expedient to have feed stuffs analyzed, they should first write to the Director of the experiment station in their state for instructions how to proceed in taking samples, etc., and then send them there for analysis. These stations, like HOARD'S DAIRYMAN, are glad to answer all inquiries, but especially such as can be made of more than merely personal interest.

COWS TOO FAT, NOT GIVING MILK ENOUGH.

Please fix up the following ration: Cows get sometimes a little timothy and sometimes a little oat hay, but principally corn fodder with some of the ears on. They run on meadow in forenoon and get a little grass yet.

Grain ration, 6 pounds corn and oats ground together, fully two thirds corn; 4½ pounds wheat bran, at two feeds. Cows too fat, not giving milk enough. C. C. C.

North Aurora, Ill.

It is probable that every dairyman in the land could agree with the last half of the above complaint, but possibly not with as much cause as C. C. C. has. However much his cows may be at fault, and we indulge the presumption that they are not just what a first-class dairyman would select, C. C. C. cannot maintain an action against them, if we may be permitted to use a law phrase, because of his own contributory negligence.

We had almost a precisely similar case presented to us in person last week by a not distant neighbor. He has the corn fodder and the frozen grass and wants to feed corn and oats and just as little bran as possible, "for bran is high, you know."

Let us tabulate C. C. C.'s ration and see where the defect is.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs corn fodder	11.56	.50	6.92	.24
5 lbs timothy hay	4.34	.14	1.98	.07
4 lbs corn	3.56	.32	2.67	.17
2 lbs oats	1.78	.18	.95	.09
4½ bran	3.96	.57	1.73	.14
Totals	25.20	1.71	14.25	.71

These cows want about a half pound more of digestible protein each per day. They are getting now, over and above the amount required for bodily maintenance, but little more protein than would be required for 12 pounds of milk daily. To prove whether our theories are correct, let him get 500 pounds gluten feed and 100 pounds oil meal, and in lieu of the 6 pounds of corn and oats, feed three or four of his cows 4 pounds gluten feed and 1 pound oil meal with bran and coarse fodder as above, and note the result. We feel confident there will be a noticeable increase in the milk flow, and probably more than enough to pay for the increase in the cost of the feed, nothwithstanding the fact that it is difficult to bring cows back after a permanent shrinkage is once established.

CREAM AND BUTTER.

How much cream, or how many gallons of ordinary milk, does it take to make a pound of butter? A. B.

Paducah, Ky.

The question is too indefinite to give an answer. Ordinary milk may vary 3% in fat content, and there is no definite per cent of fat for cream. It may contain any where from 10 to 50% of fat, depending on the method of separation.

BUTTER OR CHEESE.

We have a cheese and butter factory competing for our milk. Which can a patron realize the most money from, all things considered? The cheese men say they will run all winter. Can they make good cheese from frozen milk? A. H. B.

Hastings, Mich.

It is impossible to tell whether cheese or butter is going to be the most profitable the coming season. It depends on the price of each. As a rule butter brings in better returns than cheese during the winter months, but conditions are such that many factories put in both butter and cheese machinery and are thus able to take advantage of the market and turn their milk into either form.

Freezing does not hurt milk for either cheese or butter, only the maker must know how to handle it.

SLIDING SCALE FOR BUTTER MANUFACTURE.

Please inform us in regard to the sliding scale in manufacturing butter, also any other information relating to creamery business, which we shall be very much obliged for.

Wisconsin. BUSWELL BROS.

We are at a loss to know what is meant by the "sliding scale" as used in manufacturing butter. Perhaps some of our readers an enlighten us.

We cannot spare the space or time to take up the second question, nor would it be advisable. It would take a number of issues of the DAIRYMAN to give even the outlines of the creamery business.

We advise our correspondent to obtain Milk and its Products by Wing, Gurler's American Dairying and Monrad's A. B. C. in Butter Making. The first two books will cost $1 each, the other fifty cents. They can be obtained from the DAIRYMAN office post paid at the above prices.

DAIRY QUESTIONS.

1. Who are the most practical authors on dairying, what are their books and price of same?

2 Where can I get the latest and best Dairy Herd Register, including blanks for Babcock tests, etc.?

3 Where can I get most instructive information on compounding proper dairy rations? L. A. DAMON.

Gunston, Va.

Wing, "Milk and its Products." Gurler, "American Dairying." Monrad, "A.B.C. of Buttermaking." The first two will cost $1.00 each; the third 50 cents. They can be obtained of this office postpaid for the prices named.

The dairy supply houses keep blanks for registering the milk yield and per cent of fat.

The most exhaustive book on this subject is "Feeds and Feeding," by Prof. Henry. It can be obtained for $2.00 post paid. You will also find that the DAIRYMAN'S answers to feeding questions, are exceedingly valuable reading.

FOR AN ALBERTA HERD.

The feed at our disposal is as follows: Oat hay, good oat straw, oats at 25 cents per bushel, barley at 25 cents, bran at $16 per ton, crushed linseed meal at $55 per ton, crushed oil cake at $45 per ton.

Alberta, N. W. T. F. S. BROS.

We suggest for trial, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. oat hay	13.66	.65	6.96	.23
5 lbs. oat straw	4.54	.06	1.93	.04
6 lbs. barley	5 35	.52	3.94	.10
4 lbs. bran	3.52	.50	1.54	.12
1 lb. oil meal	.91	.29	.33	.07
Totals	27.98	2.02	14.70	.56

We are not at all certain that flax seed meal would not prove more profitable than oil meal. It would be eminently wise to try both, and be governed by the results.

FEEDING MILLET SEED.

I would like some information in regard to the feeding value of millet seed to pigs, milk cows and other stock. I have about 500 bushels, and if I sell them, will only net me 50 cents per hundred pounds. Now I would like to know if it is worth more for feeding compared with the price of other feeds. I have ensilage. If possible, give me the analysis. A READER.

Wheeling, Ill.

Millet seed contains the following digestible nutrients:

Protein..... 8.9%.
Carbohydrates..... 45.0%.
Crude fat..... 32.0%.

The analysis shows it to resemble oats in composition, and we should expect it to be but little inferior in feeding value. At 50 cents per hundred, it would be worth 30 cents per bushel. To obtain the best results it must be ground and fed mixed with bran, cut straw or stover. There seems to be little uncertainty as to its feeding value; in some cases adverse reports have been made, others praise it highly. Should recommend starting with small amounts and watching results carefully.

A WISCONSIN RATION.

I have shredded corn stover for coarse feed; ear corn is $6.50 per ton, but want to feed corn meal; bran, $14; gluten feed, $16; oats, 21 cents per bushel; old process oil meal, $25 per ton. K. L. M.

Milton, Wis.

Unless the ear corn can be ground, cobs and grain together, so as to secure sufficient bulk to insure proper digestion, we do not see how it can be fed with profit, even at the low price named. With only corn stover—and presumably oat straw also,—for roughage, we cannot get the requisite protein from corn or even corn and oats. If these cows eat twenty pounds of the stover and five pounds of oat straw, it will require one pound oil meal, four pounds bran, and five pounds gluten feed to bring the digestible protein up to the minimum required. If six pounds of corn and cob meal is substituted for the four pounds bran, we might expect about the same general result.

SIZE OF SILO FOR THIRTY COWS.

Will you kindly give us the size of a round silo it will take to accomodate thirty cows for one year? J. W. & S.

Watertown, Wis.

To feed thirty cows for 365 days will take about 216 tons of silage, requiring two round silos 18×24 feet.

If summer feeding of silage is contemplat-

"You Never Miss the Water Till the Well Runs Dry."

So it is with health; we never realize its value until it is gone. When old time strength and vigor are wanting it is the best to look at once to the blood. Purify it by taking Hood's Sarsaparilla, and restored appetite, perfect digestion, steady nerves and even temper will prove that it is bringing back the glow of perfect health.

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Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Young Girls

How easy it is for young girls to go into the "decline." They eat less and less, become paler and paler and can hardly drag through the day. They are on the steady downward course. Iron does them no good; strychnine and bitters all fail. They need a food that will nourish them better, and a medicine that will correct their disease.

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is both of these, elegantly and permanently combined. The Cod-Liver Oil makes the blood richer, and this gives better color to the face. The hypophosphites of lime and soda act as a strong tonic to the nerves. Soon the weight increases, the digestion improves and health returns.

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ed, two silos are better than one large one, as the silage is apt to heat and spoil in the hot days of midsummer, unless it is fed with sufficient rapidity to keep a fresh surface always exposed.

FEEDING FOR BUTTER IN MISSOURI.

H. H. Witthar, Jackson county, Mo., has plenty of good clover and timothy hay, but no grain. He can buy corn at 30 cents, oats at 26 cents and bran at $11. He has a mill and therefore can grind feed without any cash outlay. He makes butter and wants to know what grain to buy. Our advice is to buy bran and oil meal, and feed as an average for his herd 8 lbs of the former and 1 lb. of the latter, with all the hay (probably about 20 lbs.) each cow will eat.

SCHMIDT TREATMENT FOR MILK FEVER.

Have you or any of the readers of the DAIRYMAN had any experience with the Schmidt remedy for milk fever. If so, I think it would be of interest to many, if you would publish results. E. L. M.

Armada, Mich.

See the article by Dr. Pearson on page 738 of the current volume.

STEAMING FEED FOR COWS.

What do you think of mixing your bran, linseed meal and chopped hay and put in a tank and wet it and then steam it for one-half hour or so. I have been doing this and get very good results. M. F. N.

Deer Lodge, Mont.

We have never felt the necessity for doing this, but can readily believe that there may be conditions which would make it desirable. This would be particularly the case if the hay was overripe and woody when cut. M. F. N. could readily convince himself as to whether it pays, by changing two or more cows from the steamed feed to dry feed. If he makes the change suddenly, he will find the cows falling off in milk for some time, just as they will with any other marked change in their care or feeds.

POTATOES AND RUTA-BAGAS FOR FEEDING MILCH COWS.

Please let me know what the feeding value of ruta-bagas and potatoes are for milch cows and hogs. Also how they should be fed. I can get 20c per bnshel for them by hauling four miles. W. M. H.

Hugo, Minn.

Both potatoes and ruta-bagas contain a large amount of water with a corresponding low nutritive value, as shown in the following analyses:

	Water	*Dry Matter*	*Protein*
Potatoes	78.9	21.1	0.9
Ruta-bagas	88.6	11.4	1.18

Both of these roots should be fed in but moderate amounts and more as an appetizer than with any idea of making them a prominent part of the ration. It would take a little more than fourteen pounds of potatoes to equal the protein content in one pound of bran and ten pounds of ruta-bagas for one pound of bran, which would make four pounds of bran equal one bushel of potatoes, and six pounds bran equal one bushel ruta-bagas.

This would make potatoes too expensive to feed in any amount at the price you name. Of course the small culls can be fed advantageously; twenty pounds per day will be enough.

Ruta-bagas should be fed in limited amounts immediately after milking as they are otherwise liable to taint the milk.

Corn and Cotton Seed for a Breeding Herd.

ED. HOARD'S DAIRYMAN:—Please formulate for me a ration consisting of pea hay (⅓ crab grass) nicely cured, raised on the farm; bran at $12 per ton; corn meal at $17 and cotton seed (whole) $11. I have been told whole cot on seed is not a good feed; still I have it nice and dry, and it, in small quantities, is a very fine feed, specially for dry cattle. W. P. SMALLWOOD.

Henry Co., Tenn.

We are in quite a quandary what to recommend in this case, as Mr. Smallwood is not only a dairyman, but a breeder of high-class Jerseys. We have to consider, therefore, not alone the current production of milk, and the ordinary increase of a herd kept primarily for milk production, but the possible effect of the feed upon the number and character of the offspring. There are those who claim that cotton seed and its by-products of meal and hulls interfere more or less seriously with regular breeding. Our own experience with cotton seed meal, fed for several seasons in limited amounts, does not support this contention, and there is much other experience to the same effect. On the other hand, there are reports of cases where abortion and failure to breed have been coincident with the use of cotton seed or cotton seed meal, and this use assigned as the cause of such troubles. This is sufficient reason, perhaps, why we should hesitate to recommend the feeding of cotton seed in this instance, although we might be willing to take the chances in our own herd.

In further complication of the problem, comes the question as to the ultimate effect of feeding corn in any considerable quantity, to a breeding herd of high-class dairy animals. We hold to the opinion that feed has not a little to do with the temperament and tendencies of successive generations. This influence may not be specially apparent at first, but if continued for a series of years, and especially from generation to generation, the outcome will assuredly be favorable, or unfavorable, according as the feed has been of a milk stimulating or milk repressing tendency. Corn does not belong in the list of milk stimulating feeds.

Notwithstanding what has been said above, we are not convinced that either corn or cotton seed should be entirely prohibited, even in the breeding herd. We cannot believe that either would be injurious in *limited* amounts, and for ourselves would not hesitate to use them in that way. The amount that it would be entirely prudent to use will vary with circumstances and with individuals. If with a given ration a cow was milking so heavily as to reduce her flesh too much, we would increase the allowance of corn; and the cow four or five months after freshening could safely have more cotton seed than would be advisable two months later.

The following formula embodies our best judgment in the premises as to what would constitute a sufficient and safe average daily allowance:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay	13 05	1.37	5.85	.18
4 lbs. bran	3.42	.50	1.54	.12
2 lbs. corn chop	1.18	.16	1.33	.09
2 lbs. cotton seed	1.79	.25	.60	.35
Totals	19.44	2.28	9.32	.74

If the cows are not out to grass more or less, they will, probably, require more hay, and should always have all they will eat. In case it was desired, in special cases, to feed more grain, let the greater part of the increase be in bran and oil meal, or at proper times cotton seed meal.

More care than is sometimes given should be used in feeding bulls. In the first place, they should never be fat, and next in importance is to furnish them a ration not too highly carbonaceous. What grain they have, if any, should be limited to bran and oats.

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has not yet reverted from a possibility to an impossibility.

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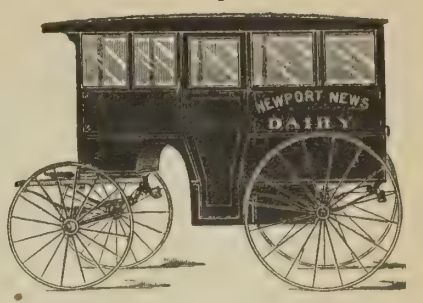
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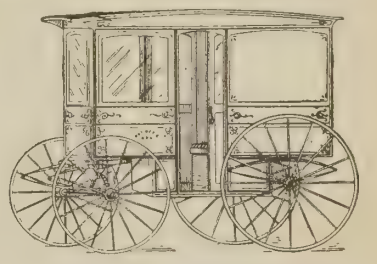
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To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

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Some Tioga County, N. Y., Dairymen.

ED. HOARD'S DAIRYNAN:—The Owego Dairy Company, of Owego, is a large milk shipping concern, from which, when I was there, 165 cans of forty quarts of milk and four cans of forty quarts of cream were being shipped each morning. Besides the home creamery, they have three others located in the county, one at Vestal, one at Candor, and one at Cattatuck.

There are seventy-two patrons at the Vestal station, forty-eight at Candor, forty-two at Cattatuck, and at Owego, forty-six. The average number of cows supplying milk to these four stations, is ten to twelve per patron.

The Owego station was also sending out a daily shipment of 2,200 quart bottles, besides that shipped in cans and the four cans of cream.

Do you take this milk by the Babcock test? I asked of Mr. Taylor.

Milk is milk here, and all is paid for alike, but our own herds and Mr. Tracy's milk is sold separately. We require the milk to be up to the standard, and to be clean and pure. The same course is pursued at the other station.

Do your prices vary any from those of the Standard Butter Company here?

No, Sir, not for pooled milk; but they have quite a large per cent of milk which is Babcocked. Of course, such milk varies in butter fat per cent, therefore in price.

Does all of your milk go to New York?

No, Sir. The firm of Gravenstein & Co., 1009 Columbia Avenue, Philadelphia, takes a part of it. Our own herd's milk is handled by the Farm Dairy Company, of N. Y., and Riverside Company, of Hoboken. These two companies handle it every day in the year, paying us the uniform price of three and one-half cents per quart. I can sell it right here to Mr. Thompson, for three cents every day in the week. I only wish I could get 1500 quarts of such milk per day, or more. I can't get enough of it to anywhere nearly supply demands.

Well, with this situation of affairs, I do not see why your patrons do not keep better cows. I mean those that would give more butter fat in their milk.

Yes, it would seem so, but they object to purchasing thoroughbred sires, and so keep only grades for service, as a rule. They seem to prefer a little larger yield of milk than they can get from Jerseys or Guernseys, and to sell it at a much reduced price.

What breeds or grades do they keep mostly?

Some have Guernsey, some Jersey, some Ayrshire and a few keep Holsteins. Others are mixtures.

Do they give enough larger flows of milk as to make up the difference in the yearly cash yield, between thoroughbreds and grades?

Some of them, no doubt, do; or, rather, they will yield as much cash as will some of the Jerseys and Guernseys. You know there is a great difference in thoroughbreds of any breed. As a rule, however, I know they do not; one trouble being their persistency in drying off early, and doing nothing for several weeks when the thoroughbreds are at work.

Do any of these 200 patrons of yours, milking, say, 2,000 cows, make individual tests with the Babcock and scales for the purpose of finding out which are the workers and which are the drones in their dairy hives?

I don't know of one who does it. They think it no object to know which cow gives the richest milk, so long as it is sold by the quart.

Why do they object to buying thoroughbred sires. Is not your example and experience in that direction, sufficient proof of the greater value of such sires, over the grades?

They object, as a rule, because of our prices. Young bull calves, that we have no difficulty in selling to dairymen at a distance, at $25 to $50 each, they will not look at if the price is above, say $10, and then they want to make the selections themselves. Our young bulls are all sold to parties at a distance at our own price. But we have frequently, to induce some of our patrons to invest in better blood, offered them stock at about half price, and the almost free use of our thoroughbred sires to breed to their best cows. But, somehow, they will not accept our offers, and so stick to their grades, and I suppose they always will. When I point to our own herd and show them the difference in price for our milk and theirs, they say; "Oh, well, you fellers can get any price you ask, even if your milk is no better than ours. You've got your name up among high-toned folks, so can get more'n we can." It would make no difference if we or Thompson should offer to take their milk, if it were as good as ours, at an advance. They would simply say it would cost enough more for stock to offset the difference.

Do many of your patrons have silos?

Yes, I think fully 50 per cent of them do. About here fully 75 per cent, perhaps 80, have them. In fact, all our best patrons now have them.

When were they built? I asked. When I was here attending a farmers' institute, seven or eight years ago, as I remember the situation, there was not a silo here, unless you had one.

They have mostly been built within the last five years, and so are of improved forms and construction.

What brought about so radical a change in their views of feeding their dairies.

There were two causes. The influence of the farmers' institutes held in the county, HOARD'S DAIRYMAN, and our own example. They have been watching us closely, and, when they see us adopting something new, or making improvements along a certain line, they come around, examine, make full inquiries, then go home, and, first we know, they are copying from us. So they are growing to be wiser and better dairymen each year. They are feeding better, caring for their stock in a better way, know more about mixing rations, growing silage and feeding it, and are gaining in dairy knowledge, although slowly, each year.

Now, said Mr. Taylor, I will hitch up, and, although it is raining, drive you up to the farm where my brother, Mr. R. J. Taylor, holds court, and show you our barns and herd. It is only a mile or so, up the river.

We were not long in making the journey, and were soon among the bovines in the large barn, where there were one hundred or more, all being Guernseys, with the exception of an Ayrshire or two, some Jersey and Guernsey crosses, two or three big grade Holsteins, and, perhaps, a few other mixtures, numbering about twenty in all. These were brought in for the purpose of keeping up the milk supply until some of the Guernseys that were dry, should come fresh in milk.

The great barn is a new structure, built three years ago, to replace one burned, in which went down eighty thoroughbred Guernseys. The stables are high, roomy and light. The floors and gutters are of cement, the latter covered with iron stallings which allow the voidings to pass through into the gutters; at the same time, the cows are prevented from stepping or slipping into them. The finishing of the ceiling and upper walls is of narrow Georgia pine, oiled and varnished. On one side is a long row of roomy box stalls, for the cows that are about to come fresh, where they are placed a day or two before parturition. The fronts of these stalls are so high that the occupants cannot look over, and see the cows outside. The whole barn is lighted by electricity, and there is a watchman constantly on guard, both night and day. A comfortable, well equipped "box stall" for the night watchman, is located among the cattle box stalls.

After a hasty look at the cows, I was conducted to the calf barn, where the young things are kept, and, after viewing them, we went to the office, where I gathered the following, from an interview with the brothers.

How many acres in your farm, I asked?

There are 380 acres, but they are not all connected. There is a small farm up there which cuts the farm, nearly evenly, in two parts.

How many animals in your entire herd, including those in pasture or kept elsewhere?

We now have 140. The cows are nearly all fresh in milk now. The others will be soon.

How many silos have you?

There are two, one has a capacity of 600, the other, 500 tons, and both are round. They present a large feeding surface, but, with our large herd, we are enabled to feed rapidly enough to prevent any loss from molding.

What is the average butter fat test of the entire herd?

The average is above 5%. I am not afraid to guarantee 5.5% for the entire herd of 107 cows. With such rich milking Guernseys, you see it is quite easy to raise the average of the whole herd—although nearly a sixth of it are grades—to above the 5% notch.

That is a high per cent, I said, but how about the yield of milk. How much do they average?

The entire herd of 107 averaged eight quarts each, during the whole 365 days, one year, or about 6,000 pounds. At that time there were more grades, than there are now; but, just now, there are 45 two-year-old heifers. The average now, with these heifers, is not more than 5,000 pounds.

Do you feed any silage in summer?

Yes, we feed some every day, nearly, when the dry weather sets in, but, this year, we will be short, somewhat. We planted 92 acres of corn last spring. It was on good land. The seed was good and the cultivation also, but the drouth shortened the crop, despite all our efforts to prevent it.

Do you rent any pasture or meadow land?

Yes. We rent some land of outside farmers, both meadow and pasture, but move the hay in and feed it here. We also grow some grain on this rented land, which we feed here.

What do you do with the young stock—the calves?

All calves—both bulls and heifers—are raised. We never "deacon" or veal one. We can sell every one that gets on its feet, for $25 each, on the average, and we can sell every heifer calf as soon as it is dropped, for $50, and are willing to pay that sum for any as good full-blood Guernsey heifer calves as ours are. In fact, even at present prices for our milk, there is more money in our heifer calves than in their dam's milk, all things and all conditions considered.

What other herds of thoroughbred Guernseys are there about here?

None that may be termed herds, with the exception of Mr. Tracy's, that comes to our station. His is, nearly all, very high per cent milk, and sells at the same price with ours. There is no trouble in marketing such milk as is his and ours, but we sometimes have trouble in getting rid of some of our patron's milk that is of low quality, and which comes from all breeds and grades of cows.

Strange, is it not, that your patrons will not or cannot see the advantage they would gain by using thoroughbred sires, thus raising their herds, in a few years, up to very high grades, of deep, rich milkers.

Yes, but they wont do it. When we name $10 as the price of a bull calf, they are surprised; but, when they point to one and say, "what'll yer take fer that 'ere chap," and we say $50, it nearly takes their breath away. It does not make any difference when we tell them that our entire herd average fully 5.5% fat, and that we get 3½ cents per quart for it delivered on this side of the river in New York, every day in the year; they will stick to their scrub bulls and cows, just the same.

What is the average production from these patron's cows, yearly?

I don't know. Probably not above 3,000 pounds. Some are higher, some less, even

What about milk made from ensilage—any kicking on that score, among your New York customers?

No, Sir. We consider it the best food we ever fed our cows; but, if we were to take it off and substitute something else in place of of it, there would be kicking among them pretty soon. Our milk all goes into high-toned families who pay good prices, but no fault has ever been found with it, because we feed ensilage But we do not feed so much of it in summer, as we would if so many of our cows did not freshen in the fall. But there is one thing the average farmer will have to do, either abandon July and August milk production, or else provide summer silage. The drouths appear every season, and seem to prolong their stay each year, which means ruin, practically, to summer dairying. There is more money in winter than in summer milk, but one must have the silo for that, if expenses are to be kept down below the profit line, even with pretty good cows, especially if the land value is high.

What is your opinion of the so-called dual-purpose cow?

We don't want them for dairy purposes or beef either. Give us one or the other—either special beef or special dairy, and which ever we choose, let them be the best of their types. Just now, beef is high in price, and the man who has been breeding special beef animals will make some money. Such beef sells in the great markets for good prices, but those who buy it will not take dual-purpose old cow beef. So of the dairy cow; she must be of some dairy breed, and in every sense of the term, a specific dairy cow, if her owner expects profit from her. But he will not get it unless she is properly fed, housed and cared for.

While in the barn I pointed to a cow which had just dropped a calf, and said: There is a beautiful Guernsey. Is she a prize winner?

Yes, we were offered $500 for her and her calf just dropped, on the fair ground, last year, but refused it, as we have a standing offer of $100 for every one of her calves, as soon as they stand on their feet. We cannot afford to let her go for that price.

While in the calf quarters, I said: You have a lot of young things here, all separated from their mothers. How long do you leave them with their mother?

Not at all. We watch the cow closely, and do not intend to allow the calf to suck at all, but take it away as soon as it is dry. Full Guernsey milk is too rich for the stomach of any calf. If given them, they soon have indigestion and scours. No, we put the new milk through the separator, taking out all but about 3% fat. It is then poured into a pan, having a coil of steam pipe in the bottom, by which it is warmed up to normal temperature, and the calves learned to drink it, which they do very readily, never having been allowed to suckle their mothers. But there are cows, which give milk so well balanced, that it is perfectly safe to give it whole to the calf. The Ayrshire is one of them. In fact, for the general farmer, when all sections and conditions are considered, we regard her the best all-round cow in America. There is a throughbred we bought of one of your Jefferson county neighbors. She is a daisy of her type and gives a good mess of milk, but it does not have butter fat enough in it to suit the tastes of our New York customers, so we use it for calf feeding, or mix it with the Guernsey high per cent milk, to ship.

Just one more question, Mr. Taylor: What variety of ensilage corn do you plant, and do you use seed of your own growing or buy it elsewhere?

We plant Leaming now. Have planted Pride of the North; but, all things considered, we prefer Leaming. We do not plant seed from our crop, having lost heavily one year, because much of the seed did not germinate, although it was allowed to fully mature before harvesting, and was carefully selected and cared for. Now we buy our seed from a Binghamton, N. Y., firm, who have an established reputation and a large trade. They get their ensilage seed corn somewhere in Iowa. Last year we planted ninety-two acres, using about eight quarts per acre, and I do not believe there was a kernel in the twenty-three bushels that did not grow.

Our interview concluded, Mr. Taylor conducted me, first to the tool barn which is covered with iron, inside of which every tool used on the farm had been carefully housed away from storms. Next, we visited the horse stables where seven teams of heavy draught horses were standing, and, lastly, to a building which



had formerly been a large hog house, which workmen were over-hauling and repairing for the reception of the calves, when they go into winter quarters. I was also shown the poultry house, in which several hundred laying hens are usually kept. All in all, the farm, herd, barns and all else make an ideal plant, and one well worth visiting at any time. C. W. JENNINGS.

Belleville, N. Y.

Lining for a Silo—Clover Ensilage.

ED. HOARD'S DAIRYMAN:—Some of your readers ask about lining for a silo. A friend and myself each built silos three seasons ago. We lined with 2 ply building felt, with a good coat of asphaltum. We used cheap, rough boards for the sides. This was my second job of silo building, and when I build another, as I hope to next season, I shall build the same way.

My next neighbor, Mr. Fairchild, showed me some clover ensilage. It is the finest feed I ever saw. Each season he fills a silo with the second cutting of clover. It needs no cutter and so there is not a cent of extra expense. I purpose, hereafter, filling one silo with corn, the other with clover.

Your table of feed stuffs is just the thing.

Tonganoxie, Tex. H. V. H.

Think of It.

The following was prepared by Mr. M. E. Bull, a butter maker at Currie creamery, Currie, Minn., which we clip from the *Owatonna Journal*: "To show the appalling magnitude of this question, I will submit a few facts for you to think about. The output of oleomargarine for the year ending June 30, 1899, was 87,800,000 pounds. This enormous quantity of oleo, if packed in sixty pound tubs as we pack our creamery butter, would make 1,463,333 tubs. These tubs, if placed in a row, would reach a distance of 358 miles. These tubs, if loaded in ordinary farm wagons as we load our creamery butter, would form a procession 433 miles long, and with teams walking five miles per hour would require 85 hours to pass a given point. This enormous quantity of oleo, would, if melted and run into a reservoir of proper dimensions, form a volume of tallow, suet fat and cotton seed oil sufficient to float four war vessels the size of the Oregon.

If the present rate of manufacture keeps up, the tax at 10c per pound, would in less than two and one-half years, pay for the Philippine Islands.

If our little creamery were to receive 10,000 pounds of milk per day, and to run Sundays and week days, it would take 600 years to equal the output of the fourteen oleo factories of the United States for a single year."

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—There was an offering of 3,600 pounds of butter on Monday's Elgin Board of Trade, but no bids were made on any offering. The Quotation Committee declared the market steady at 26½ cents, last week's prices.

The sales for the corresponding week of the three preceding years were as follows:

Dec. 5, '98, 18,120 lbs. of butter sold at 22c.
Dec. 6, '97, 12,480 lbs. of butter sold at 22½c.
Dec. 7, '96, 18,300 lbs. of butter sold at 24@24½c.

The New York market, Monday, was reported steady at 27 cents. H. C. B.

Elgin, Ill., Dec. 4, '99.

DAIRY MARKETS.

ELGIN, Ill., Dec. 4—Butter—Offerings, 80 tubs; with no bids and no sales. Official market steady at 26½c. Butter last week, 26½c; last year, 22c. Sales reported for the week, 9,300 tubs.

CHICAGO, Ill., Dec. 4—Butter—Extra creamery, 26c per lb; firsts, 21@23c; seconds, 17@18c; imitation creameries, 18@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 16@17½c; packing stock, fresh, 5@15½c; roll, 15@ 6c.

Cheese—Full cream, Twins, good to choice, 11¾@12c; off grades, 8@10c; Young America, 12@12¼c; Cheddars, 11½@11¾c; Swiss, 12½@13c; Limburger, 10@12c; Bricks, 10@12c.

Eggs—Strictly fresh, cases returned, 19c; city cooler stock, 13@15c; country, 10½@11c.

Bran—In light supply and quotable at $12.50 per ton.

Middlings—Quiet and sold at $11.75 per ton.

Cattle—The best grades of 1,300@1,600-lb. cattle, the fully matured kind, sold at steady prices while other grades of beef cattle ruled 10@ 5c lower than the close of last week. A car load of Angus averaging 1,54 lbs. sold at $7.40, or $114.03 per head. Our top price was $1.55 above Kansas City and $1.85 above the top at Omaha. Twenty loads averaging 1,298@1,600 lbs. sold at $6.70@7. Steers averaging 8 00@1,085 lbs. sold at $4@6.60; bulk, $5.25@6. Two loads of 1,427-lb. Galloways sold at $6.80; corn-fed Western steers, $4.60@6.30; bulk, $5.40@6; straight Texas steers averaging 1,088 lbs. sold at $5.50, and 1,056-lb. Texas cows at $4.15. Iowa and Missouri fed Texas sold at $4.40@5 35. Native butcher stock closed 10c lower than the finish last week. Cows sold largely at $2.60@3.40, heifers principally at 3.50@4.25. Distillery bulls sold at $4.20@4.25, and some thin 834@851-lb. distillery steers at $3.80. Feeding cattle ruled steady with sales at $3.25@4.50.

MILWAUKEE, Wis., Dec. 4—Butter—Creamery, fancy prints, 26½@27c; extras, 26½c, firsts, 25@26c; seconds, 22@24c; imitations, 20@21c; roll, 16@18c. Dairy, selections, 21@23c; lines, 18@21c; ladles, 16@ 8c.

Cheese—American full cream, October Flats, 11⅝@12 ; July, August and September, 11c. Brick, 11@ 1⅝c; Limburger, choice, per lb. 11@11¼c; Swiss, Drum, 12½@13c; Block, 12½@13c; No. 2, 10½@11c.

Eggs—Fresh, per doz., 17c, loss off, cases returned.

FOND DU LAC, Wis., Dec. 4—Cheese—Offerings 294 Twins and 250 Daisies. Market very dull. No sales.

MUSCODA, Wis., Dec. 4—Cheese—Offerings on the Board, today, 1,072 boxes Twins; market firm at 11c.

SHEBOYGAN FALLS, Wis., Nov. 29.—Nine factories offered only 412 boxes cheese on the call board today. All were sold as follows: 278 cases Young Americas at 11⅜ cents; 90 Daisies at 11½ cents; 44 boxes Twins at 11 cents.

MANITOWOC, Wis., Nov. 29.—Offers of cheese at the Dairy board today were: 300 boxes Daisies, 100 boxes Twins, 350 boxes Young Americas. All sold at 11c.

PLYMOUTH, Wis., Nov. 28—Cheese—Sales reported today were 435 Twins at 11c, and a few at 11⅛c; also a few Young Americas at 11⅜c.

BRILLION, Wis., Nov. 24—Cheese—Sales at the Brillion dairy board, today, were 805 Daisies at 11c, 360 Flats at 11c, 225 Young Americas at 11c, 25 Young Americas at 11¼c.

NEW YORK, Dec. 4—Butter—Creamery Western, extra, 27c; firsts, 25@26c; state extras, 26½@27c; firsts, 25@26c.

Cheese—State, full cream, small, September, fancy, 12¾@ 3c; large, 12⅞@12¾c.

Eggs—State, Pennsylvania and Western, 23@24c.

FULTON, N. Y., Nov. 27—Cheese—Today 15 factories were represented with 1030 boxes of cheese. Large sold at 11c and small sold at 11½c.

BOONEVILLE, N. Y., Nov. 24—Cheese—The last meeting of the board for the season was held today. Only one buyer was present and as he would offer but 11c, none of the 1,600 boxes of cheese represented was sold.

LITTLE FALLS, N. Y., Nov. 27—Cheese—There was no full cream cheese reported sold today, the stock all being light skims of late October and early November make. 1,530 boxes were reported sold at 11@11¾c, the bulk going at 11c. 240 small white bringing 11¾, and 308 brought 11½c.

UTICA, N. Y., Nov. 27—Cheese—There was considerable controversy over what constituted the actual sales today, but the official report shows 3,806 boxes at 11@11⅞c, 1,320 large colored going at 11c, 1,040 small white at 11½c, 110 at 11⅞c, and other lots at various prices between the top and bottom.

The transactions on Nov. 30, 1896, were 4,758 boxes with the ruling price 9½c. The transactions on Nov. 29, 1897, were 3,416 boxes, with the ruling price 7⅜c. The transactions on Nov. 28, 1898, were 3,686, with the ruling price 9c.

Butter—The sales of butter, today, were: 20 packages at 24c, 60 crates of one-pound prints at 26c; 15 at 27c, and 50 at 28c.

WESTERN NEW YORK MARKETS.

Cheese—Following were the cheese transactions at the leading markets of Western New York, last week: At Cuba, sales of large at 11½c, and small at 11¾c; at Cattaraugus, sales of large and small at 11⅞c; at Sinclairville, sales of 325 boxes of small Novembers at 11½c.

WATERTOWN, N. Y., Nov. 25—Cheese—The Watertown Produce Exchange held its last official meeting of the season, today. There were 25 factories represented with offerings of 5,500 boxes of cheese. There were no official sales. On the curb the sales were: Large colored, 61 boxes at 11 9-16c; large white, 550 boxes at 11½c; small singles, 180 at 11¾c; Twins, 170 at 11½c, and 170 at 11¾c. Total, 1,131.

The board adopted a resolution urging Congress to pass a law prohibiting the use of the brand of one state on the cheese of another state.

BALTIMORE, Md., Dec. 4—Butter—Market firm; creamery separator, extra, 28c; extra, first, 26@27c; creamery, first, 24@25c; creamery imitation, extra, 22@23c; Iowa and Northwestern ladle, extra, 20@21c; extra, first, 1 @19c; first, 16@17c; Western store-packed, 15@16c; creamery rolls (2 lbs.) 25@26c.

Eggs—Market steady; strictly fresh stock, 20@21c.

PHILADELPHIA, Pa., Dec. 4—Butter—Separator creamery, extra, 27c; firsts, 26c; seconds, 22@24c; imitation creamery, extra, 21c; firsts, 18c; seconds, 16@17c; ladle-packed, extra, 17@ 8c; firsts, 16c; seconds, 15c. Print Butter: Creamery, extra, 28c; firsts, 26@27c; seconds, 23@25c.

Eggs—Pennsylvania and near-by, 24c; Western, 23c; Southwestern, 22c; Southern, 20c.

ST. LOUIS, Mo., Dec. 4—Butter—Firm; creamery, 24@27½c; dairy, 19@24c.

Eggs—Firm; 17c.

BOSTON, Dec. 4—Butter—Creamery, extra, 27c; western, extra, 26c; dairy, extra, 24@25c; imitation creamery, 20@21c; western ladie, 17½c; print creamery, 28c; box creamery, 26c.

Eggs—Fancy near-by, 32@35c; choice, fresh, 25c; Michigan, extra, 23c; western, 20@21c; fair to good, 17@19c.

KANSAS CITY, Mo., Dec. 4—Butter—Creamery, 22@25c; dairy, 18c.

Eggs—Fresh; 16c.

CINCINNATI, O., Dec. 4—Butter—28c.

Cheese—Steady; good to prime Ohio Flat, 12½c.

Eggs—Firm; 17c.

NEWARK, N. J., Dec. 4—Butter—Market firm; 27@27½c for extra Elgins. Receipts fair.

WASHINGTON, D. C., Dec. 4—Butter—Market firm. Extras 28c; fine, firsts, 26c; Junes, 25c; imitations, 21c.

NEW ORLEANS, La., Dec. 4—Butter—Market active at 28 cents.

Latest quotations for fancy creamery: Buffalo 28c, St. Paul, 26½c; Minneapolis, 26½c; Detroit, 27c.

ANOTHER GRAND VICTORY
—AT THE—
Iowa State Dairy Convention

Two weeks ago we announced the overwhelming triumph of the "Alpha-De Laval machines at the Minnesota Butter and Cheese Makers' State Convention—not only in the capture of higher butter awards, but in the more important showing of the relative use of separators by progressive, up-to-date creamerymen. Out of 154 separator made butter entries, 145 were "Alpha-De Laval," 2 "U. S.," 1 "Danish-Weston," 1 Sharples "Tubular," 3 old style "Sharples", and 2 "Reid-Danish."

Now the Iowa State Dairy Convention follows with the higher awards in all classes to "Alpha-De Laval" made butter and a convincing demonstration of the supremacy of the use of "Alpha-De Laval" machines. First prize and Grand Sweepstakes went to A. G. Armstrong, Collins, Iowa, with a score of 97½, and Second Prize to George Beckman, Lorimer, Iowa, with a score of 97. Out of 112 separator made butter entries in the creamery class, 93 were "Alpha-De Laval," 8 "Springer," 7 Reid-Danish," 2 "Sharples," 1 "Danish-Weston," and 1 "Alexandra."

This separator showing is particularly significant in Iowa because for five years that state was the great battle ground between the "Alpha" disc and the different "hollow-bowl" separator forces. The "hollow-bowl" people made their last stand in the west in Iowa. For years they fought desperately there after having abandoned all other western territory, but to-day they are as badly broken and scattered as Aguinaldo and his Filipinos. A few years ago there were several hundred "Sharples" machines in use, which have virtually all been economically converted into junk. Then there were hundreds of creamerymen in Iowa so devoted to the "wash-tub" Danish type of separator that they would listen to nothing but "Jumbo," "Reid" or "Springer," but they have nearly all learned by this time that there is something more important in a cream separator than cast-iron ponderosity.

And so it must be in every state and every section. You might as well try to make water run up hill from natural gravity as to try to make any "hollow-bowl" separator do the work of an "Alpha" disc machine. Any one who has the slightest conception of the principles of centrifugal separation knows that no human agency can accomplish such a result.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	NEW YORK.	PHILADELPHIA.

LIVERPOOL, Dec. 4—Butter—Finest United States, 94s; good, 73s.

Cheese—American finest white, 56s, 6d; American finest colored, 58s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—A farm hand. Must be a good milker and capable of feeding a herd of Jerseys under directions. Permanent place to the right man. Address J. E. STORY, Knickerbocker Farm, Hammond, Ind.

Wanted—A milk route in a live town. Address, with full particulars, X. Y. Z., Hoard's Dairyman.

For Sale—Four registered Gueresey bull calves and 8 high-grade heifers. Address J. D. POWERS Fort Atkinson, Wis. 43-2

For Sale—Two No. 3 U. S. Separators in good condition. Owner needs large size. E. J. ANGELL, West Newark, Tioga Co., N. Y.

I want to lease cheese factory with privilege of buying. Address C. STROMVALE, 1220 Noble Ave., Chicago, Ill.

For Sale—Guernsey reg. bull calf and Chester White swine. GEO. BURLESON, Sumner, Wis. 43-tf

For Sale—White Plymouth Rock cockrels, pure bred; also high grade Holstein bull calf 6 mos. old. Prices reasonable. Address R. CROSSFIELD, Fort Atkinson, Wis. 43-2

For Sale—Registered Jersey heifers coming fresh during the winter, and a few young bulls. Calves at low price if taken when young. N. B. WHITE, Oconomowoc, Wis.

For Sale—A herd of fine grade Jersey cows. Address J. N. JONES, West Salamanca, N Y. 43-2

For Sale—Latest 33 disc Baby No. 1 De Laval Separator. Good as new used two months. $75 cash. WM. T. STONE. Oxford, Ga.

For Sale—Dairy farm, 500 acres, 40 cows, reg and grade Jerseys. Business for 100 cows at fancy prices Good opening for a company. Paying now 7% on price. Reason for selling, have other business. Address "F," care Hoard's Dairyman. 43 2

Wanted—One hundred tons of well cured clover to be delivered in Chicago in car lots as required. Address, W. C. 22nd St. Post Office, Chicago, Ill. 40-4

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Fine Dairy and Creamery opportunity, South. Inducements offered. P. O. BOX 281, Atlanta, Ga. 42-tf

A. B. C. in Butter Making—For private dairymen, young creamery butter makers and managers. Sent postpaid on receipt of 50c, stamps or M. O. J. H. MONRAD, Winnetka, Cook Co., Ill. 42-3

Wanted—Copies of HOARD'S DAIRYMAN previous to Vol. 20, either bound or unbound, complete sets or single numbers. Address, stating what you have to offer, with price, H. H. WING, Cornell University, Ithaca, N. Y. 41-4

Dairy Farm to Rent—Consists of 230 acres. 40 to 50 milch cows; completely furnished with improved machinery. Rent with or without milk route. Located inside school district of city of 9000. Liberal terms to right man. Must have A 1 references. J.P.ANDREWS, Faribault, Minn. 41-3

Any Creamery wanting a first-class butter maker of experience in managing a creamery, one that can furnish best of references as to reliability and work, address No. 25, care Hoard's Dairyman. 41-5

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

Puerto Rico—Three tours of the beautiful island of Puerto Rico are scheduled to leave Chicago January 11, February 15, and March 8. Special Pullman sleeping and dining cars will convey the party to New York, thence on board the splendid new steamships Ponce and San Juan, through and around the island by rail, automobile, carriage and boat. Tickets include all expenses everywhere. These select limited parties will be under the special escort of Mr. Walter Boyd Townsend under the management of The American Tourist Association, Reau Campbell General Manager, 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to Agents of the Chicago, Milwaukee & St. Paul R'y. 41-sp

To Los Angeles and Southern California.—Every Friday night, at 10:35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California. In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey. These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only $6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Geo. H. Heafford, General Pass. and Ticket Agent, Chicago, Ill. 37-sp

Mexico—On Tuesday, January 23, a special vestibuled train of Pullman Palace cars, compartment, drawing-room, library, observation and dining cars will start from Chicago going to the City of Mexico and to the other prominent cities of the Republic and back to Chicago again without change, making the tour of all Mexico complete. The party will be strictly limited and absolutely first-class. Tickets include all expenses everywhere. The tour is under the personal escort and direction of Mr. Reau Campbell, General Manager of the American Tourist Association. For maps, books of the tour, tickets, etc., call on agents of the Chicago, Milwaukee & St. Paul R'y.

An Ohio Dairyman Starts a Creamery.

Advises His Patrons.—Takes Hoard's Dairyman for a Guide and Conquers Success.—Wants Further Information.—His Inquiries Answered.

ED. HOARD'S DAIRYMAN:—I started a creamery here under unfavorable circumstances, but persistent work and keeping posted on dairy work, never failing to give my patrons a good talk on dairy business, nearly all my information coming from HOARD'S DAIRYMAN, has built up a fair business, with good prospects for the future.

Would like to have you send me some more cards for the trial subscription for five months at 25 cents. Have used a good many with my patrons at the creamery. In some cases where I thought the seed would fall on good ground have advanced the quarter and postage myself. In all cases tell them, if they don't get their money's worth will refund same. The patrons of creameries must read your paper, or they are behind the times.

Please give, for my personal use and the encouragement of my patrons, ration formulas from the following:

1. Clover hay, bran, oil meal.

2. Timothy hay, corn fodder, bran and oil meal.

3. Timothy hay, bran and oil meal.

I am feeding No. 1 now; later will feed No. 2, and in the spring, No. 3. Kindly give me a balanced ration for each of them. The oil meal is old process, and the hay is all cut early, none of it old. The corn fodder is shredded. I am feeding to Jersey cows, ordinary size; am selling milk to creamery; want all the butter fat I can get.

My thoroughbred Jersey bull is very slow in service; keep him in a box stall; feed him good hay, clover and timothy mixed. What can I do to make him more active?

Have a heifer fresh about four weeks; has an extra hole in one of her teats. Can it be closed up? C. E. B.

Minerva, Ohio.

The above communication is so suggestive that we omit all comment except to say that what C. E. B. has done others may do by following his methods. There are very few communities, where a public spirited man, anxious to benefit his neighbors, cannot accomplish that end by going to them in a friendly way, and preaching the gospel of better cows and better care of them, as set forth in these columns from week to week. The only persons who keep milch cows for the purpose of making some money from them, that cannot afford to be regular readers of HOARD'S DAIRYMAN, are those who will not learn—who are "wiser in their own conceit, than seven men who can render a reason."

Answering our correspondent's inquiries, we submit the following suggestions:

I.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
22 lbs. clover hay....	18.63	1.50	7.88	.37
4 lbs. bran.....	3.52	.50	1.54	.12
2 lbs. oil meal.....	1.82	.59	.65	.14
Totals.....	23.97	2.59	10.07	.63

II.

12 lbs. timothy hay...	10 42	.34	5.21	.17
10 lbs. corn stover....	5.95	.17	3.24	.07
8 lbs. bran.....	7.05	1.00	3.09	.24
2 lbs. oil meal.....	1.84	.59	.65	.14
Totals.....	25.24	2.10	12.19	.62

III.

20 lbs. timothy hay...	17.36	.56	7.92	.31
8 lbs. bran.....	7 05	1.03	3.09	.24
2 lbs. oil meal.....	1.82	.59	.65	.14
Totals.....	26.23	2.15	11.56	.70

It would be more economical to feed only half of the clover hay specified in Formula I, and supply its place with either stover or timothy hay, or both, and increase the bran by 2 lbs. The clover thus saved could then be carried forward to one or both of the succeeding periods.

The best remedy we know for the bull is plenty of exercise, and if in the line of useful work, so much the better.

We suppose it is possible to close the extra opening in a teat, but it is a job we never undertake, and would not have undertaken for us. The directions are to make the surfaces of the opening raw, by burning or scarifying, and then letting the flesh unite by healing.

A Hard Rap at Oleo.

In the *Wisconsin State Journal*, of recent date, Hon. H. C. Adams, Dairy and Food Commissioner of Wisconsin, shows up with exceeding keenness some of the sophistries of the oleo apologists as follows:

To the Editor:—An editorial in your issue of Thursday gives some statistics of oleomargarine production, and makes a general reference to court decisions, affecting the oleomargarine interest, and concludes with the statement: "As long as the product is cleanly and nutritious, it is difficult to see why the unprejudiced mind should not rejoice in the making of a cheap substitute for one of the most costly items of the home for the poor, by whom oleo is chiefly eaten."

The article is one similar in form and substance to a recent production of the literary bureau of the oleomargarine manufacturers of Chicago, which has been given wide publicity in that portion of the press of the country which is influenced by oleomargarine arguments. The *State Journal*, however, is undoubtedly free from any suspicion of having published anything upon this subject, except as an expression of its own independent, unprejudiced editorial judgment.

The correctness of the figures given is not disputed. In round numbers 88,000,000 pounds of oleomargarine were made last year. It might be added that it was produced at a cost of less than eight cents per pound, and sold to retailers at an average price of twelve cents per pound, and unloaded upon final purchasers, "the poor," who, to an unprejudiced mind, are supposed to be tickled to death to get it, at from 16 to 24 cents per pound.

You state that "recent court decisions seem to give warrant to the substitute." The supreme court of Michigan declared the oleomargarine law of that state void because of the failure of the legislature to incorporate in the law a labeling clause—a purely technical defect. The supreme court of the United States declared unconstitutional the law of Pennsylvania, which prohibited absolutely the manufacture and sale of oleomargarine, colored or uncolored—a law which the dairy interests of the country regarded as unsound.

The same authority made the same decision upon the New Hampshire law, which required oleomargarine to be colored pink—plainly an unjust requirement. But the law of Wisconsin, New York, Ohio, Massachusetts, Illinois and twenty-six other states, which prohibits the manufacture and sale of oleomargarine, colored in imitation of yellow butter, has been declared constitutional by the supreme courts of Massachusetts and Ohio, and their decision has been affirmed by the United States supreme court, and that decision has not been reversed.

The oleomargarine interests regard the anti-coloring law as a deadly enemy to their trade. Why? Because, if they cannot make their product look like butter, the people who eat it cannot be fooled with the notion that they are eating butter. Ask any dairy commissioner in the United States, or any person who is familiar with the butter and oleomargarine trade, except the philanthropists who run oleomargarine factories in the interests of the poor, what portion of the oleomargarine production of the United States is eaten by people who call for butter, and you will be told that at least nine-tenths is so consumed. Pass an anti-coloring law in every American state, enforce it to the letter, and the oleomargarine interest would go to the wall, because its stock in trade, opportunity for deceit which is not visible to the naked eyes of some unprejudiced minds, is destroyed.

Eighty million pounds annually of lard and tallow, cotton seed oil and divers and sundry chemicals bathed in milk to give them the odor of sanctity is sold for genuine butter! Is it an honest or a dishonest traffic? Is a mind badly warped that fails to rejoice at this wholesale plunder of the public? This is what happens: The manufacturer sells to a retailer and there is seldom deception. The retailer in Chicago usually sells it for butter, and there are one thousand retailers in that city. In this state a retailer usually sells it for what it is. But the person who buys, in almost every instance, is the keeper of a saloon, a restaurant, a boarding house, or a hotel, and his patrons get it in response to a call for butter.

Does the final purchaser get any rebate or reduction in the bill for his dinner because hog fat instead of butter fat has been smuggled into his digestive machinery? Not a cent. The final consumer pays a butter price, and the poor man, who is supposed to be the beneficiary of all this business, if he knew where to look, would see the difference in the price of butter and the price of oleomargarine carefully parcelled out to other people before he is graciously given an opportunity to swallow a fraud.

Dane county has become a great dairy county. Our annual butter product is nearly seven million pounds. It is this industry which has brought independence and comfort to a great many farm homes. These millions of pounds of butter are the result of hard and costly labor. The men who carry on this business, have a right to demand all that law can fairly give them in the way of protection from dishonest competition. Legitimate competition is hard enough. When oleomargarine steals the livery of butter to enrich the pork packers of Chicago, the dairymen of Dane county and of every other agricultural county of this great dairy state will be a little slow to rejoice over the success of the enterprise.

H. C. ADAMS.

Madison, Wis.

What Pasteurization is and the Best Known Means of Accomplishment.

ED. HOARD'S DAIRYMAN:—The name pasteurization comes from the man who first discovered this process of purifying milk, Dr. Louis Pasteur, who was born in 1882 and died in Paris, 1895.

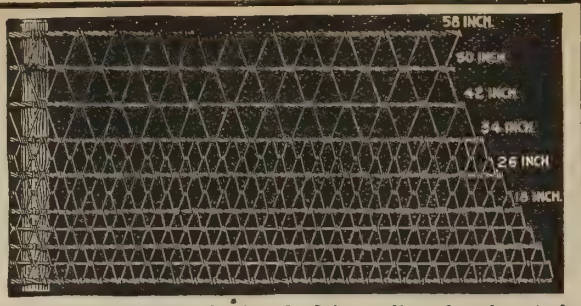
The object of pasteurization is to utterly destroy all undesirable microbes or bacteria which rapidly germinate in warm milk, and in so doing, produce an article which can be used as a food without question or suspicion by man kind, under all the different and varying conditions.

Milk, as it comes from a healthy cow fed upon pure food, is pure and sterile. Such a condition even when the utmost precaution is taken is almost, if not wholly, impossible to find. Millions of germs multiplying enormously, float in the dust-laden air, lodge under the flanks of the cow, and on the hands of the milker. To give an idea of how these germs increase, it has been shown that in milk at a temperature of 90° F., they multiply twenty-three times in two hours, but in milk at a temperature of 54° F., they will only multiply four times in two hours. These figures may be true or may not, but come through an unquestionable source.

The Woman's Hospital of Philadelphia claim that since they decided to pasteurize all of the milk used in the hospital, the death rate has decreased enormously. This in itself would prove that there is more merit in pasteurizing than the average person would be willing to admit.

There are at the present time, numerous enterprises started throughout the United States and running on a very successful basis, that make a practice of pasteurizing and sterilizing milk to be used by children and infants, under special conditions. Also progressive milk dealers have fallen into line

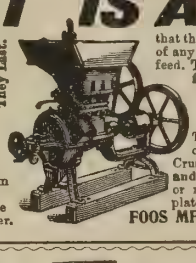
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are the Standard Woven Wire Fences of the World. Standard in quality of spring steel wire, standard in heavy galvanizing, standard in efficiency, durability and economy. Standard for every fencing purpose, for horses, cattle, hogs, pigs, sheep, poultry and rabbits. **STANDARD OF ECONOMY**—More of our fences sold and put up in 1899 than of all other woven wire fences combined. Sold by our agents everywhere. If no agent in your town write to

AMERICAN STEEL & WIRE CO., Chicago or New York.

IT IS A FACT



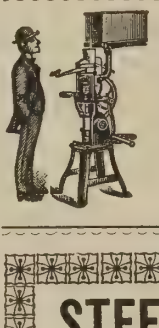
that the best results in feeding stock of any kind are attained with ground feed. **To grind feed** most successfully requires

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They have largest possible capacity with minimum power. Crush and grind **corn, husk cob and all,** and all small grain singly or mixed. Have self-sharpening plates. **Free**—Catalog I.

For Steam and Horse Power.

FOOS MFG. CO., Springfield, Ohio.



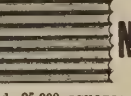
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Makes the work easy and profitable to the dairy farmer. Agents wanted. Catalogues free.

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Feeding Steers. This feed makes quick, heavy growth. Steers fed on it develop evenly and furnish tender, juicy, sought after meat.

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CONSULT OUR SCIENCE DEPT.



Trade Mark.

LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. **No cure, no pay. FREE.** A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists,
Union Stock Yards, Chicago, Ill.

and put in large continuous process pasteurizers by which they are enabled to purify the whole product at a very small expense, and give the public an article pure and unquestionable.

The success already attained shows that the public in general desire their milk to be pasteurized, as soon as they become acquainted with the method, or get a thorough knowledge of the good which pasteurizing does.

In Europe, notably Sweden and Denmark, they have been following this method for years with the best of results.

As to butter making, the plan is carried out in this line also in a most complete manner, by many of our largest and most progressive creamery men throughout the country, and we are pleased to note that this desire for purifying the product is growing very rapidly.

The system of pasteurizing for butter making is slightly different from that used by milk dealers for city delivery of milk.

The milk is heated in a continuous process pasteurizer, such as made by Mr. Reid, of Philadelphia, running directly from the pasteurizer to the separator, being separated while hot, thus increasing the capacity of the separator as well as pasteurizing the milk and cream at the same time. By this method the milk is heated to a temperature of 165° and held there a very few minutes, and we find upon careful analysis of the milk, that 95 per cent of the germs or bacteria are utterly destroyed.

Then to ripen the cream a starter of some kind should be put in. These starters are inexpensive, and can be carefully prepared, and are calculated to give the correct flavor to butter made from cream ripened in this manner and by adding a starter to pasteurized cream, any germs which have not been destroyed would be crowded out by the proper germs, as developed by the starter, thus rendering it unnecessary to hold the milk in the heated condition for fifteen or twenty minutes for purposes of butter making.

The butter made by this process of pasteurization is uniformly good and of a sweet flavor throughout the year.

GEO. D. STEVENS.

West Redding, Conn.

Another Dairy Marvel.

ED. HOARD'S DAIRYMAN:—This time it is what the promoters state, "not a churn," but "the greatest scientific mechanical wonder of the age, the "Instantaneous Air Blast Butter Separator," which originates from Cincinnati, Ohio.

In a circular, describing this marvel, the promoters state: "The object of this part of this pamphlet is to briefly describe the scientific merits, the adaptability, the enormous saving of 50 to 100 per cent in the production of butter, etc." Of course, if they can save 100 per cent with this device, then the dairyman can produce butter for nothing, and the millenium has reached us.

In this same pamphlet and in explanation of the above, we have the following:

"THE PRINCIPLES OF THE INSTANTANEOUS AIR BLAST BUTTER SEPARATOR."

"The separation of the globules of butter from the milk by the Instantaneous Air Blast Butter Separator is accomplished by a steady current of air being forced through a tube on the end of which is attached a device for equally distributing the air through the milk which immediately dissolve the albumen capsules, liberating the butter in its natural globule form, retaining all its flavor and keeping qualities. It is simply the adaption of a scientific principle to a mechanically constructed machine. The oxygen in the air is taken up by the hydrogen in the milk, which forms peroxide of hydrogen which immediately dissolves the albumen capsules encasing the butter globules, thus liberating the butter. The particles being cohesive, unite in crystals, forming into flakes of pure butter. The butter being free from casein keeps longer than butter made by the old process of agitation which only produces a mixture of butter fat, casein and curd, and being impure when fresh, or first made, cannot keep long without becoming tainted or putrid."

Chemists will be delighted with this new method of producing peroxide of hydrogen which may be regarded as a by-product along with buttermilk. No doubt hundreds, if not thousands, of farmers who do not read the papers and keep posted will invest in this novelty and in parting with their hard earned dollars, little realize the enormous cost of ignorance in these latter days.

A few months ago, the one thing needed by dairymen, according to certain advertisers, was the Hydraulic Cream Separator, which would do away with centrifugal separators and many other troubles which afflict the dairyman. We had supposed that these people had been sufficiently advertised to warn all farmers against being caught, but I have recently been told that in certain sections of the United States the company is taking in tens of thousands of dollars, some farmers who have been induced to act as agents, losing as much as a hundred dollars through technicalities in contracts made. When will our people learn to look on matters like these in a rational way and not part with their money because strangers make extravagant claims.

W. A. HENRY.

Wisconsin Agricultural Experiment Station.

Cure for Clover Bloat.

ED. HOARD'S DAIRYMAN:—I see in your last paper that H. L. S., of Bozeman, Mont., wanted to know if there is any cure for clover bloat. The answer was "no," but we have a cure. Take a wine glassful of pitch tar, and give it to the cow just as soon as the bloat is discovered. It gives relief in a few seconds, and does no harm to the cow. A neighbor of mine has been troubled all this fall with his cows clover bloating, and would have lost them, only for the pitch tar. The tar has to be warmed a little so it will run.

WM. G.

Anthony House, California.

EXPORTS of butter this year show an advance over last. For the nine months ending September 30, 1899, they were 23,855,992 pounds, valued at $3,877,434, against 10,375,545 pounds, valued at $1,642,057, for corresponding time in 1898. For September of last year the export was 1,310,854 pounds. This year it was 3,252,418 pounds. The efforts of Secretary Wilson seem not to have been in vain.

Singer Machines Last Longest.

A recent canvass of the United States found 216,000 family sewing-machines of all kinds that had been in use from 15 to 48 years; more than one-half of them were Singers, and 2,000 of these Singers had done good service during 40 years and more.

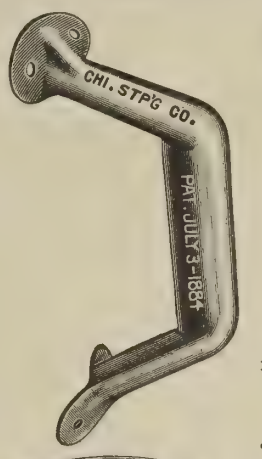
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Sold on Instalments. You can try one Free. Old machines taken in exchange.

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A Few Reasons Why STURGES Cans are Superior to Others:

1st. The Round Handle prevents cut hands and will not rust out.

2nd. Cover is seamless and the only one made on which solder and **acid** are not used.

3rd. Seamless Neck prevents dirt accumulating.

4th. Guaranteed against leaks.

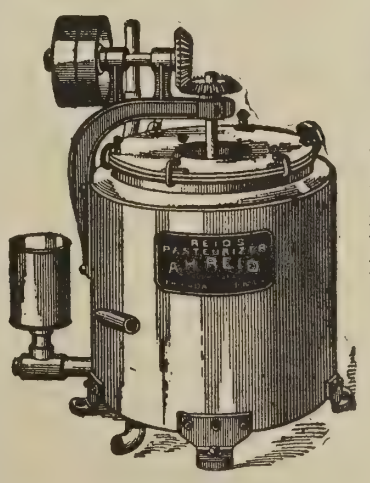
5th. **Are Heavier,** contain more pure tin and having few seams, are easily cleaned.

WRITE FOR CATALOGUE.

FRANK STURGES,

Successor to THE CHICAGO STAMPING CO. CHICAGO.

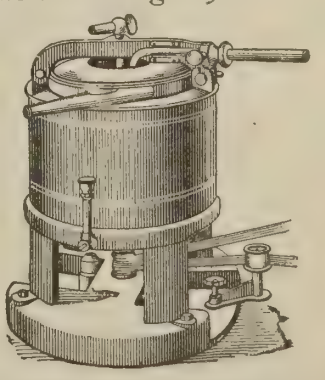
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to do all things. The right way—the most economical way—the only scientific way to pasteurize milk and cream is with the Reid Pasteurizer. No creamery is fully or perfectly equipped whose plant doesn't include a

REID PASTEURIZER

No creameryman who investigates its claims and sees the results accomplished by its use can fail to be converted to a belief in pasteurization. Begin *your* investigation to-day. Write for full description of the pasteurizer and information about pasteurization. If you are interested in Separators, ask for the book about the **REID LONG SPINDLE SEPARATOR,** or our new catalogue.



A. H. REID,

30th and Market Streets, PHILADELPHIA, PA.,

And CEDAR RAPIDS, IOWA.

Mr. Wheaton's Canadian Dairy Notes.

Filled Cheese.—Counterfeit Dairy Products.—Unprofitable Dairy Cows.—Dairy Markets.

ED. HOARD'S DAIRYMAN:—Canadians cannot but admire the strong stand the DAIRYMAN takes in regard to the manufacture of "filled" cheese or "bogus" butter. The total prohibition of their manufacture or the adoption of such regulations as will confine these spurious articles to the sphere to which they belong, and compel them to be sold for what they really are, is the only safe plan for any country to follow. Unless this is done these goods are sure to be placed before the public in such varied and underhanded ways as to bring a lasting injury to the trade in the genuine article.

As far as Canada itself is concerned, there is little, if any, special interest in this question. We have settled the matter once and for all, and to-day no one in this broad Dominion is one whit the poorer, because from one end of the country to the other there is not a pound of "filled" cheese or oleomargarine made or sold. In fact, we feel that we are much richer both in pocket and in good name, because from the beginning of the dairy industry in Canada to the present time, nothing but the genuine article has been manufactured.

What may have been lost to a few individuals who might have realized handsome profits from the manufacture and sale of these "doctored" dairy products, is made up many times over in the increased demand in Great Britain for Canadian cheese and butter, and the great expansion in our export trade in these commodities.

Where would Canadian dairying be to-day had the manufacturers of these spurious goods got a foothold in the initial stages of the business? It is hard to say. One thing is absolutely certain, we would not to-day have the good name we now possess for honest dealing and upright methods in the management of our leading industry.

The decided stand taken and the stringent laws enacted in those early days, have been many dollars in the pocket of the Canadian farmer; though, perhaps, those who were instrumental in having them enforced did not fully realize it. Besides, had not this stand been taken we would today have such a fight on as you are having across the border, in the endeavor to get for genuine dairy products what is their due. And this would mean the expenditure of a large amount of time and money which persons engaged in dairying should not be called upon to pay, as those in authority, if they legislated for the good of the individual and the country at large, should see that just and righteous laws are administered without any extra pressure being brought to bear upon them.

We have been told, though not lately, by persons not opposed to the manufacturing of counterfeit dairy products, that Canadians were too slow and behind the times in not engaging in this business. But we were not then, and are not now, in anyway concerned about being called slow-going. Our dairymen are quite satisfied to take as their motto, "slow but sure," in-so-far as the making of counterfeit productions is concerned.

We have also been told that to prevent a man from making "filled" cheese, oleo, etc., if he wanted to, is to take away that individual liberty, which is the right of every free citizen in a free country. But we failed to be convinced by this argument also. It no more interferes with the liberty of the individual to prevent him from making a dishonest article than it does to prohibit him from doing injury to his neighbor or to what belongs to him. The making and selling of counterfeit food products most certainly injures the business of those who make the genuine article, and in not a legitimate manner either.

But we have dwelt somewhat longer upon this topic than we intended. It affords scope for considerable moralizing. In this country we believe that the only safe plan is to prohibit the sale and manufacture of these counterfeit food products, in any shape or form. If this cannot be done, the next best thing is to regulate their sale so that the goods shall be sold for what they really are. So we say, Mr. Editor, "more power to your elbow" in the splendid warfare you are waging against the powers of evil in the American dairy world.

We have frequently referred to the fact that many dairymen go on year after year, keeping the same old unprofitable cows, and receiving the same old profitless returns, without for a moment considering what the outcome will be, or making the least systematic effort to remedy matters. The topic, however, is a vital one, and cannot be drummed into the readers of a practical dairy journal too often. This is a good time of the year to begin the discussion. About all the cheese factories and summer creameries have shut down for the season, and the patron has an opportunity to figure up his returns and find out what the season's business has brought him in per cow.

But how many dairymen there are who will neglect even this simple matter and keep their cows over for the next season without knowing what returns each has brought in; knowing the average that each cow brings in, is not sufficient data upon which to base an accurate estimate of what she is doing. The quantity and quality of milk that each individual cow gives should be known, in order to figure accurately as to profit or loss.

In addition to this, to get things down to the fine point and know just which is the most profitable cow in a herd, the food that each consumes should be taken into account, or, in other words, the cost of the keep should be known. With this data, and that giving the returns for each cow, the dairyman can tell exactly what his individual animals are doing for him. It may take some time and trouble to get all this in good shape, but it will pay to do so, no matter what the cost may be.

A dairyman who does this does not need to go to a dairymen's convention in order to find out how to make dairying pay. He has the information within himself, and if he uses it properly, can soon be on the road to success and profit in this dairy business. The important thing to know is, which are the profitable and unprofitable cows. This knowledge obtained, there should be a seperation of the "sheep" from the "goats." While the former should be kept in a comfortable stable, and supplied with good, succuleut and nourishing food, and feasting every day, the latter should be cast out, never to return or to darken the gateway of a milking yard.

But what is the best plan to adopt in disposing of unprofitable cows, is, perhaps, deserving of some further consideration. Some have said: "Trade them off for dogs, and then shoot the dogs." While the idea conveyed in this may be all right, if there is no other plan, yet it may be possible to realize a direct return from them. As a rule, a poor milker tends to make beef easily. If this be so then it is the best plan to fit the cows for the butcher's block, and get as much ready cash as you can for her.

We have known dairymen to sell their poor cows to some brother dairyman, several miles away. But this is nearly as dishonest as selling oleo for pure butter. In one sense it is much worse, as it will affect the purchaser's profits more. And then in this dairy business we should have a brotherly feeling, one toward another, and instead of endeavoring to do our neighbor harm, by palming off an unprofitable cow upon him, we should do him good, by putting that cow out of the milking business forever and a day.

There is nothing out of the ordinary to report in connection with the general dairy situation here. The cheese making season is over, and dairymen, who are not patronizing

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CUT BEETS, MANGELS, Turnips, Carrots, and all other roots and vegetables for stock feeding. **CUT FINE.**

Choking Impossible.

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WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
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Two Combination Bred Bulls ready for service. Also bull calves for sale. For prices and pedigrees address, FRED STUBLEY, Black Earth, Wis.

St. Lambert Jerseys, all ages, both sexes. Some from **tested cows** at low prices. **W. J. HUSSEY,** Mt. Pleasant, Ohio.

ALBION JERSEY HERD is headed by
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An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.**
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Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

Marquilla's Major 40804.
SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs. 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price.
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RECORDER 29239 son of **Brown Bessie** and Diploma 2nd 36374 are head of the herd. A few choice grandsons and granddaughters of **Brown Bessie,** from tested dams, are offered. Also cows bred to above bulls. Write for printed pedigree. State what is wanted.
H. C. TAYLOR, Orfordville, Wis.

EUROTAS
Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield.
W. F McSPARRAN,
Fairfield Stock Farms, Furniss, Pa.

Hood Farm Jerseys
For Sale—Show Bull Calf. First as best bull calf and champion as best bull under 2 years at Illinois State Fair, 1899. Solid color, black points. Name, Mint 24th of Hood Farm. Sire, Mint, 50 per cent Combination bull, sire of 3 in list. Dam, Stalactite 2d, 17 lbs. 10½ oz.; in 11 months gave 9,185 lbs. milk, testing 554 lbs. 15 oz. butter. Write for price.
HOOD FARM, Lowell, Mass.

FOR SALE!
Grandson of the Greatest Sire of Butter Cows,
Exile of St. Lambert 13657
Now Sire of 79 Tested Daughters. Solid fawn color; ten months old, and a good individual. His dam has a test of 15 lb. 8½ oz. of butter in seven days.
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The BEST Dairy Breed.
Over 100 Jerseys, at
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MOSTLY MILK COWS.
Get Catalogue from the sellers (above) or
THE JERSEY BULLETIN, Indianapolis, Ind.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

The Hillside **Jersey Farm** affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address
F. E. BRYANT, Carlsbad, New Mexico.

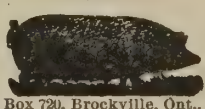
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JERSEYS.
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Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
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THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.


Pure Bred **Tamworth Pigs,** Bacon curers choice. Pure Bred **Ayrshire Cattle,** largest imported herd in America. Stock all ages for sale, R. G. STRACY. Box 720, Brockville, Ont., Canada.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S HAWK, Mechanicsburg, Ohio

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR. Solid color, well grown, robust. Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. J. P. BRADBURY, Pomeroy, Ohio.

the winter creameries, are, perhaps, thinking of drying off their cows soon, and giving both themselves and their kine a few month's holiday. Whether they can afford to do so is a matter that we will have to put off for discussion till another time.

The cheese situation shows a decidedly healthier feeling than it did two weeks ago. Buyers have been picking up November pretty readily, and holders of fine September are not anxious to sell, believing that they can do much better later on. At the local markets, cheese is selling at 11 to 11⅜ cents.

The export creamery butter business is experiencing somewhat of a setback just now. The English market shows little signs of strengthening and receipts are heavy. Lately, a little better feeling is noticeable on this side, but 19¼ to 19½ cents are considered the outside figures for export. These prices are fully seven cents below what was being paid in New York, last week. Because of the extra price there, American butter, held in Montreal, is being reshipped to New York. The increase in shipments so far this season from Montreal is 190,000 packages as compared with the same period, last year.

Toronto, Canada. J. W. WHEATON.

Dairy Notes From the New York Institutes.

Question Box.

How long should the floor of the cow stall be from manger to gutter?

Mr. G. A. Smith.—(Institute conductor.) The floor should vary in length to acommodate the animal—should generally be from four to five feet.

How often should cows be salted?

Mr. Smith.—Three times per week.

Would it pay to build a silo for only two or three cows?

Mr. Converse.—I would not build a silo for less than five cows.

When drawing out the manure this winter, would it be better to put it in piles, or spread it on the ground?

Mr. Smith.—Spread the manure when you draw it if it is level land. You will not lose anything by spreading it; it will save time and your land will be better for being covered in the winter. The manure, especially if coarse, should be plowed under. You will get more humus in the soil in this way.

How would you raise a calf when you have no milk?

A farmer.—Feed sweet milk three or four days, then linseed meal porridge containing one quart of milk, for one month. Afterward feed dry wheat bran and ground oats. Oats and bran make bone. Clover hay tea is good for them.

What is the best remedy to kill lice on cattle?

Mr. Burchard.—Tobacco dust is good; also a mixture of sulphur, lard and carbolic acid.

Can mangolds be profitably fed to hogs?

A farmer.—I have fed them with grain, and the hogs did well. All animals need succulent food.

What is the difference between the feeding value of dry corn stalks and ensilage?

Mr. Converse.—There is the same difference between dry stalks and ensilage, that there is between hay and grass. Experiments have been made where cows were fed alternately on dry stalks and silage, and the results have always been in favor of the ensilage. It is the water in the silage that makes it more valuable. You cannot feed dry stalks with water and make as much milk from the cows. The cows to do their best must be provided with succulent food in the form of ensilage or roots. I can also make more and better flavored butter from the ensilage, but, of course, the ensilage must be f good quality. Condensories do not take milk made from ensilage, because some farmers will not feed good ensilage, and poor ensilage makes poor milk.

Is ensilage good for young calves?

A farmer.—I am feeding a calf less than six weeks old on ensilage, and it is doing well.

Is ensilage good for a horse?

Mr. Smith.—Prof. Roberts, of Cornell University, made an experiment to find the effect of feeding ensilage to a horse. He bought a cheap horse in the fall, and fed him ensilage all winter, and in the time he was used for drawing milk. The horse got fat, so he sold him in the spring for more than he gave for it. Ensilage is not generally considered safe for feeding, unless used in small quantities.

What can one afford to pay for running water in a barn?

Mr. John Gould.—The water in my barn cost me about three dollars per cow, and I consider it a good investment. I don't use buckets for watering the cows, but a V shaped trough in which to run the water before the cows. The water is pumped with a windmill. The windmill cost fifty-six dollars. I paid eighty cents per foot for digging the well, and there was an additional cost for piping.

What grain ration would you advise feeding with dry corn stalks?

Mr. Smith.—Wheat bran and gluten meal, also buckwheat middlings, if you have them.

Does feeding Buffalo gluten injure butter?

Mr. Smith.—If fed in large quantities, the quality of the butter may not be as good. Fed moderately, I do not think it injures the butter to any great extent.

Do the different kinds of cotton seed meal differ in value?

Mr. Smith.—Yes. One sample analyzed at the New York Experiment Station, contained nearly twenty dollars worth of protein, and another contained less than nine dollars. The pure food law will prevent the adulteration of grain after December 1st. Then all dealers must give a guaranteed analysis of all they sell.

Would you sell oats for one cent per pound, and buy gluten meal?

Mr. Smith.—At the usual price of gluten you can get more protein for your money by exchanging the oats for it.

What is the value of hominy meal for feeding cows in milk?

Mr. Smith.—As compared with other feeds, at present prices, it is worth about fifteen dollars per ton. Its manurial value is about eight dollars per ton.

Is the short rotation profitable in this locality, i. e, corn, oats, oats and peas, and clover?

Mr. Smith.—I think it would be on the most of the farms here.

Is it not a mistake for farmers to buy so much fertilizers?

Mr. Smith.—Not many farmers can afford to buy nitrogen, and the dairy farmers should buy but little fertilizers of any kind. Remember the element in any fertilizer which is in the smallest amount controls the crop. Send for the bulletins from your state experiment station, and keep posted on the matter of fertilizers.

Does it pay to buy Canada wood ashes?

Mr. Smith.—The elements in one ton of ashes as they will average, bought on the market, would cost $6.65. You can buy muriate of potash, South Carolina rock, and lime and make a ton of ashes for this amount.

Can one always get a catch of clover, when seeding in August, after oats and peas?

Mr. Converse.—In a dry season, it may sometimes fail, but one year with another you will get better seeding by sowing in August after you have taken off the crop, than you will to seed with the crop.

W. H. J.

Testing Process Butter.

It is always hard to prophecy what the chemist can do. It would seem impossible to tell if a sample of butter had been melted, washed and rechurned, but read the following:

It is now possible to test chemically, renovated butter and determine its character. It has been supposed previously that the constituents being the same in both fresh and renovated butter, would act the same when chemically analyzed. But it appears that butter, in deteriorating, undergoes a physical change that the renovating process is not able to reverse. The fat of renovated butter has a more or less crystaline structure, while the fat of pure fresh butter is devoid of any such appearance. If pure butter be examined microscopically with polarized light and selenite plate, the field will be uniformly colored in any position of the analyzer while renovated butter will show a mottled, many-colored field. Without a selenite plate and without the analyzer in proper position, pure butter shows a dark held of almost uniform appearance, Renovated butter, under similar conditions, gives a dark field mottled with white patches. The peculiar appearance of renovated butter is due to the fact that the fat has been melted and in cooling has assumed a partially crystalline structure. The completeness with which crystallization from fusion occurs, and the size of the crystals depends on the slowness with which the melted substance cools to its solidifying point. The slower this change of temperature takes place the more perfect will the crystallization be. In renovated butter, on account of the great rapidity with which the melted fat is solidified, we get only an incipient crystallization. If butter is melted and then allowed to cool slowly, large crystalline masses are formed, globular in shape and showing a distinct cross by poralized light.

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He can qualify himself for a position as a first-class Locomotive, Steam, Electrical or Civil Engineer without leaving the farm until he is ready to enter his new occupation and

EARN A GOOD SALARY

Our system of teaching by mail will give any boy a technical education. Write for pamphlet and state what you wish to study.
International Corres. Schools, Box 1242 Scranton, Pa.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address Inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys.
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

SHORT-HORNS

Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale Write or come and see us.
WALTER LITTLE, Janesville, Wis.

FOR SALE.

Choice registered Ayrshire Cattle. Superior milking qualities. L. D. STOWELL, Black Creek, N.Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON, Monroe, Wis.

Ayrshire Bulls.

We have twelve thoroughbred Ayrshire Bulls for sale, of all ages up to 2½ years. They are exceptionally well bred and were raised on North Oaks Farm near St. Paul, of which J. J. Hill is proprietor, Full information as to prices and pedegrees will be given on writing to
W. C. TOOMEY,
Great Northern R'y Bl'd, St. Paul Minn.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write now stating just what you want to
DELLHURST FARM, Mentor, Ohio.



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DETROIT, MICH.
Makers of high grade Milk Cans and Milk Can materials.
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Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W HARRISON. Ringwood, McHenry Co., Ill

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¼ lbs milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

SHADY NOOK HERD
HOLSTEIN-FRIESIANS.
6 bull calves, fine breeding; 2 yearlings and one 2-year old. 6 choice cows. Address
W. R. GATES, Prop., Fort Atkinson, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,

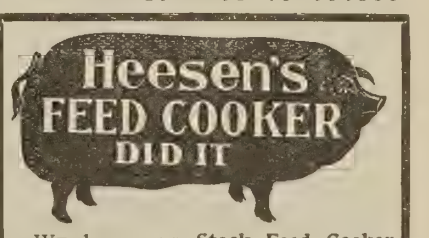
South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Markham Manor Farms. Simonsville P.O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock Write for description and prices to J. A. THORNTON. Mgr., Simonsville, Vt.

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26 57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS. Lacona, N. Y.

Holstein-Friesians.

To dairymen who wish to enrich their herds, or to those who wish to go into **blooded stock**, it will be to their own interest to communicate with us before making any purchases. We are able to supply you with the right material and at prices that will prove a profitable investment from the start. Over **40 Cows and Heifers** have now been placed in our hands to sell, and **20 Bulls** of all ages. All recorded. Address, KARLEN CO.,
Valley Mead Farm, Monticello, Wis.



WE know our **Stock Feed Cooker** is far the best for the practical farmers; hence, we want to send you, *free*, a valuable little treatise on cookers and what they should be. We claim the

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is superior to all others in economy of cost, fuel and repairs; durability, convenience, simplicity, quickness of heating and quality of feed.

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HEESEN BROS. & CO.,
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THAT was a good idea put forth by Mr. T. L. Newton, President of the Wisconsin State Board of Agriculture, in a recent letter to the editor of this paper:

"Some plow the fields of earth with horses; others plow the fields of thought with pens. Both crops are sown and tilled to benefit our fellow man."

A Massachusetts Herd of Sixty-five Cows.

Details of Management.

ED. HOARD'S DAIRYMAN:—We keep a herd of Jerseys and grade Jerseys and Guernseys, about sixty-five head and make milk for market. I will give you full details as to management, feeding, etc., and would like you to make up a ration for us for quantity and quality.

I will first give you our present method of feeding, etc. We commence milking at 4:45 a. m., finish at about six o'clock, and then feed grain. About seven they are watered (in trough in front of them) and when through drinking are fed fifteen pounds ensilage, about middle of day feed clover mixed hay; watered again about 3:30 or 4 p. m.; commence milking 4:15 p. m. After milking, (about 5:30) feed fifteen pounds ensilage, with their feed of grain on it; after this is eaten up they get a light feed of hay.

We have about fifty-five cows in milk, and they average a can, 8½ quarts each, per day.

We would like you to make up a ration formula. The cows will weigh from 900 to 1,000 pounds each; have clover mixed hay at $14.50 per ton, winter wheat bran at $18.00, gluten meal at $22.00, cotton seed meal at $27.00, oil meal at $29.00, and good ensilage.

At present we are feeding 30 pounds ensilage, 16 pounds clover hay, 5 pounds winter bran and 3 pounds gluten meal, 1 pound cotton seed meal, each per day; grain in two feeds, with above results. Our cows are let out on warm and pleasant days for exercise only, but invariably drop in milk on days they are out.

We would like you to criticise our management and rations, and any information you may give us will be gratefully received.

Reading, Mass. F. VAN D.

Tabulating the ration reported we have the following figures:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
16 lbs. mixed clover hay	13.65	.77	6.35	.22
5 lbs. bran	4.41	.63	1.93	.15
3 lbs. gluten meal	2.75	.77	1.30	.20
1 lb. cotton seed meal	.92	.39	.17	.08
Totals	29.65	2.93	13.95	.88

This ration costs fully 25 cents, estimating silage at $3.00 per ton, and the milk must therefore net about 3 cents per quart to pay for the feed. It is obvious that there is need of reformation somewhere. It may be in the character of the cows or in the feed, or in both. Concerning the feed, it goes without saying, by comparing the above totals with formulas suggested by us, that our judgment is that these cows are receiving more feed than they can digest and assimilate. We believe that a careful examination of the excrement will reveal considerable amounts of undigested matter. We do not hesitate to recommend, therefore, a gradual reduction in the feed, especially in the hay, until the daily allowance does not exceed 10 lbs. It might be advisable also to modify the grain part of the ration, with a view to overcoming the present tendency to indigestion, by taking away the highly concentrated gluten meal and cotton seed meal, and supplying gluten feed and linseed oil meal in their places. If the gluten feed is not available, increase the bran to 7 to 8 lbs., and supply 2 lbs. oil meal.

We do not recommend trying these radical changes with the whole herd at first, but select out a few representive animals and note the results and be governed by them.

The only modification of the general plan of management we can suggest is to feed the morning allowance of grain with the silage, so as to insure more thorough mastication and better distribution of the concentrates with the bulky roughage in the stomach.

As this is a peculiar and most interesting case, we would be especially gratified with a further report from this herd.

Skim Milk for Hogs.

[Paper read before the Kansas State Dairymen Association by J. G. HANEY, Kansas Experiment Station.]

During the past year at the Experiment Station, the value of skim milk has been tested in the fattening of nearly one hundred head of hogs. The hogs were bought of farmers in the vicinity of Manhattan, and were not above the average in quality. Aside from keeping very accurate accounts of all feed fed, and weight of hogs, the work was made to conform as nearly as possible to the conditions existing on the ordinary farm.

In the first test, which lasted three weeks, from February 2 to February 24, eighteen head of hogs averaging about 160 pounds per head, were divided as evenly as possible into three lots of six each. All lots were fed kafir meal, and in addition, one lot was given alfalfa hay, another cotton seed meal, and the other skim milk. Valuing pork at $3.50 per hundred, and the kafir corn meal at 30 cents per bushel (56 pounds) as a basis, the alfalfa hay fed, brought $5.75 per ton, the cotton seed meal $27.00 per ton and the skim milk 40 cents per hundred. That is, the first lot ate eleven and one-fourth bushels of kafir meal, 250 pounds of alfalfa hay and made a gain of 117 pounds, or .88 of a pound per day per head. The second lot ate 10½ bushels kafir meal, 93 pounds of cotton seed meal, and gained 126 pounds, or .95 pounds per day per head; while the third lot ate 15⅓ bushels of kafir meal, 1,685 pounds of skim milk, and made a gain of 321 pounds or 2.43 pounds per day per head.

These hogs had all been used in a previous experiment and were not in first-class feeding condition. But valuing the feeds at the retail prices at that time, kafir meal at 55 cents per cwt., alfalfa at $6.00 per ton, cotton seed meal at $20.00 per ton and skim milk at 15 cents per cwt., we find the cost of grain to be as follows: The lot fed alfalfa hay, $3.59 per hundred; cotton seed meal lot, $3.30 per hundred, and the skim milk lot, $2.26 per hundred.

The second trial was from May 30 to July 11, forty-two days, with eighty head of hogs, averaging 125 pounds per head at the begin-

Free to the Ruptured

Dr. W. S. Rice, the Well-Known Authority, Sends a Trial of His Famous Method Free To All.

Anyone Can Now Cure Themselves at Home Without Pain, Danger, Operation or An Hour's Loss of Time From Work.

To the thousands upon thousands of ruptured people who are torturing themselves with trusses and in momentary danger of death from strangulation Dr. W. S. Rice, 353 E Main Street, Adams, N. Y., will send free to all a trial of his famous method that has saved so many lives and made so many men, women and children well and strong and permanently cured of old and difficult ruptures. Do not be backward about writing for the free trial. It will cost you nothing and will enable you to see how easily you can cure yourself in a very short time without losing an hour from work. Dr. Rice is determined that every suffering man or woman shall know the wonderful truth that rupture can be cured and he therefore generously sends, prepaid by mail, his method, absolutely free, and you can make a free trial of it. Write to-day without fail, as you cannot afford to miss this free and generous offer.

Mr. G. Nilson, of Sogn, Minn., had two very bad scrotal ruptures, both of which he cured permanently at his home without suffering any pain or losing any time from work. He used the famous Rice method and says of it: "This wonderful home cure has proven to be all that could be desired. I am fully cured of two bad scrotal ruptures and am very grateful to Dr. Rice for having invented such a God-send. I hope all people who are ruptured will use it." Send your name and address to Dr. W. S. Rice, 353 E. Main St. Adams, N. Y., and he will gladly send you a free trial with full instructions as to how you can quickly and easily cure yourself at home. Write to-day. Don't wait. If you begin now you will be cured sound as a dollar long before spring work begins.



MR. G. NILSON.

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

HIGHEST STANDARD.

Alderney Butter Color.

There is never a time when it fails to satisfy even the most critical, because it always maintains its HIGH STANDARD of PURITY, STRENGTH and UNIFORMITY.

Hundreds of Dairymen Endorse It as the BEST Color.

Let us send you a Sample Free for your inspection.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

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A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023, BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

ning of the experiment. The hogs were all bought near Manhattan, and as hogs of the class desired were rather scarce, the average quality was very ordinary. While quality would not effect the comparative results, it undoubtedly cut down the average gains.

These eighty hogs were carefully divided in four lots of twenty each and were fed and gained as follows:

Lot 1—Kafir, whole, 6,736 pounds; skim milk, 4,200 pounds; alfalfa pasture. Gained 1,411 pounds.

Lot 2—Kafir, whole, 6,601 pounds; skim milk, 4,200 pounds. Gained 1,319 pounds.

Lot 3—Kafir, whole alone, 5,321 pounds. Gained 834 pounds.

Lot 4—Kafir, whole, 4,931 pounds; alfalfa pasture. Gained 890 pounds.

The lots weighed practically the same at the beginning, so the difference in gain can be attributed to the feeds. The kafir was fed whole, as previous experiments had shown that it not only did not pay to grind kafir, but that grinding is an absolute detriment to it as a feed for hogs. Lot three, which received kafir alone, can be taken as a basis to figure from. Valuing pork at $3.50 per hundred, we find that the kafir eaten by lot three brought 30.7 cents per bushel. Allowing 30.7 cents per bushel for the kafir lot four ate, it leaves $4.10 to the credit of the alfalfa pasture. With lot one, allowing 30.7 cents for the kafir and $4.10 for the alfalfa, leaves 20 cents per hundred for the skim milk, and in lot two, with kafir at 30.7 cents, the skim milk brought 24 cents per hundred.

At the close of the experiment the hogs were weighed on the station scales and shipped to Kansas City, without feed in the car or after reaching the yards, and the shrinkage on 80 head was but 230 pounds.

Each lot was sold on its own merits, July 13, and brought as follows:

Lot 1—Kafir, skim milk and alfalfa pasture, $4.10.

Lot 2—Kafir and skim milk, $4 075.

Lot 3—Kafir alone, $4.00

Lot 4—Kafir and altalfa pasture, $4.05

Armour Packing Company made a careful slaughter test of the different lots and report favorably for the skim milk hog.

The feeding was all done in the open, twice a day, morning and evening. A feed consisted of all the hogs would eat up clean in an hour or so after feeding. The troughs were just the ordinary V-shaped plank troughs. The kafir was first poured in the trough and the milk poured over it. In the first trial the hogs were fed about two pounds of milk to each pound of grain and amount fed varied according to the appetite of the hogs. The alfalfa hay was just thrown in the pen loose, and the cotton seed meal was mixed with the kafir meal.

In the second trial the lots recieving milk were given the same amount of milk each feed and the kafir fed was varied to suit their appetite. The two lots on alfalfa pasture each had the range of 1¾ acres, but apparently they made very slight use of it, much less than the gains show. A quarter of an acre would have undoubtedly made the same showing, as the hay crop was very little damaged by the hogs. The kafir used was the red variety. The milk came from the Manhattan creamery and was sterilized, so our conditions conform in every respect to the patron of the skimming station, and we are very greatly pleased with the feeding of skim milk to hogs.

We find no grounds whatever for any of the charges made against creamery skim milk. We fed very regular and were careful to see that the hogs were not over fed. Careful feeding will do away with a great deal of dissatisfaction.

Some Figures on the Cost of Milk Production in Illinois.

The Chicago milk dealers have raised the price of milk to seven cents a quart. This leads one of the milk farmers, of Waco, Illinois, to comment on the same. He says that the farmers receive but a small proportion of what the consumer pays, while the dealers reap large profits, and that the present short supply of milk is caused by the dishonest and unduly selfish way the city dealers treat the milk producers.

He makes the following figures on the cost of milk in his section of Illinois:

In the spring of 1898 the dealers resolved to pay but 70 cents for each eight-gallon can for six months, delivered in Chicago, the farmer furnishing the cans. As the wear of the cans is rather more than 1½ cents a trip, and the washing and steaming is 1½ cents, the freight 16 cents, or one-half cent a quart, it left the farmer 51 cents for thirty-two quarts, or a small fraction over 1½ cents a quart.

It takes a dairy of sixty cows well managed to average ten cans of milk a day. It takes a two hundred-acre farm, and the constant labor of four men to do the work and care for and milk the cows, and two or three cars of bran to balance the corn ration which he raises. The cost of a good new milch cow is $50, and from four until ten or twelve years old, when they lose their teeth, and have to be sold for $20, is their time of usefulness. The value of a good, well equipped dairy farm is from $60 to $100 an acre, within sixty miles of Chicago.

Now let us see what the farmer and the milk dealer have invested to produce the ten cans which one man and horse and wagon deals to customers:

Farm, 200 acres	$15,000
Sixty cows at $50	3,000
Four pair horses	600
Wagons, plows, and farm implement	800
Total	$19,400

Now what has the milk dealer invested to distribute this product:

One horse and wagon	$250
One vat or cooling tank	200
Small cans and bottles	100
Other articles used	50
Total	$600

Now a farmer with nearly $20,000 invested, hiring three men, whose wages and board are $30 a month each, got less than 2½ cents a quart for his milk, delivered in Chicago, while the distributor with $600 invested, got 3½ cents. In the winter the price was 90 cents for six months, or less than three cents a quart, freight paid to Chicago.

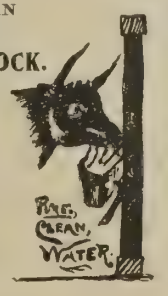
The price of milk this winter is to be $1.00 per can in Chicago, $1.10 for two months, $1.00 for two and 90 cents for two, or 3⅛ cents a quart, giving the farmer 2½ cents a quart delivered at the country station.

FARMERS OBLIGED TO SELL COWS.

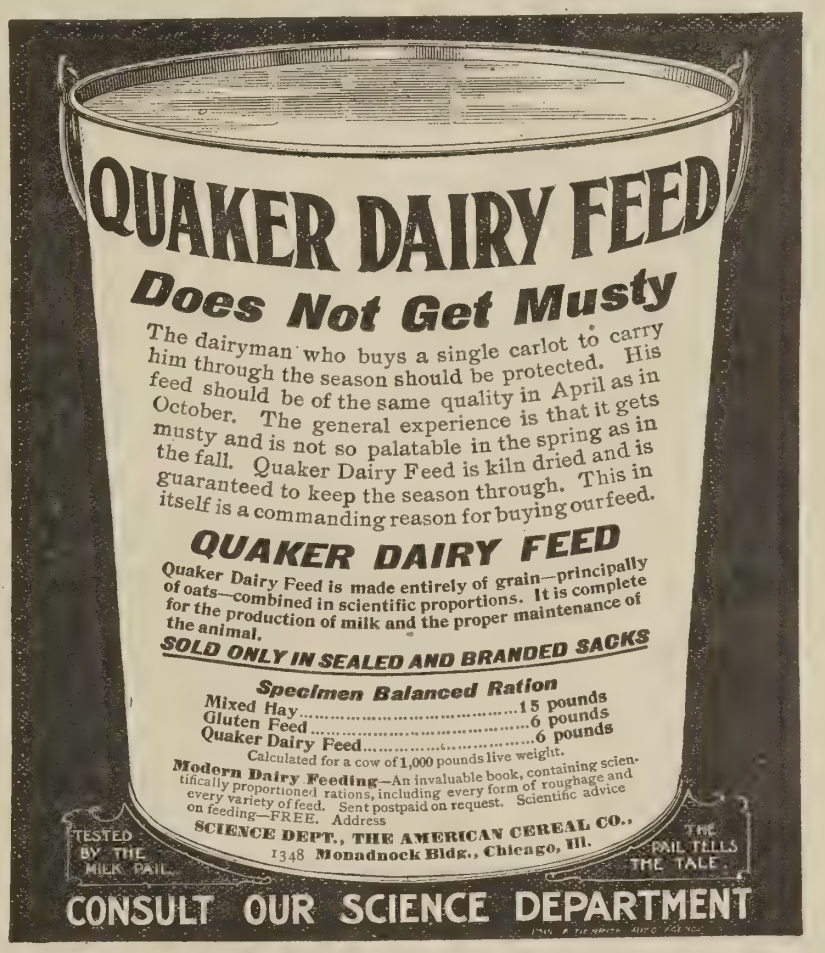
These starvation prices for the last two years have obliged the farmers to sell their cows to pay their hired help and monthy bills and their dairies are reduced, but they believe that at three cents a quart for milk, delivered in Chicago, consumers should have it for five cents, and that six or seven cents is extortionate. The dealers do not pay for the milk until from the 5th to the 15th of the next month, thus doing their business on the farmer's capital, and it was not until this scarcity developed, that they would say what they would pay for the next six months. When asked by the farmers, who were contracting for labor and feed, they would say: "We don't know. We will pay the market." Then after they had received and sold the farmer's milk, and had his money in their pockets, they often would pay less than he expected and could have gotten.

When Joe Leiter looked into the matter, and thought it the most promising money making business in the country, and figured that a business that was done on the others' capital, and paid 100 per cent daily was worth buying up and consolidating, common report has it that the large dealers showed that the value of the distribution was $300 a can, making the value of some of the large dealers' milk routes $500,000, while the producers were receiving net a fraction more than 1½ cents a quart for the balance of the year.

The producers say: "We can raise and deliver at the country station, in good condition, pure milk for 2½ cents a quart on an average the year around. The dealer in the city can pay the half cent freight, and deliver it for five cents a quart, and have a better business than the farmer who raises it." Now, in order to have a large milk route in Chicago worth $500,000, it may be necessary to charge seven cents a quart this winter for milk that averages in cost 3⅛ cents, freight paid to Chicago, but is there any reason or equity in any such price? N. H. W.

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BASIN FOR .. STOCK.
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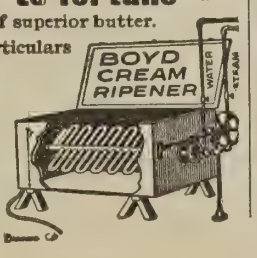
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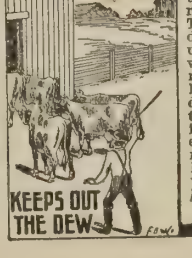



GENESEE SALT COMPANY'S
EDUCATIONAL CHEESE CONTEST
Was judged by A. H. Barber and criticised by U. S. Baer, Cheese Instructor at Madison, Wis. Eight states represented and the following prizes won.

Walter Fero, Muscoda, Wis., (Sweepstakes)	99	$30.00	C. A. Johnson, New London, Wis., 1st in Class 3	97	$15.00
E. Grant Hodges, Union, Iowa, 1st in Class 1	98	20.00	Wm. Nisbet, Hub City, Wis., 2nd in Class 1	97	10.00
Tom Johnson, Boaz, Wis., 1st in Class 2	96¾	20.00	F. A. Vieryutz, New Holstein, Wis. 2nd in Class 2	96½	10.00

Robt. Nauman, Manitowoc, Wis., 2nd in Class 3.....96 $5.00.
1900 Contest Will be Larger.
F. A. TRIPP, CHICAGO.
GENESEE SALT CO., NEW YORK, N. Y.

BOYD CREAM RIPENERS stand ready to aid you to fortune with same as a maker of superior butter.
Write for full particulars at once.
CORNISH & COMPANY, ST. PAUL, MINN.
Creamery Machinery, Sharples Improved Separators.


Solfiline
SOLFILINE TRADE MARK
DEWY
—dewy mornings we mean, when you are driving up the cows, make wet feet and ruin the boots or shoes. This constant wetting and drying ruins any leather unless it has been treated with SOLFILINE. It makes all leather absolutely waterproof. No more damp feet, no more rotting shoes, no more buying rubbers. Ask your dealer for Solfiline. If he does not carry it in stock send us his name and 25 cts. and we will send you a can prepaid.
Milwaukee Chemical Works, Dept. E. Milwaukee, Wis.


Note and Comment.

City Milk Trade.—New York Feeding Methods.—Silage and Condensed Milk.—New York Feed Law.—Process Butter.—The Best Form of Silo.—Pure Milk in Ohio.

ED. HOARD'S DAIRYMAN:—It may interest the senior editor to know that the writer of this has been doing institute work in his old Stockbridge (N. Y.,) home, and, in addition, hearing a most admirable paper, "Balanced Rations," read by the editor's sister, Mrs. Elisabeth Hoard McGinness. The question of dairying in Stockbridge seems, yet, somewhat obscured by the shadows of the hop poles, for the farmers grow large quantities of hops, and to a westerner to see the hop fields with their stacks of hop poles, ready to be reset another season, reminds one of an Indian village of *tepes*. All the same, George Smith, F. A. Converse and others, give the large audience of farmers and their wives, some sound doctrine and advice about dairying, feeding stock, and caring for milk, that seemed to be gladly received.

It is worthy of remark that the institute was held in the beautiful, well furnished, Methodist church, that was largely built by Phil Armour, in memory of his mother, who was a member of this church, some forty years. Many kindly references were made about the senior editor, "Demp" Hoard, and his boyhood days; especially to his efforts in interpreting his father's sermons to the Stockbridge Indians, and its evident civilizing effect upon them.

***

One that travels up and down the valleys of this part of the state, especially along the D. L. & W. and the O. W. railways, is struck with the magnitude of the milk trade of this section of the state, with the cities of Philadelphia and New York, amounting to millions of cans of milk per year. Milk train follows milk train, and shipping stations are as plenty as Aguinaldo's capitals, while condensaries and other establishments for manufacturing milk, are met with frequently. One cannot help but notice that in the producing of this milk, the farmers, as a rule, are not abreast of their possibilities. Barns, dairies and methods of feeding are not up to the teaching of HOARD'S DAIRYMAN. Too few silos, too much hay fed, and too much grain bought, and not a little disposition to think the "old plan" the best. True, there are silos and good barns, but there is a holding back from the general silo building, and home grain raising, seen west of the Alleghany mountains, and in other sections of New York.

There are great dairy possibilities in these valleys and on these hills. Frank Converse, who is with us, is telling these farmers to mow less acres for hay; raise more acres of corn; quit buying western corn, and paying big freight bills on cheap western starch; and when they must buy grain, buy something not so easily raised as corn; buy proteins, something that is not burned up in the animal as fuel, as is the case with starch.

While he believes it possible for the farm to produce the most of its own protein feeds, if the latter must be purchased, get an element possessing a double value in food, and an eighty per cent manurial residue. Raise more clover, don't seed down to timothy and permanent meadows; oats, peas, beans, etc., in rotation with the corn, with catch crops for covers and humus makers. Silage in abundance, not only for winter, but spring and fall feeding, and to be used in mid-summer as a soiling crop will economize the grain bills to the minimum, and put a safeguard on dairying that summer grown soiling crops can never insure.

***

A new order of things has made its appearance in New York in regard to silage-made milk. The old condensaries forbade the use of fermented foods as a cow feed, especially silage made milk. But the new condensary, at Frankfort, affirm that they want all the silage-made milk that they can get, and that it makes a better article of condensed milk for the trade; that they are securing the "fine" trade demand for an extra fine quality of condensed milk, and getting it, because the milk is made largely from silage fed cows.

This will have great influence, and it is predicted that the time is not far distant when the other condensaries will withdraw their objections to milk made from good silage.

***

To-morrow, New York is to have a new mill feed law. The man who sells grain feeds, must guarantee their purity, and if it is a mixed feed, he must give a guaranteed analysis of its composition, and per cent of actual protein and fats. The revelation of the chemists, at Geneva, are simply astounding as to the composition of the mixed feeds and chops sold in the state Cotton seed meal varies from 27 to 53 per cent of protein. "Chop" is fearfully and wonderfully compounded. The "oats" in it cannot be found to ever have had any "heart," being simply shucks. And compound feeds which it would be difficult for an animal to maintain life upon, are sold at high prices because of their alleged high protein content.

Whole meal of corn, oats, wheat and barley and bran sold for pure bran, is exempt from the law, but mixtures of any sort or kind, and all glutens, oil, cottonseed or wheaten "feeds," as well as brewers grains, etc., must all be accompanied by guaranteed analyses, and must be up to a standard sample, which must be deposited with the state chemist at the Geneva Station.

The dealers have been given some six months probation in which to clean and clear up the m rket, and be ready for December 1st. Great things are expected of the law, and contrary to what might have been expected, the great dealers do not oppose the law, but are sanctioning it; but what the manufacturers will try to do has not up to date been made public.

***

There is promise of a battle royal between the Department of Agriculture of New York, and the "Process butter man." There does not seem any possibility that all of the process butter shipped into the state can have cheap, rancid store butter as its origin, and it is suspected that under that guise, tons of butter (?) that would otherwise be ruled out under the law as oleo are being sold throughout the state. Of course the chemists of the state are putting a large amount of time and skill into analytical work upon these "process" samples, to establish a basis of comparisons between oleo and process butter, and become sure in the matter of evidence before the courts. There are some interesting events promised for the future.

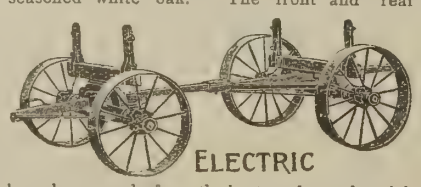
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What is the best form of silo to build? is constantly being asked at the institutes. Seemingly in New York it is being answered in favor of the square, with clipped corners, two thicknesses of lumber with paper lining, the idea being to exclude frost, though the Cornell investigations seem conclusive that the loss, if any, is very trivial, i. e., if the frost comes out of the silage away from the air; which shows that if silage does spoil by freezing, that it is the result of allowing the air to come in contact with it and start up putrefactive ferments, instead of the simple lactic acid ferment, first propagated in the silo, and so easily killed by the heat which it generates.

There is much controversy about the best corn for the silo and how to plant and care for. It seems strange that after ten years institute silo preaching, and the miles of printed matter in the farm journals in the same time, that the silo question is still so new and discussion of it always in or-

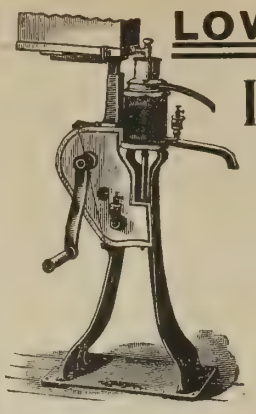
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ELECTRIC

hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers



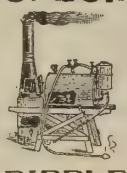
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Take advantage of our special offer and get the **IMPROVED RELIABLE FEED COOKER, TANK HEATER and STEAM GENERATOR** one of the greatest feed savers, labor savers and money makers the feeder can possibly have. Cooks a barrel of ground feed in 30 minutes; 25 bushels of ground corn in two hours; heats a barrel of water hot enough to scald hogs in 20 minutes; will heat water in tanks 100 feet from cooker. Used and recommended by feeders throughout the United States and Canada. Highest awards at Omaha Exposition in 1898, and at Toronto, Canada and Dallas, Texas in 1899, and at State Fairs everywhere. Sold on a positive guarantee. Your money back if it does not come up to the contract. Send for 1900 Century Catalogue and introduction price. **It has no flues to rust out or leak. No scorched feed if you use it. The best machine of any kind proves the cheapest in the end.**

RIPPLEY HARDWARE CO., Box 20. Grafton, Illinois.

Wintergreen Hill A. J. C. C. Jerseys.

SERVICE BULL: **REX OF WINTERGREEN HILL 46645.**
SIRE: NAIAD'S ST. LAMBERT KING 30645. Sire of Amelia S. King 112862. 16 lbs. 2 oz., and Lucy S. King 106584. 15 lbs. 14¾ oz.; both with first calf.
CANADA'S SIR GEORGE 18290. Sire of Una of St. Lambert 80117. 16 lbs. 15½ oz.
CANADA'S JOHN BULL 8388. Sire of ten tested cows.
ALLIE OF ST. LAMBERT 24991. 26 lbs. 12 oz. 62 lbs. milk in 1 day; 414 lbs. in 7 days.
NAIAD OF ST. LAMB'T 12956. Official test 22 lbs. 2¼ oz. Dam of Jennie Pogis 22984. 19 lbs 6¼ oz. Full sister to Mary Anne of St Lambert 9770. 36 lbs 12¼ oz. in seven days; 867 lbs. 14¾ oz. in 340 days.
STOKE POGIS 3d 2238. Sire of 28 cows averaging over 20 lbs.
LOLLY OF ST. LAMBERT 5480. Dam of three tested cows averaging 25 lbs. 8 5-6 oz.
DAM: SALLIE OF THE LEDGES 87182. 16 lbs. 6 oz. without forcing. 335½ lbs. milk in seven days; 2400 lbs. milk in less than sixty days.
CROCUS JOHN BULL 21665. Sire of one tested cow.
CANADA'S JOHN BULL 8388. See above.
CROCUS OF ST. LAMBERT 8351. 17 lbs 12 oz. Dam of two tested cows. Full sister to Mary Anne of St Lambert 9770, and Naiad of St Lambert 12965.
ETHEL OF SHELBURNE 46285. 14 lbs. 1¼ oz. on winter feed in zero weather; 8548 lbs. milk with third calf.
MIDAS OF OXFORD 5986. Sire of two tested cows. Full brother to Matilda 4th, 21 lbs. 8½ oz. butter in 7 days; 927 lbs. in a year; 60 lbs. milk in one day; 16153¾ lbs. in a year.
ETHEL HUGO 30164. Dam of one tested cow.

The above bull has 28 5-32% of the blood of Stoke Pogis 1259, through twelve crosses; 43¾% of Stoke Pogis 3d 2238, through eleven crosses, and 15 63-64% of Victor Hugo 197, through sixteen crosses. We offer a few well bred cows in calf to him, also a few young sons and daughters.

Booklet, giving full breeding of bull, and sale list of cattle offered sent on application.

WINTERGREEN HILL FARM CO, Scottsville, N. Y.

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Through first-class and Tourist Sleeping Cars to points in California and Oregon every day in the year from Chicago.

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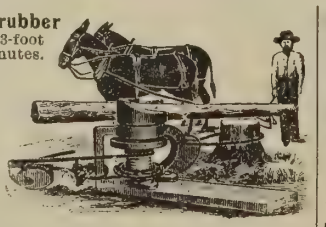
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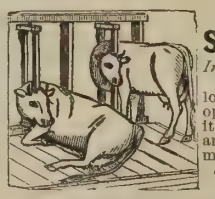
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FINEST SCENERY

Only route by which you can leave home any day in the week and travel in tourist cars on fast trains all the way. For descriptive pamphlets and full information inquire of nearest agent.

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Monarch Grubber will pull a 3-foot stump in 3 minutes. It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. CO. Lone Tree, Iowa.





WILDER'S
Swing Stanchion
Improvement over Smith's
Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials
J. K. WILDER & SONS,
Monroe, Mich.

Honey Pick Up An' Follow Me—Pronounced by Prof. F. Leslie Clendenen, New York City, author of The New World, "the best 'Coon' song that has yet been published," with 1200 word description of gestures and dance for amateurs. Special price to introduce in new localities, 25 cts (Regular price 50c.) Address author, HALBERT L. HOARD, care Hoard's Dairyman, Fort Atkinson, Wis.



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An honest way to sell anything is to have those who would buy, **TRY IT.** All we ask for the **Duplex Machine is A TRIAL.** With it you can make over 100 Styles at the actual cost of the wire. Catalogue and particulars free.

KITSELMAN BROTHERS,
Box 57 Ridgeville, Indiana, U. S. A.

der; yet only yesterday we heard men claiming that dry corn fodder was just as good as silage, and was as cheap again a food for cows; that silage spoiled milk and it was never intended by nature for a cow to eat sour feed. Well, Mr. Editor, the signs indicate that "the sun do move," now and then, and that is an offset, but a few sinners may have to be caught and shot the last day to get them to Judgment.

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There are two, possibly more, milk concerns in Ohio that are making an effort to place milk so good and pure and with keeping qualities enhanced without the use of borax, that the consumer will be attracted towards it, rather than the reverse; and so extensive are their improvements and modern facilities for handling milk, that their trade is increasing in a phenomenal way; the French Bros., of Cincinnati, and the Belle Vernon Co., of Cleveland.

The French Bros. now control the full half of the milk trade of the city; they now have all milk shipped to their central depot in Cincinnati, where it is all run through separators and the cream then remixed with the milk, and if the fat content of the milk does not reach a full 3.5, it is re-enforced with other cream, until it reaches the desired quality. There is then a standard of not only quality but purity, that establishes a confidence that is in agreeable contrast to the usual methods of street hawking of milk.

The Belle Vernon Co. is working on much the same principle, and their trade is so fast increasing that they are buying and leasing creameries right and left along the railways centering in Cleveland. It is very pleasant to record these things and note a purpose to advance the city milk trade along progressive lines, and at the same time promote the interests of farmers, who in the same spirit should try to make a milk that possesses without quesiton, all desirable sanitary conditions, as well as in quality and purity.

New York. JOHN GOULD.

Tainted Milk.

ED. HOARD'S DAIRYMAN:—This is the time of year when so many dairymen are troubled with strong milk. Neighbor Q. has a dairy of nice Jerseys; about November of each year the milk of these cows becomes so strong he is compelled to dry them up till spring, (they are fresh about March). We had a similar experience last year, but the time was not over two months before freshening, and only a few cows. So far this year have had no trouble, though have had some to freshen and more will be fresh within a month. We do not save the milk after 30 days previous to calving, whether strong or not.

We have a silo this year, but are not sure this is a preventive of strong milk; have never noticed it in summer. What is the cause of this trouble when it begins so long before the cow is fresh, as in the case of the neighbor? Would feeding lots of corn or corn meal have a bad effect? Does cold weather have anything to do with the trouble? Would eating frosted grass or clover be a cause? Would feeding an unbalanced or one-sided ration have anything to do with it? Is it a habit of certain cows that cannot be eliminated? How long should a cow be dry to give the largest profit for the year?

Valley Mills, Ind. A. J. N.

It is not uncommon for some cows to give tainted or strong milk at different periods of gestation. Usually there are not more than two or three cows in a herd thus affected, but if their milk is mixed with that from other cows the whole will be affected. It is practically certain that feed has nothing to do with this condition.

There are other causes for tainted milk, such as unclean and impure stables, and if the taint is not at first perceptible, but comes on later and increases with age, the cause is of bacterial origin. To overcome this, brush the udders and flanks and slightly moisten them before milking, and take especial pains to scald all milk utensils with boiling water.

A cow should have a rest of four to six weeks before freshening, unless she is one of those persistent milkers that will not go dry readily. With such cows it is better to feed liberally and continue the milking.

CONCERNING OUR ADVERTISERS.

A THREE-HEADED COW.

If she were to be seen at ——, most of us would hitch up our teams to go and see her, but what earthly good would she be to anybody?

You wouldn't change that Alderney of yours for her, would you?

What we see every day and what we expect to happen as a matter of course, becomes monotonous, that is the whole explanation. You sit down this evening in your easy chair, to enjoy yourself after a hard day's work; you read, chat or smoke. If anybody were to ask you what was the most important article in the room, you would find it a difficult question to answer.

Pop!

Now you know.

The lamp chimney of course. Blow out the lamp; run and get another chimney; don't cut your fingers; bring in the lamp from the kitchen.

We know all about it; we used to do this ourselves, but that was years ago. Today we insist upon having a chimney that the heat won't break; it is naturally by far the most economical in the long run.

Ask the store-man tomorrow; he knows the kind—Macbeth's "pearl top" or 'pearl glass."

In the advertisement of the Rippley Hardware Company, of Grafton, Illinois, which appears on another page of this issue, our readers will find a special offer that will most likely prove interesting and profitable

The Reliable Feed Cooker which these people manufacture, is well recommended and highly endorsed by breeders, fanciers and owners of large poultry plants. We have frequently seen them in operation at the various poultry shows and have been impressed with their great worth and convenience. Those of our readers who find themselves in need of a cooker or heater, will do well to correspond with these people.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

POOR FLOW OF MILK.

All my cows that have come fresh since they went off pasture are giving nearly two-thirds less milk than last year. When the calves are dropped the cows have very little milk in the bag, and it seems impossible to make them show any gain. Since they came off pasture, I have been feeding liberally of corn fodder with what hay they would eat once a day. I also have a cow giving a large flow of milk, that has a sore on the end of her teat. Every time she is milked, a scab forms over the end of the teat, and it has to be opened before milking. It does not seem to hurt the cow much, but interferes with milking, as the milk sprays out instead of coming in a steady stream.

St. Cloud, Minn. SUBSCRIBER.

ANSWER.

There is nothing more likely than that your cows should shrink in their milk. Corn fodder is by no means a milk producer. You need the rich foods for such a purpose. Corn stalks are a good, fair stomach distender. There are much better foods for milch cows. Again, cows like the *genus homo* vary much in their tastes and in their requirements. What will be best for one is off in another subject.

You are doing your best to permanently ruin your cow. You need at once the best and the easiest milk tube and dilating plug.

WASHY.

I have a valuable horse that dungs very often, never gets fat, or in good condition. After four or five miles work he comes back very thin. It eats well and of everything.

Guatemala. J. MONT.

ANSWER.

I expect your horse is what the horse talent terms, washy. That is, a disposition to be under a looseness, consequent upon an irritation of the mucous coating of the bowels. Your cow needs food not inclined to open the bowels. I never would own a washy horse long. No horse judge will. They are of little use for sport or work. They are all of a high strung temperament as a rule, and occur amongst the so-called sorrels and light greys. Give one, only, dram of nux vomica in two ounces of old whisky and four of cold water, upon a fasting stomach. Two doses a week, four days or so apart. Always treat a horse kindly, but above all others, a washy horse. I once had a grey mare that was simply beastly. When she came to a tall gate she would invariably raise her tail and squirt out a little water, so as to spoil all things behind. Her mate could go forty miles with less fatigue than she could go ten miles. Thus, they will act. I had to sell my mare.

LUMP IN TEAT.

How shall I treat a cow that is troubled by a small lump growing in the milk passage of one teat, preventing the flow excepting through a tube? SUBSCRIBER.

Boston, Mass.

ANSWER.

I know of nothing but an easy milk tube and dilating plug, with a special professional adviser.

SCROFULA.

My calves are troubled with a scrofula, or ringworm, as some people call it, around their eyes and necks which appear when they are about two weeks old and will disappear again when about three months old.

Deer Lodge, Mont. M. F. N.

ANSWER.

Such scaly lids are not of a common nature. Usually some form of scrofula in the mother or sire. In your case it is the result of contagion, I think. Otherwise, I know of no cause for your condition as stated, viz., coming in at three weeks old and leaving at two months old. I can't account for this. Anoint the eyes with ointment of spermaceti and clarified honey. Do this very gently with clean hands occasionally, as may seem to be needed.

MILK FLOW STOPPING—ABNORMAL MILK.

Can you tell me why my seven-year-old cow, in good health and condition, goes dry this winter, six months, when at four years she went dry only 28 days?

What causes a yellow sticky matter to be on surface of milk, while milking, gathering up all dust, hair and dirt, until milk is more or less covered with a brown scum?

E. Mercer, Maine. O. K. P.

ANSWER.

No, I can't tell anything about the cause, there are so many. Such freaks are common. She will come all right next time, no doubt.

Again I am at a loss to tell you just what to do, excepting to be so clean, as to preclude the bare possibility of dust and dirt and hair getting into the milk. The abnormal management, I think, is all the cause for all the peculiar conditions and must be changed, then all the other desirable conditions will follow.

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HOARD'S DAIRYMAN and American Agriculturist. both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
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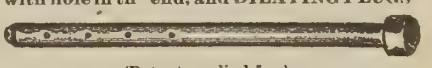
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A FRAUD WITHIN A FRAUD.

In view of the criminal adulterations of food put on the markets by large corporations, some recent developments in oleomargarine and similar imitations of butter are very interesting. Prof. Geisler, of the New York State Agricultural Department, recently made an analysis of some butterine which was on the market as a "pure, healthful substitute for butter," and he found that it was composed of one-tenth paraffin. He made the following statement of paraffin as a food substance: "It is a well known fact that paraffin is absolutely indigestible, that it resists the action of nearly all acids, and that 105° of heat are required to render it soluble." The temperature of the human stomach is 98.4°. Pure butter melts at 91° and acts as a perfect emulsion for other foods in the process of digestion. It is a natural food. Butterine melts at 102.2°, nearly 4° above the temperature of the stomach and must depend on the action of the digestive acids for reduction to an emulsion. Even if butterine contains no paraffin it will still remain a solid substance in any but the strongest human stomach. If a man dies of disease arising from indigestion, caused from eating such food (?) would it be fair to call his death "a mysterious dispensation of providence?" —*Aurora*, (Ill.) *Beacon*.

The above comments of the *Beacon* are very pertinent and to the point. It is encouraging to note that the press of the country is beginning to take a right view of this oleomargarine business.

Men of sense ought to see that when we turn over the question of furnishing a substitute in place of a "natural food," to the greed and selfishness of men, there is absolutely no protection to the consumer in the shape of flavor. The moment anything is wrong with butter, off goes the flavor. It cannot be manipulated or mixed with other substances, and still retain that first fine flavor, which belongs to pure butter.

Butter was designed by nature for a stomach food. It is animal fat and is made in the laboratory of the cow for the sustenance of her offspring. Man takes that food and applies it to his own use. There is no other fat like it in nature, no matter if ten thousand hired chemists say differently.

But oleomargarine is not a natural product. It is a raw, vegetable and animal fat, never designed for human food. No man would think of taking raw beef or swine suet and eating it uncooked. Yet that is what he does when he eats oleomargarine.

Then again it is manufactured and sold for the express purpose of deceiving the consumer. As the DAIRYMAN has repeatedly said, "it melts at a temperature so far above that of the stomach as to render it indigestible." It must be expelled from the stomach by sheer gastric force and action. Add to this, the further fraud of adding to it paraffin and we can see where the consumer finds himself in the hands of selfish, swindling corporations.

And yet there are not wanting editors and judges, who side with this fraud and against the honest cow.

But from another standpoint, what shall we think and say of men, who are so far lost to all sentiments of loyalty to the great interests of agriculture, that they would aid and abet a swindle whereby the farmer is driven from his rightful market, and the consumer is cheated into purchasing a fraud and deception.

Alfalfa in Nebraska.

ED. HOARD'S DAIRYMAN:—Red Willow county is a great place for alfalfa. It is first to start in the spring, and is green to the middle of November. It yields four to six tons per acre a year. If cut as soon as ready, it makes four crops a year, and pasture six weeks in the fall. Cows on it give as much milk in October as in June, on clover. I had three big loads per acre at one cutting; thirty-five acres made 113 big loads at one cutting.

The hay is $5 a ton; this year's crop is worth $20 to $30 per acre. The worst drouth was in '94, and it made four to five tons per acre, without irrigation; eight acres kept twenty-two head of cattle all season; twenty acres were cut twice and kept fifty-seven to November 15. Five acres kept 158 hogs and shotes; in July fifty fat ones went to market. A 200-acre field was cut twice, and made 1,713 bushels of seed, worth $5, per bushel. Twenty acres were cut twice; made 234 bushels of seed. Six to eight bushels per acre is a good yield, still it has made ten to twelve bushels. It stands twenty years without reseeding. It is rightly named the "Mortgage Lifter," for if it can't do it, nothing can. Bottom is alfalfa land. This county has over 60,000 acres of bottom land.

I have farmed fifty years; fed nearly all kinds of hay but like alfalfa best. I have farmed here eighteen years, and have not fed cattle, except milk cows, two months in any year. Wheat is light this fall; still some had 1,000 to 1,500 bushels. Corn is light; not much to go over forty bushels per acre; some not twenty.

In '97 and '98 crops were good. Several paid for 160 acres with crops those years—some with one crop. One paid for 160 acres with the crop on 100 acres, and had over $200 left. In '97 one sowed seventy acres to wheat and got 1,937 bushels as his share, which more than paid for 150 acres. In '98 a young man had only a team; he rented, sowed wheat and got 1,823 bushels as his share, which more than paid for 160 acres. He had over 1,600 of bushels this year. Some have rented for ten years, and will always rent and never own a home. In '97 and '98 two brothers had 16,000 bushels wheat each year. Corn made forty to sixty bushels per acre. The coldest day of last winter was February 12th; on the 16th farmers were seeding. For eighteen years seeding began in January or February every year except one. Two farms near me, if bought from owners, can be had, now, at a price that one good crop will more than pay for them. Lovely weather all fall; no snow, just clear, bright days. WM. C.

McCook, Neb.

Something on the Danish Dairy Farmer.

Mr. R. E. Lister, of England, the noted manufacturer of Separators, was recently in Winnipeg, Man. While there, he gave an interview to the *Telegram*, and in the course of the same, made the following observations on the life and practice of the Danish dairy farmer:

"When I compare this province and Denmark, both with long and severe winters, I am struck with the scant provision for keeping stock in the winter. In Denmark the cow stables are long, cheaply constructed, yet warm buildings, with straw thatch roofs, adjoining the farm house at one end. The door from the house does not open on the cows, but into an intermediate room used for storing all things required. The cows are in two rows, back to back, with sufficient room for cleaning out, and sufficient room in front of the mangers for feeding from a barrow or trolley car. The ventilation is from the apex of the roof and the temperature kept at about 65 degrees Farenheit. The milkers have not to go out in the cold on a winter morning. It is a general practice to put all milk cows in the stable from October 20 to May 20. The Danish dairy farmer is, as a rule, fairly well off, and lives well; they mostly own their own farms. Hand skimming or deep setting is now unknown, the cream separator is universal; their butter is the finest in the world, and commands the best price in England. They also feed a very large number of hogs on their separator milk, barley and corn—the latter they import.

Transfers of Guernsey Cattle from November, 1st to 15th, 1899.

BULLS.

Ajax of Geneva 5894, Linn 5639, N. K. Fairbank to Jesse Spaulding, Chicago, Ill.
Butter Boy of Homestead 6282, McCormick & Edgerly to L. V. Axtell, Perry, O.
Bishop's Viscount 5545, Geo. C. Hill & Son to S. I. Murphy, Woodbine, Pa.
Captain Dreyfus 6211, James Moore to Hunter Sisters, Cinnaminson, N. J.
Erwin of West Grove 2nd 6285, Harry E. Moore to E. R. Morrison, Russelville, Pa.
Essex 5912, Lily's Volunteer 4770, George E. Stickney to G. N. Proctor, Fitchburg, Mass.
Filipino Prosperity Dewey 6294 Clayton C, Taylor to J. F. Knox, Bradford, Pa.
Imp. Gem of Norwood 5667, Harry H. Mott to Walter McMonagh, Sussex, N. B.
Golden Age 6308, H McK. Twombly to Robert Dudley Winthrop, Westbury, L. I., N. Y.
Historian 5599, P. H. Christie to George L. Wiley, Arthursburg, N. Y.
Hermes 5852, N. K. Fairbank to Geo. T. Carpenter, Kenosha, Wis.
Loyal Lenfestey 6238, Howard B. Tuttle to Charles Parsons, Conway, Mass.
Meadow Brook 6283. Mrs. R. F. Coffing to Hugh M. Johnson, Great Barrington, Mass.
Malcolm of Maplehurst 5626, J. E. Middaugh to C. L. Sisson, Almond, N. Y.
Nereus' Ruby 4833, Sydney Fisher to Andrew Stevens, Bedford, Que.
Prince of Levin 12105, John F. Buker to Henry N, Perkins, Minot, Me.
Pimbrook 2400, Hoopes & Warfield to George Campbell, Philadelphia, Pa.
Sterling Duke 6284, Frank A. Gifford to Thomas Thompson, Cambridge, N. Y.
Squire Rose 3847, S. Creighton to Adam Krumrine, State College, Pa.
Taurus of Willow Bank 6227, Mrs. Mary S. Field to D. T. Aldrich, Oxford, N. Y.
Valentine's Boy 6302, David C. White to George Nelson, Ryegate, Vt.
Washining 6314, H. McK. Twombly to W. A. Miles, Chapinville, Conn.

COWS.

Angora 2d 9701, Flower of the Valley, 6202, C. Morton Smith to Henry McKean Ingersoll, Peullyn, Pa.
Beauty of Rosedale 12189, Buttercup of Rosedale 12188, Maid of Rosedale 12190, Henry Marshall to Charles Edwards, Fagg's Manor, Pa.
Beebe 12017, Gorzona 12059 James Moore to Hunters Sisters Cinnaminson, N. J.
Cloverdale 9719, John W. Scribner to Joseph, H. Scribner, El Dorado, Wis.
Clytie of Alva 7423, Sydney Fisher to Andrew Stevens, Bedford, Ind.
Diana of Maplehurst 12169, Fair Rosamond of Massachusetts 12165, Maisie of Maplehurst 11004, J. E. Middaugh to C. L. Sisson, Almond, N. Y.
Ellen of Eastview 10653, Harry H. Mott to Walter McMonagh, Sussex, N. B.
Fay Ella 12197, T. B. Husted & Son to H. W. Elbrin, Bridgton, N. J.
Fill Pail's Huldah 11455, Miss Good Luck 11238, Wallace W. Storrs to H. F. Dimock, South Coventry, Conn.
Hildred C 12199, Lalla Boots of Chantilly 12200, Mildred S. 12198, Mirnah 4000, Mirnah, 2d 6110, Rosalind of Pine Brook 3972, Rosalind 2d of Pine Brook 6111, Barton Hoopes & Son to George Campbell, Philadelphia, Pa.
Isabella V. 11842, Louisa M. 11846, A. J. Snyder to John W. Little, Hanover, Pa.
Kitty of Wolf Rock 9423, Rosa of Wolf Rock 9763, Lady Jane of Wolf Rock 10482, E. B. Crane to James R. Palmer, Jewett City, Conn.
Kimo's Queen 12202, N. K. Fairbank to James H. Beirne, Oakfield, Wis.
Kingsley's Best 32213, D. L. Stevens to W. W. Adams, Kingsley, Pa.
Lady Cyrena 12193, Little Pet, 12194, A. L. Tubbs to John Maul, Rome, Wis.
Millwood's Cousin Anita 12218, Millwood's Young Elite, 12217, Est. E. F. Bowditch to H. F. Dimock, South Coventry Conn.
Pet of Minot 12105, John F. Buker to Henry N. Perkins, Minot, Me.
Winnie C. 11062, Zell C. 11548, S. Creighton to Harry Hayward, State College, Pa.

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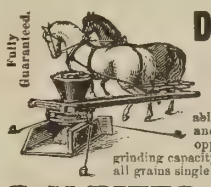
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Handy to operate. 7 Sizes—2 to 25 h. p. One size for windwheel use (Also Make SWEEP FEED GRINDERS)

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Fully Guaranteed.



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A new Sweep Grinder of large capacity, easy power and great durability. Easiest runner made. Upper and lower grinding rings operate in opposition to each other, doubling grinding capacity. Crushes and grinds ear corn and all grains single or mixed. Send for circulars, etc

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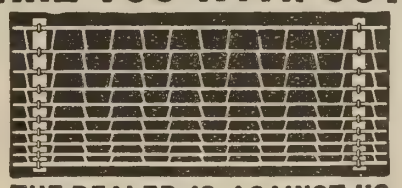


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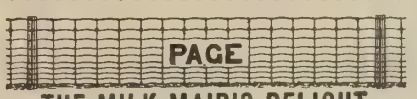
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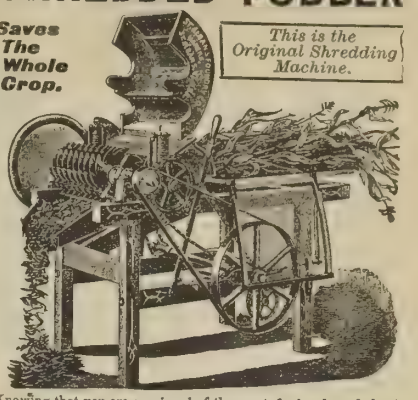
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This is the Original Shredding Machine.



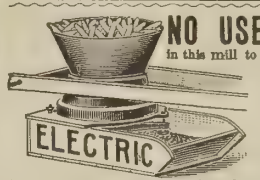
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in this mill to absorb and waste power. It is a simple, direct grinder, of large capacity and requires small power. The **ELECTRIC FEED MILL** cuts, crushes and grinds ear corn and all small grain, converting the whole into fine or coarse meal, according to adjustment. Meets the demand for a good mill at a fair price. Circulars free. Electric Wheel Co. Box 154, Quincy, Ill.

Musty Meal

cannot result from grinding grain on the

Quaker City GRINDING MILL.



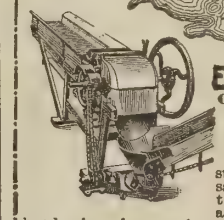
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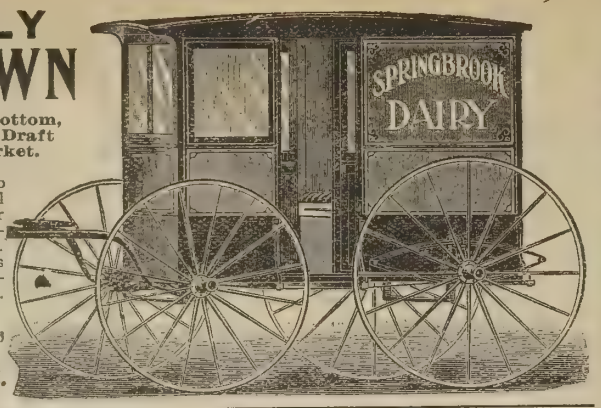
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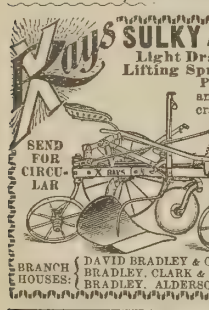


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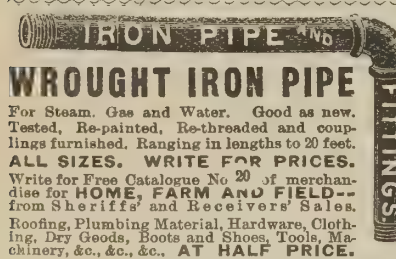


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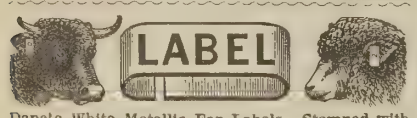


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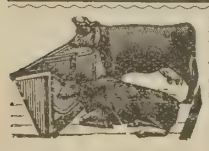
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Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
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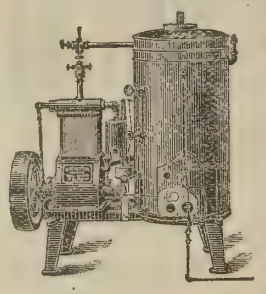


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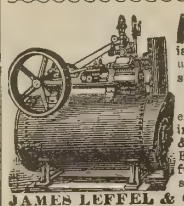
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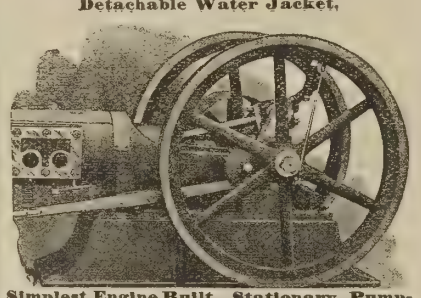
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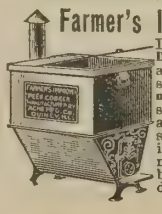
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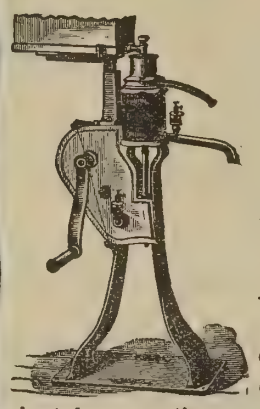
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VOLUME XXX. FORT ATKINSON, WIS., DECEMBER 15, 1899. NUMBER 44

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UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

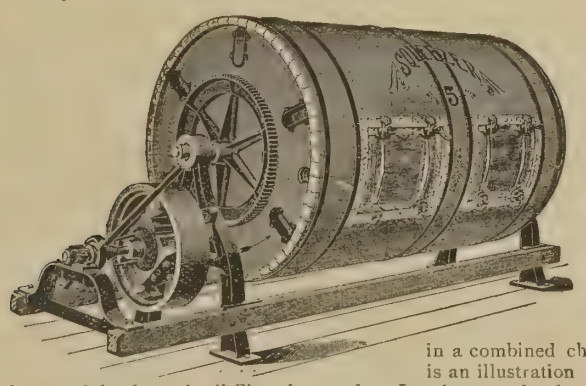
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Because, says the wise man, I want to squeeze or press the butter milk out of my butter and not smear it out as a clothes wringer would do.

The man who buys a combined churn and butter worker should look out that there is no clothes wringer inside, remembering that a clothes wringer inside is no better than a clothes wringer outside when it comes to working butter. What you want is a *squeezer* when you work butter by hand and when you work butter by power you should have



A SQUEEZER
Combined Churn And Butter Worker.

It presses the butter and does not grind or smear it; consequently the butter is that much better and worth that much more money. Now you see the good point in a combined churn and butter worker. This is an illustration of **Sharples Quality** and it runs right through all Sharples goods. In other words the churn is made on the right principle and it's right in material and workmanship or Sharples would not sell it.

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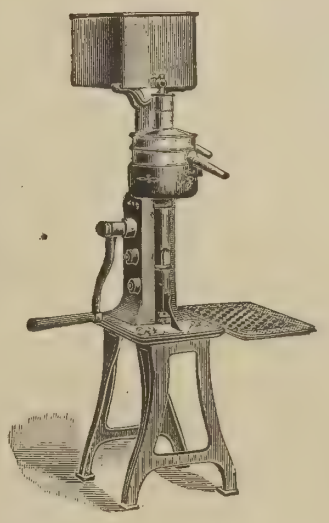
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Try us on any item, or a complete outfit and then you will believe just what we are telling you. Put us to the test, that is the way to tell.

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DON'T!

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Don't think that because one kind of farm separator requires an hour to wash it that all do.

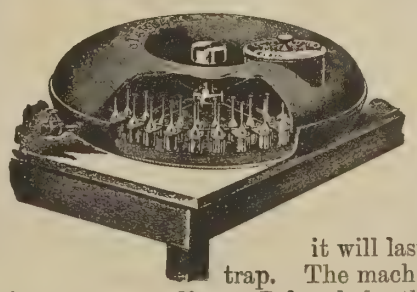
Don't think that constant repair bills are a necessity just because some one with a complicated separator has to pay them.

Don't think that some other farm separator is as good as the SHARPLES because an agent for the other condemns the Sharples.

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If your rattle-trap Babcock tester is not doing accurate work, then try the

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it will last for years and it is not a rattle-trap. The machine is fitted with solid cast iron frame, uses ordinary Babcock bottles and is **supplied with the famous Glass Eye Speed Indicator.** Farrington and Woll's new book on Milk Testing with each machine.

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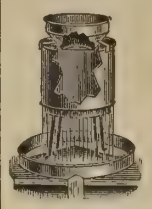
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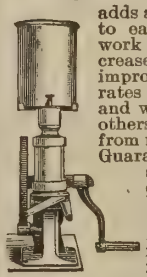


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is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

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MR. OSCAR ERF, instructor in dairying at the University of Illinois, has been invited to visit Kearney, Neb., at the expense of Mr. H. D. Watson, who is the proprietor of an 8,000-acre farm, on which there is to be established a 1,500 cow dairy. This will be the largest dairy plant in America. Mr. Erf is invited to Kearney to look over the conditions and submit complete plans for barns, creamery and other arrangements.

How easy it is for a paper to trip itself when it ties up with an illogical method. We are reminded of this in our contemporary, the *Jersey Bulletin*. It is continually demanding that the churn shall be the test of the butter producing capacity of the cow, and yet in its issue of Nov 29, under the head, "Where the Points should Count," speaking of judging a cow for a prize, the *Bulletin* says:

'We are not in favor of giving a cow any credit for what she does not produce."

Does the cow produce the salt and the water in butter?

Were those cows entitled to credit, whose butter in certain tests the *Bulletin* editor knows well of, where twenty to thirty per cent of water was worked into the butter? The Babcock test is opposed by many because it does the square thing, and therefore does not give the cow credit for what she does not produce.

A GRAND THING.

It was a grand thing for the credit of the Federal government, for the confidence of the people in the integrity of that government, that the oleomargarine swindlers, Wilkins and Butler, were forced to submit to the full penelty of the law for their nefarious work in Washington and Philadelphia. They were arrested in the latter city in December, 1896, for removiug the word "oleomargarine" from packages containing that article, and strenuous efforts were made by their counsel and all the money of the oleo combine in Chicago, to save them from imprisonment.

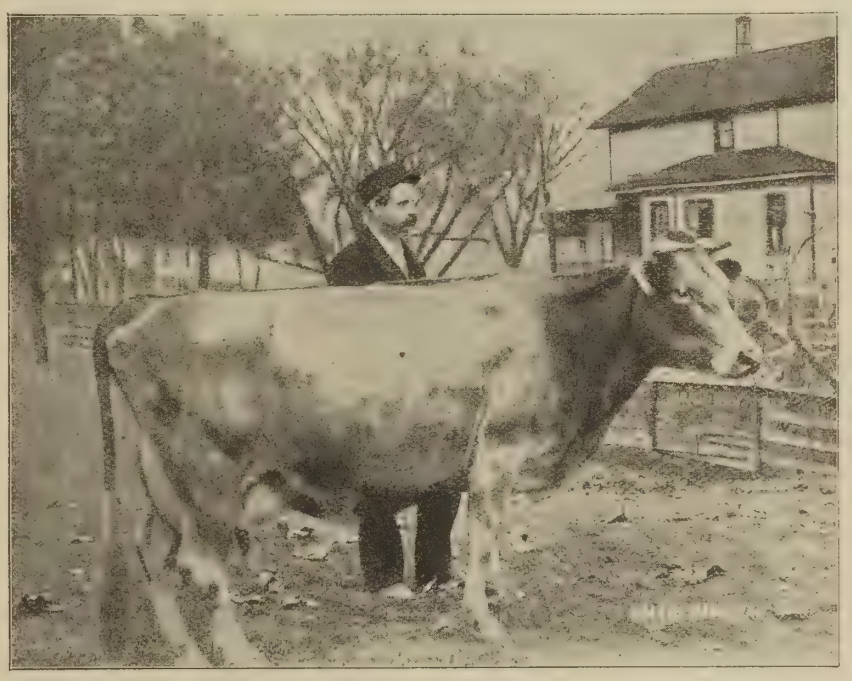
It is stated on credible authority that at one time the government was offered $10,000 as compromise, and the matter was left to United States District Attorney Beck, who to his honor, be it said, refused to accept it, although the Treasury Department was greedy enough for the money, and cared so little for the consumers and producers, as to re commend that the sum be accepted, and these Barrabas like conspirators be released. The United States Appellate Court has refused their plea for mercy and they will have to serve out a term of imprisonment, besides paying heavy fines.

BUTTERMILK.

The *Rural New-Yorker* contains a paragraph which should be considered by every creamery:

"A certain confectionery store hangs out the announcement that it sells genuine buttermilk, bottled right from the churn at Echo Farm, at five cents per glass. The bottles are kept on ice, and the buttermilk is good, too; tastes just like that we used to get from the old churn after a hard pull with the dasher, only that it is colder. A drink of this doesn't go at all bad; it's a great deal better and more healthful than most of the soda water, root beer, etc., that is sold, and which so many drink. Let's have more of the buttermilk!"

We know from personal experience that a glass of buttermilk sipped during the progress of each meal is an excellent cure of dyspepsia. A little pains taken at the close of each churning to draw the first buttermilk, before brine or water is added to wash the butter, will result in a product that will find ready sale in all cities and villages at highly remunerative prices.



A GRADE JERSEY.

Record 20 lbs. 13 oz. butter in seven days.

Frozen Wheat.

A Bulletin recently issued by the Utah Experiment Station, gives the following information regarding frozen wheat as a feeding material:

In Manitoba and other portions of Canada, where there are frequently large quantities of frozen wheat, experiments have been conducted to determine its value for cattle and swine feeding, with the results given below.

When large swine, averaging 186 pounds in weight at the beginning of the experiment, and 275 pounds at its close, were fed frozen wheat, 524 pounds were required for 100 pounds increase live weight, while at the same time, with a like lot of large swine 522 pounds of mixed grain, consisting of equal parts by weight of No. 1 wheat, barley and peas, were required for the same increase in live weight.

In the second test, feeding pigs that averaged 61 pounds each until they reached an average weight of 145 pounds each, 100 pounds of increase in live weight were obtained from 388 pounds of frozen wheat. The pork was considered excellent, much superior to that of hogs fed on peas alone.

In both trials the frozen wheat was ground and soaked for twelve hours before feeding.

While the feeding trials reported give no direct comparison of frozen wheat with that fully matured, still the results show it to be practically equal to a mixture of wheat, oats and barley for hog feeding and to stand very high as a concentrated food for fattening cattle.

A Good Example.—Cottage Cheese from Buttermilk.

ED. HOARD'S DAIRYMAN:—Enclosed please find check for seventy-five cents, and send your valuable paper to my milkroom man—I mean the man I employ to handle all my milk, make butter, etc.

I will pay for his subscription myself, as I believe in employing intelligent labor, and I know of no better way of keeping him interested and alive to his work than to let him read your DAIRYMAN.

I would like to ask you another question. Would you kindly tell me through your next issue, how to make "Neufchatel cheese," and if you can make "cottage cheese" (Schmerkase) out of fresh churned buttermilk?

I am very much obliged to you for answering my questions of last week. F. R. W.

St. Louis, Mo.

You will find the method of making Neufchatel cheese on page 847 of the current volume of the DAIRYMAN. Buttermilk makes excellent cottage cheese; several correspondents have given methods of making it from buttermilk, notably on page 827.

A DAIRY COW.

In connection with the illustrations and comments thereon, printed elsewhere in this issue, showing what may be accomplished with the ordinary cows of the country, and that there is a marked difference in the productive capacity of different cows, we republish on this page an illustration of an Ohio cow, which originally appeared in HOARD'S DAIRYMAN, October 9, 1896.

This is a grade cow, bred up from such cows as every farmer has, by pursuing the methods outlined in the address read by the associate editor of this paper at the Wisconsin Dairymen's Convention four years ago, and printed herewith. This picture and that article mutually confirm each other, and ought to be accepted by every dairyman in the land as an encouragement and incentive to plan more wisely for the future than they have hitherto done. It is not necessary to go to large expense at any time, but try to see to it that every heifer calf shall be an improvement on her mother.

Following is the record of this cow as given to us by her owner.

I bought this cow 3 years ago, very poor in flesh and very homely—but I imagined I could see great milk possibilities in her. I milked her for 2 years without drying her, in which time she had a calf each year. Last fall I gave her 5 week's rest. She became fresh the 1st of October and third week after I tested her milk by setting in pans on pantry shelves. The last 2 days of the test were very hot and she fell short 10 ounces of butter from the same amount of milk.

The summary is this: During 7 days (or one week), beginning October 14th, she gave 298¼ lbs. milk, an average of 42 lbs. and 9 oz. per day. The largest amount in one day was 46 lbs.; smallest, 41 lbs. From the 298¼ lbs. I actually made 20 lbs. and 13 oz. of butter.

I fed her at that time 1 quart corn meal, 4 quarts second fine middlings and one tablespoon oil meal, morning and night.

I am milking now an average of 34 lbs. per day, feed 2 quarts corn meal, 2 quarts middlings, one spoonful oil meal. The cow will be due to calve February 1st. I bought her for 15-16 Jersey, 8 years old. I send you, under another cover, her photograph, which shows her to be of good size. As I could not get her to stand as I wanted without my being with her, you will have to excuse that part of the picture.

How to Breed a Herd of Dairy Cows.

[From an Address by G. W. BURCHARD before the Wisconsin Dairymen's Association, at Chippewa Falls, February, 1896.]

If I was compelled to sum up, in the fewest possible words, the rules and directions for success in breeding a herd of dairy cows, I should say:—Get good seed. The trouble in following this rule is to distinguish good from poor. To this end I submit for your consideration what might be called, not inaptly perhaps.

THE COW-BREEDER'S SHORTER CATECHISM.

Q. How many kinds of cows are there?

A. Three.

Q. What are they?

A. Dairy cows, beef cows, and combination cows.

Q. What is a dairy cow?

A. One that has the ability to turn all the food she may eat and digest, over and above that required for maintenance, towards the udder, there to be transformed into milk.

Q. What is a beef cow?

A. One that turns her surplus food into flesh and fat.

Q. What is the combination cow?

A. One that tries to take both forks of the road and never gets anywhere.

Q. What causes this difference in cows?
A. Heredity.
Q. What is heredity?
A. "The biological law by which living beings tend to repeat themselves in their descendants."

This catechism comprehends all the principles involved in breeding a herd of dairy cows. It is not my fault that they are neither new nor peculiar. Every farmer who raises oats or hay, or wheat, or corn, practices them with more or less attention and confidence. Let it be known in any township that John Smith has a variety of oats that for years has yielded 10 bushels more per acre than any other oats in that vicinity, and straightway dozens of other men will want some of John Smith's oats for seed. * *

In the first place, one needs some sort of weighing machine. A set of hay-scales, with a platform 9 feet wide and 12 to 14 feet long, will answer the purpose; but a little spring balance costing $2.50 to $5.00 will be cheaper as well as more convenient and trustworthy—something that can hang up in the stable where milking is done. I say stable because one will never become a successful breeder of dairy cows if he milks out in the road, or even in a yard, because if he does he will be sure to sell or kill his very best cows.

Having provided yourself with some sort of a weighing machine and arranged to hang it up in the milking stable, the next important item is to provide yourself with a good lead pencil, even if you have to send to Chicago, or Milwaukee, or St. Paul to get it. This is not so trifling a matter as it may appear to you at first sight. Nothing more surely indicates a cheap man than a poor, cheap pencil; and the man who tries to economize in pencils will be too stingy to succeed in breeding good dairy cows. Get a good pencil and a good supply of cheap paper—paper that you will feel free to use freely.

The next important item is to get a Babcock tester and learn how to use it. A very small one will answer to begin with. The only trouble with them is that they cost so little they are not half appreciated.

With these three implements in hand, a spring balance, a lead pencil and a Babcock tester, you will be prepared to begin business, provided you have, as is more than probable, one or two cows. If not, go out and buy as many as you want, and don't be afraid to pay a good price for a good cow.

In selecting cows for purchase I wish it were better understood than it is that a cow gives milk out of the udder. Most men when they are judging milch cows seem to overlook this fact. Hence I caution you, when selecting your breeding stock to see to it, whatever else may be to your liking, that the cow you buy has a place for an udder. This will necessitate thin thighs—thighs that will not furnish great cart wheels of round steak,—and a high, arching flank. Broad hips are also essential, in order that there may be a wide space between the thighs. Next, look for depth from the back bone to the navel, for this is where the cow carries her digestive machinery. Milk comes from food, but food must be digested before it can be made into milk, and the good dairy cow must have large digestive capacity, and apparatus that will dispose of large quantities of food. The more a cow eats and turns to good account the more profitable she will be. You can't run a 40 horse power engine with a 10 horse power boiler; neither can you run a big udder with a small belly.

Having now in your possession such a number of cows as you purpose to start in business with, take your milk pail at the proper time, and after weighing it proceed to milk cow No. 1. When that is done weigh that milk and set the amount down, using for that purpose the pencil and paper previously mentioned. When this is done, milk cow No. 2, weigh her milk, and make the proper record. Proceed in this manner until all the cows are milked, and follow up this practice right along, night and morning, always in the same order, milking, weighing the milk, and making the record for every cow. When this routine is well established—it is never wise to commence too many new things at one and the same time—so I say, when this routine is well established, set the Babcock tester at work and find out just how much fat each cow gives. It won't take half so long, and will be just a thousand and one times more profitable than exercising a trotting horse. Fat is the true measure of a cow's dairy ability, and it is impossible to guess as to the amount of fat a cow yields, with any degree of accuracy. Weigh, test and record. From time to time compare each cow's record with her general build and makeup, and it will not be long before you can tell a dairy cow from a beef cow or a combination cow, with just as much certainty and just as readily as these old time lumbermen can tell a white pine from a Norway or a hemlock.

So much for the cow. The most perplexing and difficult thing in breeding a herd of dairy cows, is the choice of the male half of the herd, and that remains to be considered. A mistake here is fatal all along the line, and difficult as it may be to select out the best dairy cow, it is doubly difficult to select a dairy bull. The most I can do is to give you a few pointers.

The first is this: Always bear in mind that the future cow will take half or more of her dairy qualities from her sire. If you never forget this you will be most likely to see to it that this sire has the dairy form.

By dairy form, I mean that the bull shall resemble the cow just as nearly as possible—even to the horns and rudimentary teats. You remember what I said about the udder of the cow and a place for it. The rudimentary teats on the bull indicate, more than anything else, perhaps, whether he is descended from a dairy ancestry and can transmit dairy ability to his posterity. You will almost always find these rudimentaries, if well developed, associated with a general cowy form. Some of these old-fashioned dairymen here do not fully agree with me, and if they can get you aside will advise to disregard my teachings and buy a large, strong, robust, masculine looking animal to head the herd. I beseech you to pay no attention to such advice. If any man who listens to me thinks differently let him come out in the open and give the reasons for the faith that is in him. I have heard others try to do this but they always make a failure of it. The sum and substance of what they say is that masculinity denotes vigor and strong constitution. But it don't It simply indicates strength to lift, or draw, or push, but has no relation to vital energy, constitutional vigor and nervous power.

If like produces like, if heredity is that law or influence which tends to make the offspring resemble the ancestor, then we want a cowy looking bull as a sire for dairy cows. I don't care anything, or, at least, next to nothing. for size or mere brute strength of the Sullivan-Corbett-Jackson prize-fighting type, but I do want a bull that had a dairy cow for his dam and resembles her, and two dairy cows for his grandams, and if he has dairy cows for his sisters, his cousins and his aunts, so much the better. This is what we mean when we say: Get a full blooded, pedigreed animal from some one of the acknowledged dairy breeds and don't waste time in trying to develop a new and better breed. Leave that to the wealthy, professional breeders, like Havemeyer, who is crossing Jerseys with Simmenthalers.

Don't experiment over much by going from one breed to another. Mark out your course and stick to it. Keep the scales and the Babcock test going, but don't be too impatient. Remember the fable of the mud turtle and the rabbit—sometimes called the fable of the tortoise and the hare. As the turtle won the long distance race from the rabbit, so many a little cow, that never yields to exceed twenty-five pounds of milk in a day, even when at her best, will bring you in more clean money in twelve months, than some other cow that astonishes you for a few days with a yield of fifty pounds. The winners among men are those who keep everlastingly at it, who "fight it out on this line if it takes all summer." Grant was not a particularly brilliant soldier. There's no two or three events in his career which can be referred to in proof of his military genius. Indeed, take him day by day, and he is not satisfying. It is only when you sum up a whole campaign that you begin to get the measure of the man.

So I say, keep a record of what each cow does, and particularly of the heifers when they come in milk, and when the ten or twelve months' campaign is ended, foot up the entries and form your judgments. That is the best cow, irrespective of breed, color, cost or previous ownership, which will give you the largest net profit for a year—not for seven days or six months, but for a full year.

If you have ten cows to start with, the chances are that not more than five of them will be worth keeping a second year or their calves be worth raising. Don't fool away your time with poor cows or their calves.

There are men who like that kind of cows, especially if they are large and red and handsome. Court such customers, invite them to dinner, tell no lies, but when they offer you a good price, think of some place where you can use the money to good advantage, as an excuse for selling.

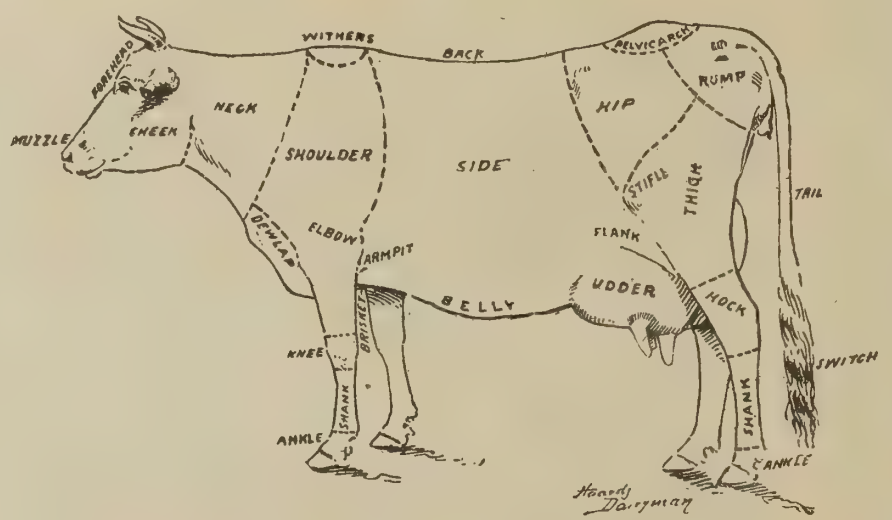
All the time, you see, I am insisting on good seed. Better three good stalks of corn in a hill than six medium or poor ones,—and this more especially when you are selecting seed for the next crop. As with corn, so with cows and calves.

Do you think I have set up an impossible standard? In fact, I fix no arbitrary limits. I say, commence with what you have, and can get, and then begin right away to weed out and dispose of the poorer ones. Get a good bull. Good bulls are very cheap now. The best ones, if bought as calves, can be had usually for $50, or less; not the fancy ones, perhaps, from the most noted families, but others that are just as good, if you are not a professional breeder raising pedigreed stock for sale. And one bull will answer for more than one herd if they are not too large. Ten heifer calves from merely ordinary cows will more than pay the cost of such an animal. And if his heifers prove to be fairly good, breed them back to their sire. Don't be afraid of inbreeding. Until you are reasonably sure of getting a better animal, continue to use the one you have.

I am sorely tempted to enlarge the subject of breeding as applied to dairy cows, by making it cover the same ground as when applied to men and women, so as to include the nurture, care and development which follows birth. Shakespeare makes one of his characters say: "I am a gentleman born and bred." And it is a matter of daily observation among clear-sighted dairymen, that many a phenomenal cow owes quite as much to her bringing up as to her pedigree. Or perhaps the reverse of the proposition is more frequently seen, in the cases of well born cows spoiled by improper feeding and care in calfhood, and as young heifers approaching maternity. It is true of calves as of children, and as true of children as of saplings, that just as the twig is bent the tree will incline Encourage the calf in the habit of lining and covering its ribs with fat, and evermore it will incline to turn its food in that direction. A good veal calf never made a good cow or a good dairy sire

Outlines of the Dairy Cow.

In response to requests from new subscribers we republish the accompaning cut, giving outlines and location of the more important points to which reference is frequently made.



OUTLINES AND POINTS FOR JUDGING AND SELECTING THE DAIRY COW.

In examining the outline of a dairy cow, the first thing to attract notice is, that there are many points in which there is a decided deviation from the even and rounded outline of the beef animal. The central points of the dairy cow are her reproductive and milk generating organs, for it is from these that profit comes. and to them all other parts should pay tribute that they may be strong and well nourished.

For this purpose the typical dairy cow should have a strong jaw and large nostrils, for she must be a good feeder and deep breather; a full prominent eye, indicating large nervous force; the back bone large and strong, holding a large spinal cord, which is the conduit, if not the seat of vital force; a large and deep barrel, with ribs well sprung out to give room for storing and digesting large quantities of cheap and bulky feed; a strong abdominal wall to support the large and heavy digestive organs and their contents, indicated to some extent by its firmness, but more plainly by the depth and size of the navel, showing whether the fœtus was nourished through a strong, large, umbilical cord and thus born with a well developed, robust constitution.

Having these accessories, the special purpose of the dairy cow is more strongly expressed in the rear third of the body. Here she needs to have the large, symmetrical udder, rising high behind and extending well forward, with milk veins, large tortuous in shape, and elastic to the touch. That the udder may have room, and not be cramped either in growth or activity, the flank should be arched at the side, and the thigh decidedly thin and incurving from the rear. If, to this enumeration, there be added a roomy pelvis, wide over the hips, and the back bone rising into an arch between them and towards the tail, the more distinctive points of a good dairy cow will be scheduled.

Packing Ice.

ED. HOARD'S DAIRYMAN:—In reply to L. S. C., in regard to ice house, will say I see no reason for his ice not keeping if care was taken to pack ice very solid. An adz or grub hoe is the tool I use to level each layer. Ice should have at least one foot of sawdust on all sides, bottom and top. I should think it would require more cut straw or chaff. My ice house is 12×12, nine feet to plates, single cheap matched lumber on sides, shingle roof and keeps ice perfectly.

J. T. S.

Edson, Wis.

A GOOD THING TO REMENBER.

The more men know the better they appreciate a good definition of a principle or a fact. "A word fitly spoken," says the Bible, "is like apples of gold in pictures of silver."

We hear a great many men talk about this thing or that being "common sense." What is common sense? When we are asked the question, asked to define so valuable a quality of mind, then we realize how little we really know of it or about it. Yet it is in every one's mouth. In that most excellent book, "The Modern Farmer," the author Mr. Edward F. Adams, defines common sense to be "the logical inference from all the facts," and he very pertinently adds: "Inference from only part of the facts, or from 'facts that ain't so' is not common sense, although unfortunately common practice."

That last is a hard rub, but it is true, too true.

Hold up that definition, "inference from *all* the facts," as a lantern and let it shine in upon the judgment of that farmer who is handling a lot of cows; he thinks he knows all about or enough about them to do business with, and yet he has taken no pains whatever to find out the facts about them. He has no record; he has made no tests; he is simply a looker on and a poor guesser concerning them. And yet he would be angry enough if he was told he did not possess common sense. He is like the man who sat by a stove. In it they built a rousing fire He began to grow uncomfortable and demanded that they move the stove, for he didn't propose to be made to stir by "any old stove."

Either this kind of a farmer must move or the definition will have to move.

Which will it be? *Which should it be?*

Is it not for every man's interest that common sense rule him rather than that he should rule common sense. Let every dairyman stand up pluckily and apply the rule of all the facts to his business.

MILKING SCRUB COWS.

We give below the record of a herd of scrub cows for the year 1898, at the Kansas Experiment Station, Manhattan, and in connection therewith, illustrations of one cow yielding 383.7 pounds butter fat, and another, receiving similar feed and care, yielding only 135.7 pounds, or a trifle more than one-third as much. The photographs from which these illustrations were made, were taken about four months after the cows were received at the station. This would be about April 1st, and before they were turned to grass, and after they had been milking for four months.

This experiment is exactly in line with one at the Michigan Station, reported a few weeks prior, with the exception that there is much wider difference between the best and the poorest cows. Both experiments confirm what the DAIRYMAN has so often tried to impress upon the minds of its readers, to the effect that good care and proper feeding will pay; that there is great virtue and true economy in balanced rations. It would seem as though the results reported from these stations ought to go a great ways in disabusing the minds of many dairymen in regard to "book farming," and the application of the teachings of science to the every day affairs on the farm, and with the dairy.

If it should be claimed that the average of $16.25 per cow, over and above the cost of feed, with this Kansas herd, is not a very bad showing, we answer that it is very much less than it would have been had the best six cows only been brought into the calculation; and if we include only the best three cows, the discrepancy is still greater. Our contention is that it is not only possible, but comparatively easy to have a herd that shall average as well as the best three, and that any dairyman is losing money that does not have such a herd. When a net income of $30 per cow is possible, what sort of business judgment does a man exercise, who spends his time with a herd that averages only one-half as much? Or in the language of Prof Otis in the bulletin: "Is stronger argument needed to induce Kansas dairymen to cull their herds, and keep only the best?"

Comment on the illustrations seems to be unnecessary. Number 20, if not of the extreme dairy type, approximates it, and number 5 is about as far removed from it as possible.

We also call attention to the manner in which these cows were fed. It will be remembered, that, time and again, HOARD'S DAIRYMAN has said that alfalfa hay and corn practically supplement each other, and will furnish a balanced ration. In Kansas they substituted kafir corn for the common field corn (maize.) It may be noticed further, that when these cows were in pasture, three-fourths of the grain allowance was corn meal, and the remaining fourth bran,—the latter used, probably, more for distending or diluting the corn, than for its specific nutritive effect.



SCRUB COW NO. 5, KANSAS EXPERIMENT STATION.

Record for 12 months, 3,583 lbs. milk, containing 135.7 lbs. butter fat. Food cost of butter fat 19.7 cents per pound.



SCRUB COW NO. 20, KANSAS EXPERIMENT STATION.

Record for 12 months, 9,116 lbs. milk, containing 383.7 lbs. butter fat. Food cost of butter fat 8.5 cents per pound.

Following is the bulletin in full:

From January 1 to April 15, 1898, the College bought thirty head of common scrub cows, with the object of testing the value for the dairy of this class of cows, when properly handled. These cows were purchased in Lincoln county, cost delivered at Manhattan an average of $34 each; were selected by a farmer who was not a dairyman, and in quality were below the average cows of the state. The cows were shipped from Lincoln county to Manhattan (100 miles) in mid-winter, the excitement and weather causing a serious drop in the milk yield of those that had calved. The first week the average daily milk yield per cow was fifteen and one-half pounds, the second week twenty-one pounds.

At the start, the cows were fed alfalfa hay and a mixture of two-thirds bran and one-third old process linseed meal, a ration rich in protein, designed to stimulate the milk flow and to partially overcome the effects from shipping. As soon as the cows were brought to a fair milk flow, they were put on a ration of alfalfa hay and kafir corn grain. This ration produced the greatest flow of milk with butter fat at least cost, but had to be dropped at the end of seven weeks, so that various feed stuffs could be fed in order to show our dairy classes the effect of various feeds on the texture of butter. The daily grain ration averaged about eight pounds per cow while on dry feed. While on pasture, the daily grain ration averaged three pounds of a mixture of four parts corn meal and one part of bran. Alfalfa hay was also kept in a rack where the cows could eat it at will, when they were brought in at milking time. The yield held up well through the fall drouth. For a short time green kafir corn was fed with the pasture, and the cows were pastured on wheat in the fall until the ground became frozen.

Twelve cows were fresh when received January 5, the rest calving in from one to five months. The records here given are for the twelve, for 1898. The butter fat yielded has been credited at the prices paid each month by the Mahattan creamery, which were as follows: January, 17½ cents; February, 17 cents; March, 16½ cents; April, 15 cents; May, 14½ cents; June, 13 cents; July, 13½ cents; August, 15½ cents; September, 16 cents; October, 18 cents; November, 18 cents; and December, 17 cents.

The feed has been charged at the average retail price in Manhattan for the year: Cost per 100 pounds: Corn meal, 55 cents; kafir corn meal, 55 cents; linseed meal, $1.25; soy bean meal, $1; bran, 55 cents; cotton seed meal, $1. Cost per ton: alfalfa hay, $4; corn ensilage, $1; pasture, 75 cents per month. It would pay many Kansas farmers who live distant from market to milk cows, if through the milk they could obtain the above prices with no additional profits.

RESULTS—Average yield of milk per cow, 5,707 pounds; best cow, 9,116 pounds; poorest cow, 3,583 pounds. Average yield of butter fat per cow, 238 pounds; best cow, 383.7 pounds; poorest cow, 135.7 pounds. Average cost of feed per cow, $29.20; best cow, $32.80; poorest cow, $26.75. Average value of butter fat per cow, $37.75; best cow, $60.88; poorest cow, $21.39. Average value per cow of skim milk at 15 cents per 100 pounds, $7.69; best cow, $12.29; poorest cow, $4.83. Average income per cow from butter fat and skim milk, $45.44; best cow, $73.17; poorest cow, $26.22. Average receipts per cow less cost of feed, $16.25; best cow, $40.38; poorest cow, receipts 43 cents less than cost of feed. Average cost of butter fat per pound, 12.2 cents; from best cow, 8.5 cents; from poorest cow, 19.7 cents. The average price received for butter fat for the year was 15.8 cents. To the receipts given above should be given the value of the calf at birth.

This test shows the difference in value between different cows with feed and care alike. The year's record of our best scrub cow (9,116 pounds of milk, 383.7 pounds butter fat, equal to 451 pounds butter; value of products, $73.17; returns, less feed, $40 37) is one that many a pedigree dairy cow would be proud of. This cow is of mongrel breeding, but has a pronounced dairy form. The poorest cow's form is a good beef type, and her yield of 3,583 pounds of milk, and 135.7 pounds of butter fat was worth 43 cents less than the feed she ate. Is stronger argument needed to induce Kansas dairymen to cull their herds and keep only the best?

This test shows that Kansas cows can be made to give greatly increased yields with proper feed and care. We collected the records of eighty-two herds owned by creamery patrons in one of the leading dairy sections of the state, finding an average annual yield per cow of milk, 3,441 pounds, butter fat, 104.5 pounds; value of butter fat, $19.79. Contrast this with the average for the college scrub herd: Milk 5,707 pounds; butter fat, 238 pounds; value of butter fat, $37.75; and remember that the college herd is much inferior to the average herd of the state.

We attribute the greater yield secured from the college scrub herd to three causes. First, at all times their rations were either balanced or contained an excess of protein—the material which builds blood and milk—while the Kansas cow, usually, when on dry feed, has only half enough protein. Second, kindness and shelter. Our scrub cows were petted, comfortably sheltered, never driven faster than a slow walk, and never spoken to in an unkind tone. Third, a full milk yield was secured through the summer drouth by giving extra feed.

RECORD OF SCRUB HERD, 1898.

Number of Cows.	PRODUCTS. Milk, Lbs.	Aver'ge Test per cent	Butter Fat Lbs	Cost of Feed.	VALUE. Butter Fat.	Skim Milk, 15c per 100 Pounds.	Total.	RECEIPTS LESS COST OF FEED. Gain.	Loss.	Cost of Butter Fat per Pound.
10	9,116	4.21	383.7	$32.80	$60.88	$12.29	$73.17	$40.37	.....	.085
7	7,015	4.43	310 8	30.61	49. 6	9 46	58.7	28.11	.....	.098
15	6 509	4.27	277.9	29.21	43.89	8.70	52.59	3.39	.....	.105
1	5,904	4.62	272.7	31.06	43.65	7.97	51.62	20.56	.....	.114
6	6,269	4.09	256.4	29.95	40.56	8.44	49.00	19.05	.....	.113
3	5,864	3 99	233.9	28.93	37.64	7.91	44.95	16.01	.....	.123
10	6.580	3.51	230.9	30.79	37.16	8.87	46.03	15.24	.....	.133
17	5.236	3.97	207.8	28.83	32 92	7 07	39.99	11.16	.....	.138
18	5,023	4.12	206.9	28.97	32.69	6.78	39.47	10.50	.....	.139
11	3.475	5.14	178.6	25.24	28.16	4.68	32.84	7.60	.....	.134
19	3 913	4.14	161.9	27.27	25.41	5 27	30.68	3.41	.....	.168
5	3,583	3.79	135.7	26.75	2 .39	4.83	26.22	.....	$0.43	.197
Aver'ge	5.707	4.17	238.1	$29.20	$37.75	$7.69	$45.44	$16.25	.....	.122

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Coming Events.

Michigan Jersey Cattle Club, Detroit, Mich., December 19 1899.
Washington Dairymen's Association, North Yakima, Dec. 28-30, 1899.
New York State Dairymen's Association, Cortland, New York, Dec. 13-15, 1899.
Minnesota Dairymen's Association, Le Sueur, Dec. 12-14, 1899.
Nebraska Dairymen's Association, Fremont, Dec. 19-21, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson
Prince Edward Island, Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

THE EVOLUTION OF A BUTTER COW.

The Hon. Joseph H. Walker, of Massachusetts, who has distinguished himself as a breeder of Jersey cattle, as well as a member of Congress, said, in one of his catalogues, some years ago:

"I propose to maintain the following proposition, viz: *That a butter cow is valuable in proportion to the smallness of the feed required by her to make a pound of butter*, as opposed to the prevailing custom of valuing cows by the number of pounds of butter they have made in any given time. *regardless of the feed they have consumed in doing it.*

"Other things being equal, breeding animals are of value in proportion to their near relationship to great performers, and to the number of the animals close up in their pedigrees, which are also of such blood as is in great performers, and to the volume of that blood in each of their ancestors.

"The longer the period of usefulness of a cow, the more valuable she is, and furthermore, some allowance ought to be made for the age as well as for the feed of a cow, in valuing her test.

"After a cow's ten-year form, add 10 per cent to her product for each year after her tenth year, to ascertain her probable butter yield at her prime.

"In the final estimate of cows, their breeding value should be rated in the order of the smallness of the food consumption to the pounds of butter made by them or by their ancestors.

"If butter be worth 30 cents per pound, and it costs $35 to keep a cow, the farmer or dairyman paying:

	In ten years.
$ 30 for a 200-lb. cow realizes	$182.87
125 for a 300-lb cow realizes	354.78
250 for a 400-lb. cow realizes	483.49
350 for a 500-lb. cow realizes	654.17
450 for a 600-lb. cow realizes	811.69

There are four main propositions contained in the above declaration of faith by Mr. Walker.

(1). The developement of an internal power in the cow, whereby she extracts from a given amount of feed, the largest amount of butter. In other words, the power of the cow over her feed, through her breed and individual character, to produce desired results at the greatest economy. Every cow of an established breed possesses what may be called breed characteristics and individual character. We must not only seek for the first, but we must have the last. The many failures in all breeds come because men have trusted too largely to breed, and not enough to individual capacity.

(2) This is a statement of the value of a strong pedigree; the power of heredity, when that heredity is based on large performance, which is the assertion of large individual capacity. Heredity works both ways. If we breed from poor animals, though the blood be never so poor, we are in danger of perpetuating that poverty. Our only safety is to breed from the best. This principle should be adopted by every dairy farmer with his herd of grade cattle as well as by the breeder of pure bloods.

(3) The true test of value in a cow is in a long period of valuable service. To secure this we must constantly select animals with two ruling characteristics: Capacity and constitution. There are many cows that have one or the other of these qualities, but as we fashion the future cow we must aim for both. Every man who studies cows should aim at securing a good judgment of the outward signs of capacity and constitution.

(4) The power to work up food to the greatest economy becomes after a time an inherited power. The value of a male or female to breed from is largely governed by the number of ancestors in near relation, who also possessed this power. It is not enough that this animal is of a certain breed. What sort of breeders were his or her ancestors? Were they wasteful or economical feeders?

These principles, so well enunciated by Mr. Walker, show that the business of breeding is not answered by the mere coupling of animals *within a breed.* There must be close record kept for several generations, not only of performance but of feed consumed. He is the best breeder to buy from who has been the closest student of the principles of true breeding and has obeyed them in practice.

It will be worth something to take one's pencil and figure awhile on what is contained in the closing paragraph of Mr. Walker's statement. There ought to be more arithmetic used in this business of dealing with cows.

GETS RIGHT TO THE FRONT.

Mr. J. E. Gillis, of Oswego county, New York, adds a postscript to a letter submitting a feed inquiry in which he says:

"As we will build a new cow barn and two silos in the spring we would be glad to consult the DAIRYMAN on some points in the future. Your paper has found its way to our house only a short time, but this has been long enough to convince me that no dairyman can afford to be without it, for you get right to the front on so many questions that come to the milk producer."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

"MISSOURI FEEDING INQUIRIES."

R. D. T., Cameron, Mo., asks which is the cheaper feed, gluten meal at $22.50 or gluten feed at $16.50? His cows weigh one thousand to twelve hundred pounds, are in full flow of milk, and in addition to the above can buy oil meal at $30.00, bran at $14.00, corn and cob meal at $10.00 and desires a formula with the following combination of roughage: Timothy hay, oat hay, corn stover; clover hay, corn stover; millet hay, oat hay, corn stover; shredded corn fodder.

We should prefer the gluten feed to gluten meal at the prices named and suggest that he use on an average as a daily allowance for his cows, 5 lbs. of corn and cob meal and 5 lbs of gluten feed. With this grain allowance he may feed 10 lbs. of oat hay, 5 lbs. of timothy and what corn stover the cows will eat; or 10 lbs. of clover hay and 10 lbs. stover; or 8 lbs. of millet hay and 8 lbs. of oat hay, and stover *ad libitum*, or when shredded corn fodder constitutes the principal roughage let him substitute bran for corn and cob meal.

A MARYLAND RATION.

I am much interested in the subject and as a new subscriber would like to ask for a balanced ration that will be cheap. Have clover hay at $12 per ton; shredded fodder at $1.50 per ton; cob meal at 20 cents per bushel; and buy bran at $18; gluten meal at $24 and cotton seed meal at $22.50 per ton. Prefer to feed as much fodder and correspondingly small amount of hay as possible for best profit. Cows, grade Jerseys. I thank you for what I have already learned from your paper.

Ashton, Md. M. J. S.

Shredded fodder if of good quality is very cheap at $1.50 per ton; corn and cob meal if made at home from the entire ear with no admixture of extra cobs is also very cheap at twenty cents per bushel, as a bushel should weigh approximately 44 lbs. Corn and cob meal as sometimes put upon the market has an undue proportion of cob. Assuming then that the shredded fodder and the corn and cob meal above mentioned are of average quality we would recommend the following as a fair average allowance for a herd of milk cows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
15 lbs shredded fodder	8.93	.26	4.86	.11
5 lbs. clover hay	4.24	.34	1.79	.09
6 lbs. corn and cob meal	5.34	.38	3 78	.21
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	23 87	2,22	12.31	.70

A PENNSYLVANIA RATION.

E. N. G., Selins Grove, Pa., writes:

I intend to feed wheat bran which is $16 per ton; Quaker feed, $17 per ton; corn chop, $18 per ton, and for rough feed have cut and crushed dry fodder and clover hay. How much and in what proportion shall I feed and shall I mix my cut fodder and grain and scald it?

If this Quaker feed is of the best quality it may be interchanged pound for pound with bran, and subject to this qualification, we suggest the following daily allowance, which may be given one-half at night and one-half in the morning, with a slight foddering at noon if the cows are accustomed to receive it.

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
10 lbs. crushed stover	5.95	.17	3.24	.07
10 lbs. bran	8.8	1.26	3.86	.30
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	25.01	2.27	12.01	.63

RATION FOR A NEW YORK MILK SHIPPER.

I want a balanced ration for thirty cows out of the following feeds: Bran, $21.25; hominy, $19.75; cotton seed meal, $27.50; about fifty tons of mixed hay; enough corn fodder to feed two months once a day, shocked in the field. I am shipping 280 quarts milk daily. A. B. R.

Delaware Co., N. Y.

As there are one hundred and fifty days up to May 15th, the fifty tons of mixed hay will allow feeding twenty pounds daily to each of the thirty cows, unless there are some other demands for hay. If there are, enough can probably be saved from this allowance, while the corn fodder is being used, to provide for the extra demand. We suggest the following:

FORMULA FOR RATION.	*Dry Matter*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17.06	.96	7.92	.32
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. hominy	3.56	.30	2.21	.27
1½ lbs. cotton seed meal	1.39	.56	.26	.13
Totals	25.53	2.32	11.93	.84

A NEW YORK RATION.

Kindly give balanced ration from the following feeds for French Canadian cattle weighing 700 to 1000 pounds. I will have a few fresh the last of November and the first of December, and not having my silo full, I do not care to open it before January 1st, as in that month my cows will all be fresh. Therefore wish a balanced ration without silage, from the following feeds for those cows coming fresh before January 1st: Timothy hay and oats, all other grain must be bought; wheat bran, $19; corn meal, $18; buckwheat bran, $15; oil meal, $26; oats, 30 cents per bushel.

Kindly give ration from the above feeds and silage well eared, cut fine and stored in round silo. C. W. A.

Esperance, N. Y.

Buckwheat bran if it consists only of the coarse, outer black shells of the grain is practically valueless as a feed stuff. From the price named above for this bran we are of the opinion that it contains something more than these shells and may possibly be a valuable feed. To ascertain in regard to this matter get a sample of it and sift out the fine material and see what proportion of it is fit for food and what is unfit. Buckwheat middlings are a very valuable feed and with bran at $ 19.00 a ton we are not at all sure that it would not pay to buy this so-called buckwheat bran and sift it so as to use the middlings. We give below the two formulas requested as follows:

I

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
5 lbs. timothy hay	13 02	.42	6.51	.21
10 lbs. bran	8.81	1.26	3.86	.30
2 lbs. oil meal	1.82	.59	65	.14
Totals	23.65	2.27	11.02	.65

II

20 lbs. silage	5.28	.26	2.80	.14
10 lbs. hay	8.68	.28	4.34	.14
5 lbs. bran	4.41	.63	1 93	.15
5 lbs. middlings	4.37	1.10	1.67	.27
Totals	22.74	2.27	10.74	.70

A GEORGIA RATION.

Will you please give me a balanced ration with the following feeds: Cotton seed meal, $20 per ton; wheat bran, $20 per ton; cotton seed hulls, $4 per ton; pea vine hay, $15 per ton; corn meal, $20 per ton.

Cows weigh from 700 to 1,000 pounds.

Athens, Ga. SUBSCRIBER.

We are quite certain that if we lived in Georgia, unless convinced by experiments of

our own to the contrary, we should feed about as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. pea vine hay..	13.40	1.61	5.79	.17
4 lbs. corn meal.....	3.56	.32	2.67	.17
1 lb cotton seed meal.....	.92	.37	.17	.08
5 lbs. cotton seed hulls.....	4.55	.02	1.66	.09
Totals.....	22.33	2.33	10.29	.51

It is probable that fairly good results can be had by increasing the hulls and cotton seed meal and decreasing the amount of pea-vine hay, but whether there would be any economy in this in the long run can only be determined by actual trial with individual cows. We should use the hulls as specified above, simply for extending the corn meal and the cotton seed meal, and for increasing the bulk and total dry matter in the ration.

FOR COWS THAT RUN IN STALK FIELDS.

Which would be the best and cheapest grain ration for milk cows, and in what proportions for cows weighing between 1,000 and 1,200 lbs. each. They are running in corn stalk fields in the day time and get all the oat straw they want to eat at night. Corn is worth 22 cents; oats, 17 cents per bushel; and bran, 65 cents per cwt.

Bertrand, Neb. O. W. S.

A stalk field is a poor place for a dairy cow at any time or under any circumstances, and the cow knows it and will repay her owner for his ignorance if he also does not know it. The dry, frosted, weather beaten stalks have little in them that a cow can use for milk production. If there is any good clover or alfalfa hay in our friend's neighborhood that he can buy, he can do himself some credit by getting it and giving his cows something fit to eat. We ask him to read with great care, and more than once, the bulletin of the Kansas Experiment Station which we republish this week, and when he has read it let him follow its teaching.

If he cannot get the hay as above suggested we know of nothing better for him to do, under the circumstances, than to mix corn, oats and bran in equal parts by weight, grinding the oats and corn, and then giving his cows just as much of this mixed grain as they will eat. Such of them as have a capacity for giving milk will do perhaps, fairly well. Those without such a capacity will probably get fat and the sooner they are sold to the butcher or somebody else, the more profit they will be to their present owner.

A NEW YORK RATION.

Will you please give a balanced ration from the following feeds: Clover and timothy hay on farm; wheat bran, $16.50; buckwheat middlings, $15; corn meal, $17; old process oil meal, $30 per ton. My cows are Jerseys and grade Jerseys, being 2, 3 and 4 years old. November 25th, the average test by Babcock was 5.27%. Do you consider that a poor test for cows of that age?

Hannibal, N. Y. J. E. G.

The test is high enough, but that is only one of the factors in profitable milk production. Another equally important matter is quantity. It makes all the difference between affluence and bankruptcy whether this test applies to a yield of 10 lbs. of milk daily or to 20 lbs. or more.

If these cows belong in the latter class they should receive about the following as an average daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay.....	17.06	.96	7.92	.32
4 lbs bran.....	3.52	50	1.54	.12
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
Totals.....	24.07	2.34	10.80	.66

And unless they are pretty warmly housed it would be wise to add 2 lbs. of corn meal to assist in keeping them warm.

IN THE FAR NORTHWEST.

Please formulate a ration from the following feed: Oats and wheat cut green with binder and well saved, about one-third wheat. Our hay is upland prairie, $5 per ton; the green feed mentioned, $5; bran, $16; shorts, $18; chopped oats and barley, $18; oil meal, $40. We have plenty of Swede turnips, but our creameryman objects to the use of them. Would you condemn feeding these to the cows? My cows are mostly grade Short-horn. H. T.

Red Deer, Alberta.

The preponderence of testimony seems to be to the effect that if turnips are fed to milch cows immediately after milking, their effect passes off largely, if not entirely, before the next milking. It would be well to try this in your case, and possibly by so doing you may overcome the objections of the creamery buttermaker. They should, of course, be fed in comparatively limited amounts, only 20 to 25 lbs. per day.

With the feeds named we should use about 10 lbs. of the oat and wheat hay and 10 lbs. of the upland prairie hay, with, say, 5 lbs. of bran and 5 lbs. of the shorts, or 5 lbs. of the chopped oats and barley. If the turnips can be used, there will be, ordinarily, no necessity for using oil meal.

SAVED FIFTY DOLLARS IN ONE WINTER.

Will you please formulate a balanced ration for milch cows? I have on hand plenty of mixed hay and the nicest kind of corn fodder. My grain ration is malt at $13 per ton; wheat bran, $14; corn meal, $16; and oats, 25 cents per bushel. I shall grind the oats and corn together. Oil meal is $1.60 per cwt.. How shall I mix my feed to get the largest flow of milk?

You figured my ration last year, and I think I can say, without a doubt, that it was a saving of, at least, $50 to me in grain alone. C. L. O.

Marengo, Ill.

HOARD'S DAIRYMAN has abundant reason to be grateful to its readers for their compliments, unstinted in number or quality, but it has to confess that when a reader comes down to figures and says, by following advice given in these columns, he saved fifty dollars in one winter, we find it a great help to our faith and encouragement. All the same, it is a little dangerous to attempt to repeat the experiment. We may not always meet with such gratifying success, but on the whole, we believe that if our friend feeds his cows, this winter, the following allowance, he will secure very profitable returns:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay.....	8.53	.48	3.96	.16
10 lbs. corn fodder...	7. 0	.37	4.04	.12
5 lbs. brewers grains	4.59	.79	1.82	.26
2 lbs. bran.....	1.76	.25	.77	.06
2 lbs. oats.....	1.78	.18	.95	.08
2 lbs. corn.....	1.78	.16	1.33	.09
Totals.....	25.54	2.23	12.87	.77

This should be simply an average, giving cows that can respond more, and those which fail to respond less, or if there are no cows of the latter class in the herd, increase the allowance all around.

WAGES FOR LEGAL HOLIDAYS.

The question has been argued whether a farm laborer who is hired by the month or year, can collect pay for the legal holidays, if he does not work on those days. One party here contends that he can, and also, if he does work he can collect pay for the day beside his regular pay. The other party contends that a man can collect pay only for the time he does work. A SUBSCRIBER.

Granville, N. Y.

It is hardly a safe proposition to submit legal questions to an editor. He may have opinions upon which he is willing to risk his own time and money, but that is no reason why others should follow his lead in such matters. Lawyers are expected to keep in touch, not only with all general principles of law, but with the effect of current decisions. A man can not be a safe lawyer and at the same time devote the greater part of his time to some other calling, for example, editing a daily paper. It would seem very reasonable, however, that a man hired to work by the month or the year with no stipulation in the contract, expressed or implied, that he was to do certain work on Sundays or legal holidays, could not be required to do such work. But if he should voluntarily do it there would seem to be no good reason for concluding, in the absence of any contract to that effect, that he could recover wages for such work.

A NEW YORK RATION.

I am milking 21 cows, 12 fresh and 9 strippers, and they have averaged this month 10 quarts each, daily. I have well eared ensilage and timothy hay that is worth $15 per ton. Have to buy everything else.

Have fed bran, 200 lbs.; gluten feed, 200. This feeds the 21 four feeds, at a cost of 90 cts. a feed, about 14 lbs. per head daily.

Have bought one-half car load of prime cotton seed meal, and can get bran at $17 per ton; gluten, $20 per ton; and rye feed, the residue after taking the flour out, for $16 per ton; red dog middlings, $18.

Would 100 lbs. cotton seed meal and 100 lbs. rye feed at a cost of $2.00 per day, give protein enough to keep the cows up to their present figure? Would like to feed so the poor milkers would get fat. P. B.

Troy, N. Y.

We incline to the opinion that this inquirer can do no better with the feeds named than use the following figures as an average guide;

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage.....	10.56	.52	5.60	.28
5 lbs timothy	4.34	.14	2.17	.07
10 lbs. bran.....	8.81	1.26	3.86	.30
2 lbs. cotton seed meal.....	1.84	.74	.34	.17
Totals	25.55	2.66	11.97	.82

PRICE OF BRAN.

I see by your paper that bran is quoted at $12.50 per ton. Will you kindly tell me where I can get it at that price?

I have been a subscriber of your paper since last March. It has done me lots of good. It is the best of papers. L. E. B.

Livingston Co., N. Y.

Bran is quoted in Chicago, this week, at $12.50 per ton. This is the wholesale price. By the time the bran is put down in New York state, there is an additional cost for freight and dealers' profits, so it is not probable that you can buy bran anywhere east of Chicago for the above price.

AN IOWA RATION.

P. & S., Yale, Iowa, have hay at $5.00; oat straw, $2.00; barley, $12; corn, $7.20; bran, $13; oil meal, $25; oats and wheat, (half and half) $14.30, and would like a ration formula submitted for their consideration. The prices given for the grains include the cost of grinding. We incline to the opinion that possibly they cannot do better than try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay.....	17.50	.70	8.36	.28
4 lbs corn.....	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. oil meal.....	1.82	.59	.65	.14
Totals.....	26.40	2.11	13.22	.71

We hope all our readers will understand that these formulas are not given to be followed with the same degree of exactness that a druggist uses in making up prescriptions, but that they are more in the way of suggestions, to be varied from as circumstances may require, and especially as each individual cow shows ability to respond to the feed. We have but little doubt that there may be some cows in this herd that cannot profitably utilize as much feed as we have given, while there may be others that can use more. The greatest profit comes from feeding each cow all she can eat, and turn it in the direction we desire. If we are feeding for beef, we want the animal to lay on flesh. If we are feeding for milk, we want the result to show through the udder. If a cow in milk does not increase in flesh, we may be reasonably certain that she is not fed above her capacity, but if she commences to lay on an undue amount of flesh, she is turning some part of her food into an unprofitable channel. Watch these things; use judgment; do not follow blindly anybody's standards.

Perhaps it may be well for us to repeat here once more, what we have so often said in regard to the allowance of salt. It is quite the habit among dairymen to salt their cows only occasionaly, once a week, or twice a week, providing it is not forgotten. It is much the better plan to give them salt every day, and still better with every feed. Salt is not only an appetizer, making the food more palatable, but it has a very beneficial effect in aiding digestion and assimilation, and this, especially, with the protein elements. The amount to use must be determined with care and judgment, having respect to the size of the cow, and the amount of feed she takes. A large teaspoonful with each meal, or if used once a day a tablespoonful, is perhaps as accurate a statement as can be given by way of suggestion.

RATION FOR AN ILLINOIS MILKMAN.

Kindly formulate a ration for Jersey cows averaging six and one-half quarts a day, which we sell at six cents per quart. Wheat bran, $14; ground feed, $14; oil meal, old process, $26; excellent quality corn shocks at about $4.00 a ton; timothy hay, $10; oat straw, $5.00. Other feeds I do not know the price of, but they can be bought at reasonable prices. A. F. K.

Aurora, Ill.

Thirty-nine cents returned for each cow per day, is not a very bad showing, and would seem to justify pretty liberal feeding. We, therefore, suggest, as a minimum allowance for each cow, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn stover....	5.95	.17	3.24	.07
5 lbs. timothy hay....	4 34	.14	2.17	.07
5 lbs. oat straw,.....	4 54	.06	1.93	.01
10 lbs. bran.....	8.81	1.26	3.86	.30
2 lbs. oil meal.....	1 82	.59	.65	.14
Totals	25.46	2.22	11.85	.59

We are of the opinion that if a good quality of gluten feed could be obtained for not to exceed $18 per ton, it would be profitable to substitute 4 to 5 lbs. of this for an equal amount of the bran above specified.

A NEW YORK RATION.

Please formulate me a ration from the following feeds: Well eared silage, mixed (clover and timothy) hay, bran at $20 per ton; cotton seed, $25; gluten, $22; rye, 55 cents per bushel; corn, 50 cents per bushel; oats, 35 cents per bushel. Would it be more profitable to sell rye and oats and buy other feed for making butter. Cows weigh 800 to 1000 lbs., part new milch and others coming in next spring. J. R.

Washington Co., N. Y.

It is folly to feed cows that are fresh in milk the same as strippers. All cows should be fed in proportion to their ability to respond, just as the wise man feeds the hard worked horse more than one that does only light work

The fresh cows might well be fed as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage.....	7.92	.39	4.20	.21
12 lbs. hay.	10.24	.51	4.75	.19
5 lbs. bran.....	4.4	.63	1.93	.15
2 lb. cotton seed meal	1.84	.74	.35	. 7
Totals.....	24.41	2.34	11.23	.72

Feed half the grain and half the silage at night and balance in the morning. Give half the hay at night also and the rest morning and at noon.

CORN STALK MEAL.

Will the editor kindly give a little knowledge of the new method of preparing corn stalks for food, as described in the September *Crop Reporter*, issued by the Agricultural Department, Washington. What machine is required, and where can it be had? Has

there been any of the stalk food put up on the market, and will there likely be this coming season? Our rich hummock lands on the east coast will grow corn stalks fifteen feet high, and the utilization of them may be a great godsend to dairymen in Florida.

Ormond, Fla. E. W. A.

You probably refer to the new corn product, made by grinding up the stalk and extracting the pith.

The resultant corn stalk "meal" has been, we think, somewhat extravagantly praised and an undue value been claimed for it as a feed. When the corn stalk is sufficiently ripe to be of value for extracting the pith, much of the feeding value has gone into the grain and although its value would be increased to a certain extent by the extraciton of the pith, we should not expect it to be greater than that of the stalk at its best time for feeding.

We know of no better method of obtaining the most value from the corn plant than cutting it at its maximun food value and feeding it to stock. We are not advised as to the character of the machinery used, but understand it is patented and not for sale.

BRAN FOR FATTENING STOCK.

E. T. D., Grass Lake, Michigan, asks how much bran should be added to corn meal for best results for fattening stock. It is impossible to give specific answers to questions of this character, because of the ever varying conditions and circumstances.

It has been fairly well proven that a ton of corn and cob meal is ordinarily as effective in producing gain as a ton of the ground grain, and this not principally because of the nutriment in the cob, but because its presence dilutes the otherwise highly concentrated meal and thus aids in securing a better digestion.

As there are about fourteen pounds of cobs to fifty-six pounds of grain, it would seem to follow that the addition of about one-fourth as much bran, by weight, as ground corn would not be too much.

A CORRECTION.

In the last issue of the DAIRYMAN, on page 849, the figures for the weight of milk are incorrect. They should be as follows: A thirty-two quart can of milk weighs 68.80 pounds; a gallon of milk 8.60 pounds; a quart 2.15 pounds; and a pint 1.07 pounds. Thus a quart would weigh two and one half ounces more than 2 pounds, and a pint and a gallon in the same proportion.

AN UNSATISFACTORY KANSAS CONDITION.

C. C. N., Saline county, Kansas asks us if ground cane seed, when mixed with corn and cob meal and bran, is good to feed to milch cows. He appears to have plenty of this seed, and his roughage is prairie hay and "topped cane."

It seems to happen most opportunely that this inquiry comes to us for answer just as we are reprinting the Kansas Bulletin, giving the performance of a herd of scrub cows at the Experiment Station of that state. That bulletin shows that kafir corn, which is a very near relative of the cane (sorghum) does make a complement of good alfalfa hay, for dairy rations. If our inquirer had kept up with the times, by sowing alfalfa several years ago, he would now be in a position to utilize this cane seed, for which he says there is no market, to most excellent advantage, and with assured profit. It follows therefore that in our judgment the matter that should occupy the first place in his thoughts this winter is preparation for sowing alfalfa next spring, and from the experience of the senior editor of this paper, we do not hesitate to recommend that he sow this alfalfa seed with oats; but when the oats have fairly headed out, and before the kernel is formed he must cut them and cure the product for hay. This method of seeding to alfalfa, as it seems to us, is a decided improvement over that heretofore recommended by other writers, that alfalfa seeding should follow a hoed crop, on land free from weed seed and without a nurse crop.

We cannot imagine a combination of grains named by our correspondent which will give a satisfactory ration. The best perhaps that can be done under the circumstances would be to make the average daily allowance for each cow about 5 lbs. of bran, 5 lbs. of ground cane seed and 4 lbs. of corn and cob meal. In addition to this let the cows have all the prairie hay and corn fodder that they will eat.

CAPACITY OF A SILO.

How many tons of silage will a round silo 12×28 hold? The manufacturer I bought it of says it will hold 63 tons. Now what I wish to know is, if the capacity is 63 tons, what is the actual weight of silage can be gotten into it? How many times must it be filled full, well trodden, to get in this actual weight? W. A. C.

Esperance, N. Y.

The capacity of a silo of the size you give will be something over 60 tons. If filled to the top with well settled and trodden silage, it would probably contain the amount claimed by the manufacturer, but no silo is filled to the top and a certain allowance must be made for this loss, so 60 tons is probably all that the silo can be made to contain. There is no way of telling how many times it will be necessary to fill and allow to settle. It will depend on the condition of the corn and the thoroughness of the treading.

WILL IT PAY TO INVEST IN A HAND SEPARATOR.

Would you advise me to invest in a hand separator at cost of $150 to $175, for season from November 15th to April 15th, when I can get milk delivered to a well established creamery at $1.00 to $1.25 per ton and skim milk and buttermilk returned in good condition. My average amount of milk would be 150 pounds per day, with unfavorable facilities for marketing dairy butter. Milk is received in creameries on butter fat system and price charged for making, selling, etc., of butter is three cents per pound.

If not, what amount of milk daily would warrant the purchase of a hand separator in my situation? A SUBSCRIBER.

Ormond, Ont.

Probably as satisfactory an answer as we can give to this inquiry is to say that the writer of this reply has had a farm separator in use for several years. The cream is taken to a creamery, and the only advantage in the use of the separator is that it gives back the skim milk promptly and just when it is needed and at its best. He thinks this abundantly pays for the separator outfit and all the expense and labor of running it. The separator can be and at times is turned by hand, but the regular motive power is an undersized collie dog in a "rotunda" tread power. If our Ontario subscriber would use a separator throughout the year, we think it would pay him to invest in one; but if it is to be used only during the winter we are less confident of its proving profitable.

A NOVA SCOTIA FEEDING QUESTION.

F. A. P., Truro, N. S. asks for a ration formula for milch cows with hay, at $8.00; bran, at $19.00; corn meal at $21.00.

We do not see how he can use any corn meal to advantage. His great need is to secure a sufficient amount of digestible protein. To that end we believe it would be expedient for him to buy some cotton seed meal or gluten meal and mix with bran and feed with hay. If this cannot be had perhaps he could do no better than to feed daily ten to twelve pounds of bran and all the hay each cow will eat. If he gets the cotton seed meal he should commence with one half pound at first and gradually increase to two pounds per day, omitting an equal amount of bran.

MAKING DAIRY BUTTER.

G. N. H. Prospect, Wis., says; "Will you give the process in detail of making A 1 dairy butter?"

It is hardly practicable for us in the present crowded state of our columns to go over in "detail" all the processes connected with the making of dairy butter. Very much depends on the facilities and appliances at hand. If one has a farm separator one set of directions would be applicable; if he uses cold, deep setting another set of directions would be required, and if the old farm system of shallow setting is in use quite another set of directions would be necessary.

Let G. N. H. tell us what he has to work with and we will try and give him the information required.

GRAIN FOR SILAGE—BUILDING A SILO.

So far, I am only a 25-cent subscriber, but expect to remain with you permanently, and have a question to ask about the silo.

We have 75 acres in clover that will turn off its first crop, next summer, and with the first crop there is quite a volunteer growth of oats, wild oats and wheat, in fact, about half of the first crop cut is of the hollow straw variety, and I wish to ask if in your opinion it would make good silage, or do you think it would be more valuable made into hay?

Also, I have lumber cut for two silos, 20 feet square each, the walls to be put up 4 inches thick of sized stuff, 2×4 inches; the lumber 2×4 to be put up like warehouse bins are made. Just one piece laid on another, with a tar coat between, and nailed down solidly. I get the lumber cheap and wish to know your opinion on the plan.

Perrydale, Ore. J. M. W.

Your clover contains too much hollow straw grain to be used for silage, with certainty of success.

If you can guarantee that the sides of the silo, so made, will not give enough to cause the tar to check, and otherwise allow air to enter, your silo will probably be a success, otherwise we would prefer to use this lumber for building a regular stave silo.

A WISCONSIN RATION.

Please give me the most economical and best balanced ration for milch cows from the following feeds: Bran, $13.00 per ton; oats (ground), $14.40; corn (ground), $13.20; clover hay, $6.00; gluten feed, $16.00; oil meal, $28.00; corn stover, $3.00.

Garnet, Wis. J. F. S.

The prices for oats and corn were given at 21 and 35 cents per bushel. We have estimated the cost of grinding and given the figures as above, which may be somewhat more or less than the actual values. The following formula gives a well balanced ration, and, probably, the most economical one that could be selected from the feeds named. If the stover must be bought, we would prefer to omit it, and feed clover hay exclusively for roughage. In that case some corn could be used with profit:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay.....	12.71	1.02	5.37	.26
10 lbs corn stover.....	5.95	.17	3.24	.07
4 lbs. bran.....	3.52	.50	1.54	.12
3 lbs. gluten feed.....	2.77	.61	1.45	.11
Totals.....	24.95	2.30	11.60	.56

Without doubt oats could be substituted for part or all of the bran, without injury to the ration, and possibly with some profit.

A One Cow Dairyman.

As to Feeding the Cow and Raising the Calf Without Milk.

ED. HOARD'S DAIRYMAN:—Would like a balanced ration for a Jersey cow of about 1,000 lbs. weight, with following feeds: Good wheat bran, corn chop, old process flax seed oil meal and good prairie hay; can get plenty of clover hay but it has been cut too late and is too woody; timothy hay about the same.

I am trying to raise a calf from same cow on short milk ration with a mixture of other feed; calf is sired by a son of Pedro 3187. Will give my experience in raising young calf on mill feed and its consequences. When 3 or 4 weeks old, gave about one-half pound oil meal, one-half pound bran and a a little corn meal each day, with about one gallon of half whole milk diluted with hot water; ran out of oil meal for a day or two and substituted more bran. Calf got indigestion (colic). I was obliged to send for a veterinarian to relieve it.

I then fed only milk for two or three days till its digestive organs became all right, then began feeding oil meal and wheat flour; calf is now about eight weeks old, and gets one-half pound oil meal, one-half pound of wheat flour and a very little bran mixed to a thin paste with hot water, and about 3 pints of half whole milk, three times daily. Calf is thriving, relishes its feed and will not eat milk alone any more.

Please let me know through the DAIRYMAN if this is a suitable feed to produce a dairy calf; and pass your opinion as to the amount of feeds. G. W. CHAMBERLIN.

Springfield, Mo.

It possibly has not escaped the notice of our farmer readers that we are recently receiving quite a number of inquiries from people who keep but one cow. We wonder

"Honor is Purchased by Deeds We Do."

Deeds, not words, count in battles of peace as well as in war. It is not what we say, but what Hood's Sarsaparilla does, that tells the story of its merit. It has won many remarkable victories over the arch enemy of mankind—impure blood. Remember

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

For the Baby

The fifty-cent size is just right for the baby. A little of it in the bottle three or four times a day will supply precisely the fat all thin babies need. If your baby does not gain in weight as fast as you would like, try

Scott's Emulsion

The result will please you. If the baby nurses, the mother should take the emulsion. It makes the baby's food richer and more abundant; only buy the dollar size—it's more economical.

Both mother and child will feel at once its strengthening, upbuilding and fat-producing properties.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

if they have ever stopped to inquire what is the reason for this.

If they should, and should really study the problem, we think they would inevitably come to the conclusion that it is because such a man can not afford to keep a cow unless she brings in not only enough to pay for her feed but to pay for her keep as well.

There is another pertinent fact, and that is that almost invariably a village cow sold to a farmer proves to be disappointing. The seller represents that the cow has been accustomed to give a certain quantity of milk, that after supplying one family, or perhaps two or three, enough butter is made to more than furnish the family of the owner, and yet this cow removed to the farm and given the average farm care fails to distiuguish herself. In the language of one of the former presidents: May we not say that this is a condition and not a theory. In our judgment it ought to receive more consideration from dairymen than they are wont to accord to it. For ourselves we think the key to unlock this condition is found in better feed and better care. The farmer dairyman says he has corn in plenty and corn stover in plenty, and plenty of over ripe timothy hay; and these matters can not be sold as he thinks upon a profit, and therefore he feeds them to his cows. He certainly gets rid of the feed but he gets a beggarly return for it.

The one cow dairyman, who buys all of his feed and only in small quantities at a time, therefore paying the very highest price for it, selects his feed with discretion, uses it liberally and the result is his cow yields him a profit. The foregoing communication is a case in point. The writer observes that the clover hay and the timothy hay that he could furnish was cut too late and was too woody. These are well founded objections. We are of the opinion that from the feeds named he could do no better than to use 8 lbs. of bran and 2 lbs. of oil meal, with all the good prairie hay that the cow will eat.

It is quite possible that if the corn is appreciably cheaper than bran, then 2 or 3 lbs. of it might be substituted for a like amount of bran without materially reducing the profit from the ration.

We are very much obliged to Mr. Chamberlain for his report on the feeding of his calf. He seems to have adopted very nearly the standard given on page 754 in connection with our table of analyses of feeding stuffs. Turning to that table we find that the daily allowance for 1,000 pounds live weight of young dairy stock from two to three months of age is twenty-three pounds dry matter, 4.0 lbs. digestible protein, 13.0 lbs. carbohydrates. 2 lbs. fat. If the calf weighs approximately 150 pounds it should be entitled to receive daily one-sixth of these amounts, namely, 4. lbs. dry matter, 0.7 lbs. protein, 2 lbs. carbohydrates and 0.35 pound fat.

In our estimate of the amount now furnished this calf we find the three meals contain 3.22 lbs. dry matter, .99 lbs. digestible protein, 2.40 lbs. digestible carbohydrates and 0.36 lbs. digestible fat. Comparing these figures with the standard rations we find them somewhat deficient in dry matter, but with a surplus of digestible nutrients. This condition emphasizes what we have so frequently called attention to in these columns, and that is, that the calf should be furnished when only a very few weeks old with small supplies of nice, fresh hay. It is surprising to note how early in life they will begin to eat hay and when of good quality, how much they will eat of it. With more hay we would reduce somewhat the total of oil meal.

Brewers Grains.

ED. HOARD'S DAIRYMAN:—An inquiry being made lately in the DAIRYMAN as to the value of "malt" as a feed brought out a reply from Prof. Henry, that it was not any more valuable, that the unmalted barley, as the sugar created by the process was no better feed than the original starch. I have concluded that the question was probably taken too literally, for with our farmers' "malt" is merely what the trade calls brewers grains; quite a different thing.

One of our most successful dairymen sets down this by-product of the breweries as the best, all things considered, of all the special feeds. He has taken this feed every day from the same city brewery for several years, and feeds other special stuff liberally, especially gluten meal, which is considered superior to most mill feeds, when it can be obtained from the factory direct, as it can about Buffalo.

But the "malt," otherwise brewers grains, is rated as something of a wonder, and if the farmers about all cities do not all know its value it is high time they did. Being quick in its effect and not too hearty, it is often fed as a substitute for hay, and our dairyman declares that it can be fed just like hay, allowing the cows to eat all they will of it. Some of them will eat it in a great quantity, and as the price here is only 50 cents a barrel, it need not be stinted very much. As a milk producer it is declared to be the best of feeds, and when it is dropped for any other ration the flow always runs down. One point in connection must not be disregarded. When taken from the brewery every day it is as sweet as hay, but it rapidly becomes stale, so that it is not at its best unless it can be obtained fresh every day.

This is also the case with gluten meal, unless it is dried at the factory or kept in water sufficient to keep it from heating. This latter process is not always fancied by feeders, and the result is that gluten meal is allowed to lie in a pile and get sour. It is pretty poor stuff then. So the farmers, who are not able to buy this feed every day, are taking it dried. The factories prepare it in that way, though it is reported that they much prefer to sell it just as it comes from the starch separation.

As both these feeds are slightly fattening, at the same time that they are great for keeping up the flow of milk, and as the brewers grains especially are rated as palatable, while not too hearty, the farmer is fortunate, who is within easy reach of them, and he can afford to use them in general throughout the year.

One of the great difficulties in using the by-product of the starch factory, and it ought to be still more true of the undried brewers grains, is the careless or ignorant way it is handled by farmers. This I have observed in more than one locality, and even in dairies with which I have been connected. It is often bought by the car load by a speculator, or possibly by a combination of farmers and taken in quantity by each customer. The result pretty generally is that the supply is not by any means daily and sometimes not even once a week, so that the stuff grows every day more rank in smell till it is anything but a wholesome feed, sometimes getting more or less moldy at the last.

In all cases where these feeds cannot be used before they begin to ferment they should be bought dried, even if they do cost more than in the crude form. They will be found better adapted to the needs of the farmer than most special feeds, unless the cost of transportation is too great. I have no possible interest in any of them but both experience and comparison of notes bring me to the same conclusion.

Erie Co., N. Y. JOHN CHAMBERLAIN.

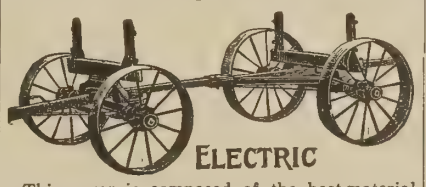
TUBERCULOSIS TESTS IN IOWA.

In his biennial report, soon to be issued, Dr. Gibson, State Veterinarian of Iowa, will show that in the past two years, he has tested 2,000 cattle with the tuberculin test, and he states that about 20 per cent of these have responded to the test. All these have been condemned and slaughtered, and their carcasses rendered for tallow, and two-thirds are sold for beef by the permission of the government inspectors.

The local dairymen who supply milk to the city of Fort Dodge united in a request to Dr. Gibson to have their herds tested.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.

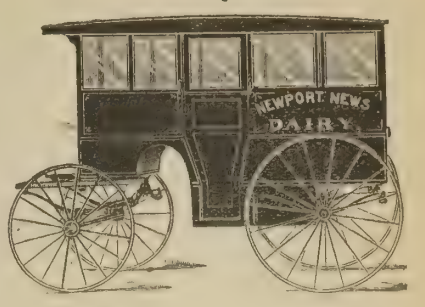


This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon. and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric. Wheel Co., Box 130, Quincy Ill.

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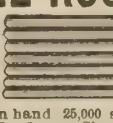


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Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

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Chillicothe, Ohio.

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We have on hand 25,000 squares Brand New Steel Roofing. Sheets either flat, corrugated or "V" crimped.
Price per square of 10x10 feet or 100 square feet **$1.75**
No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.
Write for our free catalogue No. 20 of general merchandise bought by us at Sheriff's and Receiver's Sales.

"Our Prices are One-Half of Others."

Chicago House Wrecking Co.,
W. 35th and Iron Sts., Chicago.

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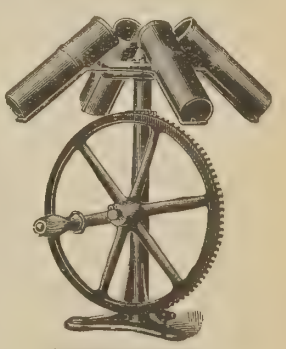
The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms. two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

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631 Pa. Ave. N. W., Washington, D. C.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



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Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

AS TO MILLET HAY.

A correspondent noticing that our veterinary editor says that millet hay is not a fit feed for milch cows, asks: "What are we people going to do this winter, where it is all the hay we have?" This is a very pertinent question, and very similar to many others that are suggested by the occasional statements of physicians, who are not unlike other people in that they sometimes come to hasty conclusions by magnifying the exceptions into rules.

That millet hay has sometimes been very injurious to cows, as well as horses, has been abundantly proven, but we incline to the opinion that in these cases the millet had been allowed to get too ripe before it was made into hay, thus making the stems hard and woody and the seed mature. Millet cut just as the heads come into blossom, before the seeds form, and well cured, has been safely fed by too many dairyman in all parts of the country to allow such fodder to be wholly condemned. Not only has the present writer used such hay without resulting injury, but the testimony of almost innumerable other dairymen is to the same effect. Prof. Henry, in his "Feeds and Feeding," in the chapter devoted to feed and care of the Dairy Cow, says: "Hay from millet and Hungarian grass, when well preserved, is useful for feeding, if supplied once a day for roughage." In another place he says: "Nothing unfavorable to the use of millet hay for cattle feeding or sheep feeding has been reported;" and still in another place he says, speaking of millet: "In order to produce hay of fine quality, a liberal allowance of seed should be sown. All forms of millet grass to be used for hay should be cut just as the plant is coming into blossom, to avoid the formation of hard seeds, which are indigestible by horses and cattle. Hay from thickly seeded millet, if cut early, is useful for cattle and sheep feeding."

Comments and Queries From Robinswood Farm.

Sources of Dairy Information—The Value of Dairy Knowledge—Understanding Beteen Breeders and Farmers—Individuality In Starting the Herd—How Much is a Good Bull Worth?

ED. HOARD'S DAIRYMAN:—During the past year I have given a good deal of my spare time to absorbing dairy lore with a view to brushing up after a twenty-five year's lapse of an active interest in dairying. I was prepared to believe that much progress had been made in this branch of science and art during this period; but am free to say that I have been tremendously surprised to discover how great an advance has been made, and how much there has been to learn and how much one must unlearn,—a very difficult thing to do for the middle aged student.

It is clear that modern dairying is a vocation in which a practical application can be made of mental attainments of a very high order. In the mere matter of the judgment required to decide the questions which must inevitably be continually arising, a thoroughly trained mind will prove valuable, and when it comes to breeding and feeding for profit, in the face of the competition of the innumerable race of dairymen throughout the world, there is all of the knowledge which a physician acquires by hard years of study and experience which works in well, and also room for much other special knowledge.

When we consider that there is a practical application for so many of the sciences, as well as for general business aptitude in dairy matters, it ceases to be a matter of astonishment that there are so many unprosperous dairymen, and it becomes a matter of pitiful comment that so many millions of the race are plodding along dark and unprofitable dairy paths. Practical experience is essential in this as well as in all professions; but the dairyman who practices his profession without the assurance which absolute scientific knowledge gives him of the correctness of his practice, is following a very dark and uncertain path, and an unsatisfactory one. It strikes me that there is lots of room at the top for young men who have natural tastes for dairy farming. There may be no Klondike Bonanza for any dairyman, but there are certainly abundant opportunities for moderate successes for many young Americans who have brains and brawn to put into this vocation. It will be a good many years before this country becomes overcrowded with good cows, or good dairymen. Hence, serious competition need not at present be found.

As the easiest way of catching up in dairy matters, I have procured most all the late publications relating to the subject, either in book, pamphlet, bulletin or periodical form, and there is nothing in the line of reading matter which has come into my hands, or anything that I have seen or heard in my traveling among the breeders, which has not afforded me desirable information. But for the money expended, nothing has been so satisfactory and profitable as the back volumes of HOARD'S DAIRYMAN which I have procured.

Some of the individual numbers have proved more valuable as a source of knowledge than some special books. Books are particularly valuable as furnishing compiled information relating to certain matters, but progress is so continuous, and so rapid, that books soon cease to be up to date, and the progressive man must have his periodicals to keep him posted, and as a source of habitual mental stimulus. I am inclined to think that there is no farming specialty in which there is as much room at the top as in dairying.

Nevertheless it does not follow that there are not other branches of farming which will pay better under conditions favorable for such specialities. For example, I don't see why a farmer with easily cultivated lands, and with a growing season long enough for the development of two crops, including one of cow peas which could be plowed in, should want to bother about making a speciality of the dairy. Nor do I see why, when conditions are favorable, most farmers should not prefer to make a speciality of beef with milk as a secondary object.

There are a number of rough, large farms in our Gilmanton region with tremendous pastures and little tillable land, where slow growing beef with a moderate amount of milk will prove the best possible policy for the owners. For these farmers, I do not believe that any breed is so good as the Devons But there are a large number of farmers who are so situated that dairying pure and simple is forced on them,—there is nothing else to do. For them there is nothing to do but to aim for the best results to be obtained through the best dairy practice. Most of our Gilmanton farmers are in this category, and it goes almost without saying, that they have got to modify and alter their agricultural practice very markedly, if they want to be successful.

Of course, they must not forget that the biggest profit in any agricultural policy is the savings resulting from avoiding house rent, and other expenses incidental to decent living, and in having a home market for every thing that can be grown for home consumption. Also, they must not forget, that as a rule the greatest profit from cow keeping is her power to enrich the soil; and that some more direct, money in-bringing crop than butter must be produced from the fertility thus created, and sold for cash.

I doubt, exceedingly, if butter production as a sole resource, can be made profitable. There are too many who make use of accessory sources of income from the cow to allow of a butter profit solely being relied on. The great points for our Gilmanton farmers to attend to, it seems to me, are, first, clearing their cultivated land of surface rocks, etc., which may interfere with the use of the mowing machine; second, tilling the land more frequently and thus producing fertility; third, growing more diversified and more appropriate dairy crops, and spreading their labor over a larger portion of the year; fourth, utilizing the special-purpose butter cow in the working up of the products raised.

It seems to me that dairy interests would be advanced if there was a better understanding, both on the part of breeders and of farmers, as to their relative functions and duties to each other.

Certainly these branches of effort are distinct agricultural specialties. If the breeder is going to do his duty fully, he cannot expect to produce milk or butter in the most economical manner. If he is going to breed for constitution, digestive ability and special functional development for dairy purposes, he will have to bestow an amount of care and attention, and make an expenditure in funds that will not be made good from the sale of mere milk and butter products. His effort is directed to creating in his stock a certain powerful prepotency, and if he is going to be compensated for his work, he will have to get it from good prices for his stock.

As a matter of fact, I am afraid that a good many prominent breeders are losing money rather than making it, and must only expect as compensation for their work, the solace of knowing that they are doing good for their fellow men. Farmers should realize much better than they do that the mere fact of an animal's being a thoroughbred is not sufficient to make it a satisfactory animal to impress valuable qualities on its descendants, and therefore, not attempt to pose as breeders, or to buy stock from anyone, who is not a breeder in more than name. Every breed is full of inferior individuals, which are inferior largely because they and their ancestry have not received a continuation of the treatment and the conditions which have been potent in producing the so-called improved type. There is only room in the dairy world for comparatively few breeders, and among these few there are prizes but for a small part of their number.

If a farmer is going to be a dairyman, let him be one, and get down to the fine points of the economies of production, and not divert and weaken his effort by trying to be a breeder and dairyman also. There is a big enough field in either specialty to keep the brain of any ordinary man fully occupied in its management. The details of managing a herd of cows for the economies of production of milk and butter vary widely from those required for the production of breeding animals of eminent individuality. The mere amount of capital required by a conscientious breeder to enable him to select and reject for the best result would in itself be sufficient to place most farmers at a competitive disadvantage as breeders.

So for as my observation goes, it may be put down as practically impossible for any farmer to hope to buy such a herd of special-purpose cows as will be able to return him the most profit. He has got to breed his herd. To this extent he must be a breeder, and when he sets out to do this, the question of individuality in the bull becomes most important. It is very evident that there are lots of farmers, who are satisfied to use an inferior animal of the breed they prefer, simply because it is known to be a thoroughbred, and perhaps, low in price. If this were not so, eminent breeders would not retain in their herds so many inferior breeding females.

If a man is going into dairying for profit, the greatest mistake he could make would be to not buy the best bull he can get. The value of a really fine bull, one that is strongly prepotent for dairy farm products, is very great. It is within reason to suppose that a good bull may directly impress his qualities on five hundred cows during his life time, if utilized thoroughly, to say nothing of his influence through his male progeny. If that is so, a good bull ought to be worth a good deal of money. Three good bulls used successively, along with intelligent feeding and care, ought to bring up the cows of a district well into the three-hundred pound list. A three-hundred pound cow is certainly worth four times as much as a hundred and fifty pound cow, and a herd of the former capability is worth quite a little fortune to any farmer. Is there any other way in which a farmer can make that fortune so quickly and so easily as by grading up his herd by using good bulls?

One is never too old to learn, and one thing I have learned in grade breeding is not to start with cows that have too strong a tendency that may be in conflict with the tendency of the bull and his family. If you are going to breed for butter, don't start with big milkers for dams. The chances are that in the product you will get the small quantity of the butter stock, and the poor quality of the large milker. It is only the exception in which one finds so many virtues in one cow, as large quantity, richness in quality and strength of constitution. If these three virtues are present, you are pretty sure to find some other points defective. One must not expect all the virtues in one cow or in one man.

If I were going to start over again in grade breeding, I would not buy the cows I did. I would get plain, every-day sort of cows, of fair size, good sized teats and well shaped udders, easy milkers, very strong and healthy, with hearty appetites and mild dispositions. If, with these characteristics there could be secured a rich quality of milk, nothing more could be asked. Breed such cows to a fine butter bull; feed them right, and rebreed their progeny to blood of equal merit. Then there could be no doubt as to the result, with a moderate amount of selection and rejection in the progeny. The great law of "like producing like" would prevail.

It seems to me that there is one exception to the general objection to crossing markedly divergent tendencies. Thus, if the object is to increase the flow of milk and secure increase of size in butter cows, a cross of a milk breed bull, like Ayrshires and Holsteins, on the smaller butter grades, would result in either no harm, or else in positive good. The quantity would not be decreased, and would likely be increased, though with decrease in quality. The reverse would be the likely result by putting a butter bull on to large milkers; anyway, that is the result of my experience. Cows that are suitable for starting practical herds for profitable butter production can be bought cheap enough anywhere, (it would not be a bad idea to use the Babcock test in selecting them) and the right kind of bulls can be bought, but hardly for $50, which most farmers think a big price for a bull. No, a good bull is not so easy to breed or to find, and when found is worth a big lot of money. Those dairymen who realize that fact and act accordingly, will be likely to lead the procession before many years pass.

J. M. W. KITCHEN, M. D.
New Hampshire.

Important Information for Farmers.

Dilution Separators.

(Press Bulletin.)

Information comes to the Experiment Station that agents are inducing Wisconsin farmers to invest in patented devices for raising cream on milk by the addition of water to the fresh milk. This system of cream raising is not new and cannot be patented, though particular devices may be; it has been tested over and over again by Experiment Stations and found valueless. Every farmer who puts money into this business will lose his investment. Our warning is to have nothing to do with agents selling devices for raising cream by the addition of water to fresh milk. In adjoining states agents have already taken tens of thousands of dollars from the farmers, and they are just beginning to work the state of Wisconsin.

W. A. HENRY.
Wisconsin Experiment Station.

An Appreciative Letter.

ED. HOARD'S DAIRYMAN:—In the last number of the DAIRYMAN, December 1st, I have read with more than usual interest the letter of John Armstrong, of De Smet, South Dakota. I am sure every dairyman, who is trying to get on in the world and is reading your valuable paper for the solid instruction they are able to get from it, will feel under obligations to Mr. Armstrong for his contribution and especially his table of comparative feeding value of grains.

I hope we may hear from him again in the near future, for such letters are helpful.

Evansville, Ind. BRYON PARSONS.

CLEVELAND ON OLEO.

There are two classes of men to whom the following message of Grover Cleveland to Congress would apply: First, those who claim that this fraud is in the interest of the poor. Second, those who do not deny the fact that government must stand steadfast in its defense of the interests and sympathies of consumers and producers of honest food. If this is not done such neglect will surely

bring ruinous political reverses. President Cleveland evidently had his ear attuned to a clear understanding of the popular rights involved in this matter and we make the following extract from his message, merely premising that the present tax does not afford that protection to the consumer which Mr. Cleveland so forcibly and so clearly sets forth as his right, and as a con sequence "the entire enterprise is a fraud and not an industry."

If this article has the merit which its friends claim for it, and if the people of the land, with full knowledge of its real character, desire to purchase and use it, the taxes exacted by this bill will permit a fair profit to both manufacturer and dealer. If the existence of the commodity taxed and the profits of its manufacture and sale depend upon disposing of it to the people for something else which it deceitfully imitates, the entire enterprise is a fraud and not an industry; and if it can not endure the exhibition of its real character which will be effected by the inspection, supervision, and stamping which this bill directs, the sooner it is destroyed the better in the interest of fair dealing.

Such a result would not furnish the first instance in the history of legislation in which a revenue bill produced a benefit which was merely incidental to its main purpose.

There is certainly no industry better entitled to the incidental advantages which may follow this legislation than our farming and dairy interests, and to none of our people should they be less begrudged than our farmers and dairymen. The present depression of their occupations, the hard, steady, and often unremunerative toil which such occupations exact, and the burdens of taxation which our agriculturists necessarily bear entitle them to every legitimate consideration.

Nor should there be opposition to the incidental effect of this legislation on the part of those who profess to be engaged honestly and fairly in the manufacture and sale of a wholesome and valuable article of food which by its provisions may be subject to taxation. As long as their business is carried on under cover and by false pretenses such men have bad companions in those whose manufactures, however vile and harmful, take their place without challenge with the better sort in a common crusade of deceit against the public. But if this occupation and its methods are forced into the light and all these manufactures must thus either stand upon their merits or fall, the good and bad must soon part company and the fittest only will survive.

Not the least important incident related to this legislation is the defense afforded to the consumer against the fraudulent substitution and sale of an imitation for a genuine article of food of very general household use. Notwithstanding the immense quantity of the article described in this bill which is sold to the people for their consumption as food, and notwithstanding the claim made that its manufacture supplies a cheap substitute for butter, I venture to say that hardly a pound ever entered a poor man's house under its real name and in its true character.

While in its relation to an article of this description there should be no governmental regulation of what the citizen shall eat, it is certainly not a cause of regret if by legislation of this character he is afforded a means by which he may better protect himself against imposition in meeting the needs and wants of his daily life.

DAIRY MARKETS.

ELGIN, Ill. Dec. 11—120 tubs offered; 75 sold at 26c. Market firm at 26c.

CHICAGO, Ill., Dec. 11—Butter—Extra creamery, 25c; firsts, 21@23c; seconds, 17@18c; imitation creameries, 19@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 17@17½c; roll, 16½@17c.

Cheese—Full cream, Twins, good to choice, 11¾@12c; off grades, 9@10c; Young Americas, 12c, Cheddars, 11¾c; Swiss, 12½@13c; Limburger, 10@12c; Bricks, 10@12c.

Eggs—Strictly fresh, held fresh, cases returned, 20c; city cooler stock, 12@13c; country, 10½@11c.

Bran—Demand light and values steady. Trading confined to one car, billed through at 12.75.

Cattle—The few fancy cattle offered sold steady, while the general market for beef cattle averaged about 10c lower. Native butcher and canning stock ruled steady, and feeding cattle sold at last week's closing prices. A load of 1,480-lb. Angus steers sold at 7.50, or 10c above the previous highest price this year. Six loads averaging 1,351@1,730-lb. steers, at 7.15@7.25, the lightest average at the highest price. Steers averaging 817@1,030 lbs. sold at 4.10@7, bulk at 4@6.15. Corn-fed Western steers sold at 4.50@6.30; bulls, 5,50@5.90. Straight Texas sold at 4.10@5.75, with Iowa and Illinois fed Texas at 4.60@5 00; canning cows sold at 2.25@3.20; fat cows at 3.35@4.25, fat heifers, 3 00@4.75; bulls, 2.85@4 40; veal calves, 6@7.40, and feeding cattle, 3.40@4.50.

MILWAUKEE, Wis, Dec. 11—Butter—Creamery fancy prints, 20½@21c; extras, 20½c; firsts, 25@20c, seconds, 22@24c; imitations, 20@21c; roll, 16@18c. Dairy—Selections, 21@23c; lines, 18@21c; ladles 16@18c.

Cheese—American full cream—October flats, 11½@12c; July, August and September, 11c. Brick, 11@11½c. Limburger, 11@11½c. Swiss, Drum, 12½@13c; block, 12½@13c; No. 2, 10½@11c.

Eggs—Fresh per doz 17½@18c, loss off, cases returned; cold storage, 14@16c.

PLYMOUTH, Wis., Dec. 5—Cheese—Sales today were 470 Twins at 11c, 100 Americas at 11¾c, and 45 at 11¼c, 69 Daisies at 11⅝c.

SHEBOYGAN FALLS, Wis., Dec. 6—Eleven factories offered 447 boxes of cheese on the call board to-day, and all were sold as follows: 155 cases Young Americas at 12⅛c, 130 at 12c, 80 Daisies at 11¾c and 82 Twins at 11⅛c. The market was unusually active on Americas. Hereafter until further notice the board will meet every two weeks. Next meeting, Wednesday, Dec. 20.

MANITOWOC, Wis., Dec. 6 Offers of cheese at the Dairy Board to-day were 250 boxes Daisies, 75 boxes Twins, 200 boxes Young Americas. All offerings sold at 11c.

HORTONVILLE, Wis. Nov. 30—Cheese—Offerings to-day were 49 Cheddars and 639 Twins. Sales: 49 Twins, at 11⅛c and 35 Twins at 11c. Market moderate. This is the last meeting of this season.

NEW YORK, Dec. 11—Butter—Best, 27c.
Cheese—Unchanged.
Eggs—23½@25c for best.

WATERTOWN, N. Y., Dec. 2—Cheese—The sales of cheese were: Large white 375 boxes at 11¾c; small singles, 250 at 12c; Twins, 150 at 11¾c; Stiltons, 270 at 12c. There are still over 5,000 boxes of cheese in factorymen's hands in Jefferson county.

UTICA, N. Y. Dec. 4—Cheese—The Utica Board of Trade to-day, had its final meeting for the season of 1899. The transactions, as officially reported, were as follows: 41 lots comprising 2,702 boxes at 11@12c.

The transactions on Dec. 6th, 1897, were 3,308 boxes, with the ruling price 7c. The transactions on Dec. 5th, 1898, were 2,736 boxes, with the ruling price for large, 9c, and for small, 9¼c.

Butter—The sales of butter to day were: 57 packages at 27c, 30 crates of prints at 28c.

BALTIMORE, Md., Dec. 11—Butter—Market firm; creamery separator, extra, 28@29c; extra, first, 26@27c; creamery, first, 24@25c; creamery imitation, extra, 22@23c; Iowa and Northwestern ladle, extra, 20@21c; extra, first, 18@19c; first, 16@17c; Western store packed, 15@16c; creamery rolls, (2 lbs.) 25@25c.

Eggs—Market steady; strictly fresh stock, 21c.

PHILADELPHIA, Pa., Dec. 11—Butter—Solid packed, separator creamery, extra, 27c; firsts, 26c; seconds, 22@24c; imitation creamery, extra, 21c; firsts, 18c; seconds, 16@17c; ladle-packed, extra, 17@18c; firsts, 16c; seconds, 15c. Print butter, creamery, extra, 28c; firsts, 26@27c; seconds, 24@25c.

Eggs—Pennsylvania and near by, 22c; Western, 22c; Northwestern, 20c; Southern, 19c.

WASHINGTON, D. C. Dec. 11—Butter—Market firm; extras, 27½c; fine, firsts, 25c; fancy Junes, 25c; imitations, 20½c.

BOSTON, Mass., Dec. 11—Butter—Market steady, 27@27½c.
Cheese—No change in cheese at 13c.
Eggs—Held eggs dull, 15@16c; fresh, 22@25c.

NEWARK, N. J., Dec. 11—Butter—Market steady, 27c for strictly extras. Fair receipts. Fresh creameries not quite extra.

NEW ORLEANS, La., Dec. 11—Butter—Market firm on all grades. Unchanged prices.
Cheese—Unchanged.
Eggs—Storage eggs, 15c.

ST. LOUIS, Mo., Dec. 11—Butter—Steady; creamery, 24@27½c; dairy, 19@25½c.

KANSAS CITY, Mo., Dec. 11—Butter—Creamery, 22@25c; dairy, 18c.
Eggs—Fresh, 16c.

CINCINNATI, O., Dec. 11—Butter—28c.
Cheese—Quiet; good to prime, Ohio Flat, 12½c.
Eggs—Steady; 17c.

BALTIMORE MARKET.

BALTIMORE, Dec., 7—Butter—A steady but rather quiet market has been the experience of the trade generally during the past week. Former quotations are well maintained, and as the receipts continue very light there is a confident feeling and a strong undertone to the situation. High grade creamery butter still occupies the favorite place in the list, and is moving into consumptive channels upon arrival. The test of quality is still applied, however, with much rigor, and none but best marks can command the outside figure. Choice fresh gathered cream goods are still inquired for daily and continue to arrive in quantity much behind actual wants. While twenty-fivecents is our extreme quotation for this class of stock, occasional favorite and well known marks command a premium of a fraction. No fine imitation creamery or choice ladles are making their appearance, except in such diminutive parcels as almost to escape notice. The general run of ladles coming forward are poor in quality and neglected. Standard goods from Iowa are wanted and would sell at remunerative prices. Choice Ohio or Indiana roll butter is still in active demand, and receipts continue below the requirements of the trade. Store-packed butter very scarce, and receipts are quickly taken. Common butter for Christmas baking is hunted for quite industriously now and would sell for good prices if found.

Creamery Separator, extras 27@28c; firsts, 25@26c; seconds, 23@24c. Creamery Gathered Cream extras, 24@25c; firsts, 23c; seconds, 21@22c. Creamery Ohio extras, 24c; firsts, 22@23c; seconds, 20c. Creamery imitation, firsts, 19@20c, seconds, 17@18. Iowa & N.W. Ladle, firsts. 18c; seconds, 16c. Ohio & Indiana Ladle, firsts, 18c; seconds, 16c. Ohio Rolls, extras, 19; firsts, 18c; seconds, 16@17c. W. Va. Rolls, extras, 18c; firsts, 17c; seconds, 15@16. Ohio & W. Va. store-packed, extras, 17c; firsts, 16c; seconds 15c; Creamery Blocks (2lb), extras, 20c; firsts, 27c; seconds, 25@20c. Creamery Prints (½lb), extras, 29c; firsts, 20c; seconds 25@26c. Md., Va. & Penna. Prints, extras, 24@25, firsts, 22@23, seconds, 20@21c.

Cheese—Receipts are rather light; demand fair, market firm.

N. Y. State—Cheddars, fine, 12¾@13; choice, 12¼@12¾c; fair, 11½@11¾c; Flats, fine, 13@13¼c, choice, 12½@12¾c, fair, 12¼@ 2¼c. Small, fine, 13½@13¾c; choice, 13@13¼c, fair, 12¼@12¾c Ohio Flats, fine, 12½@12¾c, choice, 12¼@12½c; fair, 11½@12c. Ohio Picnic, fine, 13@13¼c, choice, 12½@12¾c, fair 11½@11¾. Swiss cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11.

Eggs—Receipts of fresh laid eggs are a shade more liberal, but the demand has been sufficient to keep all strictly fancy marks closely cleaned up; the only lots that are discriminated against are so called fresh; our market on all good to fancy fresh stock is steady at 21 cents.

MANCHESTER, ENGLAND MARKET.

MANCHESTER—Although the official rate for Danish is wired unchanged from Copenhagen, the basis rate has been raised 2 pence to 3 pence by Danish exporters. Manchester had a brisk market on Tuesday with an all round advance, and the market was cleared. Reports from all centers in Great Britain say demand is brisker and stocks cleared. In the States and Canada prices maintain themselves firmly and offer no margin for export to Europe, prices here not realizing American home prices. Full asking rates will be obtained here next Tuesday as supplies are limited. Finnish shipments, 993 casks to England; 1,070 to Denmark; whilst Danish and Swedish coming, total 17,395 casks. An active demand rules for margarine and mixtures. Imports *via* Hull, 11,873 packages, and *via* Grimsby, 6,015 packages. Irish creameries in small compass, and best brands realizing close on a par with Danish. DOWDALL BROTHERS.

LIVERPOOL, Dec. 11—Butter—Finest United States, 94s; good, 73s.
Cheese—American finest white, 57s; American, finest colored, 58s, 6d.

The Difference Between Cream Separators.

On paper, in newspaper advertisements and in circular matter all separators are very much alike. The "Alpha-De Laval" machines set the pace. Their makers claim what is true of them. Every would-be competitor forthwith lays claim to exactly the same things. He would have to shut up shop if he didn't.

But the difference shows in the use of the machines—in the results accomplished. It is one thing to claim and another to fulfill. The "Alpha-De Laval" machines more than fulfill every claim made for them. Every user who uses a machine right can bear out this statement. But no user of any other machine, who knows what he is doing, can honestly or conscientiously say that it fulfills the claims made for it.

That's where the difference comes in between separators—where it counts most.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

For Sale—Guernsey bull calf, will sell cheap, 3 months old. Address W. L. MILLER, Butler, Pa.

Wanted a position by an experienced butter and cheese maker. Student of Cornell Dairy School. Best of references from late employer. Address EDGAR BARNES, Linwood, N. Y. 44-tf

For Sale—Cheesemaking outfit, consisting of 5000 pound vat. 2 gang presses, 12 hoops, curd sink, curd mill, knives, box machine, tinware, etc., all in good repair. Also 650 pound De Laval cream separator in good working order, nearly new, will sell separator separate from balance. Bargain for some one. MASON LEONARD, Birmingham, Mich. 44-2

Big Assignee Sale—20,000 fountain penholders with pens complete, guaranteed one year. Must be sold to raise cash. 35c each, or three for $1.00. Send no stamps. LOOPER CO. "F." P. O. Box 526, Milwaukee, Wis.

For Sale—One 2-horse tread power and a No. 113 Ross shredder. Both in first-class order. Address WILLIAM GARRISON, Yellow Springs, Ohio.

For Sale—The entire contents of a modern, up to date farm creamery, 400-lbs. U. S. Separator, 25-gal. cream vat with ice compartment, 35-gal. Davis swing churn, 4-ft. V. F. M. butter worker, creamery sink with partition, 50-gal. milk vat, 6-bottle Babcock tester The above goods were made by the Vermont Farm Machine Co. of Bellows Falls, Vt., and have been used only since last May. The owner will warrant them to be practically as good as new. The goods can be run either by hand or power. Will be sold cheap. Address JAS. H. McDERMOTT, North Bridgewater, N. Y. 44-4

For Sale—18 choice grade Jersey cows. Part already fresh, the others soon to be. PRAIRIE VIEW DAIRY FARM, Decatur, Mich. 44-2

Dairyman in thriving town in eastern North Carolina, with small herd of Jerseys, desires to add poultry and trucking, and let to a competent man on shares. Do not write unless you have experience and good references. N., care Hoard's Dairyman. 44-2

Wanted—A butter and cheese maker to invest in and operate a plant. Splendid chance. Write quick to McDOWELL, Cass City, Mich.

Creamery for Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

For Sale—A milk route. Over 5 cans retail at 6 cts. per quart. House, lot, and everything included in sale. First class. $2,200 cash, or will trade for land in Northern Ill., or Southern Wisconsin. Address P. H. DONEGAN, 2322 Harvard St., Chicago, Ill. 44-2

For Sale—Four registered Gueresey bull calves and 8 high-grade heifers. Address J. D. POWERS Fort Atkinson, Wis. 43-2

For Sale—Guernsey reg. bull calf and Chester White swine. GEO. BURLESON, Sumner, Wis. 43-tf

For Sale—White Plymouth Rock cockrels, pure bred; also high grade Holstein bull calf 6 mos. old. Prices reasonable. Address R. CROSSFIELD, Fort Atkinson, Wis. 43-2

For Sale—A herd of fine grade Jersey cows. Address J. N. JONES, West Salamanca, N Y. 43-2

For Sale—Dairy farm, 500 acres, 40 cows, reg. and grade Jerseys. Business for 100 cows at fancy prices Good opening for a company. Paying now 7% on price. Reason for selling, have other business. Address "F," care Hoard's Dairyman. 43-2

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

For Sale—Three fine Guernsey bull calves, by SEBASTIAN HELLER, Calumetville, Wis. 35-tf

Fine Dairy and Creamery opportunity, South. Inducements offered. P. O. BOX 281, Atlanta, Ga. 42-tf

A. B. C. in Butter Making—For private dairymen, young creamery butter makers and managers. Sent postpaid on receipt of 50c, stamps or M. O. J. H. MONRAD, Winnetka, Cook Co., Ill. 42-3

Wanted—Copies of HOARD'S DAIRYMAN previous to Vol. 20, either bound or unbound, complete sets or single numbers. Address, stating what you have to offer, with price, H. H. WING, Cornell University. Ithaca, N. Y. 41-4

Any Creamery wanting a first-class butter maker of experience in managing a creamery, one that can furnish best of references as to reliability and work, address No. 25, care Hoard's Dairyman. 41-5

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

From a Northern Michigan Dairyman.

Inquires about Quaker Oat Feed.—Reports the Constituents of his Ration.—Does the Tuberculin Test Injure Cows?

ED. HOARD'S DAIRYMAN:—In working by your analyses of November 3, 1899, am short of Quaker oat feed; if you have same, should be much obliged if you would either publish or forward same. I am using it largely as it is cheaper than bran in dollars and cents and am inclined to think it is in feeding.

How does 50 lbs. ensilage, $2.50; 5 lbs. clover hay, $8; 4 lbs. gluten meal, $20, and 5 lbs. Quaker oat feed, $14, compare for a fairly well balanced ration and economic feed? As I figure above ration, it has dry matter, 22.972 lbs.; protein, 2.447 lbs ; carbohydrates, 11.517 lbs.; and fat, 1.015 lbs. Cows weigh 1200 lbs.

I am informed that the Lansing Experiment Station stand ready to prove that the Tuberculin test injures milch cows in their production of milk, even when there is no reaction. This has been my experience. I have weight of milk cows have given the last ten years, so have a little to figure from.

Menominee, Mich. W. S. CARPENTER.

Replying to the questions above submitted by Mr. Carpenter, we have to say that "Quaker Oat Feed" was omitted from our table for the reason that hitherto it has been of such varying quality that one could not determine just what its analysis or feeding value might be. We have been given to understand that the manufacturers of this feed either have or soon will put it upon the market with a guaranteed analysis.

Something more than a year ago the Hatch Experiment Station of Massachusetts collected various samples of this feed as it was on sale in different places in Massachusetts and their analyses of these samples showed a protein content varying from 7.63 per cent to 11.68 per cent; the fat content varied from 2.61 to 3.79 per cent. The average of the nine samples was 10.11 per cent protein and 3.21 per cent fat. The amount of carbohydrates is not given. In another place in the same bulletin they class Quaker oat feed among the starchy feeds and give it an estimated nutritive value of 85, corn meal being 100. Wheat bran is classed in the protein feeds and is assigned the same relative value.

Concerning the ration fed we should make the total figures somewhat larger than those given by Mr. Carpenter. We apprehend that he gives to silage the general average value rather than what is called in our table the Wisconsin analyses. It has long been our opinion that the general average assigned to silage is below its real value as it is made in these later days and especially that made from northern grown corn. If it were not for the circumstance that Mr. Carpenter's cows have a warm stable and are thoroughly cared for in other respects, we should incline to the opinion that the amount fed was hardly sufficient for cows weighing twelve hundred pounds; but good care and warm stables very sensibly reduce the amount of feed that would otherwise be required.

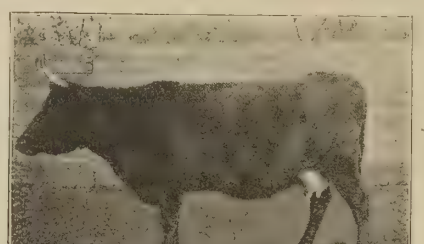
In regard to the effects of the tuberculin test, we can only say that the overwhelming preponderence of testimony at the present time is to the effect that it is not injurious. Personally we have tried it but once and then on our entire herd, but without discovering any unfavorable results. This was due perhaps in a measure to the circumstance that the administrator of the test was one with whom the cows had been daily familar for a long time and he was able to apply the test without creating so much excitement as would have been created had a stranger come into the herd and operated in the same way. Good dairy cows are extremely sensitive as well as sensible animals. They are extremely suspicious of strangers until well assured that they are to be their friends.

However, if the Michigan Station or Mr. Carpenter have any facts tending to prove that the tuberculin test is injurious they owe it to the country to make these facts public.

A Study in Milk Production on the Dairy Farm.

Testing Cows at the Farm.

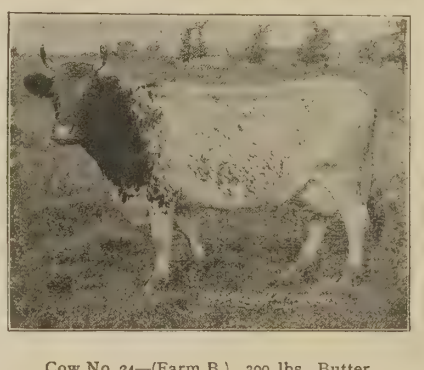
The Wisconsin Agricultural Experiment Station issued a bulletin, (No. 75, June 1899) under the second of the above titles, but it seems to us it might most appropriately have borne the more comprehensive title we give it in this review. While it does, in fact, treat of Testing Cows at the Farm, and proves that this can be done with satisfactory exactness and with, practically, inconsiderable expense, whether of time or money, and thus does away with the excuse that many farmers give for not testing their cows, its more important lessons are that it is optional with the individual farmer to produce milk with profit or at a loss, and in case of profit,



Cow No. 1—(Farm A.) 345 lbs. Butter.

that it may vary from a few cents per cow for the year, to $23.00 or more, even under the conditions now existing on the average farm, without blooded stock or special feeding.

For nearly five years now, the Dairy School Creamery, which is a department of the Wisconsin Agricultural Experiment Station and the College of Agriculture, has been supplied with milk from about 400 cows, on nearly fifty farms located within eight miles of the creamery. For the year ending July 31. 1898, a series of tests were made with the herds of six patrons, who never before kept



Cow No. 24—(Farm B.) 309 lbs. Butter.

any record of the yield or quality of the milk of their cows. In the language of the bulletin, which is written by Prof. Farrington, and under whose supervision the tests were made: "There is nothing abnormally above or below the average creamery or cheese factory patron's outfit on these farms, and the fifty cows which have been tested are undoubtedly a fair sample of those that supply milk to a majority of the factories in Wisconsin."



Cow No. 34—(Farm C.) 360 lbs. Butter.

For reasons stated in the bulletin, the records of these tests, for two of the herds, were incomplete, and they are not included in the published report. Full details of the methods pursued in making the test, are given, but although important and interesting, cannot be reviewed here for want of space. The farmers were paid for the milk on the basis of one-half cent less per pound of butter fat, than the average monthly Elgin market price of butter. At this rate, milk, testing 4 per cent fat would be paid for at the rate of 70 cents per hundred pounds, when the Elgin price of butter was 18 cents. The average price for such milk for the twelve months reported is a fraction over 75 cents per hundred pounds; the average monthly price of butter having been 19.32 cents.

There are several tables in the bulletin, giving a great deal of interesting and valuable information, but the following are the most pertinent for our present purpose:

FARM A.

Cow No.	Age Yrs	Milked days	TOTAL PRODUCTION LBS. Milk.	*Butter.	Factory Value of Milk.	Value of Fat Per Lb.
						Cts.
1	7	303	6,182	345	$ 53.35	18
8	5	273	5,706	262	43.40	19.3
5	6	282	6,203	285	42.74	17.5
13	4	303	4 912	238	39.36	19
4	5	310	5,290	237	37.24	18
12	9	301	4,483	208	33.39	19
6	6	304	4,248	205	33.78	19.2
3	8	304	4,528	216	33.26	18
10	9	209	4,061	187	32.13	20
2	10	262	4,546	191	29.04	17.7
7	7	256	4,063	202	28.90	16.9
9	7	273	3,792	171	28.72	19.5
Total..	.....	.....	57 814	2,747	$435.31	
Average	7	282	4,820	229	36.30	
Cr'm'y paid..	.....	.....	.....	.....	421.36	
Average	.....	.....	.....	.....	35.11	

FARM B.

25	6	365	7,887	364	$ 58.21	18.6
23	4	274	6,7 8	3 5	49.55	17.7
24	4	304	5,583	309	49.53	18.7
22	4	316	5,193	3 1	47.89	17.9
21	6	322	6,534	286	44.83	18.2
Total..	.....	.....	31,915	1,595	$250.01	
Average	5	316	6,383	3 9	50.00	

FARM C.

37	10	344	6,779	392	$60.72	18
31	11	304	8,131	378	59.81	18.1
34	8	350	7,654	360	57.56	18.6
42	4	334	6,200	367	55.45	17.5
31	6	344	5,161	329	50.00	17.7
41	12	311	5 870	303	49.76	18.8
40	7	278	6,109	298	44.71	17.4
33	7	304	5,018	264	43.52	19.1
39	10	291	6,561	289	42.52	17.1
36	9	312	5,340	280	42.45	17.6
35	10	302	4 411	259	41.96	18.9
38	8	249	5,440	260	37.96	17
Total..	.....	.....	72,675	3,784	$586.42	
Average	8½	310	6,056	3 5	48.83	
Cr'm'y paid		.....	.....	.....	572 64	
Average	.....	.....	.....	.....	47.70	

FARM D

55	9	318	6,570	350	$55.49	18.5
51	9	295	5,462	274	41.04	17.5
52	7	334	6,274	286	40.37	16.5
56	8	321	4,847	260	39.60	17.7
Total..	.....	.....	23,153	1,170	$175.50	
Average.	8	317	5,788	292	44.12	

*Calculated by adding one-sixth to the weight of butter fat.

Following is the comment on this table in the bulletin:

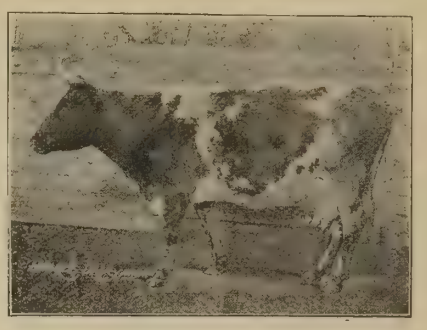
"These figures furnish evidence for discussing many questions on which the great majority of creamery and cheese-factory patrons have more or less positive opinions. Probably very few farmers realize that there is so great a difference in the production of the different cows in one herd, as is shown by these records, but they are, undoubtedly, a fair representation of the 840,000 cows that produce the butter and cheese of this state. As already explained, these cows were all measured by the same standard, the weight and test of their milk for a year. About $10 should be added to the factory value of the milk of each cow, as given in ths table. This represents about the average value of the skim milk, 5,000 pounds at ten cents per 100 pounds, and a veal calf three weeks old.

The extreme variation in the butter value of the cows on the different farms, is shown in the following table:

RANGE IN VALUE OF ANNUAL PRODUCTS.

REC'D FOR MILK OF	Farm A.	Farm B.	Farm C.	Farm D.
Best cow	$53.35	$58.20	$60.72	$55.49
Poorest cow	21.7	44.83	37.96	39.60
Average cow	36.00	50.30	48.83	44.12
No. of cows in the herd	12	5	12	4

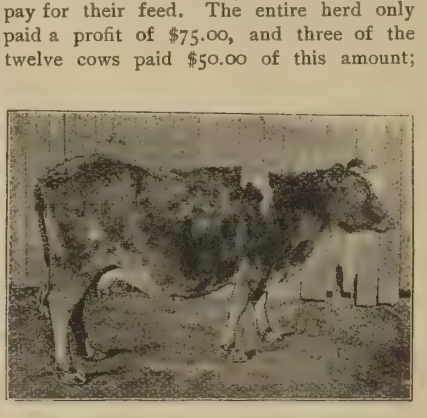
Since each farmer fed all his cows in the same way there is no evidence to show that it cost farmer A any more to feed the cow that paid $53.35 than the one that paid $28.72. But these figures do not mean that cow No. 1 is worth $53.00 and No. 9 $28.00; because if the feed of a cow per year costs $30.00, as shown on page 14, cow No. 1 earned an annual profit of $23.00, but the



Cow No. 8—(Farm A.) 262 lbs. Butter.

farmer lost $2.00 by keeping No. 9. In five years No. 1 would pay $115.00 into the owner's pocket, but if he kept No. 9 during this time a loss of $10.00 must be made up from some other source.

An inspection of the receipts from the twelve cows on each of the two farms, A and C, shows that at farm A there were three cows which did not produce milk enough to pay for their feed. The entire herd only paid a profit of $75.00, and three of the twelve cows paid $50.00 of this amount;



Cow No. 31—(Farm C.) 329 lbs. Butter

while the combined profit of the other nine cows was only $25.00, In this case three cows earned 100 per cent more money in a year than was earned by nine other cows on the same farm.

On farm C, the twelve cows earned a total profit of $228.00, instead of $75.00, as on farm A; but even at farm C there is considerable difference in the cows. No. 38 earned only about $8.00 profit, No. 37 earned nearly $31.00, a difference of about 400 per cent in the annual butter yield.



Cow No. 37—(Farm C.) 392 lbs. Butter.

LENGTH OF MILKING PERIOD.

A few of the cows tested were such persistent milkers that their owners had some difficulty in drying them off. This was especially true of Nos. 6, 31, 34 and 37. These cows were all among the greatest producers. The cows that were dry the longest time were generally the smallest producers. This is shown by the records at farm A, where several of the cows were dry for three or four months in the year. No. 23 is a notable exception, however, as she was dry about three months, and the value of her milk was nearly $50.00 for the year."

Prof. Farrington was kind enough to send us some time ago photographs of several of the cows whose records are given in the fore-

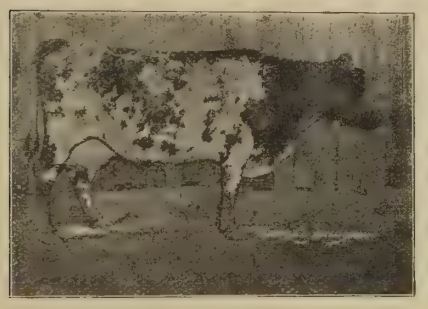
going table, and we have selected a dozen representative animals for the illustrations on this page. There are some surprises when we compare the pictures with the records. For example, we can see no sufficient reason why on Farm A, cow No. 9 should fall so much in the rear and No. 1 come out so far ahead. Our choice in this herd fell on No. 8. It will be observed that this herd made a poor showing, both in the aggregate and the average. The photographs, more than the engravings, indicate that it was not well fed or well cared for. Perhaps No. 1 was the "boss" cow, and therefore managed to fare somewhat better than the other.



Cow No. 9—(Farm A.) 171 lbs, Butter.

Farm B shows a much better record, but this is due, in our judgment, to better care and feed, rather than to better cows. No. 23 has the best record, but 22 and 24 did well, and we selected them for illustration as average types of the herd. Judging from appearance, one would not be likely to have picked 23 for the winner.

Farm C did extra well, on the whole, but the bulletin very properly calls attention to the fact that six cows in this herd paid 60 per cent of the total profit for the year. On this farm the owner kept a careful record of all grain fed to his cows, and his expenses and receipts are given, as follows:



Cow No. 32—(Farm C.) 378 lbs. Butter.

EXPENSES.

*Grain bought during year	$180.00
30 acres corn stalks, $2 00 per acre	60.00
10 tons clover hay, $5.00	50.00
10 acres good pasture and 15 acres woodland	65.00
Total cost of feed	$355.00

RECEIPTS.

Received for milk at creamery	$572.00	
Sold 12 calves at $5 50	66.00	
60,000 lbs. skim milk, 10c per 100 lbs.	60.00	
Receipts exceed feed cost		343.00
	$698.00	$698.00

*The grain feed consists of corn and oats, ground together, corn meal and bran, or about 15 tons of grain at $12.00 per ton.

Presumably, all the cows in this herd were fed alike and it is instructive to compare Nos. 32 and 33. Each was in milk the same number of days, and yet, notwithstanding 33's milk tested higher, she fell off $16.29 in gross income, because of deficient quantity. We account No. 32 the best cow in this herd, although her yield of butter is 14 pounds less than that of 37.



Cow No. 55—(Farm D.) 350 lbs. Butter.

For so small a herd, Farm D presents a wide contrast in the yields of its best and poorest cow. The difference is so great as to suggest that cow No. 56 was not at her best.

Evidence heretofore collected has convinced most dairymen that a cow coming fresh in the fall will yield more milk than if fresh in the spring. The figures given in this bulletin show that the time of freshening has a decided effect upon the average price of her butter fat for the year. This price for cows fresh in September was 19.2 cents per pound; for those fresh in December, 17.3 cents; March, 17.6 cents; June, 18.6 cents.

We have by no means exhausted, or even so much as mentioned, the different veins of pertinent information in this bulletin. To do so would require reprinting practically the whole of it. It differs from other bulletins on somewhat similar lines, in that it treats of herds not under expert management and not made up of selected animals, though we can scarcely agree with Prof. Farrington that these cows constitute "a fair representation of the 840,000 cows that produce the butter and cheese of Wisconsin." The influence of the Wisconsin Dairy School and Agricultural Experiment Station, located in the center of the section where these farms are situated, has not been without effect in raising the average standard of the cows on these farms. The average yield of butter per cow on these four farms was 281.7 lbs., whereas, in the state at large, it will fall far below this—perhaps not exceed 200 pounds.

Pumpkins as Food for Cows.

ED. HOARD'S DAIRYMAN:—I have seen a number of articles in the last year or two, praising pumkins as food for cows giving milk, that I cannot indorse, so I would like the readers of the DAIRYMAN to have the benefit of my experience. I have fed pumpkins (the common yellow sort) to my cows more or less for several years. But the last two have been enough to convince me that they are not the food from which to make a first-class article of butter.

A canning factory located in a town not far from my place, offered two dollars per ton for pumkins delivered at the factory, and two years ago last spring I began to grow them in an experimental way to determine whether they could be grown for that price, and whether they were worth as much or more for cow feed as they were for the factory. I found that they could be grown and made a profitable crop at that price, for I can grow twenty or more tons per acre. In the fall I began to feed them to the cows, and compared them with grain, and with ensilage also, as a succulent food, and I found that two dollars worth of grain would go farther than a ton of pumpkins, fed with hay, corn fodder or ensilage and maintain the flow of milk better.

While feeding the pumpkins the color of the butter was kept up, and when fed in large quantities, the color was increased to a deeper yellow than the market demands. But the flavor and texture were nearly ruined; so much so that a commission merchant in Cleveland, Ohio, who was selling my butter, and had been for some time, wrote me that they could hardly get a bid on the butter I shipped while feeding the pumpkins, saying that it seemed to be void of butter flavor, and was not up to the standard of what I had been shipping them, and wanted to know what was the matter up here. As soon as we stopped feeding the pumpkins there was no more complaint, and the butter was sold without any more trouble.

Last year I contracted to grow a field of pumpkins for the factory, and late in the season I had about twenty-five tons more than they wanted, and they gave me five dollars to keep them at home, and thinking that perhaps, I might be mistaken in my conclusions for the year before, I began feeding them to the cows, which were all fresh in the fall, and in order to feed them all up before they froze or rotted, and with the hope that I might increase the flow of milk, I increased the quantity until each cow was eating four bushels of cut pumpkins per day, and I was unable to increase the flow beyond what they had been giving while feeding grain, and to be sure that the failure to increase the flow was not due to the seeds being eaten by the cows, the seeds were taken out part of the time, but there was no difference. But we had the same trouble about the flavor and quality of the butter as the year before, and I have now come to the conclusion that pumpkins as a butter maker are no good and that it makes no difference whether a bad food is fed before or after milking, it will get into the butter "just the same," and that you can feed flavor into butter just the same as you can put it into cake or ice cream, for I find that cows that are allowed to clean up a tomato field, after the tomatoes are frosted (cows are very fond of tomatoes both green and ripe), will make butter that has a flavor of its own that is not wanted in any market that I know of, unless it would be among the Limburger cheese eaters. But the tomatoes will increase the flow of milk very perceptably, and it has an ancient flavor as soon as drawn and will make one think he does not like milk for fear it is mixed with cod liver oil. J. C. HODGERS.

De Kalb Co., Ind.



Cow No. 22—(Farm B.) 311 lbs. Butter.



Cow No. 33—(Farm C.) 264 lbs. Butter.



Cow No. 56—(Farm D.) 260 lbs. Butter.

"How the Babcock Tests."

HOARD'S DAIRYMAN has been a stout advocate of the Babcock test ever since its invention, as a demonstrator of the butter fat producing capacity of a cow. It has always contended that this was the only fair way to demonstrate that capacity, and when that is known there is no farther need of the churn as a test, for the churn introduces a variable element, water, salt and casein that the cow is not responsible for. In maintaining this contention we have frequently tilted lances with our esteemed contemporary, the *Jersey Bulletin*. In the issue of that paper, however, appears an article from the pen of that veteran breeder of Jerseys, Prof. D. D. Bishop, which ought forever to settle the matter. We take from the same the concluding portion which is as follows.

Prof. Bishop starts out on the thoroughly sound assumption that "Butter fat is the basis of butter," and says:

To keep ourselves within the limits of legitimate increase it is found in practical operation that the churn "*overruns*" *the Babcock*. Everybody knows that, who knows anything about dairying. Yet every little while when some greenhorn pipes up to ask whether a man stands a fair chance of getting as much butter from his milk as the Babcock indicates, a lot of mystery is assumed and he is answered "that depends" on what temperature he churns at; "that depends" upon the churnbaility of his cream; "that depends" upon whether he leaves a large percentage in his buttermilk.

As though the dairymen of the country were in the habit of sloshing green cream into rattletrap machines at zero. It is a poor creamery operator that loses three-tenths of one per cent in buttermilk. The fact is, that the people of this country are so well instructed in "dasher-work" that the patent on one churn ran out in 1853.

An "under-run" by the churn has never been heard of. The only uncertainty is in the other direction, how much a skillful manipulator can "mix," as Dr. Linsley says, with the butter fat.

FACTS FROM CREMERY REPORTS.

To keep along with our friend who insists upon the commercial consideration, the answer to this question may help us: Why was the Babcock adopted by creamery proprietors as furnishing a scale upon which to pay for the patron's milk? The same relative difference subsists between the expert operators inside the creameries as is found with expert testers outside; the statement is copied, "one will leave in from twenty to twenty-five per cent of moisture," and even "make better looking butter of it than another who leaves in but fifteen per cent" Fifteen per cent is considered about right for creamery butter. The percentage of moisture at Chicago was less than twelve per cent.

Outside of this, and in addition to advantage by the sleight of the manipulator, the creamery owner finds himself "to average seven solid pounds of butter to every six pounds of butter fat."

These reports of the "surplus butter product" of the creameries run back to 1896. And now there are literally hundreds of churnings "made" every day. The application is just here:

1. That the sterling quality of the Jersey cow that demonstrates, by showing twelve pounds of butter fat, her production of fourteen pounds of butter, or a similar ratio beyond this weight, shall have a fair chance in securing recognition as to her butyraceous capacity.

2. That no injustice shall be done the large class of Jersey breeders who happen to be situated so that they do not sell their dairy products in the form of manufactured butter.

The mentor of our Jersey family, S. W. Robbins, who has done more for the Jersey breed than any other man in America, by the breeding and dissemination of his stock since the foundation of his herd upon Albert 44, told me recently, that in order to keep the balance of his dairy account on the credit side of the page he had to stop short of "feeding for tests." I know that no member of our State Jersey Breeders' Association sells his products in the form of butter at this time. I do not know of a single Jersey breeder in the state who does. They all sell their milk and sell their cows by the Babcock test to such buyers as C. A. Sweet, R. A. Sibley, Hood Farm, and others whose names I could give.

I submit to the candor and common sense of the fraternity that there is, sometimes, more than one way of knowing a thing.

Asking us to believe that the scientific method adopted throughout the United States, from Cornell University to the outermost territory, is simply magnificent fooling with their splendid equipment, that the creamery owners and patrons numbered by the million are all made fools of, is too much. It discredits the intelligence of the dairy community.

The Tuberculosis Question in New York State.

ED. HOARD'S DAIRYMAN:—The annual meeting of the various leading breeding associations of the state, which has been held in Rochester of late, closed to-day after a most profitable three days' session. There are now three sheep breeders' associations in the connection, and there will hereafter be a swine breeders' association also, but as usual the chief business of importance came up before the Breeders' Association proper, which includes all others, though cattle always lead in its deliberations.

The late transactions, in the war against bovine tuberculosis, have been so determined and sanguinary, that, naturally, all proceedings with which dairymen are connected have that as the principal text. It is noticeable, though, that the tone of the discussions this year, was quite different from that of last year, when the breeder was more or less dazed by the repeated slaughter of the condemned herds. It is now felt by all, that this was a mistake to a great extent, and though it was stated over and over at the Rochester meetings, that every breeder desires to rid his herd of the disorder, and will do all in reason to stamp it out, yet he does object to slaughter as a remedy, so long as it is not known that this will accomplish the task, when the tuberculin test never indicates whether the animal that responds to it is badly diseased or otherwise, and especially when the declarations that the disease is transmitted to the human family are shown not to be proven, and the weight of evidence is on the other side.

P. J. Cogswell, of Rochester, said in the Jersey Cattle Association meeting, that he was convinced that the merely physical test, consisting of close examinations of cows by an expert observer, either a veterinarian or herdsman, would soon prove sufficient to rid any herd of badly diseased animals, and he believed that much could be done in that way now.

It was the general view of the breeders, that the slaughter of the herds was an outrage, at least, in great part, Mr. W. H. Hallock, of Washingtonville, saying that the breeders must be protected from the ignorant, over zealous or malicious state "authority," who orders an animal killed, whether he knows his business or not. Daniel P. Witter, chairman of the Assembly Committee, that was appointed to go over the work of the State Board of Health and report on its methods, gave a strong address before the Breeders' Association, in which he gave an outline of the committee's transactions. He said that its report would be made during the present month, and so thoroughly has it covered the field, that it would embody all the known facts in the case. He noted that everywhere the radical measures had been laid aside, and conservative lines had taken their place. He believed that the bill to be presented by the committee, would be accepted by the breeders.

It is a matter of the deepest regret, that the breeder has staid away from the legislature, especially as it is now believed that if he had been properly represented there, the foolishness of killing so many cattle, without accomplishing anything that is known to be definite, would have been prevented. Mr. E. A. Callahan, of Albany, said that in his work in the legislature, he had always noted that when measures came up that concerned this interest or that, there was always someone there to look after it for that interest, but the farmer never came.

President F. D. Ward, of the Breeders' Association, urged action that would make such a state of things impossible in future, and both this body and the Jersey Association appointed committees to take the subject up, and especially to draft an address to the legislature, stating the views and wishes of the breeders in regard to enforced slaughter of cattle.

Dr. Edward Moore, the Albany veterinarian, read a paper before the Breeders' Association, taking the people very sharply to task who have carried on the crusade against tuberculous cattle. He ridiculed the notion that the disease was a "new" one in any sense. He had known of its existence a long time, yet he had failed to find any literature of more than the most fragmentary sort further back than 1890 that referred to it in more than the most fragmentary way. It was the sheerest guess-work for anyone to make any positive assertions as to the effect of tuberculous beef or milk on the human system, especially in relation to its instrumentality in spreading consumption. The doctor did not believe it possible to do anything of the sort. Not only was there no proof of it, but there was every evidence to the contrary. Nobody could say that country people, who are in contact with herds of cattle, were more consumptive than city people, who did not often see a cow. It was not a fact that there was more consumption in the vicinity of herds that were known to be tuberculous than in other localities. The doctor gave it as his opinion that the bovine bacilli could not be transmitted to the human system. The higher temperature of the ox and his slower circulation ought to be enough to make this impossible.

There is an effort on foot to establish at Buffalo a sort of quarantine that will include a tuberculin test of all cattle coming into that market, especially milch cows, but that will be opposed by breeders and dairymen as well as dealers for it would kill the business and drive it to some other state that has no such law. It is known that certain other states are looking for this chance of seizing the business, in which case no advantage would be gained.

It was noted that the public has apparently a notion that a herd is healthy unless it undergoes a tuberculin test, when it is then suspected whatever the result of the test may be. Mr. Callahan reported a dairyman who lost 80 per cent of his milk customers after his dairy had been tested and given a clean bill or health.

As the New York cattle breeder is at work on dairy lines almost entirely, leaving the beef industry to the west, it was a source of much gratification to learn from President Peer, of the Jersey Association, that there are indications of a dairy boom following the boom in beef, as it is said always to do. A Jersey dairyman had lately been through the beef sections of the west, where he had fallen in with an auctioneer who had been selling beef thoroughbreds at fabulous prices. This western authority had said among other things that he was so entirely convinced that the money in future lay in dairy cattle that if he had money to spare he would lay it all out in Jerseys or other dairy cattle.

It was a matter of especial note that the eastern dairyman, as represented at the Rochester meetings, is not asking his neighbor much about the general management of his herd. He may be interested in that subject and would no doubt take up feeds, cross breeding, potency and many other things of account to the practical and expert dairyman, but so long as the very existence of his herd is still threatened he cannot drop that subject for anything less vital, so that the Rochester meetings were pretty nearly monochromes, being in this respect radically different from the meetings of the sheep breeders, who covered a wide range of subjects and clung to none unduly.

Though the dairyman is beginning to feel out of danger, he is willing to go long distances to be assured again of the fact, so that the cattle breeders were in good attendance at Rochester. All the associations are in apparent flourishing condition.

The Breeders' Association re-elected Frank D. Ward, of Batavia, President, and choose the following additional officers: 1st Vice President, Col. James Ward, Mount Kisco; 2nd Vice President, R. M. Stone, Marcellus; Secretary, F. A. Converse, Woodville; Treasurer, Jared Van Wagnenen, Lawyersville; Chairman Executive Committee, W. H. Chamberlain, Kanona.

JOHN CHAMBERLAIN.

Packing Ice.—Judgement Rendered.

ED. HOARD'S DAIRYMAN:—In reply to ice house questions, I would say my experience is to build all above ground. Put sill on foundation near the ground and fill the bottom above the foundation with coarse sand or gravel, so as to insure good drainage and then floor with plank. For the sides use siding or shiplap outside and common boards inside, then tar paper.

Then take 2×8 for studding, and board inside of this and fill with sawdust, and pack

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Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield.
W. F. McSPARRAN,
Fairfield Stock Farms, Furniss, Pa.

Hood Farm Jerseys For Sale—Solid colored bull, dropped Jan. 22, 1899. Sire, Pedro Signal Landseer, sire of 1 in 14 lb. list, won 1st and headed 1st prize herd at N. E. Fair, 1894. Dam, Leonette, test, 15 lbs. 3 oz., the dam of Leonette's Landseer, one of the most successful sires ever owned in Texas. Won first prize and sweepstakes at State Fair, Dallas, 1897. Write for price to
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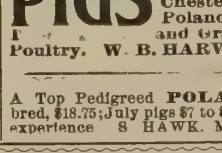
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Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

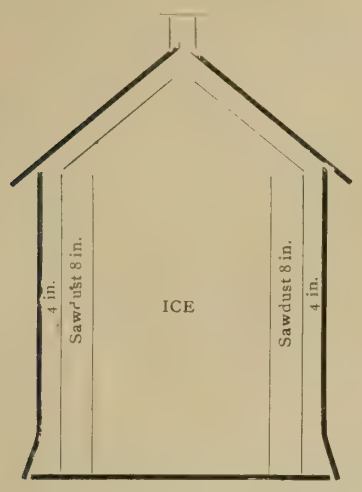
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A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience S. HAWK, Mechanicsburg, Ohio.

the ice against the boards and cover with coarse slough hay. I think this way better than putting sawdust next to the ice. Have the siding flaring out at the bottom to give free circulation of air. See diagram.



Be sure and have ventulator to insure good circulation, as this is one of the essential things about keeping ice.

Of the two cows shown in number 42, I would take My Lady Baltimore to be the best cow. Reasons: First, she is the most feminine looking about the head; second, her incurving hind leg. I like shape of her udder better, as it extends farther forward. I should judge from picture that the milk veins show more prominent in this cow. As to depth of body, I should judge they were about the same.

Shall be glad to learn which is the better of these two fine looking cows.

Minkler, Ia. E. E. SHIPPY.

Judgment Rendered.

We here present another series of letters on the relative value of My Lady Baltimore and Countess of Level Green.

ED. HOARD'S DAIRYMAN:—I see that you ask the readers of HOARD'S DAIRYMAN to pass their judgment on the two cuts of Guernsey cows.

I will say it is a very hard matter for any judge to find much fault with them, as they appear on paper; but I think Countess of Level Green A. G. C. C. 4198, is a little the better cow in dairy points.

She has the best pelvic arch, stifle and flank for a dairy cow, and will last the longer of the two in milk. She also has the best fore and hind udder. If I handled them, my decision might be different, but, the way they appear on paper, Countess of Level Green would be first, and My Lady of Baltimore, second.

I will say too, that if the judges at our state fairs understood thoroughly the diagram of dairy points of cows from the head to the dew-claw, there would be less trouble about the judgment of the cattle at fairs.

I see that some of the readers are discussing the rudimentaries of a dairy bull. For my part I prefer seeing them with them.

If I were judging the two, the one that had them would be my choice. But I would only allow twenty points for the teats on a bull. P. H. R.

Duke's Farm, Somerville, N. J.

I believe My Lady Baltimore to be the better cow for the following reasons:

She has a fine, well shaped udder, extending well to front and high in the rear. Stands well over on her forward legs. Has a strong, full chest. Is wide between the eyes, which shows intelligence. Has a nervous, wide awake appearance. Also has a better shaped tail than Countess of Level Green. C. F. A.

Mauston, Wis.

Under date of December 1st, you gave your readers a hard question to answer, when you asked them to decide between My Lady Baltimore and Countess of Level Green, as they are both beauties; but by what can be seen we give My Lady Baltimore the preference. 1st—On her wedged shaped body. 2nd.—High arching pelvis. 3d.—Shape and size of udder. 4th.—The width the teats stand apart. 5th.—The good shaped tail. 6th.—Her apparent wonderful digestive and nerve development. But we see many good points about Countess, with her high arched flank and dished face. I hope you will give your readers a year's record of those two cows in the near future.

Hannibal, N. Y. J. E. G.

In your issue of Dec. 1st, you have certainly given your readers two splendid types of the dairy cow, to try their judgment on. It seems to me that the points are pretty evenly divided. I like the flank, lungs and heart of Countess of Level Green better than My Lady Baltimore. Their capacity for food about equal, with the favors just a little in favor of Lady Baltimore. Their udders, while of different type, are about balanced as to capacity and form, but in the important point of nervous temperment, I think my Lady Baltimore has the advantage decidedly, and will convert a larger per cent of her food into milk and butter fat, and less into body fat, than Countess of Level Greene, and for that reason she would be my choice.

Corydon, Ind. D. A. J.

My judgment on the two cows published Dec. 1st, is that "My Lady Baltimore" is the better of the two. First, the expression of her eye is better, a broad open nostril, deeper body, well sprung ribs, better shaped udder, extends farther forward, teats farther apart, back bone more prominent and pelvic arch higher. Her general makeup is more rangy, not so blocky as Countess. J. S. Y.

Lysander, N. Y.

Paper of December 1st just at hand. I like cow, My Lady of Baltimore, the best, because of the high pelvic arch, and as the tail hangs straight, there is a greater bend or curve of hind leg. Also, the udder goes further up behind, and has not the round appearance, and, so far as I can judge from picture, has a better barrel, showing greater capacity. Will you inform me what you think of this judgment? H. D.

Williamstown, Vt.

In looking at the cuts of the two Guernseys presented in your number of December 1st, I would select My Lady Baltimore as choice of the two cows, and for these reasons: She has the best set of hips, largest barrel, best formed head, as follows: Neatest shaped horn, large, full eye, and pointed muzzle. The udder is much better proportioned, the teats are well spread on udder of good size; her milk veins are more in evidence; her skin is thinner on the udder, therefore of larger capacity. She will milk easier than the Countess, and will give at least one gallon more of milk per day; the brisket and withers also point to a better proportioned and better formed cow in every particular.

Solano Co., Cal. J. R. B.

Education of Young Men as Farm Managers.

ED. HOARD'S DAIRYMAN:—Occasionally we see in the DAIRYMAN something in regard to educated farm managers. It seems to me this is a subject on which more might be said. Will you please tell us something of what is expected, and what wages are generally paid. Is there a good demand for young men who have lived all their lives on the farm, who understand the care and management of cows, can formulate balanced rations and feed them so as to increase the profit, who understand the growing and harvesting of forage crops, and who are graduates of a good dairy school.

An answer to this through the DAIRYMAN would, I think, be of interest to more than one. YOUNG FARMER.

Marshfield, Vt.

In reply to the above we can hardly hope to define exactly the limitations of what a well educated and well trained farm manager should know or do. Comprehensively speaking, he should be well equipped in a general knowledge of agricultural chemistry as relating to the composition of soils, fertilizers and feed stuffs. He should be an extensive reader of the best agricultural dairy and horticultural papers and books, so as to be in touch with all the best ideas in modern farming. He should make a special study of the foundation principles of animal husbandry. He will be called upon to supply this knowledge as it relates to breeding, feeding and care of animals for the man he works for. They have only a general, but not the necessary technical knowledge, and must depend on their foreman to keep everything in the true furrow.

Last, but not least, he must have practical ability, personal skill to work out in a profitable manner the problems that confront him. This latter qualification comes only through the doing of these things.

For such men there is a constantly growing demand at good remunerative wages. There are a large number of wealthy men in the United States who have a decided taste for rural affairs. They own farms and make a specialty of breeding either horses, cattle, sheep or swine.

They want the best men they can get, and they are not usually backward in paying good salaries, provided they can get men who are big enough to fill the place. Such a man must have, also, the ability to successfully manage hired men. In short, he must do as well, or even better, for his employer than he would for himself.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin board of trade, aggregated 7,200 pounds for which 26 cents was bid. Of this amount 4,500 pounds were sold at that figure, and the market was declared firm at 26 cents. The sales made were:

Factory.	*Pounds.*	*Price.*
Red Clover	1800	26c
McConnell	1200	26c
Derinda	1500	26c
Total	4500	

The sales for the corresponding week of the three preceeding years were:

Dec. 12, '98, 14,850 pounds of butter sold at 2 ½c.
Dec. 13, '97, 4,800 pounds of butter sold at 22c.
Dec. 14, '96, 51,420 pounds of butter sold at 20c,

The New York market Monday was reported steady at 27 cents. H. C. B.

Elgin, Ill, Dec. 11, 1899.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

GUERNSEY BULLS FOR SALE

Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by **OWEN BROS., Portage, Wis.**

Riverside Guernseys, CHAMPION Herd
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** Farm Supt., **Madison, N. J.**

SHORT-HORNS

Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale Write or come and see us.
WALTER LITTLE, Janesville, Wis.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited
FRED TSCHUDY & SON, Monroe, Wis



Buhl Milk Cans
ARE THE MOST DURABLE
And Easiest To Clean.

Our Hand Book, "A Study in Milk Cans" is mailed FREE. Write for it.

Ayrshire Bulls.

We have twelve thoroughbred **Ayrshire Bulls** for sale, of all ages up to 2½ years. They are exceptionally well bred and were raised on North Oaks Farm near St. Paul, of which J. J. Hill is proprietor, Full information as to prices and pedegrees will be given on writing to
W. C. TOOMEY,
Great Northern R'y Bl'd, St. Paul Minn.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to
DELLHURST FARM, Mentor, Ohio.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W HARRISON. Ringwood, McHenry Co., Ill

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

High Test I offer the handsome bull, Chief of Maple Lawn; born Oct. 25, 1898. His dam has an equivalent record of 21¼ lbs. milk averaging 4% during test; butter costing 5½c per lb. Was winner of 3rd prize in H.-F Official Prize Contest. MALCOLM H. GARDNER, Darien, Wis.

SHADY NOOK HERD
HOLSTEIN-FRIESIANS.

6 bull calves, fine breeding; 2 yearlings and one 2-year old. 6 choice cows. Address
W. R. GATES, Prop., Fort Atkinson, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr, Simonsville, Vt.**

The Big 4 at Brookside.
THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26 57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned Write stating exactly what you want.
HENRY STEVENS & SONS. Lacona. N. Y.

Holstein-Friesians.

To dairymen who wish to enrich their herds, or to those who wish to go into **blooded stock,** it will be to their own interest to communicate with us before making any purchases. We are able to supply you with the right material and at prices that will prove a profitable investment from the start. Over **40 Cows and Heifers** have now been placed in our hands to sell, and **20 Bulls** of all ages. All recorded. Address, **KARLEN CO.,** Valley Mead Farm, **Monticello, Wis.**



FINE BLOODED Cattle, Sheep, Hogs, Poultry, Sporting Dogs. Send stamps for catalogue, 150 engravings. N. P. BOYER & CO., Coatesville, Pa.

In the Susquehanna Valley.

ED. HOARD'S DAIRYMAN:—The Susquehanna Valley has become far famed for its beauty and the fertility of its farms, and there is no part of it more inviting or attractive to the stranger riding on an Erie or Delaware and Lackawanna train, than that portion lying between Binghamton and Nichols, a distance of about thirty miles west.

The valley varies in width from a half mile to a mile, through which the grand old river flows, following, most of the way, "the middle of the road" course, as did some politicians on a certain time. At places the valley is so narrow that the old forest denuded hills on either side, come down to have their feet in the deep, blue waters of the the river; at others, it widens out, leaving room enough on either side, before the foot hills are reached, for fine farms, while there are some which extend quite a distance up the hills.

These "bottom lands" are rich in fertility, made so by the avarice and greed of the settlers of one hundred years ago. They came, and at once began the work of destruction, by cutting down the great forests that clutched these "eternal hills," sawing the trees into logs and floating them in rafts down the river to Philadelphia. There was "big money" in the scheme, and, ere long, these hill side forests were gone, and the noble red men with them forced to "move on."

"The plow was on their hunting grounds;
Their pleasant springs were dry."

Then the rains and floods washed the fertility from the hill sides - and are at it yet, for that matter—into the valley, till now it is one of the richest and most productive in the great Empire state. But, alas, for the hills! They are covered in places with a stunted growth of bushes and shrubs, through which fire rages at intervals, almost every year, thus preventing the establishment of another growth of timber, while each year sees the soil grow thinner and more sterile along their sides.

Owego, is situated on the west bank of the river, has a population of about 6,000 Republicans, and a dozen or two of Democrats, and is the capital of Tioga county. At this point the river hugs the east side of the valley quite closely, but there is room enough, a mile and a half upward, for the fine farm of Mr. James Forsyth, the renowned breeder and importer of prize winning Guernsey cattle, and a score or more breeds of chickens; and, so renowned has become the poultry plant at "Riverside Farm," that the exhibitors at most of our fairs, finding that Jimmie Forsyth's" coops have been entered, throw up the sponge and go into their corners.

I am not going into details over this hen part of the farm, except to say there are 70 acres devoted to the interest of biddie, and that when I was a visitor there, there were something like 2,000 inhabitants thereon.

I am indebted to Mr Smyth, editor of the *Owego Times*, for an introduction to Mr Forsyth, who, when he learned I was in Oswego, in the interest of the HOARD,S DAIRYMAN, promptly came to my assistance with an offer to drive out and show me the farm, which offer I accepted without stipulations. It lies on the southeast side of the river at the point in the valley across the Erie R. R. stretches in double tracks; between Mr. Forsyth's grounds and the river, are the D. L. & W. tracks, and at Owego the Lehigh Valley crosses both at nearly right angles, thus affording Riverside farm abundant shipping facilities both for cattle and poultry.

It was a rainy afternoon when I visited the farm, so I had no opportunity to look about except among the barns and poultry buildings, all of which, for a lack of time, we were compelled to give but a hasty glance

How many head in the herd at present? I asked.

About 100, all of which are thoroughbred, registered Guernseys. The head of the herd is Comus 2428. I also have other service bulls, but he is the old prize winner. His sire was Kent, No. 1504, son of the imported Squire of Les Vauxbelets 4th, No. 771. His dam was the imported cow, Susanny, No. 3096.

Among the great prize winning cows in the herd, Mr. F. mentioned Fillpail Des Ruetts 2nd, No. 3864, always the winner of "first" wherever shown. Herself and produce won first at N. Y. State Fair and at Madison Square Garden, in 1896. Selenda 25995, Puff 5th 4482, Harvey Deu of Riverside 8088, Mary Lizzie 8457, La Petite Beatrix 8085, and Betty of Roslyn were also included in the mention.

Puff is an imported cow, as are also Daisy of Worth 9308, and Soucique 9309.

Soucique was a prominent winner in England as a two-year-old, and both she and Daisy of Worth have more than fulfilled their promise since they came to Riverside; the latter milking 55 lbs.; the former, 46 lbs, per day as a three-year- ld.

Have you any tests of some of your best individual cows?

No, Sir; I do not feed one or more of my best cows up to the highest point of production and then advertise the result as a bid for stock. Our cows are fed a ration suited to their individual needs; some more, some less; and we aim to give them properly balanced rations at all times and enough of them, always keeping in view the words "proper condition."

Very many readers of the DAIRYMAN know what the stock is, as we have carried an advertisment in its columns a long time, through which many sales have been made, and purchasers have always found the stock to be as represented, no less, no more.

You have a market for all of the young things, I suppose?

Yes, Sir. As soon as they are old enough to go, if we desire to sell them.

What do you do with the milk?

It is all bottled and goes to New York, selling at highest prices. We make no butter, therefore have no butter tests. The cows all test very high, above 5%, are long in lactation, and give large flows of milk. The large barn has cement floors and gutters, the latter being covered with Stewart's iron grates. It is light and strong and the walls and ceilings nicely sheathed. Each cow has a separate stall and berth; herself and stalls are kept scrupulously clean. There is also connected with the barn a large covered yard, to which the cows have access during stormy weather, and where they get exercise and fresh air every day in winter. On one side of this covered shed an additional stable was not long since built, recent importations compelling him to provide more room. There are also a number of bull pens attached on another side of the building.

There is a large steaming chest on the second floor of the main barn for steaming cut fodder; the steam being furnished by a boiler in an attached building not far from the barn. A large round silo stands in a convenient place near the stable and I noticed a pile of about 600 bushels of husked ensilage corn, surplus, Mr. F. said, lying on the floor in another part of the barn, which looked good enough for seed.

The young stock shown was all in fine condition, large and healthy, and no pains or

School Teachers

and High School students can make their Saturdays and their Winter vacation exceedingly profitable by securing subscribers to

The Ladies' Home Journal
AND
The Saturday Evening Post

An agent does not have to convince one against his will in order to secure a subscriber to either of these unique, high-class periodicals. There is no argument against them. There are innumerable arguments in their favor.

Liberal commissions on all subscriptions. Liberal rebates for large clubs. The larger the club, the larger the rebate.

And in addition to these inducements, we are going to give $18,000 to the 764 most successful agents.
Write for particulars.

The Curtis Publishing Company, Philadelphia

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

HIGHEST BUTTER SCORE 1899.

First Prize.. 98% Sweepstakes,

AWARDED BY

PENNA. STATE DAIRY ASSOCIATION,
West Chester, Pa., Dec. 5th, 1899,

To butter made by E. J. LIKERT, Graduate and Butter Maker, Penna. State College Dairy State College, Pa,

WAS COLORED WITH

Alderney Butter Color

ODORLESS, BRILLIANT, ECONOMICAL,

DOES NOT COLOR THE BUTTERMILK.

Order direct from your supply house. Samples sent on application. Manufactured by

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO: 14 N. Clark Street. BOSTON: 98 Commercial St. PHILADELPHIA: 109 S. Second St.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

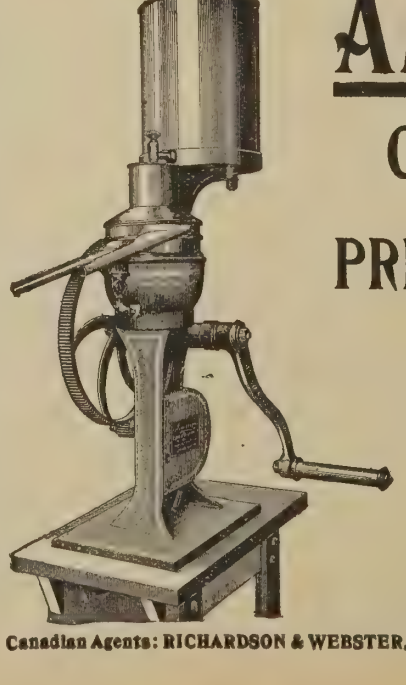
Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
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Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

expense seemed witheld to keep it so. Dr. Edward L. Moore, of Albany, being the employed veterinary in charge, the propretor is at all times enabled to furnish a guarantee as represented in every particular.

The hasty visit at Riverside completed, Mr. Forsyth invited me to ride up to the farm of Mr. Frank P. Tracy, son of General Tracy, of New York. It is located about a mile up the river, from Riverside Farm, but the herd is mostly Jersey.

Mr. Tracy was not at home when we arrived, nor was the herdsman, therefore we had no one to pilot us about; but Mr. Forsyth seemed quite familiar with the barns and knew from whence and where certain individuals of the herd came. Among the cows—the number of the herd I did not note—were some of the Jerseys and Semmenthal cattle, purchased from the great Havenmyer herd by Mr. Tracy. The Jerseys were a beautiful lot of cows, and Mr. F. said the big Swiss cows were also considered very worthy as dairy animals; but I failed to discover what, to me, appeared any outward signs of much milk or butter wrapped in their giant skins. As I remember, it was said at the time Mr. Havenmyer imported these Semmenthals, that his plan was to cross them with the Jersey, for the purpose of making the Jersey contingent cross, larger, if that is a proper way to state it; but I have never learned what the outcome was. Certainly, I did not ascertain it while at Mr. Tracy's place. Mr. Tracy's milk, Mr. Taylor informed me, was bottled and shipped with theirs to New York, and sold for the same price. C. W. JENNINGS.

Belleville, N. Y.

Dairy Work in the Maritime Provinces.

A New Condensing Factory.—Steaming Feed.—Cost of a Hog Ration.

ED. HOARD'S DAIRYMAN.—As a supplement to the cheese and butter business in Prince Edward Island, a condensed milk factory is being rapidly put into operation in Charlottetown and will be in full blast in a few days, The company, in asking for a charter, claim to distribute among the farmers who sell milk $150,000 to $200,000 per annum, and employ from twelve to fifteen hands the year round.

In order for this company to gain the favor of the milkmen, they must pay, and do intend, a much better price for milk than the creameries pay, for the darymen of the Island are all, without exception, share holders of the factories of which they are patrons, and from the fact of their having a money interest in the factories, it will be against their interest to go back on the factory which they, themselves, own and operate. The Condensed Milk Co., therefore, must pay a pretty large margin over the price milk made into butter will net the patron owners. On this account, it is doubtful if the Condensed Milk Co. will become a financial success. Were the factories of the Island owned by private individuals, the success of this company would be brighter.

How they can expect milkmen to sell them their milk, when it is to their interest (the patrons) in every way to utilize their milk in their own factories for butter making all winter, is not quite clear. The only solution, in the premises, is that the Condensed Milk Co. must pay a *very large* margin for milk over what can be realized in creamery work. From this it will be seen that not very large profits are in sight for this new venture in the Island Province. No doubt the Condensed Milk Co., like all other companies of like nature, will be much more particular about the feed the cows eat. Ensilage will not likely be permitted to be fed, nor some other feeds thus used, as allowed in creamery work. The fact, however, of ensilage not being permitted will not be serious, for the number of silos in use on the Island, does not "cut much ice." Turnip flavor will be the greatest trouble, as they form the chief succulence for P. E. Island cows.

I have recently been giving a trial of steamed feed for the cows. Since purchasing a Reliable steam cooker, I am able to give this process of preparing feed for cows as well as hogs, an extensive trial. One thing I have found in steaming pig feed, that the steamed feed is much better than boiled feed for the reason that all the juices of the grain and roots are retained, and do not go off in steam as in the boiling process. In boiling feed, it has been determined that nine per cent of the nutriment (principally the starchy part) passes away in the steam while boiling. This is, I imagine, the reason most of the Experimental Stations have concluded against cooking feed for any of our domestic animals on the farm.

In steaming feed, however, in barrels no loss takes place, and all the original constituents of the feed are retained in the steaming, besides making the food so much more digestible and greatly improving its palatability. Another advantage, and a most important one, is that steaming saves grinding. I do not grind any grain now since I got my steam cooker, and feel certain that I am gaining by the change. This is the reason why I began steaming the grain fed to the milk cows as well as for the hogs, and still another reason is that by steaming I can utilize the straw and chaff and sheaf oats. It has been my practice for some time to feed sheaf oats, cut and boiled and mixed with roots, to the hogs. It was not, however, an easy matter, from their bulk, to boil the cut sheaf oats in the old tank and caldron cooker. Now, however, with the steamer it is a much more easy matter. It will be seen my claims in favor of steaming are, first, saving of grinding; and, secondly, the ability to utilize such roughage as straw, chaff and sheaf oats, to say nothing of the saving of 9% of the nutriment of the grain and its increased palatability.

For hogs, I propose to feed this way: I divide a half bushel whole barley between two barrels, that is, a peck to each barrel, place a nozzel in each barrel and fill up with turnips, splitting and sometimes grating the large ones, attach the hose, and cover with two thickness of salt bags, that is two bags, to keep in the steam. In one hour if the steam is kept in good, the hose is detached, and the barrels are allowed to remain for several hours. The steam should be shut off before the roots are thoroughly cooked for they will continue to cook for some time after the steam is actually shut off. The barrels are emptied into a large box, some wheat bran added, and all thoroughly mixed with an iron shovel when it is ready to feed. By having a tight lid on the box, the mixture will keep warm almost twenty-four hours. This amount of feed will be sufficient for twenty-five hogs for one day. Its cost is:

5 bushels turnips at 6c	.30
¼ bushel barley at 45c	.12½
12½ pounds wheat bran at $20 per ton	.12½
Total days ration for 25 hogs	.65

Cost per hog per day, 2.6c.

The hogs being different ages, it is difficult to estimate their weight. As near as I can estimate, the average weight of the hogs is 150 pounds, the largest weight perhaps 500 pounds, and the smallest 75 lbs. Sometimes I withhold the evening feed (they are fed three times a day) and substitute unmerchantable raw potatoes and some whole oats. Hogs require a change of diet. The same feed at each meal, twenty-one times a week, is not any more pleasing to the hog than to the genus homo. Will such feed make the best bacon? Yes, I think so. It is quite a narrow ration, probably 1 to 5, I have not figured it, but it should make a fleshy hog rather than a very fat one.

As to the method of preparing the cow feed, I must defer it for another time, as this letter is already perhaps too long.

Hermansville, P. E. I. J. A. M.

Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use

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on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

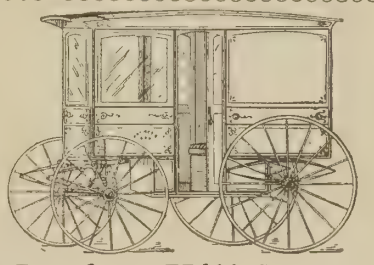
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Honey Pick Up An' Follow Me—Pronounced by Prof. F. Leslie Clendenen, New York City, author of The New World, "the best 'Coon' song that has yet been published," with 1200 word description of gestures and dance for amateurs. Special price to introduce in new localities, 25 cts. (Regular price 50c.) Address author, HALBERT L. HOARD, care Hoard's Dairyman, Fort Atkinson, Wis.

TWO hundred bushels of Potatoes remove eighty pounds of "actual" Potash from the soil. One thousand pounds of a fertilizer containing 8% "actual" Potash will supply just the amount needed. If there is a deficiency of Potash, there will be a falling-off in the crop.

We have some valuable books telling about composition, use and value of fertilizers for various crops. They are sent free.

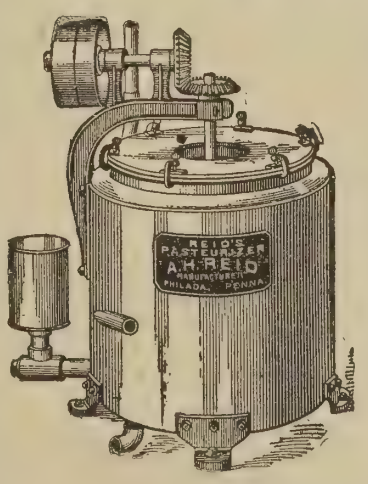
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A Perfect Milk Wagon
On a Perfect Short-Turn Gear.
We make 10 other styles. Write us for Catalogue and Price List.
THE O. ARMLEDER CO.,
CINCINNATI, OHIO.

Rheumatism, Neuralgia, Gout, Lumbago
AND OTHER DISEASES CAUSED BY URIC ACID IN THE BLOOD positively cured. Send for Booklet
THE SWISS-AMERICAN CO
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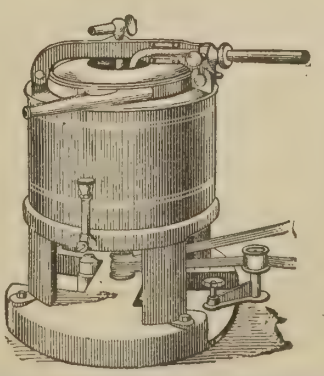
When You Make Butter



from pasteurized cream, you insure it against germs that would spoil it and against odors that would taint it. Your product will be better, keep longer, sell more easily, and at better prices, if you pasteurize your cream with the

REID PASTEURIZER

It is perfectly and durably constructed, the most easily and inexpensively operated machine for the purpose that can be built. Illustrated descriptive circular free. Write for the **REID SEPARATOR** book, or new catalogue.



A. H. REID,
30th and Market Streets, PHILADELPHIA, PA.,
And CEDAR RAPIDS, IOWA.

Butter and Cheese Scores at the Tenth Annual Meeting of the Missouri Dairy Association held Nov. 27-29, 1899, at Holden, Missouri.

Following are the scores of all entries of butter and cheese which reached 90:

CREAMERY BUTTER.

Name and Address.	Flavor.	Texture.	Color.	Salt.	Package.	Total.
Wien Cr'y. Ass'n., Wien, Mo	41	30	9	10	5	95
J. G. Kirth, Crosby, Mo	40	29½	9	10	4	92½
Helena Cr'y, Helena, Mo	40	29½	9½	10	5	94
B. F Wildman, Freeman, Mo	39	29	7	10	5	90
Garden City Cr'y., Garden City, Mo	39	29	7	10	5	90
Holden Cr'y. Co , Holden, Mo	41	30	9¾	10	5	95¾
*Holden Cr'y. Co	41½	30	9	10	5	96½
Corder Cr'y. Co., Corder, Mo	41½	29	9	9½	5	94
*Sweet Springs Cr'y. Co., Sweet Springs, Mo	42½	29	10	10	5	96½
Dit mer, Emma, Mo	40	28½	10	9¾	5	93¾
Emma Cr'y. Co., Emma, Mo	41½	30	9½	10	5	96
*Centerview Cr'y. Co , Centerview, Mo	38½	30	8½	10	5	92
Centerview Cr'y. Co., Centerview, Mo	40½	30	9¾	9	5	95¼
*Sweet Springs Cr'y. Co., Sweet Springs, Mo	41½	29	8	10	5	93½
Sweet Springs Cr'y. Co., Sweet Springs, Mo	40	29	10	10	5	94
*Corder Cr'y. Co., Corder, Mo	40	29½	9½	10	5	94
Concordia Cr'y. Co., Concordia, Mo	39	30	9½	10	5	93½
Joe P. Kelly, Queen City, Mo	38	29½	9½	10	5	92
Mexico Cr'y. Co., Mexico, Mo	38	30	9½	10	5	92½
Graham Cr'y Co., Graham Mo	40	29	10	9½	5	93½
Corning Cr'y. Co., Corning, Mo	41½	30	10	10	5	96½

DAIRY BUTTER.

	Flavor.	Texture.	Color.	Salt.	Package.	Total.
John Patterson, Kirksville, Mo	41	30	9	10	5	95
D. P. Daniels & Son, Vandalia, Mo	40	30	10	10	5	95
Joseph Elliott, Windsor, Mo	41½	30	9½	10	5	96
H. C. Goodrich Calhoun, Mo	41¾	30	10	10	5	96¾
*Nathan King. Deer Park, Mo	41	30	10	10	5	96
Nathan King. Deer Park, Mo	42	30	10	10	5	97
J. C. Baile, Warrensburg, Mo	38	30	10	10	5	93
Mrs. H. W. Roop, Centerview, Mo	38	30	10	10	5	93
Mrs. F M. Engel. Centerview, Mo	38	30	9	10	5	92
Mrs. L N. Yoder. Holden, Mo	41½	30	10	10	5	96½
Mrs. J. F. Middlesworth Holden. Mo	37	30	10	10	5	92
Cedar Hill Jersey Farm, Monmouth, Ill	40	30	10	10	5	95
J. A. Boyd & Son, Foristell, Mo	36	30	9	11	5	90
M. L Brooks, Cavendish. Mo	41¾	30	10	10	5	96¼
Jacob Funk, Holden, Mo	37½	30	10	10	5	92½
Mrs. L. E. Shattuck. Stanberry, Mo	37½	30	9½	10	5	92

CHEESE ENTRIES.

	Flavor.	Texture.	Style.	Salt.	Color.	Total.
W. A. Stevens, Garden City. Mo	37	27	12	8	9	93
Mexico Cr'y. Co., Mexico, Mo	38	29	12	8	10	97
C. Haldiman California, Mo	38	30	12	8	10	98
C Haldiman California Mo	37½	30	12	8	9½	97
G. W. Hicks, Winston, Mo	37	27	12	8	9	93

*Not entered for premium

NEW SUBSCRIBERS AND PREMIUMS.

One of our friends who is interested in the welfare of his neighbors and extending the circulation of the DAIRYMAN, asks if it is necessary in order to secure one of the books offered as premiums, that the required number of new subscribers should be sent in at the same time. This is not at all necessary. Send in the subscribers and when you forward a sufficient number to entitle you to what books you want, make the request, but be sure to state on what subscriptions (giving names) you ask the premium. Premiums are given only on yearly subscriptions at $1.00 each.

Does it Pay to Crowd so Much Feed Through a Cow?

ED. HOARD'S DAIRYMAN:—Will you please give me a balanced ration for my cows, fifty-nine in number, all the milk being manufactured into cheese, which sells, mostly, to local trade.

The cow's ration, at present, consists of 12 lbs. cob meal, cost $9.75 per ton; 6 lbs. oats, cost $13.75 per ton; 6 lbs. bran, cost $12.00 per ton; 15 lbs timothy hay, cost $8.00 per ton. I can get oil meal for $26.00 per ton.

I do not care, unless necessary, to diminish the cob meal, as I keep two hogs per cow; the hogs receive no feed but whey and what they pick from the manure, until six weeks prior to market.

For some reason, my cows are not doing as well as they were two or three weeks ago, and I think you can help me out of the difficulty. I get much help from the practical suggestions which your paper contains, having read it three years. M. C.

Mt. Pleasant, Iowa.

There is some reason to suppose that feeding as above indicated, especially for fattening steers, is not altogether uncommon. It has never happened, however, that we have had just such a question submitted to us for consideration; neither have we had any personal experience in such matters. It does not seem unreasonable to us to question whether there can be any possible profit in requiring a cow to eat and work over so much more feed than she can possibly utilize either for her own maintanance or in the production of milk, simply for the purpose of furnishing feed to swine. It certainly requires energy to masticate this food, to pass it through the stomachs and intestines and select out such as the cow may need. There is no escaping from the conclusion that to produce this energy, feed is required. It seems to us to be a case of useless friction, and while we do not feel competent or disposed to give specific advice to this inquirer we cannot escape the conviction that there would be more profit from the cows if they were fed much less and the food thus saved given direct to the hogs.

Of course we do not think it would be advisable to drop any considerable amount suddenly, but if any changes were to be made let them be made gradually and with regard to the results which might follow them.

We can see no reason why these cows should not give full as much milk, and milk of just as good quality, if they received daily, say 15 lbs of timothy hay, 6 lbs. of corn and cob meal, 6 lbs. of bran and 2 lbs. of oil meal. It would perhaps be prudent to make this change, if made at all, with only a few representative cows at first; weigh the milk now given carefully for four or five days, then commence to reduce the feed and continue the weighing. The great bane of dairy farming everywhere is guess work. In trying this experiment let there be no such mistake.

Ice Houses.—Thoroughbred Cattle.—Choking Cattle.

ED. HOARD'S DAIRYMAN:—Replying to L. S. C., in the DAIRYMAN of December 1st, allow me to say that a pit will not assist in keeping ice, if he puts ice in it. If he puts heavy timbers over it to hold up the great weight that goes into an ice-house, and uses his cellar as a cool room, it is different. I use a cellar of that kind, entering by double doors, from an adjoining cellar. My ice house is 11×11 feet on the outside, with 6-inch posts and studs, sheathed on the outside, and rough boarded on the inside, the 6-inch space being filled with saw dust.

It is but 7 feet from bottom of sill to top of plate, but we put in a little more than 7 feet depth of ice, as the underside of the rafters are rough boarded for about 4 feet from the plate, and we fill in a layer or two more than we otherwise could. The space between the plate and roof boards, between rafters, is left open, and as soon as the sun warms the roof, it starts a circulation of air up between the roof boards and the rough boards, under the rafters, and expels all moist air.

If I were building anew, I should put a stone arch under my ice house with slightly inclined cement floor, to put the ice on. On this floor, I would put planks loose, and sawdust for drainage, with bent pipe outlet to prevent returning air, and have a little pool of ice water in my cellar.

My floor is plank only, and drainage drop at will. We put two or three inches of straw on the floor, and a little sawdust on that sometimes. We use sawdust liberally over the ice, and see that as fast as the ice melts around the outside, the space is filled in. In this way we always have ice as long as we need it, and frequently clear out old ice when we refill.

THOROUGHBREDS.

I was more than pleased with Dr. Kitchen's ideas in regard to thoroughbreds. The temptation on the part of the breeders to raise and sell anything that they can attach a register number to is great, and while I believe in breeding, I would not accept as a gift an animal to put into a dairy herd, that did not show dairy form. In the report of the Delaware County Dairymen's meeting, Mr. Van Dresser touches the same point and to the point, when he says, "Pedigree without merit amounts to nothing." Poor cows should be weeded out of all dairy herds, but the breeder of thoroughbreds should be especially careful not to breed from an off cow, no matter how high she may stand in the herd book.

I have known animals absolutely worthless for dairy purposes bought at a great auction sale of thoroughbred Jerseys with herd book numbers padlocked on showing a pedigree as long as my arm. So long as breeders of thoroughbreds will grow and sell such stock,

Wintergreen Hill A. J. C. C. Jerseys.

SERVICE BULL:
REX OF WINTERGREEN HILL 46645.
SIRE:
NAIAD'S ST. LAMBERT KING 30645.
Sire of Amelia S. King 112862. 16 lbs. 2 oz., and Lucy S. King 106584. 15 lbs. 14¾ oz.; both with first calf.
CANADA'S SIR GEORGE 18290.
Sire of Una of St. Lambert 80117. 16 lbs. 15½ oz.
CANADA'S JOHN BULL 8388. Sire of ten tested cows.
ALLIE OF ST. LAMBERT 24991. 26 lbs. 12 oz. 62 lbs. milk in 1 day; 414 lbs. in 7 days.
NAIAD OF ST. LAMB'T 12956. Official test 22 lbs. 2¼ oz. Dam of Jennie Pogis 22984. 19 lbs 6¼ oz. Full sister to Mary Anne of St. Lambert 9770. 36 lbs. 12¾ oz. in seven days; 867 lbs. 14¾ oz. in 340 days.
STOKE POGIS 3d 2238. Sire of 28 cows averaging over 20 lbs.
LOLLY OF ST. LAMBERT 5480. Dam of three tested cows averaging 25 lbs. 8 5-6 oz.
DAM:
SALLIE OF THE LEDGES 87182.
16 lbs. 6 oz. without forcing. 335½ lbs. milk in seven days; 2400 lbs. milk in less than sixty days.
CROCUS JOHN BULL 21665. Sire of one tested cow.
CANADA'S JOHN BULL 8388. See above.
CROCUS OF ST. LAMBERT 8351. 17 lbs 12 oz. Dam of two tested cows. Full sister to Mary Anne of St. Lambert 9770, and Naiad of St. Lambert 12965.
ETHEL OF SHELBURNE 46285.
14 lbs. 1¾ oz. on winter feed in zero weather; 8548 lbs. milk with third calf.
MIDAS OF OXFORD 5986. Sire of two tested cows. Full brother to Matilda 4th, 21 lbs. 8½ oz. butter in 7 days; 927 lbs. in a year; 60 lbs. milk in one day; 16153¾ lbs. in a year.
ETHEL HUGO 30164. Dam of one tested cow.

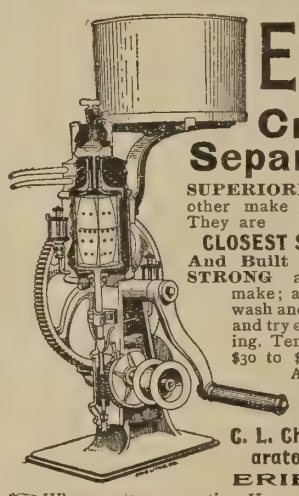
The above bull has 28 5-32% of the blood of Stoke Pogis 1259, through twelve crosses; 43¾% of Stoke Pogis 3d 2238, through eleven crosses, and 15 63-64% of Victor Hugo 197, through sixteen crosses. We offer a few well bred cows in calf to him, also a few young sons and daughters.
Booklet, giving full breeding of bull, and sale list of cattle offered sent on application.
WINTERGREEN HILL FARM CO, Scottsville, N. Y.


WANT A CUTTER?
Let us send you description and picture of our Swell Body Cutter, No. 411. Built of selected stock, first class workmanship throughout, and finely upholstered in raw silk, for ONLY $13.90. Other styles at equally low prices.
EVERYTHING FOR THE FARMER. We can save you money on Corn Shellers, Feed Cutters, Sweep Mills, Horse Powers, etc. Vehicles, Harness and Agricultural Implements. Don't miss our big new catalogue. It is full of money-saving bargains. Sent free.

$4.98 BUYS A STOCK TANK HEATER and we pay freight east of Mississippi river when cash comes with order. The "KAZOO" is the most satisfactory. Made of galvanized steel. Built on new principle. Holds fire and keeps water warm 24 hours. Uses little fuel. Will go in a barrel. Absolutely fire proof.
EUREKA STEAM FEED COOKER saves from ⅓ to ⅓ your feed. Made of heavy boiler steel tested to 100 pounds pressure. Guaranteed to be the best cooker made. Price Only $21.50.

Cash Supply & Mfg. Co., Dept. C, Kalamazoo, Mich.

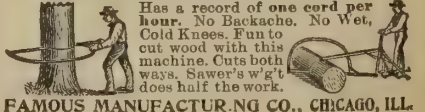
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Greenwood, R. I.
Dealer in Butter, Eggs, Poultry, Hides and Furs, and Wild Animals.


Eclipse Cream Separators
SUPERIORITY over any other make Guaranteed. They are
CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.
Catalogue FREE.
C. L. Chapman Separator Works,
ERIE, - PA.
When writing mention HOARD'S DAIRYMAN

A Sample Copy of The Jersey Bulletin, Indianapolis, Indiana, Can Be Had By Request and An X On A Postal Card.



CHACE'S Watering Device
The most perfect watering device on the market. It is fitted with a brass bushing that screws through the bottom of basin and forms a valve seat for the ball valve. The ball valve is the most practical of any now in use; it has been adopted by manufacturers of injectors for steam boilers, and many devices where a perfect working valve is necessary. Send for circular and price.
F. H. CHACE, Sherman, N. Y.

THE CHAMPION
—ONE-MAN SAW—

Has a record of one cord per hour. No Backache. No Wet, Cold Knees. Fun to cut wood with this machine. Cuts both ways. Sawer's w'g't does half the work.
FAMOUS MANUFACTURING CO., CHICAGO, ILL.

except to the butcher, they must expect the argument as to value of breeds to go on.

CHOKING CATTLE.

Dr. McIntosh's method of relieving choking cattle on page 842, should be cut out and pasted in the scrap book or on a smooth board in the stable. Before doing anything else, however, it is well to get a round stick eight inches or a foot long and about an inch and a half in diameter. Tie a string around one end, put it over the head, put the stick well up in the corner of the animals mouth and tie the other end. Then get a hustle on you for other remedies. You will have to step lively or the apple, turnip, or whatever did the choking will be in the manger or on the ground when you get back in nine cases out of ten. I have yet to learn of an animal dying from choking where this simple plan was adopted Whether the saliva runs down the throat and acts like the doctor's oil or what does the business is more than I know.

Conn. R. S. HINMAN.

CONCERNING OUR ADVERTISERS.

HOW DO YOU PRONOUNCE 'SOLFILINE'?

The appearance of the new advertisments of Solfiline has aroused some discussion as to the proper pronouciation of the word. If one remembers what the article is, there need be no difficulty in determining what to call it. Solfiline is a perservative of leather. Applied to the sole of a shoe, it fills the leather to a complete exclusion of all moisture, hence the name, pronounced sole-filleen. Of course there is always a temptation when the pronunciation is discussed, to reply with the old joke: "Those who use it pronounce it excellent" for they all do. It is really a wonderful comp und. One dressing of a pair of shoes will render them water-proof as long as they last, and being made water-proof they last much longer than under ordinary circumstances It does not rub off, rather it 'soaks in,' and it does not interfere in any way with the shoes taking a polish. It is equally good for harness, rendering it soft and pliable no matter how wet it gets. It is said that Solfiline is proving one of the most popular articles put on the market in recent years. Send to the Milwaukee Chemical Works, Milwaukee, Wis., for an attractive little book on this subject.

The following speaks well for the abortion remedy, Antiabortsio, advertised in our columns by Animal Germicide Co., 159 Chambers St., New York City:

RICHMOND, July 26, 1899,

ANIMAL GERMICIDE CO.

Dear Sirs:—I enclose check for four dollars for one gallon Antiabortsio I am very much pleased with it.

For some cause my herd has become almost free from abortion, as your remedy is all I am doing to stop it, I give it the credit. A. R. SCOTT.

204 N. Foushee St., Richmond, Va.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

SORE TEAT.—WOLF TAIL.

Have a young Jersey cow that her calf bit one of her teats. It caked and after calf was taken away, it gathered. We have done all that we could do. Now it seems well, yet nothing but a thin water comes from the one teat; gives good milk from the other three. Last week she took what we all think was a fit; has had three since, and keeps her tail moving all the time Some say it is called wolf in tail. Do you know what that is, and what is the cure? Would you use her milk?

Muncie, Ind. Miss A. B.

ANSWER.

Wolf tail belongs to long past foolish superstition and ignorance. Give a full dose of physic immediately and repeat and re-repeat in five days, of each dose. If needed, put half a dram of nux vomica in each dose of the physic. After the physic, give half a dram of the nux vomica and two drams of blue flag in three ounces of old whiskey and four ounces of water. One dose every third day for four doses. Then stop. Milk is all right at present. Rub, knead and massage the teat with pure lard and alcohol, half and half, daily for a while.

SCROFULA.—DISTEMPER.

I bought a fine Holstein-Jersey crossed cow, three years old last spring. A few days later I discovered her legs were scabby all around and her feet were sore between claws. She seemed perfectly well in all other respects, and always kept up a good appetite and gave a large pail of milk.

Have a fine three-year-old gelding just come down with distemper. H. L. H.

Kingston, Wis.

ANSWER.

No. 1. You have a scrofulous subject, beyond a doubt. I would not eat the meat of such if I knew it, nor would I use the milk. She will be of little value to you I am afraid, as she will need constant care and attention and repeated doctoring, etc.

No. 2. I give you the best treatment for strangles. Keep up the vital forces with good nutritious food. If the swelling does not come to a head in four to seven days from start, poultice with carrots and linseed meal, half and half, as soon as ripe, not before, have it lanced quite freely and openly. Dress with the compound tincture of myrrh and aloes quite liberally, using a good syringe so as to reach to the bottom and cleanse the wound. Must have absolute rest until quite well. Keep warm, but must have plenty of fresh air and a fair exercise, if not too weak.

HARD MILKING.

I have a cow that has been milking for about six weeks, when all at once I found I couldn't get any milk out of the right hind teat. It seems to be hard at the end and I cannot get any milk out of it. I have bathed the teat with spirits of camphor. I can get the milk with a tube made out of a feather quill which I have been using for the last four days in order to get any milk F. C.

Wyoming, Wis.

ANSWER.

Straws and quills have been the ruin of hundreds of the best cows in the country. Now we have a tube quite easy to use, made of hard rubber. Stop the liniment and bathe with hot water and hops, and use gentle massage daily, and annoint with spermaceti ointment after each bathing. A dose of physic will be likely to help; it does in ninety-nine cases out of a hundred.

ENZOOTIC ABORTION.

About five years ago my cows began to take the bull perhaps from two to six times before they would get in calf, and it has been getting worse every year and spreading through the whole flock. The last two years some of them have not got with calf at all and those that got with calf this last year are, most of them, loosing their calves at about half maturity, up to full time, and those that come alive are weak and takes them several days to overcome it. Will this disease follow the flock or can it be cured? I have two more that are nearly due to calve and then I will not have any more until spring, then I have a lot of heifers to come in. A. C. F.

Markesan, Wis.

ANSWER.

You seem to have enzootic abortion pretty well established in your herd. Your best remedy is the advertised special medicines to prevent abortion, which see in the DAIRYMAN. You need and must have a sure anteaphrodisiac, viz., a deadener of all sexual desire, before the cows can be put into proper conditions to breed. You have neglected your herd very much indeed.

COW POISONED—BLOODY MURRAIN.

Cow died, apparently in good health. Four or five days before death, refused to eat; had no fever, seemed to draw up in the flanks, a little bloody discharge with urine; found end of the tail bone decayed, probably six inches, no blood in that part of tail and seemed to be no feeling when split with a knife. Also, please describe the bloody murrain, the cause, and best remedy.

Los Angeles, Cal. A SUBSCRIBER.

ANSWER.

It is a matter of extreme speculation to attempt to give the cause of thedeath of your cow. In my opinion she was poisoned by some toxic weed obtained in the food some how. I don't believe you have a clear case of anthrax murrian. Bloody murrian is also called black quarter. You did not have this, I am quite certain. There are so many and different names for anthrax, that they are confounding and misleading quite often, to the inexpert veterinary surgeon. In all the forms of anthrax the best professional talent is always needed, and often without avail.

LEUCORRHOEA.

I have a three year old Jersey, calved 22nd September. Took bull 10th of October. Came bulling Oct. 30th. Took bull and then expelled a quantity of cloudy looking mucous stuff. Continued bulling daily after this, occasionally dropping this mattery looking mucous, and I noticed she was much sunk at the root of the tail. I sprinkled a little black haw in her grain food and for a day or two I kept her in; the hole at root of tail almost disappeared as did the mucous and she quit bulling, but she is now sinking again and is very much inclined to bull and I notice her tail has mucous on it again. I have sprinkled some black haw in her grain tonight, and shall probably give her some doses of diluted carbolic acid, as I suppose she has the whites and I don't know that black haw does more than quiet her. Of course I did not have her served on the 19th of Nov., her date. She is due again on 10th of Dec. I imagine you will condemn the carbolic acid treatment, but I got it from some old articles in the *Breeders' Gazette*, written by a man called Watson, and the *Breeders' Gazette* still recommends it for whites. Is there danger of her having infected the bull? I am anxious as I have had him serve three among the best cows on the Pacific coast, since. Watson would prophesy abortion in three months. E. F. C.

New Whatcom, Wash.

ANSWER.

The most common reasoning suggests rest from bulling. Such adds fuel to the fire, only. You must expect the discharge when used as you state. Washing is plainly suggested; must be washed and disinfected. Let carbolic acid alone. Feed is O. K. I can give you the first day's medicine, thus: You can use black haw, half an ounce, as a dose, and blue flag, one dram, with it. Never can tell exactly, in such cases, what to do. You are no exception to my objection to advise you to use the dangerous medicines, which are needed for a cure.

DELIVERY OF CALF.

1. What is the matter with cows if calf is born dead, or not in right position before birth and cow needs assistance in delivery?

2. Is a cow, after the above happens, worth anything as a breeder or milk cow?

3. If reproductive organs are damaged in calving in any way, what shall I do?

4. Have one cow in this condition; calved last spring; calf dead; required several hours' work to remove calf; cow can't have passage of bowels or urinate easily, except when lying down; urine continually dribbling.

Tempe, Ar. R. T.

ANSWER.

1. It is so because it is so. Cause, numerous; some known, most not known.

2. Yes, of course she is unless some visible defect is seen; then she is not.

3. The best you can.

4. This suggests some internal injury and may disqualify her as a breeder. Have her carefully examined by an expert, none other He alone can testify as to her condition and worth, etc.

LAME KNEE IN COW.

I have a cow that suffers great pain from an enlargement of the fore leg at the knee, and a little above the enlargement is only slight, just noticeable; nothing below the knee. She is in good condition with this exception. At times she will not put the foot to the ground. G. W. W.

Saugerties, N. Y.

ANSWER.

All such cases need a proficient upon the spot, so as to closely examine the swelling. She may, and I think has, some foreign substance in the muscles of the leg. This can only be ascertained by a good careful examination by an expert.

ROPY MILK FROM UDDER.

This disease, or case, I should say, whichever you may call it, comes in the way of stringy or ropy or slimy milk. This milk, when you milk it from the cow, will hardly run through a strainer in some cases, and in other cases, after it stands for about eight or ten hours, I can take a spoon, take the cream from the mllk, and stretch it from three to six inches. I often have thought that it comes from other feed, but I have changed the feed several times. How is Glauber salts for a cow physic, or what is a good cow physic, and what quantity to use?

St. Louis, Mo. A NEW SUBSCRIBER.

ANSWER.

It is not the food that is the cause. It is, in my opinion, hard milking; so change the milker and the manner of milking.

Stop mixing salt with food, but let them help themselves as they are inclined. Read the head of the veterinary column for physic, etc. Give all affected ones a full dose of physic, and repeat it in five days or so. After the physic, give two, only, drams of nitre, and one scruple of nux vomica for six mornings; after six mornings stop the nux vomica, but continue the nitre for ten to thirty days.

Horse Owners! Use



GOMBAULT'S

Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

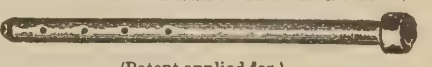
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in th end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

CANCER CURED at home. Send four cents, stamps. 80 page book, illustrated. Dr. J B. HARRIS, 2226 Kemper Lane, Walnut Hills, Cincinnati, O,

FREE CURE FOR Trial package of three special medicines Free. **ASTHMA**

Dr. W. K. WALRATH, Box 622, Adams, N.Y.

These Offers will prove a Saving

To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

HOARD'S DAIRYMAN and Texas Farm and Ranch, both one year	$ 1 50
HOARD'S DAIRYMAN and Ohio Farmer, both one year	1 50
HOARD'S DAIRYMAN and Rural New-Yorker, both one year	1 65
HOARD'S DAIRYMAN and National Stockman and Farmer, both one year	1 85
HOARD'S DAIRYMAN and Michigan Farmer, both one year	1 50
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HOARD'S DAIRYMAN and Farm Journal both one year	1 10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2 00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1 50
HOARD'S DAIRYMAN and Orange Judd Farmer both one year	1 75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2 25

ABORTION PREVENTED

ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.

One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.

ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York.

Pig Feeding.

ED. HOARD'S DAIRYMAN:—I have been quite interested in the articles on raising pigs, in the DAIRYMAN, and as dairy farmers, of course, we must have the necessary hogs, even if they are a nuisance sometimes. While I know so very little about it, perhaps a little of my experience may help some one and keep them from going to that most expensive school, experience.

We raise two litters of pigs a year, one in February and March, the other in August and September.

In February of '99, we had 28 little fellows about two weeks old, when one of the institute conductors happened to be here and I remarked, I just dreaded the time betwixt then and spring for fear we should lose them as we had before, by their getting too fat. He told me to get some sods and put in the pens every day or two and try that; but as we all remember sods were hard to get in February or March of '99. But we happened to have a supply of dirt under cover for the spring hot bed, so every other day I had a pail of that fresh dirt thrown into the pen; you ought to have seen the little fellows go for it. I also had carried to them and the mothers, every day, a number of mangel wurzels, as long as they lasted, and the little pigs as well as their mothers, ate them greedily.

I do not know whether it was the result of this feeding or what, but we never lost a pig, and when we sold them in October they averaged over 200 lbs. apiece. The September pigs of the fall before were running around the yards, and the same conductor told me I better have them shut right up and fed. They were shut up the 25th day of February and sold in the first week in April and averaged over 225 lbs. apiece; some going as high as 250 lbs.

We have on hand now 45 August and September pigs; 30 of them will weigh at the present writing, 75 to 80 lbs. apiece. I hope to make them weigh by March or April 225 to 250 lbs. a piece. They are getting a slop of equal parts of good barley, oats, middlings and bran, mixed with what milk the calves do not take, and water.

I did something this fall that made every man who had raised hogs for years laugh—fed the fattening hogs all the turnips they would eat every day, which was several bushels. I know one thing, it saved the corn crib, and the buyers all wanted the hogs. Whether it was scientific feeding or not I don't know even yet. The old hogs and pigs always have free access to pasture until the snow prevents. I do not know how or which is the most economical way, but there has been so much said and written in the farm papers about the losses in early pigs and the bad work of carrying September pigs over winter, that I give this as one way of doing. I am not trying, as one man from Iowa, writing for a farm paper, said people did to cheat the government by having the pigs come after the assessor went around, and selling them before he came again, so as not to pay taxes, but it does seem to me as though the sooner I made them weigh 200 lbs. or over, the less care and trouble. All the skim milk goes to the pigs sweet, and when they are weaned it is fed fresh and warm from the separator.

SUBSCRIBER.

This and That from Iowa.

Beef vs. Dairy.

ED. HOARD'S DAIRYMAN:—From my window this pleasant morning may be seen, quietly grazing in a near-by meadow, a little bunch of Channel Island cows. Pretty picture you ask? Well, verily, yes; not only aesthetically but from a practical view as well. "Handsome is that handsome does," applies very appropriately to these little cows. Persistent, ever busy and steady as a clock, they make but this one demand upon their employer, an abundance of raw material to work upon and congenial environment. This requirement fulfilled be assured the delinquency will not be hers if the profit account is disappointing.

Centuries of careful breeding and kindly care have specially fitted her for the business she is so eminently qualified to perform, that of rapid and economical conversion of the raw materials grown upon the farm into very superior articles of commerce and consumption. Little wonder then that she is so highly esteemed by those who are in touch with her superior qualities. But how often, in this great beef producing central west, we hear her traduced, slandered and cursed, by the casual observer, the careless or the grossly ignorant. Especially so since the present great boom in beef prices is on. Indeed, scarcely would they allow her a place on this round globe, much less decent care and proper food.

Beef, beef, beef is the slogan cry. Give us size, bone and muscle, thick neck, broad withers, straight thigh, etc., etc. A large milk flow did you say? Oh, well, that is a secondary matter. Quality of milk? Bother the quality, that cuts little figure with us. Economical feeder? Well, well, forage in Iowa is always cheap. Illustrious ancestry? ——the ancestry so we get size, b-e-e-f.

The foregoing expresses, but mildly perhaps, the sentiment prevailing to a very large extent, in all the fertile plains lying west of the great Father of Waters. The owner of the bunch of little dairy cows is dubbed "fanatic." He is thought to be wasting time, good money and the products of a good farm upon the "fad" cow. His critics are blind to the fact that each little angular, ewe-necked cow is annually producing the equivalent of a splendid beef animal, without the loss, practically, of an iota of fertility from the farm.

Fanatic sometime ago concluded to try his hand at manufacturing the product of his dairy at the farm instead of sending the milk to the creamery, as had been the custom previously. The primary object was to further demonstrate the superior qualities of the cows upon close economical lines. A separator was procured, and, though he was a novice at butter making, the business was begun. With very meager facilities at command save dairy literature—HOARD'S DAIRYMAN principally—the butter making has steadily continued to this date. Not one batch of poor or even medium quality of butter has resulted. While there has been a perceptible variance in quality, yet all has been of so high a standard of excellence, that it has been eagerly sought at quite a premium, in the market in which it is offered.

Now the point to which it is desired here to give prominence is this: What is the prime factor contributing to the success of this enterprise? Surely not expert management, for our novice had previously never made a pound of butter, nor did environment contribute but little to the result, for the facilities at hand were meager in the extreme. Neither did luck "lend a hand" for it goes without saying that luck and dairying are never yoked together with success. No! none of these performed more than a secondary part contributory to the result. The splendid results followed, primarily, because these scrawny, ewe-necked, open ribbed, despised little cows, unwittingly placed in their milk superior qualities which, when developed in the finished products, placed them beyond the reach of many competitors, thus giving a practical demonstration of her right to the consideration and affection of her owner, by giving him an easy command of the most desirable market for his products.

How do you make that butter is the query on every hand by men and women grown gray in the dairy business. When informed that first and principally the qualitiy inherent in the cows did the business, supplemented by a system of feeding according to books; of proper ripening of cream, using a starter according to books and that the churning is principally done by a means of a thermometer according to the books. But when told that no artificial coloring is ever used, and that the butter is not worked, but packed for market direct from the churn, novice's previous reputation for veracity is severely questioned. FRANK KINGSLEY.

McGregor, Iowa.

Process Butter.

A butter expert gives the following account of the manufacture of process or renovated butter:

After a sufficient quantity of inferior, or positively bad, butter stock has been gathered, it is boiled at a high temperature. Cold water is then passed through it. The oil comes to the top, the water catching the bits of animal matter, and various impurities. The neutral oil thus obtained is allowed to set in a very cold temperature. When sufficiently cooled, the mass is churned with milk and cream. By this process the butyric acid of the cream is absorbed by the oil. This manufactured product differs from natural butter in one very important particular. Even that made by the best of several processes does not retain its flavor very long. It may lose in a day or two the butyric acid that the oil has absorbed and thus lack that flavor which makes the natural product palatable. Moreover at its best, it does not have the characteristic grain of genuine butter, thus causing it to dissolve quickly in the mouth, or to run back into oil even in moderately warm weather. Because of this liability to lose flavor or become soft, it is an uncertain product for dealers to handle, as in a short time it may so change as to reduce its price fully one-half. Even in cold storage or cool weather, it does not long retain the butyric flavor. It is therefore necessary for dealers to dispose of it to consumers very soon after it is received from the manufacturers.

Premium Fund of the National Butter Makers' Association.

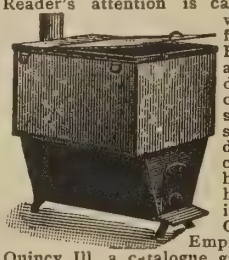
ED. HOARD'S DAIRYMAN:—Following you will find a list of those who have contributed to the premium fund of the next convention, including the donation of the city of Lincoln, and the balance on hand from the sale of butter at the Sioux Falls meeting:

City of Lincoln	$1,000.00
Surplus from sale of butter at Sioux Falls	557.22
Heller & Merz, New York	100.00
Worcester Salt Co., New York	100.00
Diamond Crystal Salt Co., St. Clair, Michigan	100.00
Genesee Salt Co., New York	100.00
Creamery Package Mfg. Co., Chicago, Kansas City, Minneapolis, Waterloo, Omaha	400.00
Wells & Richardson Co., Burlington, Vermont	150.00
Vermont Farm Machine Co., Bellows Falls, Vermont	50.00
Elgin Butter Tub Co., Elgin, Ill	50.00
Cornish & Co., St. Paul, Minn	25.00
Cornish, Curtis & Greene Mfg. Co., Ft. Atkinson, Wis	25.00
C. E. Hill & Co., Kansas City, Mo	25.00
Standard Oil Co., Chicago	50.00
India Alkali Works, Boston, Mass	10.00
J. C. Cherry Co., Cedar Rapids, Iowa	25.00
A. H. Reid, Philadelphia, Pa	50.00
Mower-Harwood Co., Cedar Rapids, Iowa	
American Refrigerator Transportation Co., St. Louis, Mo	15.00
Baltimore & Ohio R. R. Co., Chicago, Ill	25.00
New York Despatch Refrigerator Line	25.00
Francis D. Moulton & Co., Chicago	50.00
Erie Despatch Transportation Line	25.00
Star Union Line	25.00
Merchants Despatch Transportation Co.	25.00

Those who have not yet contributed to the fund are earnestly requested to do so at once so their names and amounts can be published in the program. E. SUDENDORF.

Elgin, Ill. Sec'y and Treas.

Farmers' Handy Feed Cooker.



Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.

Perhaps Your Trouble Is Chronic Kindey Disease.

Often Difficult to Determine, and Likely to Deceive the Best Physicians.

It is always best to be on the safe side.

There are many different ways in which kidney trouble will show itself.

Some of its most common symptoms are often mistaken for other diseases.

Some of them *are* other diseases, but being brought about by kidney derangement, the *only* way to cure them is to first get rid of the kidney trouble.

The indefinite symptoms which go with kidney derangement are a sense of general lassitude and indisposition, weakness, sickness and depression.

Headache, backache, and pains in the joints and limbs, irregular heart, stomach derangement, vomiting, nervousness, restlessness sleeplessness, are also indications of diseased kidney poison in the blood.

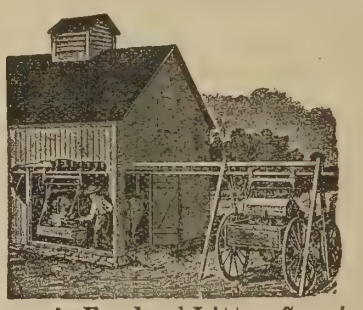
Whenever you feel "under the weather" it is a good plan to take a few doses of Swamp Root, the great kidney remedy.

When any of the symptoms described above show that your kidneys are sick and your system needs bracing, Swamp-Root will afford prompt relief and cure the most chronic and complicated cases.

Swamp-Root is used in the leading hospitals; recommended by skillful physicians in their private practice; and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy for kidney and bladder troubles.

To prove what Swamp-Root will do for *you* every reader of HOARD'S DAIRYMAN who will send their name and address to Dr. Kilmer & Co., Binghampton, N. Y., will be sent immediately, free by mail, a sample bottle of Swamp-Root and a book containing some of the thousands upon thousands of testimonial letters received from sufferers cured. Be sure and mention reading this generous offer in HOARD'S DAIRYMAN.

The regular fifty-cent and one-dollar size bottles of Swamp-Root are for sale at all drug stores.



Cherry's Feed and Litter Carrier

The greatest labor saver ever invented. Send for illustrated catalogue to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.



TO BUY at the right price, go to headquarters. Operating my own tin plate works, with an output of . . .

1000 MILK CANS

per day, comprising the various patterns used throughout the country, puts me in a position to interest you.

No Creamery or Cheese Factory

should be without a copy of my 1900 handsomely illustrated catalogue, ***which may be had for the asking.***

FRANK STURGES,

Successor to THE CHICAGO STAMPING CO. CHICAGO.

Light From Kentucky.

Cows That Earn $8.70 Each for November. Sells Cream by Babcock Test, With 15 Per Cent Added for Overrun and Elgin Price for Butter.

ED. HOARD'S DAIRYMAN:—Please formulate a ration for me, that shall be most economical, from the following: Shredded corn stover; clover hay, $8.00; wheat bran, $7.00; cotton seed meal, $22.00; oil meal, $31.00; Quaker oat feed, $17.00; corn and cob meal (ground at home at small cost), $18.00; and have a small lot of sheaf oats for the cows. Very fortunately, I bought my bran last summer and half of it, 14 tons, is yet to be delivered.

I bought some Quaker oat feed, 2 tons, but know little about its value; please inform me about it. Ship my cream one hundred miles and sell at the fixed price of 2½ cents above Elgin, as declared on Monday preceding 15th of each month; 15 per cent is added to test to obtain amount of butter.

My cows are all Jerseys, mostly registered, and have 28 in the barn now. Some are nearly or entirely dry. Deducting these and milk for table use, have shipped for November from 21 cows. Having made my last shipment for this month, to-day, I ran up my account, tests, etc., and find that I have shipped 1890 pounds cream, testing 27⅞ per cent butter fat. This nets me $174.56; also 132 gallons skim milk at 6 cents, $7.92, total $182.48.

I have been in the dairy business for six years, and a constant reader of the great text book, HOARD'S DAIRYMAN, and I find that when I come before my teacher, I have many things I would love to say, and many inquiries I would like to make, but economy of space forbids. May your usefulness never grow less. J. O. B.

Smith's Grove, Ky.

We print the above letter in full, in order to show that if Kentucky does not take high rank as a dairy state, the fault is not with its soil or climate, but with the men who, professing to be dairymen, are such only in name and not in practice. Not every man who hammers iron is a blacksmith, nor every man who tries to use a saw and a hammer is a carpenter. These are trades requiring skilled labor, a combination of brain with muscle. Dairying is another such a trade or occupation, and where such a combination exists, profit is sure to result. Eight dollars and seventy cents income, per cow, for November butter being sold at market rates, is a satisfying and encouraging record.

Our suggestion to J. O. B., for a minimum average ration, would take about the following form:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. shredded fodder	5.95	.17	3.24	.07
10 lbs. clover hay	8.47	.68	3.58	.17
4 lbs. corn and cob meal	3.56	.26	2.52	.14
3 lbs. bran	2.64	.38	1.16	.09
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	22.46	2.23	10.84	.64

Of course the bran at the price quoted is much the cheapest of the feeds, and the amount on hand will warrant feeding nearly double the amount specified. The corn and cob meal seems almost unreasonably dear to us, when ear corn is selling at not to exceed $7 per ton. It might be well to omit the whole or greater part of the corn meal and substitute bran.

Quaker oat feed should rate about equal to bran in feeding value, but heretofore it has not run very even in quality. It ought to be sold with a guaranteed analysis, and we understand is now, or soon will be, so sold. Until this is done, the only way for determining its value is to try it, and as we cannot do that, we cannot indiscriminately recommend it. Notwithstanding its excessive cost, if we had the care of J. O. B.'s cows, we should keep some of the oil meal on hand for use as occasion might seem to require. Whenever a cow gets a little off in appetite, or is not doing just right, a little oil meal will frequently act as a "stomachic" and bring her around all right without medicine.

Milk Fever.

ED. HOARD'S DAIRYMAN:—I have just read in your issue of Oct. 27, the article of Dr. Leonard Pearson, State Veterinarian of Pennsylvania, upon "Milk Fever and the New Treatment." That it is fanciful and misleading, is, in my opinion, putting the criticism mildly.

In the first paragraph he claims that "the disease is not a fever at all; that there is no elevation of temperature, as in most infectious and inflammatory diseases." And yet his whole article is based upon the extraordinary assumption that "milk fever is produced by the absorption of a poison developed in the udder, and which he proposes to remove and neutralize by an injection into the udder of a one per cent solution of iodide of potash, an article that has no power whatever as a a destroyer of infectious germs. This opinion I am sure will be confirmed by every trained and experienced bacteriologist. I would allow the article to pass unchallenged did I not feel that the treatment urged is misleading, and from the authoritative position of the author, is calculated to affect, injuriously, the interests of dairymen. It is, I think, at variance with the teachings of the best writers upon the disease; certainly it is not confirmed by my own experience and observations, based upon numerous post-mortem examinations and a most careful study of the symptoms presented by the disease in question.

The post-mortems have always shown an intense congestion of the brain and of the spinal cord, especially of that part of the cord nearest the brain. The delicate membrane investing the brain and spinal cord is thickened and opaque, and the fluid contained in this membrane, instead of being transparent, is turbid and much increased in quantity. In no case was there evidence of disease of the uterus, or in the milk secreting glands. I do not pretend to deny that cows may sometimes die of septic disease, in which the point of infection is the uterus, but the symptoms in such cases are very different from those present in what is known by the very faulty name of "milk fever."

This septic trouble is much slower in its access than is milk fever; runs a slower course, and the loss of power is plainly from weakness, and not from paralysis, as is the

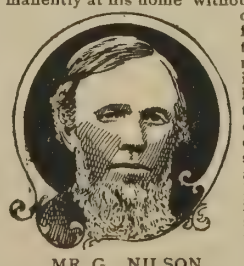
Free to the Ruptured

Dr. W. S. Rice, the Well-Known Authority, Sends a Trial of His Famous Method Free To All.

Anyone Can Now Cure Themselves at Home Without Pain, Danger, Operation or An Hour's Loss of Time From Work.

To the thousands upon thousands of ruptured people who are torturing themselves with trusses and in momentary danger of death from strangulation Dr. W. S. Rice, 353 E Main Street, Adams, N. Y., will send free to all a trial of his famous method that has saved so many lives and made so many men, women and children well and strong and permanently cured of old and difficult ruptures. Do not be backward about writing for the free trial. It will cost you nothing and will enable you to see how easily you can cure yourself in a very short time without losing an hour from work. Dr. Rice is determined that every suffering man or woman shall know the wonderful truth that rupture can be cured and he therefore generously sends, prepaid by mail, his method, absolutely free, and you can make a free trial of it. Write to-day without fail, as you cannot afford to miss this free and generous offer.

Mr. G. Nilson, of Sogn, Minn., had two very bad scrotal ruptures, both of which he cured permanently at his home without suffering any pain or losing any time from work. He used the famous Rice method and says of it: "This wonderful home cure has proven to be all that could be desired. I am fully cured of two bad scrotal ruptures and am very grateful to Dr. Rice for having invented such a God send. I hope all people who are ruptured will use it." Send your name and address to Dr. W. S. Rice, 353 E. Main St. Adams, N. Y., and he will gladly send you a free trial with full instructions as to how you can quickly and easily cure yourself at home. Write to-day. Don't wait. If you begin now you will be cured sound as a dollar long before spring work begins.



MR. G. NILSON.

Quality vs. Price.

A cheaply made sewing-machine is dear at any price, because faulty in action, liable to break and difficult to operate. A labor-saving machine for woman's use should be the best.

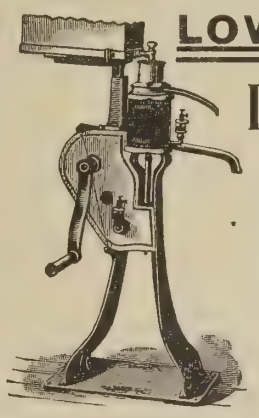
IT IS TRUEST ECONOMY TO GET THE BEST.

Sold on Instalments. You can try one Free. Old machines taken in exchange.

SINGER SEWING-MACHINES ARE MADE AND SOLD ONLY BY

THE SINGER MANUFACTURING CO.

OFFICES IN EVERY CITY IN THE WORLD.



LOW PRICES ON THE

Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,

Cedar Rapids, Iowa.

SPECIAL REDUCED PRICE FOR THIRTY DAYS



Take advantage of our special offer and get the **IMPROVED RELIABLE FEED COOKER, TANK HEATER and STEAM GENERATOR**, one of the greatest feed savers, labor savers and money makers the feeder can possibly have. Cooks a barrel of ground feed in 30 minutes; 25 bushels of ground corn in two hours; heats a barrel of water hot enough to scald hogs in 20 minutes; will heat water in tanks 100 feet from cooker. Used and recommended by feeders throughout the United States and Canada. Highest awards at Omaha Exposition in 1898, and at Toronto, Canada and Dallas, Texas in 1899, and at State Fairs everywhere. Sold on a positive guarantee. Your money back if it does not come up to the contract. Send for 1900 Century Catalogue and introduction price. **It has no flues to rust out or leak. No scorched feed if you use it. The best machine of any kind proves the cheapest in the end.**

RIPPLEY HARDWARE CO., Box 20, Grafton, Illinois.



FAST GRINDING and perfect grinding is best done with this **Scientific Grinding MILL.** It is double action as both top and bottom plates revolve. Grinds ear corn, all small grains. Supplies power for other purposes at the same time. Other styles 2 to 50 h. p. Before you buy send for our descriptive catalogue, I.

FOOS MFG. CO., Springfield, Ohio.

DAILY EXCURSIONS

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Sows all Clovers, Alfalfa, Timothy, Red Top, all Grass Seeds, Flax, &c. Special hopper for wheat and oats. Sows 20 to 40 acres per day in wet, dry or windy weather. Puts on just exact amount of seed desired—don't waste any. Weighs only 40 lbs. Last indefinitely. Price list and catalogue free.

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A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884–'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

case of "milk fever." What is the history of a typical case of "milk fever?" The subject is usually in high condition, with a full development of the vascular system and, therefore, of the milk secreting organs. Full feeding, full pastures and hot weather are predisposing conditions.

Among exciting causes, exercise, especially when exposed to a hot sun, is the most potent. So well am I convinced of this, that my tenants have a standing order never to move a cow the day she calves, but always to protect her, if possible, from the direct rays of the sun. Occasionally, they do not keep this in mind. One hot day a year and a half ago, as I came home at noon, I saw my tenant driving into the barn, a cow with a young calf. She was excited lest she should be separated from her calf. She had been driven less than one-fourth of a mile; she was a typical subject for the disease. I said to my wife, who was with me: "That cow will be dead in twenty-four hours." She died at eleven o'clock the next day, although every effort was made to avert the result. She was completely paralyzed before midnight. The whole history of this disease stamps it as an acute cerebro-spinal meningitis, (inflammation of membranes of the brain and spine), and the autopsy disclosed this condition alone. The type of animals that usually fall victims to it, the suddenness of access, the delirium always shown in the early stage, the early paralysis and death, all point to a grave trouble with the brain and spine.

The disease is not confined to cows or even to the parturient condition. Last spring I lost three heifers with the typical symptoms of meningitis, which a careful autopsy proved was the cause of death. In these it seemed to come from turning them out into a full pasture; but there was no hoven in the case. Well marked meningitis has frequently prevailed among horses; preventive treatment is the most important. Keeping the cows on dry feed and out of the hot sun, with mild laxative medication, are the principal points.

After symptoms have developed, a free bleeding, a bag of ice to back of head, free purgation with Glauber or Epsom salts, and tincture of aconite with bromide of potash, given every one or two hours, in doses of ten or fifteen drops of the aconite and two drams of the bromide, constitutes the treatment that I find most effectual.

When nourishment is given, warm, new milk is suitable. I have dwelt upon the danger of driving cows in the hot sun directly after calving. Every physician who has had any experience with epidemic cerebro spinal meningitis, or with the eruptive fevers, will appreciate the importance of this precaution.

Nearly all cases of rapid death can be traced to violent, over exertion. I can call to mind several cases of meningitis and also of scarlet fever, in which, after severe exercise, insensibility came on within two hours, and death in eight or ten hours.

West Chester, Pa. JACOB PRICE.

From a Canadian Dairyman.

Over 7,000 Lbs. of Milk and 300 Lbs. of Butter Per Cow.

ED. HOARD'S DAIRYMAN:—In reading your valuable paper I see you ask for information on dairy subjects, from your readers to your readers.

I may mention that we had a dairy convention in St. Marys, Ont., in January, '97. Ex.-Gov. Hoard, of Wisconsin, and the Hon. Sydney Fisher, Mininster of Agriculture for the Dominion of Canada, being among the numerous speakers on that occasion. The enthusiasm of the people was roused to such a pitch that steps were taken immediately to have a creamery established in St. Marys on the joint stock plan. It was ready for business at the end of the same year, with a capacity for making three or four tons of butter daily, with all the latest improvements.

It has proved a successful enterprise and has established a name for itself in the Old Country markets.

As a patron of this creamery, since its inception, I will tell you what I have been doing, with the expectation that you will help me to do better. You want information in answer to a set of questions:

1st.—My herd of 10 cows have had their milk weighed and tested monthly from samples taken every day, The first test was 4.2 and has varied from that down to 3.6.

2nd.—We have been testing now for two years and have rejected one heifer on account of a low test and small quantity. Got a good price for beef. My individual cows vary from 3.5 to 5.

3rd.—The company tests individual cows for the patrons, gratis.

4th.—The stock in this section, with the exception of thoroughbreds, have all been graded up from common cows, or "natives" as they were called, inside of the last 40 or 50 years. These "natives" were from various sources but developed a type peculiar to themselves, short in the legs, narrow in the back, but deep chested and of good constitutions. In those old days it was common for the heifers to come in at two years old and not again until four, being milked as farrows until within two months of their time. The result was a race of splendid milkers. The breed I have selected is the Durhams and their grades. They are generally used in this section, although all the breeds are represented here. The Durham is the most popular. The gain in milking qualities was not great but in other respects very noticeable. My 10 cows in '98, were 4 heifers which came in at two and one-half years old and 5 others from four to six years old, and 1 old cow whose teeth were bad and who was past her best. The herd averaged 7,345 lbs per cow, for that year, and a little over 300 lbs. of butter per cow. My neighbors' cows of the same breed have done as well as this, and some better.

5th.—The grade Durhams are in great demand by graziers, butchers and exporters.

6th.—A cross might be introduced occasionally for a certain purpose, but should be done carefully. The Durhams are good for crossing with other breeds and will intensify their good qualities.

7th.—I have done some inbreeding and it helps to fix a type, but in doing this the animals must be vigorous or it will perpetuate defects. L. G.

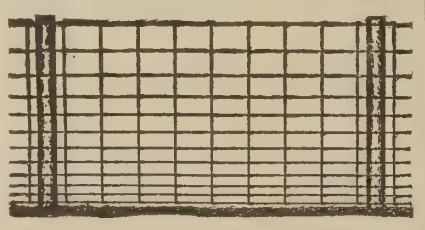
St. Marys, Ont.

ILLUSTRATION.

AMERICAN FIELD AND HOG FENCE.

The sales of American Field and Hog Fencing might be considered marvelous, were it not for the intrinsic merits of the fence which are becoming more thoroughly demonstrated every season.

"The fence that fences," is what the manufacturers call them and investigation of the records made by these fences where they have been properly put up on farms, pastures, fields, orchards, etc., shows ample proof of their efficiency and durability. Animals cannot break these fences; action of heat and cold has no effect upon them, and they successfully resist efforts of all kinds to destroy them. One enthusiastic farmer in sending in a duplicate order not long ago related how his team, drawing a heavy farm wagon, ran away and finally landed pell mell in a section of the American fencing. The wagon tongue was broken, the entire wagon badly damaged and the horses stunned by the shock, but the fence was not even bent when the wreck was removed.



Every rod of the American fence is guaranteed by the manufacturers, the guarantee being based upon intimate and absolute knowledge of just what enters into its construction. The wires are specially made for this purpose of best spring steel and are very heavily galvanized. There is thus a wide difference between the quality of American fences and fences made of ordinary wire, while at the same time the American fences cost no more than cheaper imitations or attempted substitutes.

The American fences are sold by agents in nearly all towns throughout the United States and Canada, but should no agency have yet been placed in your town the reader of this, who desires further information, can secure it by addressing the manufacturers, American Steel and Wire Co., Chicago or New York.

HEART DISEASE

Some Facts Regarding the Rapid Increase of Heart Trouble.

Heart trouble, at least among the Americans, is certainly increasing and while this may be largely due to the excitement and worry of American business life, it is more often the result of weak stomachs, of poor digestion.

Real organic disease is incurable, but not one case in a hundred of heart trouble is organic.

The close relation between heart trouble and poor digestion is because both organs are controlled by the same great nerves, the Sympathic and Pneumogastric.

In another way also the heart is affected by the form of poor digestion which causes gas and fermentation from half digested food. There is a feeling of oppression and heaviness in the chest caused by pressure of the distended stomach on the heart and lungs, interfering with their action; hence arises palpitation and short breath.

Poor digestion also poisons the blood, making it thin and watery, which irritates and weakens the heart.

The most sensible treatment for heart trouble is to improve the digestion and to insure the prompt assimilation of food.

This can be done by the regular use after meals of some safe, pleasant and effective digestive preparation, like Stewart's Dyspepsia Tablets, which may be found at most drug stores, and which contain valuable, harmless, digestive elements in a pleasant, convenient form

It is safe to say that the regular persistent use of Stuart's Dyspepsia Tablets at meal time will cure any form of stomach trouble except cancer of the stomach.

Full sized package of these tablets sold by druggists at 50 cents. Little book on stomach troubles mailed free. Address F. A. Stuart Co., Marshall, Mich.

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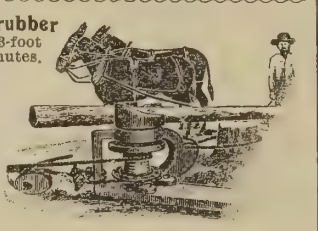
Put Up Ice



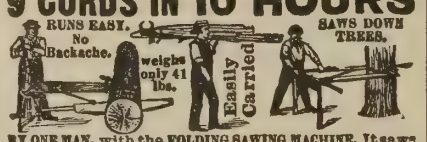
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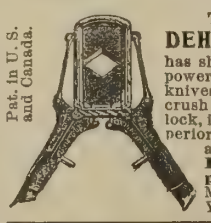
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Each cow shuts herself in place.
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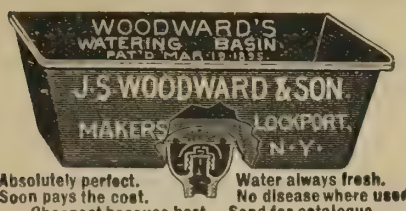
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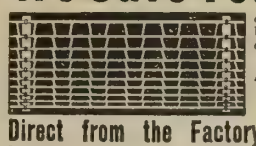
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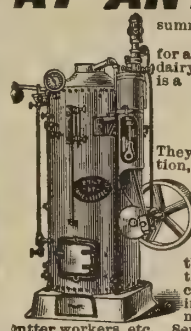
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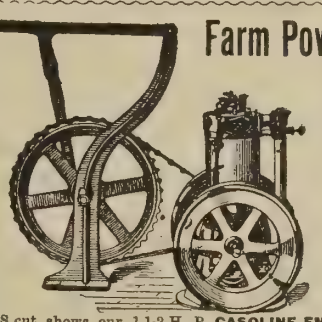
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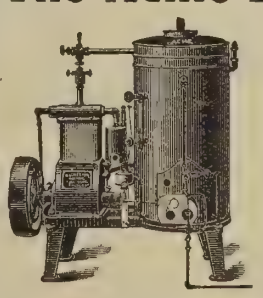


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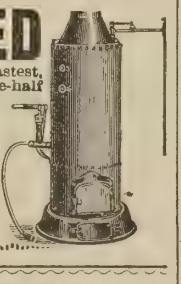
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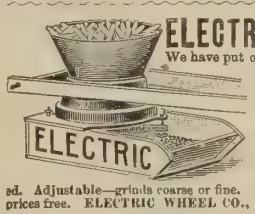


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Equalizes the load; each horse must pull his own share. Great Gain in capacity, speed and comfort. NO GEARING; NO FRICTION. GIVES YOUR HORSES A CHANCE. Only one set of grinders needed for all kinds of work. (Also make 7 sizes belt power mills; 2 to 25 horsepower.)

N. P. D. BOWSHER CO., South Bend, Ind.



Largest manufacturers of Steel Wagon Wheels and Handy Truck Wagons in America. Guaranteed superior to any other make

WRITE US

Metal Wheel Co.

HAVANA, ILLINOIS



WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

ALL SIZES. WRITE FOR PRICES.

Write for Free Catalogue No. 20 of merchandise for HOME, FARM AND FIELD—from Sheriffs' and Receivers' Sales. Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., AT HALF PRICE.

Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

GRIND YOUR GRAIN AT HOME



and save the toll. You have the horses, we have the power and mill. Thousands of the

PEERLESS MILLS

are now in use. They work FAST, FINE, EASY. Make family meal or feed. Agents Wanted Everywhere. Circulars, prices, &c., free.

W. J. ADAM, JOLIET, ILL.

350 BU. A DAY



with the **Wolverine No. 305 Mill.** Grinds more per hour with less power than any other mill on earth because Crusher and Grinder run on separate shafts, receiving all friction. Grinds ear corn and all other grains fine or coarse, for feed or family use. Automatic adjustable shake feed. **Burrs** open and let nails and hard substance through.

PRICE without Cob Crusher for grinding small grain **$27.** With Cob Crusher for grinding ear corn, and small grain, **$32.** Elevators extra. Mill can be ordered without Cob Crusher and Crusher ordered any time, is easily attached. Made in 3 sizes for 2 to 15 h. p. We know what all mills will do, and the **Wolverine** will grind more than anybelt mill made.

WE STAKE our reputation and money by offering to ship you this mill in competition with all others. If it don't do more and better work and isn't the **best made** mill and **the biggest bargain** you ever saw return it at our expense. Don't buy an experiment. Our line represents 56 years' experience.

SWEEP GRINDERS 7 kinds. No. 2 Ball Bearing has 25 in. burrs; No. 3, 36 in. burrs. Geared mill of new pattern; ball bearing, a rapid grinder. Price **$14.50** and up.

CUTTERS AND SHREDDERS 53 sizes and combinations for hand and power; largest cuts ton in 5min.

POWERS 1-h Tread, with governor, $58; 2-h $77; 3-h $103. 2-h Sw'p $24.90; 4-h $34.75; 6-h $36.95; 8-h $51.95

A full line Feed Cookers, Bobs, Cutters, Blankets, Robes, Harness. Send for FREE full catalog giving latest prices.

Marvin Smith Co., 55 N. Jefferson St. D-18, Chicago, Ills.

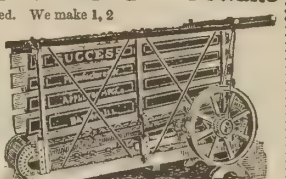
"Appleton goods take the lead, and your steel link tread, all told, has no rival."—MANLEY BROS. & STONE, Harvard, Ill.

Hundreds of Similar Testimonials prove that our

"SUCCESS" TREAD POWERS

are properly named. We make 1, 2 and 3 horse tread powers, smooth or level lags as desired, down or mounted. The

ONE-HORSE "SUCCESS"



is the **best power** made for driving cream separators, and all machinery requiring light power, but absolutely steady motion. **More power** can be obtained from the **"SUCCESS" Tread Powers** size for size than any others because they run light, are roomy and strong enough for largest horses, best governed, etc. More about them and our **sweep powers, shellers, fodder and ensilage cutters or shredders, huskers, grinders, wood saws, wind mills, steel tanks, etc.,** in our 160 page illustrated catalogue. FREE.

APPLETON MFG. CO., 35 Fargo St., BATAVIA, ILL.

TWO BIG MILLS IN ONE.

BUY THE BEST



THE oscillating sweep shown in above cut insures UNIFORM GRINDING. It is only one of the many desirable improvements found exclusively in **GIANT KILLER FEED MILLS.**

Free for the asking, our new Sweep Mill and Feed Cooker Catalogue, describing large line of plain, duplex and geared grinders for one, two or four horses. We ship from Omaha, Kansas City, St. Louis, Indianapolis, Bloomington, Minneapolis.

Davis Gasoline Engine Works Co., WATERLOO, IOWA.

CATTLE AND HOGS



and all kinds of live stock will produce better results if fed ground feed. The small pig and the dairy cow need it especially. The best way to prepare ground feed is with the

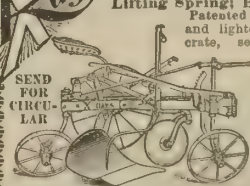
Kelly Duplex

Grinding Mill. It just grinds anything—ear corn, cob, husk and all, cotton seed and all small grains, single or mixed. Makes **coarse, medium** or fine feed. Takes little power, grinds fast. Strong, well made of good material and last indefinitely. Send for our free catalogue No. 30

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Lays SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Step carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



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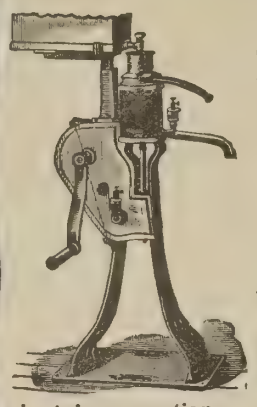
BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

The Reasons for the Superiority of the

Improved United States Separators

are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



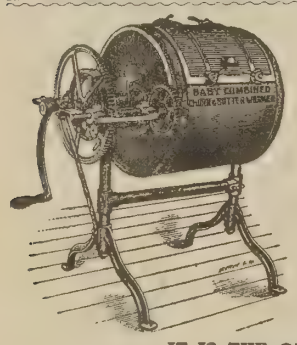
For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS

embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

The rapid increase in sales is phenomenal. None can truthfully boast of such a record.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



THE DAIRY "VICTOR" Churn.

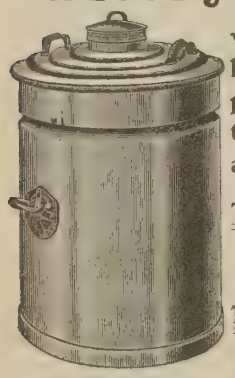
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

Factorymen

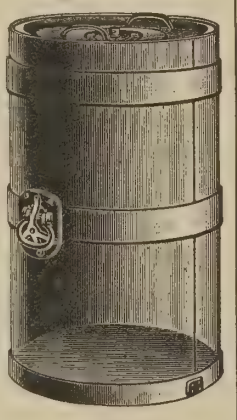


who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.

EMPIRE STATE.



UNION.

MADE SOLELY BY

OAKES & BURGER, - Cattaraugus, N. Y.

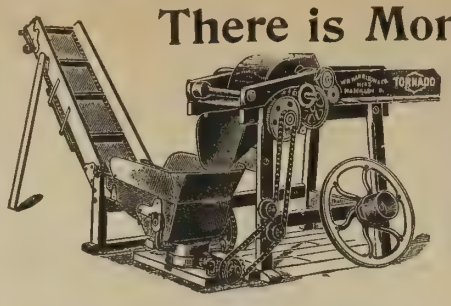
Manufacturers of DAIRY APPARATUS AND SUPPLIES.

THE CINCINNATI CORRUGATING CO.
BOX 550 PIQUA, O.

CORRUGATED ROOFING

Siding, Ceiling, Metallic Lath, Corrugated Arches, Shutters, Doors, Galvanized Eave Trough and Conductor Pipe, Iron & Steel Sheets (black or galv.) Send for new 100-page Catalogue.

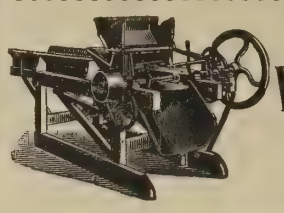
There is Money IN THE Corn Crop



Especially if the **FODDER** is put through a **TORNADO** which **cuts, splits** and thoroughly shreds it into a fine pulpy condition. Also cuts **Hay** and **Straw** without any additional cutting device. Furnished with or without carriers. **Free sample** of its work and illustrated catalogue for the asking. **SPECIAL PRICES** to introduce into new territory. We are also headquarters for

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W. R. HARRISON & CO., Mfrs., MASSILLON, OHIO.



WHEN SELECTING A CUTTER OR SHREDDER,

we invite you to get a catalogue of

Wilder's Ensilage Machinery

Machines with Self-Feed Tables, Swivel or Straight Carriers, Front-Cut or Cylinder Machines, Shredders or Splitters. OUR PLAN of SELLING will please you. Write to

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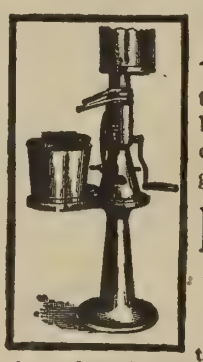
PRINT BUTTER Should be wrapped in . . . GOOD

Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

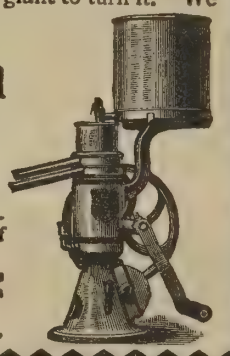
Department H. PATERSON PARCHMENT PAPER CO., Passaic, N. J.



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,
Sole Manufacturers,
De Kalb, Ill.



The New Book

FEEDS AND FEEDING

By Prof. W. A. HENRY,
WISCONSIN EXPERIMENT STATION.

THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

4 YEARLY Subscribers at $1.00 Each ($4) will Secure It as a Premium.

Of this Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book."

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., DECEMBER 22, 1899. NUMBER 45

If You Have CREAMERY BUTTER to sell, write
J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

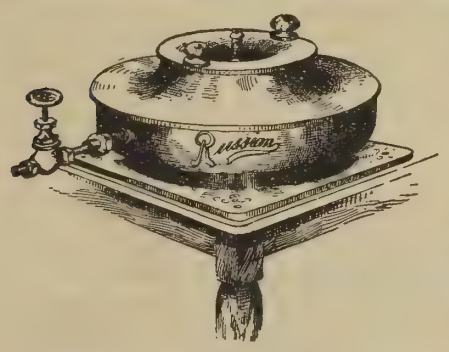
W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,
Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.



A Familiar Face,

if an honest one, is always welcome, hence we place before our friends a cut of the well-known

Russian Babcock Tester

The **RUSSIAN** is an honest tester, well known to the leading creamerymen of the world, but there are new creameries being built right along and we want to introduce the **RUSSIAN BABCOCK TESTER** to the new creamerymen. The **RUSSIAN** is the most simple tester made and at the same time is the most reliable. The bottles are large at the mouth and can be filled with one-tenth the trouble necessary in filling the ordinary Babcock bottle. The **RUSSIAN PIPETTE** is self-gauging and absolutely accurate, consequently it is possible to take ten samples with the Russian in the time necessary to make sure of having one correct sample from the ordinary pipette. The **ACID MEASURE** is a model of convenience and does away with the danger of burning the hands with acid. The bottles are filled with water automatically while revolving, hence no time is lost in filling them, as is necessary with the ordinary Babcock Tester.

The **RUSSIAN** is economical, as it uses but one-half as much acid as other testers and requires but little power to operate it. There are no iron or tin parts about the Russian to rust out and every part of it is so strongly built as to make it practically unbreakable. Of course the glass ware can be broken the same as any glass ware, but there is much less of it than in other testers of like capacity, hence a correspondingly less breakage. The **RUSSIAN** is a strictly high grade tester, and while it costs a little more on the start it is much cheaper in the end than an inferior machine. It pays to buy the best; buy the **"Russian."**

The Creameryman Should Remember that a gigantic Combination has succeeded in controlling nearly all the creamery supply houses in the west and that **THE SHARPLES COMPANY** now stands between the creameryman and the Combination. The "grip of the Trust" is felt in many sections, and in order to shake it off the creameryman should remember us when placing orders for anything in the line of

Cream Separators, Milk Testers, Combined Churns and Butter Workers, Milk Vats, Cream Vats, Milk Heaters, Butter Printers, Cream Carriers, Boilers, Engines, Pumps. Belting, Pipe, Pipe Fittings, Pulleys, Etc., Etc., Etc.

THE SHARPLES CO.,
28, 30 and 32 So. Canal St., Chicago, Illinois.
FACTORIES { West Chester, Pa., And Dubuque, Iowa.

LARGE CAPACITY
CLEAN SKIMMING
SMOOTH CREAM
SIMPLE, DURABLE
} **THE BIG 4**

A. I. SWARTZ, Pres. H. C. HALL. Vice-Pres. P. H. TYLER, Sec. and Treas.

OFFICE OF **PORTVILLE BUTTER CO., L't'd.**

N. HOTTON, Salesman. *Makers of* *FINE ELGIN CREAMERY BUTTER.*

PORTVILLE, N. Y., Sept. 21, 1899.

P. M. Sharples, West Chester, Pa.

Dear Sir: We have now used the No. 40 Tubular Separator over three months and are very much pleased with it in every way. It will skim clean at 60 degrees and 3-100 of 1% is about the average amount of fat left in the milk. We put 4,100 lbs. through it when on trial, and the skim milk tested less than 4-100 of 1%. The feature of regulating thickness of cream while in operation, is very convenient and we turn out a smooth article that pleases cream users.

Our butter maker has operated all the prominent makes of separators, and says this takes the cake. It pleases the stock-holders and patrons to see it take care of the milk so rapidly.

Yours respectfully
N. HOTTON, Butter Salesman. P. H. TYLER, Secy.



The SHARPLES TUBULAR must do the work or you don't keep it; that is the bargain. Not what we say but what the Separators do and keep doing.

Twice as many of these Sharples Tubular Separators are in use to-day as is the case with any other separator ever invented, at the same length of time after its invention.

We have tried to introduce them as fast as possible by talking about them but that is not what tells the tale. Others with miserable separators to sell talk as much or more than we do. **But it's the merit of the separator that does the business.**

Send for Catalogue No. 46.

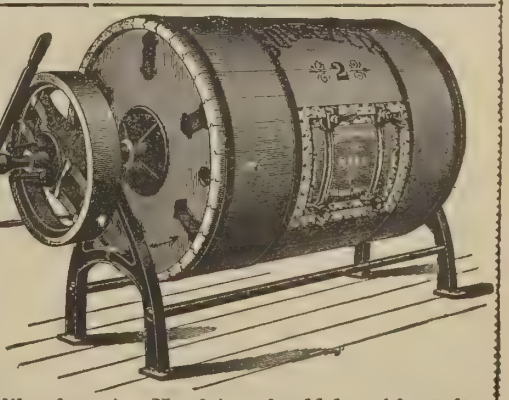
The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.
D. DERBYSHIRE & Co., Brockville, Ont.

JOHN JAMISON, ESTABLISHED 50 YEARS. **Butter, Cheese, Eggs, Poultry.**
Water and Market Streets - - - PHILADELPHIA, PA.
I reach every outlet and have a constantly increasing trade. REFERENCES; Dun and Brad streets; Corn Exchange Bank, Philadelphia.

The Machine that will Build a Butter Trade.

Because it will make a superior quality of butter.

THE SQUEEZER COMBINED CHURN AND WORKER



squeezes the water and butter milk out of the butter instead of grinding it. **It preserves the grain,** distributes the salt and color evenly and **prevents mottles.** It is

Made for the Dairy,

and is easily operated and readily cleaned. No dairy should be without it.

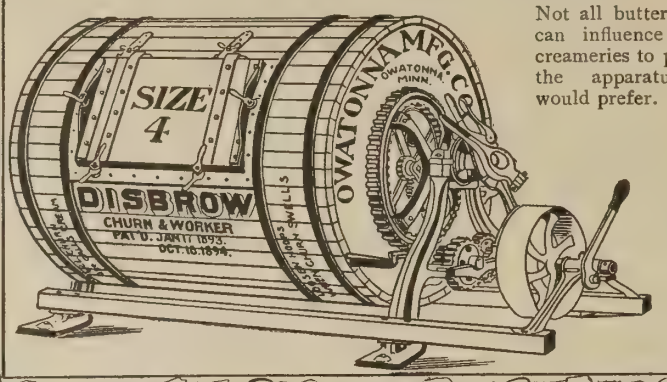
Will do Exhaustive Churning at any Temperature.

We are prepared to repair all cream separators and employ highly skilled men for this work.

Write for Catalogue No. 82. **ELGIN MANUFACTURING CO., ELGIN, ILL.**

Most Butter Makers

KNOW WHAT THE BEST CREAMERY MACHINERY IS.



Not all butter makers can influence their creameries to purchase the apparatus they would prefer.

We believe that THE **DISBROW** would be selected by seventy-five per cent of the butter makers, if they could choose their own churn and worker. Creamerymen will do well to consult their butter makers. They are always interested in making the best butter. It is on this that their position depends.

If you would like to know more about the DISBROW, write us.

OWATONNA MFG. CO.,

Sole Manufacturers. **Owatonna, Minn.**

Creamery Package Mfg. Co.,

GENERAL SALES AGENTS,

1, 3 & 5 W. Washington St. **Chicago, Ill.**

BRANCH HOUSES:—Minneapolis, Minn. Kansas City, Mo. Waterloo, Ia. Omaha, Neb.

Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

That **Robber Cow**

eats up the profits of two good cows every year. Just so the "setting system"; or some cream separators may leave enough cream in your milk to pay for two



Empire Cream Separators

The Empire leaves scarcely a trace of fat in skim milk, and is the lightest running separator made.

Six sizes of hand power machines, $40 and up. Illustrated catalogue, *free*. Agents wanted,

U. S. Butter Extractor Co., Newark, N. J.

$10.00 A YEAR



is added to each cow's profits on every farm where they use

The Kneeland Omega Cream Separator.

Has points of merit possessed by no other, among them its simplicity, slow speed, ease of operation and cheap price. Makes better butter and more butter. Separates thoroughly. Everyone guaranteed to be just as claimed, or money refunded. Illustrated catalogue, prices and our book "Good Butter, and How to Make It," is free. We want every farmer to send for them. **Agents wanted everywhere.** Address,

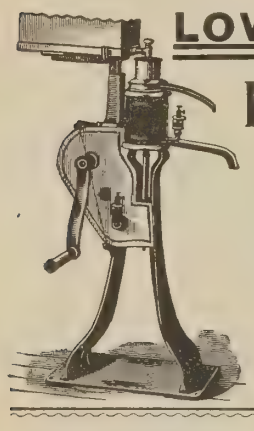
The Kneeland Crystal Creamery Co.,
42 Concord St., Lansing, Mich.

The Loomis "CLIPPER" Well Drill

The standard well drilling machine of America. Strongest, fastest, easiest to handle, and will **make the owner more money** than any other well drill. For full particulars address

LOOMIS & NYMAN, TIFFIN, OHIO.

LOW PRICES ON THE



Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,
Cedar Rapids, Iowa.

GENESEE SALT COMPANY'S

EDUCATIONAL CHEESE CONTEST

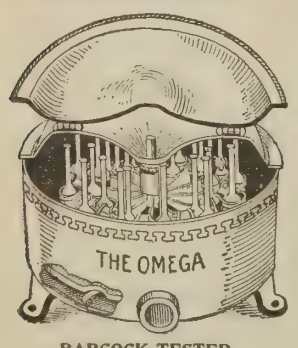
Was judged by A. H. Barber and criticised by U. S. Baer, Cheese Instructor at Madison, Wis. Eight states represented and the following prizes won.

Walter Fero, Muscoda, Wis., (Sweepstakes)	99	$30.00	C. A. Johnson, New London, Wis., 1st in Class 3	97	$15.00
E. Grant Hodges, Union, Iowa, 1st in Class 1	98	20.00	Wm. Nisbet, Hub City, Wis., 2nd in Class 1	97	10.00
Tom Johnson, Boaz, Wis., 1st in Class 2	96¾	20.00	F. A. Vieryutz, New Holstein, Wis. 2nd in Class 2	96½	10.00

Robt. Nauman, Manitowoc, Wis., 2nd in Class 3 ..... 96 $5.00.

1900 Contest Will be Larger.

F. A. TRIPP, CHICAGO. **GENESEE SALT CO.,** NEW YORK, N Y.



BABCOCK TESTER.

FOR LATEST IMPROVED

Creamery Apparatus,

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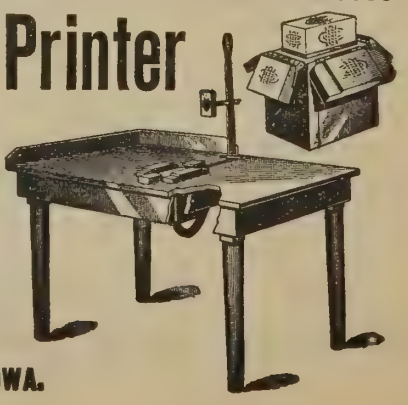
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A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

TWO hundred head of young cattle were recently shipped from Prince Edward Island, Canada, to Dallas Center, Iowa, where they will be fed for the Chicago market.

The buyer of the cattle found that he could buy those cattle at a figure so far below the cost of raising them that it would pay all expenses of purchase and shipment and leave him a good margin of profit.

The question arises: What sort of education and training had those Prince Edward farmers given themselves who raised those cattle? We might say, indeed, that a very large proportion of the young cattle purchased to feed, in the United States, have, until within in a short time, been produced by farmers of about the same grade of thinking and study. A great many farmers seem to exist for no other purpose than to make speculators rich.

A TENNESSEE DAIRY.

Mr. W. T. Roberts, proprietor of the Fern Spring Dairy Farm, of Riceville, Tenn., writes us a private letter under date of Dec. 2nd, and gives in the same, a quite interesting account of his struggles and experiences in starting the business of dairying in that locality. From the same we make the following extracts:

"I have 500 acres of good land, 40 cows and all necessary appurtances for the making and shipping of milk, butter and cream. Am making only a small amount of butter, as nearly everything goes in cream and milk. For cream I get 3½ cents per unit of butter fat, or 67½ cents per gallon for 20 per cent cream. Buttermilk and skim milk net us 54 cents per hundred. We cannot nearly meet the demand at these figures.

Last year our herd made about $72 per cow, and our entire farm and herd netted above expenses a little over $1,300, besides the improvement of our herd which is quite an item. Last year was a poor one on the farm on account of partial (we never have a total) failure of all crops.

I bought my land *naked* nine years ago, and soon after concluded I would go into the dairy business. I had a speckled muley cow, a black muley bull, and black heifer, but I subscribed for HOARD'S DAIRYMAN, bought a few heifer calves, such as I could pick up, and four grade Jerseys, and so my herd was started—not, however, until I had invested $25 in a Jersey bull calf about the size of an average dog. From then until now I have worked the best I could with divided interests, and now have a first-class herd, two registered bulls, and besides the 40 cows, have 45 fine young heifers to come in in due time."

In the plain and concise recital of the above, is contained a lesson which would prove of great profit for dairy farmers every where to consider. Mr. Roberts commenced at the bottom round of the ladder but he did not stay there. His history and experience is that of thousands of others who have recognized the vital truth of personal attention to their own growth and improvement, in dairy knowledge. He reached out with a hospitable welcome for the best dairy thought and experience he could get from others.

THE U. S. DAIRY EXHIBIT AT THE PARIS EXHIBITION OF 1900.

The arrangements for exhibiting the industries and products of the United States at the World's Fair, to be held in Paris next year, are now well advanced, and our readers may be interested in an account of the way in which American dairying is to be shown.

The entire agricultural display by this country is under the general management of Mr. Chas. Richard Dodge, who acts as Representative of the Secretary of Agriculture and Director of Agriculture for the U. S. Paris Exposition Commission. The general offices for agricultural preparation are located at the Department at Washington, and Mr. Dodge there has the assistance of a number of the Departmental Division chiefs, in supervising their special lines of work.

At the outset, it was decided that the agri-



BROWN LADS PEARL.

Test 14 lbs. 12 oz. butter with first calf. Property of D. J. L. THOMPSON, Indianapolis, Ind.

cultural exhibit of this country at Paris, should be commercial. The primary object is to take advantage of this opportunity to show all other nations the agricultural products of the United States, and especially those which we have in excess and can supply to other countries, as well as the condition, quality and forms in which we offer them for export. Incidentally, the exhibit will embrace educational features, so as to show our capacity for production, our facilities for preparation, transportion and distribution and the agencies, governmental or otherwise, for increasing and improving our products, maintaining our standards and protecting the interests of buyers.

Secretary Wilson has, on many occasions, expressed his conviction, that it is a wasteful policy for this country to export such large quantities of grain and feeding stuffs for other people to feed at a profit, and that we ought, instead, to convert these raw materials at home, into condensed food products, and export more of the latter. In short, we ought to export less corn and cotton cake, and more beef and butter. Accordingly, while the United States exhibit at Paris will include an adequate representation of our cereals, fruits, tobacco, wool, cotton and other vegetable fibers, particularly earnest efforts will be made to have the animal industries and food products of the country well shown. The immediate supervision of this section of the exhibit has been given to Major Alvord, chief of the Dairy Division; he has been appointed by Com'r-General Peck, as Honorary Expert of the Exhibit of Animal Industries. This assignment gives satisfactory assurance that the United States Dairy Exhibit at Paris, will have due prominence, and will be comprehensive and effective.

The dairy has been allotted a large share of the space provided for the whole line of animal products. The main feature will be a representative collection of staple dairy products, butter and cheese, canned cream and condensed milk. Arrangements have been made for procuring an abundant supply of these articles of the very highest grade, and at such times as to keep fresh goods constantly on hand at Paris, throughout the Exposition. There will be States butter and cheese in the display at all times, with quality and condition such that they may be sampled, tested or "judged" any day. Major Alvord has secured the assistance of the best local experts and authorities in selecting the butter and cheese to be sent to Paris. In New York and California there are State Paris Commissions which co-operate with local dairy interests, and have special funds to promote this work. In Iowa, Wisconsin, Minnesota and elsewhere, the State Dairy officials and associations are lending their assistance. The products chosen are to be taken to New York in refrigerator cars, with special provisions for expediting and protecting all necessary transfers en route; they will then be promptly transferred to refrigerated compartments on fast steamers to either Southampton or Havre. There special agents will receive the goods, re-ice them, and forward to Paris in portable refrigerators.

At the Exposition, one of the most prominent and attractive features of the American Section in the Palace of Agriculture, will be the large display refrigerator, half of which is to be used for dairy products. This structure has been built at Boston, in accordance with the patents of A. J. Chase, and under his personal direction. It is hexagonal in form and twenty feet in diameter, giving six fine display compartments, with plate glass fronts each about ten feet square. The refrigerating apparatus is in the center and concealed. The whole structure is arranged to revolve upon a vertical axis, so that visitors need not pass around it, but standing at one spot they will have the entire contents passed before them about once in two minutes.

While giving precedence to dairy products of those kinds, and in those packages best suited to the export trade,—all the approved forms of butter and cheese for our home markets will also be shown. The butter will be both creamery and dairy, in tubs and boxes, in convenient family and retail packages, and in rolls and prints. Every variety of tin cans and other hermetically sealed packages, adapted to long distance transportation, and for use in warm climates, will be included. The principal display of cheese will be in the standard factory or Cheddar form, in different sizes, colored and uncolored; there will also be samples of all other varieties made in this country, including a full line of foreign and fancy forms. The manufacture and export of condensed milk is rapidly increasing, and all the large condenseries of the country have contributed of their products, so that this branch of the dairy industry will be well represented. Special products will also be included, such as natural cream, sterilized in sealed cans, and pasteurized in bottles, "modified" milk, koumys, matzoon, etc.

An interesting branch of the dairy exhibit, will be a large and varied collection of samples, showing the economies of the business in the line of by-products. This will include, casein as separated from skim milk, with its several applications and products, such as egg powder, paper sizing, enamel paint and hard articles similar to those made from celluloid; pure albumen from skim milk; a product for baker's use, known as nutrium and nutrium batter; sugar of milk, of all grades; and other products of whey.

It was thought to be impracticable, and useless to attempt to exhibit a full line of dairy appliances and machinery, but a small collection has been made with the idea of showing some of the mechanical aids which have contributed to advance the industry, which are of American origin, and which are not generally known abroad. The Babcock milk test will be represented as the most important American invention and contribution to dairying; this will be shown by a large collection of photographs, and a number of testing machines of different patterns. It is believed that the United States stands in the first rank of the world, in its progress and facilities for the supply of pure, fresh milk to cities and towns; an effort will be made to show this by a collection of modern and improved appliances used in the equipment of model milk dairies.

Aside from this collective exhibit by the government, several of the enterprising manufacturers of dairy implements and machinery have secured allotments of space at the Exposition, and will make commercial displays of their specialities in the line of dairy and creamery equipment.

The associated system of dairying is an American institution, originating in New York about the middle of the century, and its principles are embodied in the modern creamery. In order to emphasize this fact, our exhibit will include a model of a separator creamery, completely equipped, with the machinery and fittings in miniature, but all capable of being put in motion by a jet of steam, or a current of electricity. The bowl of the separator in this model establishment, has a capacity of about one pint, and the other appliances are in proportion.

In order to inform strangers as to the extent, distribution and local intensity (so to speak) of the dairy industry of the United States, the material already described will be accompanied by maps, charts, statistics and photographs in great variety. For example, there will be maps of Iowa and New York, representing the greatest butter and cheese producing States respectively, indicating the location of every creamery and cheese factory; and maps of selected counties showing special development and concentration of creamery and cheese factory interests, such as Freeborn county, Minnesota, and the counties of Jefferson, Sheboygan and Green, in Wisconsin.

Various additional details contribute to round out and complement this display, and Major Alvord is attending the leading dairy conventions this season, as far as his duties will permit, for the purpose of obtaining information, advice and material with which to perfect the United States Dairy Exhibit at Paris.

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Coming Events.

Washington Dairymen's Association, North Yakima, Dec. 28-30, 1899.
Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb. 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson
Prince Edward Island, Marshfield.
Michigan Dairymen's Association, Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

ANNUAL MEETING AMERICAN GUERNSEY CATTLE CLUB.

Wisconsin Guernseys Lead.

The American Guernsey Cattle Club held its annual meeting in New York, last week, but we are obliged to defer any extended report of same in this issue.

The most important business transaction,—important to the general public—was the adoption of a new scale of points for judging Guernseys, whereby dairy utility is given greater prominence than fancy breed characteristics.

The compilation of yearly individual and herd tests give Wisconsin Guernseys a very decided lead, although it is but fair to say that only one herd outside of Wisconsin was represented.

Mr. J. H. Beirne, of Oakfield, Wis., carries off first and second prizes for individual yields, with Lily Ella 7240, at the head; her record being 12,282.68 lbs milk, containing 782.16 lbs. butter fat, equivalent to 912.5 lbs. butter. We published a picture of this cow, then a heifer, about two years ago and reproduce it here, with the single remark that this picture and this record afford ample justification for the adoption of the new scale of points.

Lilyita 7241, from the same herd, takes second place with 12,812.73 lbs. milk, and 710.53 lbs. fat, equivalent, with one-sixth added, to 828.95 lbs. butter.

Countess Bishop 7869, from the herd of George C. Hill & Son, Rosendale, stands third, with a credit of 527.71 lbs. butter, estimated on the same basis; and five cows from their herd reach an average of 455.062 lbs.

These tests, it should be remembered, were carefully supervised under direction of the Agricultural Experiment Station, and their accuracy is thus put beyond successful contradiction.

THE DANGER THAT IS AHEAD.

The evil results of food adulteration were set forth in a clear and startling manner before the Senate Committee on Manufactures in New York the other day. The speaker was Prof. Herbert W. Hart. The question before the Commitee was the use of harmful substances in the manufacture of food products, and Prof. Hart declared that every college should have a chair of dietetics. He declared that the persistent adulteration of all classes of food was responsible for the present degeneracy of the race and would be responsible for a future generation of idiots. He said the appetite for beer is the result of the craving of the system for the life-giving elements that are taken from wheat by its manufacture into white flour. He might have added that the cause of this craze for white flour is due to the housewives of the United States, who sacrifice all other considerations in breadmaking to the matter of having it "look white and nice."

Previous testimony before this same committe had shown that nearly every staple article of *manufactured* food and drink sold in this country is adulterated with substances more or less harmful, if not poisonous, to the human system. Speaking of this state of affairs *Leslie's Weekly* says:

"That such food must in time produce a race of degenerates and imbeciles cannot be doubted. It is to be hoped that as a result of its inquiries the Senate Committee will recommend a searching and drastic law in regard to the use of adulterants. The manufacture of poisoned food should be repressed with prompt and severe measures."

It would be well for the public to note where the *onus* of this great sin of food adulteration rests.

It is on the "manufactured" food. There is where the danger lies.

When we leave the farm, the only true producer of food, and turn the business over to the unchecked greed of dishonest corporations, there is of necessity no safety left.

Take it in the article of butter alone. As we have before repeatedly observed, true butter always advertises its exact condition.

But with oleomargarine which is a counterfeit butter, the consumer absolutely has no protection.

The greed of the manufactures for a little more profit, employs a chemist, who by his art can deodorize the foulest fats and introduce poisonous preservatives.

The introduction of paraffin found in several instances, by the New York detectives, in oleomargarine, shows what dangerous liberty is enjoyed by these manufacturers of counterfeit food. The alarming increase in the past fifty years of numerous diseases of the urinary organs, particularly Bright's disease, which is simply a consumption of the tissues of the kidneys, is due very largely, in the opinion of many eminent physicians, to the adulteration of food and drink.

It is the office of the kidneys to eliminate from the blood, all poisonous matter. A moment's reasoning will tend to show what the effect must be on these delicate organs by such wholesale adulteration as now exists.

The farmers of the United States have lifted up their voice against such wicked counterfeiting of human food. Some short sighted people have attributed their action to a selfish purpose, a desire to escape competition. But in a broader light they are standing by the interests of the consumer of food. Everywhere, statesmen, politicians and managers of political parties had better keep their ear close to the ground, concerning this sentiment. Certain political leaders are known, for instance, to constitute the main defence of the oleomargarine fraud in suppressing desired legislation against it, because the makers of this counterfeit are rich and pay liberally to campaign funds.

The day is fast approaching when there will come a reckoning with these leaders at the hands of an outraged people, producers and consumers as well. This question of the suppression of food counterfeiting and adulteration will soon have a political, as well as dietetic significance.



LILY ELLA 7240, A. G. C. C.

Yearly record, 12,282.68 lbs. milk; 782.16 lbs. butter fat, equivalent to 912.5 lbs. butter.
Property of J. H. BEIRNE, Oakfield, Wis.

Early Silo Crops.

ED. HOARD'S DAIRYMAN:—On page 858, you say to F. A. M., of Virginia, that you know of no crop that will mature early enough to fill a silo for summer feeding. What's the matter in this latitude, with clover? Clover is commonly cut for hay, hereabouts, in June, and the heads all brown by July 10th or so. The dry season generally comes in July, August and September. And are there not some early varieties of corn—sweet corn or flint, that would make a fair crop early enough for at least early fall feeding; and could not field peas be drilled in with the corn? And how about early sown millet? Should clover and the grasses be run through a cutter before ensiloing? G. L.

Lauderdale, Wis.

It does not follow that because a crop can be cut for hay that it is therefore fit for silage. Thus the early summer growth of almost all crops contains an amount of water that prevents their use as silage material, although a few weeks further growth would bring them in shape to be so used. It is, however, in these few weeks that the trouble is found and to get the full advantage from a summer silo, feeding must begin before the grass gets woody, or the drouth commences. If you have early sweet corn, peas, clover, etc., it is better to use them as soiling rather than silo crops for early summer feeding. Clover need not be cut for silage; millet, it is reported, makes good silage if cut before the seeds are ripe. The trouble with all of these silo crops is their extra cost in comparison with corn, owing to smaller yield.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

FOR TEXAS JERSEYS.

D. D. F., Waco, Texas, has five Jersey cows that he wishes to feed on bran, $16.00; corn meal, $20.00; cotton seed hulls, $4.50; sorghum hay, $7.00; prairie hay, $9.00.

In this case we would discard the cotton seed hulls altogether, and feed from two to three pounds of the cotton seed meal, and from four to eight pounds of bran and use the prairie hay principally for roughage as we consider that cheaper at $9.00 than sorghum hay at $7.00; although it would be advisable to feed a little of the sorghum hay just for variety and to stimulate the appetite of the cows.

FOR LARGE SIZED, DEEP MILKING COWS.

Will you kindly formulate us a feeding ration for large sized, deep milking Holstein cows in full flow of milk, also those well advanced in gestation, so we can get a large flow of milk and at the same time keep them in good flesh. Our feed consists of hay (clover and timothy mixed and cut green), corn stover, and a light feed of silage well eared. Our grain is ground, two sacks of corn and one sack of oats home grown, and ground, cob and all, wheat bran, $16.00 per ton; Cleveland linseed meal, $1.35 per hundred; old process oil meal, $1.50 per hundred Would you advise using hay, corn stover and silage? We thought to save our hay until the corn stover was fed out, so have fed no hay as yet. We know oats are always expensive cow feed, yet we think a few oats are good for cows carrying calves.

East Claridon, Ohio. K. & P.

If one wants a good cow to do her best, he must not only supply her with food, but must also stimulate her appetite by giving her a variety; hence, instead of only feeding the corn stover and silage at first, we would include with them some of the hay, and this as well to give a better proportion of protein as to furnish the variety above mentioned. We quite agree with the proposition that oats are an excellent feed under any and all circumstances, whether for horses or for cows or sheep. They are, however, usually so high in price that we aim to get along without them. For cows in full flow of milk we would not consider the following allowance excessive:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
20 lbs. silage.....	5.28	26	2.80	.14
12 lbs. stover.....	7.14	.20	3.89	.08
5 lbs. hay.....	4.27	.24	1.98	.08
5 lbs. corn and oats...	4.45	.37	2.89	.19
5 lbs. bran.....	4.41	.63	1.93	.15
2 lbs. Cleveland meal	1.79	.64	.50	.05
Totals.....	27.34	2.34	13.99	.69

Of course as cows decrease in milk and approach the time for freshening again, we

would materially contract the allowance of grain, being governed by the individual condition of each cow.

A MICHIGAN RATION FOR YOUNG HEIFERS.

Please form me a ration for my seven head of one and a half yearling calves, mostly heifers. Have plenty of corn stalks (husked) and oat straw with 1½ tons Hungarian hay; have corn and oats at 35 cents and 25 cents per bushel, but do not care to feed much. Would like to use all the straw possible. Bran is worth $18.

So. Rockwood, Mich. V. A. J.

In answer to another inquirer we have discussed briefly, our theory of feeding young stock intended for the dairy, and it seems unnecessary to repeat the same here. We think these young things ought to have either a small daily allowance of oats or of bran, and it is practically immaterial which. The amount should be regulated by circumstances. We don't want stock of this character to become fat, but we do want them to be kept in good, thrifty condition with well developed muscles. Corn stalks and oat straw are not well calculated for this purpose, therefore, we would add either oats or bran.

A KENTUCKY CONDITION CRITICISED.

W. F. G., Greendale, Kentucky, desires a ration formula from the following feeds: Corn fodder; corn and cob meal, $15; bran, $16; gluten feed, $22.

It is a little singular that a man with dairy cows in Kentucky, should have only corn fodder, (and by this is probably meant corn stalks) for roughage. We had a very pleasant call this morning from four students of the Wisconsin Dairy School, one of them from Mississippi, one from California, one from Michigan and one from Wisconsin. We were very much interested in what the young man from Mississippi had to say of his experiences there, in feeding dairy cows. This confirms in every particular, all that we have ever thought or written on this subject for our Southern readers. It is entirely practicable to grow everywhere south of the Ohio river, the best kind of forage for dairy cows. Alfalfa thrives well, cow peas do excellently, and there are the native hays of various kinds. We feel very confident that our Kentucky friend would not use his horses the way he is attempting to care for his cows. He has been brought up in that direction on better lines. We would like to have him realize the dairy cow is entitled to fully as much consideration as the thoroughbred horse. However, it he can do no better we suggest that he mix the several grain feeds above specified in equal parts by weight, and let his cows have from 6 to 12 lbs. of this mixture daily, proportioning the amount according to their several capacities to use the feed profitably, and then, in addition to this let him give them all the corn fodder they will eat.

A NORTH CAROLINA RATION.

How much does it add to the value of cow peas and coarsely crushed corn and cob to thoroughly boil them? Rice straw, $3 per ton; cow peas, $20; wheat bran, $20; cotton seed meal, $20, and cotton seed hulls, $3.

Please give proper ration for milk cows fed for milk, not butter. E. W. S.

Wilmington, N. C.

Ordinarily we do not advocate cooking feed for cows. That it may be beneficial, under certain circumstances, is altogether probable.

Probably the circumstances cited by our correspondent make one of the exceptions where cooking may be resorted to in place of grinding the peas, and to soften up the coarsely crushed corn and cob. Cobs should be finely ground for feeding purposes; if not so ground, it certainly would be an improvement to cook them. We find it a little difficult to suggest a ration, because the corn and cob meal seems to be omitted from the list of available feeds. We would suggest wheat bran and cotton seed meal, mixing them in the proportion of four of bran to one of meal, by weight, and then feed 6 or 10 or 12 lbs. of this mixture daily, according to the dairy ability of each cow. Give, in addition to this, as much rice straw and cotton seed hulls as each cow may crave.

There is no difference between a milk and a butter ration. The food that will produce milk will also produce butter.

A NEW YORK RATION.

Last year you criticised and improved a ration for me which resulted in a saving of several dollars worth of feed. This year my allowance of hay being scant, shall have to change my ration somewhat, and ask your aid, as I don't feel competent to make the change myself.

In forming the ration, please use as few different feeds as possible: Bran, $20 per ton; middlings, $21; corn meal, $20; cotton seed meal, $27; oil meal, $31.

For roughage have nice, bright fodder corn (sowed corn), and for succulent feed have plenty of mangel wurzels. C. E. W.

New Hamburg, N. Y.

We are of the opinion that under the circumstances we should try as an average daily allowance, something like the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
25 lbs. fodder corn	13.45	.63	8.65	.30
25 lbs. mangels	2.28	.28	1.35	.05
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. corn	1.78	.16	1.33	.09
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	22.87	2.31	13 2	.73

A WISCONSIN RATION DISCUSSED.

I have been feeding the following ration: Clover hay, 10 lbs.; corn fodder, 15 lbs.; wheat bran, 4 lbs., at $15.00; gluten meal, 2 lbs., at $18.00. My corn fodder was planted June 12th to 16th and thick in row and thick in hill. I cut and bound it in bundles. Very fine fodder, but not over 15 bushel baskets of grain per acre. I didn't want grain. This grain ration costs nearly six cents per cow. By feeding 5 lbs of gluten in lieu of 4 lbs. bran and 2 lbs. gluten, I can get nearly the same elements and save one cent per cow, per day. Not much of a save, I admit, but on seven cows is seven cents per day, or $2.10 per month, or $6.60 for the heavy grain season. Do you think I would get the same results by changing, or would so much gluten by itself be too heavy?

Cows fresh last April and May, three with first calf. F. C.

Waupaca, Wis.

We very much approve the effort of our friend to take advantage of small economies. This is the only sure road to financial independence. If farmers were as careful about these matters as bankers are they would own the banks.

Gluten meal is much too concentrated to be fed alone and also when gluten feed is used, we think we get better results by mixing it with an equal weight of bran. It is, perhaps, difficult to explain satisfactorily why this is so, just as it is difficult to explain why corn and cob meal has an equal feeding value with corn chop. We "guess" the reason is that a more complete digestion is accomplished because of the greater bulk of the feed.

We venture to suggest to our friend, however, that there is a "withholding which tendeth to poverty." The whole subject of economy is not included in the mere item of cost. It is in the range of possibility that if our friend should increase the cost of his ration by one cent or more, he would find a larger return from his cows and make more clear money. This is a question that cannot be decided in an editor's room, or at a farmer's institute, or anywhere except at the farm, by keeping a strict account of the cost of the feed and the value of the products returned by the cow. It is our opinion that if these cows have not been in milk too long it would pay to increase the grain allowance by adding fifty per cent or perhaps a hundred per cent to the amount of gluten now fed. The only way to find out for certain is to weigh the milk for several days before increasing the feed and then increase it gradually and continue to weigh the milk, remembering that the increased returns, if any, will not show themselves at once.

A NEW YORK RATION.

Will you give a balanced ration for dairy cows, (grade Jerseys and grade Guernseys) from following feeds: Starch feed (wet), $3.45 per ton; cob meal (home grown), $14.50 per ton; corn meal (home grown), $16.50 per ton; cotton seed meal, $26.00 per ton; oil meal, $28 per ton; ground oats (ground by ourselves), $21.25 per ton; clover hay, $18.00 per ton; bran, $19.00 per ton.

Have plenty of corn and abundant supply of fodder corn and sugar beets.

East Williston, N. Y. S. M. Z.

We have been hearing all through the late summer and fall that the corn crop in New York was a failure. How does it happen that inquirer is able to report "plenty of corn and abundant supply of fodder corn." Was the season more favorable to him than to others, or did he put in practice better methods of cutivation? We would be much obliged to him for a report as to how it came about that he has plenty of corn and abundant supply of corn fodder.

We are not altogether satisfied with the wet starch feed, either as to the advisibility of feeding it, or as to its analysis as given in our table. If it can be had perfectly fresh and fed out in that condition, it undoubtedly makes a good feed and there can be no sound objection raised to it, but like all feeds of this character it decays very rapidly, and the temptation to use it when a little off its quality is so great that a dairyman wants to be very careful about exposing himself thereto.

With the foregoing reservation we recommend a trial of the following combination:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. fodder corn	5.78	.25	3.46	.12
5 lbs. clover hay	4.24	.34	1.79	.09
20 lbs sugar beets	3.70	.22	2.04	.02
20 lbs. starch feed	6.92	1.10	4.34	.46
4 lbs. corn meal	3.56	.32	2.67	.17
Totals	24.20	2.23	14.30	86

If for any reason we wanted to feed more than above suggested we would add ground oats.

FEEDING FOR MILK NEAR LAKE SUPERIOR.

R. E. F., who resides in Bayfield county, Wisconsin, keeps a few cows and supplies the people of the neighboring city with milk. He has to pay $12 a ton for timothy hay, $16 for bran, $18 for shorts and $30 for oil meal.

He says he is feeding now to each cow, 4 quarts of bran, 2 quarts of shorts, one quart of oil meal and 25 lbs. of timothy hay, each day. It is not quite clear from his letter, whether the above grain allowance is for the entire day or is the amount given at each feed morning and evening. If he feeds this amount of ground feed twice a day we think he is feeding more than his cows can make good use of, but if it is the total allowance for twenty-four hours it is much too little. Unless he has cows that are giving an unusual large flow of milk, we should say that 20 lbs. of timothy hay, 5 lbs. of bran, 5 lbs. of shorts and 2 lbs. of oil meal would be all that they can use with profit; and unless the shorts are of extra good quality, we would prefer to substitnte an equal amount of ground corn for them.

We do not think there is any advantage in wetting the ground feed, providing the cows have sufficient water, of proper temperature, and convenient of access.

AN OHIO RATION.

Please tell how to feed for milk; also, what effect feed has on the test, or what would be the difference in feeding for butter. We have corn, oats, cut fodder and clover hay. What is wanted is a balanced ration, using as much as possible the feed on hand as above stated.

Springfield, O. R. D. H.

As to what effect feed has on the per cent of fat in milk, see answer to W. M. M., below.

Change of feed will quite frequently make a temporary change in the quality of the milk, sometimes to increase the per cent of fat, and sometimes to decrease it. Whenever the cow becomes accustomed to the change she reverts to her former condition, and the quality of her milk is governed by her individuality, and not by the feed she receives. Bearing in mind the desire of the above inquirer, to use as much as possible of the feed in hand, we suggest that he mix his corn and oats, equal parts by weight, and feed about 10 lbs. of this mixture and 2 lbs. of oil meal with 10 lbs. of clover hay and 10 lbs. of corn stover as the daily allowance; or if local prices make it cheaper, in place of the grain, as above, let him feed 5 lbs. of mixed corn and oats, and 5 lbs. of gluten feed. If there is considerably more clover hay than corn stover, let him feed 15 lbs. of clover, 6 lbs. of corn stover, and drop out 1 lb. of the oil meal.

FOR A NEW JERSEY MILK PRODUCER.

Please give me daily ration for cows. Am selling milk; am paid by quart, not tested. Have the following feeds at prices:

Mixed hay, $18 per ton; corn fodder, $6; corn meal, $18; wheat bran, $18; buckwheat bran, $14; beets, $6.66. W. M. M.

Freehold, N. J.

Evidently W. M. M. has an idea that if he were selling milk by the test he could profitably feed in some way different from the best way of feeding where milk is not sold by the test. In other words, like a great majority of milk producers, he has been brought up to believe that the quality of the milk can be more or less changed by a different style of feeding. We have a great deal of sympathy for these men, as we have had the same experience and find it even now very difficult not to think that the quality of the milk is affected by the feed. As a matter of fact there have been too many carefully conducted experiments along this line to warrant further adhesion to this belief. We may change the per cent of fat in milk, temporarily, by changing the feed, but very soon the individuality of the cow asserts itself, and the milk comes back to its former composition. We do not see how a satisfactory ration can be obtained from the feeds named. Beets are quoted very far above their feeding value, fully twice as much as they are worth, even when compared with the high prices named for other feeds. Buckwheat bran is so indefinite and variable in quality, that we dare not recommend its use. It may be a very cheap feed at the price named, or, if it consists largely of buckwheat hulls, it would be very dear at $14 per ton. We suggest to our friend, therefore, that he get some cotton seed meal, and then use the following suggestion as a guide only, giving one cow more than another cow as each one has the ability to pay for her feed:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs. corn stover	11.90	.34	6.48	.4
5 lbs. hay	4.27	.28	1.98	.08
4 lbs. corn chop	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.93	.15
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	25.09	2 18	13.40	.71

A ration of this character will cost about twenty-one cents, showing that it must be fed to an extra good cow in order to produce any profit. There are cows that could be fed a ration costing 50% more than this, and yet return their owner a handsome profit, and that kind of cows every cow keeper ought to aim to have.

FAVORABLE MICHIGAN CONDITIONS.

Please formulate a ration from the following: Cotton seed meal, $22.00 per ton; gluten feed, $16.00 per ton; wheat bran, $15.00. Have plenty of first quality timothy and clover hay, and plenty of silage. Cows, Holstein, registered, weigh 900 to 1,400

pounds and three to eight years old, all of strong constitution and in prime condition and fresh. Want large flow of milk and cheap as possible. SUBSCRIBER.

Howell, Mich.

We do not often find such a combination of favorable conditions for winter dairying—first-class cows, of strong constitution, in prime condition and fresh; then we have first quality timothy and clover hay and silage. Such conditions as these can hardly be improved upon. We suggest as a *minimum* ration in this case as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.28
10 lbs. hay	8.53	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.82	1.94	.14
Totals	26.30	2.32	13.04	.70

We hope that our friend will not omit to notice that we have emphasized the word minimum. Doubtless he has some cows that could make profitable use of a larger ration. In that event we incline to the opinion that he could use some cotton seed meal, but never to exceed two pounds per day and commencing with not more than one-half pound per day.

A NEW YORK RATION.

Please give me an economical balanced ration for fresh cows from the following: Have plenty of mixed hay and corn silage; can get bran at $18.00 per ton and gluten meal at $19.00. Also a ration for service bull. How much gluten meal with mixed hay and corn silage will it answer to feed a fresh cow and not injure her? S. G. P.

Tioga Co., N. Y.

From the prices quoted above we feel very confident that the gluten meal quoted is in fact gluten feed. Our inquirer can satisfy himself on this point by examining the feed. If he finds there is more or less of the corn bran he may be sure it is gluten feed. On the assumption that our conclusions are correct we recommend an average daily allowance as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8 53	.48	3.96	.16
3 lbs. bran	2.64	.38	1.16	.09
5 lbs. gluten feed	4 61	1.02	2.42	.18
Totals	23.70	2.27	11.74	.64

We would feed the bran and gluten feed in connection with the silage, adding a very small allowance of salt with each meal.

Feed the bull only the mixed hay and bran or oats in sufficient quantity, if any is needed to keep him in fair (not fat) order.

A DISTRICT OF COLUMBIA RATION.

Will you please give a balanced ration for registered Jerseys, weighing about 1,000 pounds, of following feeds: Clover hay, good corn fodder (most having small ears), splendid ensilage. Bran, $12.00 per ton; gluten feed, $18.00 per ton. Would you advise also to use corn meal which now costs forty-one cents per bushel (48 lbs.)

Washington, D. C. J. M.

Subject to such modifications as the individuality of the several cows may make proper, we do not see how one could expect to get a much better combination for the minimum ration than the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	5.23	.23	2.83	.18
8 lbs. corn fodder	4.62	.20	2.77	.10
8 lbs. clover hay	6.78	.52	2.86	.14
4 lbs. bran	3 52	.50	1.54	.12
4 lbs. gluten feed	3.69	.81	1.94	.14
Totals	23.84	2.26	11.94	.68

We see no special demand for corn meal and this more especially at the price named for it. Possibly in a more rigorous climate some corn meal could be used to very good advantage and this more especially if cows were not protected in warm stables.

AN ILLINOIS RATION.

I want a well balanced ration for producing milk. I have corn stover for roughage and ground corn and oats, equal parts. Which of the following feeds shall I buy to make up the protein: Wheat bran, $14 per ton; dried brewers grains, $15; gluten feed, $17. F. E. S.

Marengo, Ill.

Where one has only corn stover for roughage, he must expect to feed pretty liberally of grain, and the major part of this must be grain carrying a large per cent of protein. If the corn and oats are mixed, equal parts by weight, we suggest the following for trial:

25 lbs. corn stover	14.88	.43	8.10	.18
4 lbs. corn and oats	3.56	.34	2.08	.17
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.81	1.94	.14
Totals	25.65	2.08	13.66	.61

Brewers grains might be substituted for the bran in the above formula to afford variety, thereby stimulating the appetite of the cows. No greater mistake can be made in feeding milch cows, than to try how little they will eat, and still give some milk.

All the profit comes from feeding. The more feed, therefore, you can get a cow to consume, and turn to milk through her udder, the more profit she will return, provided she is a dairy cow.

AN INDIANA RATION.

Please give me milk ration from the following feeds: Clover hay, oats in straw and shredded corn fodder; bran, $14 per ton; hominy meal, $15 per ton; linseed meal, $25 per ton; gluten meal, $18 per ton; corn, 30 cents per bushel. J. O. V.

Danville, Ind.

It ought to be more thoroughly understood than it seems to be, that there is no such thing as a milk ration as distinguished from a cream ration or butter ration or cheese ration. We cannot by our feed sensibly change the proportion, or per cent, of fat in the milk. That is a matter that is determined by the individuality of the cow. Some cows have the ability to put 5% of fat in their milk, no matter what their feed may be, while other cows fed in the same way, cannot put more than 3% of fat in their milk. It follows, therefore, that whatever is a good milk ration is a good ration for butter or cheese. In the formula which we submit, we have omitted the oats in the straw, for the reason that it is a feed of such varying quality, that only experience with the feed at hand can determine its actual value. It does not follow that oats in the straw are not good feed, and that this is not a profitable way of feeding them. But if the straw is short and the grain is heavy this feed will have one value; if the straw is long and the grain is light it will have a smaller value. Ordinarily we should say that oats in the straw might be interchanged with clover hay, each having about the same feeding value as the other. In any event, Mr. J. O. V., after having fed the grain and shredded fodder as suggested, should give all the clover hay, or all the oats in straw or both, that each individual cow will eat.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover	8.47	.68	3.58	.17
10 lbs. corn fodder	7.10	.37	4.04	.12
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn	3.56	.26	2.67	.17
2 lbs. gluten meal	1.84	.52	.87	.16
Totals	24.49	2.33	12.70	.74

FOR CROWDING COWS ALL THEY WILL STAND.

Kindly give me the cheapest and best ration from following purchased feeds: Mixed timothy and clover, $14 per ton; bran, $18; corn meal, $17; cotton seed meal, $26; gluten feed, $26; oats, 35 cents per bu., or $21 per ton, ground.

We want to feed for quantity, and crowd our cows all they will stand. The cows are a mixed lot of all breeds, selected for their milking qualities. SUBSCRIBER.

Plainsboro, N. Y.

In a case of this kind we are disposed to recommend the system of feeding pursued at one time by Prof. Haecker at the Minnesota Agricultural Experiment Station. For aught we know to the contrary he is pursuing the same method now. He simply made a suitable grain mixture and fed the cows all they would eat of it, and let them have whatever hay they wanted. We suggest to Subscriber that he mix, by weight, five parts of bran, five parts of oats, two parts of corn meal, two parts of cotton seed meal, and feed each cow all she will eat of this, taking care at the outset not to feed so much as to get the cows "off their feed." We estimate that they will probably eat from 12 to 18 lbs. of this grain mixture, and from 8 to 12 lbs. of hay.

AN OHIO FEEDING INQUIRY.

Does gluten feed, clover hay and silage make a complete ration for cows when large flow of milk is the thing desired, bran not used at all, though it costs slightly less than gluten feed (Chapin & Co.)

Barley sprouts, dry, available at $10 per ton. Breed, Holsteins.

If you recommend change, please give reasons. J. & Co.

Columbus, O.

If the inquirer were to feed 40 lbs. silage, 10 lbs. of clover hay, and 8 lbs. of gluten feed, the digestible protein would be approximately 2.67 lbs., but the carbohydrates would be less than 12 lbs. It is our judgment that such a ration would be too narrow for best and most economical results. Ordinarily, the feeds highest in protein cost the most money. We should therefore be disposed to add to the above allowance some feed low in protein and high in carbohydrates. This could be accomplished by using corn stover, timothy hay, corn chop, corn and cob meal or anything of that character. This suggestion, given in tabular form, would exhibit figures as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	6.27	.27	3.39	.21
10 lbs. clover hay	8.47	.68	3.58	.17
6 lbs. gluten feed	5.53	1.22	2.90	.22
6 lbs. corn and cob meal	5.34	.38	3.78	.21
Totals	25.61	2.55	13 65	.81

BUTTER MAKING IN DETAIL.

A new subscriber in Athens, Georgia, who says "I am delighted with your excellent paper," asks where can a novice at the business learn to make butter without employing an expert? Where can I obtain the best authority on the subject in detail?

We suggest that he get a copy of Guerler's American Dairying ($1.00) and Monrads A B C of Butter Making, ($0.50) both to be had from this office.

EFFECT OF MILKING ON THE OFFSPRING.

Does milking late have any effect on the size of the calves? B. H. T.

Brushton, N. Y.

This will depend very much upon how the cow is fed. If the cows get enough extra feed to nourish the unborn calf, milking will not appreciably affect the size.

IS GLUTEN FEED INJURIOUS?

V. H., of Montgomery County, New York, asks whether gluten feed is injurious to milch cows. He says that it is claimed in his neighborhood that it is injurious if fed for any length of time, and that the condensed milk factory refuses to take milk from cows receiving gluten feed.

We can not answer for the many foolish rules adopted by the milk condensing factories. Many of these rules are wise and proper and as much in the interest of the milk producer as of the factory, but some of the rules are good exhibitions of science run mad, and the condemnation of gluten feed is in our opinion one of these exhibits. We have used this feed for several years with cows that we considered of great value and have yet to notice the first symptoms of any resulting injury. This is not to say that there may not have been placed upon the market at some time or in some place some gluten feed that was of decidedly inferior character and may have proved injurious, but it no more follows from this that all gluten feed is injurious than it does that all men are murderers because one man commits murder.

"What's in a Name?"

Everything when you come to medicines. A sarsaparilla by any other name can never equal Hood's, because of the peculiar combination, proportion and process by which Hood's Sarsaparilla possesses merit peculiar to itself, and by which it cures when all other medicines fail. Cures scrofula, salt rheum, dyspepsia, catarrh, rheumatism, loss of appetite and that tired feeling.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Returns from Dairy Herds in Iowa.

Special-vs. Dual-purpose Cows.

ED. HOARD'S DAIRYMAN:—A recent visit to twenty patrons of an Iowa creamery shows the following results of the work of their dairies for the year ending December 1st, 1899. It would be well to state, in the beginning, that the summer and autumn grazing consisted of blue grass pasture, and the aftermath in the meadows and corn fields. Any variation from this will be noted as we proceed:

Herd No. 1, numbering ten cows, averaged 4,041 pounds of milk, yielding 178 pounds of butter. This herd was fairly well housed during the winter months and given a ration of timothy and clover hay, oat straw *ad libitum*, and 3 pounds of ground corn, daily. One-half of this herd is what is known here as native stock; the other, the result of breeding these cows to registered sires of a pronounced dairy breed. The owner reads no

Weak Children

How sad it is to see weak children—boys and girls who are pale and thin. They cannot enjoy the sports of childhood, neither are they able to profit by school life. They are indeed to be pitied. But there is hope for them.

Scott's Emulsion

has helped such children for over a quarter of a century.

Your doctor will tell you it is both food and medicine to them. They begin to pick up at once u. r its use. Their color improves, the flesh becomes more firm, the weight increases and all the full life and vigor of childhood returns again.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

farm or dairy literature 'though quite a practical, industrious farmer.

No. 2, containing seven cows, averaged 4,646 pounds of milk, from which was made 209 pounds of butter. The only variation from that of No. 1 in the care and feed of this herd, was that corn and oats whole, and in unknown ratio and quantity, comprised the grain ration. In breeding, the herds are identical, except that No. 2 contains two registered cows, of a very pronounced dairy breed. The owner reads farm and dairy literature and is a man of progressive ideas.

No. 3, containing five cows, averaged 2,878 pounds of milk, yielding 126 pounds of butter. In this case, the only variation from the above in care and feed, was that the grain ration consisted of four quarts of ground oats daily. This herd is emphatically "general-purpose" in conformation and the breeding is to continue along that line. The owner reads no farm or dairy literature 'though an exceptionally neat, thrifty farmer.

No. 4, of five cows, averaged 3,848 pounds of milk, from which was made 165 pounds of butter. This herd was comfortably housed during the winter months, and fed timothy and clover hay, straw and an unknown quantity of ear corn. The breeding of this herd is practically the same as that of No. 3. No farm or dairy literature is read by the owner, but he will read the DAIRYMAN next year.

No. 5, consisting of four cows, averaged 3,816 pounds of milk, yielding 144 pounds of butter. They were cared for and fed exactly as was No. 4, and they are, also, of the the "general-purpose" type. The owner reads no farm or dairy literature, though quite a bright man and a neat farmer.

No. 6, numbering nine cows, yielded an average of 2,946 pounds of milk, which made 131 pounds of butter. This herd was comfortably housed during the winter, and fed liberally of timothy and clover hay, corn fodder unshredded, and straw for roughage. The daily grain ration consisted of eight quarts of oats and corn unground. This herd was bred to its present state of usefulness, by crossing high-grade Short-horn bulls, and what is known here as the native cow. The owner is a very industrious farmer, and reads farm papers to a limited extent.

No. 7, of two cows, averaged 3,975 pounds of milk, which produced 175 pounds of butter. These cows were bred identically as was herd No. 6, and the care and feed was the same, except that they were fed soiling crops during drouthy periods.

No. 8, of five cows, averaged 4,195 pounds of milk, which made 184 pounds of butter. They were fairly well housed during the winter months. The ration consisted of timothy and clover hay and oat straw for roughage, and unground oats and corn in unknown quantity or proportion. In breeding, they are of the dual-purpose type. The owner reads no farm or dairy literature and is a hard working, neat farmer.

No. 9, consisting of seven cows, averaged 2,999 pounds of milk, from which 135 pounds of butter was made. The care and feed of this herd was identical with that of No. 6, as also is the breeding, the same sires being used on each herd. No farm or dairy literature is indulged in by the owner, and he is in no sense a progressive man.

No. 10, of five cows, is credited with an average of 3,736 pounds of milk, yielding 168 pounds of butter. This herd was well housed during the winter, and fed a ration of unshredded corn fodder, mixed hay and ear corn, in irregular, unknown quantities. This herd is of the dual-purpose type, except one full blood cow of a very pronounced dairy breed. The owner reads no farm literature, though a progressive man in some respects.

No. 11, of four cows, averaged 3,108 pounds of milk, yielding 137 pounds of butter. They were comfortably housed during the winter and fed timothy and clover hay with oat straw for roughage, and no grain. The herd is of the dual-purpose type, but has no opportunity to demonstrate its merits. The owner reads no farm or dairy literature.

No 12, numbering five cows, averaged 4,770 pounds of milk, which made 205 pounds of butter. This herd is what is designated here as "native" bred, but shows in marking and conformation quite a tincture of one of the pronounced dairy breeds. It was well housed during the winter and fed liberally of mixed hay, corn fodder and a grain ration of ground corn and oats in unknown ratio or quantity. The owner is a thrifty farmer and reads farm literature.

No. 13, consisting of five cows, averaged 1,851 pounds of milk, from which was made 81 pounds of butter. This herd had for shelter, from the winter's cold, a miserable, open log shed and the lee side of a straw stack. The ration consisted of hay and corn fodder in limited quantitities and the privilege of the straw stack. This herd also is known here as "natives." Its owner is too thriftless for mention, and it is needless to say, not a reader of farm or dairy literature.

No. 14, consisting of fourteen cows, averaged 2,333 pounds of milk, making 104 pounds of butter. This herd was housed but poorly and supplied with roughage, consisting of timothy hay and oat straw. The grain ration consisted of ear corn in unknown quantities. These cows are of the dual-purpose type emphatically; the owner is working himself and family to death at a losing game and is too busy to read farm or dairy literature.

No. 15, of fourteen cows, averaged 2,278 pounds of milk, making 100 pounds of butter. This herd was comfortably housed during the winter, and fed roughage consisting of timothy and clover hay and oat straw. The grain ration consisted of ear corn and unground oats, fed in unknown quantity or proportion. In breeding, the owner calls this herd three-fourths grade Short-horn. A high grade bull has been in use for a number of years to tone up the herd. No farm or dairy literature is indulged in at this farm.

No. 16, consisting of three cows, averaged 3,777 lbs. of milk, yielding 168 lbs. of butter. These cows were well housed during the winter and fed a roughage of timothy and clover hay and oat straw, the grain ration consisting of ground barley, oats and corn in unknown ratio or amount, though the amount is supposed to have been liberal. These cows are of the general-purpose type, except one, which is a high grade of a noted dairy breed. The owner is what is termed here a thrifty farmer, but reads no farm or dairy literature.

No. 17, also containing three cows, averaged 3,929 lbs. of milk, which made 244 lbs. of butter. This herd was perhaps better housed than any of the preceding. The roughage consisted of an abundance of clover hay and unshredded corn fodder with oat straw *ad libitum*. The grain ration consisted of unground corn and oats, fed without regard to a balanced ration. One of these cows is a full blood of a very prominent dairy breed; the others are high grades of the same breed. The owner is a man of progressive ideas, is using the best blood obtainable in his herd, and is a great reader of farm and dairy literature.

No. 18, numbering eleven cows, averaged 5,036 lbs. of milk, which made 325 lbs. of butter. This herd, in addition to the summer and fall grazing described elsewhere in this article, were tided over the drouthy periods by soiling crops, such as peas, oats and sweet corn. It was very comfortably housed during the winter months in roomy, well lighted stalls. The winter roughage consisted of good clover hay, about fifteen pounds daily, and unshredded corn fodder and oat straw at will. The grain ration consisted of eight pounds daily, equal parts by weight, of bran and corn meal with roots in limited quantity. The cows in this herd are all full bloods of a noted dairy breed, five of which had not yet arrived at maturity. The owner reads farm and dairy literature.

No. 19, numbering seven cows, averaged 2,547 lbs. of milk, yielding 112 lbs. of butter. This herd had very insufficient grazing during the summer months, was poorly housed during the winter and was fed a very indifferent ration of grain, with roughage consisting of timothy hay and oat straw. This is a dual-purpose herd in the hands of a very ignorant, indolent man who reads no farm or dairy literature.

No. 20, numbering six cows, averaged 4,023 lbs. of milk which made 169 lbs. of butter. This herd was well housed during the winter and fed a roughage consisting of timothy and clover hay and oat straw. The grain ration consisted of six quarts of unground oats per day. In breeding, herds No's. 19 and 20 are identical, the owners being brothers living on adjoining farms. The latter is a neat, thrifty farmer, the former is the reverse.

'Tis said that comparisons are odious but in

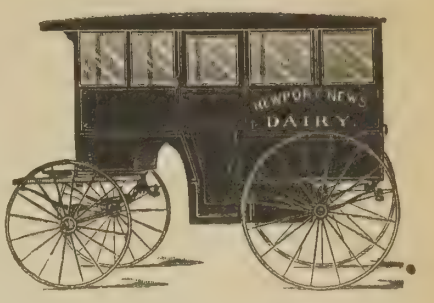
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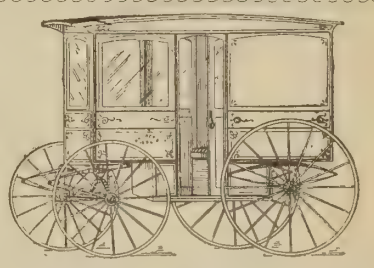
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In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



A Perfect Milk Wagon
On a Perfect Short-Turn Gear.
We make 10 other styles. Write us for Catalogue and Price List.
THE O. ARMLEDER CO.,
CINCINNATI, OHIO.

THE YOUNG AERATOR
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Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.
W. H. YOUNG,
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Virginia Farms for Sale—Good land, good neighbors, schools and churches convenient. Mild, healthy climate, free from extremes of both heat and cold. Low prices and easy terms. Write for free catalogue. R. B. CHAFFIN & CO., (Inc.) Richmond, Va.

Be Careful



FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agens for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

no way may some truths be as clearly evolved or securely impressed. Thus, comparing the poorest and the average of all the herds in the group the following results:

	Milk.	Butter.	Proceeds.
Average of all.	3,381 lbs.	158 lbs.@19c.	$30.02
Poorest, No. 13.	1,851 "	81 " "	15.39
Difference.	1,530 "	77 " "	$14.63

Again, comparing the poorest dairy type herd, and the average of the whole group, the following results:

	Milk.	Butter.	Proceeds.
No. 1.	4,041 lbs.	178 lbs.	$33.82
Average of all.	3,381 "	158 "	30.02
Difference.	660 "	20 "	$ 3.80

Comparing the poorest and best herds, the following results:

	Milk.	Butter.	Proceeds.
No 18.	5,036 lbs.	325 lbs.	$61.75
No. 13.	1,851 "	81 "	15.39
Difference.	3,185 "	244 "	$46.36

Comparing the poorest and one of the best dual-purpose herds, the following results:

	Milk.	Butter.	Proceeds.
No. 8.	4,195 lbs.	184 lbs.	$34.96
No. 13.	1,851 "	81 "	14.93
Difference.	2,344 "	103 "	$20.33

The following results from comparing the best dairy and the best dual-purpose herds in the group:

	Milk.	Butter.	Proceeds.
No. 18 Dairy.	5,036 lbs.	325 lbs.	$61.75
No. 8, dual-pur.	4,195 "	184 "	34.69
Difference.	841 "	141 "	$26.79

A comparison of the best and poorest dairy herds, results as follows:

	Milk.	Butter.	Proceeds.
No. 18.	5,036 lbs.	325 lbs.	$61.75
No. 1.	4,041 "	78 "	33 82
Difference.	995 "	147 "	$27.93

Comparing all the dairy and all others, the following results:

	Milk.	Butter.	Proceeds.
Dairy.	4,484 lbs.	232 lbs.	$44.08
All others.	3,232 "	140 "	26.60
Difference.	1,252 "	92 "	$17.48

Finally, comparing the best herd representative of the dual-purpose idea, and the herd best representing the dairy type, with reference to the food cost of producing butter, gives the following results:

Dairy, No. 18, consumed each during the year, 1,600 lbs. of grain, costing $8.00; 4,000 lbs. forage, costing $8.00; 6 months grazing, costing $6.00; and roots and soiling crops, estimated $2.00; total. $24.00.

Dual-purpose, No. 6, consumed each, 2,200 lbs. of grain, costing $11.00; 4,000 lbs. forage, costing $8.00; and 6 months grazing, costing $6.00; total, $25.

No. 18 averaged 325 lbs. of butter for the year, at a food cost of $24.00, amounting to .074 cents per pound of butter.

No. 6 averaged 131 lbs. of butter, costing for food $25, and amounting to 19 cents per pound for butter.

The butter yield per 100 lbs. of milk for this group of twenty herds, ranged between 4.2 lbs. and 6.45 lbs.

No silos are in use or contemplated in this locality. Soiling crops are resorted to by but two; bran is a component of the ration of but one herd, and in but one herd is any attempt made to balance the ration. But two registered bulls are in use, they serving four of the group of twenty herds.

"O wad some power the giftie gie us.
To see oursels as others see us.
It wad frae monie a blunder free us,
And foolish notion."

FRANK KINSLEY.

McGregor Co., Iowa.

Judgment Rendered.

ED. HOARD'S DAIRYMAN:—If you had asked us to guess the difference in value between two "daddy dollars," the task would not have been much greater than attempting to judge between the Countess and My Lady.

I have seen pictures of girls that possessed more than passing beauty, but upon seeing the original, I lost all confidence in the photograph man. However, with the scissors and a little paste, I believe I could get an ideal picture of an ideal dairy cow by using the front of the Countess and the rear of My Lady Baltimore.

I shall have to forego the pleasure of giving first place to the fine pelvic arch, the beautiful udder and the superb barrel of My Lady Baltimore, on account of her straight face, and the kick-the-bucket-over-when-its-full look in that eye; the poise of the ear also denotes bad disposition.

The Countess has a fine, though somewhat disconnected, udder, good milk veins, fine navel, and an excellent fore leg, not too long. And the face, it is simply great, such intelligence is rarely seen. If I could only own one of them, I should certainly take the Countess of Level Green. A. J. N.

Valley Mills, Ind.

After a long and close comparison, I am inclined to favor My Lady Baltimore (only as a guess, they are so good that from a picture, we can only hazard a guess).

1st. I like her udder better; longer on the belly, not so bowl shaped as other.

2nd. Countess appears too heavy in front. Shoulders too beefy.

3rd. Baltimore appears to be more spare in flesh, and her backbone more prominent.

I would not be ashamed to own either, but prefer My Lady Baltimore. F. R. C.

Waupaca, Wis.

In accordance with your request, I submit my opinion of the cows, Countess of Level Green and My Lady Baltimore. Both have clean cut heads, prominent eyes, and strong backs, which indicate plenty of nerve force. They also have deep bodies, especially deep from the pelvic arch to the flank and capacious udders—thus showing large capacity for turning food into milk. Consequently I should consider them both profitable dairy cows. However, I cannot see that Countess of Level Green excels in any respect; but My Lady Baltimore has the longer barrel, and the larger attachment of the udder to the body. She might not excel in a single week's test, when fresh, but should expect her to have the greater staying qualities, and consequently be the better cow. L. R.

Canton, N. Y.

In regard to the two pictures of cows, owned by Mr. L. V. Axtell, shown in DAIRYMAN of Dec. 1st., we should prefer My Lady Baltimore, to judge from the picture. She may possibly not give the most milk, but we like her udder, and think she has the finest general dairy form.

This feature of the DAIRYMAN makes this paper by far the most interesting of all the agricultural papers that come to our table.

East Claridon, Ohio. K. & P.

I think My Lady Baltimore gives more milk, because of larger udder, but it may be flesh. She also seems to have a thinner and longer neck; the head is finer. I think there is not much difference in the cows.

Medford, Wis. WM. B.

Fifty years of moderately careful observation of dairy cows has taught me that no man can accurately determine productive capacity and permanent usefulness from cursory observation of the living animal. Much less can this be done by inspection of photographs. All the same, there is something in outward conformity. Of photographs on page 827:

1. Countess of Level Green, A. G. C. C. 4198 is of specially symmetrical form. I judge her a superior dairy cow.

2. My Lady Baltimore, A. G. C. C. 7829 seems somewhat less symmetrical in form. I fancy her seemingly greater in depth, narrower shoulder blades, better (cleaner) throttle, sharper facial outlines (though the dished face is more fashionable); udder better supported, i. e., reaching further forward, less pendent. Yet the first two-year-old heifer ever known as producing over ten pounds golden yellow butter in our little village 56 (58?) years ago, with no feed save prairie grass; steadily improving with age until maturity; then holding her excellence on pioneer care, until she ceased to breed at 15 years of age, had an udder like that of Level Green. The best Jersey cow it has been my fortune to own was in form of body and udder a second Eurotas. True it is of cows as of trotters, they test, i. e., produce, in all shapes. E. W.

Galesburg, Ill.

The Dairy Cow.

Mr. C. H. Everett, of Beloit, Wisconsin, is doing institute work in Minnesota this winter, and the following is in part what he said the other day about "The Dairy Cow."

The true dairy cow was the one that paid a profit over and above the cost of the food of support. The more money she gives you for the feed you give her, the more she is worth to you for dairy purposes. Every dairy cow has a dairy type peculiar to herself;

Don't Neglect Your Kidneys

THEY ARE THE MOST IMPORTANT ORGANS OF THE BODY.

Is that great human engine, which decides the health of every man and woman, working properly?



Thousands of Women Have Kidney Trouble and Never Suspect It.

Are symptoms like the following staring you in the face every day:

Weak, sluggish circulation.

Puffy or dark circles under the eyes.

Sallow, yellow, unhealthy complexion.

Urin cloudy, milk-like or stringy; dark in color or offensive.

Painful, scalding sensation in passing it.

Dull, heavy headaches, dizzy, tired feeling, faint spells, irregular heart.

Obliged to go often during the day, and to get up many times at night;

Pain or dull ache in the back.

Feeling of oppression and apprehension.

Restless, irritable and hard to please.

All fagged out, run down, sleepless nights and discouraged.

If you have any of these symptoms take the advice of one who has made a life-study of just such diseases, and look well to yourself, because you have kidney trouble.

If your urine when allowed to remain undisturbed in a glass or bottle for twenty-four hours, forms a sediment or settling or has a cloudy appearance, it is evidence that your kidneys need immediate attention.

Bright's disease, which is destroying more human lives than any other disease, may be stealing upon you.

The symptoms you have noticed are the danger signals nature sets to show that the track of health is not clear.

Take Swamp-Root, the famous new discovery, whose fame is being heralded by grateful men and women, saved from untimely graves by its immediate aud marvelous power over diseases of the kidneys and bladder.

Especially in cases of Bright's disease is Swamp-Root winning new friends every hour.

Swamp-Root succeeds because it cures.

Every man and woman, no matter how healthy and vigorous, would profit by taking Swamp-Root every now and then as a preventative, and thus absolutely forstall kidney and bladder troubles.

Swamp Root is the triumphant discovery of the eminent kidney specialist, Dr. Kilmer, and is used in the leading hospitals; recommended by skillful physicians in their private practice; and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy that medical science has ever been able to compound.

If you have the slightest symptom of kidney or bladder trouble, or if there is a trace of it in your family history, send at once to Dr. Kilmer & Co., Binghampton, N. Y., who will gladly send you free by mail immediately, without cost to you, a sample bottle of Swamp-Root and a book of wonderful Swamp-Root testimonials. Be sure and say that you read this generous offer in HOARD'S DAIRYMAN.

Swamp-Root is for sale the world over at druggists in bottles of two sizes and two prices—fifty cents and one dollar. Remember the name, Swamp-Root, and the address, Binghamton, N. Y.

Wintergreen Hill A. J. C. C. Jerseys.

SERVICE BULL:
REX OF WINTERGREEN HILL 46645.
SIRE:
NAIAD'S ST. LAMBERT KING 30645.
Sire of Amelia S. King 112862. 16 lbs. 2 oz., and Lucy S. King 106584. 15 lbs. 14¾ oz.; both with first calf.
CANADA'S SIR GEORGE 18290. Sire of Una of St. Lambert 80117. 16 lbs. 15½ oz.
CANADA'S JOHN BULL 8388. Sire of ten tested cows.
ALLIE OF ST. LAMBERT 24991. 26 lbs. 12 oz. 62 lbs. milk in 1 day; 414 lbs. in 7 days.
NAIAD OF ST. LAMB'T 12956. Official test 22 lbs. 2¾ oz. Dam of Jennie Pogis 22984. 19 lbs 6¼ oz. Full sister to Mary Anne of St. Lambert 9770. 36 lbs. 12¼ oz. in seven days; 867 lbs. 14¾ oz. in 340 days.
STOKE POGIS 3d 2238. Sire of 28 cows averaging over 20 lbs.
LOLLY OF ST. LAMBERT 5480. Dam of three tested cows averaging 25 lbs. 8 5-6 oz.
CROCUS JOHN BULL 21665. Sire of one tested cow.
CANADA'S JOHN BULL 8388. See above.
CROCUS OF ST. LAMBERT 8351. 17 lbs 12 oz. Dam of two tested cows. Full sister to Mary Anne of St. Lambert 9770, and Naiad of St. Lambert 12965.
DAM:
SALLIE OF THE LEDGES 87182.
16 lbs. 6 oz. without forcing. 335⅓ lbs. milk in seven days; 2400 lbs. milk in less than sixty days.
ETHEL OF SHELBURNE 46285.
14 lbs. 1¾ oz. on winter feed in zero weather; 8548 lbs. milk with third calf.
MIDAS OF OXFORD 5986. Sire of two tested cows. Full brother to Matilda 4th, 21 lbs. 8½ oz. butter in 7 days; 927 lbs. in a year; 60 lbs. milk in one day; 16153¾ lbs. in a year.
ETHEL HUGO 30164. Dam of one tested cow.

The above bull has 28 5-32% of the blood of Stoke Pogis 1259, through twelve crosses; 43¾% of Stoke Pogis 3d 2238, through eleven crosses, and 15 63-64% of Victor Hugo 197, through sixteen crosses. We offer a few well bred cows in calf to him, also a few young sons and daughters.

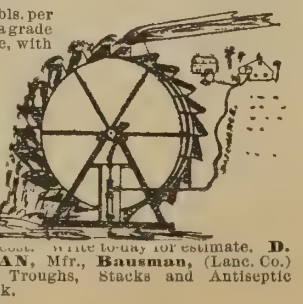
Booklet, giving full breeding of bull, and sale list of cattle offered sent on application.

WINTERGREEN HILL FARM CO, Scottsville, N. Y.

Saw Your Wood with **Smalley or Battle Creek Wood Saws.** *More money* can be made with our sawing outfits than with any other implement you can buy. **SELF FEED DRAG SAWS—5 SIZES.** Circular or cut off, 10 sizes; also *Bolting or Picket Mills.* Every machine sold under a positive guarantee to do perfect work. Also full line of Powers for operating. Catalog showing our Smalley line complete mailed free if you name this paper.
SMALLEY MFG. CO.,
Sole Makers, Manitowoc, Wis.

— BANKRUPT SALE OF —
A No. 1 DAIRY FARM
Said farm lies in the Mill Creek Valley, 7 miles from Richland Center, 1 mile from Boaz and a first-class cheese factory. It consists of 479¼ acres under fence and seeded down; over 200 acres under plow. Said farm must be sold to close out bankrupt stock. For further particulars address D. G. JAMES, Trustee, Richland Center, Wis.

— STEEL —
WATER ENGINE.
We can pump 5 bls. per hour 1000 ft. up a grade of 30 ft. or more, with a 2 in. stream.



Rams, Wind Mills, Etc. Stop? Our Water Engine never stops—even if only ¼ in. stream. As soon as buckets are full, wheel must make a stroke. Constant fresh water at a low cost. Write to-day for estimate. **D. H. BAUSMAN,** Mfr., **Bausman,** (Lanc. Co.) **Pa.,** Tanks, Troughs, Stacks and Antiseptic Basins for Stock.

we call it the dairy type. She is rarely ever very large, size is immaterial. She has been bred for hundreds of years with but a single purpose in view, that of producing the most milk possible from the food consumed, hence this peculiar conformation.

You will notice that she has an expressive face, large muzzle, prominent, strong jaw, intelligent outstanding eye, thin and light in neck and fore quarters, very prominent back bone, which is indicative of constitution and nerve force, long silky tail, light in hind quarters, inward curve of the ham, light in the flank and a large flexible udder running well up behind and well forward towards the fore legs; the line of connection of udder to the body being same length as from udder to front legs. If you take away the udder the cow is wedge shaped from both ends towards the middle of the body, which must be of great digestive and storage capacity.

Here is a very important part of the dairy cow. She must consume large quantities of food, digest and manufacture the same into blood from which she elaborates milk. If the cow has this large capacity, she will of necessity develop a large udder when properly fed. What are we to learn from this bony, scrawny appearance of the dairy cow? If she were heavy and meaty in neck, limb and quarter, it would take expensive feeding to make and sustain such a beefy and unnecessary condition. Her function is not to make meat of the feed she consumes, but milk.

Remember that the cow that puts some of the feed on her back in the shape of beef while she is being fed for milk supply, is not the true dairy cow and cannot be profitable as such. You cannot get pay for such beef without killing the cow. This type of cow is found among several of the breeds, and I care more for the type than for the breed from which she may come. She is produced from crossing strongly bred dairy sires upon cows that have the dairy tendency, and by a continuance of selection; always choosing those with the most pronounced desired type and show the best results at the pail. By such selection a great dairy herd of cows may be procured by your own efforts.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 4,620 pounds. Bids of 26 cents were made on lots of 1,500, but no sales were made. The Quotation Committee announced a firm market at 26 cents.

The annual election resulted as follows: For board of directors, John Newman, G. H. Gurler, W. W. Sherwin, George Reed and M. Richmond; for committee of arbitration, C. S. Kilbourne, C. E. Hawthorne, F. B. Cornell, James P. Younger and D. C. Woolverton; for committee of appeal, G. F. Oatman, T. W. Brennan and C. H. Potter. Each received forty-six votes with the exception of J. P. Younger and G. F. Oatman, who received forty-five.

It was voted to hold the next meeting on Saturday, December 23d, at the official hour, and the following one on Saturday, December 30th.

The markets for the corresponding week of the three preceding years were as follows:

Dec. 19, '98, 2,820 pounds of butter sold at 20½c.
Dec 20, '97, 10,800 pounds of butter sold at 21c.
Dec. 21, '96, 65,640 pounds of butter sold at 20@21c

The New York market, Monday, was reported steady at 27 cents. H. C. B.

Elgin, Ill., Dec. 18th, '99.

DAIRY MARKETS.

ELGIN, Ill., Dec. 18—Butter—Firm at 26c; offerings, 77 tubs; no sales; bids of 26c on one lot refused; sales for the week, 9,500 tubs. The board will next meet on Saturday, December 23rd and 30th.

CHICAGO, Ill., Dec. 18—Butter—Extra, creamery, 25c; firsts, 21@23c; seconds, 17@18c; imitation creameries, 18@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 17@17½c.

Cheese—Full cream, Twins good to choice, 11¾@12c; off grades, 8@10c; Young America, 12c; Cheddars, 11¾c; Swiss, 12½@13c; Limburger, 10@12c; Bricks, 10@12c.

Eggs—Strictly fresh laid, cases returned, 20c; city cooler stock, 12@13c; country, 0½@11c;

Cattle—The good to fancy grades of beef cattle ruled fully steady; in fact, some sold 5@10c higher. Other grades, however, were generally weaker, with closing prices at least 10c lower on common to "pretty decent" steers. Canning stock declined 10@15c, and fat cows and heifers were weak at last week's decline. About 1,000 straight Texas sold steady at 4.10@4.65 for 868@1,07- steers. Twelve head of Illinois Polled Angus averaging 1,551 lbs. sold at 7.30 and eighteen Ohio Angus averaging 1,447 lbs at 7.25. The next highest was 7.00 for 1.543-lb. steers. One steer weighing 2,040 lbs. sold at 7.35, and another weighing 1,340 lbs. sold at 7.50. Steers averaging 860@1,620 lbs. sold at 4@6.50; bulk, 5.10@6. Corn-fed Westerns sold at 4.50@6.10; bulk, 5.15@5.50; Missouri fed Texas, averaging 1,056 lbs., sold at 5.20, or 20c lower than some of the same kind sold at a week ago. Tennessee oxen averaging 1,011 lbs. sold at 4.10, and 800-lb Mississippi steers at 4.10. Native canners sold largely at 2.50@2.85. Distillery bulls, 1,214 lbs., 4.25. Ohio cows, 747@896 lbs., sold at 2.75@3.10; fat heifers, 3.40@4; bulls, 2.75@4; veal calves, 5.75@7; and feeding cattle, 3@4.65.

Bran—In moderate request and sold at 12.75 per ton.

MILWAUKEE, Wis, Dec. 18—Butter—Creamery fancy prints, per lb., 26@26½c; extras 26c; firsts, 24@25c; seconds, 22@23c; imitations 20@21c; roll, 16@18c. Dairy, Selections, per lb., 21@23c; lines, 18@21c; ladles, 16@18c. Market easy and quiet, with the tendency downward; receipts, 5,015 lbs.

Cheese—American full cream—October flats, 11½@12c; July, August and September, 11c. Brick, 11c. Limburger, choice per lb. 11@11½c. Swiss, Drum, 12½@13c; Block, 10½@13c; No. 2, 10½@11c.

Eggs—Fresh, per doz., 17½@18c, loss off, cases returned; cold storage, 14@16c.

FOND DU LAC, Wis., Dec. 18—At a special meeting of the Dairy Board to-day, the offerings were 95 Twins with sales at 11⅛@11¼c.

MUSCODA, Wis., Dec. 18—Offerings on the Muscoda Dairy Board to-day, were 300 boxes of Twins. Market is firm, 11c.

NEW YORK, Dec. 18—Butter—Best, 27c.
Cheese—Unchanged.
Eggs—Best Western, 24c.

NEW YORK MARKET.

NEW YORK, Dec. 16—Butter—Receipts for the week, 23,262 packages. Exports for the week, none.

The arrivals this week are the lightest of the season, but the demand was quite moderate and prices are barely sustained at the close. Fresh Creameries grading extra were quick taken at top quotations, but there were more offerings of butter just a trifle under this grade at 26c, and some seconds offered at 25c. There were a few parcels of fresh Imitation Creamery here this week, which found ready sale at 20@22c. June creameries sold at 24@25c for extras, and 22@23c for fair to good qualities We quote:

Creamery, fresh, extra, 27c; medium, 25@26c; poor, 22@24c. Creamery June, extra, 24@25c; medium, 22½@23c; poor, 20@22c. Dairy, extra, 26c; medium, 23@24c; poor, 20@22. Ladle, extra, 19@20c; medium, 17@18c: poor, 15@ 6c.

Cheese—Receipts for the week, 23,025 boxes. Exports for the week, 10,186 boxes.

Exporters are reported as buying about 1,000 boxes fine full cream large cheese at trifle under 12c, and some lines of skims at 8 to 9c. Home trade is buying sparingly and mostly of late ends October and November cheese at 11 to 12c. We quote:

Full cream, large, extra, 12½@12¾: medium, 11½@12; poor, 10@11c. Full cream, small, extra, 12¾@13c; medium, 11¾@12c; poor, 10½@11c. Part skimmed, extra, 10½@11c; medium, 9@9½c; poor, 5@6c. Skimmed cheese, poor, 5@8c.

Eggs—Receipts for the week, 43,336 cases. Strictly fresh eggs find quick sale, all other grades are very plentiful at low and irregular prices. We quote:

N Y. State and Penn., strictly fresh, per dozen, 24@25c; western and northern, strictly fresh, 22@24c; refrigerator stock, 10@15c; limed eggs, 14@15c. DAVID W. LEWIS & Co.
177 Chambers St.

BALTIMORE, Md., Dec. 18—Butter—Market quiet; creamery, separator, extra, 28@29c; extra, first, 26@27c; creamery, first, 24@25c; creamery imitation, extra, 22@23c; Iowa and Northwestern ladle, extra, 20@21c; extra firsts, 18@19c; firsts, 16@17c; Western store packed, 15@16c; creamery rolls (2 lbs.) 25@26c.

Eggs—Market quiet; strictly fresh stock, 20@21c.

PHILADELPHIA, Pa., Dec. 18—Butter—Solid packed separator creamery, extra, 27c; creamery, firsts, 26c; creamery, seconds, 22@24c; imitation, creamery, extra, 21c; firsts, 18c; seconds, 16@17c; ladle-packed, extra, 17@18c; firsts, 16c; seconds, 15c. Print butter, creamery, extra, 28c; firsts, 26@27c; seconds, 23@25c.

Eggs—Pennsylvania and nearby, 21c; Western, 21c; Southwestern, 19c; Southern, 18c.

ST. LOUIS, Mo., Dec. 18—Butter—Steady. Creamery, 24@27c; dairy, 19@23c.

KANSAS CITY, Mo., Dec. 18—Butter—Creamery, 22@25c; dairy, 18c.
Eggs—Fresh, 16c.

CINCINNATI, O., Dec. 18—Butter—Steady; Cheese—Good to prime Ohio flat, 12½c.
Eggs—Firm; 17c.

BOSTON. Mass., Dec. 18—Butter, 27c for extra; June, 24@25
Cheese—steady, 13c.
Eggs—Weak on storage, firm on fresh, 24@25.

WASHINGTON, D. C., Dec. 18—Butter—Market steady. Extras, 27c; firsts, 25c; June, 24c; choice imitation, 21c.

NEWARK, N. J., Dec. 18—Butter—Market steady; 27c for extra Elgins. Increased receipts. Good creameries not quite extra.

NEW ORLEANS, La., Dec. 18—Butter steady 27@27½c.
Cheese—Firm, unchanged.
Eggs—Storage, 15c.

Latest quotations for fancy creamery: Buffalo, 27c; St. Paul, 26c; Minneapolis, 26c; Detroit, 27c.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line

For Sale—Guernsey bull calf, will sell cheap, 3 months old. Address W. L. MILLER, Butler, Pa. 44-2

Four choice O. J. C. boars for sale; stock direct from L. B. Silver Co., originators of O. J. C. swine. G. L. BURLESON, Sumner, Wis. 45-tf

Situation as manager or superintendent of stock or dairy farm. Understand breeding of stock. An up-to-date and practical farmer of years' experience. Recommendations, etc. Address No. 9, care Hoard's Dairyman. 45-3

1899 THE GREATEST OF "ALPHA" DISC YEARS.

For nine years past every year has been an "Alpha" disc year in the use and sale of Cream Separators, the success of the "Alpha" disc machines having been greater from year to year and greatest of all in 1899.

Beginning with a relatively small sale in 1890, the superiority of the "Alpha" disc system was at once so plainly manifest as to insure its certain success. The sale of 1891 was double that of 1890, and the sale of "Alpha" disc machines has thus continued to virtually double itself from year to year—in the Factory and Dairy sizes combined.

The recognized supremacy of the "Alpha" disc system is now so great in Factory separators that the purchase of De Laval machines in 1899 has been almost universal, exceeding 95 per cent of the total sales in the West and 85 per cent in the East. In the Farm or Dairy sizes of machines the users of separators have not yet come to understand so well the differences between different machines, but are rapidly acquiring this knowledge from the practical experience of themselves and others around them, so that the same percentages of "Alpha" disc sales, as in Factory machines, now nearly hold good in most sections and within another year or two will undoubtedly do so everywhere.

Users of separators—whether big or little—have come to understand that THE "ALPHA" DISCS ARE LITERALLY THE HEART AND SOUL OF A PERFECT CREAM SEPARATOR and that the all-around efficiency and general practicability of the "Alpha" disc machine is simply unapproachable by anything else that can be put together in the shape of a cream separator, regardless of price, the clap-trap claims of would-be competitors, and every other conceivable consideration.

The De Laval Separator Company,

WESTERN OFFICES: Randolph & Canal Sts., CHICAGO.
GENERAL OFFICES: 74 Cortlandt Street, NEW YORK.
BRANCH OFFICES: 1102 Arch Street, PHILADELPHIA.

Holiday Excursion tickets will be sold at all stations on the North-Western Line (C. & N. W. R'y, C. St. P. M. & O. R'y, S. C & P. R. R., and F. E. & M. V. R. R.) to all other points on this system, within 200 miles of the selling station, at greatly reduced rates, December 23, 24, 25, 30 and 31, 1899, and January 1, 1900, good until January 2, 1900. Apply to agents Chicago & North-Western R'y for full particulars. 45-2

For Sale—18 choice grade Jersey cows Part already fresh, the others soon to be. PRAIRIE VIEW DAIRY FARM, Decatur, Mich. 44-2

Dairyman in thriving town in eastern North Carolina, with small herd of Jerseys, desires to add poultry and trucking, and let to a competent man on shares. Do not write unless you have experience and good references. N., care Hoard's Dairyman. 44-2

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

For Sale—A milk route. Over 5 cans retail at 6 cts. per quart. House, lot, and everything included in sale. First class. $2,200 cash, or will trade for land in Northern Ill., or Southern Wisconsin. Address P. H. DONEGAN, 2322 Harvard St., Chicago, Ill. 44-2

Wanted—Position in cheese factory, or would buy factory in good location. Best of references. Address, BOX 14, Elkdale, N. Y. 45-2

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

Fine Dairy and Creamery opportunity, South. Inducements offered. P. O. BOX 281, Atlanta, Ga. 42-tf

Any Creamery wanting a first-class butter maker of experience in managing a creamery, one that can furnish best of references as to reliability and work, address No. 25, care Hoard's Dairyman. 41-5

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis 38-tf

Wanted a position by an experienced butter and cheese maker. Student of Cornell Dairy School. Best of references from late employer. Address EDGAR BARNES, Linwood, N. Y. 44-tf

To Let—Sub-divisions of Prairie Farm, 160, 200, 300 and 400 acres, 16 miles from Doldo Separator Creamery. Silos and special butter customers. These are first-class farms, stocked with first-class cows and none but first-class dairymen need apply. State experience and resources in application. Address, E. L. LOCKWOOD, Petersburg, Mich.

Wanted—By the first of the year, a single man to take charge of milk house on large dairy. Must understand boiler, separator, pasteurizing milk and cream, and the general care of milk for retail trade. Give references and experience. BANCROFT FARM, Box 524, Denver, Colo.

For Sale—Cheesemaking outfit, consisting of 5000 pound vat. 2 gang presses, 12 hoops, curd sink, curd mill, knives, box machine, tinware, etc., all in good repair. Also 650 pound De Laval cream separator in good working order, nearly new, will sell separator separate from balance. Bargain for some one. MASON LEONARD, Birmingham, Mich. 44-2

For Sale—The entire contents of a modern, up to date farm creamery, 400-lbs. U. S. Separator, 25-gal. cream vat with ice compartment, 35-gal. Davis swing churn, 4-ft. V. F. M. butter worker, creamery sink with partition, 50-gal. milk vat, 6-bottle Babcock tester The above goods were made by the Vermont Farm Machine Co. of Bellows Falls, Vt., and have been used only since last May. The owner will warrant them to be practically as good as new. The goods can be run either by hand or power. Will be sold cheap. Address JAS. H. McDERMOTT, North Bridgewater, N. Y. 43-4

Puerto Rico—Three tours of the beautiful island of Puerto Rico are scheduled to leave Chicago January 11, February 15, and March 8. Special Pullman sleeping and dining cars will convey the party to New York, thence on board the splendid new steamships Ponce and San Juan, through and around the island by rail, automobile, carriage and boat. Tickets include all expenses everywhere. These select limited parties will be under the special escort of Mr. Walter Boyd Townsend under the management of The American Tourist Association, Reau Campbell General Manager, 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to Agents of the Chicago, Milwaukee & St. Paul R'y. 41-sp

To Los Angeles and Southern California.—Every Friday night, at 10:35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California. In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey. These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only $6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Geo. H. Heafford. General Pass. and Ticket Agent, Chicago Ill. 37-sp

Mexico—On Tuesday, January 23, a special vestibuled train of Pullman Palace cars, compartment, drawing-room, library, observation and dining cars will start from Chicago going to the City of Mexico and to the other prominent cities of the Republic and back to Chicago again without change, making the tour of all Mexico complete. The party will be strictly limited and absolutely first-class. Tickets include all expenses everywhere. The tour is under the personal escort and direction of Mr. Reau Campbell, General Manager of the American Tourist Association. For maps, books of the tour, tickets, etc,, call on agents of the Chicago, Milwaukee & St. Paul R'y.

Some Tioga County, N.Y. Dairymen.

ED. HOARD'S DAIRYMAN:—Judge Parker, of the Appelate division of this state, is a resident of Owego, and has his office there. He is a renowned jurist, and therefore kept busy in his office, or away from home; but he always finds time to attend a farmer's institute, when one is held in Owego; because he has become interested in the dairy, having one on a farm not far out of town.

Through the courtesy of Editor Smyth, I was introduced to him and received a cordial invitation to call on him at his office, when he learned I was in town as a representative of the DAIRYMAN,— a paper which he always finds time to read through as soon as it reaches him.

How large is your farm and how far out of town is it? I asked.

There are 100 acres. It lies four miles out.

How large a herd have you and of what blood?

The herd first consisted of 12 Holsteins. There are 19 now, Jerseys and grades.

Do you manage the farm yourself?

Yes, now I do. At first I had a tenant on it who worked it on shares; now I have one but he manages it under my direction. The first herd was a mixture of throughbreds aud grades. The present herd consists of 4 or 5 throughbred Jerseys; the balance are grades but I have a thoroughbred sire at the head.

What do you do with the milk?

I formally sold it to a shipping station, Now, however, we are making butter. I have a hand separator but intend to put in power of some kind. We began making butter October 1st. In reality, I am just start ing, but hope to get my herd up to 300 lbs. of butter per cow, and it is my purpose to increase the herd to 40 cows of that caliber, and to grow the foods for them on those 100 acres.

Have you silos for both winter and summer feeding?

For winter only; but I will build one for summer use, fully realizing the fact that I cannot keep a summer milking herd and do it profitably, without one. I shall also grow some soiling crops, mainly oats and peas, perhapes a few roots for variety; will also try some sowed corn to be fed while green with the other crops. I know there is not much feeding value in such corn but it contains some succulence which will be of value when fed with some dryer crops. I hope to not only grow all the carbohydrates I shall need, but the protein also. That is, I do not intend to buy protein. If I shall need it in some form, other than in clover, oats and peas, or in some other crop, which I will grow, I shall exchange some farm crop for it and, I hope, at a profit. I am quite sure it can be done, thus saving feed bills.

When do your cows come fresh in milk and what do they test in butter fat?

They mostly came fresh last spring but I intend to bring them around so that they will freshen in October. The herd's last average was 5.2 % fat, by the Babcock.

At what stage of growth did you put in your silage and what protein foods are you feeding with it?

The corn was cut when entering the glazing stage, the variety being Leaming. Am now feeding gluten which cost $19 per ton. Shall add some bran. Our clover crop is a failure this year. The seeding, owing to the severe spring drouth, did not germinate. But we shall try again next year as I realize that one must have clover to go with corn ensilage.

Have you ever sowed clover in August, after the grain crop was off the ground? I am told it is being successfully done in some places. We have a man in Ellisburgh who says he gets better catches of clover when so sown than when it is sown with a grain crop, in the spring.

No Sir, I have not; but I think I have read of the experiment being tried.

Is it your purpose to make your herd fully thorougbred, by snbstituting full bloods for your present grades?

No Sir, I have no idea of making it fully thoroughbred, but will always head it with a full blood sire, and I intend to breed and rear him from my own herd. I also propose to make changes quite often, not believing it good dairy law to keep a bull too long. But I may be wrong. I am doing this business as a sort of entertaining amusement; but yet, I want to make it pay a profit. That is, I want to have the herd pay all the expenses of the farm, so far as it creates expense of any kind, taxes and incidentals all included, keep up the fertility of the land and leave me a cash margin besides. It may not be large, but I expect to receive one however. As I remarked, I am but just starting, and am in the experimental stage somewhat, having obtained all my theoretical education from HOARD'S DAIRYMAN, *Practical Farmer* and *Country Gentleman*.

Do you turn the cows out to get exercise, and drink ice water in winter?

We have a covered barn yard that is open on one side only, in which the cows are turned twice a day for a short time, to drink, while the stables are being cleaned. That is all; they are not allowed to run out in the cold.

Are you testing the cows, now that you are making butter?

No, not yet; my man and myself have yet to learn the *modus* of the Babcock, but we have one; also the scales, and it will be our purpose to test and weigh each cow's milk, with the view of weeding out the unprofitable ones, whether they be grades or thoroughbreds; and we shall keep a carefully prepared record of the work of each member of the herd.

The foregoing is the substance of a half hours interview which Judge Parker kindly accorded me, notwithstanding the sacrifice of time, as his multitudinous duties made demands on him for all of it at his disposal. He did it for two reasons, because he was deeply interested in dairy work, and because he was willing to impart any information connected with his dairy, at his command. Last winter he was present during the entire time consumed in four sessions of the Farmer's Institute held at Owego, during which he plied the speakers with many dairy questions, which kept Mr. Eastman busy in answering.

When he went away, he said he very much regretted his inability to attend the last session, as he had learned much which he believed would prove to be valuable to him; but business matters that were urgent called him away.

It was interesting to see a man of his learning, ability and calling, sitting, as it were, at the feet of the institute speakers, and learning from them things that pertained to his farm and dairy, and which he would put in practice. It was equally interesting, but in a far different light, to go out of the hall and see the dairy farmers congregated in the hotels, saloons, stores and other resorts and to hear them say: "We are not going to the institute. We know as much about dairying and more too, than do those fellows, who are up there, blowing their horns at $5 per day each."

Here is one of the latter class, whom I will designate as No. 1. I had just returned from Judge Parker's office when he came into the hotel. "Have sent the boys," he said, "to the cider mill with a load of apples. I thought I wouldn't go, so dropped in here to dry off and warm up. It's a little bit worse outer doors, but we've got most of our work done. Guess there's a couple of acres of corn yit to husk and a load or two of punkins to pick up and draw. Them we're going to bile up with some wind fall apples, we wouldn't put into cellar, and feed to the hogs. I used ter feed them ter the cows, but the station folks said there was so much sourness in 'em that they hurt the milk; so I'm feeding 'em to the hogs now. Biled up with punkins and some small pertaters, with jest a little corn meal mixed in and fed warm makes a pig jump right along."

Are you a dairyman? I asked, drawing my chair up to his, after he had got outside of a glass of lager and begun smoking a nickel cigar.

Not much uv a one, I keep nine, that's all, and they don't pay nothin'.

Doesn't milk bring a good price here now?

Yes, it brings a fair nuff price, if one has got any to sell; but, you see, we haint, that is, I haint. My cows don't give mor'n half as much as they did last year at this time, on account of the dry weather, which begun last April and haint let up yit. That's the trouble—when prices is high we don't have nothin' to sell; when they is low we can't sell nothin. No; dairyin' don't pay, nor buckwheat, nor nothin' else much, round here.

What are your cows, Jerseys, Guernseys or grades?

Oh, they're a mixture; but I haint got no thoroughbred. Just a mixed lot. But, say stranger, what der want to know fur? What are you goin' to do with them notes you're a writin' down?

Oh, I am a newspaper man, looking for dairy results down here among you dairymen.

What paper do you write fer?

HOARD' DAIRYMAN. Ever hear of it?

Yes. Thompson had 'em send a lot of 'em a few years ago, round among his customers. I got one or two, but they didn't come long. Didn't know but the paper had busted, it stopped coming so quick.

How did you like it? I asked.

Like it; why, what do you s'pose we Tioga county farmers want of a paper printed away up in Illinois or Wisconsin? What does them editors know about farmin' and keepin' cows down here? 'Sides that, s'posin' we all kept cows, that made as much butter or give as much milk as that ar paper told of some doin', how long would it be before there'd be more milk runnin' about than there is water in this old Susquerhanny river, and it would not be worth a cent a hogshead full. Say, another thing: s'posin we fellows all fed grain, as that paper sed we oughter, where'd we git the money to buy it with? Why, the millers and feedmen would have a mortgage on every farm in Tioga county in less than three months. No, sir, I haint got any use for any sich papers. Course, Taylor's folks and Thompson and Jimmie Forsyth and some others all takes it, but they're only gentlemen farmers, who don't hev to work.

Yes, I said, they all take the paper and so does Judge Parker, who has a dairy of nineteen cows.

Judge Parker! Why, he's no farmer; course he's got one just fer fun, and 'cause he wants to rate as one of us; but if 'twa'n't fer his big salary, he'd peter out at dairyin. Oh no, you don't want ter count him in.

Do you keep a thoroughbred bull in your herd?

No, Sir. I dont want one on 'em. Druther have a good cross or grade any time. The're more hardy, and will git calves that are bigger, and will ginerally make better cows. You can't rely on a thoroughbred calf to make a good bull. His father and mother may be all right, but there's just as many chances that he won't be good for nothing. Then they cost so much that I can't 'ford to run the risk of buyin one.

Have you got a silo?

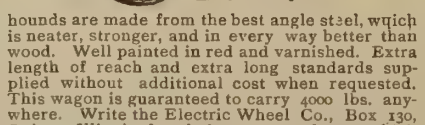
No, but I guess I'll have to build one. There's quite a number of my neighbors as have them, and they all say that silage is better'n ground corn and corn stalks for cows; so I'll build one next summer. What's this talk I heard at the institute here, last winter, bout feedin it in the summer. Anything in it?

Oh yes, there are very many dairymen who have summer silos, especially those who do not make much milk in winter. They find them now indispensible in tiding the cows over the drouth. But if I lived here, I would have the cows go dry during the hot July and August weather, when the pastures are short and the cows are compelled to fight flies. Besides that, milk is always worth more in winter than in summer, for any purpose.

That's what I hear some of them say, but I

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I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.
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WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

aint going to milk cows in winter. Then's the time, if I git any, that I can git away from home once in a while. There's alwers something to keep a man at home on the farm in summer. If taint milking, its sunthin else: so I'd just es soon milk as do any thing s'long as I've got to stay ter home. What I'd git more for my milk in winter then in summer, would'n start much uv a bank, I guess.

How much milk do your nine cows average?

Oh, I dunno. Could tel, I spose,if I wus at home. Guess the old woman has got the statements from the station, somewhere's about the house. My impresshun is, however, that we got 'bout 1,500 quarts last year.

How much did that amount to per cow?

'Bout $30 countin the calf; I guess might be a little more; might be a little less. Some uv my neighbors say that they got as high as $45, but they feeds mor 'n I do. I don't buy much grains; can't afford to. I feed some corn meal, oats, small pertaters, some apples, and casinally some buckwheat bran; they ets's corn stalks, straw, hay and punkings.

Do you grow clover?

No. It don't catch here very well. Then I'd druther have timothy any time. If I want to have my cows come out in good condition in the spring, I'll dry 'em off 'bout the middle of November, and feed 'em all the timothy hay, corn stalks, straw and sich, with grass, some corn meal just before they come in, say, in March or April, and a few ground oats now.

"Look on that picture and then on this."

Belleville, N. Y. C. W. JENNINGS.

Increasing the Cow's Feed.

ED. HOARD'S DAIRYMAN:—It may interest you to know that we have tried increasing a cow's feed, as we have seen so much about, what, to us here, is heavy feeding, in HOARD'S DAIRYMAN.

Our regular feed is hay or corn stover for roughage, and one quart of cotton seed meal and one quart of bran, also 2 quarts of (barley, 20 quarts; oats, 10 quarts; and corn and cob meal, 20 quarts) making 4 quarts grain feed per day. We had a large grade Jersey come in. On our regular feed she gave about 33 or 34 pounds per day. Added one quart cotton seed meal, one quart bran, also two quarts above mixture, making eight quarts meal feed and all the timothy hay she wants. She also increased from 4.3% fat to 4.8% fat, at the same time increasing in her milk from 33 and 34 to 38 pounds daily. Weight, 1,000 pounds.

Six days ago we were feeding a very rugged cow, and one inclined to fat, the first named ration above. She had shown a slight falling off in per cent fat and pounds milk since coming in last September. We increased her feed a quart of cotton seed meal and one quart bran per day. Tests, 4%. Cotton seed meal is $1.25 per hundred.

Extra feed costs 2.6 cents per day; milk yields 3.7 cents per day extra, leaving 1.1 cents. Does it pay? We think so when we consider the extra fertility brought on the farm in cotton seed meal and bran.

We are much interested in these feeding problems, and we should be grateful for any comements you may make. We weigh and test regularly lately. H. W. D.

Williamstown, Vt.

The Illinois Dairy and Food Commission.

ED. HOARD'S DAIRYMAN:—The Food Commissioner, of Illinois, has just made public the appointment of his assistants.

The law provides for the appointment of two assistant commisssoners, each of acknowledged standing ability and integrity, one of whom shall be an expert in dairy matters, and the other of whom shall be a practical and analytical chemist.

Prof. E. N. Eaton, appointed Assistant Commissioner and State Analyst, is a graduate of the Iowa Agricultural College. At the end of his collegiate course he became Assistant Chemist of the Iowa Experiment Station, under the directorship of the Hon. James Wilson, now Secretary of Agriculture. Here also he completed his post graduate course in Agricultural Chemistry, leading to the degree of Master of Science. In the spring of '93, he was asked to accept the appointment of Chemist of the Minnesota Dairy and Food Commision. The commission had recently been reorganized, practical men put in control, and the two former chemists dismissed. Entering upon his work with the markets filled with filled cheese, and fraudulent foods unblushingly sold, Prof. Eaton had no easy task. However he performed his work to the entire satisfaction of the pure food interest, and was a large factor in raising the legal standard for State Full Cream Cheese, and the honey adulteration law. In '97 the commission again becoming subservient to politics, Prof. Eaton was succeeded by one of the former chemists. After a brief experience in the manufacture of sterilized milk for infant feeding, Prof. Eaton located in Chicago as an analytical chemist and instructor in the Chicago School of Assaying. Prof. Eaton has contributed freely to dairy and trade papers and has taken special interest in the Milk Shippers Union and the marketing of pure milk.

Mr. J. H. Monrad the other assistant fullfills the requirements of the law in being a dairy expert. He represented a Danish color and rennet house for many years. He has contributed to many dairy papers and is well known to the readers of HOARD'S DAIRYMAN.

With two such experienced men in their respective lines, much may be looked for in the interest of pure food in Illinois.

S. HILL
Secretary Milk Shippers Union.

This from a Milkman.

I have one cow, a high grade Jersey, which I wouldn't sell for any money. During the summer she averaged over fifty pounds of at least 4% milk a day for over two months. She freshened in March. She will be due the last of January, and is giving twenty-five pounds a day.

In conclusion, let me say that HOARD'S DAIRYMAN is the best dairy paper, and has more helpful articles on one page than most papers have in a whole issue. A. F. K.

Aurora Ill.

Cows that their owners wouldn't sell for any money, and are wise at that, are not produced by careless breeding. It costs no more to raise that kind than it does to raise the ordinary scrub.

The Singer No. 27.

DOUBLE LOCK-STITCH.
VIBRATING SHUTTLE.

This sewing-machine is specially adapted for Family Sewing, and more generally used throughout the world than all other machines combined. The self-threading vibrating shuttle is the perfection of simplicity; its movement being shorter than in any other similar machine, less effort is required for its operation.

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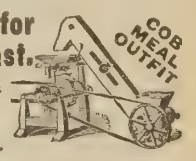
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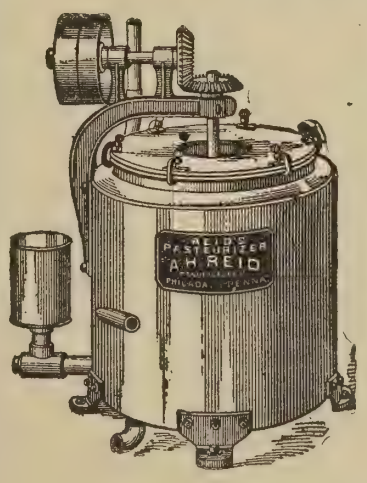
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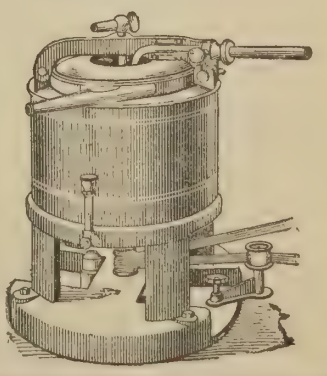
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from pasteurized cream, you insure it against germs that would spoil it and against odors that would taint it. Your product will be better, keep longer, sell more easily, and at better prices, if you pasteurize your cream with the

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A. H. REID,
30th and Market Streets, PHILADELPHIA, PA.,
And CEDAR RAPIDS, IOWA.

Duties Relating to 10-Cent Tax.

[Address of H. J. NIETERT, Walker, Iowa, former President Iowa Dairymen's Association, at Mason City Convention.]

The duties of Iowa creamerymen and dairymen in relation to the proposed new law taxing colored oleomargarine, are many; also this is a very important question to be considered by us as at this time, the success or failure in securing a national law taxing colored oleomargarine 10 cents per pound is vital to the great creamery and dairy industry of our land. And I further desire to inform the creamerymen, dairymen and farmers of this state, that the consideration of this question is no idle dream of romance or fancy, but a question of serious consequence, which demands quick and heroic treatment at your hands. The life and death, success or failure of your occupation depends much upon your prompt action, not only in words and by letter, but by the aid of liberal contributions from your purse, if we expect to win in this great battle now on for pure and honest butter versus fraud, such as the selling of oleomargarine as butter, galvanized by the wily ways and dishonest tricks of a hoard of the smartest rascals outside of our penitentiaries.

You may think this harsh and overdrawn, but I warn you this is no time for maudlin sentimentality, but for honest and heroic men, words and action. I appeal to you all to awake from your lethargy, take off your coats and go to work at once with a firm and steadfast resolution to win this fight for right and justice, for pure and honest butter and the suppression of fraud.

You have been told time and again by the dairy press and otherwise of the millions of pounds of colored oleomargarine that have been made and sold in the past year as butter, thereby displacing the sale of a like amount of your butter. Therefore I deem it unnecessary at this time to enlarge upon this part of the subject. For fear some may say that all this agitation of a 10-cent tax by national law cannot be obtained, to such unbelievers I will say it can and will be done. Nothing has ever been accomplished without an effort. If there is a will there is a way.

There is a will behind this movement that will win and yet put to shame all the doubting Thomases. This "will" is the National Dairy Union, its officers and members; especially its officers who are self sacrificing and very industrious in their efforts to secure this 10-cent tax. These officers are well known to most of the creamerymen and dairymen of our state and nation. They are further known to be men of much ability, candid and wise in their judgment, and of unquestioned integrity, and among the best informed upon the subject matter now before us. Such is the character of the men who are now giving much of their valuable time and money without hope of reward, other than the 10-cent tax secured, and a duty well and faithfully done. The question now arises, what is our duty as Iowa creamerymen and dairymen?

First—We should contribute as liberally of our means and time as our circumstances will permit, even to the extent of some sacrifice on our part.

Second—We should all join the Dairy Union and become active and energetic members.

Third—Don't adopt the common error that when our membership fee has been paid that we have discharged our whole duty and nothing more is required of us. But instead, you must work, work every day in the week, month and year, in such a way as your active mind and better judgment may suggest to help the good cause along. Solicit aid, and talk loud and long every day to everyone you may meet about the great fraud we are trying to suppress. Talk it in your state, talk it in your county, talk it in your city, town and township, talk it in your school district, talk it at your creamery, talk it at the store and the workshop, talk it in your home, talk it everywhere, so that the ear of every man, woman and child may hear of this drastic fraud, which, by its unholy methods is ruining our chosen calling with a swiftness yet unknown to the great majority.

Don't forget to write many earnest letters to your senators and congressmen, appealing to them for aid by their labor and votes in this our dire necessity. Contribute liberally to the Dairy Union whenever they make a call for assistance. Its officers are honorable men and every penny that you or I may turn over to them will be honestly accounted for and judiciously expended only for the best interest of our cause. You no doubt are aware that the Dairy Union has an herculean task to perform during the session of the 56th Congress. But I assure you the Union is equal to the occasion. It will necessarily have need to open up headquarters at Washington, D. C., and keep there all or most of the time a number of wide awake and earnest workers, besides one or two able attorneys to see that our cause is properly presented and our best interest protected. Besides this, our Union will need to place good and competent workers in every state, county, town and school district, in order that this matter may be placed in its proper light before every community, and distribute wholesome dairy literature and stir up a wide awake interest among our people whose decisions are always right when a question is properly presented.

We also need and should have the loyal support of every newspaper over the entire dairy belt. It should be so arranged with all these papers, by and through the Dairy Union, that all the matter favorable to our cause should appear with bold head lines daily and weekly in their columns, thereby making it very hot all along the line and all the time for our opponents. Such a campaign actively and intelligently carried to a finish will create such a demand for the proposed law that the very air, every mart and corner will be so surcharged with emotion clamoring for this law that the very earth will quake and tremble, warning all violaters and frauds of the power behind the throne.

But all this calls for lots of hard work and much money, and a thorough organization as heretofore mentioned, extending its arm and influence into every nook and corner of our common domain, and in doing this work it will not be necessary to resort to any questionable means or tactics. Nothing but the clean, unvarnished truth need be told in order to win our cause or to remove the mask and expose to public view the gall and dishonesty of the dealers in the oleo fraud when sold as butter, and have this nefarious traffic sent into utter oblivion. But while we are doing all this, don't forget that on the other side we have the oleomargarine manufacturers pushing their side of the fight hard and strong, working day and night, laying all kinds of schemes and plans to defeat us; besides they have millions and to spare, and they spend their money freely when attacked. They and their henchmen (of which there are many) are wise and well informed in the art of legislative legerdemain, and never stop short of any means to accomplish their purpose. They also have continually in their employ some of the best legal minds our country affords. Therefore, it is necessary that you be very active in your labors and generous in your contributions, for this is no easy mark you are now running against.

I now wish to make a special plea to the farmer who sells milk to be converted into butter, to be wide awake and deeply interested in this your cause for the proposed 10c tax law. Turn no solicitor with proper credentials away with an empty hand, or a cold shoulder, for this is really your fight and in your interest as ten to one as compared with any other branch or part of the butter producing industry. For I only need to remind you that the extreme low price of creamery butter for the past two and a half years is almost wholly attributable to the large and increased make and sale of oleomargarine as butter. Also to remind you of the enormity of their output, I desire to inform you that they have made and sold more oleomargarine during the year ending June 30, 1899, than there

Banner Root Cutters

CUT BEETS, MANGELS, Turnips, Carrots, and all other roots and vegetables for stock feeding. **CUT FINE.**

Choking Impossible.

Run easy, have self feeder, separate dirt from cut feed. Five sizes, hand and power.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

Largest Root Cutter makers in the world. *Catalogue free.*



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address DR. D. ROBERTS, Vet. Surgeon, • Waukesha, Wis.

ALBION JERSEY HERD is headed by **Pedro's Prince Phillis 42298,** An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.** R. C. GREEN, Albion, Wis.

Registered Jerseys.

Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall. JOS. T. HOOPES, Bynum, Md.

Your Own Price

For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood. GEO. A. BUCKSTAFF, Oshkosh, Wis.

Marquilla's Major 40804.

SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is **FOR SALE.** Write for price. W. R. THOMAS, Bellmore, Ind.

Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. McKERROW, Madison, Wis.

BLACK EARTH JERSEY HERD is headed by Diploma's Victor 56310 sire, Recorder 29239; dam, Nice 68027, full sister to Merry Maiden 64049. Young bulls for sale reasonable Address, FRED STUBLEY, Black Earth, Wis.

Brown Bessie Herd.

FOR SALE!

Three **BROWN BESSIE BULLS** fit for service. Highly bred, first-class individuals. Solid colors. Good opportunity to secure **"The Blood of The Winners."** Prices reasonable. H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys

For Sale—50 per cent Combination bull, the same as a son of that great sire of dairy stock and grandsire of Brown Bessie and Merry Maiden, the greatest winners in the World's Fair dairy tests against all breeds. Sire, Brown Bessie's Son, sire of 8 in 11 lb. list Dam, Oneida, by Combination, test 16 lbs 13 oz., milked 23,141 lbs. 10 oz. in two consecutive years, testing 1,211 lbs. 10 oz. butter. Write for price to Hood Farm, Lowell, Mass.

EUROTAS

Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield. W. F McSPARRAN, Fairfield Stock Farms, Furniss, Pa.

Jersey, Guernsey Cattle

Chester White, Berkshire and Poland-China **SWINE,**

SHEEP, POULTRY, Hunting and House DOGS

50 Grand Grade Jersey Heifers to offer at once.

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FOR SALE

GRANDSON OF

Exile of St. Lambert 13657

Sire of 79 Tested Daughters.

"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.

P. J. COGSWELL, Rochester, N. Y.

PROSPECT HILL JERSEY HERD.

WISCONSIN PRIZE HERD.

Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.** F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD

by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book." FILSTON FARM, Glencoe, Md.

THE Evergreen Farm Herd of A. J. C. C, Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. PALMER & SON, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.

Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs. Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

The Hillside Jersey Farm affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address F. E. BRYANT, Carlsbad, New Mexico.

ARDEN HERD OF

JERSEYS.

JOLIET, ILL.

H. N. HIGINBOTHAM, Prop.

J. D. THOMPSON, Supt. FRED STORY, Herdsman.

Pedro's Handsome Prince, No. 42794.

Sixteen Tested Cows in Herd.

Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.

This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere

SOME CHOICELY BRED

Bull Calves

out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.

Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**

Franklin, Venango Co., Pa.

The Lone Tree Jerseys

THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners

Introduce Fresh Island Blood Into Your Herd.

SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.

Write for what you want Visitors always welcome. JOHN E. ROBBINS, Greensburg, Ind.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S HAWK, Mechanicsburg Ohio

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR. Solid color, well grown, robust Dam, 22 lbs. in 7 days.

CHARTER OAK HERD. - J. P. BRADBURY, Pomeroy, Ohio.

was butter made during the same period by all the creameries in the great dairy state of Iowa, thereby displacing a like amount of your butter, thus causing a loss to you of not less than 2c to 3c a pound for every pound of creamery butter so displaced—a loss of over $1 on every 60-lb. tub of butter produced. From this you can readily figure the thousands of dollars directly taken from the pockets of the many patrons of our creameries.

This isn't all. In view of the recent Supreme Court decisions in favor of colored oleomargarine when sold in original packages, versus state anti-color laws, and in view of the fact the make and sale of colored oleomargarine has doubled in the past year, you may well be astonished, and forcibly realize the necessity of the proposed 10c tax, and what the end of your chosen occupation will soon be should it not become a law. During the contest for the 2c tax secured on oleomargarine in the year 1886—of which I have a vivid recollection—the dairy press, commission men, supply men and a few creamerymen put up the fight, and also the money, that secured the 2c tax. Many of the same men and the same element, only in a larger number, are at the helm again furnishing funds and laboring for the proposed 10c tax. The time has now arrived when we expect and demand that the creamerymen and dairymen, and the farmers who furnish milk for the creamery, come forward and freely assist us in this effort for their benefit. I warn you not to ride a free horse to death. If you are not interested in your own cause, how can you expect the other fellow to be. So now let us make a strong pull altogether.

If it is to be true, as they allege, that oleomargarine is as palatable, cleaner and better than creamery butter, why in the name of truth and fair practice, don't they sell it under its true name—just plain oleomargarine. If they will do this and be honest in so doing, I'll assure you that the butter interests of this country will find no fault, enter no complaint nor interfere with their business. All that we are trying to do in securing the 10c tax, is to force them to sell it in its true name. If they will not do that we say they must contribute 10c per pound to the government, for every pound made and sold in semblance of butter. We are in possession and claim the right of original discovery, and by all that is right and just we will hold our possessions and protect our rights at all hazard when wrongfully assailed by any and every gang of counterfeiters or their emissaries. When congress meets this winter I presume the oleomargarine dealers will say many harsh things of us and pour in their pitiful tale of woe, tell how we are trying to ruin their business, and much more of such rot and nonsense. It is the same old plea like unto the horse thief and pickpocket when caught and brought to trial—"not guilty." It is not designed by us to crush out fraud. Of course, if is impossible to sell oleomargarine without fraud, then the proposed 10c tax will suppress oleomargarine, and in that event it ought to.

Now in the good name of the great state of Iowa; in the name of protection for him who honestly toils; in the name of purity and justice; in the name of protecting the good health of the human family; in the name of honesty and decency and against all that is unclean; I once more urge you to earnestly and liberally aid and support the National Dairy Union in this their unselfish and strenuous efforts for the protection and perpetuity of your calling.

High Pressure on Milk.

ED. HOARD'S DAIRYMAN:—Several articles on this subject have of late appeared in various papers, and it really seems that in some not very far future some practical method may be invented, by which high pressure applied to milk may prove the most effective and easiest method by which to destroy bacterial life, and thus give the milk that desirable keeping quality so necessary for long shipments, especially during the warm season. Some experiments on a smaller scale have been made by the chemist of the West Virginia Agricultural Experiment Station, and upon inquiry from us he modestly answers, that he "fears we have seen some of the more extravagant reports of his work, which, in some manner have found their way into the papers. The work, so far, has been of a purely experimental character, no attempt whatever having been made as yet to apply the method in a practical way. Working, however, with small quantities, we have succeeded in keeping milk in fairly good condition for three months, and I think that you will agree with me that such results are very encouraging, at least when compared with those obtained by other methods. We hope yet to arrive at a practical method for preserving milk. I need not enlarge upon the value of such a method in view of the enormous losses that are continually being incurred by virture of the perishable nature of milk. It seemed to us, that unless some one made a start in some direction no one would ever be very likely to discover such a method. That, indeed, is what we have done,—we have made a start. We are going to continue the work, and will be glad to let you know with what results."

It certainly seems as if it might be worth while for some of our other experiment stations, as at Wisconsin, Iowa and New York, to take up this work. As a matter of course, even such an invention will put no premium on dirty work in the stables, as, just as with pasteurization, the best results with high pressure must be obtained with the cleanest and purest milk to start with, and naturally bad and foul flavors will not be expelled by high pressure even. We shall try and find out all we can as to the future results, and shall be glad to give the news to HOARD'S DAIRYMAN, or rather its readers.

Right here I wish to state, that I receive a number of inquiries on account of my articles on city milk supply, pasteurized milk, etc.; such inquiries I cannot answer by letter, but shall be glad to give all information I can through HOARD'S DAIRYMAN. Any communications addressed to me at Washington, D. C., shall have my careful attention as soon as my time permits. J. MOLDENHAWER.

Report of Some Vermont Cows.

ED. HOARD'S DAIRYMAN:—Will you please formulate and print in your paper a balanced ration for new milch cows (Jerseys) from the following: Clover hay, ensilage, (well eared), corn bran, $20 per ton; gluten feed, $20 per ton; cotton seed meal, $25 per ton. We like the DAIRYMAN very much indeed; think it should be in the home of every farmer.

I send you the record of some of our best cows.

RECORD FROM JANUARY 1ST TO NOVEMBER 2ND.

Name of Cow.	Pounds of Milk.	Per Cent of Fat.	Estimated Amount of Butter.
Janette's Glory .	5,488	5.	308.70
Winer's Varessa.	5,087	5.6	3 0.48
Clerice	6,642	5.6	418.44
Caprice.....	7.694	5.4	467.43
Pogissa's Rose...	5,518	5 6	358.87
Rose of Riverside	6,166	5.	346.83
Luella	5,751	5.	323.49

Butter estimated by adding one eighth (12½ per cent) to the total fat.

Cows 3 and 7 are grades; all the others registered Jerseys.

If you think it worth while you are at liberty to publish A. D. BEAN.

Orleans Co., Vt.

We are very glad to get this report of these Vermont cows, for it is such matters as these that should excite the ambition of every dairyman in the land. We have not failed to notice that these are selected out as the best cows in the herd, but there is no reason why the entire herd, every cow in it, might not be made to do as well as these, or otherwise yield her place to some cow that can do as well. It would be millions of dollars in the pockets of the dairymen of this country if every cow that is now kept without yielding any profit whatever, could be at once disposed of. It is a sad commentary on the business capacity of dairymen that they do not know which of their cows bring them in profit and which yield them steadily a loss. It is not much trouble, and no expense whatever, to keep a record of each cow and know to a certainty, whether she is a profitable animal or an unprofitable animal. A cow that does not yield 250 lbs. of butter every twelve months, is not worth keeping for dairy purposes.

We submit the following formula as affording a good ration:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. clover hay.....	8.68	.68	3.58	.17
4lbs. bran.....	3.52	.50	1.54	.12
4 lbs gluten feed.....	3.69	.82	1.94	.14
Totals.....	22.49	2.33	10.56	.61

If the amount of silage on hand will justify feeding more of this we might add 5 or even 10 lbs, to the allowance of silage, and preserving the same proportion, the grain may be increased as each cow is able to digest and assimilate.

We do not think there is any danger of "wearing out a cow," in fact they are more liable to "rust out" than otherwise, just as farm machinery takes more harm and dam age from idleness and exposure than it does from decent use. Undoubtedly, a cow can be overfed and her digestive system deranged, but that is quite a different proposition. Let a cow have sufficient feed to stimulate her milk flow to its largest limit and there will be no reason to apprehend a wearing out.

WE ENDORSE
HEESEN'S FEED COOKER

There is really only one cooker for the practical farmer—that is, if he wants the most economical in first cost, fuel and repairs; the most durable, convenient and simple; the quickest in heating, and absolute full measure—that is the HEESEN. If you don't believe it, let us send you our booklet on what a feed cooker should be. *We absolutely guarantee satisfaction.* Seven sizes—15 to 70 gals.

Sold only direct from factory to farmers.

HEESEN BROS. & CO.,
26 High St., Tecumseh, Mich.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

GUERNSEY BULLS FOR SALE

Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by OWEN BROS., Portage, Wis.

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE
GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys,

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
Farm Supt., Madison, N. J.

HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.



The Tinned Steel Milk Cans
MADE BY THE
Buhl Stamping Co.,

Are the easiest to clean and last the longest. Write for our hand book,
"A STUDY IN MILK CANS."

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

SHADY NOOK HERD
HOLSTEIN-FRIESIANS. 6 choice cows and 1 bull 15 months old FOR SALE; 5 bull calves. Choice Chester White Sows. Address, W. R. GATES, Prop., Fort Atkinson, Wis.

123 HOLSTEINS FOR SALE. 123.
Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write now stating just what you want to
DELLHURST FARM, Mentor, Ohio.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD
Holstein-Friesians.
Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address M. W. BARDEN, Portage, Wis

Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three third and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW
A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr, Simonsville, Vt

The Big 4 at Brookside.
THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS. Lacona, N. Y.

A CHRISTMAS GIFT.
Holstein Bull, Sir Tirania of Valley Mead, (22 mos. old), by Sir Natsey Baker 22413). A prize bull (by Judge Baker, and out of Natsey.) Dam, Tirania 4th 15861 (sister to Tirania 2nd, holder of world's 2-year-old 7 days' butter record, 22 lbs. 8 oz.) by the great prize bull Artis Peer, and out of Tirannia. Natsey's butter record is the largest in the advance registry, 34 lbs. 9 oz. 7 days. Tirannia holds the world's record in public test, 3 lbs. 2 oz. 1 day, for which she was awarded gold medal and $100; 7 days' butter record, 36 lbs. 11 oz. This bull is fit to head any herd in the country. Write for price and further particulars. KARLEN CO., Monticello, Wis.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON. Monroe, Wis.

SHORT-HORNS
Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale. Write or come and see us.
WALTER LITTLE, Janesville, Wis.

Deleware Co. Dairymen's Association.

The annual meeting of the Deleware Co. Dairymen's Association was held Dec. 7-8. The local speakers were assisted by three from the institute force. The president, Mr. Garrison, in his remarks, spoke of the value of such conventions, and the need of study and investigation.

Mr. G. W. Grant, of Delhi, gave an address on plowing. To do the best work, he said, you want a good, strong team, well trained, then a good plow which should always be kept scoured. I do the most of my plowing with a steel flat land plow, and I can so manage to keep the land level and leave no dead furrows. I usually plow for grain in the fall, and for corn in the spring.

Mr. John Gould, of Ohio, followed with his address on "Roughage and Supplementary Feeds in the Dairy." He advised dairymen to grow those crops on the farm that furnished carbohydrates, sugar and starch in the food, and if grain must be bought to balance it, to buy only those rich in protein. No dairy farmer should ever buy the carbohydrates which are burned in the cow to make heat. Use the plow more, and grow the supplementary crops which cheaply furnish these elements. Grow more ensilage corn, and get all the starch in it you can. The corn plant makes starch only when it grows in the sunshine. Don't sow corn so thick that the stalks must grow in the shade, but plant in drills, and let in the sunshine; then you have the conditions for getting the most starch in the stalks. The varieties of corn which have the most sugar in the stalks, keep the best in the silo. The sugar in corn preserves it for the same reason that sugar preserves fruit when the farmers' wives use it for this purpose. The varieties of corn that grow on the uplands contain more sugar, and I selected one of these for my own planting. Sow peas in the corn rows in July, and so get plant food cheaper. You can best conserve moisture for the corn, and destroy the weeds by cultivating only one inch deep, and very frequently.

Mr. T. B. Terry gave his lecture on "Clover and Tillage." He said in part, that we must often buy commercial fertilizers to obtain nitrogen. It is a fact that I have demonstrated on my farm, that by growing clover in a proper rotation, we can get all the free nitrogen from the air that is needed to keep up the fertility. A ton of clover hay contains forty-five pounds of nitrogen, mostly taken from the air, and about forty pounds of potash taken from the soil. The clover plant can take potash from the soil better than any other, because of its long feeding roots which go down deep into the subsoil, where it takes up the potash that other plants do not reach. To enable it to do this, the soil must be given very thorough and deep tillage before putting in the crop. The rotation of crops on my farm has been clover, potatoes and wheat, and the clover has furnished the fertility for the two latter crops.

QUESTION BOX.

What is the best food for the farmers' table?

T. B. Terry, of Ohio.—You can lay down no rule that will apply to all. Every one must be a law unto himself.

When plowing, should the furrows be all turned over flat?

Mr. Potter, of Franklin.—I would set them partly edgewise, but I would be sure to break all the sod.

Mr. Hymers, of Delancy.—When plowing in the fall, would set them partly edgewise; in the spring, would turn them flat.

How does winter dairying pay as compaired with summer dairying?

Mr. Hymers.—No one can answer without knowing the circumstances; under favorable conditions, it can be made more profitable.

Can a manure spreader be used when the manure is drawn out from the barn every day?

Mr. Hymers.—It depends on what you use for bedding the cows. If you use long straw it will not work well; if cut straw or sawdust is used, it will do good work.

Mr. Terry.—The wheels of the spreader may slide if used on snow or ice. This could be avoided by having spurs put on the wheels.

Will top-dressing the grass land benefit it as much as applying the manure to plowed land?

Mr. Terry.—It will make but little difference. I generally prefer to use a part on the grass land. If manure is applied on the sod, the elements of fertility will be gradually washed down, and nothing will be lost.

When are oats and peas in the best condition for cutting?

Mr. Hymers—Just when the pea pods are forming. Sow the peas a few days before sowing the oats, so both will mature together.

Will green fodder corn make as much butter as oats and peas?

Mr. Barlow—No.

Can we grow clover successfully, when the plants are partly raised out of the ground in the spring by the frost?

You must drain your land so as to take off the surface water.

What is the method of growing ensilage corn?

Mr. Garrison—I think the best corn can be grown by plowing the ground in the fall, and applying the manure to it during the winter as it is made. Early in the spring I would begin to harrow it, and continue until time for planting, and so make a fine seed bed with the manure well incorporated in the soil. Plant, at the right time, the largest variety of corn that will mature in your section.

Mr. Barlow—This is all right except I would plow in the spring. Ground plowed in the spring will hold the moisture better. Put the manure right on the sod during the winter, then plow early in the spring.

What is the best fertilizer for making our poor hillsides fertile?

A Farmer—Ashes.

Will manure lose a part of its fertility when placed in piles on the hillsides?

Mr. Barlow thought the waste from manure put in piles fully as great as when spread when drawn out. Mr. Garrison advised spreading the manure on hillsides when drawing, even on the snow in the winter. He had done so, and watched the results closely, and did not think any fertility was lost.

Can as much stock be kept on a farm if you plow the ground after the first crop of clover?

Mr. Terry.—You can keep more, for you can grow a crop of corn that will be worth more than the second crop of hay.

C. O. Potter, of Franklin, N. Y., next discussed the "Profitable Use of Farm Machinery." He said: "The care the farmer gives the machine is the most important consideration in this discussion. It will not pay you to buy expensive machines and not house them properly when not in use. The farmer who uses machinery should know something about mechanics, should know how to use and how to repair their machines. The machinery should pay ten per cent interest on the investment to be profitable. If this amount will hire the work done that the machine does, it will not pay to buy it. I would not advise buying until you can pay for it.

Mr. J. Q. Barlow, of Walton, followed on

Double Your Income

If your present employment does not take up all of your time, it is quite possible that you can double your income by taking the agency for your town for

The Ladies' Home Journal
AND
The Saturday Evening Post

You can surely make every minute of your time profitable.

We want energetic workers to secure new subscribers and renewals.

We allow liberal commissions. Also, liberal rebates for large clubs.

And, in addition, we are going to reward 764 of our most successful agents with $18,000 at the end of the season.

You may make five hundred or a thousand dollars during the Winter in addition to commissions that would ordinarily be deemed ample compensation for the work.

Write.

The Curtis Publishing Company, Philadelphia

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

HIGHEST BUTTER SCORE 1899.

First Prize.. 98% Sweepstakes,

AWARDED BY

PENNA. STATE DAIRY ASSOCIATION,

West Chester, Pa., Dec. 5th, 1899,

To butter made by E. J. LIKERT, Graduate and Butter Maker, Penna. State College Dairy State College, Pa,

WAS COLORED WITH

Alderney Butter Color

ODORLESS, BRILLIANT, ECONOMICAL,

DOES NOT COLOR THE BUTTERMILK.

Order direct from your supply house. Samples sent on application. Manufactured by

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A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023 BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

the subject, "Can the Cash Income of the Farm be Profitably Increased in Addition to the Dairy Income?" He advised dairymen not to sacrifice the dairy interest for anything else. First take care of the dairy, and then if you can manage some other industry, so as to make it profitable, do so. You must be governed by circumstances in choosing something with which to supplement the dairy income? Study your opportunities, markets, etc. If you, or your family has the time to care for them, you may be able to make poultry profitable in connection with the dairy, or you may be successful with the market garden. On my own farm I have found sheep kept in connection with the dairy the most profitable, because I could care for them with less work than anything else.

Hon. Geo. L. Flanders, Ass't. Com'r. of Agriculture, Albany, gave an address on "Oleomargarine—A Fraud and a Foe." He gave the history of the fight which he had made against the illegal selling of the article.

At the evening session, Mr. T. B. Terry delivered his well known lecture on the "Wife's Share." As everyone knows, who has read his writings, Mr. Terry believes in equal rights for the husband and wife. That no husband should draw a line, and say this is mine and that is yours. The husband and wife on the farm should be equal partners, and each should have the same rights in the property, and to spend the money which they earn together. For the wife who works hard in her way as the husband, it is very humiliating for her to ask him for money. All the property should be held in their joint name, and all the business done in this way the same as any business firm. Mr. Flanders, in discussing the lecture said he believed this to be the ideal way, but some wives would not be economical in the use of money, and if she should spend all of her husband's property, the law would compel him to support her.

Miss Carrie Olmstead, of Walton, read a very excellent essay on the "Farm and the Home," which, with music, concluded the evening session. W. J.

Delaware Co., New York.

Malt Sprouts—Losses in Curing Hay.

ED. HOARD'S DAIRYMAN:—I see in your issue of the 1st inst. that Prof. Henry, in reply to an inquiry in regard to malt, as a cow feed, states that malt sprouts are "a fairly satisfactory feed for stock, but must not be fed in large quantities; about two pounds per day to the cow." Will you please inform me why it should be fed so sparingly and if it contains any element detrimental to the health of the cow. I am feeding five two-year-old heifers 4 lbs. corn chop, 4 lbs. malt sprouts and what second crop of clover and timothy they will clean up in two hours feeding; have increased corn and decreased sprouts. Milk flow stationary, fat increased; fed 4 lbs. corn chop, 2 lbs. bran, 2 lbs. malt sprouts; the 2 lbs. bran did not give as good results as the extra 2 lbs. sprouts.

Please tell me what per cent of feeding value is lost from having clover and timothy hay pretty thoroughly wet whilst in the shock; the timothy is bleached and the clover perfectly black. A SUBSCRIBER.

Petersburg, Colo.

Malt sprouts are fed in but limited quantity' because they are not relished by cattle, and it any attempt is made to force them, the cattle will refuse them entirely.

From 25 to 40% of the feeding value of clover or hay can be extracted by rain. Good authorities estimate that one-half its value is lost when hay is exposed to prolonged rain. In your case the loss may be still greater and in feeding such hay, allowance must be made for this loss

The Increase of Oleo.

50 Per Cent More Dealers.

The annual report of the Commissioner of Internal Revenue, issued this week for the year ending June 30, 1899, shows that there were at that time 7,055 licenses in force for the sale of oleomargarine, compared with 4,409 the year previous.

Of these, 6,900 were retail licenses, and 155 wholesale. This is an increase in dealers of nearly 50 per cent over 1898.

Illinois, as usual, leads in number of dealers, there being 2,020 in this state this year, compared with 1,152 the previous year. Ohio comes second with 1,005 licenses, compared with 528 in 1898. Third on the list is Pennsylvania, where 717 licenses were issued, compared with 293 the previous year.

Of the 7,055 dealers doing business on June 30, 1899, 5,550 were doing business in defiance of the laws of their states, and 1,505 were permitted by their state laws to sell colored oleomargarine. The table below shows dealers' licenses for 1899, compared with 1898:

	Total Dealers. 1898	1899
*Alabama	15	21
Alaska	1	5
Arizona	4	5
Arkansas	29	35
*California	..	..
*Colorado	80	95
*Connecticut	6	5
*Delaware	9	48
District of Columbia	50	61
Florida	84	82
*Georgia	31	61
Idaho	1	3
*Illinois	1,152	2,020
Indiana	238	306
Indian Territory	16	21
*Iowa	2	3
Kansas	110	186
*Kentucky	167	217
Louisiana	120	140
*Maine	4	17
*Maryland	79	58
*Massachusetts	55	108
Michigan	18	109
*Minnesota	6	30
Mississippi	5	17
*Missouri	136	231
Montana	..	..
*Nebraska	62	73
Nevada	..	..
*New Hamsphire	7	19
*New Jersey	253	296
New Mexico	6	12
*New York	31	14
North Carolina	4	9
*North Dakota	9	18
*Ohio	528	1,005
Oklahoma	2	10
*Oregon	..	3
*Pennsylvania	293	717
Rhode Island	330	333
*South Carolina	20	24
*South Dakota	3	4
*Tennessee	51	83
Texas	76	162
*Utah	..	..
*Vermont	..	1
*Virginia	102	121
*Washington	8	5
*West Virginia	99	172
*Wisconsin	21	23
Wyoming	5	5
Total	4,409	7,055

*State has laws forbidding sale of yellow oleo. As all oleo is sold yellow, these dealers are violators of the laws.

The number of wholesalers has increased in proportion to retailers. Pennsylvania has 21 of them; there are 11 in Massachusetts and 10 in Illinois, while far-off Texas has 15 who pay $480 per year for the privilege of selling oleomargarine in the original package. Maryland has seven; Louisiana six; Connecticut six; Minnesota six; New Hampshire six; New Jersey seven; Ohio eight and Wisconsin and West Virginia each five, while almost every other state has from one to four each.

Corrected reports for the year show the output to have been somewhat less than reported, amounting to 83,141,081 lbs. instead of 87,000,000 as stated in July. The report shows the output in the various districts to have been as follows, compared with the previous year:

	Pounds. 1898	1899
Rhode Island	6,744,341	7,912 571
Illinois	20,770,871	38,897,603
Indiana	5,435,330	7,086,909
Kansas	14,132,277	13,459,994
Maryland	247,767	1,056,432
Missouri	944,731	1,867,211
New Jersey	442,245	540,657
11 h Ohio	6,347,337	9,991,723
18th Ohio	2,451,237	2,327,881
Total	57,516,136	83,141,081

Present indications are that there will be close to 10,000 dealers for the year ending June 30, 1900, if the increase in Illinois is any criterion.—*Chicago Produce.*

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He can qualify himself for a position as a first-class Locomotive, Steam, Electrical or Civil Engineer without leaving the farm until he is ready to enter his new occupation and

EARN A GOOD SALARY

Our system of teaching by mail will give any boy a technical education. Write for pamphlet and state what you wish to study.

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Housework is Hard Work

without Gold Dust. It lightens the labor of cleaning more than half and saves both time and money. It is "Woman's Best Friend, Dirt's Worst Enemy."



Send for free booklet—"Golden Rules for Housework."

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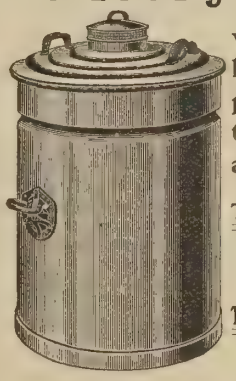
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Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

Factorymen



who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



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Manufacturers of DAIRY APPARATUS AND SUPPLIES.

Roofing?

There are various kinds of Iron and Steel Roofing and Siding, but our Patent Edge Corrugation is easily acknowledged to be far superior to anything on the market in that it is absolutely fire and waterproof, durable, effective, and of superior architectural appearance. If interested we will send you our new 100-page catalogue, illustrating and describing what we make. It's free.

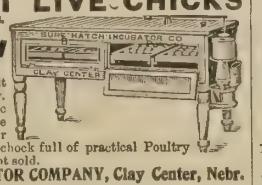
Operating our own ROLLING MILLS, we are prepared to make Prompt Shipments at all times.

THE CINCINNATI CORRUGATING CO.

BOX 550, PIQUA, O.

THE MOST LIVE CHICKS

from a tray full of eggs. That is what the **SURE HATCH INCUBATOR** is designed to produce, and it does it with great regularity. Hundreds in use. Automatic throughout. Let us quote you a price laid down at your station. Our catalogue is chock full of practical Poultry information. It is free—not sold.



SURE HATCH INCUBATOR COMPANY, Clay Center, Nebr.

The IMPROVED VICTOR Incubator



hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free. GEO. ERTEL CO., QUINCY, ILL.



310 First Premiums

Awarded to the PRAIRIE STATE INCUBATOR. Guaranteed to operate in any climate. Send for catalogue.

PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

Honey Pick Up An' Follow Me—Pronounced by Prof. F. Leslie Clendenen, New York City, author of The New World, "the best 'Coon' song that has yet been published," with 1200 word description of gestures and dance for amateurs. Special price to introduce in new localities, 25 cts. (Regular price 50c.) Address author, HALBERT L. HOARD, care Hoard's Dairyman, Fort Atkinson, Wis.

Pennsylvania Dairy Interests.

ED. HOARD'S DAIRYMAN:—The deep interest that was shown at the second annual meeting of the Pennsylvania State Dairy Union at West Chester, December 5th and 6th, is indicative of the wonderful growth of the dairy interests in the state. In 1890, Pennsylvania ranked sixth on the list for the magnitude and value of her dairy products, at that time the statistics showing about 967,000 milk cows, some three hundred creameries, and a product valuation of nearly a million dollars. In the eight years since then, the number of milk cows has increased one-third, there are now double the number of creameries and cheese factories, and the annual value of the marketable product aggregates over a million and a half. In addition to this remarkable increase in quantity, there is still a more noted difference in the superior quality of the goods manufactured, owing to the fact that Pennsylvania dairymen have been making a scientific study of butter making, and the manufacture of cheese. Because of this, both Pennsylvania butter and cheese now rank equal with the best of either manufactured in the United States, and the demand always far exceeds the supply. Anent this fact, the proceedings of the State Dairy Union are of particular interest to the trade every where.

The attendance was unusually large, there now being upwards of two hundred members in the organization. When President H. W. Comfort called the meeting to order, the address of welcome was made by Chief Burgess Talbot, James L. Branson, making the response; incidentally referring to the various brands of commercial foods which are gross libels on the original, and made the declaration that between legislators and counterfeiters, the farmer has but a poor chance. In his annual address, President Comfort told his audience, that unless the farmers learned the value of co-operation they were doomed to forever follow the thorny and discouraging paths they are now treading. Several good points made by the President were as follows:

"How many of you, with your increased feed bills, are getting any advance for your product? Where you used to get four cents per quart for milk, with 3% butter fat, and no questions asked us to how many microbes you are furnishing free, you are now fortunate if you get three cents for 4% milk, and are all the time in danger of indictment by the grand jury for manslaughter, because, don't you know, consumption, tuberculosis, hip disease, white swelling, scrofula, stiff knees, short limbs, club feet, typhoid and scarlet fevers, diptheria and measles and lots of other ailments originate either because people do or do not use milk. On the farm where I live and grow, milk production and the delivery of it to families has been followed for fifty-two years by myself or my ancestors. Therefore, I feel that I know both sides of the question, the selling of it as well as the making of it, and I am free to say that the farmers should always net, above freight, one-half of the retail price, and the middle man has, generally, the best half of the business. If I had to take the low prices prevailing the last few years for milk, I would very soon let some other fellow raise the milk, and I would do both the selling and the money making. Again, if we do not learn to co-operate, in many places our business will be run for us by theorists or busy bodies, or boards of health, acting not for the public good, but to carry out some hobby at our expense; or else to maintain themselves in office. I am glad to say these remarks do not apply to the Pennsylvania Live Stock Sanitary Board, but there is a constant effort to pass unjust laws, and make municipal ordinances, which would make it impossible to sell or grow milk at a profit."

Other interesting papers read and discussed at the first day's sessions were: "The Adulteration of Dairy Products," By Prof. C. B. Cochran; "Our Dairy Laws and Their Enforcement," Major Levi Wells, State Dairy and Food Commissioner; "Wastes of the Dairy," R. A. Pearson; The "Relation of the Commissionman to the Creameryman," W. F. Drenman; "Corporation of Creameries," E. L. McSparren; "Modern Methods of Dairy Science," Prof. E. B. Voorhees, of New Jersey; "What Science Has Done to Develop the Dairy Industry," Prof I. P. Roberts; "Dairy Education," Dr. H. P. Armsby, of the State Experiment Station. In Mr. Pearson's talk, he advised co-operation among farmers, and said that in some places the farmers living on the same road, haul each other's milk to the creamery, taking turns for a few days each, thus saving much time and labor.

The second day's session opened with a paper on "Corn Feeds," by W. C. Embree, who was followed by State Veterinarian, Dr. Leonard Pearson, with a discussion on "Cow Stables." Dr. Pearson urged as the one great need of stables, a better ventilation The ventilation must be above, so as to draw the impure air from the stalls occupied by the cows; and especially is this necessary when growing calves are kept in the same stable with the cows. "The Economy of Raising Calves," was discussed by J. T. Truman; "Handy Devices for Farm Use," by Archie Billings, and "Dairy Matters," by George A. Smith.

The selection of officers for the ensuing year resulted as follows: President, A. G. Wales, Corry; Vice President, C. L. Peck, Coudersport; Secretary, Harry Hayward, State College; Treasurer, S. F. Barber, Harrisburg. Executive Committee, H. W. Comfort, Fallsington; Archie Billings, Erie; L. D. May, Granville Centre; J. K. Murray, Pottsgrove, and J. C. Sharpless, Londongrove

Resolutions were adopted, commending the National Secretary of Agriculture in his efforts to enlarge the foreign market for dairy products; urging Congress to pass a law providing that the regulations concerning the inspection of meat be extended to dairy products; recommending the State Superintendent of Public Instruction to use his influence in behalf of incorporating the study of nature in the curriculum of public schools; that the Executive Committee be an auxiliary Committee to aid the State Pure Food Division in giving evidence that shall tend to the better enforcement of the oleomargarine law.

There were forty entries of butter and only one of cheese in the prize exhibit, the scores ranging all the way from 69 to 98. E. A. Bean, Knoxville, took the $25 prize for cheese. In creamery tubs, Robert Hamill, Cochranville, took the first prize of $25; S. D. May, Granville Centre, the second of $15, and J. W. Waite, Smithport, the third of $10. In dairy tubs there were but two entries, Austin Leonard, Troy, who took the first prize of $25, and L. M. Leonard, Granville Centre, who took the second prize of $15. In creamery prints, State College took first prize of $25; Bert A. Burnham, West Chester, the second of $15, and S. L. Byler, Bird-in-Hand, the third of $10. In Dairy Prints, Benjamin Sharpless, West Chester, took first prize of $25; Walter Mitchener, Glen Hall, the second of $15 and Thomas Sharpless, West Chester, the third of $10. The judges were W. D. Edson, John S. Morris and Edward S. Stackhouse.

Bellefonte, Pa. C. L. GATES.

Dairy Work in the Maritime Provinces.

Rations for Fattening Pigs and Cows.

ED. HOARD'S DAIRYMAN:—Continuing the latter part of my recent article, the mixture of swine feed is now placed in analytical formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
300 lbs rutabagas	34.2	3.	24.3	0.6
25 lbs. barley	22.77	2.17	16.4	0.4
12½ lbs. wheat bran	11.	1.6	5.	0 4
Totals	67.97	6.77	45.7	1.4

According to Wolff's standard the above would be but two-thirds of a day's ration for twenty-five swine, of an average weight of 150 pounds. The standard would call for a ration containing 108 lbs. digestible dry matter, 14 lbs. digestible protein and 84 lbs. digestible carbohydrates and fat. The discrepancy in the above ration would, therefore, be 48.03 lbs. dry matter, 7.23 lbs. protein and 35.2 lbs. carbohydrates and fat.

Only a small percentage of these pigs, however, are fattening pigs, the majority being breeding pigs and shoats, and having the run of the yards and fields, in which they pick up a good deal of grass and roots, potatoes and turnips, in the potato and turnip field, so that they are fed but twice a day, morning and night, on the above ration, and the amount given is found ample for two feeds for twenty-five hogs of an average weight of 140 or 150 pounds. Those of them that are fattening receive the above ration, like the others, morning and noon, and for the night feed, each fattening swine receives 2½ lbs. raw potatoes and 1 lb. whole oats. The motive in feeding the raw potatoes and oats at night is to give a strong feed, they having ample time to digest this during the long nights at this time of the year. Some feeders, knowing that their fattening hogs would become very hungry before receiving the next morning's feed, when fed on the previous evening on an easily digested food, like boiled or steamed roots and grain, make a practice of giving these hogs the fourth feed at about 8 o'clock at night.

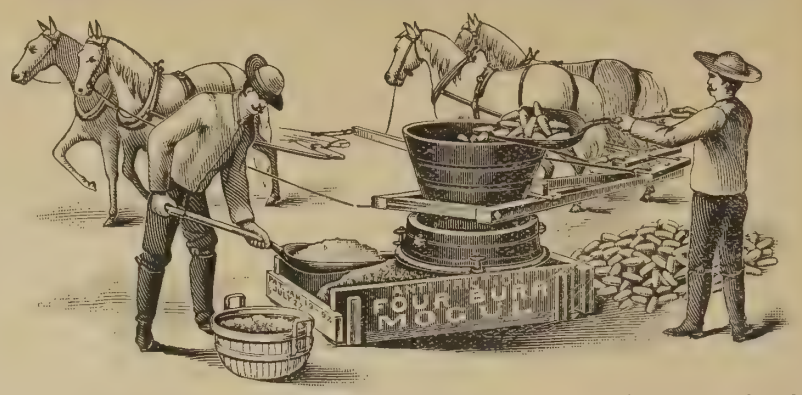
For my part, I do not believe in groping in the dark and disturbing hogs at that unseemly hour, and, hence, plan to make the last feed in the evening a strong and not easily digested food, like a few raw potatoes with some whole oats. The change of menu, too, is an advantage. Let us assume then that the whole 25 hogs were being fattened (instead of only about 20% of them, as in reality) and were receiving for the evening feed 2½ lbs. raw potatoes and 1 lb. oats each, the analytical formula would be:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
Ration as above	67.97	6.77	45.7	1.4
62 lbs. raw potatoes	13.08	.54	10.	.06
25 lbs. oats	22.77	2.3	2.	1.05
Totals	103.72	9 62	67.7	2 51
Ration per head per day	4.14	0.38	2.70	0.1
Wolff's standard for swine, 125 to 150 lbs.	3.9	0.54	2.96	
Difference		+0.24	−0.16	−0.04

It will be seen that the above ration compares very favorably with Wolff's standard. There is a surplus of about one-fourth pound of total dry matter, a deficiency of .16 of a pound of protein, while the carbohydrates and fat are almost precisely up to the standard requirements. The cost of the first ration given was shown to be 65 cents, or 2.6 per hog per day. The addition of the potatoes and oats for the fattening swine swells the cost, 62 lbs, unmerchantable potatoes, at 12 cents per bushel, 13 cents; 25 lbs. oats at 80 cents per cwt., 20 cents; total, 33 cents. This sum, added to the cost of the first ration, gives 65 cents, making the cost of the fattening ration per day, for the 25 hogs, 98 cents, or 3.9 cents per hog per day.

Hogs that have been having the run of nice pasture all summer, with supplementary feed of meal, of course, when penned up in the latter part of September, will easily gain 2 pounds in weight per day on the above ration, so that it will be seen that swine can be fatted to the weight of 180 pounds at a cost of but 2 cents for each pound gain in live weight. I have had pigs gain 2¾ pounds per day, during the month of October, on the above ration. While, Mr. Editor, you have been devoting a large portion of your time to formulating standard rations for dairy cows to the great profit of your readers, little or no attention has been paid to formulating standard rations for swine. Yet, Wolff, the great German experimentalist,

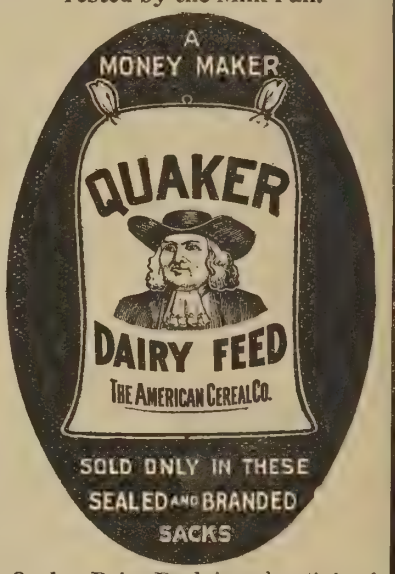
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HOARD'S DAIRYMAN and Farm Journal both one year	1 10
HOARD'S DAIRYMAN and Jersey Bulletin, both one year	2 00
HOARD'S DAIRYMAN and Holstein-Friesian Register, both one year	1 50
HOARD'S DAIRYMAN and Orange Judd Farmer both one year	1 75
HOARD'S DAIRYMAN and American Agriculturist, both one year	1 75
HOARD'S DAIRYMAN and Farm Poultry, both one year	1 75
HOARD'S DAIRYMAN and Guernsey Quarterly both one year	2 25

has given us standard rations for all classes of swine as well as cattle.

I spoke of steaming the daily rations for our dairy cows. Our dairy is not a large one and perhaps if it were, we would not take the trouble (I do not know) to steam their feed, but the satisfactory results of steaming so far, and the saving in grinding and threshing of our oats would, I think, make us steam the feed for our dairy cows if we had many times more, considering the feeds we have on hand. Our plan of feeding, is to cut a quantity of sheaf oats and put it in the bottom of a large hogshead; over this we place the cut turnips and over the turnips a small portion of cut clover hay, the nozzle of the hose being first placed in the bottom of the hogshead, and while we have steam up, when cooking for the hogs or vice versa, we attach the hose to the nozzle and allow the mixture to cook for one hour, when the steam is shut off, and the contents allowed to stand covered with a piece of burlap for twelve hours, or during the night.

In the morning the contents of the hogshead are dumped into a large box and thoroughly mixed with a fork and the first feed of this is given in the morning. By covering the box tightly, the mixture will, I expect, keep warm all day even in the coldest weather; just now it will keep warm for 48 hours. We can convey the steam by pipes quite a distance from where the engine is situated. It is not an engine, but called the Reliable Steam Cooker, and made in Illinois, such a distance away that the duty and freight on it, landed here, amounted to $12.00. It has all the advantages of an engine as regards pressure of steam, and, of course, more convenient.

Of this steamed food we adjust the feeds so as to give each cow, for one day, 20 pounds sheaf oats, one-half bushel turnips and 4 or 5 pounds clover hay. We think the steaming of this feed a great improvement. There is no question about its palatability, and the women folk say the mess of milk given these days is much larger than we ever had for the small number of cows giving milk. This ration, as you will see, is quite deficient in protein and rather high in bulk or dry matter. I do not think the cows could be made to eat so much oat straw, were it fed in the usual way. For the benefit of your readers in the Maritime Provinces, whose feed is largely oat straw, turnips, mangels, oats and hay, (bran being out of the question, as it costs $20 to $22 per ton) I place this ration in analytical formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. sheaf oats.....	18.2	0.9	9.28	0.3
25 lbs. rutabagas (turnips).....	2.85	0.25	2.02	0.05
5 lbs. clover hay.....	4 2	0.34	1.8	0.08
Totals.....	25.25	1.49	13.·0	0.43

J. A. McDONALD.

Prince Edward Island.

A Hand Separator.

Allow me to present to you a few inquiries that may give light on a matter that is agitating this community. There are agents here endeavoring to place hand separators with the farmers. The most of us keep only a small number of cows, from six to fifteen.

1. Would it be profitable for a man keeping six cows to invest in a separator?

2. Is it possible for a machine to skim to 1-100 of 1%?

3. Is the cost for repairs equal to or greater than the loss from gravity setting?

Knapp, Wis. C. F. C.

It depends somewhat, on how you are handling your milk. If you are sending it to a creamery, and the skim milk is returned in a condition unfit for feeding, it will pay to use a hand separator; because no man, dairyman or otherwise, can afford the steady leak which results from the loss of his skim milk.

If you are setting the milk, unless the conditions are of the best, the loss in butter fat is sufficient to pay for repairs many times over, and with ten to twelve cows would pay a liberal return on the investment necessary to provide a separator.

A separator can be made to skim as low as 0.05% with careful work, but the usual run of the work will show 0.1% of fat in the skim milk.

CONCERNING OUR ADVERTISERS.

The Cincinnati Corrugating Co., Box 550, Piqua, Ohio, have just issued a new and handsome map of the South African Republic, Orange Free State and Cape Colony, the seat of the present warfare between England and the Boers. The map is excellently printed in colors and complete in details, thoroughly revised and up-to-date, showing all the points of interest in the war. The company will be pleased to mail a copy ready for hanging to anyone requesting same.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

Cow PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

SCOURS.

I have a cow affected like E. B. D's cow which you answered in the DAIRYMAN of Nov. 24, 1899. The cow came in in August all right, was fat, and gave a nice mess of milk. About October 1st she commenced to scour and shrink on her milk. She would not eat, and the passages were mostly water in large quantities, and would start when she moved. I stopped the medicine two days. When I saw your answer to E. B. D., giving Jamaica ginger, slippery elm tea and caraway tea, have been giving that two weeks; the passages are nearly normal, but her appetite is poor. She is very poor, seems to want to eat, but after a few mouthfuls greedily eaten, she cannot eat. This cow has swelled under the under jaw reaching from the point, along the tongue to around the throat, it seems in under the skin as she wanted to have it rubbed, the harder the better. M. K.

Tompkins Co., N. Y.

ANSWER.

Continue the first remedy as may seem to be needed. For the appetite, give the cow half an ounce of the fluid extract of golden seal, in two ounces of old whiskey and four ounces of water, about one dose each day for three days as a small drench, then use intelligent judgment as to the further needs.

BUNCHES ON PIGS.

I have a lot of fall (September) pigs. They are doing well, but have bunches on the side about one fourth of an inch across, that seem to irritate and itch, as they scratch. We were feeding bran and shorts, turnips, corn and oats.

ANSWER.

Flowers of sulphur, half an ounce; ginger, two drams; mix thoroughly in one ounce of old whiskey, and two of flax seed tea; one dose each morning before feeding. Must be kept dry and warm. Give two doses, then wait two days, then one, only, dose every other day for three doses. Anoint the lump with iodine ointment—vasaline, four ounces, strong tincture of iodine, four ounces; annoint twice a day for a few days only. Mix thoroughly.

COUGH.

I have a cow that has a cough. She eats grain and some hay; is very thin in flesh. She got choked on a turnip some six weeks ago and has not been well since. I gave her one dose of asafœtida, according to veterinary instructions, but did not seem to help her.

ANSWER.

I think time will bring her all O. K.

Blister the part immediately upon the spot where she was choked, after cutting off all the hair. Give her fluid extract of lobelia, three drams and one scruple of fluid extract of gelsemimum in one ounce of cold water; one dose each day for three doses, only. Let this trickle down the throat gently, so as to remain upon the pharynx as long as possible.

SPRAIN.

I have a driving mare that went lame two months ago. It seems to be a sprain in the tendons between the ankle and knee. I stopped driving her, only on Sundays.

Center City, Neb. R. W.

ANSWER.

A horse with sprain of back sinews must have absolute rest, there is no compromise.

Take off the shoes, get a 12 foot or longer heavy cotton bandage, soak this in strong oak bark solution, 2 quarts, and acetic acid, one pint, only. Wet the leg before putting on the bandage, which must be put on evenly and over lapping just one half; no liniment of any kind.

SCOURS.

I have a Jersey heifer calf, three months old. For about two months it was fed on gravity skimmed milk, with a little cooked corn meal, when it was taken with diarrhœa. I changed the food to condensed milk and cooked wheat flour, with a little bran and hay. It became, for a few days, much better but again was taken ill. For the last month I have given it a compound of chalk and laudanum with the food. As long as it takes this medicine, it is all right, but as soon as the medicine is stopped it is again attacked with diarrhœa. The calf is watered with city water. CITY SUBSCRIBER.

ANSWER.

Your treatment only helps, as you say, whilst being given. Give the calf mucilagenous food, flax seed tea, slippery elm tea, Iceland moss tea, either together or alternately, about one pint, into which put half a pint of strong caraway seed tea, and one ounce of old whiskey. Feed anything the calf will eat, excepting corn, oatmeal porridge, flour porridge. If the calf prefers you may give *sifted* corn meal porridge. Make the porridge with the milk of the mother, and use new *unskimmed* milk.

FOUL SHEATH.

I have horse twelve years old, seems weak in the back, walks at random with hind parts; sheath swells some, eats well and seems to do well, except does not gain strength in rear parts. O. B. B.

Villard, Minn.

ANSWER.

I believe your trouble is all caused by a foul sheath, so get some one accustomed to make an examination, and remove the cause. The horse may have been strained in the lumbar regions—loins; may be partial paralysis; an intelligent professional examination is necessary to determine just what is the matter. Quite often, I have had horses with exactly the same symptoms, all caused by ignorant and careless washing of the sheath.

CALF DEAD, COW STIFF.

Have a two and a half-year-old heifer due to calf the 20th inst. About November 1 found this heifer laying down in the pasture disabled, and could with difficulty induce her to rise and walk home. First two or three weeks after, she ate quite hearty, beets and hay, but laid down continually, and one day she attempted to rise, and stepping on her sore front leg she fell on that same side and kept getting worse from that day, refusing to eat or drink; shows no sign of having calf, udder completely dried up, and has at times quite severe pains.

The supposition is that the calf is dead and decaying, which should account for the bad odor emanating from her, lately. Soon after her fall she kept bloating and was given the following in two doses, which immediately had effect: Epsom salts, 2 pounds; calomel, 2 ounces; gentian, 2 ounces; ginger, 4 ounces; croton oil, 40 drops.

Have also an old cow that is stiff in one hind leg at times, especially in the morning, after standing all night; every few steps she lifts her leg without bending the hock has been afflicted a year or more; lately she seems to favor the front legs similarly. Y. A. M.

ANSWER.

Cow 1. I believe the calf is dead, but worse than this was your heroic treatment. I never gave over eighteen drops croton oil to largest horse or cow, and then, as a heroic dose and in desperation. I cannot see any promise of recovery.

Cow 2. All old cows are liable to be stiff after lying down and just getting up. So are nearly all animals, when advanced in years.

LAMENESS IN LEG.

I have a cow became suddenly lame in left fore leg, about two weeks ago. From examination there is nothing to be seen within the leg or shoulder, no swelling or fever. When standing holds the leg up at times. Eats well; is giving milk. She is a small, young cow.

San Diego Co., Cal. R. A. F.

ANSWER.

It is impossible for me to advise you intelligently. If there be no swelling, she is not lame from sprain. If not lame from some sliver of wood, or something similar in the fleshy parts of the leg, you need a true expert to make a professional and critical examination, and make a true and certain diagnosis, as the cow may be the subject of anthrax or tuberculosis. There is no way to ascertain the true condition but a personal, professional examination.

FOOT ROT.

Can you give me any information on the prevention of foot rot in cattle, as I am troubled very much with it? J. E. McC.

Jamaica Plains, Mass.

ANSWER.

Keep clean, and out of the wet. Uncleanliness is the cause of foot foul, in 90% of all cases. Wash thoroughly in hottish water and tar soap. When wiped quite dry soak a piece of tow or cotton batting in the following: Pyroligneous acid, ten ounces; oil of tar, one ounce; fish oil, thirty ounces. Thoroughly mix. A dose of physic will help to diminish the fever. Keep clean daily.

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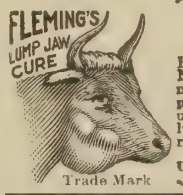
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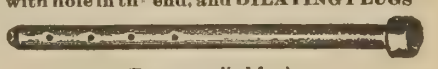
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ABORTION PREVENTED

ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.

One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.

ANIMAL GERMICIDE COMPANY, 150 Chambers St., New York.

A Vermont Feeding Problem.

ED. HOARD'S DAIRYMAN:—Thanking you very much for the help obtained through the columns of the DAIRYMAN, in showing one how to feed, care and manage the dairy to get the most profit out of it, I would be very much obliged to you, if you would help me out on a winter ration. My cows are grade Jerseys, part fresh and coming in right along, of about 900 pounds weight, ranging in age from 3 to 9 years old. Have for feed raised on farm: good stock hay, corn silage, bright oats, oat and pea and barley straw; for grain: corn, oats, oats and peas and barley. Now I don't want to buy only the absolute necessity to assure good success. Bran is worth $19 per ton; gluten, $24; oil meal, $28. We appreciate more and more here in Vermont, what you are doing for farmers in general and dairymen in particular. G. A. W.

Burlington, Vt.

The foregoing letter was missent, and hence the delay in its publication, and the attempt to make a reply thereto. We fear it will be but little more than an attempt, as the writer has not been specific enough in his statements. In the first place, good stock hay would mean to us either clear clover, or clover and timothy, or some other combination wherein there should be, at least, fifty per cent of clover. We very much fear that too many of our Vermont friends still cling to the idea that there is nothing quite so good for stock as timothy, whereas, in fact, there is no hay that is inferior to it. Again, when we come to grain, there seems to be a combination of oats and peas and barley, but in what proportion is not stated, neither are the prices for the home grown grains stated, and we are, therefore, unable to say whether it would be more profitable to sell them and buy some of the commercial feeds, or feed them. We believe in raising all the feed on the farm that is possible to do, but when one attempts this, he must endeavor to grow such feed as is best suited for the character of the stock he has.

If there is an equal part by weight of oats, peas and barley in these combinations, we should be disposed to feed daily, about 8 lbs. of this mixture, and by preference 2 lbs of cotton seed meal. If the cotton seed meal is not available, oil meal may be substituted for it. If there is plenty of silage we should feed about 30 pounds per day of it, and then give each cow all the hay and straw she will eat.

Appreciation is one of the best rewards a laborer can receive, and we are of the opinion that not a little of the so-called labor trouble springs from the fact that the laborer feels that he is not appreciated, that he is considered simply as a machine. There is not that sympathy between the employer and employe that used to exist, and if it existed now would tend to lessen the friction between capital and labor. We are very proud to class ourselves as laborers, and when we find the labor of our hands and of our heads appreciated, the burden seems much lighter than it otherwise would be.

THE FOLLY OF DISHONESTY.

The *St. Paul* (Minn.) *Pioneer Press* comments on the humiliating fact that Canada exported cheese in 1898 to the value of $17,572,763 while the cheese exports of the United States fell to $4,559,324.

The *Press* accounts for this magnificent growth of the Canadian cheese trade by saying:

If we are beaten by Canadian cheese in foreign markets it is probable that it is because the Canadians are more enterprising or that they are offering their foreign customers better goods than we are at more satisfactory rates.

It was not enterprise that turned the scale in favor of Canada. To our shame be it said that we destroyed the confidence of the English customer in our honesty, by sending him filled cheese and skim cheese labelled "Full Cream."

The Canadians want money just as bad as do the Yankees, but they somehow had the brains and common sense to see that swindling a customer was a mighty poor way of holding his trade. Not a pound of filled cheese or skimmed cheese is made in Canada.

The same principle holds good in the butter business.

Certain politicans, business men and judges of courts are at work trying to dig the grave of this great and magnificent dairy industry of the United States, by throwing the weight of their influence in favor of oleomargarine, which is a counterfeit and fraud.

How long can such things exist? How long can such sowing of dragons' teeth continue without bringing in its train industrial and commerical ruin?

The men who are standing up for the honor and integrity of all foods, who are demanding that the honest farm products of the United States have a right to be protected against competition with a fraud—these men are the true friends of American agriculture, American honor and the future prosperity of an American nation.

A PROGRESSIVE YOUNG MAN.

Such Men Are the Hope of Our Coming Agriculture.

Last week we received a very interesting letter from a bright young farmer in Vermont. It was not written for publication, but it contains so much that is cheering and hopeful, and so closely describes the road over which so many are stumbling more than they are traveling, that we cannot refrain from giving it to our readers:

"I expect to attend the Vermont Dairy School, Jan. 1st. After that shall endeavor to secure a position as working foreman and butter maker on some large dairy farm.

I feel that I owe much to HOARD'S DAIRYMAN, for I have taken it for several years.

I think one reason why the average farmers do not subscribe for it, more than they do is because they are not sufficiently well read in the terms used to understand its teachings. One of my neighbors used to loan me copies of his paper, but there were so many things I did not understand, it might almost as well have been printed in another language. I commenced taking the *Practical Farmer* when John Gould edited the dairy department, and from reading that and the reports of our State Experiment Station, etc., I began to see where I was lacking, and feel the need of a "Special-purpose" dairy paper. I then subscribed for the DAIRYMAN and found the want supplied. I am now twenty-six years of age, am very much interested in dairy farming, and have had the care and management of a small dairy for eight years.

I have learned a great deal from my own experience, *but more from the experience of others which I have gleaned from dairy books and papers.*

With the instruction that I shall receive at the dairy school, I believe I can be worth more to someone else on a large farm than to myself on a small one.

I have made this farm pay, but can see many places where the relative profits of a large dairy could be made to exceed those of a small one."

Were we the father of this young man, we would take much more pride in seeing him advance as he has done, towards making a broad-guage, brainy farmer of himself, than we would in seeing him embrace one of the already over-crowded professions. The country is longing for such young men; men, who look with exalted pride in becoming grand exponents of the dignity, intelligence and honor of the American farm.

Transfers of Guernsey Cattle from Nov. 15 to 30, 1899.

BULLS.

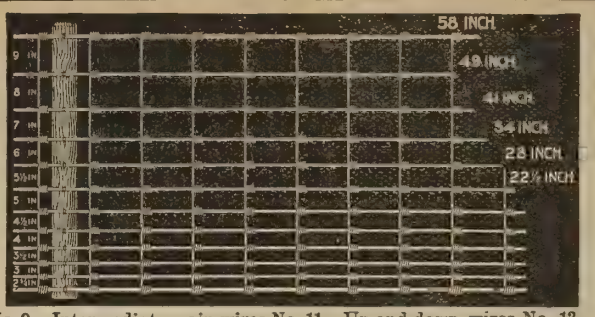
Benny H. 6319, Melvin Thomas to Cary Lasher, Ballston, Spa, N. Y.
Cary's Chief 6331, O. T. Remington to Fred Hatch, Caryville, Wis.
Count Coral 3507, C. D. Holt & Son to Est. of F. Robinson, Kenosha, Wis.
Duane 6242, E. W. Tillotson to J. F. Gallagher, Waterbury, Conn.
Fantine's Pet 6339, H. Riedeburg to Mrs. Eva Lehman, Neosho, Wis.
Golden Duke of Maple Glen 6114, Corydon Peck to Swift, Brink & Roe, Marathon, N. Y.
Guernsey Lad of Riverside 2nd 6318, Frank C. Ward to M. B Nichols, Easton, Md.
High Sheriff 6296, J. B. Palmer to Geo. O. Jackson, Colchester, Conn.
Homestead's Prince 6337, A. J. Cassatt to C. A. Gnoff, Chester Valley, Pa.
Homestead's Prince 6337, Chas. A. Groff to J. A. Beidler, Willoughby, O.
Homestead's Prince 6337, J. A. Beidler to L. V. Axtell, Perry, O.
Ingomar of Ellerslie 5962, L. P. Morton to C. W. Witters, St. Albans, Vt.
Idlewild of Ellerslie 5963, L. P. Morton to Rufus Le Fever, Rosendale, N. Y.
Inglewood 5965, L. P. Morton to F. C. Frazier, Mobile, Ala.
Jordan 6323, L. P. Morton to Prof. F. W. Card, Sylvania, Pa.
King Edgar 6188, McMillan & Dawson to William Cox, Canard, Nova Scotia.
Lord Clair 5933, Seb Heller to Henry Baumgartener, Wrighstown, Wis.
Major Bliss 6335, Isaac Kimball to Sweet & Schauber, Jonesville, N. Y.
Maid's Star 5554, M. P. Colman to Frank B. Ashton, Middletown, Conn.
North King 6312, H. McK Twombly to David C White, East Corinth, Vt.
Our Dewey 5745, R H. Baker to Thomson Kingsford, Oswego, N. Y.
Oquenda 6195, James Moore to Theodore Daniels, Bridgewater, Pa.
Pomaris 2nd 6336, Anthony Higgins to P. W. Tomlinson, Wilmington, Del.
Rocmont of Colora 6329, Geo. Campbell to Ellwood Balderston, Colora, Md.
Robert Bloomingdale 6316, O. Koogle to M. J. Shered, Bloomingdale, Mich.
Red Oak of Homestead 5915, L. V. Axtell to Henry A. Parr, Lutherville, Md.
St. Nicholas 2nd 5984, J. P. Welsh to L. Perrenond, Humboldt, Kans,
Imp. Safeguard's Success 6332, Benj. Heartz to W. A. McDonald, Middle River, Nova Scotia.
Thorndine 6190, J. P. Welsh to W. S. Beyer, Octoraro, Pa.
The Earl of Moose Hill 5575, Howard W. Andrews to Harmon W. Treat, Bridgewater, Conn.
Teddy of Homestead 6178, L. V. Axtell to Helen M Sweet, Oshkosh, Wis.
Westview Lad 6152, McMillan & Dawson to Arthur C. Starr, Port William, Nova Scotia.
Winfield Challenge 6334, H. B. Stelman to Wm. M. Knight, Winfield, Ill.

COWS.

Adella Woodlawn 12244, Shook Bros. to U. G Nagle, Kelly Point, Pa.
Bonny Brier Bush 9712, Daisy L. 12245, Olive M. 12246, S. C. Hall to J. B. Palmer, Jewett City, Conn.
Carrie of Homestead 11511, Lady Helen of Homestead 12254, Miss Mouise of Homestead 11505, L. V. Axtell to Helen M. Sweet, Oshkosh, Wis.
Cousin May 12262, H. M. Whitney to Nat Wallis, M D., Fitchburg, Mass.
Crystal Hudson 12279, Nathan Dane to Robert W. Lord, Boston, Mass.
Dithy 6242, E. W. Tillotson to J. F. Gallagher, Waterbury, Conn.
Foster Queen 12215, A. H. Lyman to Henry F. Dimock, South Coventry, Conn.
Hampton's Omega 11289, Hampton's Bonnie Briar 11288, E. G. Toel, Jr., to A. J Snyder, Plumsteadville, Pa.
Jedetta 1 966, L. P. Morton to E. R. Strawbridge, Moorestown. N. J.
Leafy Henry 11146, Grace Childs 12266, Louisa Alcott 12267, Susie Hasbrouck 11265, R. H. Baker to Thomson Kingsford, Oswego, N. Y.
Miami Rose 7688, McCormick & Edgerly to Wm. Conley, Cedarville, O.
Missy 12013, James Moore to Evon Roberts, Newportville, Pa.
Nouvelle 12014, James Moore to Hunter Sisters, Cinnanimson, N. J.
Rosette of Spring Brook 12264, Corydon Peck to Swift, Brink & Roe, Marathon, N. Y.
Swartara Princess 11956, J. P. Welsh to A. B. Peet, Castello, Pa.

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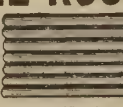
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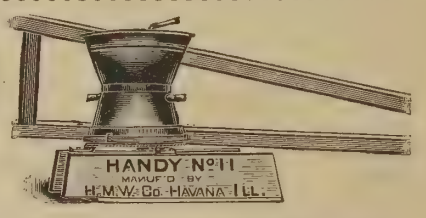
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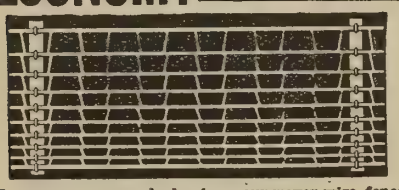
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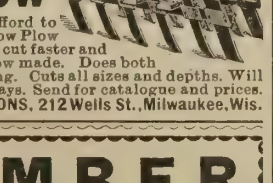
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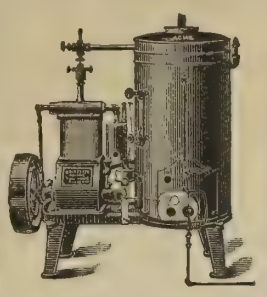
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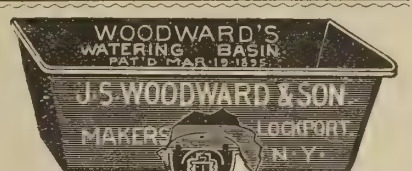
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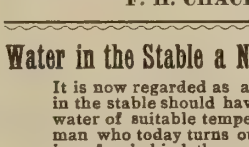


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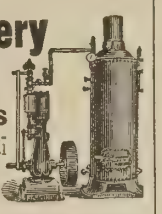


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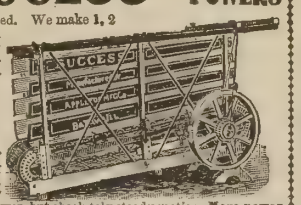
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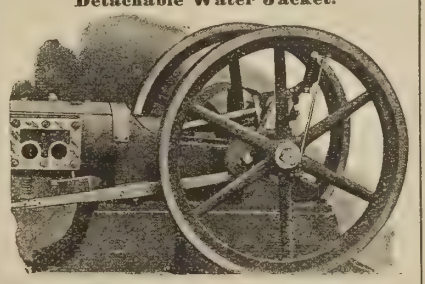


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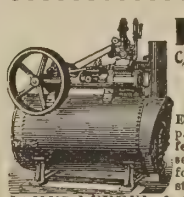
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Simplest Engine Built. Stationary, Pumping and Portable. Especially adapted for pumping purposes and general farm work. Thousands are in use successfully operating threshing machines, corn shellers, feed mills, wood saws, shredders, feed cutters, etc. **Write for Catalogue and Discounts.** Mention Hoard's Dairyman when you write.
DAVIS GASOLINE ENGINE W'KS CO., Waterloo, Iowa, U. S. A.

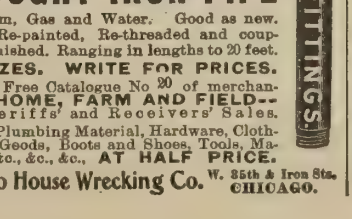


LIGHT POWER,

Cheap Power and Effective Power can be best secured in one of these

LEFFEL ENGINES.

Either horizontal or upright from 3 h. p. up. Ideal for **cutting and grinding feed, pumping water, sawing wood, separating milk, churning, &c.** Best for farms, dairies, creameries, &c. Send stamp for **Book on Power.**
JAMES LEFFEL & CO., Box 50, Springfield, O.



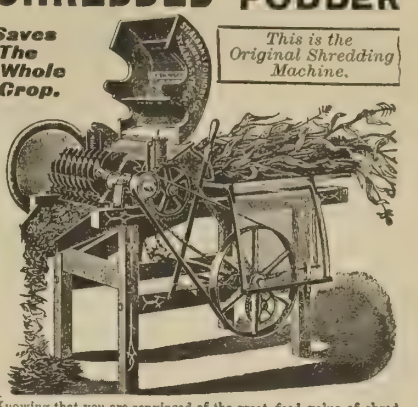
WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.
ALL SIZES. WRITE FOR PRICES.
Write for Free Catalogue No 20 of merchandise for **HOME, FARM AND FIELD**—from Sheriffs' and Receivers' Sales.
Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., **AT HALF PRICE.**
Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

SHREDDED CORN FODDER

Saves The Whole Crop.

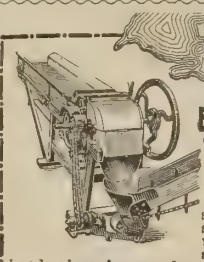
This is the Original Shredding Machine.



Knowing that you are convinced of the great food value of shredded corn fodder and the great saving that shredding produces we shall only tell you of how best to prepare it.

ST. ALBANS FODDER SHREDDERS

are especially designed for this purpose. They are a pronounced success. They **shred faster, finer** and leave the product in better condition **for feeding or baling** than any other machine made. We prove these statements by those experienced in the usage of such machines. We mail **Facts About Shredders FREE.** Write for it at once.
St. Albans Foundry Co. St. Albans, Vt.



"OHIO" SELF FEED ENSILAGE CUTTER

Cuts 33⅓ % more than regular machine.
Saves 75% in time.
Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows
NEW METAL STRIP SWIVEL CARRIER.
Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue **FREE.** **Prof. Woll's "A Book on Silage" 10c.**
THE SILVER M'F'G CO., Salem, Ohio.

BOWSHER FEED MILLS

(Sold with or without elevator.)



CRUSH ear corn (with or without shucks) and **GRIND** any kind of small grain **at same time,** mixing in any proportion desired. **Conical Shape Grinders.**

Lightest Running

Handy to operate. 7 Sizes—2 to 25 h.p. One size for windwheel use (Also Make SWEEP FEED GRINDERS)
N. P. D. Bowsher Co., So. Bend, Ind.

NO USELESS GEARS



in this mill to absorb and waste power. It is a simple, direct grinder, of large capacity and requires small power. The

ELECTRIC FEED MILL

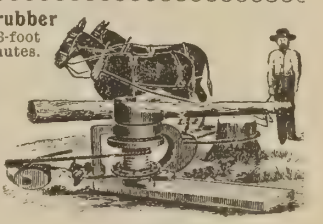
cuts, crushes and grinds ear corn and all small grain, converting the whole into fine or coarse feed, according to adjustment. Meets the demand for a good mill at a fair price. Circulars free. Electric Wheel Co. Box 136, Quincy, Ill.

DITTO'S TRIPLE GEARED Ball Bearing FEED GRINDER

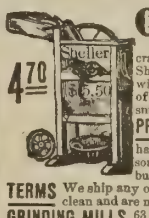


A new Sweep Grinder of large capacity, easy power and great durability. Easiest runner made. Upper and lower grinding rings operate in opposition to each other, doubling grinding capacity. Crushes and grinds ear corn and all grains single or mixed. Send for circulars, etc.
G. M. DITTO, JOLIET, ILL.

Monarch Grubber will pull a 3-foot stump in 3 minutes. It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. Co. Lone Tree, Iowa.

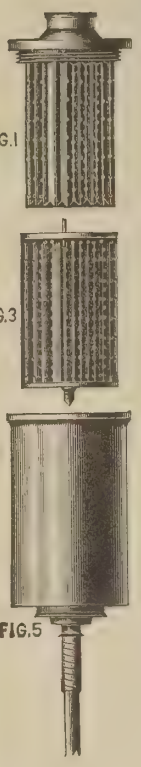


CORN SHELLERS



This 1-hole sheller has feed table, fan, crank and pulley. Can be run by hand or power. Shells 15 to 25 bu. an hr. Is 43 in. high, 20 in. wide, 51 in. long; heavy balance wheel. Made of the best material, nicely painted. Shells the smallest and largest corn equally well.
PRICE Complete **$5.50;** with crank only for hand use **$4.70.** 2-hole sheller for hand and power **$10.50.** Self-feed sheller, something new, great improvement, shells 500 bu. a day, price low. We have no agents.
TERMS We ship any of our shellers **on trial;** if they don't shell clean and are not perfect in every way return at our expense.
GRINDING MILLS 63 kinds of sweep, belt and geared mills for 2 to 25 h. p., for grinding all kinds grain. Price sweep mills **$14.50** and up. We sell to you at wholesale prices.
SHREDDERS AND CUTTERS 53 sizes and combinations for hand and power; largest cuts ton in 5 min. Runs easy, cuts fast, they all have the latest improvements.
Horse Powers, Wind Mills, Feed Cookers, Cutters, Bobs, Blankets, Harness. Send for **FREE** fall catalogue.
Marvin Smith Co., 55 N. Jefferson St., F-18, Chicago, Ill.

"IMPROVEMENT THE ORDER OF THE AGE."



The United States Cream Separators which have gained such an enviable reputation for their superiority over all competitors, both in exhaustive skimming and perfection of manufacture, are still further improved for

1900 OR THE NEW CENTURY.

The capacities have been very materially increased. An increase of 20 per cent. was made in 1896 over former capacities. Again increased 20 per cent. in 1898, and are now still further increased 25 per cent. for 1900.

A farther improvement for 1900 is the construction of the internal bowls or cups, which are made corrugated in place of the smooth cups. With the corrugated cups, the flushing of the cream from the separator at the close of a run is accomplished by running skimmed milk through the separator. It is not necessary to use hot water for this purpose unless users prefer to do so.

The accompanying engravings illustrate accurately the corrugated cups above described, Figs. 1, 3 and 5 showing the parts placed one above the other in the order in which they go together.

This construction of the cups overcomes the last criticism that our competitors can make. Competitors have frankly admitted that the United States Separator was decidedly the best skimmer on the market, but have tried, in their efforts to sell their machines, to make a great bugbear of using hot water to flush the bowl.

The new corrugated cups flush perfectly. No cream is left around a central tube, or between a multiplicity of discs, as the United States has neither discs and central tubes, nor central tubes, as is the case in competing separators, which have been trying to get some point against the United States in order that they might find something to check its

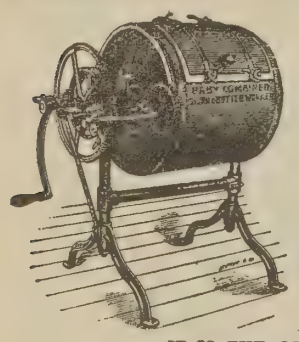
VICTORIOUS PROGRESS.

Some competitors have central tubes and discs, and some central tubes only.

The Improved United States Separator took the lead several years ago, and no pains will be spared to keep it in the lead and maintain its reputation of being

The BEST and therefore THE CHEAPEST.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



THE DAIRY "VICTOR" Churn.

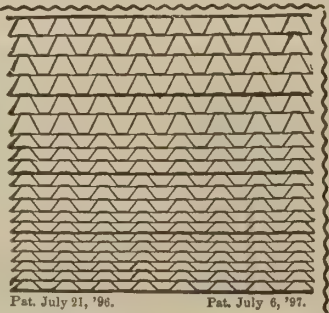
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

M. M. S. POULTRY FENCE



Has more good qualities than all others combined—cabled selvage and a cable every foot in height of fence Requires fewer posts and **No Top or Bottom Rail—**

PLEASING—SERVICABLE—PRACTICAL—ECONOMICAL—SATISFACTORY.

Saves 50 per cent. in cost of completed fence.

NOTE—Even if netting be donated, the complete fence will cost more than where M. M. S. POULTRY FENCING is used at regular price. Deduct price of netting from Estimate No. 2, and see.

We also make Hog, Field and Lawn Fencing.

Pat. July 21, '96. Pat. July 6, '97.

ESTIMATE No. 1.

60 rods 4-foot M. M. S. Poultry Fence made of No. 19 galvanized steel wire, @ 65c per rod	$ 39.00
61 posts, @ 20 cents	12.20
Setting posts, 5 cents each	3.05
No Top or Bottom Rail Required.	
No Labor Putting Rail on Posts Required.	
No Nails to Attach Rails Required.	
5 lbs. staples, @ 7 cents	.35
4 hours labor stretching up fence, @ 25 cents	1.00
Total cost	$ 55.60

ESTIMATE No. 2.

60 rods old-fashioned diamond netting, 4 feet in height, made of No. 19 galvanized steel wire, @ 65 cents per rod	$ 39.00
121 posts, @ 20 cents	24.20
Setting posts, @ 5 cents each	6.05
1,320 sq. ft. in top and bot. rail, $20.00 per M	26.40
30 lbs. 20d nails, @ 5 cents	1.50
8 hours labor putting up rail, @ 25c. per hour	2.00
10 hours labor stretching netting, @ 25c pr hour	2.50
10 lbs. staples, @ 7 cents	.70
Total cost	$102.35

Draw your own conclusions and then write us for circulars.

DE KALB FENCE CO., Box K, De Kalb, Ill.



WANT A CUTTER?

Let us send you description and picture of our **Swell Body Cutter, No. 411.** Built of selected stock, first class workmanship throughout, and finely upholstered in raw silk, for **ONLY $13.90.** Other styles at equally low prices.

EVERYTHING FOR THE FARMER. We can save you money on Corn Shellers, Feed Cutters, Sweep Mills, Horse Powers, etc. Vehicles, Harness and Agricultural Implements. Don't miss our **big new catalogue.** It is full of money-saving bargains. Sent **free.**



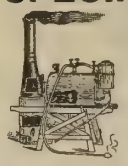
$4.98 BUYS A STOCK TANK HEATER and we pay freight east of Mississippi river when cash comes with order. The **"KAZOO"** is the most satisfactory. Made of **galvanized steel.** Built on new principle. Holds fire and keeps water warm 24 hours. Uses little fuel. Will go in a barrel. Absolutely fire proof.



EUREKA STEAM FEED COOKER saves from ⅓ to ¼ your feed. Made of heavy boiler steel tested to 100 pounds pressure. Guaranteed to be the best cooker made. **Price Only $21.50.**

Cash Supply & Mfg. Co., Dept. C, Kalamazoo, Mich.

SPECIAL REDUCED PRICE FOR THIRTY DAYS



Take advantage of our special offer and get the **IMPROVED RELIABLE FEED COOKER, TANK HEATER and STEAM GENERATOR,** one of the greatest feed savers, labor savers and money makers the feeder can possibly have. Cooks a barrel of ground feed in 30 minutes; 25 bushels of ground corn in two hours; heats a barrel of water hot enough to scald hogs in 20 minutes; will heat water in tanks 100 feet from cooker. Used and recommended by feeders throughout the United States and Canada. Highest awards at Omaha Exposition in 1898, and at Toronto, Canada and Dallas, Texas in 1899, and at State Fairs everywhere. Sold on a positive guarantee. Your money back if it does not come up to the contract. Send for 1900 Century Catalogue and introduction price. **It has no flues to rust out or leak. No scorched feed if you use it. The best machine of any kind proves the cheapest in the end.**

RIPPLEY HARDWARE CO., Box 20, Grafton, Illinois.

PRINT BUTTER Should be wrapped in . . .

GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,

Sole Manufacturers,

De Kalb, Ill.

The New Book

FEEDS AND FEEDING

By Prof. W. A. HENRY,

WISCONSIN EXPERIMENT STATION.

THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

4 YEARLY Subscribers at $1.00 Each ($4) will Secure It as a Premium.

Of this Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book."

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

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TO CALIFORNIA

Through first-class and Tourist Sleeping Cars to points in California and Oregon every day in the year from Chicago.

PERSONALLY CONDUCTED EXCURSIONS

Every Thursday from Chicago

LOWEST RATES
SHORTEST TIME ON THE ROAD
FINEST SCENERY

Only route by which you can leave home any day in the week and travel in tourist cars on fast trains all the way. For descriptive pamphlets and full information inquire of nearest agent.

Chicago & North-Western Railway.

UNIVERSITY of ILLINOIS.

HOARD'S DAIRYMAN.

University of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., DECEMBER 29, 1899. NUMBER 46

If You Have CREAMERY BUTTER to sell, write

J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.

REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**

Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. **149 Reade Street, NEW YORK.**

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**

REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,

Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

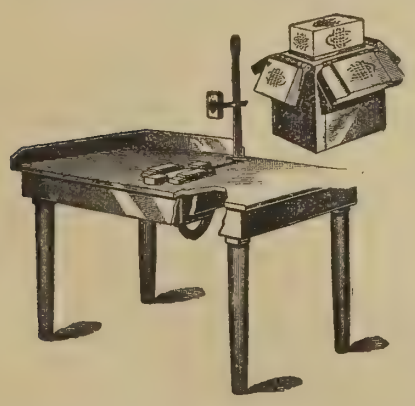
Write for one gallon can. You won't regret it. Manufacturers of **LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc.** Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE SAVOGRAN FOR CLEAN CLEANING INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Outside of the Combination.

A prominent creameryman recently said to a butter solicitor that he did not like to buy of the **Creamery Supplies Trust** but that the **Trust** seemed to be swallowing up all supply houses and creamery specialties, thereby forcing him to buy of the trust whether he wanted to or not.

This is a great mistake; the very best creamery specialties manufactured to-day, **ARE NOT controlled by the Trust** and the creameryman can buy them at satisfactory prices by turning his orders our way. Among other specialties we call attention to is the



Self ... Gauging "All Over" Printer

The printer which delivers a pound brick (or larger if desired) printed on five sides. What is the object of printing butter? Isn't it to advertise your goods? If so, why not put five advertisements on each brick with no more time or expense than is required to print one side of a brick only with old-style printers? The "ALL OVER" Printer is strictly accurate, can be easily adjusted to meet the requirements of varied temperatures, and is much more rapid in its action than other printers.

The "SQUEEZER"
Combined Churn and Butter Worker

is another one of our specialties which leads all other machines of its class. If you will examine the "SQUEEZER" you will ask the question—why didn't the man who invented the combined churn think of the "SQUEEZER" first? It is a model of simplicity and efficiency: absolutely reliable in every particular; can be depended upon to do exhaustive churning at various temperatures and is never out of order. The principal of working the butter insures even distribution of the salt, thereby preventing mottles.

THE SHARPLES CREAM SEPARATORS

in factory or dairy sizes are recognized by the thoughtful, unprejudiced creamerymen of to-day as being the most efficient, economical and profitable separators on the market. The desperate fight now being made on the **Sharples Separators** by the Creamery Supplies Combine is the best evidence in the world that they are not controlled by the Trust. The badly complicated **Trust** must sell its badly complicated separator to be consistent.

We offer you the best line of goods which years of experience and the most skillful workmen are able to produce and we ask for a chance to demonstrate that we are entitled to a liberal share of your business. Protect yourself by consulting us when in need of a creamery or skimming station outfit, or anything in our line of

Cream Separators, Milk Testers, Combined Churns and Butter Workers, Milk Heaters, Milk Vats, Cream Vats, Cream Carriers, Butter Printers, Boilers, Engines, Pumps, Belting, Pulleys, Pipe, Pipe Fittings, Etc., Etc., Etc.

THE SHARPLES CO.,
28, 30 and 32 So. Canal St., Chicago, Illinois.

FACTORIES { West Chester, Pa., And Dubuque, Iowa.

DURABILITY.

It is worth something to have a cream separator that is as good at the end of the year as at the beginning. It is worth more to have one that rarely needs repairs, or if they are needed, can be quickly and cheaply made. But it is worth most to have a machine that skims all the milk every day for years in succession with never a hitch, and little attention, saving in oil, saving in wear and saving in every way. Such a machine is a money maker. The first Sharples Tubular that was ever sold is running to-day and has never cost one dollar for repairs. Those who have used them longest like them best, and there could not be a stronger recommendation for a machine; for a delicate machine, liable to get out of order easily, is an abomination. **DURABILITY** and **SIMPLICITY** are strong points in the

Sharples Tubular Separator.



A letter like the following every day tells its own story and tells it so truthfully and convincingly that none can doubt it.

Mount Lake Creamery Co.
Manufacturers of Fancy Creamery Butter.

Stations at . . .
S. LONDONDERRY, LONDONDERRY,
LANDGROVE, WINDHAM,
JAMAICA, E. JAMAICA,
WESTON, PERU, SO. LONDONDERRY, VT.,
RAWSONVILLE November 10, 1899.

P. M. Sharples, West Chester, Pa.

DEAR SIR: *After one and one-half years* use of your No. 25 Tubular Separator, we are pleased to say it continues to give complete satisfaction in every respect.

It produces the finest and smoothest cream we ever saw from any machine and is the closest skimmer we have ever had to do with in our many year's experience with various other separators.

We are also well satisfied that it will produce more butter from the same amount of milk than any other make of machine in the market.

During all the time we have been using the Tubular it has not cost us one dollar for repairs with the exception of one new brush ring.

We unqualifiedly recommend the Sharples Tubular as the best and most effective cream separator made.

Respectfully yours,
MOUNT LAKE CREAMERY CO.,
J. W. FARWELL, Mgr.

Rapid, Clean Skimmers. Cream of Unequaled Quality. Simple in Construction. Economical in Operation.

Send for Catalogue No. 46.

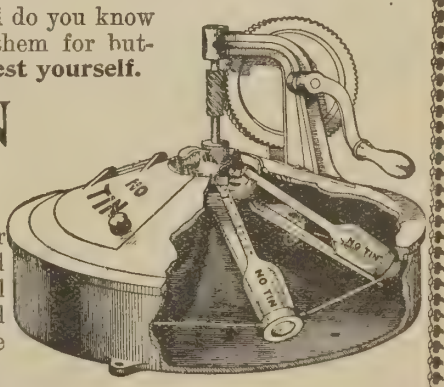
The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.

D. DERBYSHIRE & CO., Brockville, Ont.

What are Your Cows Worth?

Do they pay you a profit, and do you know how much? Have you tested them for butter fat? **You can make the test yourself.**

The NO-TIN Tester



is made in six-bottle size for farmer's use; it is driven by hand and is substantially built. Will last a life-time; fitted with ball bearings, and it does not rattle and does not wear out.

It uses the ordinary Babcock bottle and it does accurate work. Send now for our Catalogue, No. 71.

ELGIN MANUFACTURING CO., Elgin, Illinois.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO.



Know Your Cows

You may have a name for every cow in your herd and still not know them.

The knowledge you need is knowledge concerning what the individual cows are earning you.

OUR "IDEAL" HAND BABCOCK TESTER

will give you this information. It is accurate, conclusive, satisfying knowledge. Write for full description and prices.

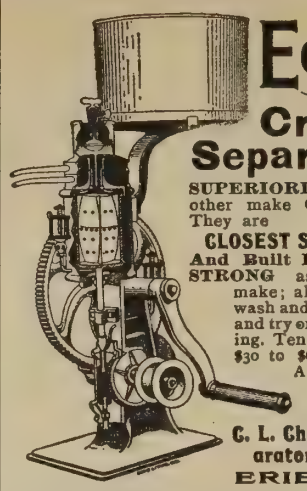
Alpha De Laval Separators Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,

1, 3 & 5 W. Washington St. — **Chicago, Ill.**

BRANCH HOUSES: Minneapolis, Minn. Kansas City, Mo. Waterloo, Ia. Omaha, Neb.

We are General Agents for Hansen's and W. & R. Butter Color.



Eclipse Cream Separators

SUPERIORITY over any other make **Guaranteed.** They are

CLOSEST SKIMMERS

And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

Catalogue FREE.

C. L. Chapman Separator Works,

ERIE, - PA.

When writing mention HOARD'S DAIRYMAN

AGENTS WANTED. All Inquiries Answered.



THE BEST FOR THE DAIRY, be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,

42 Concord Street, Lansing, Mich.



1900 DAVIS 1900

CREAM SEPARATOR

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Was judged by A. H. Barber and criticised by U. S. Baer, Cheese Instructor at Madison, Wis. Eight states represented and the following prizes won.

Walter Fero, Muscoda, Wis., (Sweepstakes)	99	$30.00	C. A. Johnson, New London, Wis., 1st in Class 3	97	$15.00
E. Grant Hodges, Union, Iowa, 1st in Class 1	98	20.00	Wm. Nisbet, Hub City, Wis., 2nd in Class 1	97	10.00
Tom Johnson, Boaz, Wis., 1st in Class 2	96¾	20.00	F. A. Vieryutz, New Holstein, Wis. 2nd in Class 2	96½	10.00

Robt. Nauman, Manitowoc, Wis., 2nd in Class 3 ..... 96 $5.00.

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F. A. TRIPP, CHICAGO. — **GENESEE SALT CO.,** NEW YORK, N Y.



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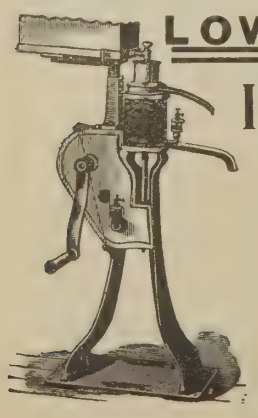
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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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FOREIGN SUBSCRIPTIONS may be sent through Sampson Low, Marston & Co., St. Dunstan's House, Fetter Lane, London, Eng., or their agents, including the leading news dealers and book sellers in nearly all foreign countries.

All countries in the Postal Union $2.04 a year; not in the Postal Union $2.56.

Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

FREQUENT MILKING.

It has been well established by numerous experiments by scientists, that the longer time that elapses between milkings, the less solids will the cow secrete in her milk. Those who have made tests of cows for purposes of competion have also noticed that a cow will give considerable increase in solids, as well as in quantity of milk flow, if she is milked three times a day instead of twice.

The physiological laws, which influence and govern the flow of milk, should meet with much more study by cow owners than is done. We are too apt to go along in a careless and indifferent manner, forgetting that our success with the cow can be greatly increased or diminished thereby. Every man, who milks a cow, is dealing with one of the most complex and delicate machines in existence. He ought to be a sincere, earnest student of the wonderful, varying forces, which may affect that machine to his profit or loss.

BETTER ECONOMIES IN BEEF PRODUCTION AND DAIRYING.

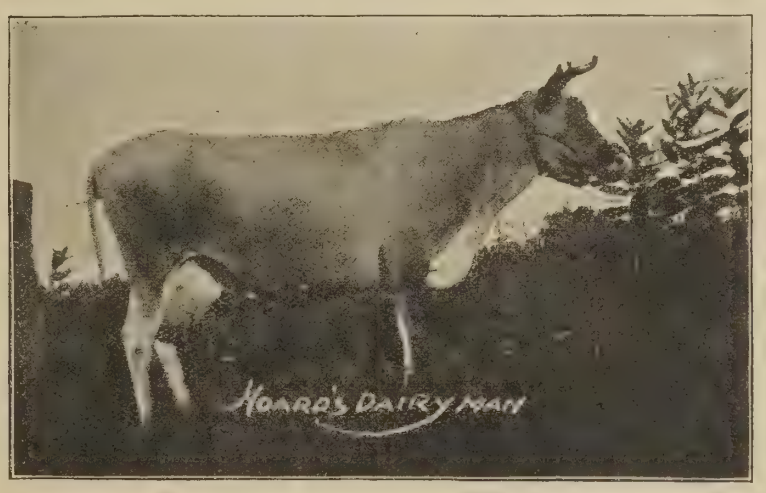
The *Cleavland Leader*, of December 17th, contains a thoughtful editorial on the raising and fattening of a good quality of beef cattle in Ohio. It recounts how the industry has largely died out in that state because the Ohio farmers accepted, too quickly, the idea that they could not compete with the western range cattle growers. But, with a farmer large enough in his comprehension to take advantage of modern methods, and the progress of modern ideas of growing cheap feed on high priced lands as well as ideas of breeding and feeding, there is yet a good profit for the production of the best grades of Ohio beef. The problem in the production of the finer grades of beef is identical with that of the production of butter and cheese.

The modern beef producer must have modern ideas to start with. Then, he must have the most economic sort of an animal to invest his care and feed in, one bred to that purpose. Then, he must make use of the best modern ideas and methods in the production of his feed and the keeping up of the fertility of his farm. All these ideas and methods will bring him a first-class product to put on the market and he will make as good a profit as any one. The same law in all its successive steps applies to the dairyman.

The dairy farmers of this portion of Wisconsin, for instance, who are carrying on the business obedient to these principals, are making a much larger per cent of profit than the frontier dairyman with his cheap land, poor general-purpose cows, and slip-shod methods of handling cows. Here, land sells from $65 to $70 per acre and good cows from $45 to $60. It is always and every where a *question of economic production* united with that of the preservation of the producing power of the farm. This and not the final price of the product is the governing principle.

A noted Wisconsin dairy farmer informed us not long since that he had always made the largest per cent of profit in times of moderate prices for dairy products, for then the value of the feed was at greater discount in the market than the price of butter and cheese. As farmers, we are too apt to be governed in our methods and policies by the price we are to receive rather than by the cost of production.

When we have studied this question of dairying long enough, we will find that it is a field big enough for all the knowledge, brain power and practical wisdom of the best intelligence. It is a poor field for the man who is content with poor ideas, poor cows and ill fitting methods.



DOT K, A. J. C. C. 85185.
Property of B. R. KNAPP, Cortland, N. Y.

WHY ELGIN PRICES CANNOT BE PAID FOR MILK IN MANY CREAMERIES.

At the recent meeting of the Kansas Dairymen's Association, Mr. A. Jensen, one of the squarest of creamery men, gave an able address, illustrated by charts, on "How near Elgin Prices can Kansas Creameries Pay for Butter Fat." Mr. Jensen made it clear that lack of the proper milk supply was the ruling reason why so many creameries cannot pay Elgin prices.

Farmers who are patrons of creameries do not sufficiently understand and appreciate the effect of a low milk supply on the cost of manufacturing butter. One of the leading creamery proprieters in Wisconsin, who has nine creameries in operation, arranges his charges for making butter on a sliding scale. Where the patrons furnish an average of 4,000 pounds a day he charges three cents a pound for making the butter, and for every additional 1,000 pounds of milk they furnish per day for the season the cost of making is reduced one tenth of a cent per pound of butter. This rule proceeds on the correct theory that the cost, to him, of running the creamery will be as great practically with 4,000 pounds of milk daily as it will be with 8,000 pounds, while the earnings of the plant are very much greater.

The Wisconsin rule is a just one and we believe should be adopted more largely by creameries and cheese factories.

A New York Jersey.

ED. HOARD'S DAIRYMAN:—Enclosed please find a picture of the Jersey cow, Dot K. 85185. Her dam is Mollie Mercury 28898; sire, St. Helier's Sagamore 21708. She was dropped April 26th, 1892; she came fresh October 6th, 1898, and from that date to August 14 she has given 9,456 pounds of milk, and every reason to believe she will make it up to 10,000 pounds this year. I have tested her repeatedly with the Babcock tester. Average test of butter fat, 5.8. I have tested twice with the churn; first time from November 28th to December 4th, inclusive, gave 159 pounds, 1 ounce milk, churned 15 pounds, 8 ounces; and again from June 14th to 20th, inclusive, she gave 265 pounds, 1 ounce milk, which churned 17 pounds, 11 ounces butter, salted one ounce to pound, and worked ready for market. She has had a small grain ration every day, consisting mostly of bran and middlings, with a very little corn meal.

Now I consider her a very great cow for a farmer, when it is taken into consideration that she has run in the pasture with the rest of the herd of 15 head. B. R. KNAPP.

Cortland, N. Y.

In a Herd of Ohio Holsteins.

ED. HOARD'S DAIRYMAN:—Seeing the different reports of rations fed to cows, I will also give you my way of feeding and shall be very glad to have you criticise me. I have a dairy of about 40 head of Holstein cattle, most all full blood, that is, young stock and all. I am milking, at present, three fresh cows and five which came fresh during the summer. I expect about twelve fresh until January.

I am getting up at 4:30 in the morning and feed grain first, consisting of 6 lbs. Quaker dairy food; then I milk and after milking, about 6 o'clock I feed 20 lbs. of corn silage; at 9 o'clock I leave my cows in a warm barnyard around the well kept straw stack, where I have fresh water, and leave them out until 12 o'clock; by that time I have put out about 2 lbs. of corn, oats, bran and oil meal, which calls them to their places. At 4 o'clock I again feed 6 lbs. Quaker dairy feed; commence milking again at 4:30 and after that, about 6 o'clock, feed again 20 lbs. silage. I have tried to feed my cows good hay (clover and timothy mixed) but they will not eat it

I am getting from above number of cows at present, 225 to 250 lbs. milk; can I improve this and how? F. W. S.

Hawkins Station, O.

When we receive a report of an average yield of 30 lbs. of milk per day from eight cows, five of them milked since last summer, we do not feel at all certain that the regimen adopted and producing these results can be improved upon. Neither is it very surprising, after a cow has had 40 lbs. of silage, 14 lbs. of grain and free run at a good straw stack in a warm yard that she should not have much appetite for even the best of clover and timothy hay. It is barely possible that if the above mentioned diet could be somewhat restricted, either in the silage or the straw, the cows would develop an appetite for hay, and if so this would be somewhat of an improvement and possibly lessen the demand for the more expensive grain. We hear very good reports for this Quaker dairy feed but have as yet no definite information as to its special composition. We expect that the parties putting this feed upon the market, will very soon furnish this information and give a guaranteed analysis with every sack of the feed.

To Get Rid of Rats.

ED. HOARD'S DAIRYMAN:—In the DAIRYMAN, No 31 of the current volumne, page 613, Mr. C. S. Stillman, of Massachusetts, asks for a remedy to destroy rats. We were quite in the same position a few years ago. Our whole farm was stocked with this pest. Catching them in a trap did not diminish their number; they were, in fact, so numerous that if one was caught in a trap he was, shortly afterwards, already eaten up by his companions.

They found their way into the chicken house at night and killed large numbers of young chickens. Sometimes they would chase and try to catch young chicks, during the day, anywhere on the farm. Poisoning them was of no avail, as only a few would touch the poisoned bait. We had, at that time, only a few cats on the place, but we came in possession of a few more from one of our neighbors, and owing to their natural productiveness their number soon increased to ten, and we then found that there is no better rat trap to be had, than such a small herd of cats. We have to-day comparatively few rats on the farm and those which exist try to keep out of sight as much as possible. Would therefore suggest that friend Stillman try cats. We feed our cats with sweet, separator skim milk. We seldom feed them anything else, but a cat naturally wants meat and, as we do not feed them any, they hunt it in the shape of rats.

I would add that HOARD'S DAIRYMAN is the best dairy paper published and that everybody that follows its teachings, must inevitably become a good dairyman. But as so many have said so already, it would mean "to carry coals to Newcastle", to repeat it once more. O. S.

San Antonio, Texas.

Storing Ice in a Pit.

ED. HOARD'S DAIRYMAN:—Having noticed, recently, a query concerning construction of underground, or partly so, ice houses, thought perhaps the methods of some of our patrons might be of interest, or prove of value.

A pit of size governed by quantity of ice to be put up, is dug about ten feet deep, more or less, as conditions as to drainage will warrant, and as they will permit of more or less being built above ground; if in a grove, which is a decidedly preferable location, a shallower hole and higher roof will prove more convenient, but without a grove, deeper digging and more thorough, possibly double roofing will be necessary, If necessary to guard against caving, board sides of pit with stock boards placed behind 2×4's, or 4×4's if pit is more than 12×12.

Fill bottom to depth of eighteen inches, or two feet with logs or coarse stones, and cover same with straw or hay, preferably flax straw. Begin packing ice, packing same very carefully and closely, filling every crevice and filling around edges, as building up is done, with twelve to eighteen inches of the packing material.

When ice is packed, cover top with heavy layer of packing material, and keep covered. Roof higher or lower above ground, to suit, but the deeper the pit and lower the roof, the more economical the construction, and the better the keeping qualities. Fifty dollars, I am told, is the maximum cost of the largest and best of these "ice pits," many costing much less, and their keeping qualities are excellent. One party tried filling pit without using logs or straw, but the experiment was a failure. Trusting some may be benefitted hereby, and being willing to answer further queries concerning same, if I can, I am, FRANK E. MOORE.

Schuyler, Neb.

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Vermont Dairymen's Association, Brattleboro. Jan. 9-11, 1900.
Ohio Jersey Cattle Club, Columbus, Ohio, January 9th, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16. 17, 18, 1900, at Stratford.
Pennsylvania State Board of Agriculture, Harrisburg, Jan. 24-25, 1900
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.
Prince Edward Island. Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

THE VALUE OF ADVERTISEMENTS.

A subscriber says:

"I find the advertisements in HOARD'S DAIRYMAN of much benefit to me. Of course there is much that does not concern me, but I never consider myself through with the paper until I have looked them over. I buy a good deal from your advertisers and I find it is much better and cheaper, too, to send for catalogues and post myself well on what I am going to buy, before I do buy. I find that little more investigation makes me often change my mind."

Readers should always bear in mind that the leading and most enterprising firms in any line advertise. When one advertises it is because he thinks he has something that you want, and that it will pay him to tell you about it. When you are contemplating a purchase of dairy stock, dairy implements, farm machinery, seeds or almost anything that you may want, it will always pay every reader of the DAIRYMAN to look over the advertising columns and investigate what is here offered.

Postal cards to advertisers requesting their catalogues, will save many dollars, aside from the satisfaction of obtaining what you wanted. Those who get up improvements in devices or methods, in fact, those who have bargains to offer in quality or price, want you to know of it and you ought to want to know of it. Write the advertisers.

A GOOD MOVE IN AGRICULTURAL EDUCATION.

Prof. J. W. Robertson, Agricultural and Dairy Commission of Canada, is breaking some very rich new ground in relation to the promotion of the agricultural knowledge and progress of the Dominion. He has started a scheme for the improvement of the seed grain of Canada through a more careful selection of the most vigorous specimens in the field, while growing. To secure this end he has enlisted the farmer's boys and girls to help him in this enterprise, and he offers prizes in wheat and oats. The following are the instructions and classification of prizes:

The following points are to be observed by those who send large heads of grain in the competition for the prizes offered by me. The prizes are as follows:

OATS.

First prize	$20
Second prize	10
Third prize	5
Fourth prize	4
Fifth prize	3
Sixth prize	2
Seventh prize	1
Eighth prize	1
Ninth prize	1
Tenth prize	1
Eleventh prize	1
Twelfth prize	1
Totals	$50

WHEAT.

First prize	$20
Second prize	10
Third prize	5
Fourth prize	4
Fifth prize	3
Sixth prize	2
Seventh prize	1
Eighth prize	1
Ninth prize	1
Tenth prize	1
Eleventh prize	1
Twelfth prize	1
Totals	$50

The whole of each lot of 100 heads should be selected from one variety grown in one field; and only from a crop which has given a large yield per acre.

I shall want every competitor to furnish from the same crop 10 (ten) heads with the smallest number of seeds per head which he or she can find. But the number of seeds in the small heads will not be considered in making the awards.

Each lot of one hundred large heads of grain is to be put in a small cotton bag, securely tied, and addressed: Professor Robertson, Department of Agriculture, Ottawa, Ont They will be carried free by mail.

Each lot of 10 small heads is to be put in a separate package, either of cotton or stout paper, and addressed in the same way.

A slip of paper is to be put inside each bag or package, giving:

1. The name and address of the collector.
2. The name and address of the farmer by whom the grain was sown. And
3. The name and variety of grain.

Also, if the information can be obtained:

4. The number of bushels per acre of the crop from which the heads were selected.
5. The date of ripening of the grain.
6. Whether the field was manured.
7. What crop was on the field in 1898.

JAS. W. ROBERTSON,
Com. Agriculture and Dairying.
Ottawa, Ont.

Here is a chance for most excellent work by the farm youth of Canada. Not only will they be serving the cause of better seeds and better crops, but they will secure thereby a valuable understanding of how good seeds are bred and selected. It would be a good thing, if the Secretary of Agriculture of the United States, would set aside a portion of the Department fund in the same manner and for the same purpose.

Judging Cattle.

The prizes annually offered by W. B. Smith & Son for judging dairy cattle by the students of the College of Agriculture and Domestic Science, Ohio State University, under the instruction of Professor Hunt, have been awarded as follows:

	Prizes.
F. W. Taylor, Wooster, O.	Badge and $10.00
Norton Dock, Cincinnati, O.	Badge and 8.00
Clarence B. Hoover, Venice, O.	Badge and 7.00
C. C. Hatfield, Lebanon, O.	Badge and 6.00
J. B. Crabb, Mt. Sterling, O.	Badge and 4.00

The judging in this contest was done in the Holstein-Friesian herd of W. B. Smith & Son and the Jersey herd of Mrs. J. E. Hall, both of Columbus.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	Carbohydrates.	Ether extract.
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*. which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food. but it has been demonstrated that it is not absolutely necessary for this purpose.

TO TELL ONE COW'S MILK.

Is there any method of distinguishing if milk is from one cow, or from many cows?

N. Y. City. J. K.

There are limitations to the chemists powers of analysis, consequently he is unable to tell whether the sample of milk is from one cow or a herd.

IN-BREEDING.

An Ohio reader raises this question again and evidently feels a good deal alarmed. Our own opinion is that it is not so much a question of in-breeding or kinship as it is a question of using the best blood obtainable. If we had a satisfactory bull of our own raising we would not exchange it for one less satisfactory from some other herd. On the contrary, if we could obtain elsewhere a better animal individually and with better blood lines behind him we would make the exchange.

STONE OR WOOD FOR CREAMERY.

We contemplate building a creamery here and wanted to ask your advice whether it is better to use stone or wood for the structure.

Eau Claire, Wis. J. M. S.

Either material will give you a good creamery, but the selection will depend on local conditions as to price of material, cost of repairs, insurance, etc. You can figure these up accordingly and decide much better than we can.

AN APPEAL TO "BUFF JERSEY" ABOUT RAPE.

A Maine subscriber writes as follows: "Will Buff Jersey tell more about just how to sow rape seed in his corn at last cultivation for fall pasture?"

Information along this line would doubtless be very acceptable to others as well, and we hope our correspondent will give us full particulars at as early a date as he may find convenient.

COWS MAY BE TOO FAT.

In reply to a Minnesota correspondent we may say that there is a very prevalent conviction that cows may be too fat to breed. We do not know that there is any well defined physiological basis for this opinion but it seems to have fastened upon the convictions of breeders and veterinarians to such an extent that it is quite the universal custom to recommend, where trouble of this character arises, to reduce the condition of the cows.

DILUTION SEPARATORS.

We have a letter from a Missouri reader in which he wants to know what is the matter with these dilution, so-called, separators. We judge from his letter that he has bought one which he uses as a sample and is going to try to sell others in different parts of the state. He is candid enough to say "I do not wish to go on record as asking them to invest their money in a swindle of any kind."

Under these circumstances we can do no otherwise, in justice to him and ourselves, than to advise him to have nothing whatever to do with any kind of dilution separators.

An ordinary deep setting can well do all that these patented affairs will do, and do it just as well, and at infinitely less cost, and without infringing on anybody's patent. Under certain conditions of the milk the addition of water will undoubtedly aid in the separation of the cream, but these conditions are very rare and hence the practice of adding water to milk cannot be commended or approved for general use.

OHIO QUERIES.

Please tell me how to feed for butter fat ten grade Jerseys, all soon to be fresh. Six tons clover, at $8; corn stover, $2.50; corn and cob meal, $10.60; dry malt sprouts, $10.50; bran, $16; oil meal, $30.

Malt sprouts are of similar composition to bran, and our cattle are fond of them, why cannot they be used as freely?

We take milk to a creamery and are paid two cents below Elgin wholesale butter market averaged for each month, for butter fat by Babcock test. Is this enough?

Also we deliver milk once a day, the night and morning's milk is taken in separate cans to the creamery, where both are dumped into weigh can together and a sample taken out at once, by means of a small dipper with a long handle; this dipper is dashed down into the milk and as it is taken out a portion of what it holds is poured off, the remainder put in a can for testing at end of week.

Do we get a fair test, if not, how should it be done?

The Jerseys of this place test high but the general complaint is, teats are small and they don't give enough.

We get 80% of milk back as warm, clean skim milk. G. L. S.

Loveland, O.

With this number of cows and the given feeds to select from, we should not expect to feed less on an average than the following daily allowance per cow:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay	10.16	.82	4.30	.20
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs. malt sprouts	4.49	.93	1.86	.09
5 lbs. corn and cob meal	4.45	.32	3.15	.18
Totals	25.05	2.24	12.55	.54

We specify malt sprouts as above on the theory that our friend's cows will continue to be fond of them. The general experience is that if fed in considerable quantities the cows lose their relish for them. If that should prove to be the case with our Ohio friend, he may substitute bran in whole or in part for the malt sprouts.

As the amount of commercial butter will overrun the amount of fat in the milk by from 12 to 17 per cent, our friend can determine better than we can (because he knows all the circumstances) whether the creamery is paying as much for butter fat as they can afford to. If the creamery is turning out not more than 200 lbs. of butter per day and butter is worth 26 cents per pound, the butter fat would be worth not far from 23.6 cents per

pound, after paying all expenses of manufacturing.

We see no reason why the plan of sampling the milk should not give a fair test, and we are of the opinion, if the persons doing the sampling and testing would be more considerate, do to others as they would like to be done by, and explain in detail the manner of taking the sample and taking the test, putting all the facts before the patrons, they would be better satisfied with the result. As a rule, what we don't know gives all of us a great deal more trouble than what we do know. There is a wonderful adaptiveness in all ways, of that scriptural announcement:—"The truth shall make you free."

CORN MEAL WITH PASTURE.

Would you advise feeding corn meal to cows when on marsh pasture? If so, would you feed it clear or mixed with bran, and in what proportion? E. S. D.

Grass Lake, Mich.

Corn meal makes an excellent complement to pasture grass, but as we have frequently said it is of too concentrated a nature to be fed "clear." Corn and cob meal, if ground fine, does very much better, but if this is not to be had, we would mix the corn meal with bran, in about equal parts by weight.

The same inquirer asks about feeding cob meal to horses. We have never tried this, and are unable to speak from experience, but incline to the opinion we would much prefer to mix the pure corn meal with bran, half and half by weight. This will give a feeding mixture, very nearly equivalent in all respects to oats, and has proved very satisfactory to us at times.

AN OHIO RATION.

J. A. S. is feeding 10 lbs. of corn and cob meal, 5 lbs. of wheat bran, and all the clover hay and millet hay and corn fodder his cows will eat. These cows weigh from 800 to 1,000 lbs., and he asks whether he is feeding too much corn and cob meal, and too little bran. He is a milkman retailing milk a 6 cents per quart.

We are clearly of the opinion that it would be better to feed less of the corn and cob meal, and, in fact, to omit the cob part of it altogether, mixing the ground corn with bran in about equal parts by weight, and then, as he has neither silage or roots, would recommend that he add from 1 to 2 lbs. oil meal.

A KANSAS RATION.

Please give me a balanced ration from following feeds: Have an abundance of corn stover; timothy and prairie hay mixed, enough for a small feed once a day; corn chop, $10; bran, $12; shorts, $12. I purchased a four horse power and No. 13 Eagle cutter, for the purpose of cutting stover, but am not able to make the cows eat it. Also can you tell me where I can get Southern Sanford corn for seed? Is it as good as any for silage?

Tonganoxie, Kan. W. H. E.

Although the formula which follows does not give as good a ration as good cows, not too long in milk, ought to receive, it is probably so much better than these cows have been receiving, that they will think it is first-class and respond accordingly:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. corn stover	11.90	.34	6.48	.14
5 lbs hay	4.37	.16	2.05	.07
6 lbs. bran	5.22	.75	2.32	.18
6 lbs. shorts	5.29	.73	3.00	.73
Total	26.85	1.97	13 85	.62

Run enough of this stover through the cutting box to last four or five days, thoroughly dampen it, let it lie in a pile where it will soften and heat up to a very considerable degree (if necessary cover it in some way to retain the heat) then mix bran and shorts with this cut stover, not forgetting to use a little salt and we see no reason why the cows should not eat with a relish and do fairly well.

Your nearest dealer in seeds should be able to furnish you with the seed. We do not know what its value for silage would be; as a rule it is best to plant a variety that is already in use in your neighborhood, until you have demonstrated the value of new varieties by experiment on a small scale.

A MICHIGAN RATION.

A subscriber at Ionia, Michigan asks us to give him three different formulas for rations, using different combinations of the following feeds: Oil meal, ground wheat, ground corn, corn stover, oats and peas mixed, red and alsike clover hay.

We must beg to be excused from complying literally with our correspondent's request, as it would be impossible to make a satisfactory formula from some of the combinations as he puts them. Instead of it, we will do as well as we can, selecting out feeds best adapted:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
10 lbs. corn stover	5.95	.17	3.24	.07
4 lbs. wheat	3.58	.41	2.77	.07
4 lbs. corn	3.56	.32	2.67	.17
2 lbs. oil meal	1.82	.59	.34	.14
Totals	23.38	2 17	12.60	.62

The hay from alsike clover rates a little superior to that from the common red clover.

DISSATISFIED WITH YIELD.

I am milking twenty-five grade Jersey cows, with ten more to freshen in the near future, and am dissatisfied with the quantity of milk produced.

I have millet, corn stover, sheaf oats "well headed," corn, wheat bran at $16 per ton; cotton seed meal, $22.

I have been a subscriber to your paper for three years, but cannot find the formula that just suits my case. A. W. E.

Warren Co., Ohio.

Inasmuch as A. W. E. has not mentioned the amount of milk his cows are giving, we can have no opinion as to whether he has good grounds for dissatisfaction or not. It should not be forgotten that quantity is not the only factor to be considered in the problem. A low grade of ore, if easily obtained, is sometimes more profitable than a higher grade of ore which costs more money to obtain, but a little of the high grade ore when developed at the smelter outweighs in value, a larger amount of low grade ore; so it is with milk.

If our friend has good reason to be dissatisfied with the quantity of milk produced, we suspect he is quite as much to blame as his cows. From the list of feeds given, it would seem to us not improbable that he is feeding too little protein, which is the one indispensible element in milk making. We suggest for his consideration the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
6 lbs. millet	5.54	.27	3.10	.08
6 lbs. stover	3.57	.10	1 94	.04
6 lbs. sheaf oats	5.17	.37	2.80	.09
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. corn	1.78	.16	1.33	.09
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	23.13	2.39	11.83	.65

BROWN SWISS CATTLE.

Can you give me any information about the Brown Swiss cattle, and whether they are considered to be good dairy cattle. I am expecting to start a dairy herd, and have been advised that the Brown Swiss cattle are desirable for this purpose. My own impression, gathered from rather limited sources, is that they are not a special dairy breed, but more what are called general-purpose cattle. W. A. D.

Buffalo N. Y.

From all that we have seen or learned concerning the Brown Swiss cattle, our own conclusions agree with those of our correspondent. It does not follow because these cattle are accounted good dairy cattle in Switzerland that they will occupy the same relative position when brought into comparison with dairy breeds as they exist in this country to-day. There have been, however, some notable cases where these Brown Swiss cattle have yielded large amounts of milk containing more than the averaged proportion of butter fat, but we do not think this is characteristic of the breed. As a rule they are not built on dairy lines, and every day adds to our convictions that unless a cow is built on dairy lines we have no reason to expect that she will make a profitable dairy animal. That there are exceptions to this rule we freely admit.

AN ARKANSAS RATION.

I have corn in the ear at 40 cents per bushel; cotton seed meal at $20 per ton; wheat bran, $20 per ton; cotton seed hulls, $2.50 per ton. I have heavy eared corn put in silo, shredded. Name me cheapest balanced ration from above. I want my ensilage to last as long as possible and want to feed about 20 to 25 lbs. per day per cow.

Osceola, Ark. W. A. J.

We have to confess to some surprise that W. A. J., who has been a reader and occasional correspondent of the DAIRYMAN for some years, should not have provided for his cows this winter some good alfalfa or cow pea vine hay. He is moving in the right direction by building a silo and having it filled and may perhaps plead that he cannot accomplish everything in a single year; but we feel like adjuring him not to let another twelve months pass without having in store a good supply of either alfalfa or pea vine hay to furnish the protein to supplement the carbohydrates in silage. This will be furnished cheaper in this way than buying cotton seed meal or bran at $20 per ton, and be several hundred per cent better for the cows, than filling them up with cotton seed hulls. From the feeds named, we do not see how he can expect to get along any better or cheaper, than to use substantially the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. cotton seed hulls	8.89	.03	3.31	.17
4 lbs. corn and cob meal	3.57	.26	2.52	.14
4 lbs. bran	3.52	.50	1.54	.12
3 lbs. cotton seed meal	3.75	1.12	.51	25
Totals	26 33	2 24	11.39	.86

AN OHIO RATION AND ITS COST.

Kindly give me amount and cost of daily ration for dairy cows—Jerseys, ordinary size. Well eared ensilage, $2.00 per ton (estimated); timothy and clover hay, $9.00 per ton; bran, $17.00 per ton; oil meal, $28.50.

Minerva, Ohio. T. F. B.

If these cows are fresh, or nearly so, we do not know whether a better or cheaper combination of feeds could be suggested than the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. clover and timothy hay	8.53	.48	3.96	.16
8 lbs. bran	7.05	1 00	3.09	.24
1 lb. oil meal	.91	.29	.33	.07
Totals	24.41	2.16	11.58	.68

This would be the total allowance for twenty-four hours, and would cost a fraction less than fifteen cents.

FEEDING CHARLOCK (KALE) SEED.

Will you kindly tell me what you think of kale seed for feed. I have twenty-five bushels that was screened from a quantity of barley and oats. Also what is its composition? W. D.

Williamstown, Vt.

We are not altogether certain what is meant by "kale seed." It commonly means the seed from a species of cabbage, but our inquirer would hardly be able to obtain such a quantity of that kind of seed. In some parts of the east the seed of wild mustard or charlock is called "kale" aud we assume that this is what is meant.

All the different kinds of mustard seed contain a volatile oil which is decidedly poisonous when taken in any amount, and charlock is not exempt in this particular. The only way the seed could be fed would be to grind, and boil the seed with water till the oil had been driven off; but it is probable that this would cost more than the seed is worth. Feeding without such treatment would be decidedly dangerous. If it were not for the presence of this oil, charlock seed would be a valuable feeding material as the following analysis shows:

Dry matter	92.8%
Protein	33.0%
Fat	9 0%
Carbohydrates	27.9%

FROM A BOSTON BUSINESS MAN.

Your paper at $1 a year is the best investment I make. Wish all my investments would turn out as well.

Kindly let me know if you can make a well balanced ration on the following feeds: I have clover mixed hay which cost $15 per ton, and plenty of well cured corn stalks with the ears all taken off. The corn is ground with the cob. I have about three hundred bushels of cob meal. With this, I have been feeding cotton seed. I have a chance now to buy some bean pods and vines at $13.50 per ton. I understand this is good feed and as grain is so high as well as hay, thought possibly it would be a saving. Mixed feed costs $20 per ton, gluten meal, $25 per ton. I have recently dropped feeding both mixed feed and gluten meal and in place of it, have been feeding cotton seed which cost $27, and cob meal. I would like a balanced ration with the bean vines, also one without them or if you think it would pay me to buy either mixed feed, gluten meal or oil meal to add to what I have, I will do so and give it a fair trial. My cows are all medium sized, grade Jerseys. J. W. D.

Boston, Mass.

Bean pods and vines are of such variable values, depending upon the time the beans were pulled and the manner in which they were cared for, that it is quite impracticable to express an opinion as to their value. We know that this class of forage is held in very high regard by a good many New York dairymen, and it is barely possible that if of the best quality it may be cheaper than clover hay at the prices named. We see no way of determining this question satisfactorily except by actual trial. We had understood that Massachusetts had a feed inspection law, and that all mixed feeds were required to be sold under a guaranteed analysis. In the absence of such an analysis we cannot, as a matter of course, advise their use, neither can we indiscriminately condemn them, for many of these feeds are honestly put up, sold for what they are and can be profitably as well as intelligently used. In the formula which we submit it will be seen that our judgment follows practically the line that the inquirer has adopted. About the only change is in adding a little of the oil meal, and this is done not so much because of its intrinsic nutritive value as from the conviction that it has very marked dietetic effects. The most difficult problem in submitting a formula from the feeds named is to secure sufficient protein, and it is our opinion that this protein can nowhere else be so cheaply obtained as in cotton seed meal if of good quality. We suggest therefore the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs corn stover	7.14	.10	3.89	.08
10 lbs. mixed hay	8.53	.48	3.96	.16
7 lbs. corn and cob meal	6.23	.45	3.68	.25
2 lbs. cotton seed meal	1.84	.74	.34	.17
1 lb. oil meal	.91	.29	.33	.07
Totals	24.65	2.16	12.20	76

If for any reason it should be desired to increase these figures we would make the addition by doubling the amount of oil meal above specified.

TO PREVENT CAKED UDDER.

I have a cow soon to be fresh for the second time. When she had her first calf she had a hard time with caked udder. It was fully two weeks before the udder was in good shape. The query is this, will it be better to milk the cow right up to time of calving or dry her off a few weeks before.

Morrow Co., Ohio. E. L. B.

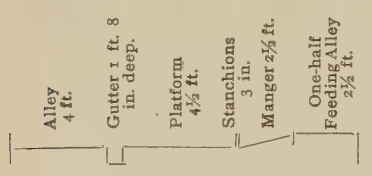
If this heifer has been milking twelve months or more and is six weeks from fresh-

ening the second time, we would dry her off. Then, if the udder becomes too much distended, hot and feverish, we would commence milking again, and if necessary, bathe the udder with hot water frequently. On the contrary, if she has not been giving milk practically for twelve months we would continue the milking right along.

It will be seen from the above that we are more concerned with establishing a habit of long milking than we are fearful of the caked udder. The latter condition can usually be fairly well controlled by proper care and attention, but when a heifer with her first calf is giving milk only nine or ten months it is very apt to establish a bad habit that cannot be easily overcome.

CEMENT FLOORS AND OTHER COW STABLE QUERIES.

F. E. R., Seneca, New York, finding it necessary to change the arrangement of his stables asks as to the advisability of standing cows on cement floors and whether a manger should be on a level with the platform or otherwise. He sends a sketch of a proposed floor plan which we re-produce as best we can as follows:



It will be observed that this plan provides for a central feeding alley 5 feet wide, and on either side of this, mangers two and one-half feet wide, then stanchions, then a platform four and one-half feet wide to the edge of a gutter eight inches deep and twelve inches wide, and behind these an alley four feet wide. The feeding alley is to be raised six inches above the general level, and the cows are to run loose most of the time in a covered barn yard.

We have a decided objection to cement floors for stables unless they can be kept well covered with bedding at all times. We confess that this objection is not considered valid by a good many people for whose opinions we have the highest respect, but cannot get over the prejudice, if such it is, that a stone floor is not a healthy or a comfortable place for man or beast to stand on, and much less to lie on. The stone has an almost unlimited capacity for absorbing heat. A stone slab makes a cold seat, and by a parity of reason must make a cold bed for a cow unless a good thick bedding of straw intervenes. Personally also we prefer to reverse the order of standing the cows by having them face outward rather than inward from a central feeding alley. We think this the more convenient arrangement and also the more healthful, but following the proposed plan we would give a larger width to the alley in the rear of the cows, building it wide enough to allow a wagon to pass. The gutter should then be at least four inches wider if it is to be eight inches deep. The platform and stanchions remain as suggested but the manger should have its lowest part not close to the stanchions but at least twelve inches away, and the bottom might well be raised three or four inches higher than the platform on which the cows stand.

POWER FOR HAND SEPARATOR.

How is best to attach power to churn or cream separator?

My churn is 6 sided Fenner, and separator is Sharples hand safety, with pulley for power, in place of crank.

Shall I use one pulley or will I have to have light loose pulleys for both, in order to get speed, by degrees. Knowing what I have, and knowing best methods of attaching tread power to churn and separator, please advise. C. H. J.

Osceola, Ark.

It depends entirely on your source of power. If derived from a tread, the power wheel will be large enough to belt directly to the separator wheel. If an engine is used, the method of connection will depend on the size and speed of the drive wheel. We, therefore, cannot advise without knowing the conditions.

WANTS THE BEST.

Please formulate a ration for making butter from Guernsey cows, from ensilage; corn stalks, shredded; timothy hay, mixed with clover; bran, $18.00 per ton; corn meal, $18.00; cotton seed meal, $25.00; oil meal, $26.00; ground oats, $20.00. All other feed about the same price. You may add to the above any feed that I have not and give price on, as I want the best. G. W. W.

Saugerties, N. Y.

If not the best, the following is certainly very good:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3 50	.18
5 lbs. shredded stover	2.98	.09	1.62	.04
5 lbs. mixed hay	4.27	.24	1.98	.08
6 lbs. bran	5.29	.75	2.32	.18
4 lbs. oats	3.56	.37	1.89	.17
1 lb. oil meal	.91	.29	.33	.07
1 lb. cotton seed meal	.92	.37	.17	.08
Totals	24.53	2.44	11.81	.80

NOT ON CORN FODDER EXCLUSIVELY.

Will it do to feed heifers, ranging in age from nine months to two years, on corn fodder exclusively? I have abundance of it, but no hay; can get good clover hay at $7.00 a ton.

I want to do all I can to make these animas good milkers, as they are selected from my best cows and sired by a registered Jersey bull. SUBSCRIBER.

Quincy, Ill.

The great preponderance of testimony is to the effect that the character of the feed given to a dairy animal, from its birth to maturity, determines in some measure its future dairy ability. The up-to-date dairyman would rather have a dairy calf raised on skim milk than one always receiving whole milk, and it has been observed that those animals always receiving a liberal proportion of protein in their feed have developed very encouraging dairy tendencies. By referring to the glossary, published on page 754, it will be seen that protein is the one indispensable substance for promoting the formation of muscular development in contradistinction to fatty tissue, and one thing to be guarded against in a dairy animal is a disposition or temperament to turn feed into body fat. We should therefore advise this inquirer not only to buy some of that good clover hay, but to add to the daily allowance a little bran or a few oats.

A MICHIGAN FEEDING PROBLEM.

Please formulate a ration for 1,000 pound dairy cows from the following feeds: Marsh hay, corn stover, straw; bran, $15.00 per ton; gluten feed, 27% to 28% protein, $18; gluten meal, 36% to 38% protein, $22.00; linseed meal, $30; corn (ground) $16; oats, (ground) $19.00 I have the fodder, also corn and oats, but can sell latter if more profitable than to feed. How fast can I reduce the food as cows dry off, and shall I feed only roughage when they are dry? B.

Jackson County, Mich.

There are no carefully reported experiments going to show that oats when ground are more than ten per cent superior to bran, and some experiments show that they are no better than bran. It follows then that we could not do otherwise than recommend the selling of the oats and investing in some other form of feed. The ration suggested in the following formula is none too good if fed to good cows that have not been so long in milk as to cut down their normal yield:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. marsh hay	8.84	.24	2.99	.09
10 lbs. straw	5.95	.17	3.24	.07
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. gluten feed	4.61	1.15	2.42	.15
2 lbs. corn chop	1.78	.16	1.33	.09
Totals	25.59	2.35	11.91	.55

The cow herself affords the best possible indication of the time and speed at which feed should be reduced. As long as she can turn her feed into milk and does not lay on superfluous flesh she is receiving no more feed than she ought to have. On the contrary, as soon as it becomes evident that she is laying on more flesh than is needed the feed should be reduced, and this reduction should keep pace with the necessities of the case.

We should hardly like to condemn our cows to a diet consisting wholly of marsh hay and corn stover, but would supplement this with bran and corn chop, equal parts by weight, and give enough to keep them in good order.

FEED AND MILK YIELD.

When I feed a cow all she would eat, good clover hay and corn fodder, no stover, how much milk could I expect from a good cow or bad cow? When I feed bran, dry, two pounds a day, how much milk should two pounds of bran make? WM. B.

Medford, Wis.

No one can tell what the result will be. It depends on the animal. You will find in last issue of the DAIRYMAN, a report from herds in Iowa, which makes exceedingly interesting reading. Note the wide extremes in yield of milk and butter fat. Then turn to the record of Lily Ella on page 892, and see what one cow can do when she is a selected animal, well fed and cared for.

A thousand-pound cow giving milk, requires 24 pounds of dry matter per day; the returns she will make for this food depends on the animal, just as a horse will go a mile in two or fifteen minutes, according to the nature of the animal, on exactly the same food.

TWO SOUTHERN FEEDING PROBLEMS.

We have two inquiries, one from North Carolina, and one from Georgia, that afford a very interesting and instructive contrast. The first is as follows:

I pay $1.00 per hundred for bran; $1.20 for cotton seed meal; 50 cents for pea vine hay; 90 cents for corn meal; 40 cents for corn shucks; $1.00 to $1.15, for pea meal; ordinary crab grass hay, 35 to 45 cents per hundred, and oats, 40 cents per bushel. My cows weigh 600 to 800 lbs. Kindly suggest a balanced ration for them.

Have been watching your paper, thinking some one would ask for a ration that would fit my case, so as not to trouble you, but find none exactly situated as I am, and no ration adapted to feeds in old North Carolina.

Fayetteville, N. C. C. D. S.

Here we have some of the best forage crops for dairy purposes that the world can furnish, and they can be grown nowhere else to better perfection than in the southern half of these United States. The result is that we can make a satisfactory formula, and without the excessive use of high priced grain, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. cow pea hay	8.93	1.08	3.86	.11
5 lbs. crab grass	4.12	.29	1.99	.07
4 lbs bran	3.52	.50	1.54	.12
2 lbs corn chop	1.78	.16	1.33	.09
1 lb cotton seed meal	.92	.37	.17	.08
Totals	19.27	2.40	8.89	.47

The second of these inquiries comes, from Georgia, and is worded as follows:

Will you please give a ration for milk cows weighing 700 to 800 lbs. I have the following; prefer giving very little cotton seed meal, if any: Corn and cob meal, wheat bran, oats and cotton seed meal; also, oat and wheat straw and corn shuck fodder and pea hulls. I want the best results in milk from all or a part of above. W.

Talbotton, Ga.

In place of the pea vine hay and crab grass hay, we have oat and wheat straw, corn shucks, corn fodder and pea hulls. For the benefit of the land as well as for the production of a better forage, this man should raise cow peas. We could not say definitely how much of the different kinds of forage named by him, he should use, even if we knew in what amounts they were available. The best we can do, under the circumstances is to suggest that his cows, if of good dairy ability, ought to receive about 5 lbs. of bran, 4 lbs. of oats, 4 lbs. of corn and cob meal and 2 lbs. of cotton seed meal, daily, and then in addition, as much of the fodder mentioned as each cow will eat.

"One Year's Seeding, Nine Years' Weeding."

Neglected impurities in your blood will sow seeds of disease of which you may never get rid. If your blood is even the least bit impure, do not delay, but take Hood's Sarsaparilla at once. In this course there is safety; in delay there is danger.

Hood's Sarsaparilla Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

LIABILITY TO TEXAS FEVER.

If I should ship a cow to Pensacola, Fla., any time this winter, would she be liable to take Texas fever? Do calves take the fever when sent south? Is it safe to ship a cow that is four or five months with calf?

Lawrence Co., Ill. SUBSCRIBER.

A cow sent from Illinois to Florida would be very likely to take the so-called Texas fever, if she was permitted to graze or range where other cows have been pastured or yarded. It has been definitely ascertained that this fever is communicated by ticks, and that these fall from the animal to the ground, where a new crop of ticks is bred, and these go in turn from the ground to cattle, and there produce the fever in such animals as have not been rendered immune. Experience seems to have demonstrated that young animals, and especially calves, go through

The Future of Children

A child's life may be blighted by the diseases of youth, such as Rickets, which is characterized by weak bones or crooked spine, and inability to stand or walk steadily, or Marasmus, that wasting disease characterized by paleness and emaciation, or Scrofula, a constitutional disease of the glands and neck.

Scott's Emulsion

of pure Cod-Liver Oil with Hypophosphites of Lime and Soda will prevent and cure these diseases. It supplies just the material needed to form strong bones, rich red blood and solid flesh. It will also reach the infant through the mother's milk, and be of the greatest benefit to both.

At all druggists; 50c. and $1.00
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

the so-called acclimating with less danger than other animals.

Cows well advanced in gestation are shipped, and accidents are very rare.

TWO NEW YORK RATIONS.

Please formulate me rations:

1st. Composed of a good amount of silage, oat straw, ground oats, wheat bran and oil meal.

2nd. Silage, clover, mixed hay, oats, wheat bran and buckwheat shorts, just as well as bran and oil meal, at usual prices.

Jasper, N. Y. M. C. H.

We give below two formulas as requested, but neither one of them is quite satisfactory:

I.

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
40 lbs. silage	10.56	.52	5.60	.35
8 lbs. oat straw	7.26	.10	3.09	.06
6 lbs. bran	5.29	.75	2.32	.18
4 lbs. oats	3.56	.37	1.89	.17
Totals	26.67	1.74	12.90	.76

II.

25 lbs. silage	6.60	.33	3.50	.18
10 lbs. mixed hay	8.53	.48	3.96	.16
8 lbs. bran	7.05	1.00	3.09	.24
1 lb. oil meal	.91	.29	.33	.07
Totals	23.09	2.10	10.88	.65

Formula I would be decidedly improved by reducing the oat straw somewhat and adding 2 lbs. of oil meal. In like manner formula II would be improved by adding 2 lbs. of ground oats.

BOOK ON BARN BUILDING.

Kindly give me in your next number addresses of illustrated books of architecture of barns. F. W. SCHUMACHER.

Barn building, by J. H. Sanders, is the latest and probably the best book on this subject. Its price is $2.00 and can be supplied from this office as soon as the new edition is published.

AN UNKNOWN CHEESE.

Can you give any information in regard to the manufacture of a cheese called Creams, and put up in cakes of about four ounces each? Is it a rennet or sour milk cheese?

Speedsville, N. Y. A SUBSCRIBER.

Though the description is very indefinite, I feel inclined to believe that the said cheese is made with rennet and is a *real* cream cheese. Why does not your correspondent test it for fat? J. H. MONRAD.

Cook Co., Ill.

A NEW YORK RATION.

Please give us a balanced ration, irrespective of cost, of the following feeds: Alfalfa, oat meal hulls and small oats, corn meal and the cob, cotton seed, grain and ensilage.

Syracuse, N. Y. A. & G.

The feeds named do not give much opportunity for choice. Oat meal hulls have a very insignificant feeding value and are not worth considering in connection with alfalfa hay. All that remains, therefore, is to give the alfalfa hay and corn and cob meal. If some of the hay could be chaffed fine we would prefer to omit the cob meal, mixing the coarse corn meal or ground corn with the chaffed fodder. There is no very great nutritive value in corn cobs. Their economy in feeding problems comes in their bulkiness, thus extending or diluting the corn meal which is a too concentrated feed to be given by itself.

Twenty lbs. of alfalfa hay and 10 lbs. of corn and cob meal will be about all these cows can be expected to eat and will furnish a large ration for large cows in full flow of milk.

AN IOWA RATION.

Please formulate a ration for fresh milk cows from shelled corn at 18 cents per bushel; oats, 16 cents per bushel, ground and mixed with wheat bran at $8.00 per ton, and oil meal at $30 per ton, with all the good upland prairie hay they will eat, and the run of oat and flax straw stacks on nice days, the flax straw having some flax seed left in it after threshing. SUBSCRIBER.

Spirit Lake, Iowa.

Although corn at 18 cents and oats at 16 cents seem to be very cheap, they are not, in fact, cheaper than bran at $8.00. In the following formula, more in deference to what we fear may be the inclinations of our inquirer than in accordance with our own judgment, we include some oats and corn, rather than all bran:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
15 lbs. prairie hay	13.13	.53	6.27	.21
4 lbs bran	3.52	.50	1.54	.12
3 lbs. corn	2.67	.24	2.00	.13
3 lbs. oats	2.67	.28	1.42	.13
2 lbs. oil meal	1.82	.59	.65	.14
Totals	23.81	2.14	11.88	.73

We include oil meal in the above formula partly to bring the protein up to what is considered necessary, but more especially on account of its well known properties of aiding in digestion. When there is neither silage nor roots we think it always best to use a little oil meal, even at the present extravagant prices. It is just possible that there may be enough of the flax seed left in the straw referred too, to make the need for oil meal less imperative than it otherwise would be, but this is a matter that can be determined only by experiments on the ground. If such should be the case, we would then get some cotton seed meal, or gluten feed, or some thing of that character to use in connection with the other grains.

BERMUDA GRASS—REDUCING THE CARBOHYDRATES.

1. What are the items of feeding value in Bermuda grass and Bermuda hay respectively, and how do they compare with blue grass and blue grass hay?

2. Where can I buy dried brewers grains?

3. Do cows need as large a proportion of carbohydrates in their feed in this climate as that indicated in the feeding standard you keep standing in your inquiry and answer column. H. A.

Atlanta, Ga.

The following table shows the analysis of the grasses named:

	Dry Matter.	Protein.	Carbohydrates.	Fat.
Bermuda Grass.	Per cent.	Per cent.	Per cent.	Per cent.
Hay	85 70	11.50	45.09	1.30
Green	28.30	2.15	17.31	.95
Blue Grass.	Per cent.	Per cent.	Per cent.	Per cent.
Hay	75.64	6.30	34.27	3.60
Green	34.93	4.12	17.59	1.30

The nearest dealer in feeds ought to be able to supply you or tell you where they can be obtained.

There is no doubt that temperature has a decided effect on the amount of carbohydrates necessary to maintain the bodily heat. Consequently in the southern states we should expect the cows to require less of the above class of nutrients, but in this as in all such cases the cow is the one that decides the question, and it is only by feeding, weighing and testing, that we can tell to what extent the carbohydrates can be reduced.

THE MOST ECONOMICAL RATION.

Please give me the most economical and best balanced ration for milch cows from the following feeds: Corn fodder and second crop clover hay on farm; bran, $14; gluten, $17; corn, (ground) $9 60; oats, (ground) $15.65; cotton seed meal, $24.30. H. B.

Alexis, Ill.

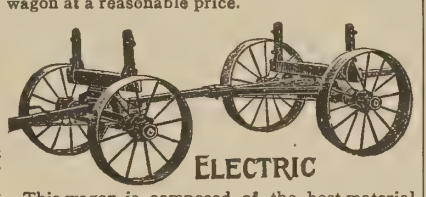
We commend H. B. for wanting the most economical ration, rather than a cheap one. If the relative amounts of clover and corn fodder (stover?) on hand will warrant, we recommend the following for trial:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
15 lbs. clover	12.72	1.02	5.37	.26
8 lbs. stover	4.76	.13	2.59	.06
3 lbs. bran	2.64	.38	1.16	.09
3 lbs. gluten feed	2.77	.61	1.45	.11
2 lbs. corn	1.78	.16	1.33	.09
Totals	24.67	2.30	1.90	.61

If, for any reason, it should seem desirable to increase this allowance, more of the ground corn may be added.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.

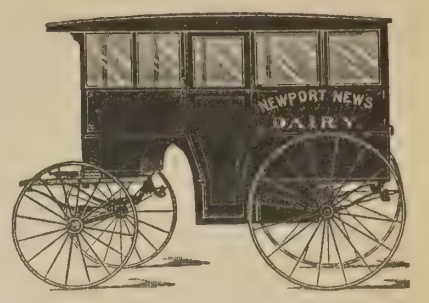


This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs.



These Electric Steel Wheels are made to fit any wagon. and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric. Wheel Co., Box 130, Quincy Ill.

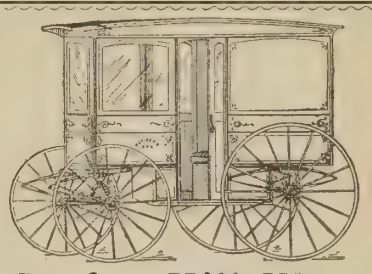
The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



A Perfect Milk Wagon
On a Perfect Short-Turn Gear.

We make 10 other styles. Write us for Catalogue and Price List.

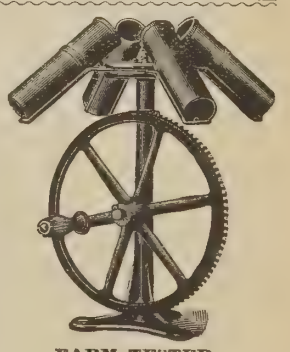
THE O. ARMLEDER CO.,
CINCINNATI, OHIO.

FOR SALE

The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms, two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

H. A. DAVIS,
631 Pa. Ave. N. W., Washington, D. C.

Be Careful



FARM TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agens for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Sanitary and Pastuerized Milk.

ED. HOARD'S DAIRYMAN:—A large Milk Company in Minnesota, which is already supplying pasteurized milk to the city trade, wishes information as how to make the right beginning in order to place an absolutely pure and clean milk on the city market. While this and other inquiries of this kind, have been caused from my writings on that subject in HOARD'S DAIRYMAN, it seems that I have not been quite explicit enough in some details. Anyhow, I wish to refer such inquirers to my former letters, which I expect HOARD'S DAIRYMAN will furnish upon request.

It seems that this last questioner has the idea that a less perfect milk is good enough for pasteurization, than what would be demanded for sale in a raw condition. Now while it is true, that milk which is not as clean and pure as it should be, can be made to keep 24 or 48 hours longer by pasteurizing it, still it is a bad practice, and one which will only hurt the system of pasteurization, and bring it into discredit. Why? Simply becau e an imperfect quality of milk pasteurized, will actually not keep in a healthy condition (if it ever has been so) as long as a perfect raw milk, if properly cooled and handled. My word for this ought to have some weight, as I have had the name of "the old pasteurizer" for more than 8 years, and by many was (may be am yet) considered a crank on that subject.

I say most emphatically, that whoever wishes to supply pasteurized milk or cream for city use, should only use an absolutely clean (by running through the separator) and well flavored milk; only by so doing can you furnish a pasteurized product which will keep as it ought to, even when exposed to somewhat unfavorable treatment afterward on the part of dealer or consumer. Therefore the rules for obtaining the right kind of sanitary milk, whether it is to be sold raw or pasteurized, are exactly the same, with only one exception, namely:

In order to be able to supply an absolutely healthy and pure *raw* milk, guaranteed as such by physicians and veterinarians, such milk can only be supplied by herds of cows which are regularly examined as to being in absolutely perfect health generally, and which are tuberculin tested at regular intervals; also there must be a security that no consumptive persons are employed in handling or milking of these cows, or persons in any way afflicted by sickness; likewise all animals showing any sign of disease of any kind must at once be removed from such stables to avoid contamination.

Likewise the stables and the feed used must be most rigidly examined. Only then can a milk be really guaranteed pure when sold raw, and I am sure much so-called "certified" milk is by no means as safe as it should be; the fact is simply that, especially if milk is shipped any distance, it is almost impossible to be sure that all these above mentioned details are complied with.

Now, when we come to the pasteurized milk, certainly, in a general way, all the same precautions should be taken; but even if so should be, that some slightly affected animals (by tuberculosis or otherwise) should have escaped detection, or if some person in poor health should have done part of the milking or feeding,—the fact is, that while a temperature of 160° F., not always, absolutely, destroys all tubercle germs, still it so nearly does so, that, practically, it makes such milk perfectly safe to drink, even for a baby; as to other disease germs, such as typhoid, scarlet fever, cholera, etc., they are all destroyed at a lower temperature than 160° F. And here is the very reason why pasteurized milk and cream always must prove the safest, especially speaking of the large supplies, because we can make any hidden mischief harmless, and be absolutely sure.

It has been considered safer and better to have the pasteurizing done as close to the milk source as possible, and in some ways this is correct; the sooner pasteurization can be performed after milking, the less germs will have to be killed, and the more perfect will the milk be. But again, from practical work, I have come to the conclusion that I prefer to have the pasteurization done in the city, or as near the consumer as possible.

There are several good reasons: First, if the milk is pasteurized on the farm right after milking, actually a less pure article will answer, than that which has to be shipped to the city first while raw; and then, if pasteurized on the farm, in order to make pasteurization effective, the milk would all have to be bottled there, which would mean about a threefold expense (or more) in handling, hauling and shipping by railroad, as well as packing with ice, etc. If we have a perfect milk, run through separator as soon as milked, then cooled below 50° F. (or better 40° F.,) held at that temperature till shipped, and then shipped in "jacketed" cans, such milk will reach the city depot in perfect shape, and can be pasteurized there with more safety, and the bottling done at once. This has been our method here for over two years, and we never have any trouble with our pasteurized milk, even if it had been kept for two or three days.

It is true that we have used only the milk from our sanitary farm a few miles away, but our cream has been shipped from a creamery about eighty miles from here, shipped by two roads, often six hours on the way; and this cream has, during these two years, (with a couple of exceptions caused by faulty handling) always reached us here in perfect condition for pasteurization, and has always kept perfectly sweet here afterwards, for four or five days, when needed. Still I should never advise to sell even pasteurized cream older than three days, and then at a temperature always below 50° F.; only then can we be sure to avoid all complaints.

I wish H. B. Gurler, and any others who have had experiences in this line, would give us a little of their knowledge; the danger from teaching others and thereby causing us competition, is rather smaller than might be expected.

WASHINGTON CONDITIONS.

From a party who knows something about the former milk supply of this city, I have an inquiry as to our success in arousing a public sentiment in favor of a pure milk supply. I fully believe that if it had not been possible from the start to secure the unanimous support of the medical society here, as well as that of physicians, both allopathic and homeopathic, generally, we never would have been able to succeed as we have done.

The average price for milk from reliable(?) dealers being eight cents per quart (lots of them selling to some customers at eight, to others at six and seven cents!) our price for raw "Sanitary" milk of ten cents was enough to scare a majority, and twelve cents per quart for pasteurized milk, of course makes people only buy it when so directed by their physician; still our business is steadily increasing and since having, from November 1st, secured the milk from the very finest herd of registered Jerseys in this neighborhood, we not only have the purest, but absolutely the richest and finest milk coming to Washington. We have probably in Washington the very largest proportion of people who know and appreciate a good thing and are willing to pay for it; but one great trouble is, that these very families are the ones who leave all the details of supplying their house with food of every kind to their butler or head cook, and these very self-important dignitaries, whether white or black, male or female, are generally liberally "tipped" by the various dairymen. Therefore, of course the milk of that man who does the best tipping, is surely the best! And we do not tip! That is against our principle, though I do not doubt we could receive plenty of trade that way.

This makes it naturally more difficult for us to gain access to many of the best families and it is only through the physicians and the babies we get in; but when we once have gained a foothold, we often secure the whole trade and hold it. Still, what makes our distribution more scattered and therefore more expensive, is the fact that the majority of our customers only take their baby milk and that for table use from us, while the cheaper milk from some other dealer is considered good enough for cooking, etc. Still the good effect we, in that manner, have on other dealers, is obvious. They dislike the idea that their milk is only fit for cooking and baking. The general information on dairy subjects among milk dealers here, is certainly very limited. Of course there are a few exceptions. The same is true of Baltimore.

Washington, D. C. J. MOLDENHAWER.

Seasonable Notes from Michigan.

Butter and Oleo in Michigan—Renting Stock.—Cross Breeding.—Feeding Beet Pulp.

ED. HOARD'S DAIRYMAN:—In attending farmers' institutes over the northern part of the state, we have been doing what we could to develop dairy interests and in many sections there is abundant need of work of this kind. Occasionally one finds a careful dairyman, following, so far as possible, along lines prescribed by the DAIRYMAN, but the vast majority of farmers in that section are but poorly equipped for effective work and take no particular interest in this branch of agriculture. A few take a dairy paper, but do not seem to feel the interest which farmers in the more settled portions of the state manifest in this great and important industry.

The prices which dairy products command in that region would seem to be sufficient to give impetus to the business. The fact is, not nearly enough is manufactured in some places to supply local demand. A few farmers supply customers the year around, and these have no difficulty in securing high prices.

Oleo finds ready sale at 18 cents in at least one town, and the proprietor of the establishment declared himself in favor of its manufacture. A placard in his window announced to the passer-by "Oleomargarine Sold Here," and your correspondent entered to examine it.

A sixty-pound butter tub stood uncovered upon a table, half filled with pound rolls, each wrapped in parchment paper. Had it been butter, one would at once remark upon its attractive appearance.

Is this supposed to be colored?" was the question directed toward the proprietor who stood near.

"No sir!" was the quick reply.

"But," I rejoined, "what makes it have this fine yellow shade?"

"That is the result of the beef suet used in its manufacture,—that and the olive oil which also has the effect of giving it a yellow shade," he explained. (Since we have now no law prohibiting its being colored this point is of no importance.)

"Oh!" said I, reflectively.

"I tell you what," continued the man, "this oleomargarine is a blessing to the laboring man. It's better than two-thirds of the butter made in this county, and sells at five to eight cents less per pound." And thereupon he entered into a lengthy and detailed account of the merits of this stuff which is doing so much to render the sale of butter unremunerative. But evidently it all depends upon "whose brush is burning" how we look at this question as well as others, for to one whose interests are in the dairy line it seems to be more of a curse than a blessing.

One of our institute workers, Mr. L. W. Oviatt, of Bay County, a successful farmer and sheep breeder, tells of a rather novel way of investing in stock. He is the owner of quite a large number of cows, but rents them out in this wise He buys young cows, preferably in the fall when they are cheap, and lets them to any one who will keep them three years; he to have the first calf at the end of that time. This gives him a two-year old for the use of the cow, which is then let again to the same or to other parties. Another plan is to let with the cow a calf or yearling to be kept for one year, which pays for the use of the cow that length of time.

The increased value of the young animal is usually ten to fifteen dollars which is a pretty good rate of interest on the value of the cow. Mr. Oviatt says that while he considers these investments eminently satisfactory to himself, the other parties in the contract are equally well pleased. Oftimes these are poor men who have not the means of purchasing a cow, consequently have none. Yet they have a few acres of land or rent a small farm unstocked, and so have plenty of pasture and roughage for young stock. This is not missed in the keeping of the calf or yearling and they are thus enabled to have the use of a cow for the family. In case the cow dies they are not asked to replace it, but it is expected that this rarely happens.

I think those who have made the acquaintance of that genial gentleman and up to date

Few Days' Brew of Deadly Uric Acid.

In a few days you brew enough uric acid in your own body to produce death.

Your kidneys are your only salvation.

Because when they are well, they filter out this deadly poison.

So, when your kidneys are sick, you can understand how quickly your entire body is affected, and how every organ seems to fail to do its duty.

They are all being slowly poisoned.

Uric acid poison irritates the nerves, and causes rheumatic pains in joints, muscles, limbs, headache, backache, stomach and liver trouble, shortness of breath, heart trouble, dizziness, nervousness, irritability, lassitude, loss of ambition, weakness and wasting away.

Red brick dust and similar sediments in the urine are also caused by various salts of uric acid.

The cure for these troubles is Dr. Kilmer's Swamp-Root, the great kidney remedy.

It instantly relieves the congested, overworked kidneys, and gradually brings them back to health.

Healthy kidneys keep down the excess of uric acid, and you soon feel the benefit in new health and strength.

Swamp-Root should at once be taken upon the least sign of ill health. It will make you well and is for sale the world over in bottles of two sizes and two prices, fifty-cent and one-dollar.

Swamp-Root is used in the leading hospitals; recommended by skillful physicians in their private practice; and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy for kidney and bladder troubles.

To prove its wonderful efficacy, send your name and address to Dr. Kilmer & Co., Binghamton, N. Y., mentioning this paper, when you will receive, free of all charge, a sample bottle of Swamp-Root and a valuable book, by mail, *prepaid*. This book contains many of the thousands upon thousands of testimonial letters received from men and women cured.

THE .. YOUNG **AERATOR** .. And .. **COOLER**



Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.
W. H. YOUNG,
Box 135, Aurora, Ill,

RAW FURS,
Dried Hides, Ginseng Root
etc., etc., can be shipped C. O. D. Express to
W. W. BUDLONG,
Greenwood, R. I.
Dealer in Butter, Eggs, Poultry, Hides and Furs, and Wild Animals.

SHORT-HAND TAUGHT BY MAIL Study at home. Easily acquired by simple system. Thousands of expert stenographers have learned in this way. Write for terms, enclosing 2c postage for trial lesson. Graham's system. Address JOHN P. DOYLE, Shorthand Expert. 1815 Chestnut St., Milwaukee, Wis.



IT COSTS LESS TO BUY NEW WHEELS
than to repair the old ones—you can get
4 Buggy Wheels 7-8 in. Steel Tire for $7.50
4 Carriage Wheels 1 in. Steel Tire for $8.00
Special Wheels for Milk Wagons with steel tires 1¼x⅝, $11.25. Special low-down gear supplied when desired. Gears & Axles. Boxes set when wanted. Write us for free price list No 84 with rules for measuring.
WILMINGTON WHEEL CO., Wilmington, Del.

LUMBER
at ONE-HALF PRICE
WE BOUGHT
The Omaha Exposition
and have 12,000,000 feet for sale.
—Send us your bill for our estimate—
Write for free Illustrated Catalogue No. 20 on general merchandise from Sheriffs and Receivers Sales. Address
Chicago House Wrecking Co. CHICAGO, ILL. OMAHA, NEB.

dairy authority, Prof. C. D. Smith of Michigan Agricultural College, will readily recognize the originality of the following:

At the recent meeting of the Michigan Improved Live Stock Association he expressed himself strongly against mixing the different breeds of cattle. Said he: "I like buckwheat cakes, and I think highly of fertilizers but I don't want them mixed on my breakfast table."

By crossing the breeds, Prof. Smith urges that one arrived at unsatisfactory results, and that the different types should be bred for what they are intended. He believes that Herefords, Holsteins, Jerseys and Shorthorns each have a legitimate place and each breed is all right in its place.

Considerable discussion at this meeting was given to the subject just now looming into prominence, in Michigan, regarding the food value of sugar beet pulp. Opinions differ as to its actual value. Prof. Smith advises going slow, and learning from experience, what it is worth to the individual feeder. He places its fattening power at half that of corn silage. In California and Nebraska, beet pulp—the refuse from beet factories—has been successfully used by feeders. While it possesses no particular fattening properties, it acts as an appetizer, and tends to keep the system relaxed, when animals are on dry food. In France this pulp is largely employed in feeding stock of all kinds, giving excellent satisfaction.

Farmers living near the factories here, are experimenting with this as a stock food, and, as is usually the case, with any subject, some are in favor of it, while others disapprove of it entirely. Fed to milch cows, it assimilates nicely with other food, but is entirely lacking in most of the elements found in the entire beet.

It may be well to state here, that sugar beets are superior to all other roots as a stock food, excelling even carrots, which are generally considered as occupying a position at the head of the list.

In conversation with a farmer, who is, also, something of a dairyman, not long since, he was telling me something about his cows. They are of no particular breed, being, as he expressed it, "all mixed up."

Like every other farmer though, he has one cow which beats all the rest. She gives the most milk, and it is so rich—"why" said he, "you never saw how thick the cream rises on it." When asked to describe her, he confessed at the outset, that she was "homely as a hedge fence," with protruding bones in spite of all that was fed her. Proceeding with the description, it transpired that she carries the true dairy form, even to the "hump" over the hips. Of course I nodded my head wisely, as he progressed with the description, as much as to say, I told you so.

As fast as farmers realize the value of the silo, they are being built and used. Every where we hear good words spoken in regard to ensilage as a cheap and convenient stock food. Some prefer to pick off the large ears before cutting, others leave all on, but either way is eminently satisfactory. The silo has come to stay. W. C. ROCKWOOD.

Genesee, Co., Mich.

CONCERNING OUR ADVERTISERS.

As an evidence of the universal interest taken in artificial incubation, and the confidence which the whole world places in American-made incubators, we refer to an order recently received by the Des Moines Incubator Co., of Des Moines, Iowa, through their New York agents, for a shipment of fourteen machines to go to parties in Sydney, Australia.

Every man of experience knows that barring accident the wheels of a wagon, buggy, or other vehicle are always the first parts to wear out. This is true for the best of reasons and not necessarily because the wheels are of inferior quality. It is simply because the most trying work is always demanded from those parts. It transpires therefore that the wheels come in for the greatest amount of repair, which is always an expensive element. Resetting of tires, new rims, refilling of the wheels, etc., while they have a tendency to temporarily prolong the life of the same, may easily become more expensive than the purchase of an entire new set of wheels. Since wheels will give out, even under the best of care and conditions, long before the remainder of the vehicle shows any serious wear, it means in most cases that the simple purchase of a new set of wheels makes practically a new vehicle. These things have been brought to mind by the advertisment of the Wilmington Wheel Co., which appears on another page of this issue. These people manufacture wheels for various kind of vehicles and sell them direct to the consumer at what seems to us very reasonable prices. We know this to be an old and reliable concern and that they can be depended upon to do just what they agree to do. If you should need wheels now, or will be needing them this spring to repair or overhaul a vehicle of any kind, it will certainly pay you to correspond with the Wilmington Wheel Co., Wilmington, Del.

Concerning Solifine, a preparation which is being manufactured by the Milwaukee Chemical Works of Milwaukee, Wis. and being regularly advertised in these columns, we wish to say a word. Solfiline is an oily preparation designed especially for treating leather. It possesses the property of excluding absolutely all moisture and dampness when applied to boots and shoes; it makes harshness soft, pliable and water and wear resisting. For treating all kinds of leather belting it tends to knit the fibers of the leather more closely together, greatly increasing the tensile strength and avoiding all undue stretching or breaking.

We have been informed by trustworthy parties, who have tested it, that Solfiline is entirely reliable, and will meet every claim made for it. We publish herewith a letter from one of the creameries where it has been in use.

DARIEN, Wis., 11-14, 1899.

Milwaukee Chemical Works, Milwaukee, Wis., GENTLEMEN:—Yours at hand making inquiry as regards the sample can of Solfiline you sent us. Replying I would say that I have tried it thoroughly, and it is fine. The best I have ever used for belts and leather boots. Yours truly,

A. E. WEAVER.

The price and terms are entirely reasonable and fair. These people are offering to deliver a gallon can of Solfiline, express prepaid, to any address in the United States. Write them for circulars, testimonials, etc.

The American Harrow Co., of Detroit, Mich., are placing on the market a manure spreader, of which they are very anxious to place descriptive matter in the hands of the readers of HOARD'S DAIRYMAN. Dairy farmers who have a large number of cows will find this spreader quite a labor saver as well as doing the work much better and quicker than by hand. It is a self feeder and can be placed on any ordinary wagon. Many readers of the DAIRYMAN are interested and ought to send for their booklet "E" which fully describes the spreader.

DAIRY MARKETS.

ELGIN, Ill., Dec. 22—Butter—On the Board of Trade today, 2,340 lbs. of butter were offered, but no bids were received. The Quotation committee declared the market firm at 26c. Five hundred and seventy thousand lbs. were sold during the week.

CHICAGO, ILL., Dec. 26.—Butter—Extra creamery, 25½c; firsts, 21@22c; seconds, 17@18c; imitation creameries, 18@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 17@17½c; packing stock, fresh, 16½c; roll, 16¼@17c.

Cheese—Full cream, twins, good to choice, 11@12c; off grades, 8@10c; young America, 12½c; cheddars, 11¾@12c: Swiss, 12½@13c; Limburger, 10@12c; bricks, 10@12c.

Eggs—Strictly fresh laid, cases returned, 17c; city cooler stock, 11½@12c; country, 9@ 0c.

Cattle—Good to choice fat cattle have advanced about 25c during the week, closing steady to strong for all classes. Good to choice 5.60@5.75; poor to medium 4.35@5.45; mixed stockers 3.10@3 80; selected feeders 4.25@4.90; good to choice cows 3.50@4.50; heifers 3.20@5.00; canners 2.25@3.05; bulls 2.65@4.40; calves 4.00@7.00; fed Texas beeves 4.40@5.25.

SHEBOYGAN FALLS, Wis., Dec. 20—Twelve factories offered 758 boxes of cheese on the call board to-day, and all except 83 were sold as follows: 280 cases Young Americas at 12 cents; 123 at 11⅞ cents; 75 at 11¾ cents; 35 Longhorns at 12⅜ cents; 70 Daisies at 11½ cents; 31 Twins at 11 cents, and 61 at 10⅞ cents. Adjourned to Wednesday, Jan. 3.

MANITOWOC, Wis., Dec. 20—The dairy board closed its weekly meetings to-day for this season. Offers to-day were: 100 boxes Daisies, 200 boxes Young Americas. All sold at 11 cents.

NEW YORK, Dec. 23 —Butter—Extra western creamery 27c firm. Ladles 17@18c, extra June 25@25½c. Trade quiet. Receipts 2800.

Eggs—Fresh eggs 23@24c; refrigerators 12@15c. Receipts 5500.

BOSTON, Mass., Dec. 23.—Butter—Market steady 27c.

Cheese—12½@13c.

Eggs—Market remains about the same. Fresh eggs in good demand.

WASHINGTON, D. C., Dec. 23.—Butter—Market firm. Extras 27½c; choice firsts 25c; fine imitations 21c.

PHILADELPHIA, Pa., Dec 23. Butter—Market firm, extra creamery 27½c prints 29c.

KANSAS CITY, Dec. 23.—Butter—Extra creameries one cent lower. Trade dull.

NEWARK, N. J Dec. 23.—Butter—Market firm, 27c for strictly extra Elgins. Receipts fair.

NEW ORLEANS, La., Dec. 23.—Butter—Market steady, fairly active 27@2,½c.

Eggs—Storage eggs 14c.

Cheese—Unchanged.

BALTIMORE MARKET.

BALTIMORE, Dec., 21—Butter—The conditions that have been prevalent in the market for some time past still obtain, and in a large degree we can only repeat what has formerly been reported. The receipts are quite moderate of all kinds and grades, below the wants, indeed, of choice fresh creamery and fine imitation. Some of the usually fancy marks of creamery are showing slight wintry defects, but these in the prevailing scarcity are not so disastrous as would be the case if there were more lots to choose from. Former figures are well maintained, and we even mark them up slightly on some grades There is still a good demand for choice fresh gathered cream creamery, and very little indeed coming to hand. Fancy imitation and fine ladles have not put in appearance, although some good ladles have been offered this week and have been sold at our revised quotations. The lots of cold storage butter remaining unsold are few, and quality poor, as far as has been reported. Receipts of roll butter continue very limited in quantity, and are sold promptly to eager customers. Store-packed stock is also in light receipt and active demand. Baking butter all sold up close to arrivals.

Creamery Separator, extras, 27@28; firsts, 25@26; seconds, 23@24. Creamery Gathered Cream, extras, 24@25; firsts, 23; seconds, 21@22. Creamery Ohio, extras, 25; firsts, 22@23; seconds, 20. Creamery Imitation, firsts, 19@20; seconds, 17@18 Iowa & N. W. Ladle, firsts, 19; seconds, 16. Ohio & Indiana Ladle, firsts, 18@19: seconds, 16. Ohio Rolls, extras, 19@20; firsts, 18: seconds, 16@17. W. Va. Rolls, extras, 18; firsts, 17; seconds. 16. Ohio & W. Va. Storepacked, extras, 17; firsts, 16: seconds, 15. Creamery Blocks (2 lbs.), extras, 28; firsts, 27; seconds, 25@26. Creamery Prints (½ lb) exeras, 29; firsts, 28: seconds, 25@26. Md , Va., & Penna. Prints, extras, 24@25; firsts, 22@23; seconds, 20@21.

Cheese—Receipts light, demand very good; market steady.

N. Y. State Cheddars, fine, 12¾@13; choice, 12¼@12½; fair. 11½@11¾. Flats, fine, 13; choice, 12½@12¾; fair, 12¼@12½. Small, fine, 13¼@13½; choice, 13; fair, 12½. Ohio Flats, fine, 12@12¾; choice, 12¼@12½; fair, 11½@12. Ohio Picnic, fine, 13@13¼; choice, 12½@12¾; fair, 11½@12¼. Swiss cheese, fine, 12@12½; choice, 11½@11¾; fair, 10½@11.

Eggs—The receipts of choice fresh eggs have been more liberal the past few days; the demand for this kind continues good; market steady as quoted. Cold Storage—There are all kinds being offered, consequently there is an easier feeling in the market. All good to choice marks meet with prompt sale at 20 cents.

G. M. LAMB & BROS.

301 Exchange Place.

Latest quotations for fancy creamery; Baltimore, 27@28c; St. Louis, 26 26½; Cincinnati 28c; Buffalo, 27c; St. Paul 25½c; Minneapolis, 25½c; Detroit 27c.

LIVERPOOL, Dec 23—Butter—Finest United States 95s; good, 75s.

Cheese—American finest white, 57s; American finest colored, 59s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line

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Wanted—Second hand Sharples separator; one driven by steam only. Address JERSEY FARM DAIRY CO., 1015 Russell Ave, St. Louis, Mo

A combined cheese and butter factory for sale on easy terms. Receives 7,300 pounds of milk in best season. H BILGRIEN Iron Ridge, Wis.

Four choice O. J. C. boars for sale; stock direct from L. B. Silver Co., originators of O. J. C. swine. G. L. BURLESON, Sumner, Wis. 45-tf

Situation as manager or superintendent of stock or dairy farm. Understand breeding of stock. An up-to-date and practical farmer of years' experience. Recommendations, etc. Address No. 9, care Hoard's Dairyman 45-3

"ALPHA=DE LAVAL"

Cream Separators

"ALPHA"—DE LAVAL MACHINES possess every merit to be found in any other separator made—they do everything any other separator can do,

IN ADDITION:—

They skim one-tenth to three-tenths closer in test percentages than any other separator can under practical conditions of operation.

Their actual capacity is twenty-five per cent. greater than the claimed capacities of other machines of relative size and price.

They use just so much less relative power by reason of their smaller size bowls and necessary speed of only 6,000 rev. per minute against larger bowls and speed of 8,000 to 25,000 rev. in other machines.

From the same reasons their cost of repairs is just so much less and their durability so much greater.

And again from much the same reasons their cream is the more uniform, more thoroughly and quickly churnable, and productive of superior excellence in butter.

They are alone of the improved "Alpha" disc type of construction, which protecting patents prevent the use of in any other machine, and which gives them their overwhelming advantages in many respects.

Their mechanical design and construction is the best. Their selling prices are absolutely maintained. Consideration of cost need not and does not enter into their manufacture.

"Factory" or "Dairy" catalogues upon application.

The De Laval Separator Company,

WESTERN OFFICES:	GENERAL OFFICES:	BRANCH OFFICES:
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	NEW YORK.	PHILADELPHIA.

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

For Sale at a bargain, a creamery, feed mill and water power in one of the best farming districts in state of Wisconsin. For full particulars address BOX 640, Marshfield, Wis. 46-3

An up-to-date dairyman, capable to take charge of modern dairy, understand all branches in that line, the handling of white and colored labor, milk for market, and making gilt-edge butter; have handled abortion successfully, made tuberculin tests, and everything necessary on an up-to-date place. Age 35, single, American. Will accept place in any part of U. S. Hold certificate of dairy school. A worker. References and security. Address No. 6, Hoard's Dairyman.

Position Wanted in large retail milk business by analyst and bacteriologist. Will do anything or go anywhere. W. R. CUTHBERT, 3944 Chestnut St., Philadelphia, Pa.

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46-tf

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

Wanted, Help—A married man as working foreman on dairy farm, to begin March 1st. Must be thorough and a hustler. Wife to help about dairy work. Wages $30.00 per month. Good house free. First-class recommendations required. This notice will appear but once, but all applications received before Jan. 10th will be considered. L. V. AXTELL, Perry, Ohio.

Creamery for Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

Fine Dairy and Creamery opportunity, South. Inducements offered. P. O. BOX 281, Atlanta, Ga. 42-tf

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs 1 oz. butter in 7 days) by Ben Houghton 39476. A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis 38-tf

Wanted a position by an experienced butter and cheese maker. Student of Cornell Dairy School. Best of references from late employer. Address EDGAR BARNES, Linwood, N. Y. 44-tf

Holiday Excursion tickets will be sold at all stations on the North-Western Line (C. & N. W. R'y, C. St. P. M. & O. R'y, S. C. & P. R. R., and F. E. & M. V. R. R.) to all other points on this system, within 200 miles of the selling station, at greatly reduced rates, December 23, 24, 25, 30 and 31, 1899, and January 1, 1900, good until January 2, 1900. Apply to agents Chicago & North-Western R'y for full particulars. 45-2

A B C IN BUTTERMAKING.

In our answers to correspondents, we have frequently advised them to procure Mr. Monrad's latest book.

Under the above title the author has written what is truly a book on the first principles of buttermaking and we heartily recommend it to any dairyman who is taking the first or last steps in the art and science of making good butter. Theory as well as practice is treated of, and the places where the novice is most liable to stumble are pointed out and methods indicated for bridging or avoiding them all together.

The book can be obtained of this office for $.050 post paid.

Annual Meeting of the American Guernsey Cattle Club.

ED. HOARD'S DAIRYMAN:—The annual meeting of the American Guernsey Cattle Club was held at the Fifth Avenue Hotel in New York City on Dec. 13th. It was one of the most interesting and well attended of any meetings ever held. Several very important matters were discussed and acted upon.

The Secretary in submitting his report of the year contrasted same with that of the last few years and it was shown that the business of the club had nearly doubled in in five years. About forty-five per cent of the entire number of entries and transfers had been put on the books during that time.

The committee appointed one year ago to have charge of the re-arrangement and equipment of the office of the club gave a review of the work accomplished. After careful investigation it was decided to continue the card system of records. Accordingly a new form of cards has been gotten that will give a complete history of each animal on a single card. The interiors of the safes have been fitted with filing devices of the latest and most approved pattern and the cards arranged alphabetically in same. With the new arrangement the work of examining the papers as presented for entry will be greatly facilitated. A fire proof office building was thought to to be a question that sometime in the future the club would be called upon to meet.

A building fund was suggested by the Secretary in his report and the club instructed the Excutive Committee to adopt the suggestion and invest during the year $1,000 for said purpose.

The constitution of the club was amended so that the annual meetings will hereafter be held in the month of May instead of December.

The committee to whom was assigned the task of preparing a new scale of points reported one. This brought out a great deal of very interesting discussion which was very valuable to all present. The scale submitted seemed to meet with general approval and was referred back to the committee for a few slight changes in the distribution of the number of points assigned to the different heads, and will then be published by the committee as the standard adopted. This scale will be the first one to bring the makeup of the dairy cow prominent with her utility, rather than fancy breed characteristics the leading feature.

Great interest centered in the results of the Home Butter Tests which the club has conducted during the year. At the last annual meeting of the club $300 was appropriated for prizes for the best year's record made by single cows and by herds of five. The conditions of the competition included the reporting of the weights of the milk to the secretary each month, and the sending of a composite sample once a month to the Experiment Station in the state in which the cow was owned. These samples were submitted to the determination of butter fat by the Babcock method and the results reported to the Secretary by the stations.

Several times during the year some one from the stations, or a good responsible party, was sent to the farms where the cows were located and weighed the milk and sampled same, so to check the owners in their work. In no instance has any suspicion of unfair work been seen, and in case of the single cows making the largest records special pains has been taken to have the work freely and frequently inspected by the party from the Wisconsin Experiment Station who conducted the analytical work.

The result of the year's work bears a great significance to the dairy cow as well as to the Guernsey in particular. They show the best records that have ever been made, where backed by any experiment station or public supervision. A careful estimate of the feed and a description of the manner of handling the cows was kept. These will soon be issued from the office of the club in the detailed report of the work, and will also be sent to the agricultural press within a week or two, or just as soon as it can be drawn from the records. The following figures show the summary of the work:

RESULTS OF 1899 COMPETITION HOME BUTTER TESTS.

NAME OF COW.	Date Calved.	Age.	Lbs. Milk.	Per Cent Fat.	Lbs. Butter Fat.	Lbs. Butter.
Single Cows.						
J. H. Beirne, Oakfield, Wis.						
Lily Ella 7240	Dec. 7, 1898	5	12,282.68	6.421	782.16	912.5
Lilyita 7241	Dec. 7, 1898	5	12,812.73	5.691	710.53	828.95
Geo. C. Hill & Son, Rosendale, Wis.						
Countess Bishop 7869	Mch. 20, 1898	4	7,387.3	6.416	452.23	527.71
L. P. Morton, Rhinecliff, N. Y.						
Imp. Doutta Galla 4th 7655	Apr. 15, 1898	7	7,410.75	4.961	390.63	455.7
Louise of Ellerslie 8930	Oct. 10, 1898	3	3,962	5.935	234.07	273.11
Herds.						
Geo. C Hill & Son, Rosendale, Wis.						
Countess Bishop 7869	Mch. 20, 1898	4	7,387.3	6.4·6	452.33	527.71
Madame Tricksy 6519	Apr. 14, 1898	6	7,024.6	5.854	405.19	472.71
Lady Bishop 6518	Mch. 29, 1898	7	6,608.9	5.395	381.1	444.63
Pristoun 6570	Nov. 26, 1898	7	6,868.3	5.191	355.68	414.95
Naunon 6569	Mch. 24, 1898	9	6,338	5.508	351.7	410.31
Totals			34,227.1	28.364	1,946	2,270.31
Average per cow			6,845.42	5.672	389.2	455.062
L. P. Morton, Rhinecliff, N. Y.						
Buda 7178	Mch. 5, 1898	6	8,605.5	5.4	434.05	506.39
Quibble 8017	Oct. 25, 1898	6	8,894.75	4.668	409.9	478.23
Imp. Doutta Galla 4th 7675	Apr. 15, 1898	7	7,410.75	4 961	390.63	455.7
Quietness 6018	Oct. 25, 1898	8	5,910.5	6.053	350.55	408.99
Imp. Villet's Gem 8664	Mch. 16, 1898	5	6,986.75	5.14	346.98	404.83
Totals			37,808.25	26.222	1,932.11	2,254.14
Average per cow			7,561.65	5.244	386.42	450.825

The officers for the ensuing year were elected as follows:

President, James M. Codman, Brookline, Mass; Vice Presidents, A. J. Cassatt, Philadelphia, Pa.; Sidney Fisher, Minister of Agriculture, Canada. Member Executive committee for four years, Francis Shaw, Boston, Mass; Secretary and Treasurer, Wm. H. Caldwell, Peterboro, N. H.; Committee on new members, Francis Shaw, Boston, Mass., N. K. Fairbank, Chicago, Ill., E. T. Gill, Haddonfield, N. J.

Building an Ice House.

ED. HOARD'S DAIRYMAN:—In 1895 we built an ice house adjoining the north end of our dairy, which measures twenty feet on that side. Using thirteen-foot rough hemlock boards, we laid out the building thirteen feet north. Three chestnut posts, sided on two sides to six inches, were set up in the ground on the east and west sides. Five similar posts were set across the north twenty foot side.

All the north posts were cut off to correspond with gable elevation of the dairy. Two six inch hemlock boards nailed on top of the side posts made a plate 2×6. A ridge pole and two gallows plates made from chestnut poles ran from the three north center poles to motises in the north dairy rafter, and the frame was done. This was boarded up outside and inside with rough hemlock boards and the space filled in with sawdust. Plenty of air and daylight and some sunshine come in at the top. The roof was made of the same boards, by laying two 8-inch boards flat, four inches apart, and one over the space for a batting. A door for filling was put in the east side, and a door made into the dairy for filling the ice chest.

We set the north gallows posts so 13-foot boards would splice on them, alternating from side to side. As a 19½ foot garment would not cover a 20-foot body, we cased the north sides of the corner posts to fill out. This house goes into the ground about a foot, with drainage. In the winter of '98-99 we put in thirty-eight 2-horse loads. It would hold forty-five or fifty. The posts are nine or ten feet.

During the hot months of 1899, we were making from 400 to 500 pounds of butter per month, and handling 100 to 125 quarts retail milk per day, besides all the ice used in the house and given to neighbors, and had three layers of ice in the bottom of the house, when the season ended. So the thirty-eight loads kept reasonably well.

Anyone can figure the cost for themselves. It isn't much. Anyone can spend as much more as they like for luxury in an ice house, but another dollar isn't necessary to keep the ice. Keep the bottom tight and the top open, plenty of saw dust or shavings on top to tread down around the edges where holes melt in May and June. About six inches of saw dust was put on the leveled earth bottom under the ice and four inches around the edge of the ice inside the lining. Saw dust was swept over each layer of ice to fill up cracks as the packing progressed. However, if the outside is kept snug, one needn't worry much about the crevices between the cakes.

Southport, Conn. E. C. BIRGE.

A Progressive New York Dairyman.

ED. HOARD'S DAIRYMAN:—I have been a reader of your paper for about one year and am very much pleased with it as I get more knowledge from it than from any other source that I have ever found.

Am very much interested in the feeding columns. We make butter, sell to yearly customers at twenty-five cents per pound; make 250 to 260 pounds yearly from each cow (usually about half heifers). Have used pure Jersey bull with native cows to start with, and now cows are all high grade Jerseys, weighing probably from 650 to 900 pounds; skim milk goes to pigs and calves and chickens.

I try to feed a balanced ration or nearly so. Am feeding now twenty pounds silage, ten pounds mixed hay, (clover and timothy), a little straw, four pounds corn and oats

HEART DISEASE

Some Facts Regarding the Rapid Increase of Heart Trouble.

Heart trouble, at least among the Americans, is certainly increasing and while this may be largely due to the excitement and worry of American business life, it is more often the result of weak stomachs, of poor digestion.

Real organic disease is incurable, but not one case in a hundred of heart trouble is organic.

The close relation between heart trouble and poor digestion is because both organs are controlled by the same great nerves, the Sympathic and Pneumogastric.

In another way also the heart is affected by the ferm of poor digestion which causes gas and fermentation from half digested food. There is a feeling of oppression and heaviness in the chest caused by pressure of the distended stomach on the heart and lungs, interfering with their action; hence arises palpitation and short breath.

Poor digestion also poisons the blood, making it thin and watery, which irritates and weakens the heart.

The most sensible treatment for heart trouble is to improve the digestion and to insure the prompt assimilation of food.

This can be done by the regular use after meals of some safe, pleasant and effective digestive preparation, like Stewart's Dyspepsia Tablets, which may be found at most drug stores, and which contain valuable, harmless, digestive elements in a pleasant, convenient form.

It is safe to say that the regular persistent use of Stuart's Dyspepsia Tablets at meal time will cure any form of stomach trouble except cancer of the stomach.

Full sized package of these tablets sold by druggists at 50 cents. Little book on stomach troubles mailed free. Address F. A. Stuart Co., Marshall, Mich.

Your Success

depends largely upon the success of the firm you work for.

You will find that success is not very elusive if you take the agency for

The Ladies' Home Journal
AND
The Saturday Evening Post

because these are two of the most successful periodicals in America.

We want reliable, competent, ambitious agents in every town.

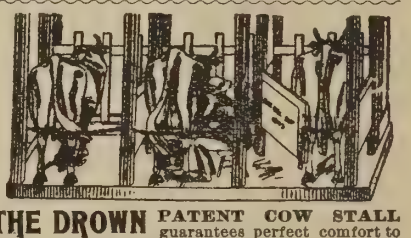
The commissions on all subscriptions, and the rebates for large clubs, are liberal enough to make every good agent happy.

And $18,000 in *addition* to all commissions and rebates, which is to be divided among 764 of the best agents at the end of the season, will add a good deal to that happiness.

Write for particulars.

The Curtis Publishing Company, Philadelphia

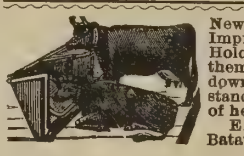
WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D. Independence, Iowa.



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.



Scott's Perfect Swinging And Self Closing **Cow Stanchion**
Each cow shuts herself in place.
CIRCULARS FREE.
B. C. SCOTT,
211 Beach Street,
Bridgeport, Conn.



Newton's Improved **COW TIE**
Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
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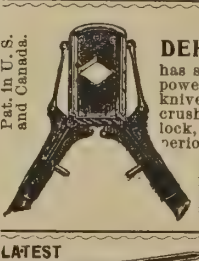
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NEVER BUY ANYTHING
Simply because it is cheap. But when the least expensive is the best, why not use it?

WHAT ALL DAIRYMEN SAY
Must be so. Send for circulars with up-to-date testimonials from up-to-date men.

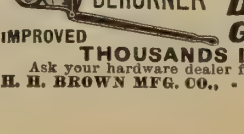
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DEHORNING CLIPPER
has shortest leverage, greatest power, the only reciprocating knives, smoothest cut, will not crush horns, knives cannot interlock, interchangeable parts. Superior to all others. Fully guaranteed; catalog free. The Eureka Dehorn'g Clipper Co. Ltd., South Lyon, Mich., U. S. A., or W. S. Young, McPherson, Kan.

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IMPROVED **Every Dehorner Guaranteed**
THOUSANDS IN USE.
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mixed and six pounds buckwheat middlings, with some of the hulls with it. The buckwheat feed is $10.00 per ton; corn meal, $15.40; oats I have. Cows commenced to freshen August first; have about two or three freshen every month but April, May, June and July; usually feed some oil meal, but have not fed any yet this winter, as it is $1.50 per cwt. Gluten feeds are not sold here. Please set me right. We do not feed all our cows the same quantity.

Ellicottville. N. Y. C. E. C.

The yield of butter reported above is very far above the average and in a way satisfactory. However, we incline to the opinion that these cows are not doing as well as they might, and that our friend should not be satisfied until he is receiving at least 300 pounds of butter for each cow in his herd, including heifers. To accomplish this it may be necessary to dispose of some of the animals now in the herd and possibly some of those which command the most admiration. But in the dairying as nowhere else "handsome is as handsome does." A cow that will not yield 260 pounds or more of butter per year should not be retained. This will raise the average very decidedly. To ascertain which of these cows, if any, fall below this standard it is indispensible to keep a daily record of each cow's production and to test samples of her milk often enough to give a fair average as to quality.

From the feeds named we can do no better than suggest the following as the average daily allowance for each cow:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	.14
10 lbs. clover hay	8.53	.48	3.96	.16
4 lbs. corn and oats	3.56	.34	2.08	.17
8 lbs. buckwheat middlings	5.24	1.32	2.00	.33
Totals	22.61	2.40	10.84	.80

Of course these buckwheat middlings "with some of the hulls included" are of rather uncertain value. The chances are that there will be somwhat less protein and fat in the ration above given, than the figures would seem to indicate.

A Feeding Problem From an Ohio Milkman.

ED. HOARD'S DAIRYMAN:—We have a dairy of 50 cows and sell milk in town for 6 cents per quart in winter, 5 cents in summer, and in bulk, 16 cents per gallon. We have plenty of mixed clover and timothy hay, corn and cob meal and oats, and have contracted our bran for $14.50 per ton; can buy oil meal for $30 per ton, but think that is too high in price. Will you please give us a balanced ration of the above feeds, and then suggest anything that might be more profitable. We had about 30 acres of corn fodder, but have fed a great portion of it; will be all gone by middle winter. We feed it whole, once a day, with all the hay they will take twice a day. My cows are mostly Jerseys. We would like to feed them for the best profit and make the most of what feed we have. We are readers of HOARD'S DAIRYMAN and think it a valuable paper. A. V. J.

Elyria, Ohio.

With such a market and such cows as are described above we are very confident the more liberal the feed the greater will be the profit; and by liberal we have regard to the kind and quality of the feed as well as its quantity. Therefore we offer the following suggestion:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay	13.80	.72	5.94	.24
4 lbs. corn and cob meal	3.56	.26	2.52	.14
8 lbs. bran	7.05	1.00	3.09	.24
1 lb. oil meal	.91	.29	.33	.07
Totals	25.32	2.27	11.88	.69

We have specified corn and cob meal in the above formula because that is the form in which our inquirer puts it, but when bran is fed in connection with corn we ordinarily prefer the ground corn (corn chop) without the cob. In the event that he can as conveniently provide corn chop, we would substitute 3 lbs. of it for the 4 lbs. of corn and cob meal. An additional pound of oil meal might also be found profitable with some cows.

Prizes at the Ohio State Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The question has recently been asked whether the prizes offered on butter and cheese at the next meeting of the Ohio State Dairymen's Association, at the Ohio State University, Columbus, February 13th and 14th, are open to a certain set of dairymen, or whether it is open to all dairymen, and dairywomen as well.

The Association desires to announce that these prizes are open to all persons within the state of Ohio, without reference to race, color or sex. Neither is it necessary to become a member of the Association in order to compete for these prizes. The cash premiums offered amount to $159, and other premiums are worth about $75 more. The Association has thrown the doors wide open to all persons of the state, whether they help to support the Association or not. It is hoped, however, that all persons interested in dairying, whether exhibitors or not will support the objects of the Association by joining it, which they may do upon the payment of $1.00.

It is also hoped that all persons who send exhibits will attend the Association, but this is not necessary as the exhibits may be sent by express, prepaid to the undersigned, care of Townshend Hall, Ohio State University, Columbus, where they will be received and placed upon exhibition. Every package of butter will be scored, and the score cards will be given showing score of exhibit, and also highest, lowest and average score of exhibits in that class. Persons whose exhibit scores above 90 points will be awarded a diploma.

After the meeting, unless otherwise ordered, the exhibits will be sold by the Secretary, and money promptly remitted to the exhibitor. For further information, send to Secretary L. P. Bailey, Tacoma, Ohio, for a copy of the program and premium list.

THOMAS F. HUNT,
Chairman Committee on Exhibits.

But One Standard of Quality.



There are three distinct types of Singer sewing-machines for family use, but there is only one standard of quality—THE BEST. There is a wide range of prices, depending on the style of cabinet work and ornamentation, but whether the price be the lowest or the highest, the working quality of the machine is the same and has been fully tested before leaving the factory.

Sold on Instalments. You can try one Free. Old machines taken in exchange.

SINGER SEWING-MACHINES ARE MADE AND SOLD ONLY BY

THE SINGER MANUFACTURING CO.

OFFICES IN EVERY CITY IN THE WORLD.



TO BUY at the right price, go to headquarters. Operating my own tin plate works, with an output of . . .

1000 MILK CANS

per day, comprising the various patterns used throughout the country, puts me in a position to interest you.

No Creamery or Cheese Factory

should be without a copy of my 1900 handsomely illustrated catalogue, *which may be had for the asking.*

FRANK STURGES,
Successor to THE CHICAGO STAMPING CO. **CHICAGO.**



WANT A CUTTER? Let us send you description and picture of our **Swell Body Cutter, No. 411.** Built of selected stock, first class workmanship throughout, and finely upholstered in raw silk, for **ONLY $13.90.** Other styles at equally low prices.

EVERYTHING FOR THE FARMER. We can save you money on Corn Shellers, Feed Cutters, Sweep Mills, Horse Powers, etc. Vehicles, Harness and Agricultural Implements. Don't miss our **big new catalogue.** It is full of money-saving bargains. Sent **free.**

$4.98 BUYS A STOCK TANK HEATER and we pay freight east of Mississippi river when cash comes with order. The **"KAZOO"** is the most satisfactory. Made of **galvanized steel.** Built on new principle. Holds fire and keeps water warm 24 hours. Uses little fuel. Will go in a barrel. Absolutely fire proof.



EUREKA STEAM FEED COOKER saves from ⅓ to ⅖ your feed. Made of heavy **boiler steel** tested to 100 pounds pressure. Guaranteed to be the best cooker made. **Price Only $21.50.**



Cash Supply & Mfg. Co., Dept. C, Kalamazoo, Mich.

Here's Another Instance

Where the other machine came out second best in a contest with the **Reid** Long Spindle Separator. In a letter from the Delta (Pa.) Creamery Co., under date of November 27th, 1899, Mr. Hitchcock, the manager, says:

"During a contest at our Delta Creamery between the Alpha and Reid Separators, ***I found the Reid to be decidedly the closest skimmer and very much the better machine to operate."***
(Signed) HENRY HITCHCOCK, Mgr.

And here's another case where the Reid proved itself to be the closest **skimmer.**

"Our Improved Reid Separator runs fine and does good work; no trouble at all. The State Inspector called the other day and I ran him a test of two samples; one was .015 and the other .02. ***He said my Reid beat the Alpha,*** *for he came from another creamery which used Alphas and their test showed .03 and .05. The Reid is O. K."*
Fairmont, Minn. *AMBER LAKE CREAMERY CO.*
(Signed) R. L. BRADBURN, Butter Maker.

These are but samples of many letters that we have received in praise of the

REID LONG SPINDLE SEPARATOR

Every one of which is a voluntary testimonial on the part of the writer to the merit of the most efficient skimming machine ever built. Read the concluding paragraph of the following letter from the Fayette (Wis.) Creamery Co.:

"Our new Reid Long Spindle Separator is skimming at the rate of 2,536 lbs. per hour. Yesterday two tests were made; one in the early part of the run and the other after the machine had skimmed about 6,000 lbs. The tests were made by our butter-maker in the usual way, and neither test showed more than a mere trace of fat. We are pleased with the machine in every way. It requires so little oil that it is hardly worth taking into account. One filling of the oil-cup will last for a run of 10,000 lbs.
This testimonial is not paid for—was not asked for—but is given as a voluntary tribute to a machine of merit" *(Signed) L. B. LOWRIE, Sec'y.*

Separator book, facts about pasteurization and the Reid Pasteurizer and catalogue of Creamery Supplies—all free if you write for them.

A. H. REID, 30th and Market Sts., PHILADELPHIA, PA., and CEDAR RAPIDS, IOWA.

Pure Food Legislation.

[Extract from an Address by Hon. H. C. Adams, before the Maine Dairymen's Association.]

The force which has been behind most of the pure food legislation of the United States for the last fifteen years has been the farmer. Since he engaged in the battle for honest food products, most of our pure food legislation has been enacted. The dairy commissions of the several states have been brought into life, because the farmers demand not only laws, but the machinery to enforce them. When the American farmer is roused, he keeps everybody busy. He may be childish sometimes, but nobody accuses him of being weak when he stirs his class to action in a movement that is right. The American farmer can get along without flattery. He ought not to get along without justice. He sometimes nods and sleeps over public questions, but when he goes at it in earnest, to take a hand in their settlement, political rings are broken, unwise political bosses go up in the air, golden collars become a rope of sand, and popular judgment is crystalized into law. Farmers in different sections of the country may have temporary aberration of mind, and take up fads exploited by agricultural demagogues that are prejudicial to the public good. They may sometimes be led into unreasoning denunciation of wealth, of political parties, of courts, and of other classes, but the great bulk of farm judgment to-day is stronger and better than it ever was, because it is more intelligent. It can be relied upon if it can be secured. The farmers beseiged Congress, and fairly compelled that body to pass the oleomargarine law of 1886. It was charged then, as it is now, that that act was class legislation. It was an act to prevent the destruction of the great butter industry of this country by a business which depends for its success upon deceiving the public. If that act had been class legislation, would not the olemargarine interest, which was aggrieved by it, have used the money, of which it had an ample supply, to secure legal talent, which would have compelled a favorable decision from the courts, if it had a good case?

Oleomargarine laws have been upheld by the courts, not because they helped farmers, but because they prohibit the delivery to a man who buys and pays for butter, of something which is not butter. The dairy industry of the United States is of sufficient importance to be gracefully accorded any benefits which may come from the prohibition or limitation of a fraud in trade.

The butter product of this country has an estimated annual value of $300,000,000. All of the silver and gold products of the country for two years, could be bought with the product of the churn for a single year. Not only that, but the cow leaves behind her farms which are richer in fertility, and farmers richer in the knowledge which the mysteries of her life and product compel. The dairy business of this country has renovated thousands of farms, and hundreds of thousands of farmers. It has revolutionized the agriculture of my own state, as it has Iowa, and as it will Minnesota, Illinois and Michigan. It is the enemy of farm mortgages, the friend of the merchant, the manufacturer and men of all classes, except those who imitate the product, and claim a God-given right to copy the form of that product and steal its color. Only the limitations of state and federal constitutions should restrict the laws that hamper the traffic in counterfeit butter.

Oleomargarine has its rights. It has a right to be composed of lard, beef fat and cotton seed oil. It has a right to be sold under its own name and color, if not injurious to the public health. It has a right to be manufactured at a cost of eight cents per pound and retailed for twenty cents per pound, but it has not the right to crawl into market, in the clothing of a more costly product. The law of 1886 taxed oleomargarine two cents per pound. It should have been taxed ten cents per pound. The small tax was accepted because the act provided for the branding of packages, and thus guaranteed to first purchasers a knowledge of what they bought. No matter what is claimed by the friends or enemies of the olomargarine interest, this tax has greatly restricted the oleomargarine output. Eighty-seven million pounds were manufactured last year. Untrammeled by federal law, the product would have been five times that amount. But the law has been ineffective in this; the patron of the restaurants, boarding houses and hotels, where oleomargarine is used, cannot be informed as to what he is getting by labels upon original packages. He calls for butter, and gets a cheap counterfeit. While stamped by the government, the actual consumer is deceived. The simple fact is, that the great bulk of the oleomargarine product is eaten as and for butter.

It is said that good oleomargarine is better than poor butter. This is not disputed. But poor butter does not fool anybody. It may be poor and not very respectable, but it is honest. It advertises its own deplorable condition. It may look well, but even to the delicate senses of an oleomargarine advocate, its divorcement from the breath of new mown hay, and the scent of clover blossoms is most complete.

It is charged that the farmers of the country are leagued together to prevent poor men from getting cheap substitutes for butter. Poor men do not charge this, but the impassioned lawyers of the oleomargarine manufacturers do in their appeals to state and national legislatures. Farmers have not been very conspicuous in schemes to injure poor men. Most of them, at one time or another, have occupied positions in that class. Many of the gentlemen who run counterfeit butter factories are undoubtedly charitable and take genuine pleasure in relieving human want. Their distress about the improverishment of the laboring classes through the purchase of genuine butter may be sincere.

Two things they may not know. One is that the man who eats oleomargarine pays nearly or quite a butter price for it, and the other is that a poor man, above all others, having but little and buying but little wants that little good.

An effort has been made to array the dairymen of the country in opposition to the stockmen upon this question. In this all questions of public policy are left out and only class interests considered. Accepting this basis of argument, of what avail will it be to the stockmen to have oleomargarine sold and unrestricted and dairymen driven out of the business by tens of thousands; and these thousands of energetic men with their millions of capital employed in the stock business, increasing the supply of cattle, hogs and sheep, and thereby diminishing the price? Whatever strikes an unwarranted blow at one legitimate farm interest hurts all. Farmers should stand together in defense of oleomargarine legislation, first, because they should be good citizens and loyal supporters of laws to prevent dishonesty in trade; and, second, because the oleomargarine industry, as conducted, is a serious menace to the agricultural interest. The necessity of pure food legislation, as applied to oleomargarine, is recognized by thirty-two states, which have prohibited the manufacture and sale of that article when colored in imitation of yellow butter. Massachusetts has furnished the model for these laws. The Supreme Court of the United States has declared them to be constitutional. In that decision the following opinion is rendered:

"We are of opinion that it is within the power of a state to exclude from its markets any compound manufactured in another state, which has been artificially colored or adulterated so as to cause it to look like an article of food in general use, and the sale of which may, by reason of such coloration or adulteration, cheat the general public into purchasing that which they may not intend to buy. The Constitution of the United States does not secure to anyone the privilege of defrauding the public. The deception against which the statute of Massachusetts is aimed, is an offense against society, and the states are as competent to proteet their people against such offenses or wrongs as they are to protect them against the crimes or wrongs of more serious character. And this protection may be given without violating any right secured by the national constitution, and without infringing the authority of the general government, A state enactment forbidding the sale of deceitful imitations of articles of food in general use among the people, does not abridge any privilege secured to citizens of

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I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.
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ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.
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Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. Egerton, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
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Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
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Marquilla's Major 40804.
SIRE—Harry of Riverside 34169. DAM—Marquilla's Violet 69774, 31 lbs 1 oz. butter in 7 days. This bull is FOR SALE. Write for price.
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Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. McKERROW, Madison, Wis.

BLACK EARTH JERSEY HERD
is headed by Diploma's Victor 56310 sire, Recorder 29239; dam, Nice 68027, full sister to Merry Maiden 64949. Young bulls for sale reasonable Address, FRED STUBLEY, Black Earth, Wis.

Brown Bessie Herd.
FOR SALE!
Three BROWN BESSIE BULLS fit for service. Highly bred, first-class individuals. Solid colors. Good opportunity to secure "The Blood of The Winners." Prices reasonable.
H. C. TAYLOR, Orfordville, Wis.

Hood Farm Jerseys
For Sale—Beautiful solid light fawn bull calf, a great individual. Dropped May 30, 1899. Sire, Jessie's Welcome 47017. Dam, Pretty Countess 106481, test, 14 lbs. 9½ oz.: 2d dam, Ida's Countess 2d, by Gold Coast Jr., sire of 3 in 14 lb. list; 3d dam, Ida's Countess, by Ida's Pogis, sire of 5 tested cows. Write for price to HOOD FARM, Lowell, Mass.

EUROTAS
Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield.
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Jersey, Guernsey Cattle
Chester White, Berkshire and Poland-China SWINE,
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
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FOR SALE
GRANDSON OF
Exile of St. Lambert 13657
Sire of 79 Tested Daughters.
"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
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PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
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THE Evergreen Farm Herd of A. J. C. C. Jerseys is now headed by St. Lambert of Brodhead, whose pedigree is unequaled in the northwest. We should be pleased to have any one in want of Jerseys to write us for catalogue, stating just what is wanted. N. N. Palmer & Son, Brodhead, Wis.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

The Hillside Jersey Farm affords breeders of the west and southwest exceptional opportunities of obtaining high-class Jerseys of the Coomassie and St. Lambert strains, thereby saving them the excessive express charges from the east. King Coomassie 2d 19545, with 11 tested daughters, heads the herd; he has 42 3-16 per cent blood of old Coomassie, the best cow ever imported. Address
F. E. BRYANT, Carlsbad, New Mexico.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. Higinbotham, Prop.
J. D. Thompson, Supt. Fred Story, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. 224
Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
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THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners
Introduce Fresh Island Blood Into Your Herd.
Sires in Service:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want Visitors always welcome.
JOHN E. ROBBINS,
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PIGS Eligible to Registry, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W B. HARVEY, West Grove, Pa.

A Top Pedigreed POLAND CHINA SOW, bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR Solid color, well grown, robust Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. - J. P. BRADBURY, Pomeroy, Ohio.

the United States, nor, in any sense, interfere with the freedom of commerce among the several states."

This judgment seems to be unassailable. It includes Justice Harlan's famous statement that the constitution of the United States does not secure to anyone the privilege of defrauding the public. Every defender of organized iniquity, when hurt by state legislation, gets noisy about the rights guaranteed him by the national constitution. When afflicted by federal law he becomes a violent advocate of the state rights guaranteed by that same constitution. Justice Harlan, in one sentence, clears an atmosphere befogged with sophistry, with special pleading, with glib talk masquerading in the forms of constitutional argument, and the bitter wailings of men claiming in fact that one of the inalienable rights of an American citizen is the right to defraud another American citizen.

Pennsylvania prohibited, without qualification, the manufacture and sale of oleomargarine. New Hampshire required that it be colored pink The Supreme Court of the United States declared both laws unconstitutional. The decision was well grounded if the question of wholesomeness was not entertained. If the use of olemargarine is not inimical to the public health, its sale should not be restricted in the markets, if sold under its own name and color, any more than the sale of jackknives or Derby hats. Oleomargarine legislation must be upon reasonable lines. Unfair laws to protect farm interests are worse than no laws. They alienate men who think, and the farmers will never be so strong that they can afford to antagonize sound public judgment.

The wholesomeness of oleomargarine is a disputed question. In foreign hospitals its use is prohibited. Hygienic authorities declare it to be less digestible than butter. Samples have been analyzed by the chemists of the agricultural department of New York, which contained from five to twelve per cent of paraffin. This is considered an absolutely indigestible substance, The patents obtained for oleomargarine compounds show them to contain poisonous chemicals. However, it is possible to make oleomargarine which is simply less digestible than butter because it is composed of animal fats melting at a higher temperature than butter and having an inferior flavor.

Prosecutions can be had under the general pure food laws of the states if oleomargarine is so made that it is regarded as unwholesome.

Pure food legislation has greatly restricted the manufacture and sale of that abomination of the markets, known as filled cheese. Skim milk and lard form the bulk of this compound. It has inferior flavor and poor keeping qualities. Its manufacture and exportation nearly ruined our foreign cheese trade. In 1892 there were nearly two hundred factories making it in Wisconsin. The legistlature of 1895 prohibited its manufacture and sale. There is not a factory of this class in Wisconsin to-day, and there has not been for two years. The makers of honest cheese in our state, relieved from the competition of fraud, recovered their courage and are recovering their domestic trade. It takes time to restore our reputation abroad. Canada clubbed filled cheese out of her borders earlier than we, and usurped our place in European markets. She is improving and developing her cheese industry with marvelous rapidity. The Canadian government inspects her factories and takes up questions of cheap and safe transportation. Her people are not afflicted with a fear of the ghosts of paternalism. They believe it to be a province of government to develop the material resources of a country, even though benefits to a particular class of people and through the medium of administrative acts that might cause haggling in the Supreme Courts. The act of Congress which placed an internal revenue tax upon filled cheese of ½ of a cent per pound, has been of great value to our cheese industry. Its purpose is partly defeated in shipments abroad, because stamps are removed. But it was notice to the world that this government wants its food products sold upon their merits and under their own names. It has placed a burden upon the filled cheese industry that has driven a majority of the factories out of the business.

Pure food legislation should be both state and national. State legislation has been generally sustained by the courts, and has been effective. We need a comprehensive national pure food law. The Senate of the United States has recognized this necessity and appointed a special committee of investigation, of which Senator Wm E. Mason, of Illinois, is chairman. This committee has held a number of sessions in Chicago, and is collecting a mass of valuable testimony. The result of the work of this committee will undoubtedly be the introduction into Congress of a bill to prevent food adulteration. It will be argued, as it always has been when this subject has engaged the attention of Congress, that the federal government has no authority to regulate the traffic in food products; that the states alone can exercise police powers; that when Congress has interfered to require that counterfeit food products should be labeled, it has done so through an exercise of its taxing powers, and that only in this way can its authority be exercised. If this proposition is correct, its national pure food law would be worthless. Is it correct? The constitution gives Congress the power to regulate commerce between the states. It reserves to the states, in the 9th constitutional amendment, all powers, not granted to the genera government. But the power to regulate interstate commerce has been explicitly granted to Congress. It is exercised over railroads and in quarantine regulations. No other authority can exercise that power completely. Its powers over articles of interstate commerce is as clearly granted as over the postal service, which it controls without question. It exercises police power by prohibiting the transmission through the mails of mail matter, designed to corrupt or defraud the public. Has it not an equal right under the constitution to prohibit the transportation from one state to another of articles injurious to the public health, and determine what shall be required of manufactures and dealers, who send food products from state to state that are redolent with fraud.

A national pure food law would supplement the state laws and given the food products of this country better standing in foreign markets. It would aid the states which have by stringent laws, stopped the manufacture of adulterants within their borders, by stopping the flood of counterfeit foods that pours into their markets from other states. It may be urged that such a law would make superfluous the dairy and food commissions of the states. If this should prove true, it would conclusively demonstrate the merits of the law. The dairy and food commissions have been organized, not to create offices, but to stop deception and fraud. When deception and fraud in the manufacture and sale of food products shall have been stopped we can afford to pronounce a benediction upon the dairy and food commission and rejoice in the reign of honesty in trade. But a federal law, valuable as it would be, leaves a broad field for state legislation. The domestic trade in food products of the several states is enormous. As long as many men are smart and some men dishonest, the food of the people will be mixed, colored, coated, polished and poisoned, and watchful state care will be needed to limit the evil.

This question of the character of the food supply of 75,000,000 of people is not one to be settled by doctrinaires or hair splitting constitutional lawyers. It will not be settled by all the money and all the brains that are at the command of the manufacturers of counterfeit products. It will not be settled by ridicule, abuse or misrepresentation of the men who till the farms of the nation and produce most of its food. It will not be settled by court decisions, that in effect, deny the statement of Judge Harlan, that the constitution of the United States guarantees to no man the right to perpetrate a fraud. It will not be settled by the pleading of any class for the privilege of plundering somebody. It will not be settled by chemists and experts hired to give opinions. It will not be settled by legislators, who do not care for the public good, and who do not fear public judgment. It will be settled as it is being settled, by the voice of the consumers of food products, demanding laws which compel these products, if sold, to be honest and healthful, and by the American farmer claiming the right of way for the honest products of honest labor.

Request for Information.

Choking Cattle.

ED. HOARD'S DAIRYMAN:—Will R. L. Hinman, in speaking of Dr. McIntosh's remedy for choking cattle, in your last issue, and incidentally mentions a remedy of his own, please explain his method fully? Does he mean to put the stick clear through the cow's mouth, and tie string to opposite side of stick? I don't fully comprehend his meaning. He says to tie one end of string around end of stick, put it over head, and put stick well up in corner of animal's mouth, and tie the other end. Where does he mean to tie the end, and to what? J. H. M.

North Bridgewater, N. Y.

Tuberculosis.

There will be a meeting at the Brigg's House in Chicago, on Tuesday, January 2, 1900, at 11 a. m., for the purpose of discussing tuberculosis; its cause, the extent to which it exists, and the best methods of stamping it out. This is a matter of great interest to every stock grower and dairyman and all are earnestly requested to attend the meeting. This meeting is called at the request of the State Board of Live Stock Commissioners of Illinois.

B. H. ROCKWOOD.
S. HILL.
B. WHEELER.
Committee.



Cow Hopple
For Kicking Cows.
Either from habit or from sore teats. **Price 50c.** Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. **Price 25 and 50c.** The goods are warranted. Sent Postage Paid. Send postal card for circulars
Agents Wanted.
Henry Bassett,
Salem, New Jersey.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

GUERNSEY BULLS FOR SALE
Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by **OWEN BROS., Portage, Wis.**

Riverside Guernseys,
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns. Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y**

ROSENDALE GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

"Floriham" Guernseys.
First Prize Herd wherever shown, viz New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 189 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.

—FOR SALE—
THE HOLSTEIN BULL
"Belle of Verona's Clothilde Boy" No. 23408, H. F. H. B., bred by Smith, Powell & Co., Syracuse, N. Y. **W. M. BURR, Cazenovia, N. Y.**



Keep Your Milk Sweet...
By using
TINNED STEEL CANS
Made by the
Buhl Stamping Co.
Our Handbook is mailed free to dairymen who ask for it.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U. S. A.**

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

SHADY NOOK HERD
HOLSTEIN-FRIESIANS. 6 choice cows and 1 bull 15 months old FOR SALE; 5 bull calves. Choice Chester White Sows. Address, W. R. GATES, Prop., Fort Atkinson, Wis.

123 HOLSTEINS FOR SALE. 123.
Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to
DELLHURST FARM, Mentor, Ohio.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three third and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW
A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., Simonsville, Vt.

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS. Lacona, N. Y.

A CHRISTMAS GIFT.
Holstein Bull, Sir Tirania of Valley Mead, (22 mos. old), by Sir Natsey Baker 22413). A prize bull (by Judge Baker, and out of Natsey.) Dam, Tirania 4th 15861 (sister to Tirania 2nd, holder of world's 2-year-old 7 days' butter record, 22 lbs. 8 oz.) by the great prize bull Artis Peer, and out of Tirannia. Natsey's butter record is the largest in the advance registry, 34 lbs. 9 oz. 7 days. Tirannia holds the world's record in public test, 3 lbs. 2 oz. 1 day, for which she was awarded gold medal and $100; 7 days' butter record, 36 lbs. 11 oz. This bull is fit to head any herd in the country. Write for price and further particulars. KARLEN CO., Monticello, Wis.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON. Monroe, Wis.

Cost of Feeding a Cow One Year.

Figures from Filston Farm.

ED. HOARD'S DAIRYMAN:—Occasionally some of the dairymen readers of your paper send you accounts of the cost of feeding their dairy herds; in one such account I noticed, some three weeks ago, a farmer figured out that it did not cost him over $40 per cow per year for feed and maintenance.

This is so far different from my experience that I wish to give you in full, at the risk of tiring your readers, the plan and system, by which the 230 cows of the Filston Farm herd are maintained. I will take the result of the year 1898 as the basis. In preface I will say, we have considered the raising of calves to lactation, and the feeding of the bulls in the expense of maintaining the herd, and we credit the herd only with the milk and cream produced, and the increase of the herd. We do not make any credit for the manurial product, because that is the basis by which the cost of feeding is lowered. Now to take up the account in detail. The expense of the herd for the year 1898 was $16,000, and the gross profit for the milk and cream was $16,300, and the increase of the herd $850. The expense column shows that the cost of feeding was $9,200 or $40 per cow per year. The repairs, sundry expenses, freights, which includes milk tickets on the railroad, taxes, insurance, cans and salaries was $6,800 or $30 per cow per year.

It seems impracticable to feed heavy milking cows on less than 15 cents a day. The heifers and bulls require very much less, the ration, for instance, that is used for the cows is 4 pounds of bran, 4 pounds ground corn meal and 2 pounds cotton seed for the grain; which is not very far from 10 cents per cow per day. The ensilage is about 2 cents and the roughage approximates 3 cents a day. I know of a neighbor of mine, who receives about $400 per month for his milk; he feeds 50 cows and thinks he is making $200 a month profit. When he told me what he was feeding, I told him his grain ration alone cost him $165 a month, his salary account was $100, and his roughage, renewal of herd, taxes, and the multitude of other expenses was, at least, another $100 a month, and that if he cleared $35 per month he was getting a great deal.

I think a farmer that maintains a farm in conjunction with a dairy herd should credit the farm with the product at the market price and charge the herd with the same produce at the same price. I think also he should charge the herd, not only with the labor of his assistants, but with his labor at the farm price. His books would then show him whether he should drop farming and buy his feed, whether he should drop dairying and go to shoemaking, or whether he should continue the whole outfit, if he is making money. I think that most farmers who are in dairy business, are making their milk at a net loss, and my object in placing this article before your readers is to show that on a large dairy farm with everything favorable, with the most economical management, expenses are found to be extremely high. The milk of this herd is sold at 18 cents a gallon, and the herd is cared for and maintained on the order of one man to every 15 cows and the young stock and bulls. But not all of his salary is charged to the dairy, because each man has some spare hours in a day to put on the farm, or as we manage it, when five men are in a stable, two of them between milkings are working the farm. The cows of this herd, for everything in milk, including heifers that had not finished the year when the books were closed, made 5,200 pounds of milk a year, and there were 175 under this heading. The rest of the herd are youngsters and males. I shall be glad to hear from any of your readers on this statement, and stand ready to exemplify any point on which they may wish to be informed. I would add that your paper has been of the greatest assistance to me in my dairy work, and I have no hesitation in following its teachings. A. B. GARDINER, JR.

Baltimore, Md.

Several Utah Queries.

ED. HOARD'S DAIRYMAN:—Please give me a ration from the following: Alfalfa hay, $9 per ton; bran, $15; middlings, $17; pure flax meal, 6 cents per pound; ground oats, $30 per ton; corn meal, $30. Sugar beets and carrots can be bought for $5 per ton. Would it pay to feed them?

Feeding ten cows, pure Jerseys and grades, would it pay to chop all or a portion of the alfalfa used? Selling milk at 12½ cents per gallon, wholesale. Butter is 30 cents at retail. Perhaps it would be more profitable to buy a separator and sell butter instead.

Kindly give me the names and prices of several standard works on dairying, and dairy farm work, from calf to pail.

I have a cow, sixteen years old, just dropped a calf; milked about nine quarts daily. She is in very poor flesh. Is there anything I can do to help her? H.

Salt Lake City.

The first of the above questions is, perhaps, best answered by referring the inquirer to the Kansas experience as reported in the Bulletin, which was published week before last. They found there that alfalfa hay and corn meal and ground kafir corn made an excellent and well balanced ration. Of course corn meal is not worth $30 a ton in Kansas, as it is quoted in Utah, but sometimes the dearest feed is the cheapest. Possibly no one can tell, except by actual trial, whether it will afford more profit to pay $30 for corn meal or $15 for bran to feed in connection with alfalfa hay. Our impression is that the bran and middlings would prove the cheaper, but we are by no means certain. We cannot think either sugar beets or carrots would be a profitable feed, unless they were used as an appetizer and corrector of the system rather than for simple nutriment.

These are questions that cannot be satisfactorily answered in an office, neither will the experience of one man necessarily furnish a rule for the conduct of some other man. It is perhaps nowhere else more true than in feeding dairy cows that circumstances alter cases, and in a very large way each man must be a rule unto himself. By this we do not mean that he should disregard the experience of others or that he should reject the suggestions which may be offered him by others from time to time, but in all such cases pursue the good rule, trying all things, proving all things, and adhering to those which seem best for him. It is entirely within the range of probabilities that these roots may prove beneficial. With this explanation and these reservations, we suggest that our friend try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa hay....	18.32	2.20	7.92	.14
4 lbs. bran.	3 52	.50	1.54	.12
4 lbs. corn meal.....	3.56	.32	2.67	.17
Totals	25.40	3.02	12.13	.53

We have suggested corn meal above partly out of consideration for the fact that both alfalfa hay and bran tend to the production of soft butter, and if butter is to be made, as suggested below, the corn meal will tend to correct this tendency on the part of the hay and bran.

Whether it will pay better to sell milk at 12½ cents per gallon or butter at 30 cents per pound will depend, somewhat, on the quality of the milk. If these Jerseys and Jersey grades give milk containing 5% of fat, one hundred pounds of this milk will make about 6 lbs. of butter which, at 30 cents per pound, will come to $1.80. The skim milk and buttermilk remaining, if fed to pigs and poultry, will more than pay the expenses of manufacturing the butter, and we may, therefore, call the above sum the net income from 100 pounds of milk when butter is made. A gallon of milk weighs approximatly 8.6 lbs., which shows, at 12½ cents a gallon, the milk is bringing a little less than $1.50 per hundred; thus leaving 30 cents per one hundred lbs. of milk in favor of making butter.

In answer to the third question, we suggest to our inquirer that he can do no better than to purchase Gurler's American Dairying ($1.00), Wing's Milk and its Products ($1 00) and Henry's Feeds and Feeding ($2 00). These books can be had at publishers' prices from this office.

It is more than possible that the trouble

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

A TRIUMPH OF SCIENCE.

To economical and up-to-date Butter Makers, the Best Color to use is the

ALDERNEY
BUTTER COLOR

It contains all the requirements to make perfect butter and is declared by all who use it, as a triumph of science.

LET US SEND YOU A SAMPLE—IT'S FREE.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO: 14 N. Clark Street. BOSTON: 98 Commercial St. PHILADELPHIA: 109 S. Second St.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



AMERICAN
Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023 BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER. St. Marys, Ont., and **S. M. BARRE,** Winnipeg, Man.

with the old cow is poor teeth. Have a skillful veterinarian examine her for this or any other trouble and follow his advice. Meantime do not require this cow to eat coarse, dry fodder, but give her something choice, easily masticated, easily digested and put before her in an appetizing way.

Wisconsin Cheese Makers' Association.

ED. HOARD'S DAIRYMAN:—The program of the eight annual meeting of the Wisconsin Cheese Makers' Association, which will meet in the Assembly Chamber of the State Capitol building in the city of Madison, on the 7th, 8th and 9th days of February, 1900, will give notice of many features that will prove of special interest, not only to the practical Cheddar cheese-maker, but also to those interested in the manufacture of foreign and fancy cheese of all kinds, including addresses that will be of intense interest to the patron and dairy farmer.

One of the new features will be the educational cheese contest, for which the Association offers gold, silver and bronze medals, in addition to the splendid pro rata fund, which has been so generously furnished through the liberality of the dealers and manufacturers of dairy supplies. A skilled, practical cheese maker and an expert cheese instructor will follow the judges in their word of scoring the exhibit; taking notes of the criticisms made by the judges, and writing back the faults, if there be any, to each exhibitor; giving instructions, suggestions and methods whereby the make in each instance may be improved upon.

The morning session of the second day will be devoted to the cheese makers' class, consisting of eight practical lessons in cheese-making by eight practical cheese makers, covering the entire process of manufacturing from receiving the milk at the weigh can to the boxing and shipping of the finished product.

Dr. L. L. Van Slyke, chief chemist of the New York Experiment Station, will address the convention on the evening of the second day, on a topic of special importance to cheese makers at this time, namely: The Influence of Temperature and Moisture upon the Composition of Cheese During Ripening.

Mr. A. J. Glover, cheese expert of the Minnesota Pure Food Commission, will treat of a subject of interest to proprietor and patron alike.

The noted pen-and-ink cheese maker, Mr. J. H. Monrad, Assistant Dairy and Food Commissioner of Illinois, will be there as usual, and discuss upon some things in Swiss, Brick, and Limburger cheese making.

Nineteen others, all special-purpose men in their various lines, have been booked and will contribute addresses and papers during the three days' session of this meeting, making this the most instructive and entertaining program ever offered to the cheese makers and dairymen of the Badger state.

Watch the columns of the dairy press for the complete program at an early date. For information regarding excursion railroad rates, special hotel rates, programs, entry blanks and annual reports, address the secretary. U. S. BAER, Sec'y.

Madison, Wis.

Creamery in West Texas—A Texas Feeding Inquiry.

ED. HOARD'S DAIRYMAN:—I am putting up a small creamery but have no experience in running one. Must I get a person that has experience in running one, and if so, can you refer me to some one that I can get, that wants to come to west Texas?

Will you give me a balanced ration of the following feeds: Cane (sorghum) is worth $4 a ton; corn fodder, $5 a ton; kafir corn fodder, $4 a ton; Colorado grass hay, $8 a ton; corn, 30 cents a bushel; wheat, 60 cents a bushel; oats, 30 cents a bushel; cotton seed, 16 cents a bushel; cotton seed oil meal, $20.50 a ton; bran (wheat), $18 a ton; kafir corn heads, $10 a ton.

Merkel, Tex. W. N. M. G.

Of course where one has no experience with a creamery, the services of a man who has had such experience are very valuable, but if one is a careful student and is willing to follow directions he may be able to get along fairly well even at first. The proper way to get into correspondence with persons who have had such experience and who are willing to go to Texas, is to insert a small advertisment in our reading notice columns. Meantime and in any event, a creamery man whether experienced or inexperienced will find the book, Gurler's American Dairying, very helpful. It costs only $1.00 and may be had from this office.

We suggest to our friend that for his purpose he could probably do no better than mix two parts of bran with one part of ground corn and one part of cottonseed meal, all by weight and not by measure, and feed from 6 to 10 lbs. of this mixture daily, one-half at night and one-half in the morning, and then give his cows all the roughage, including some of the hay, that they will eat. One of the most important lessons in feeding is to learn that it is unwise to feed all cows alike. On the contrary they should be fed according to their respective abilities to utilize feed. One cow may be able to make profitable use of 10 lbs. of the grain mixture above suggested, while another one can not use even 6 lbs. to any advantage.

The Schmidt Cure for Milk Fever.

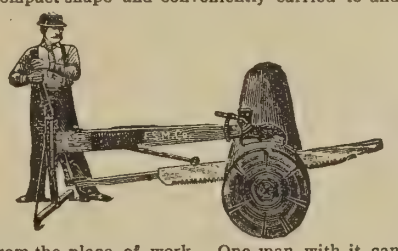
ED. HOARD'S DAIRYMAN:—In your last issue you ask for further information regarding the use of the Schmidt cure for milk fever. While we advertise this remedy in your paper, still I should like to bear witness as to the results. Since May there has been eight cases of milk fever in the Filston Farm herd, and we have saved seven, and no doubt the eighth could have been saved had it been attented to in time. A neighbor of mine, Mr. G. A. Mays, borrowed our box and saved two, all the cases he had. Dr. Jos. P. Grogan, veterinarian of Ashland Ave., Baltimore, told me he had attended three cases with complete success, and Dr. A. W. Clement, a state veterinarian, also told me he had not lost a case since this cure had been made public. I think you will agree with me when I say this cure is nothing short of marvelous, and I only regret that the farmers at large have overlooked its great value.

Baltimore, Md. ASA B. GARDINER.

ILLUSTRATION.

The season of the year is at hand when farmers find time for work in the woods and wood-lot. Sawing wood has always been one of the bugbears of the farmer's life, and under ordinary circumstances there truly is no more back-breaking, disagreeable work on the farm. The inventive genius of America, which has done so much to lighten the manual labor, has not neglected this branch of the work. The late Mr. Marvin Smith perfected a sawing machine with which one man can do the work of two, at least 20 per cent easier than the old way.

Mr Smith's invention is the Folding Sawing Machine, an illustration of which is shown herewith. The machine weighs only 41 pounds, and is so constructed that it can easily be folded into compact shape and conveniently carried to and



from the place of work. One man with it can saw down a tree and then saw it up into wood of any length, doing, as we said, as much work as two men can with any other saw, or as three men can with axes. The operator always stands erect no matter in what position the log may lie. The machine can be easily and quickly adjusted so as to saw the log perfectly square in two.

We take great pleasure in recommending this machine to our readers and suggest that they send to the Folding Sawing Machine Company, 55 North Jefferson street, Chicago, for their free catalogue and testimonials. We do not know of any labor saving device that is more appreciated by the man who works in timber. It is by taking advantage of such appliances that the progressive man saves time, lenthens his days, and gets more pleasure and profit from them.



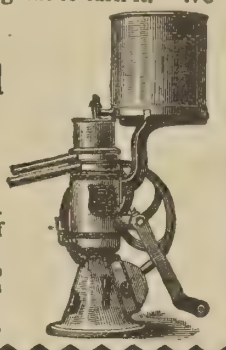
A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

Empire Cream Separators

to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

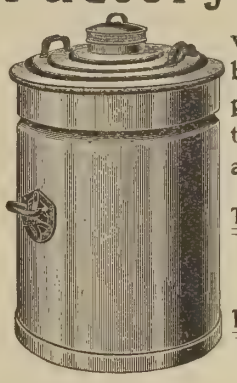
We have not space here to tell you why the Empire machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.



U. S. BUTTER EXTRACTOR CO., Newark, N. J.

Factorymen

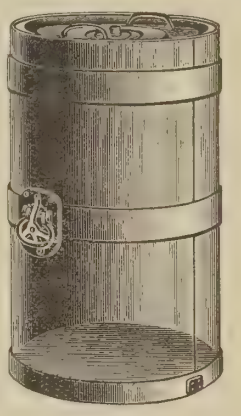
who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.



EMPIRE STATE.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



UNION.

MADE SOLELY BY

OAKES & BURGER, - Cattaraugus, N. Y.

Manufacturers of DAIRY APPARATUS AND SUPPLIES.



WHEN SELECTING A CUTTER OR SHREDDER,

we invite you to get a catalogue of

Wilder's Ensilage Machinery

Machines with Self-Feed Tables, Swivel or Straight Carriers, Front-Cut or Cylinder Machines, Shredders or Splitters. OUR PLAN of SELLING will please you. Write to

J. K. WILDER & SONS, Monroe, Michigan.

SAVE FEED

Stock thrives best, fattens fastest, and you save one-third to one-half feed by cooking with the

KALAMAZOO Feed Cooker

Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

LULL & SKINNER CO., Kalamazoo, Mich.



Stock Feeders,

Dairymen and Farmers

who know the economy and value of ground feed should look into the merits of these

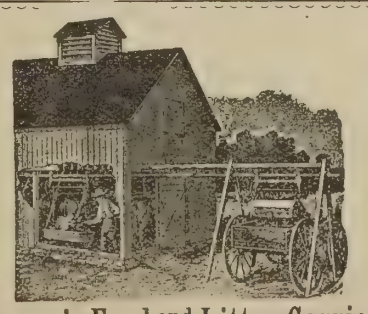
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Being double action and tripple geared they grind fast and easy. Crush and grind ear corn, and all small grains singly or mixed. Special attachment for grinding Milo Maize and Kaffir Corn. Supply power for other purposes while grinding. Other styles horse and steam. Get our Catalogue I, before you buy.

The Foos Mfg. Co., Springfield, Ohio.



Cherry's Feed and Litter Carrier

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No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.

Write for our free catalogue No. 20 of general merchandise bought by us at Sheriff's and Receiver's Sales.

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W. 35th and Iron Sts., Chicago.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.



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Solid 14K Gold Plated Case 3 Parisian Diamonds, and Rubies. American movement Jeweled & accurately regulated stem wind & set. Warranted for 20 years. Sent C. O. D. $5.95 with privilege of examination. Do not take from the express office if you think this watch is not equal in appearance to a $50 watch. Mention nearest express office, Ladies' or Gent's. Agents and salesmen coin big money. Address

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Eureka Harness Oil is the best preservative of new leather and the best renovator of old leather. It oils, softens, blackens and protects. Use

Eureka Harness Oil

on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

Made by STANDARD OIL CO.

Indiana State Dairy Association.

ED. HOARD'S DAIRYMAN:—The tenth annual meeting of the Indiana State Dairy Association convened at Cambridge City, under unusually favorable weather conditions. The hall was crowded every session with a good attendance of members from a distance, as well as a large number of patrons and dairy farmers from the surrounding country.

"Mixed Farming" was the subject prepared by T. S. Nugen, of Lewisville. He has followed for a great many years, grain growing, but finds that the addition of a small dairy herd is a great help, both in maintaining the fertility of his farm and helping the cash income.

"Dairy *versus* Beef," by C. B. Benjamin, of Leroy, created considerable discussion at this time, when both beef and dairy products range so high in price. Mr. Benjamin estimates that the average beef cow is worth $40.00; her calf, at a year old, is worth $20.00; a good average dairy cow he figures to be also worth $40.00; at 18 cents per pound for butter, she will produce $48.60 worth of butter a year; her calf, at a year old, is worth $14.00; the butter milk and skim milk is worth $6.48, making a total income for the year of $69.08, but it requires a good deal more labor to care for a dairy cow and the milk, every day for 365 days in the year. So he allows for this labor $17.00.

If the feed costs $24.30, making a net cost of $41.30, the produce $69.08 income, leaving a net income of $27.78, compared wit h the beef cow's net income of $20.00, showing a balance of $7.78 in favor of the dairy cow. An animated discussion followed the delivery of this paper.

H. N. Barker, a young man who is working his way through Purdue University as dairyman at the college dairy, gave some personal experiences in feeding skim milk to pigs, prior to his coming to college. He found that pigs running at large would drink but a small quantity of skim milk, but when confined in a small pen on a ration of skim milk, bran and shorts, equal parts, and some corn, they made rapid gains in the feeding period, and a net gain of one dollar and eighty odd cents, per hog. He bought all of his skim milk, shorts and corn, so that his figures are accurate. From reports of experiment station work, he found that the smaller quantity of skim milk, say, three pounds of skim milk for each pound of grain fed, makes a larger and more economical gain than the large quantity, say seven to nine pounds for each pound of grain fed.

S. B. Woods, of Lottaville, discussed sorghum, oats and peas as desirable crops to grow for summer feed. He considers them well worth the time and labor expended in growing them. Oats and peas should be planted as early in the season as the soil will permit, that they may get a good start before warm weather. In feeding the sorghum, care should be taken that it is not fed too early, as the sap is sour when young.

Professor T. F. Hunt, of the Ohio State University, discussed in a clear, forcible manner, the place of corn fodder in the feeding ration. He says that animals sometimes suffer for the want of ash and mineral matter in their feed, and called attention by charts to the high per cent of ash in corn fodder and some other coarse feeds, compared to the low amount in bran and other feeds and stated from this standpoint that fodder must be considered as part of the ration. Also that while in a natural state, animals eat a bulky ration, but this does not necessarily prove that under our modern environment, it is cheapest and best. On the other hand, Illinois experiments go to show that animals do not live and do well on a very concentrated ration. The young calf does well on milk, but after a year old, it drinks immemse quantities of milk, and even then looks as if starved to death, and even becomes sick. The addition of a little coarse feed to the ration, giving something to form a cud, resulted in a marked improvement. German experiments show that only half of the digestible nutrients in clover hay are required to masticate and digest it, while in 78 pounds of corn, only 8 pounds are required to perform the work of mastication and digestion, leaving 70 pounds available for work. At the present prices there is a possibility that some dairymen in their attempts to furnish a bulky and cheap ration, are feeding too much fodder or timothy hay. For instance, the following ration:

Timothy hay	10 pounds.
Corn stover	10 pounds.
Corn	5 pounds.
Bran	2 pounds.
Oil meal	3 pounds.

making a total of 30 pounds, costing 13.3 cents.

The standard ration advocated calls for 26 pounds of dry matter, 16 pounds of digestible nutrients and 2 pounds of protein. This ration has five pounds more than the standard calls for. By cutting this ration down, leaving out the timothy hay, and adding five pounds of corn meal, and leaving the other grains the same, the bulk is reduced to 26 pounds. The cost is also reduced to 11.8 cents, thus giving the animal nearly what she requires and still an amount that she can conveniently handle.

David Shellenberger, of Dublin, a patron of the Cambridge city cheese factory, showed in a clear and forcible manner the advantages that a cheese factory gives to a community, relieving as it does the housewife of much labor in caring for the milk and butter, and it also gives larger returns for the milk; this factory, paying last month, 23 cents a pound for butter fat, while the local butter market was paying 15 cents a pound for butter.

The evening sessson opened with the President's address in which he reviewed the general dairy conditions, cautioning the dairymen not to let the similarity of each day's work keep them in a rut, to get out and look around after new ideas and methods.

He says the Bulletin of Statistics shows the average income from the dairy cows of the state to be so close to the cost of production that if there are a few of them making a profit, there must, of nccessity be a great many who are making milk and butter at a loss, otherwise the average would not be so low.

G. P. Newsom, of Valley Mills, a Purdue University agricultural graduate, who is devoting his energies to the production of butter and cream for the city market, spoke on he "Why of a Special Training for the Dairy." He says that while the herd is in a good healthy condition, every cow on her feed, or while the complicated engine is working smoothly, any body can run them. But when the injector "bucks", the pump gets out of order, or something else is wrong, then the man with the training has the advantage. Ten chances to one, his foresight has prevented many of these little annoyances.

Mrs. Kate M. Busick, of Wabash, presented a paper on the "Evolution of the Dairy Cow."

This was followed by a discussion on the "Conformation of the Dairy Cow," by Mortimer Levering, of LaFayette. After a short discussion, the audience adjourned to the street, where a fair type of the dairy cow was in waiting. Mr. Levering then pointed out her strong and weak points, as a typical dairy cow.

After the reports of the committees, and election of officers, Mr. S. J. Taylor, of Logansport, discussed "Moisture in the Curing Room," advocating the sub-earth duct as the most practical solution and one of value.

Professor C. S. Plumb gave a general presentation of the attempts made in trying to furnish a practical milking machine. He found from extended research in the Patent Office reports that over 60 patents had been taken out on so called milking machines, that some of them, as was remarked, were more ludicrous than some of the flying machines, and yet there has none of them stood the test of time and the practical every-day conditions, which such machines must comply with. Many of them would draw milk when the udder was full, but nearly all of them failed to milk clean excepting when the cow was an unusually easy milker. Some of them were irritating, and all of them were more or less difficult to clean.

"The Why of Milk Testing," was a practical demonstration with the Babcock test, by H. E. VanNorman, of LaFayette, in which he showed the method of operation and gave some examples of the value of the test in the selection of cows and its justice and accuracy as a means of apportioning dividends at the cheese and butter factory.

The election of officers resulted as follows: President, C. B. Benjamin, of Leroy; Vice President, J. V. Shugart, of Marion; Secretary-Treasurer, H. E. VanNorman, LaFayette; which with J. J. W. Billingsley, of Indianapolis, and Professor C. S. Plumb, of LaFayette, constituted the Executive Committee.

T. F. Gallagher, of the Chicago butter market, scored the butter. He said that the quality was unusually high and that 20 such tubs from Indiana would make strong competition at the national butter show at Lincoln. He placed the Hagerstown creamery first, with a score of 97¾; Manchester creamery, 2nd score, 97; Williamsburg and Prairie Creek creameries, 96 each. The average for 11 tubs shown was 95.02. Of the dairy butter there was a very small show, C. B. Benjamin, of Leroy, getting first, with a score of 97. C. Lamont, of Joppa, 95½.

Cheese—Boyd and Drischel, Cambridge City, first, 95½. O. J. Richardson, Lewisville, 95.

Taken altogether, the meeting was an interesting, profitable and successful one.

H. E. VANNORMAN.

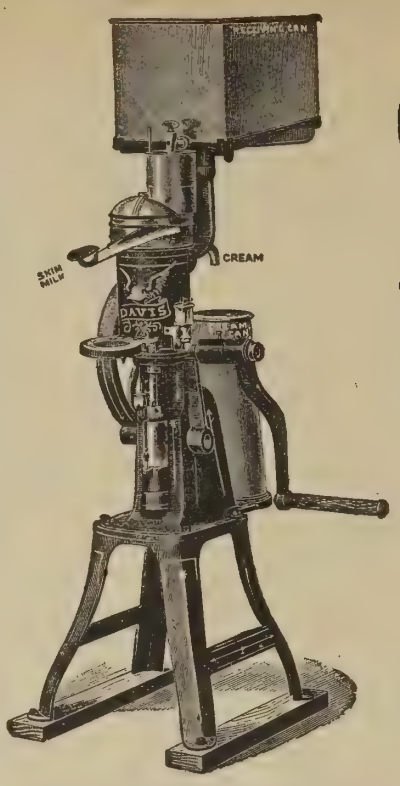
Granite State Dairymen's Association.

Another meeting of this Association has come and gone pronounced by every one a success, as was, also, that of the Board of Agriculture, the two holding conjointly as has been customary for several years.

The Town Hall at Peterboro being the place, and great is the pity that such good meetings have to be advertised as *annual* winter meetings on account of the smallness of the state appropriation for the purpose.

As the DAIRYMAN has asked only for report of dairy meeting, we will only mention the names of the speakers belonging particularly to the Board of Agriculture. Perhaps the leading paper was given by Hon. H. C. Adams, Pure Food Commissioner of Wisconsin. "Farmers and Taxation," by a member of the Board, Willard Bill Jr., Westmoreland, and "Principles of Stock Breeding" by Prof. Burkett, of the State College; both were excellent.

Prof. F. W. Rane, also of the State College, gave a paper on "Horticulture." "Farm Sanitation" was ably treated by Dr. Irving A. Watson, of the State Board of Health. President of the Board of Agricul-



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ARE THE BEST.

Thousands of Dairy Farmers pronounce them as such.

Hundreds of Agents like to sell the Machines, as they give their customers satisfaction.

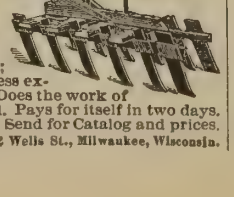
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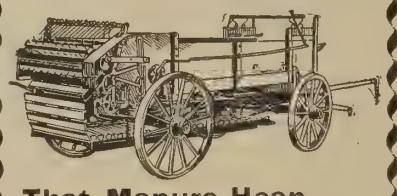
Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City. N. J., write: "It is indeed a great song: are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.

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and enjoy the great convenience of ice during the hot summer months.
Our Double Row Plow is the cheapest made; cuts faster, easier; and less expense than any other. Does the work of ten men sawing by hand. Pays for itself in two days. Cuts any size and depth. Send for Catalog and prices.
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is nature's medicine for your over-taxed soil.

THE NEW AMERICAN MANURE SPREADER
will administer it thick or thin; fine or coarse. Will do it quickly, easily and make it go further. It is self feeding. It fits any ordinary wagon gear. It fits your pocket
Send for booklet "E."
AMERICAN HARROW COMPANY.
Wisconsin Representative, Detroit,
A. F. MANNING. Madison. Michigan.

A BARGAIN FOR SOMEBODY!

Condensing Milk Machinery For Sale.

A NEW PLANT

Put in by C. T ROGERS & SONS.
Run only three months. In perfect order. Good as new. Address

Auburn Dairy & Condensing Co.,
AUBURN, N. Y.

Personally Conducted California Excursions

Via the Santa Fe Route.

Three times a week from Chicago and Kansas City.
Twice a week from St. Paul and Minneapolis.
Once a week from St. Louis and Boston.
In improved wide-vestibuled Pullman tourist sleeping cars.
Better than ever before, at lowest possible rates.
Experienced excursion conductors.
Also daily service between Chicago and California.
Correspondence Solicited.

T. A. GRADY,
Manager California Tourist Service,
The Atchison, Topeka & Santa Fe R'y,
109 Adams Street, CHICAGO.

ture, Hon. Joseph B. Walker, gave a characteristic paper on "The Agricultural Outlook."

DAIRYMEN'S DAY

opened with clear weather, good roads, good audiences (for New Hampshire,) and a *trowded program*, resulting from an attempt by the officers of the Association to condense as much of three sessions as possible into forenoon and afternoon, for the benefit of those desiring to return home before evening.

President Waterhouse commenced his Annual Report by formally accepting his election. He then, being father of the creamery movement in New Hampshire, and dairy instructor at the state college, gave a history of associated dairying from the start. Also that the height of knowledge in dairying was not yet attained, and skillful production of dairy goods would never be much in fear of over-production. Great skill in testing is needed in order to give justice to patrons.

Butter with too much water in it would shrink on the dealers' hands, and was a fraud if it much exceeded 10%. He alluded to the rapid increase in the demand for cream to be consumed in private families.

Cream varies from 8 to 27%, and the word cream has no fixed meaning on that account. There should be an effort for fixing the standard of per cents and prices.

Prof. Wm. H. Caldwell, Secretary and Treasurer of the American Guernsey Cattle Club, gave an interesting address on the Guernseys, and a description of the Island.

The Island is only nine miles long and six wide and supports 36.000 people with its agriculture. There are only 2½ acres of land for each cow kept and farming is so intensive that every inch is improved and land rents for $300 a year per acre.

Only five cows on the average are in a herd and they are largely cared for by women and children.

The first Guernseys were imported by Prince and kept on Cow Island in Lake Winnipesaukee, N. H. The next importations lodged near Philadelphia.

Good acclimated Guernseys are still bred near both these localities.

The two strictly dairy papers seldom equalled were "Economical Dairy Foods," by Prof. Joseph L. Hills, Director of the Vermont Experiment Station, and "The Dairy Type," by Prof. T. L. Haecker, Professor of Dairy Husbandry, University of Minnesota.

One of the things most interesting to farmers said by Mr. Hills was that, asking the cow five different times whether it was most profitable to husk and grind corn or cut it, ears and all into the silo, the cow said, every time, in the pail and in the churn, cut altogether into the silo.

Prof. Haecker's illustrated talk showed the "undairy" as well as the dairy type. This lecture will be published in our report with illustrations.

The exhibit was better than was anticipated, all special supply prizes being left out for this year. It was in charge of W. D. Baker, of Quincy, who is re-elected as Superintendent of Exhibit, as was practically the old board of officers.

Returning to the hall the audience listened with much interest to the report of the expert who judged the butter and cheese, O. Bent, of Boston. The report was as follows:

Whole number of exhibits of butter, 83; average score, 93. The following awards were made: Class A, dairy tubs—First, A. B. Hough, Lebanon, score 94; second, D. H. Foster, Lebanon, 93; third, S. T. Noyes, Colebrook, 92½.

Class B, dairy of mixed herd—First, F. H. Sanders, Laconia, 95⅛; second C. G. Britton, Keene, 94½; third, John M. Pulsifer, Campton, 93.

Class C, dairy prints—First, Gordon Woodbury, Bedford, 97¾; second, W. C. Pulsifer, Campton, 954¾; third, Miss Helen T. Hutchins, Lebanon, 94½.

Class D, creamery tubs—First, Chester Dairy company, Chester, 97; second, Cornish creamery, Cornish Flats, 96½; third, Hillside creamery, Cornish, 95½.

Class E. creamery prints—Cold Stream creamery, Bedford, 98; second, Sanborn's creamery, Deerfield, 97; third, Suncook Valley creamery, Suncook, 95.

Granular Butter—First, H. C. Smith, Holderness; second, Peterborough creamery, Peterborough; third, Suncook Valley creamery.

Sweepstakes—Cold Stream creamery, Bedford, score 98.

Dairy Cheese, plain—First, H. C. Smith, Holderness; second, J. W. Pulsifer, Holderness; third, W. C. Pulsifer, Campton.

Sage Cheese—First, D. P. Pulsifer, Campton; second, J M. Pulsifer, Campton; third, J. W. Pulsifer, Holderness.

A gratuity was recommended to Peterborough creamery for the fine display of fancy butter.

After the announcement of this report the following resolutions were presented: That the government tax of two cents on oleo be put up to ten cents a pound; a resolution of thanks to the town of Peterborough for the use of the hall; to the ladies of Peterborough Grange for the excellent dinner, and to Secretary Bachelder and his associates for their efforts to suppress the sale of oleo.

These were all unanimously adopted. E. M. Slayton, of Manchester, was present and presented the resolution in regard to raising the tax on oleo, and said he thought that imitation butter had kept at least $500,000,000 per year out of the hands of farmers in this country.

The meeting has been one of the most interesting and instructive as well as one of the most largely attended, ever held by the association, and in this community, as well as in the state at large, will be productive of great good.

The annual meeting of the Dairymen's Association was held yesterday, and officers elected as follows: President, C. H. Waterhouse, Durham; vice presidents, G. H. Wadleigh, Tilton; and W. H. Sisson, Cornish; secretary, J. L. Gerrish, Contoocook; treasurer, N. J. Bachelder, Andover; superintendent of exhibit, W. D. Baker, Quincy; trustees, Hermon Noyes, Rockingham county, Atkinson; A. B. Locke, Strafford county, Barrington; J. W. Sanders, Belknap county, Laconia; Blake Felsom, Carroll county, Wolfeborough; George M. Putnam, Merrimack county, Hopkinton; E. M. Slayton, Hillsbourough county, Manchester; Willard Bill, Jr., Ch shire county, Westmorland; Charles T. Rossiter, Sullivan county, Claremont; E. E. Bishop, Grafton county, Bethlehem; Albert Corbett, Coos county, Colebrook.

Ohio Jersey Cattle Club.

ED. HOARD'S DAIRYMAN:—The nineteenth annual meeting of the Ohio Jersey Cattle Club will be held at the Hotel Chittenden, Columbus, Ohio, on Tuesday evening, January 9th, 1900, at 7 o'clock p. m. A full attendance is desired and you are cordially invited to come and bring your neighbor breeders. A beautiful souvenir is being prepared for the occasion, and you will be disappointed if you miss it. A. T. DEMPSEY, Secy.
Columbus, Ohio.

An Expression of Opinion.

ED. HOARD'S DAIRYMAN:—Inclosed will find 25 cents; please send me HOARD'S DAIRYMAN for three months. Commence with Nov. 3rd, if you can. I never saw a copy until this week, and I find it rich in protein, carbohydrates, etc., but not a trace of dry matter. But the dry stuff I can get elsewhere. F. M. COFFIN.
Atlanta, Ga.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

DIARRHŒA.

In reply to an Illinois query:

The cow is no doubt suffering from indigestion. Drench her morning and evening with two quarts of slippery elm porridge, or pure flax seed, or Iceland moss, or you may change to the one she seems to relish the most. Don't force her too much, but use intelligent and good judgment. Put into each, 1½ ounces of tincture of ginger. If this does not arrest the diarrhœa in two or three days, put one ounce of tincture of opium into the drench. Be careful not to stop the looseness too suddenly. Let her nibble anything she likes. Give her 4 or 5 lbs. of clean carrots, raw, or the same of good, sweet turnips, or both, as she may seem to relish; cut them quite fine. Apart from these, give her one quart of strong caraway seed tea, and put two ounces of old whisky into it. Use her kindly, and don't attempt to force any kind of food upon her.

WORMS IN HORSES.

What remedy for worms in horses? Will copperas kill them, and is there any objection to its use? T. O. S. JR.
Washington, D. C.

ANSWER.

Sulphate of iron, green copperas, is good for worms, and will do no harm if given in two dram doses, mixed up with syrup of any kind. This is for lumbrici, viz., large, round worms. For ascarides, pin worms, no stomach medicine will be of use. Use injections of linseed oil and aloes, one ounce of pulverized aloes to the quart of warm oil. Use a long nozzled syringe. Don't wound the membrane of the anus.

FOR DISHORNED COWS.

Do you know anything to place on cattle after they have been dehorned? L. F. B.
Cincinnati, O.

ANSWER.

I don't know just what you wish. It there is ulceration, you need a qualified man to look to the cases. If you mean just the wound, immediately after dishorning, nothing is better than compound tincture of myrrh and aloes ointment.

VERMINOUS BRONCHITIS.

I have a calf about 6 weeks old that seems to have something in its throat; it coughs and seems as if it was going to choke, and bawls a little after it drinks its milk, but eats its hay alright. W. A.
Tempe, Arizona.

ANSWER.

You have verminous bronchitis. Feed liberally upon any of the cakes, as linseed, rape seed, etc., and roots. Put into this sulphate of iron 4 ounces, gentian 4 ounces; 4 ounces of this and a tablespoonful of salt to ten calves, if four months old, and gauge according.

GARGET.

One of my cows has at different times a hard swelling in one-quarter of her udder; slightly feverish. It usually lasts three days, the second day giving a good deal of tough stringy milk. the third day seems to get well. It does not always come in the same part of the udder. Only seems to affect the swollen part. At present she is dry, but one-quarter of udder is affected as stated.
Pasco, Wash. MRS. H. K. W.

ANSWER.

You give a funny condition, indeed, to me. Immediate full dose of physic and repeat in six days, if needed. Use strong saturated tincture of iodine upon the exact spot and no where else. After the physic is through, give two, only, drams of nitre each morning for ten to thirty days, if needed. This will not hurt the milk at all.

LAME COW.

I have a cow which has been lame since last July. Lameness started in the heel of the hind foot; gathered, broke and run a little and then healed, and the cow seemed better for a short time, but instead of going away, the swelling gradually run up the leg, until it reached the hock joint. About three weeks ago, it gathered and broke again. There has been no mud or filth for her to get into. T. H.
Norwich.

ANSWER.

There is evidently some foreign substance in the leg, a sliver or something. If not this, you have a case of scrofula. You need a personal and intelligent examination, so as to come to a true diagnosis. There is nothing else to do at present.

Horse Owners! Use



GOMBAULT'S
Caustic Balsam
A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
THE LAWRENCE-WILLIAMS CO., Cleveland, O.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a POSITIVE CURE for abortion in cows. Sworn testimonials furnished on application. Address
R. D. ROBERTS, Vet. Surgeon, - Waukesha, Wis.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in th end, and DILATING PLUGS

(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.

FREE CURE FOR Trial package of three special medicines Free. **ASTHMA**
Dr. W. K. WALRATH, Box 622, Adams, N.Y.

Rheumatism, Neuralgia, Gout, Lumbago AND OTHER DISEASES CAUSED BY URIC ACID IN THE BLOOD positively cured. Send for Booklet
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DR WINDSOR ONT. CANADA. 4 OPERA BLOCK, DETROIT, MICH., U.S.A.

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To those who want some other journal in combination with HOARD'S DAIRYMAN . . . . . .

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ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.
One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.
ANIMAL GERMICIDE COMPANY, 189 Chambers St., New York.

Would Load 13 Trains.

265 Cars of Oleo Made in Chigago Last Month.

Four oleomargarine factories in Chicago turned out 106,201 fifty-pound tubs of oleomargarine last month.

In pounds, this aggregates 5,310,000.

This oleomargarine would fill thirteen trains of twenty cars each, amounting to 265 cars.

These cars would make one train one and two-third miles long.

Placed along side each other the tubs would reach thirty miles with their sides touching.

It would require at least 1,250 average creameries to turn out this quantity of butter during this season of the year. Allowing an equal output for the remaining twelve factories of the country (a conservative estimate) and we have an output of oleomargarine for November, aggregating 212,000 tubs, equal to the make of 2,500 creameries.

At the outside there are not more than 10,000 creameries in the United States. Therefore, the product of sixteen oleomargarine factories at present is equal to the output of 25% of the creameries of the country.

In five months this year, 1,796 retail licenses to sell oleomargariue have been issued in northern Illinois, compared with 1,737 for the entire twelve months of the previous fiscal year, and 1,051 for the whole of the fiscal year preceding.

The above figures are certainly astounding. At the present proportion of increase in the manufacture and sale of oleomargarine, it will be but a short time before consumption of the imitation will be greater than that of the genuine article. It is conceded that the output of oleomargarine, will be over 100,000,000 pounds this year. It may be 125,000,000. If it is, this will furnish 10% of the butter eating population with oleomargarine. Take away the rural population which makes its own butter and confine the average to the populace of the smaller cities and large markets and one out of five butter eating people must consume oleomargarine.

Let the production of oleomargarine double in the coming two years as it has since 1897, when the November output was only 47,394 tubs, and one out of three city people will have oleomargarine instead of butter. Permit the increase to be as great the next thirteen years as it has been since 1886, when the government first began keeping a record of the production, and half the people in the cities and larger towns will be eating oleo.

This would mean the closing up of at least 5,000 of our 10,000 creameries, and the wrecking of the entire dairy supply, separator and machinery business, and the cutting off of an income of at least $50,000,000 per year, which goes to the dairy farmers of the United States.

Below we print a statement of the November production of oleomargarine in Chicago for the past thirteen years, expressed in 50-lb. tubs:

Year.	*50-lb. tubs.*
1886	30,700
1887	31,100
1888	38 420
1889	44,391
1890	52,235
1891	64,607
1892	81,442
1893	87,175
1894	78,437
1895	62,909
1896	40.342
1897	47,394
1898	70 263
1899	106,201

In the city of Chicago to-day, there is very little butter being consumed. Hundreds of dealers are guaranteeing oleomargarine to be pure butter. Poor grades of the bogus article are being sold at 30@32 cents per pound. The people are absolutely at the mercy of the thieves and robbers, who are disguised as butter dealers. They can spare thousands of dollars of their ill-gotten gains to bribe public officials and donate to campaign funds to insure political protection. And the people of Chicago pay the bills.

How long is this thing going to last? Either oleomargarine or butter must succumb very soon. Unless there is some change in conditions, it will be butter, as there is absolutely no chance for the honest and genuine article under present conditions.—*Chicago Produce.*

National Creamery Buttermakers' Association.

ED. HOARD'S DAIRYMAN:—President Boardman has appointed the following transportation committee: J. H. Snyder, New York City; Owen McCusker, Boston, Mass.; W. R. L. Fullerton, Philadelphia, Pa.; E. L. McAdam, Chicago Ill.; and J. S. Moody, St. Paul, Minn.

All of the above gentlemen are so well and favorably known among commission men, supply men and buttermakers', that it is needless to say any more. They will endeavor to obtain the most favorable R. R. rates from their respective territories and those intending to go to the Convention are requested to communicate with the nearest committee man when they have made up their minds.

Right here we want to urge secretaries as well as managers of creameries to attend the convention, as it will be of as much interest and value to them as to the buttermaker. E. SUDENDORFF, Sec'y.

Elgin, Ill.

Infectious Abortion of Cows is a Germ Disease.

ED. HOARD'S DAIRYMAN:—A most remarkable condition exists as regards abortion in cows. Many dairymen of long experience seemingly are not familiar with the cause of what is often the most serious loss to them. The class of abortion most detrimental to dairymen is that termed infectious. This class has been proved to be infectious by taking wads of cotton soaked in the fluids of cows, which had suffered from abortion of an infectious nature, and placing them in the vagina of pregnant cows. Abortion followed in from twelve to twenty days. A similar experiment tried with the fluids from cases of accidental abortion did not produce any bad results. In the light of such proof, contagious abortion is classed and should be treated as a germ disease.

In the modern conception, disease is a disturbance of the normal condition of some one or different parts of the body; the reaction to an unaccustomed influence

According to the germ theory, the foreign influence producing this disturbance is the existence of a germ in the interior of the animal body. When germs vegetate in the animal body, there likewise occurs a struggle for life between the germs and the animal cells.

The symptoms of abortion are evidence that the struggle exists, and it must terminate in the victory of one or the other side. If the battle is won by the animal cells, the disease is checked, and health is restored to the animal. While if the germs win, the animal will remain diseased and will show it by symptoms of abortion (occurring only in the last stages of the disease) such as enlargement of the udder and swelling of the vulva. It is not long after these symptoms appear that abortion takes place.

All cows in herds troubled with infectious abortion are certain to be diseased; that is, they are already, or soon will be, infected with the germs of abortion, if not prevented. But there are cows having a very strong constitution, that can contain abortion germs (providing they do not outnumber the animal cells) and carry their calves full time, without showing any signs of disease, except a little weakness on the part of the calf, and a shortage in the flow of milk, which is often overlooked or accounted for in some other way. Even the afterbirth of such a cow, if carefully examined, will be found in many instances to be diseased; but you will also notice in such cases that the navel cord is not diseased, for had it existed in the navel cord, the cow would certainly have failed to carry her calf full time.

The germs very often accumulate in the navel cord, causing it to become so diseased as to entirely shut off the circulation between the mother and fœtus. When this takes place the fœtus either dies, or becomes distressed, and causes such a disturbance and contraction of the womb, that the mother soon expels it, usually dead, but sometimes alive.

The nourishing materials in the blood of the mother are taken into the circulation of the fœtus through the navel cord; and not only does the fœtus take nourishment from the mother's blood, but it will also take germs of abortion, which fatally effect the fœtus.

These germs can be found in the affected mother's blood, in the afterbirth, and in the bowels of the fœtus It is for this reason that the afterbirth is so often retained, and prematurely born calves nearly always die of the scours.

During the later months of pregnancy the membrane and other appendages of the fœtus are constantly liable to get out of order, and by reason of sudden movements of the fœtus, caused by an interrupted circulation of the blood (due to germs) the navel cord is especially apt to become twisted or knotted, resulting in the death of the fœtus.

In any case of abortion not due to those causes originating in the system of the mother, you will have to direct your attention to the fœtus, as to the fœtal cause of abortion.

It may be stated as a general proposition that anything that will kill the fœtus, will produce abortion. If the fœtus is not at once expelled, it will soon decay, and the decaying fœtus, acting upon the nerves of the womb, produces contraction and expulsion.

We must never lose sight of the fact that the living animal body is not a mere hot bed in which germs can multiply without hindrance. If the germ can multiply within the animal system, they can only do so by overcoming the opposition on the part of the animal cells.

The healthy animal body possesses various means of protecting itself against the entrance or multiplying of germs. The serum of the blood, particularly if free from disease, has a direct germ killing power. The blood is composed of red and white cells The white cells of the blood, if sufficient in number, have the power of destroying the germs of abortion, but unfortunately in this disease there is a lack of white cells.

For this reason, if a dairyman wishes to eradicate the disease of abortion from his herd, he can do so by using judgment in selecting a remedy, which, when administered, will not only increase the white blood cells, enabling them to overcome the germs of abortion, but also having a tendency to render the animal immune; and thus by assisting nature, which requires but very little assistance in the right way, the dreaded disease can be overcome and entirely wiped out of any herd, it matters not of how long standing.

Following abortion is often a train of secondary troubles, caused by the weakened condition of the animal system, prominent among which are barrenness and tuberculosis. The greatest insurance against these diseases is obtained by freedom from abortion. A herd afflicted with abortion is never healthy. D. Roberts, D. V. S.

Waukesha, Wis.

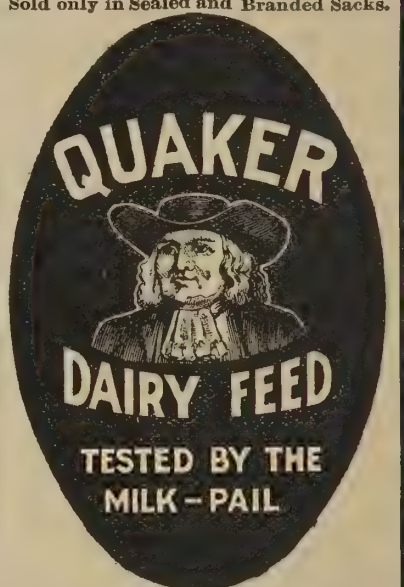
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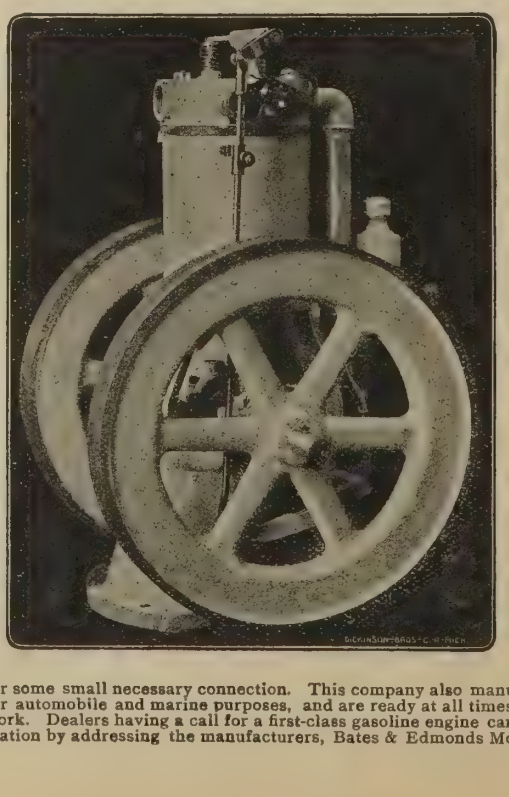
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ILLUSTRATION.

In the past few years the use of gasoline engines has increased to such an extent that they have practically superceded the steam engine for all purposes requiring a compact, easily operated and economical power. This is particularly noticeable in agricultural pursuits. Every stockman, dairyman or farmer can now obtain the same results with a gasoline engine that he did with his cumbersome steam rig, at one-fifth of the cost of operation. Every well appointed farm should now have one of these engines, as they can be used for pumping water, grinding feed, sawing wood, or in fact any work requiring power. They are far in advance of a wind-mill, being always ready for use at any moment.



The Bates & Edmonds Motor Co, of Lansing, Michigan. whose advertisement appears on another page, make a specialty of small gasoline engines for any purpose whatever, and particularly "power for the farm." The accompanying half-tone represents the 1½ h. p. engine manufactured by this company.

The engines manufactured by this company are guaranteed to be high grade in every respect, and are designed with the view that each size will more than develop the h. p. at which it is rated. For instance, the 1½ h. p. shown in cut will do 2 h. p. work, and the other sizes in proportion. The electric igniter is used on all engines, but in cases where it is so desired, the hot tube will be attached.

All engines are shipped with a complete outfit of extras for setting up and running them, which is a very satisfactory feature, as oftentimes the purchaser starts them at a long distance from any base of supplies and is at a loss for some small necessary connection. This company also manufacture a full line of gasoline motors for automobile and marine purposes, and are ready at all times to furnish estimates on this class of work. Dealers having a call for a first-class gasoline engine can secure prices, terms and full information by addressing the manufacturers, Bates & Edmonds Motor Co., Lansing, Mich.



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would be an improvement on the old way, but WE can't do it. We CAN furnish an INCUBATOR that will hatch all hatchable eggs, and do it with less attention than any machine made. It does it because it is made right and has all late improvements. Sold at a low price and guaranteed. Catalogue in 5 languages, 6 cts.

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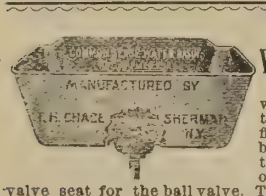
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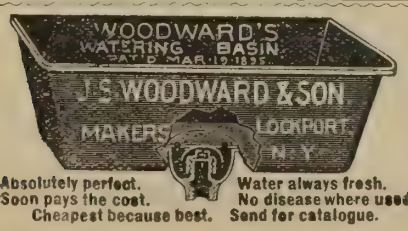
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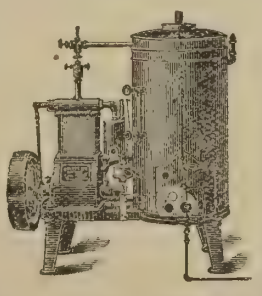


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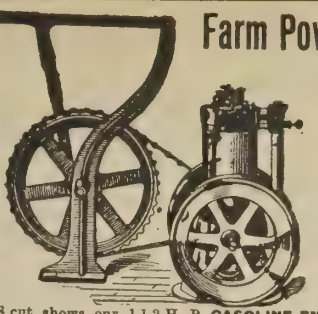
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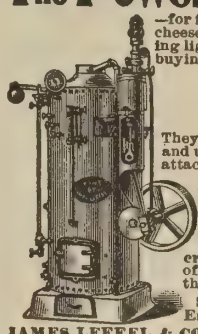
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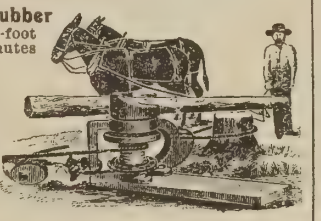
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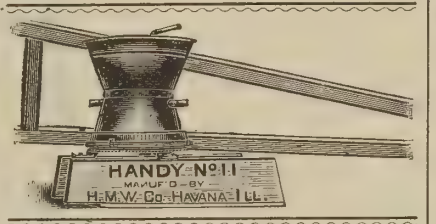
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will pull a 3-foot stump in 3 minutes. It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. CO. Lone Tree, Iowa.



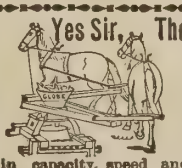


ELECTRIC FEED MILL



We have put out this mill to meet the demand of the patrons of the famous Electric Goods for a good mill at a fair price. It is a direct grinder and absorbs or wastes no power in useless and expensive gearings. Cuts, crushes and grinds ear corn, and all small grains single or mixed. Adjustable—grinds coarse or fine. Prices low. Circulars and prices free. ELECTRIC WHEEL CO., Box 130, Quincy, Ill.

Yes Sir, The Tandem Sweep

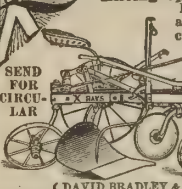


Equalizes the load; each horse must pull his own share. Great Gain in capacity, speed and comfort. NO GEARING; NO FRICTION. GIVES YOUR HORSES A CHANCE. Only one set of grinders needed for all kinds of work. (Also make 7 sizes belt power mills; 2 to 25 horsepower.)

N. P. D. BOWSHER CO., South Bend, Ind.

Kays' SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.



SEND FOR CIRCULAR

David Bradley Mfg. Co., 110 E. Broadway, Bradley, Ill.

BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

THOMPSON'S



GRASS SEEDER

Sows all Clovers, Alfalfa, Timothy, Red Top, all Grass Seeds, Flax, &c. Special hopper for wheat and oats. Sows 20 to 40 acres per day in wet, dry or windy weather. Puts on just exact amount of seed desired—don't waste any. Weighs only 40 lbs. Last indefinitely. Price list and catalogue free.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

STOCK FEEDERS



listen to this and think before buying a feed grinder. There are thousands of **Peerless Mills** now in use. Grind ear corn and all grains fine or coarse. Make family meal or feed. We WANT AGENTS EVERYWHERE. Circulars, prices, &c., free.

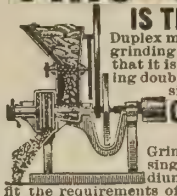
W. J. ADAM, JOLIET, ILL.

GRIND YOUR GRAIN

on a SMALLEY MILL. Neither you nor your stock will have any fault to find. Our mills have *great capacity* combined with *ease of operating* which is simply *wonderful*. Don't take our word for this—try one and be convinced. Special introduction prices in all new territory. Catalogue showing the famous *Smalley* line complete free *if you name this paper.*

SMALLEY MFG. CO., Sole Makers, Manitowoc, Wis.

THIS GRINDER



IS THE KELLY DUPLEX

Duplex means that it has a double set of grinding plates or burrs. That means that it is the fastest grinder made.—doing double the work of any mill of similar size. Requires only light power.

CRUSHES AND GRINDS

Ear Corn, Cob, Husk and All.

Grinds cotton seed and all grains single or mixed. Makes coarse, medium or fine feed as desired and to fit the requirements of the animal to be fed. Simple, easy to operate, durable. Send for free Catalog No. 39

The O. S. Kelly Mfg. Co., Iowa City, Ia.

CUT AND SHRED



with the WOLVERINE Cutter and Shredder. Knives and cutting bar selected oil tempered tool steel. Cutting bar has 4 cutting edges; when one edge dulls simply turn it over and get a new sharp edge; that makes the life of this machine four times greater than the old style. Shredder head made of saw steel, interchangeable with knife head. Safety fly wheel. Stop feed lever. Adjustable knife and shredder head. Made in 13 sizes. Largest cuts a ton in 5 minutes. Swivel Carrier.

SNAPPING ROLLS to snap off the ears, are furnished on three sizes of shredders without any extra cost.

RUNS EASIER, cuts faster, lasts longer than any other machine made. Prices low. We have no agents.

TRY THEM—if not as we say, return them at our expense.

GRINDING MILLS 63 kinds of Sweep, Belt and Geared Mills for 2 to 25 H. P. for grinding ear corn and all other grain fine or coarse. Price sweep mills, $14.50 and up.

CORN SHELLERS 19 sizes and kinds for hand or power. Hand sheller 90c; 1-hole sheller with pulley for hand or power $5.50; self-feed sheller shells 500 bu. a day.

POWERS 1-h Tread, with governor, $58. 2-h $77. 3-h $103. 2-h Sweep, $24.90; 4-h $34.75; 6-h $36.95; 8-h $51.25

A full line Feed Cookers, Bobs, Cutters, Blankets, Robes. Send for FREE fall catalogue giving latest prices.

Marvin Smith Co., 55 N. Jefferson St., C-18, Chicago, Ill.

TWO BIG MILLS IN ONE.

BUY THE BEST

SEE THAT WHEEL?

GOLD MEDAL LINE.



THE oscillating sweep shown in above cut insures UNIFORM GRINDING. It is only one of the many desirable improvements found exclusively in GIANT KILLER FEED MILLS.

Free for the asking, our new Sweep Mill and Feed Cooker Catalogue, describing large line of plain, duplex and geared grinders for one, two or four horses. We ship from Omaha, Kansas City, St. Louis, Indianapolis, Bloomington, Minneapolis.

Davis Gasoline Engine Works Co., WATERLOO, IOWA.

THE "LESLIE" LINE

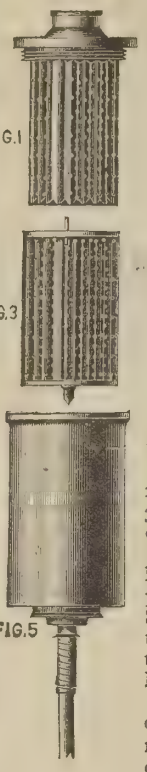
OF FODDER AND ENSILAGE SHREDDERS and CUTTERS



is made to meet the demands of those people who want a combined machine that really combines. A shredder that will shred—not chew, bruise and haggle the feed—and a cutter that will cut. The shredder head in the machine and the cutter head lying on the floor are interchangeable, and either or both are supplied as ordered. This is the only true shredder made requiring only low speed. Equipped with any length of straight or angle carrier to order. Remember that this machine covers the whole field of cutting and shredding. Write us for circulars, testimonials, &c.

St. Albans Foundry Co. St. Albans, Vt.

"IMPROVEMENT THE ORDER OF THE AGE."



The United States Cream Separators which have gained such an enviable reputation for their superiority over all competitors, both in exhaustive skimming and perfection of manufacture, are still further improved for

1900 OR THE NEW CENTURY.

The capacities have been very materially increased. An increase of 20 per cent. was made in 1896 over former capacities. Again increased 20 per cent. in 1898, and are now still further increased 25 per cent. for 1900.

A farther improvement for 1900 is the construction of the internal bowls or cups, which are made corrugated in place of the smooth cups. With the corrugated cups, the flushing of the cream from the separator at the close of a run is accomplished by running skimmed milk through the separator. It is not necessary to use hot water for this purpose unless users prefer to do so.

The accompanying engravings illustrate accurately the corrugated cups above described, Figs. 1, 3 and 5 showing the parts placed one above the other in the order in which they go together.

This construction of the cups overcomes the last criticism that our competitors can make. Competitors have frankly admitted that the United States Separator was decidedly the best skimmer on the market, but have tried, in their efforts to sell their machines, to make a great bugbear of using hot water to flush the bowl.

The new corrugated cups flush perfectly. No cream is left around a central tube, or between a multiplicity of discs, as the United States has neither discs and central tubes, nor central tubes, as is the case in competing separators, which have been trying to get some point against the United States in order that they might find something to check its

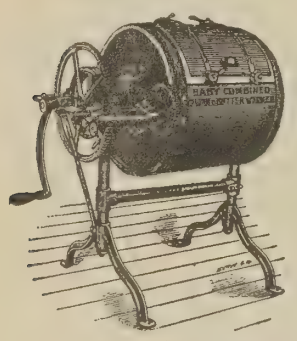
VICTORIOUS PROGRESS.

Some competitors have central tubes and discs, and some central tubes only.

The Improved United States Separator took the lead several years ago, and no pains will be spared to keep it in the lead and maintain its reputation of being

The BEST and therefore THE CHEAPEST.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. It charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.



SHIPMAN, BRADT & CO.,
Sole Manufacturers,
De Kalb, Ill.



The 20TH CENTURY POULTRY BOOK

is the very latest, up-to-date authority on the poultry business in this country. It treats the entire subject in a masterful way drawn from years of ripe experience in conducting the largest pure blood poultry plant in the country. Treats incidentally of the newest and best things about the world famous Reliable Incubators and Brooders. Sent to anybody for 10c to cover postage. Reliable Inc. & Brooder Co., Box B 51 Quincy, Ill.





THE LOSS OF AN EYE —terrible calamity. The tip of a horn often does it in tying up cattle. Cut off the horns quickly and humanely with the **Keystone DEHORNING Knife**. Cuts on four sides, no crushing or tearing. Highest Award World's Fair. FULLY GUARANTEED. Write at once for descriptive circulars, prices, etc. **A. C. BROSIUS, COCHRANVILLE, PENN.**

PRINT BUTTER Should be wrapped in . . . GOOD Parchment

(NOT THE CHEAP KIND.)

YOUR NAME or CREAMERY should be Printed on every sheet. Send for Samples.

Department H, PATERSON PARCHMENT PAPER CO., Passaic, N. J.

"The Salt That's ALL Salt."

Is a title denoting unequaled purity.

THE

University of Wisconsin

Has analyzed the leading dairy salts of all countries, and given the results in a special bulletin which shows that

Diamond Crystal Salt

is the only salt in the world above 99 per cent. pure.

OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

DIAMOND CRYSTAL SALT COMPANY,
ST. CLAIR, MICH.

The New Book

FEEDS AND FEEDING

By Prof. W. A. HENRY,
WISCONSIN EXPERIMENT STATION.

THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

4 YEARLY Subscribers at $1.00 Each ($4) will Secure It as a Premium.

Of this Book Hon. JAMES WILSON, Secretary of Agriculture, Washington, writes as follows:

"Prof. W. A. Henry, Dean of the Agricultural Department of the University of Wisconsin, has recently given to the American student and the American farmer a work on feeds and feeding. Singularly enough, up to this time we have had nothing along this line sufficiently comprehensive from both the scientific and practical standpoints. We have had very able works from both, but Prof. Henry is the first to combine science with practice and give us a work that will be of value alike to the instructor in the Agricultural College, to the student who is seeking the principles underlying feeding, and to the practical farmer who feeds.

This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book."

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

DAILY EXCURSIONS

TO CALIFORNIA

Through first-class and Tourist Sleeping Cars to points in California and Oregon every day in the year from Chicago.

PERSONALLY CONDUCTED EXCURSIONS

Every Thursday from Chicago

LOWEST RATES
SHORTEST TIME ON THE ROAD
FINEST SCENERY

Only route by which you can leave home any day in the week and travel in tourist cars on fast trains all the way. For descriptive pamphlets and full information inquire of nearest agent.

Chicago & North-Western Railway.

OF THE
IVERSITY of ILLINOIS.

HOARD'S DAIRYMAN.

University of Ill

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JANUARY 5, 1900. NUMBER 47

If You Have CREAMERY BUTTER to sell, write
J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

DAVID W. LEWIS & CO., 177 Chambers Street, NEW YORK,
Respectfully solicit the Agency of CREAMERIES in the New York market.
UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

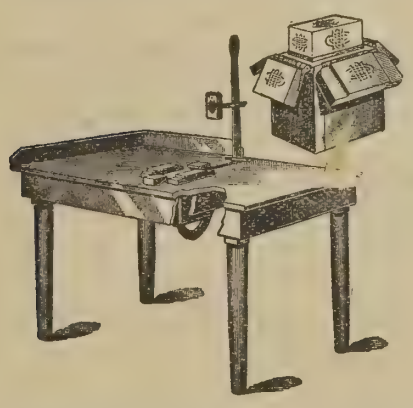
CHR. HANSEN'S
Columbian Butter Color
Guaranteed the Purest, Cheapest and Best in the Market.
100 FIRST CLASS PRIZES
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE FOR CLEAN CLEANING
SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

Outside of the Combination.

A prominent creameryman recently said to a butter solicitor that he did not like to buy of the **Creamery Supplies Trust** but that the **Trust** seemed to be swallowing up all supply houses and creamery specialties, thereby forcing him to buy of the trust whether he wanted to or not.

This is a great mistake; the very best creamery specialties manufactured to-day, **ARE NOT controlled by the Trust** and the creameryman can buy them at satisfactory prices by turning his orders our way. Among other specialties we call attention to is the



Self ... Gauging "All Over" Printer

The printer which delivers a pound brick (or larger if desired) printed on five sides. What is the object of printing butter? Isn't it to advertise your goods? If so, why not put five advertisements on each brick with no more time or expense than is required to print one side of a brick only with old-style printers? The "ALL OVER" Printer is strictly accurate, can be easily adjusted to meet the requirements of varied temperatures, and is much more rapid in its action than other printers.

The "SQUEEZER"
Combined Churn and Butter Worker

is another one of our specialties which leads all other machines of its class. If you will examine the "SQUEEZER" you will ask the question—why didn't the man who invented the combined churn think of the "SQUEEZER" first? It is a model of simplicity and efficiency: absolutely reliable in every particular; can be depended upon to do exhaustive churning at various temperatures and is never out of order. The principal of working the butter insures even distribution of the salt, thereby preventing mottles.

THE SHARPLES CREAM SEPARATORS

in factory or dairy sizes are recognized by the thoughtful, unprejudiced creamerymen of to-day as being the most efficient, economical and profitable separators on the market. The desperate fight now being made on the **Sharples Separators** by the Creamery Supplies Combine is the best evidence in the world that they are not controlled by the Trust. The badly complicated **Trust** must sell its badly complicated separator to be consistent.

We offer you the best line of goods which years of experience and the most skillful workmen are able to produce and we ask for a chance to demonstrate that we are entitled to a liberal share of your business. Protect yourself by consulting us when in need of a creamery or skimming station outfit, or anything in our line of

Cream Separators, Milk Testers, Combined Churns and Butter Workers, Milk Heaters, Milk Vats, Cream Vats, Cream Carriers, Butter Printers, Boilers, Engines, Pumps, Belting, Pulleys, Pipe, Pipe Fittings, Etc., Etc., Etc.

THE SHARPLES CO.,
28, 30 and 32 So. Canal St., Chicago, Illinois.
FACTORIES { West Chester, Pa., And Dubuque, Iowa.

Always Up To Date.

Our competitors are rushing into print, seemingly struck by one idea, that of admonishing the public generally that they have produced a "New Century" separator, or a "20th Century" separator and thus incidentally calling attention to the fact of their having marketed out-of-date separators up to the present time.

They seem to wake up about "once in a hundred years" from their Rip Van Winkle sleep and realize that the world has been progressing and left them somewhat behind. In order to catch up with Father Time, they loudly proclaim that they have produced something "new and great" as though the breath of the coming century had given them a wonderful insight into the future, and enabled them to contrive something beyond the ken of their fellowmen.

A cursory examination of their separator, however reveals the same old contrivances and complications, simply bedecked anew with a few more frills to cover their weaknesses, but which will not deceive the 20th Century purchaser any more than those of the close of the 19th.

NOT SO WITH

SHARPLES CREAM SEPARATORS.

Their progress is not limited by decades, nor by centuries. They are supplied from time to time with all the latest improvements as occasion requires or necessity demands, and without regard to whether we are "Turning a Century" or not. They are "Kept Up To Date at All Times," and the public is given the benefit of all improvements as soon as demonstrated to be of practical value. Sharples Separators are built to give the purchaser his money's worth to-day, to-morrow, a year, or years hence. Such has been and will continue to be their record. Neither expense nor pains will be spared to keep them in the lead. The passing century has been exceedingly kind to the Sharples Separators, and the coming century welcomes them with increasing popularity. Immense and increasing sales amply attest the fact that the merits of the Sharples make are highly appreciated by the intelligent creamerymen and dairymen of the times.

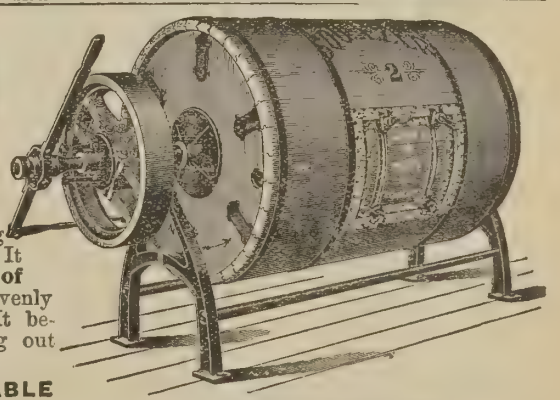
Sharples Separators ARE ABSOLUTELY SAFE.
Excel in Construction and Finish.
Excel in Simplicity, Durability and Low Cost of Repairs.
Excel in Ease of Operation and Cleaning.
Excel in Capacity and Clean Skimming.
Excel in Quality of Cream and Butter Produced.
Excel EVERY OTHER MAKE IN ACTUAL RETURNS.

Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.
D. DERBYSHIRE & Co., Brockville, Ont.

It Does Not Destroy the Grain.

THE SQUEEZER
COMBINED CHURN AND WORKER



will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.

IT IS SIMPLE, DURABLE AND EASILY WASHED.

Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.

Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.

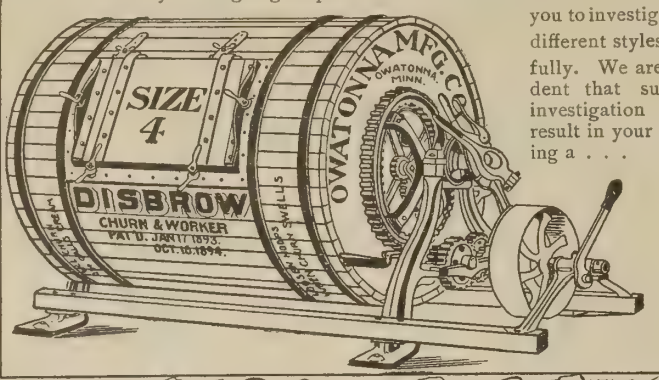
GALVANIZED STEEL **OKAY TANKS**
GUARANTEED NOT TO BURST
ALL WE ASK is, that you send for our Free Catalogue before you buy a Tank of any kind. C. E. BANTA MFG. Co., Dept. 874E, Chicago.



Newton's Improved **COW TIE**
Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

Don't MAKE A MISTAKE.

If you are going to purchase a new Churn this winter it will pay you to investigate the different styles carefully. We are confident that such an investigation would result in your selecting a . . .



DISBROW

Combined Churn and Butter Worker.

They will save you money by increasing your yield and lessening your labor. Further particulars on application.

OWATONNA MFG. CO.,

Sole Manufacturers. **Owatonna, Minn.**

Creamery Package Mfg. Co.,

GENERAL SALES AGENTS,

1, 3 & 5 W. Washington St. **Chicago, Ill.**

BRANCH HOUSES: Minneapolis, Minn. Kansas City, Mo. Waterloo, Ia. Omaha, Neb.

Alpha De Laval Separators Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

We are General Agents for Hansen's and W. & R. Butter Color.

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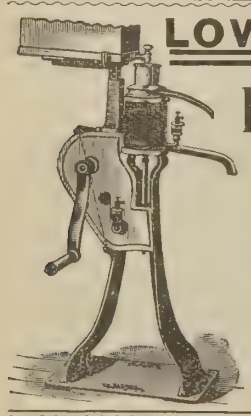
BUTTER WRAPPERS

Are an established factor in the CREAMERY BUSINESS to-day. Protect your special brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. Our STANDARD weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

A. G. ELLIOT & CO.,

Manufacturers, Importers and Dealers in Paper of Every Description. **Philadelphia, Pa.**



LOW PRICES ON THE

Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,

Cedar Rapids, Iowa.

GENESEE SALT COMPANY'S

EDUCATIONAL CHEESE CONTEST

Was judged by A. H. Barber and criticised by U. S. Baer, Cheese Instructor at Madison, Wis. Eight states represented and the following prizes won.

Walter Fero, Muscoda, Wis., (Sweepstakes)	99	$30.00	C. A. Johnson, New London, Wis., 1st in Class 3	97	$15.00
E. Grant Hodges, Union, Iowa, 1st in Class 1	98	20.00	Wm. Nisbet, Hub City, Wis., 2nd in Class 1	97	10.00
Tom Johnson, Boaz, Wis., 1st in Class 2	96¾	20.00	F. A. Vieryutz, New Holstein, Wis. 2nd in Class 2	96½	10.00

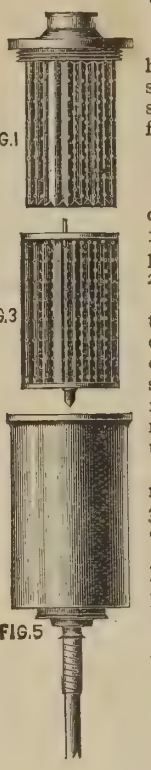
Robt. Nauman, Manitowoc, Wis., 2nd in Class 3.....96 $5.00.

1900 Contest Will be Larger.

F. A. TRIPP, CHICAGO.

GENESEE SALT CO., NEW YORK, N. Y.

"IMPROVEMENT THE ORDER OF THE AGE."



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1900 OR THE NEW CENTURY.

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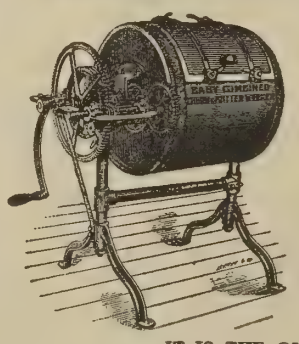
VICTORIOUS PROGRESS.

Some competitors have central tubes and discs, and some central tubes only.

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The BEST and therefore THE CHEAPEST.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



THE DAIRY "VICTOR" Churn.

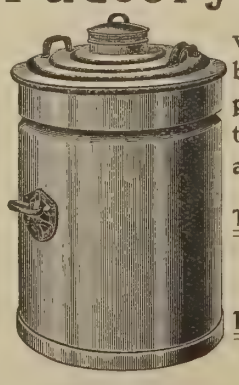
This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

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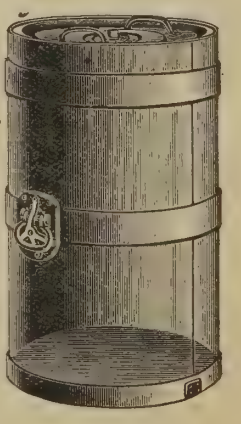
Factorymen



who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

W. D. HOARD, Editor.

G. W. BURCHARD, Associate Editor.

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Correspondents must not expect us to acknowledge the receipt of letters containing remittances for subscriptions. The receipt of the DAIRYMAN is sufficient notification that the money has been received. The label on the paper will show date to which subscription is paid. In case of renewals if date on label is not changed within two weeks after remittance is sent, inform us at once.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion

Note and Comment.

Dairy Conditions in New York.—The New Feed Law.—Silage and Condensed Milk.—Special Cream for New York.—Tuberculosis.

ED. HOARD'S DAIRYMAN:—Another safe return to Ohio is ours to note and comment upon the pleasant six weeks past spent in New York, in attendance upon the institutes there, and bear testimony to their usual high standard of excellence and very good attendance. When one looks back ten years and compares the quality of the work now with that then given, and sizes up the audience of today with the occupants of the pews in 1888, the answer to the inquiry: "Are the institutes of any benefit to the country?" would be much as if some one were to ask if a coal oil lamp was the equal of an arc light.

The teachings of the institutes are every where apparent, in changed and changing methods of farming, and the economies of farm life. The audience that attends the meetings now, are conspicuous by their good dress, with every indication of honoring their calling, and seeking its promotion. The papers read, discussions entered into, and the wide range of reading shown, was proof beyond dispute, that farming is rapidly evolving into a profession that is to win its rightful recognition every where. True there are, here and there, darker lines, and shadowy spots, but the spirit of the age is stirring the masses, and it is now a condition that confronts those who will not heed, whether they will reform along demonstrated, best lines, or—well the result will not make good obituary matter.

***

It is not to be gainsayed but that the dairy is again rapidly forging to the front in New York agriculture, and is again to make a struggle for old-time supremacy. It is the live topic at about every institute, and its allied adjuncts, feeds and feeding, were the all important subjects discussed One of the causes that is bringing this about, is the ever increasing demand for milk; for not only the interior cities, but New York and Philadelphia are now taking it by the score of train loads daily, amounting to millions of cans per year, and each day asking for a better, cleaner article, and with advancing prices.

Milk trains start from points more than 300 miles distant from New York, and not a little milk and cream is sold there that starts the day before from along the St. Lawrence. At other points condensaries are being built, stations where milk is taken, graded, sterilized, or modified and bottled, are beginning to have their influence, and here and there a "factory" erected where cream alone is prepared for a most critical class of consumers, to whom 60 cents a quart means nothing if the quality suits. These are some of the influences that are making for betterment in New York dairying, and which was so marked in expression at the institutes

***

Two things were as new (?) as ever, silos, and feed rations for cows. There is a greater disposition than ever to cheapen the cost of the rations, and to do this, the raising more of the proteins and starches than in the past, on the farm, is advocated. "The man with a ration," was in demand at all of the meetings. Mr. Witter with his charts was in great demand. When these New Yorkers can raise 6,000 lbs. of starch on an acre, in the form of silage, it seems poor economy to buy Nebraska starch and ship it 1,500 miles, pay freight, commission and about four men's living between stations upon it, to use as fuel for stock. Despite all of Brother Terry's preaching, and showing just how it can be done, there is an idea prevalent that clover "won't catch," and that it's no use to try to grow peas, oats and the like, but buy gluten and "chop." Others are trying, and between silage and home grown legumes, are cutting down the cost price of the milk, in a marked degree. The old idea that corn could only be grown in the valleys, is found to be a mistake. Corn will grow on the gla-



EASTERN MAID, A. J. C. C., 67892.

Property of STOUGHTON & BURNHAM, Montague, Mass.

ciated hills of New York, if it can have a clover sod to brace up against, and many a wonderful field of mixed oats, peas and barley were reported. From what we heard, we opine that the soils of New York are not so destitute of fertility, as from the lack of decaying vegetable matter, and if the growing of catch crops was more general, and green crops purposely grown to turn under were often used, a state of productiveness would follow that would save New York millions of dollars annually.

***

Under the new law that compels feed dealers to furnish the purchaser with the protein and fat content of the feeds sold, some strange revelations are being made. Oil meal shows a wide variation in protein that is not made good by a difference in price. Cotton seed meal with only a difference of a dollar in price per ton, varied from 29 per cent of protein, to 52 per cent. Several of the high priced protein foods contained less than 9 per cent of protein, and a $25 "chop" contained almost 40 per cent of fiber, with less than 9 per cent of protein, and had a feed value of less than $7 per ton—quite a fair profit.

A certain brand of gluten was about worthless, though the selling price was much above best bran. The starch in some of the "white" feeds was found to be largely of the earth, earthy. A consignment of bran from southwest Kentucky was found to be largely cob dust, and with a suspicion that about all of the "moonshine" had been extracted from if before starting north. The whole feed business of the state now is in the hands of Prof. Jordan of the Geneva Station and it must come in under a guaranty, much the same that obtains in the fertilizer brand and guaranty.

***

Do you remember, Mr. Editor, some eight years ago, of a railroad ride with the writer along a noted valley of southern N. Y? The day was exceedingly cold, snow blowing in blinding whirls at times, and still we saw dairy after dairy, that forenoon, eating hay out upon the snow of those wind swept hills. I said above, that New York was making great strides toward better dairying. I want to make one exception. A few days ago, with a day almost similar to the one mentioned, I went over and around those same hills, and saw by count, twenty of the *same* dairies eating hay on the same *wind* and snow swept hills; and with milk at $1.40 per hundred, these men were demonstrating that dairying in the winter did not pay. It was a pleasure to note that here and there was a snug looking barn with every appearance that the cows were inside of it, bracing up on good care and warmth instead of northwest wind. What's the use, east or west, of talking about the "conformation of a dairy cow" to these fresh air dairymen until they understand and practice "conformation to dairy principles?"

***

There has been a constant fling at the silage men in the east "if your silage is all right, why won't the condensaries take it?" and it has been quite a bananna to crack. Last year the great condensary at Frankfort, N. Y., was built, and here it is a desire of the company that silage should be fed in the winter, as they report that they can make a finer grade of condensed milk from silage fed cows, so fine that they have no difficulty of getting the trade away from the dry feed concerns, up to the point of their supply; and another concern is to be erected at once at another point, and a special bid made for silage made milk for the winter.

Thus one by one the "forts on the hill" of unsupported assertion, go crumbling to dust, for no man of dairy authority in the United States supposed, but knew there was no foundation in the assertion, that silage milk would injure the product of a condensary.

***

The other day I was shown through a great concern where about 20,000 pounds of milk were creamed for a wonderful critical market, one in which a certain amount of cream could be sold f. o. b., at $1.50 per gallon. To get a cream fine enough for this, milk from selected, silage fed dairies was taken, cooled and aerated, then run through separators, pasteurized, cooled and "smoothed," then sealed and shipped. I had never before seen so fine a cream, flavor so perfect and so smooth as was this sample, and so "fine" because it was made from silage made milk, and milked absolutely, as possible to do, clean. Other brands of cream were fine, but none compared with this, and it reminded me of the remark of a creamery operator who said that "knowledge and skill would accomplish any thing in dairy produce, if the patrons would keep the cows' feet out of the milk pails." Still we saw butter made from milk that was far from standard when delivered, but by aeration, running through separators, sterilizing, cooling, using a starter, and churning and salting in an up-to-date way, the butter would score up to a close proximity to the best grades, though in this we do not wish to offer any excuse to the patrons, some of whom would be equally well off if they carried their milk to a fertilizer factory. The amount of skim milk now made into paper glue, is enormous and in that form is only slightly more indigestible than when made into some of the skim cheese seen upon the markets. The by-product of milk at these great creameries seems about solved; about everything from cheese wafers to billiard balls is now made from skim milk, instead of running it into the river, as we once saw them doing by the 30,000 pounds daily at one creamery in New York. If some one will go at it and extract the albumen out of the whey, an article of great value to the arts will be secured, and then if the little fluid which remains can be bottled, and sold for some sort of mineral water, imported or otherwise, there is no reason why a cow cannot rank pretty close up to an oil well in the variety of mixtures and compounds demanded by the human family.

***

The tone of the discussions and the atmosphere of New York over the tuberculosis question, has radically changed in a year, and the old cow has again a reasonable tenure upon life. The great tuberculosis investigation the past summer, under the charge of the Hon. D. P. Witter, at the instance of the legislature, has changed the complexion of the disease greatly, and settled a great many things and shown that some of the most important things known about tuberculosis, were not facts. The mass of testimony was very contradictory. No two men—and the best in the United States were summoned—could agree upon the reason of a rise of temperature when tuberculin was injected. It could not be proven that the disease was transmissible from animal to man, or the reverse.

The incidents to prove this were regarded as wholly wanting in specific detail. In Massachusetts, where the disease is greatest among cattle, shows rapidly diminishing cases of consumption among humans. Dr. Edward Moore and Dr. Smead are challenging doctors and "authorities" to show a single case of transmission, and even the reliability of the tuberculin test, unless accompanied by a most thorough physical examination of the animal by an expert, who is thoroughly versed in animal diseases. It seems to be admitted that the days of general slaughter are over and sanitation substituted.

We predict that a most sweeping law in regard to the sanitation of stables, light, air, ventilation, and like conditions will be enacted by the legislature the coming winter, and the housing of cattle will be made a matter of official inspection. That quarantine and test of cattle coming into the state will be made compulsory, is of great doubt. Just what the committee will recommend to the legislature is a problem, but we here "guess" that the whole matter will be taken out of the jurisdiction of the Board of Health, and made a new duty of the department of agriculture, and the whole question will be considered along conservative lines, and not jeopardize, more than is necessary, the cattle industry of the state. JOHN GOULD.

Ohio.

A Cure for Self-Sucking Cows.

Cows sometimes suffer from the very annoying habit of sucking their own udders. Different courses of treatment are recommended as remedies for this disorder; one of the simplest and most effective, perhaps, is that of boiling a few handfuls of quassia chips in a gallon of water, and washing the cow's teats with the decoction every day for ten days or a fortnight. This decoction is of such an intensely bitter nature that once the cow samples any teats which are dressed with it, she will not be in a hurry to repeat the experiment for some time. The one objection to the plan is that the quassia is liable to taint the milk, except special care is taken to wash the udder, immediately before milking. *Farmers' Gazette* (Ireland.)

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Coming Events.

Vermont Dairymen's Association, Brattleboro, Jan. 9-11, 1900.
Ohio Jersey Cattle Club, Columbus, Ohio, January 9th, 1900.
Illinois State Dairymen's Association, Jan. 11-13, 1900. Place to be selected.
Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Pennsylvania State Board of Agriculture, Harrisburg, Jan. 24-25, 1900
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson
Prince Edward Island. Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

PRINCE EDWARD ISLAND COWS AND FEED.

We have before us a couple of inquiries from Prince Edward Island, both claiming that it would bankrupt the average owner of cows in that province if they were to be fed 12 lbs. of grain per day. Feeds are very high there, especially those carrying a large proportion of protein. Wheat bran sells at from $19.00 to $20.00 per ton. Whether one can afford to feed 12 lbs. of grain a day, more or less, will depend very largely upon the character of the cows he has It is our opinion that our Prince Edward Island friends better look at the cow end of the question more closely. Average cows, native cows, cows as good as one's neighbor has are the bane of every dairying community.

One of the important things for these friends to attend to is to get a pencil and some paper and keep an accurate record of the exact amount of milk each one of these cows gives through the entire season. They will be surprised to learn that some of these cows will give at least 100 per cent more milk than others. Let them read that most instructive bulletin from the Kansas Experiment Station, which we published two or three weeks ago. No man could have told definitely, by simply looking at those cows and not keeping a record of what they did, which one would have proved the most valuable, and so we repeat that the thing of primary importance for dairymen everywhere is to bring their dairy business down to a business basis the same as merchants and manufacturers do. Both of our correspondents state that their cows have been giving milk since last spring, and probably they will be fresh again next spring. Under such circumstances, we connot advise very heavy rations. It would be quite a waste of good feed to do so, and they are probably doing as well now under the circumstances as could be expected. Meantime we commend to their consideration the letters of our correspondent from that island and especially the one published on page 904.

Special Premiums for Dairy Herds.

It has always been the claim of the DAIRYMAN that exact knowledge of what the cows are doing is the first requisite of successful dairying.

No man can go into a herd, no matter how wide his experience, and pick out the animals that will give the *most profit for the year*. The only manner in which a proper knowledge of the work of a herd can be obtained, is by systematic weighing and testing of the milk. To encourage this knowledge the Wisconsin Dairymen's Association proposes to offer a series of prizes to the owners of dairy herds, who are willing to take up this work and thus give the dairymen of the state data on which to base a more systematic and profitable feeding of their herds.

The premiums for the past year will be as follows:

The Association appropriates $125, to which HOARD'S DAIRYMAN adds $25, to be awarded in sums of $35, $25, and $15 to the best producing Wisconsin herds in butter and cheese for the year 1899, where the milk or cream has been taken to a creamery or cheese factory. To compete for these prizes herds must have numbered not less than twelve cows, and all the milking cows in the herd at any time during the year or season (and not the average number) must be counted. The yield must be certified by the creamery or cheese factory manager or operator from the books or records of the creamery or factory, and the total number of cows contributing thereto must be proven by the affidavit of the owner or some person having personal knowledge of the facts.

The certificate from the creamery must show the actual amount of milk or cream delivered each month, and the average per cent of fat, or where the cream was tested in a test churn the average test, and in addition the total amount of butter credited. Where the records have been kept in terms of butter fat only the yield of butter may be estimated by adding one-sixth.

The certificate from the cheese factory, in like manner, must show the actual amount of milk delivered each month, and where the test was used, the average per cent of fat, and in all cases the total amount of cheese credited, as determined by the cheese actually made and sold. This will exclude from competition all factories where the "pound for ten system," or other similar vicious methods are used.

For the largest average yield of butter per cow, in herds as above for the twelve months, the prize will be, $35; for the second largest yield, $25; and for the third largest yield, $15.

For the largest average yield of cheese per cow in herds as above for the 6 months, May to October, inclusive, the prize will be $35; for the second largest yield, $25; and for the third largest yield, $15.

Winners of the prizes, as above, will be required to furnish the Secretary of the Association within thirty days after the adjournment of the convention, a detailed statement of the kind of cows composing the herd and the manner of feeding and caring for them, and when such statements are not furnished prizes will be forfeited.

THE *Times*, of Bellingham, Minn., sums up the situation in that vicinity in the following terse paragraph:

"Creamery butter is worth 26 cents per pound, and the creamery at this place is closed down because of a lack of patronage; flax is worth $1.18, and we are not overstocked with it; wheat is worth 50 cents, and we have dead loads of it; corn is valueless, and there is not granary room enough to store it all. Now is the time to cuss the government, and prepare to raise a million cattle, and plant the whole country to flax next year."

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS *Protein.*	*Carbohydrates.*	*Ether extract.*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CAREOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

WET STARCH FEED AND BREWERS GRAINS.

In reply to an inquiry from Carlyle, Ills., we do not hesitate to say that the purchase of either wet starch feed or wet brewers grains in car load lots cannot be recommended. These feeds decay very rapidly and, if used at all, should be received fresh at least twice a week in winter and daily in summer. Kiln dried with steam heat they will keep almost indefinitely. As a rule, these dried feeds, although costing more per ton than bran, furnish protein cheaper.

BOOK QUESTIONS.

What book would you recommend to assist in compounding formulas for commercial fertilizers?

What subject does "Newton's Computator" treat of?

Sometime ago I saw a review of a work treating on the possibility of controlling the sex in breeding of cattle. I do not remember the title. Is there any reliable book on the subject?

You have given me several replies already in your paper, for which I am indebted to you as well as for much valuable information contained in your interesting paper.

Baltimore Co., Md. W. F.

Talks on Manures, by Jos. Harris, is a thoroughly practical book. It can be obtained of this office for $1.75 post paid.

Newton's Computator is a set of tables for assisting the calculation of creamery dividends.

The controlling of sex has furnished foundation for much theory and more speculation, but we know of no one who has solved the problem nor of any *reliable* book on the subject.

HOW MUCH CHOP FEED?

State in your paper the amount of chop feed that would be a good daily ration for a milk cow. The feed is mixed in this proportion: 20 bushels of corn, 10 bushels of oats, 500 lbs. bran and 500 lbs. of shorts. The cow has all the hay she will eat.

Manning, Iowa. A SUBSCRIBER.

Very much will depend upon the kind of hay of which this cow has had all she will eat. If it is clover hay, 10 lbs. of the mixture or even 8 lbs. will suffice, but if it is timothy or prairie hay, the cow will need 12 lbs. or more. See table on page 754 for the difference between clover hay and timothy hay.

HOLSTEINS IN TEXAS.

Will you kindly give me the address of a reliable dairy farm in Texas where I might write for information in regard to the purchase of fine Holstein milk cows.

Natchez, Miss. L. I. M

We cannot give our inquirer the information he asks for, but our advertising columns are open to the use of Texas breedsrs of Holsteins.

DELIVERING SEPARATOR CREAM TO FACTORY.

How often do you think farm separator cream should be delivered at the factory so that first-class butter can be made from it? The cream contains from 22 to 26% butter fat, is separated immediately after milking and cooled to 55°F. We paid 25 cents for November butter fat. Our churn gain over test was 16%. A. R. L.

Alum Rock, Pa.

There is not the slightest doubt that the sooner the cream is delivered and under the butter maker's control the better. Every hour cream is kept it is deteriorating in value with a consequent lower quality and price for the butter. Of course there are conditions where it is impossible to have it delivered every day. In such cases the only resource is to keep it as cold as possible till it can be delivered.

FOR A NORTH DAKOTA MILKMAN.

I should like you to formulate a ration from the following feed stuffs: Bran, $11.00; shorts, $12.00; ground corn, $16.00; ground barley, $14.00; oil cake, $24.00; roughage, prairie hay, $6.50; millet, $5.00; corn fodder, $3.00. I have already about 20 tons evergreen sweet fodder corn, very fine in quality, with a few ears; am selling milk to city trade; have thirty head of Jersey grades and pure breds. We have them freshen along at all seasons of year to keep up steady supply.

I wish to follow the advice of the DAIRYMAN, and raise plenty of soiling crops for summer feeds, and would like your opinion as to how some of the following crops would do: Tare, vetch, peas and oats, cow peas and rape, in this climate, and heavy gumbo soil? C. S. H.

Casselton, North Dakota.

We would suggest for a ration, a trial of the following combination, and in the amounts stated:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients* Protein.	Carbohydrates	Ether Extract
10 lbs fodder corn....	7.10	.37	4.04	.12
10 lbs. prairie hay....	8.75	.35	4.18	.14
10 lbs. bran	8.81	1.25	3.86	.30
1 lb. oil meal.....	.91	.29	.33	.07
Totals.....	25.57	2.27	12.41	.63

It should be understood that the above is to be the average for the entire herd, and not the amount to be given indiscriminately to each cow. Fresh cows and large milking cows should have more feed than strippers or those not capable of giving large quantities of milk. It would follow then that some of the cows would receive from ten to perhaps twenty-five per cent more grain than above specified, and others would receive that much less. Millet hay, if not too ripe when cut, may be substituted for the prairie hay. Millet, if cut at just the right time, is probably superior to prairie grass, but the trouble is that more frequently than otherwise, millet is allowed to become too mature before it is made into hay. If the seed is so

far matured that it will shell out in the hand there is not only danger in feeding, but its value has become very much decreased.

We hardly dare venture to suggest soiling crops for the climate of North Dakota, and a "heavy gumbo soil." These are conditions with which we are personally unacquainted, and we do not find in any of the bulletins or works on feeding any reports which we dare use as a guide. In Massachusetts they recommend sowing a combination of vetch and oats, three bushels of oats and fifty pounds of vetch to the acre, April 20th, and the same combination April 30th; and on similar dates, a combination of one and one-half bushels of Canada peas, and one and one-half bushels oats per acre, and one-half acre of each for every ten cows. Then they recommend sowing millet May 10th and May 25th, at the least one peck per acre, and one-third of an acre for each ten cows. Later than this, they plant corn at different dates, sow more millet about the middle of July, and from August 1st to August 10th recommend sowing a combination of barley and peas, one and one-half bushels to each acre, and one acre for ten cows.

Instead of relying upon these different varieties of soiling crops, and being put to the necessity of planting them at different periods, and then going to the field daily to harvest them, it would be much better to build two silos, each of sufficient capacity, one for feeding the herd through the winter, and the other for feeding during the summer, and fill them both with material when at its very best. If this soil and climate will raise corn, we should depend very largely on that, but would not omit clover, and perhaps some of the horse beans and sunflowers as recommended by Professor Robertson some years ago.

A MASSACHUSETTS RATION.

Please give me the most economical and best balanced ration for milch cows from the following feeds: Timothy and oat hay, bran, corn meal, gluten feed and ensilage. I am feeding in the morning, 10 lbs. ensilage, 10 lbs. hay, 4 quarts bran, 1 quart corn meal, and 1 quart mixed feed for each cow; and at night the same, with the exception that one quart gluten feed is substituted for corn meal. If this is not right, why not? And what change would you recommend?

Rutland, Mass. B. N. P.

We estimate that this inquirer is now feeding about 32.41 lbs. of dry matter, containing 2.18 lbs. digestible protein, 16.75 lbs. digestible carbohydrates, 0.80 lbs. digestible fat. That is none too much protein, and the carbohydrates are much in excess of any real necessity.

Just what this mixed feed may be, is entirely uncertain. It may be a valuable feed, or it may be a very poor one, therefore we cannot say whether it should be continued or omitted. We are of the opinion that the hay might be materially reduced, and that we would drop out the corn and increase the gluten feed. Turn to our table on page 754, and note what are the feeding properties of these different constituents of the ration, and then add to or take from as the necessities of the case seem to require.

A NEW JERSEY FEEDING PROBLEM.

We have recently mixed, for cows in milk, the following ration: 1,000 lbs. buckwheat middlings, $19.60; 1,000 lbs. hominy feed, $18; 1,000 lbs. Buffalo gluten, $19; 600 lbs. bran, $18; 500 lbs. corn meal, $18—fed dry, according to size of cow and period of lactation. Cows are doing very well; seem rather thin in flesh. Hay fed is timothy, with trifle of clover and mixed grasses. Will it pay to cut and moisten some of the hay and mix with the grain ration? Will an addition of cotton seed meal or corn meal improve this formula? Can we change this formula and improve it or lessen the cost by substituting other feeds? J. H. N.

Paterson, N. J.

Here is another case where the inquirer might well study the table on page 754. We think that if that table is referred to he will find it prudent to drop out the hominy feed altogether, and because his cows are thin in flesh we would advise his increasing the corn meal. We think a mixture of equal parts by weight buckwheat middlings, gluten feed, bran and corn meal would make an ideal grain ration, and that as an average daily allowance we would feed about 10 lbs. of this and 20 lbs. more or less of the hay, or as much as each cow will eat up clean. If there are conveniences for chaffing some of the hay we would do so and mix with the grain.

PENNSYLVANIA RATIONS.

I have been watching the DAIRYMAN for a balanced ration, but do not find one that fits my case, so will you please formulate one for me in first issue possible. Fodder corn, corn was planted very thick but grew very rank and has quite a little corn on it; cut corn stover, timothy hay, corn and cob meal, $16; ground oats, $21; gluten feed, $16.70; wheat bran, $17; middlings, $18.

My brother would like a formula also. He has the same feeds except that he has well eared silage instead of fodder corn.

Edenburg, Pa. W. A. McC.

We should be disposed to try the following as an average daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
8 lbs. fodder corn....	5.68	.30	3.23	.10
8 lbs. stover.....	4.76	.14	2.59	.06
8 lbs. timothy hay....	6.94	.22	3.47	.11
6 lbs. gluten feed.....	5.53	1.22	2.90	.21
4 lbs. bran.....	3.42	.50	1.54	.12
Totals.....	26.33	2.38	13.73	.60

The only difference we would make where silage was substituted for fodder corn would be to use about 25 lbs. of silage and grain as above specified, and then what stover and timothy hay each cow would eat.

PRESERVATIVES.

Inclosed is a circular of a preparation called preservaline; the circular will tell about it. Also a circular of "Laktone."

Is there anything injurious to health in using this stuff? I shall try the chaffed alfalfa and corn meal in January next. I am feeding ensilage now, and will have my silo empty about the 15th of January, 1900.

La Mirada, Cal. F. M. U.

We have frequently commented on the use of preservatives in food products, especially milk. We are decidedly against their use in any form or manner. In spite of the claims of interested parties, there is a decided danger in using them, especially to children and invalids. There is no necessity for their use, and they only serve to cover up carelessness in handling, and the presence of dirt in dairy products. There is a decided public opinion against their use, and milkmen who use them usually lose more in patrons than they gain in milk saved. We should advise our correspondent to let such compounds severely alone. See pages 278, 378, 834, 977, of Vol. for 1898.

We would be glad if our correspondent would give us his experience with chopped alfalfa.

A MAINE RATION.

Will you please formulate me a ration for twenty Jersey cows of medium size. I sell milk at retail. Bran, $20; gluten meal, (Chicago) $22.50; Buffalo, $18 to $20; cotton seed, $25.50; middlings, $18; oil meal about the same price as cotton seed. I have a limited supply of whole corn ensilage, and about thirty tons of timothy hay. I want to feed as little hay as possible and get good results. I am now feeding to cows, giving a fair mess of milk, 30 pounds silage, 1 pound cotton seed meal, 1 pound gluten meal, 4 pounds bran and all the hay they will eat up clean, which is from 12 to 20 pounds. Want to make my ensilage and hay go as far as possible, but still want as much milk as I can get and of the best quality. F. C. R.

Skowhegan, Me.

The present ration, as we estimate it, contains 21.96 lbs. dry matter, in which there are 1.80 lbs. digestible protein, 10.68 lbs. carbohydrates and .60 lbs. digestible fat. This is really too little for cows that are expected to give reasonable quantities of milk, and if as stated, it is desired to limit the amount of silage and the amount of hay, the increase must come, as in fact it ought to come from the grains fed. We therefore, recommend adding to the grain allowance 3 lbs. Buffalo gluten feed. This will raise the totals to 24.73 lbs. dry matter, containing digestible nutrients as follows: 2.41 lbs. protein, 12.13 lbs carbohydrates, 0.70 lbs. fat.

FLOODING CORN.

I don't see how anyone can keep cows without the DAIRYMAN, or the paper without buying cows. When I started taking the paper, a year ago, I had no cows. Now I have a separator and twenty-one cows. I am getting interested in the silo, and the only thing bothers me is, I am in a country which is subject to overflow from the Skagit river, and water gets from three to four feet deep, and lays three or four days. What effect would that have on ensilage? Might not come for twenty years, and might come next year. O. F.

Burlington, Wash.

It depends on when the overflow takes place, at what period in the growth of the corn. If there was any injury to the growing corn, it would be noticed in the condition of the plants. If the corn was mature enough for the silo, at the time of the overflow, the injury would, probably, be very small as it it could be rapidly cut and siloed, after the water was gone.

A MICHIGAN RATION.

Please give me the most economical and best balanced ration for milch cows, from the following feeds: Bran, $16; meal, $15, and gluten feed, $17; clover and timothy hay, mixed, $7. Have all the corn stover I can use. H. R.

Michigan.

For a minimum allowance we would recommend as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay.....	8.53	.48	3.96	.16
10 lbs. stover.....	5.95	.17	3.24	.07
5 lbs. bran.....	4 41	.63	1.93	.15
5 lbs gluten feed....	4.11	1.02	2.42	.18
Totals.....	23.00	2.30	11.55	.56

A NEW YORK RATION.

Please inform me in your next issue whether I can improve upon the ration I am at present feeding my cows kept for milk especially. I feed 3 qts. malt sprouts, wet, 2 qts. wheat bran, ½ qt. corn meal, 1 qt. oat chops, ½ qt. cotton seed meal to a feeding twice a day, with either light orchard hay or millet in the morning and corn stalks at night.

Oil cake meal, $30.00 per ton; cotton seed meal, $24.00 per ton; oat chop, $15.00 per ton; wheat bran, $18.00 per ton; corn meal, $16.00 per ton; malt sprouts, $14.00 per ton; sugar beets pulp, wet, $3.00 per ton; wheat middlings, $18.00 per ton; ground oats, $24.00 per ton; wet brewers grains, 10 cents per bushel; timothy hay, $10.00 per ton.

Wet and dry starch feed is fed to a great extent, but factory is at present shut down, I would, however, be much obliged to you if you would formulate a ration with starch feed as the principal part. Please inform me if sweet corn, red kaffir corn, teosinte and alfalfa are fit for silage. E. W.

Oswego, N. Y.

It is very difficult to estimate the amount of feed given, when it is stated in quarts, but as far as we can "guess" this inquirer is feeding about 10 lbs. of grain per day, and his entire ration contains not far from 2.3 lbs. digestible protein. This is not far from right, and we see no good reason for suggesting a modification for the present ration.

Starch feed seems to be, according to our reports from different parts of the country, not of very uniform quality, and as it is a feed with which we have had no personal experience, we do not feel competent to offer more than a tentative suggestion. We should at first feed not more than 20 lbs. of the wet feed, and would then increase or decrease the amount as the result seemed to justify, but would include with this feed, whether more or less of it be used, not less than 2 lbs. of bran and 2 lbs. of corn meal.

A MARYLAND RATION

Give me a balanced ration for cream from the following: Bran, $18.00; cob meal, $12.00; cotton seed meal, $25.00; clover hay, $11.00. I am feeding now, 5 lbs. cut corn fodder 5 lbs. cob meal, 5 lbs. bran, 1 lb. cotton seed.

With the above feed that I am now feeding, I give all the clover hay they will eat, twice a day, at least 20 lbs. each, and long corn fodder and wheat straw to run to in barn yard. F. P.

Woodstock, Md.

We would make no difference in the ration whether feeding for cream or milk or butter or cheese. We do not understand how it is possible for these cows to consume so much feed. It seems to us altogether probable that there is a good deal of waste, both in rejecting the feed which is put before them, and in not digesting that which is eaten. We should certainly omit the cotton seed meal for one thing, or reduce the bran and corn and cob meal by not less than 3 or 4 lbs., if, as reported, the cows are eating 20 lbs. of clover hay each twenty-four hours. Of course, if the amount of clover hay is reduced, it may be necessary to hold up fairly well on the grain.

IN THE LAND WHERE FEEDING STUFFS ARE VERY HIGH.

J. D. R. of Metchosin, British Columbia, writes as follows:

"I. In a land where feeding stuffs are very high, do you consider hay and bran and white carrots or mangels a good ration for milking cows? How much of each would you feed per day?

II. Say you have a herd of grade Jerseys, whose milking strain you wish to improve; there is a registered Jersey bull at hand, also a Jersey bull ⅞ pure breed, the offspring of a grade Jersey cow with an excellent record of milk and butter. Would you use the latter bull whose forbears you know, or the former, whose chiefest recommendation is a long pedigree. The grade Jerseys are more deserving of honor than thoroughbred Jerseys in this region."

To the first of the above inquiries we would answer by suggesting that 10 lbs. of bran, 20 lbs. carrots and hay *ad libitum* would make a very fair ration.

The second inquiry is not so easily answered. The rule is never to advise the use of a grade sire; but notwithstanding this rule, unless the registered animal with the long pedigree shows several ancestors, not too far removed, with excellent records, we should be disposed to take our chances with the ⅞ grade with grade cows. Of course we should expect some blanks, but on the other hand there would be reason to expect a fair number of prizes.

A HEIFER'S SECOND YEAR.

R. G. C. says he was disappointed because his heifer with her second calf after continuous milking, does not give as large an amount of milk as with her first calf. In freshening she only gives three quarts a day He asks us to assign a cause and inquires if she will be all right next time. We do not think the continous milking had much to do with the small amount given with the second calf. We are of this opinion because in innumerable instances where there has been continuous milking such results have not followed. It is true, however, that a heifer quite frequently falls off very perceptibly in her yield the second year. She may regain her yield during the present period of lactation, but if not we should expect her to be all right with the third calf.

AN INDIANA RATION WITHOUT HAY.

We have plenty of excellent silage made from corn that we have husked, from 75 to 80 bushels per acre; also plenty of corn stover, some of it either husked or shredded. We have some oat hay, but don't want to us it if we can avoid it.

We have plenty of corn and cob meal, and we buy gluten feed for $15.50 delivered, and

pay $14 a ton for bran. We believe the gluten feed is much cheaper, at the price, than bran, and, hence, think of using as much of it as can properly be used. In buying bran, we can buy coarse bran, or bran that contains the germ of the wheat grain for the same price. What is the analysis of each, and which is preferable?

After giving me your idea as to how we ought to utilize these feeds, make up a ration that you think would be the best suited for my dairy of cows. We are milking nearly one hundred cows, pasteurizing the milk, and selling it in the city.

We have answered some inquiries in your paper heretofore, as to the benefits we get from ensilage. We put up over a million pounds this year, in stave silos. T. E. E.

Fort Wayne, Ind.

Bran, with the germ of the wheat grain in it, is a new specification to us, and we are unable to find any reference to it, but in the nature of things, we should not regard such a feed stuff as superior to coarse, flaky bran, as its proportion of protein would be smaller.

While we agree with T. E. E., that gluten feed at $15.50 is cheaper than bran at $14, it is by no means certain that some bran cannot be profitably used. This is a question that cannot be definitely settled, except by actual trial.

One might try first, something like this:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. stover	5.95	.17	3.24	.07
6 lbs. corn and cob meal	5.34	.38	3.78	.21
6 lbs. gluten feed	5.53	1.22	2.90	.21
Totals	24.74	2.16	14.12	.70

It is quite within the range of possibilities that the substitution of 3 lbs. of bran for 3 lbs. of corn and cob meal, or the addition of 2 lbs. of bran to the grain allowance, would more than justify the extra cost.

AN ONTARIO RATION.

Will you please give me a balanced ration for my cows, 10 in number, all Jerseys. They are not doing as well as they might, 7 of them are fresh in milk or nearly so.

Bran is worth $13 per ton; shorts, $16; corn chop, $16; oat chop, $16; old process oil cake meal, $24; mixed hay (⅔ clover) from $8 to $10 per ton; lots of oat and wheat straw, but hay is scarce; have some sugar beets and turnips.

I am much pleased with the DAIRYMAN and would not like to be without it.

Tavistock, Ont. Wm. H.

It would seem as though an average daily allowance as given in the following formula ought to provide these cows with the necessary raw material for giving a satisfactory return:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. mixed hay	10.25	.66	4.60	.19
8 lbs. oat straw	7.26	.11	3.09	.06
10 lbs. bran	8.81	1.26	3.86	.30
1 lb. oil meal	.91	.29	.33	.07
Totals	27.23	2.32	11.88	.62

Add to the above, the beets and turnips as the amount in stock will seem to justify, feeding both just after milking and never just before or during the time milking is in progress. Also add a limited allowance of salt, say a small teaspoonful with each feed.

A WISCONSIN RATION.

As I see no feeding ration that just fits my case, I will ask you to formulate one for me of following feeds: Corn fodder in bundle, quite heavily eared; corn stover; a limited amount of timothy hay; corn $7, can have it ground with the cob; oats, 23 cents per bushel; bran, $14; oat straw. Would an addition of gluten and oil meal make a better ration. Would it be better to husk corn and shred all corn stover. My cows are mostly grade Jerseys, new milch in September and October. D. W. S.

Elkhorn, Wis.

The crowded condition of our columns and the great increase in the number of inquiries received makes it impossible for us to answer all of them promptly or discuss the different problems as fully as we would like. We are of the opinion that it would be better in this case to husk the corn and shred the stover, especially if the cows reject a considerable part of the coarse stalks. Meantime we suggest to D. W. S. that he make the following formula a basis from which to work, giving some cows more, some less, varying the specific amounts given as the demands of each cow may seem to require and the prices of the different feeds will make it more or less economical to use them:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn fodder	7.10	.37	4.04	.12
6 lbs. stover	3.57	.10	1.94	.04
5 lbs. timothy hay	4.34	.11	1.71	.06
4 lbs. corn and cob meal	3.56	.26	2.52	.04
2 lbs. bran	1.76	.25	.77	.06
2 lbs gluten feed	1.84	.41	.97	.07
2 lbs. oil meal	1.82	.59	.65	.14
Totals	23.99	2.09	12.70	.63

We think the probabilities are that it would be more economical to double the amount of bran and the amount of gluten feed specified, and omit the oil meal under the present prices, but that is a matter which must be left to the judgment of our correspondent.

WISCONSIN QUERIES.

1. Which kind of wheat bran will make the most milk, bran that is coarse and flaky, or bran that is fine and heavy, feeding so many pounds a day each?

2. Does millet seed hurt calves that are, say, two months old, as a calf seldom ever eats anything but the heads? Also is millet hay, cut pretty ripe, good for milk cows?

3. Does ensilage make good food for young calves that are drinking milk, or will they do better without? Which is best for calves, ground oats and wheat bran fed to them dry or will they do better by scalding the two together? J. E. R.

Wisconsin.

I. Coarse, flaky bran is considered much superior to that which is fine and heavy.

II. We should not want to feed calves any millet hay especially if the seed was fairly well matured; neither would we feed millet hay cut pretty ripe to either cows, calves or horses.

III. A little silage will do no harm to calves but there is nothing quite so good for them as nice clean hay. It is the general opinion that it is better to give ground feed to calves, dry.

PREPARED FEEDS.

Inclosed find $1.00 for one year subscription to HOARD'S DAIRYMAN, and sample of feed which I would like to know what is in it. It seems to be crushed corn and oats but whether it contains other feed I do not know. I am buying it from St. Louis and costs me at landing here $16.00 per ton. It is called prepared cow feed. C. M. T.

Zell, Mo.

The sample seems to be a mixture of oat hulls, dust and a small amount of corn. We are very doubtful of the feed being worth the price paid. Unless such prepared feeds are accompanied by a guaranteed analysis from some responsible manufacturer, the dairyman should let them alone and buy only such feeds as have a known composition, and do his own mixing.

BUTTER FROM CREAM SEPARATED AT HOME.

Can a buttermaker make as good butter and run his creamery with as good success where some of the patrons bring the cream that has been separated at home, while others bring the whole milk to be separated at the creamery, as he can, where all bring the whole milk, provided the cream is brought in good condition? What kind of a tester is needed to test the cream, and where can the same be purchased? P. D.

Spencer, S. D.

If the cream is brought to the creamery every day, so that it is received in good condition, there is no reason why the butter made from it should not be of fine quality. Of course if the cream is kept at home for a day, before delivery, the results will not be so good, and if added to the other cream will hurt the quality of that also.

For testing the cream, a Babcock test and a pair of scales are necessary. Write to the dairy supply houses for the apparatus required.

A SOUTH CAROLINA RATION.

In your December 23, 1898 issue, page 910, you formulated a ration for my milch cows; see article, "In the Primer Class."

I now wish to substitute cotton seed meal for the cotton seed in the ration, letting the ration otherwise remain unchanged. How many pounds of cotton seed meal shall I use?

Mayesville, S. C. C.

The formula submitted a year ago was as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. cow pea hay	13.39	1.62	5.79	.16
4 lbs. corn meal	3.56	.32	2.67	.17
3 lbs. bran	2.64	.38	1.16	.09
2 lbs. cotton seed	1.80	.25	.60	.34
Totals	21.39	2.57	10.22	.76

By substituting 1 lb. of cotton seed meal for the 2 lbs. of raw cotton seed, we shall increase the protein somewhat and decrease the fat very materially. This change could be tried, and if not found entirely satisfactory, write again giving the results and stating what other feeds are available.

FREEZING THE TEST SAMPLE.

Can a correct test be made where they take a sample every morning, and the sample is allowed to freeze, and keep it for a month?

Jerome, Mich. SUBSCRIBER.

Freezing has no effect on the testing of the milk, provided the sample is thoroughly mixed when the test is made.

RIPENING CREAM.

Have a separator for farm dairy, find a little difficulty in getting the cream just right for churning; we wish to churn three times a week. Would you please give a few rules or some instructions as to souring cream and getting it to the right temperature; the use of hot water or stove heat, ice or cold water; also when to put starter in and what is best for starter? D. J.

Thornhill, Ontario.

As soon as the cream is separated, put the vessel containing it in cold water and stir the cream gently until it is below 60° F., then remove to a cold place where it will be at a low temperature. When fresh cream is added, stir the contents of the cream jar until both lots are throughly mixed.

The day before churning, remove the cream to a place where the temperature is 68°-70° F. See that it is throughly stirred several times during the day and take care that it is not over warmed on the side next to the source of heat.

The next day it should have a mild clean sour taste and smell, of a fine granular body and considerably thicker than when sweet. When cream is to be heated up for ripening it should be done by setting the vessel in warm (not hot) water not over 115° F., and let the cream come to 70° F. slowly; half an hour is not too long. Never use hot water or place on the stove. If you use ice for cooling, put it outside, in the cooling water, never in the cream itself; it contains too much dirt and may easily taint the butter.

If your butter is of good flavor, use buttermilk for a starter (10-15%), otherwise use some clean whole milk, ripened in the same manner as your cream.

The starter should be of a clean sour smell and taste, and the curd, when broken, should show no gas holes, but be perfectly solid.

Strain the starter through a fine hair seive when adding to the cream and stir till the two are throughly mixed.

A General Purpose Plea.

ED HOARD'S DAIRYMAN:—December 14th, 1899, was a day long to be remembered, for on that day it was my very great privilege to listen to the distinguished and most eloquent orator, who presides as the editor of the DAIRYMAN. His theme, one that we are all interested in, The Dairy Cow, and with what wonderful words and gestures he did expound the doctrine of breeds and feeds that day, with what unction he explained his "washing," as he called it. And as I sat with ears and mouth both open, drinking in the wisdom that flowed so speedily from his fertile brain, tears came to my eyes, as he, with terrible denunciation, attacked, filed left, filed right, and then charged down upon the poor, forlorn "critter," The General-Purpose Cow. As I listened to his silver tongue and heard the words of promise, it seemed to me it must be so for he said it was so.

Coming home that night and sitting in front of the old fireplace, where burned some old special-purpose maple logs, I fell into a sort of trance and my mind ran back for nearly fifty years, and I saw a general-purpose cow owned by Francis Hibbard, who made, upon grass alone, 18 lbs. of butter (by the churn) in one week; and coming down along the years I saw Miss Bell, a thoroughbred Durham, who gave 75 lbs. of milk per day on grass alone, and a daughter of hers who gave 70 lbs. per day. And in my drowsy state I marched up the road and stopped at

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Is a Tower of Strength Abroad." This truth has been perfectly verified by the history of Hood's Sarsaparilla, which effected its first cures in Lowell, Mass., where it is made and where it still has a larger sale than all other blood purifiers. Its fame and cures and sales have spread abroad all over the world, and it is universally recognized as the best blood medicine money can buy.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

The Best Food for Infants

Nature planned that infants should have only milk for at least the first year of life. But thin milk, skimmed milk, will not nourish. It's the milk that is rich in cream, or fat, that does the work. This is because fat is positively necessary for the growing body.

Scott's Emulsion

contains the best fat, in the form of Cod-Liver Oil, for all delicate children.

They thrive greatly under its use. Soon they weigh more, eat more, play better and look better. It's just the right addition to their regular food. The hypophosphites of lime and soda in it are necessary to the growth and formation of bone and teeth.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

Will Bell's, and thinking, as he is the most successful farmer I know, I will ask him what cow in his dairy is the most profitable one, and we went out to the fine dairy barn where fifty sleek cows are stabled and where they have the most intelligent care, and produce more milk than the same number of cows of any patron of the milk station where he delivered his milk. What cow in all your herd is the best? And lo, and behold, she was a mulley, and from her looks could not have been one one-hundredth part Special-Purpose Cow.

Thinks I, perhaps I had better get a little nearer the fountain head of special-purpose, and went down to see the finest dairy in our county. Holsteins, bred from the record breakers of the world on both sides, Guernseys from the great families, and all of them beautiful animals, and having care much better than plenty of farmers' children. Silage and gluten balanced ration fed, (according to Hoard), and I the question ask, which is the best cow you have? and I am shown, not a daughter of Pauline Paul, neither of Elgin Belle, but a cow one-half Durham and her dam just cow, a general-purpose cow.

Coming home, I go out to the barn and look over the mothers there, and stop before an old mother, and a feeling of sadness comes over me, for if I follow the teachings of my distinguished teacher, I must bid her good bye. She looked at me so kindly, I thought perhaps it would be as well to talk with her about it, and I told her about being down to the Dairymen's Convention, and a man there had said she was "no good," and I thought perhaps she would have to go, but believing that no one should be condemned without an oppertunity to be heard in their own behalf, I would let her make her speech. And with such a look as she gave me, full of gentle reproof, she said: "So I have got to go; well, perhaps it is as well, but thank the Lord, I can go for beef instead of bologna, (slightly sarcastic), but before I go I want to say, I have lived with you twelve years last spring; my mother was old Bess, and she was twenty when she died, and you remember at the fair, the year I was born, she took first premium as the best dairy cow, and gave sixty pounds of milk in twenty-four hours, and gave the same amount each twenty-four hours for seven days, and she made that milk herself, and 'twant pumped into her with a bicycle pump either." Say don't get excited. "Well, who wouldn't get excited I'd like to know, when a fellow from Wisconsin gives me such a roast.

When I was twenty months old, a little daughter was given me, and each year since I have come in profit, and you know what I have done. For several years with a lot of those fancy flat land cows, with jaw-breaking names, we did pretty well making cheese, but when you sold the milk to the shipping station it was different. You ought to remember the day you came home and came out here and sat down beside me, and cried; yes, cried because they said you put water in your milk; and that same day a man came along selling that little machine where the bottles go round, and he said he did not believe you ever did such a thing as put water in your milk, and you told him it was pretty tough on an old man who prided himself on furnishing pure clean milk, to have them say such things. He told you if you would keep him over night he would test the milk for you. And that night he put a little milk in the bottles from ten of us, and the bottles went round, and I was there; 4 3-10 per cent he said I stood, and some of those wax figures were only 1 3-10. Say, your eyes were opened, and I heard him say, 'a few such cows will do, but it is only a polite way of watering milk'. What you want he says 'is more like her'; patting me on the back. And you kicked yourself all around the barn, because you had sold my daughters to those special-purpose fellows, and they brought good prices to you. Remember the roan out of the Durham bull brought $60.00, and you never sold one for less than $50.00.

I have only a few words more to say. Start out and ask the best dairy farmers in this dairy county which cows in their dairy are the best for them making milk to sell to the shipping station or butter factory. Ask them if those best cows ever failed to produce a full time living calf, and ask them if they have stood the test of quantity, bottles and all, and I will rest content with their verdict. And another thing, perhaps you better look over the cows that are failures, that die, yes, die producing their young, and abort; whose calves that have cost you one hundred dollars each, go wrong entirely or are only one hundred and fifty pound cows, and see if they are *all* general-purpose cows. And with a look of contempt she wound up by saying. If what he said was true about like producing like, etc., just ask him what is the matter with me. And now I am done, and if you think it is right to let me go, I will stop giving milk. You feed me all the grain I can eat, for six weeks, and I will trade myself off for fifty dollars and you can pay the taxes." HAYSEED.

Cortland, Co., N. Y.

A Misapplied Criticism.

ED. HOARD'S DAIRYMAN:--"Milking Scrub Cows" in your issue of this week is all right as showing the difference in individual cows, but it is at the same time a most eloquent sermon against dairying in Kansas. Although the herd was "below the average" they were fed and cared for much above the average and the twelve cows were picked out of thirty, yet the return for all the care and labor bestowed on them, and the making and handling of the butter for a year was $195.00. I should really like to know if there are any men (capable of feeding balanced rations and making good butter) in the "wild and woolly west" who consider that a good business proposition? If there are, send a few east and I will improve their conditions about 500%. L. A. VAN Z.

New City, N. Y.

We fear our New York friend has misapprehended the scope and purpose and lesson of the Kansas Bulletin. The experiment there [illegible] not undertaken for the purpose of finding the largest profit, but to show what would do for even common. [illegible] result shows that among the cows purchased there proved to be a few that were money makers, that others barely paid their way, and a few that were kept at a positive loss. The obvious deduction from this is that every cow keeper ought to know just what each one of his cows is bringing him in and thereby be in a position to discard those that are not satisfactory. If this could be done all over the land the reduction in the number of milking cows would be astonishingly great, and the corresponding profits to the dairymen of the land astonishingly increased.

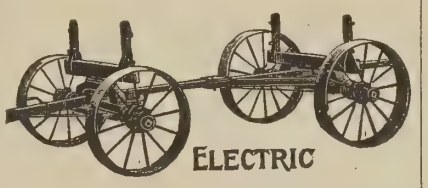
Our correspondent is mistaken in supposing that the twelve cows reported in the bulletin were selected. There was no picking out. These twelve cows happened to be those which had completed a year's record, and might have been the best, or might have been the poorest, or might have been a fair average of the lot. Since that bulletin was published, twenty-eight of the cows have completed a year's record and the summary of their work was given by Professor Otis at the late meeting of the Kansas Dairymen's Association. Of these twenty-eight cows the five most profitable ones made an average yield of 318.9 lbs. of butter fat which averaged at the regular creamery prices 15¾ cents per pound; the cost of feed was $31.49 per cow, and the net average profit, counting skim milk worth 15 cents per 100 lbs., was $28.29. The record for the least profitable five cows in this lot was an average of 178.8 lbs. butter fat; the cost of feed was $27.40 and the profit was $6.35 per cow. Four of the twenty-eight cows failed to pay for their feed. The average loss on each cow was $2.35.

"Contrast these two records." Which kind of cows are you keeping? That is the lesson of those experiments carried on in Kansas as detailed in the bulletin and the subsequent reports of Professor Otis at the Dairymen's Convention.

The trouble with the dairy industry in the land is that we are keeping altogether too many "Cheap John," shoddy, profitless cows. The remedy is to keep a record, know what each cow is doing, and not be deceived and fooled by averages.

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear



hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers

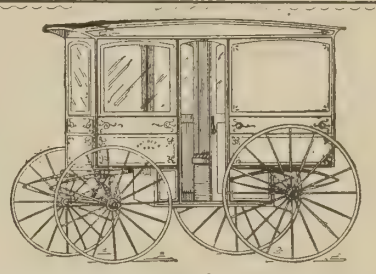
The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

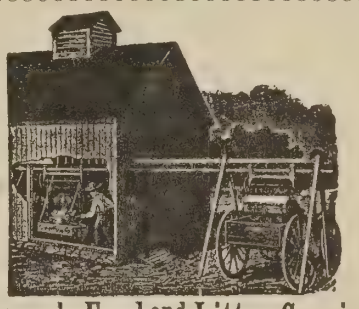
THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



A Perfect Milk Wagon
On a Perfect Short-Turn Gear.

We make 10 other styles. Write us for Catalogue and Price List.

THE O. ARMLEDER CO.,
CINCINNATI, OHIO.



Cherry's Feed and Litter Carrier

The greatest labor saver ever invented. Send for illustrated catalogue to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.

Be Careful



MOTOR TESTER.

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



FARM TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

Agents for DE LAVAL ALPHA SEPARATORS.

MILK FEVER.

According to the Schmidt theory, (the latest,) milk fever is due to ptomaine poisoning in the udder. The excess of albuminoid matter in the colostrum milk and the setting up of albuminoidal fermentation the first three or four days, creates a form of ptomaine poison, causing a sort of creeping paralysis of the nervous system involved, until the spinal cord and the brain is reached and death ensues. If this theory is correct, it would seem that milking a cow right along from one calving period to another without drying off would ensure the constant removal of such fermentative products in the milk, and so prevent milk fever. To secure some testimony bearing on this point, the readers of HOARD'S DAIRYMAN are requested to inform us whether they know of any deaths by milk fever when cows have been milked without drying off from one calving period through another.

A POINTER ON THE IMPORTANCE OF TESTING THE HERD.

An old farmer once said to us: "Why on earth do you keep firing away at us about testing our cows and keeping a record?"

"Well," we replied, "because we see what a lot of money is wasted by you and other men in keeping cows that you know scarcely anything about."

To this he gave a contemptuous snort and said: "What nonsense! Do you suppose a man can live with a cow for two or three years and not have a good judgment as to whether she is a profitable cow or not?"

We replied that we not only supposed but we *knew* that hundreds and thousands of such farmers and such instances existed.

He further asked if we supposed that a man could go into a farmer's barn yard and pick out his best cow and the farmer not know whether she was that kind of a cow or not?

We told him that we thought we could do that very thing in his own herd; that we could pick out cows which he greatly undervalued as to their merit as compared with some other cows in his herd, and could find others which he greatly over-valued.

A year or more after that conversation ensued, a son of this farmer, who had been a Short Course Student at the Wisconsin Agricultural College, concluded to test his father's herd by the scales and the Babcock test. He first took his father's judgment as to which were the best cows. A record of the pounds of milk for six months was kept, together with the test for butter fat once each week.

The test showed that there were six cows in the herd which his father thought were below par, which made from 50 to 120 pounds of butter each more than six of the cows he thought were the very best. The test was a revelation to the father, and he has had nothing to say against testing cows since. This incident shows how valuable it was to this man that he had a good, bright boy who had taken in a little valuable knowledge in this particular. It would be a grand thing if many other farmers would serve themselves in the same way by sending their sons to the Short Course or Dairy School.

In the Bulletin of the United States Department of Agriculture on "The Dairy Herd," Maj. Alvord relates the following:

"A dairyman of wide reputation, president of a state association for years, concluded to adopt the daily milk record rather because of those who advocated it than of any conviction of needing it himself. His herd was of his own breeding, he had handled every cow from its birth, and he and his sons did the milking.

Before beginning the record he made note of the joint opinion of himself and sons—as to the half dozen best cows in the herd, and an estimate of their season's milk yield. When the year's record was completed it was found that in order of actual merit, the cows stood as follows: The best cow was the fifth in the estimate; the second, a cow not on his list; the third was the fourth on the list; the fourth was the first; the fifth was his sixth; the sixth, a cow not in his estimate; and his second and third in previous estimate were way down on the list. These facts were borne out by subsequent records and the man who had called himself a good dairyman, was forced to the conclusion that one-fourth of his cows were being kept at an actual loss while the others barely paid their way."

Dairying in California.—The American Jersey Herd Book.

ED. HOARD'S DAIRYMAN:—I received the paper that I sent you trial subscribtion for; am so well pleased with it that I can't afford to be without it. I am of the same opinion of my neighbor of Los Angeles Co., this is another dairy section and can't be beat in the state; good markets; plenty green feed all the year around. Can raise a fine crop of grain, hay, and a fine corn crop on the same land in a year; alfalfa grows to perfection and a very mild climate; very little cold rain.

I purchased a Jersey bull calf last May (supposed to be a thoroughbred) and when I got the pedigree he was registered in the American Jersey Herd Book. I have never heard of such a book and there are a number of other bulls in my neighborhood from the same man's stock and all are registered in the A. J. C. C. If there is such a book as the American Jersey Herd Book will you kindly inform me, for I wish to correspond with him, who is the secretary of this book and his address. C. W. W.

Lemoore, Cal.

We are unable to supply the information asked. The herd book seems to have dropped out and we cannot find its address or name of officers. Perhaps some of the DAIRYMAN readers can supply us with the address.

An Increased Yield.

ED. HOARD'S DAIRYMAN:—A few weeks ago, you gave me a table for a balanced ration for my herd of Jerseys, and requested me to report the results.

I am highly pleased with the results; am getting two pounds more of milk, per cow, every day than I did before I commenced feeding your ration, and I find the gluten feed much cheaper than bran; it's a splendid feed with other grain.

Your paper has been worth a great deal to me during the past year. The trouble with the majority of dairymen is that they will read your paper, and lay it down with a smile and continue in their old way of doing, thinking that they know just as well as you do, and its hard work to convince them differently. They are too shiftless to try, and too penurious to spend one cent to make five, so afraid they might lose the one cent.

Silver Springs, N. Y. C. E. B.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The Board of Trade met on Saturday, this week. The offering of butter aggregated 4,680 pounds. Bidding opened at 27½ cents, but advanced quickly to 28 cents, at which price two lots were sold. Two declined this offer. The sales made were:

Factory.	*Pounds.*	*Price*
Bassett	1,550	2 c.
Malta	1,200	28c.

The sales for the correponding week of the three preceding years were:

Dec. 31 '98, 2,100 pounds of butter sold at 20½c.
Dec. 27, '97, 4,980 pounds of butter sold at 21c.
Dec. 28, '96, 44,460 pounds of butter sold at 20½c.

The Board of Directors re-elected these officers: John Newman, President; G. H. Gurler, Vice president; W. W. Sherwin, Treasurer; L. S. Taylor, Secretary. Inspectors, E. L. McAdams, Chicago; D. C. Woolverton, Belvidere; G. H. Garrison, Greenwood; J. P. Younger, Freeport; John Crawford, DeKalb; E. P. Vail, Marengo; C. H. Potter, D. E. Wood, and T. H. Gibbon, Elgin; Sergeant at Arms, A. M. C. Todson. H. C. B.

Elgin, Ill., Dec. 30, '99.

URIC ACID

Causes More Diseases in the Human System than Any Other Poison.

To Prove what Swamp-Root the Great Kidney Remedy will do for You, Every Reader Of Hoard's Dairyman May Have a Sample Bottle Free by Mail.

Science has demonstrated that in a few days' time you brew enough Uric Acid in your body to produce death.

Your kidneys are your only salvation.

BECAUSE when they are well, they filter out this deadly poison.

So, when your kidneys are sick, you can understand how quickly your entire body is affected, and how every organ seems to fail to do its duty.

They are all being slowly poisoned.

Uric Acid starts in the system more different kinds of trouble and suffering than any other form of poisoning. It irritates the nerves, makes you dizzy, restless, sleepless and irritable. Causes rheumatism and neuralgia, pain or dull ache in the back, joints and muscles; makes your head ache and back ache; causes indigestion, stomach and liver trouble; you get a sallow, yellow complexion; makes you feel as though you had heart trouble; you lack ambition, you get weak and waste away.

The cure for these troubles is Dr. Kilmer's Swamp-Root, the world-famous kidney remedy.

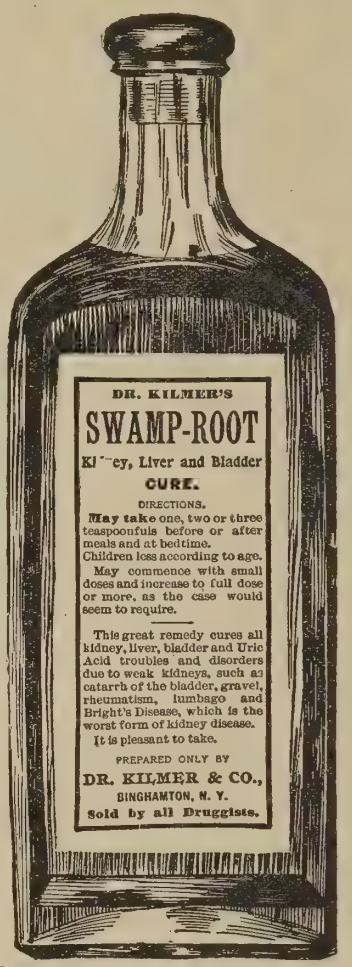
It instantly relieves the congested, overworked kidneys, and gradually brings them back to health. In taking Swamp-Root you afford natural help to nature, for Swamp-Root is the most perfect healer and gentle aid to the kidneys that is known to medical science.

Healthy kidneys keep down the dairy, the cream just rig of uric acid, and you soon churn three times a new health and str

I please give a few rules

Swamp-Root ans- ering upon the least sign of ill health. It will make you well and is for sale the world over in bottles of two sizes and two prices, fifty-cent and one-dollar.

Swamp-Root is used in the leading hospitals; recommended by skillful physicians in their private practice; and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy that science has ever been able to compound.



To prove its wonderful efficacy, send your name and address to Dr. Kilmer & Co., Binghamton, N. Y., mentioning HOARD'S DAIRYMAN, when you will receive, free of all charge, a sample bottle of Swamp-Root and a valuable book, by mail, *prepaid*. This book contains many of the thousands upon thousands of testimonial letters received from men and women cured.

CONCERNING OUR ADVERTISERS.

The successful carrying on of the modern farm requires the utilization to the fullest extent of all its products. In order to make the most of farm possibilities, it is necessary to have modern machinery, not only in the grain field, in the barn, and in the house, but also in the poultry department. Here we find incubators to have become a necessity, and the only question which the farmer now asks, is as to the machine which will do him the most service at the most reasonable price. In this connection we wish to recommend the successful incubators and brooders made by the Des Moines Incubator Co., of Des Moines, Iowa, whose advertisement will be found in another column of this paper. We do not hesitate to recommend them, because they are so simple that any one may use them. They require no expert. The heat regulator is automatic in its action. They have a safety lamp which prevents any danger from fire. The new 1900 catalogue which has just been issued, is a very complete affair in

IF you look at a dozen common lamp-chimneys, and then at Macbeth's "pearl top" or "pearl glass," you will see the differences—all but one—they break from heat; Macbeth's don't; you can't see that.

Common glass is misty, milky, dusty; you can't see through it; Macbeth's is clear.

Tough, clear glass is worth fine work; and a perfect chimney of fine tough glass is worth a hundred such as you hear pop, clash on the least provocation.

Our "Index" describes *all* lamps and their *proper* chimneys. With it you can always order the right size and shape of chimney for any lamp. We mail it FREE to any one who writes for it.

Address MACBETH, Pittsburgh, Pa.

PLAYS Recitations, Dialogues and other entertainment books. Catalogue free. **Dramatic Pub. Co., Chicago.**

$50.00 to $100.00 per month made by selling rights for the **Fence that suits everybody.** More agents wanted. BUCHANAN FENCE CO., Box 27, Smithville, Ohio.



— BANKRUPT SALE OF —

A No. 1 DAIRY FARM

Said farm lies in the Mill Creek Valley, 7 miles from Richland Center, 1 mile from Boaz and a first-class cheese factory. It consists of 479½ acres under fence and seeded down; over 200 acres under plow. Said farm must be sold to close out bankrupt stock. For further particulars address D. G. JAMES, Trustee, Richland Center, Wis.

Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City. N. J., write: "It is indeed a great song; are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.



all its departments. It describes and illustrates every machine sold by the company and does it so well that the buyer can make his selection with almost the same certainty as though he had the chines before him. It also contains the usual proportion of valuable poultry reading. Send for it. It costs six cents. Address the DES MOINES INCUBATOR CO., Box 424, Des Moines, Iowa.

Henry Stevens & Sons, Lacona, N. Y., write: Sales at Brookside continue good. We have been breeding Holstein-Friesians for 23 years and sales never were better than this fall. Milk, butter and cheese have been bringing a good price, and there appears to be a better feeling among breeders and dairymen than for some years past. The victories our breed have won, in competitive fair ground butter tests, all over the United States and in Canada is demonstrating, year by year, the value of our breed, not only as milk producers but also butter producers as well. Nearly all of the butter factories and most of the cheese factories are now paying for milk by the butter fat it contains, and as far as we can ascertain, our breed are making a favorable showing in this respect, in comparison with other breeds. This together with the competitive tests is exerting, in our judgment, a good influence and stimulating Holstein breeders to breed better animals and to use only such sires whose ancestors give milk rich in butter fat.

One of the most important sales we have made of late was the young bull Brookside Hengerveld Paul to Henry Wisler, of Columbia, Pa. This bull is a son of Netherland Hengereald. It will undoubtedly be remembered by most of your readers that this cow made more butter in her weeks' official test, than any cow ever yet officially tested, viz, 26.66 lbs. Her milk averaged during the week of this test 3.92 per cent butter fat. The sire of Brookside Hengereald Paul is Mutual Friend 3d's Paul, a son of Mutual Friend 3d sired by a son of Pauline Paul. This gives this young bull a combination of blood of the richest and largest producing strains, and he must be of great value at the head of the "Mt. Prospect Herd."

Mr. Wisler's herd contains about 40 head, many of them exceptionally well bred animals. Among the number is a daughter of our great cow Helena Burke. It will be remembered that Helena Burke won the seven day butter test open to all breeds at the Trans-Mississippi Exposition in 1898 after travelling thousands of miles and being exhibited at five state fairs before the test commenced. Her official test is 25.45 lbs. butter in seven days, 98⅞ lbs milk in one day and 654¼ lbs. in seven days, which is the largest week's milk record made by any cow in an official test.

A BIG BUSINESS BOOM.

(A well-known firm says newspaper advertising did it.)

Messrs. Loomis & Nyman, Tiffin, Ohio, for thirty years famous as inventors and manufacturers of well and shaft digging machines, are giving credit to the newspapers for the big rush at their factory. The entire mechanical force is working day and night, and yet the firm is unable to meet the daily inflow of orders There have been great improvements during the past few years in these machines, but Messrs. Loomis & Nyman still lead all competitors, and through the newspapers keep this fact prominently before the public. The firm declare the newspapers made the boom, and that this paper is one of the prosperity makers.

The attention of our readers is invited to the advertisement of the Empire Mfg. Co. Sterling, Ill. Their disk harrow and other farm implements bear a good reputation. Particulars to all who write them.

WHAT IS SPELTZ?

Salzer's catalogue tells all about this wonder, also Million Dollar Potato. If you farm you need it. Largest Vegetable Seed Growers in America. Send this notice and 10c in stamps for 10 Rare Farm Samples and Catalogue to John A. Salzer Seed Co., La Crosse, Wis.

We find upon our table to-day a new catalogue of fruits, plants and vines, also of ornamental trees, plants and vines, issued by Green's Nursery Company, Rochester, N. Y. This catalogue has a fine lithograph cover, embracing many of the rare fruits introduced by this firm. The fruit department embraces nearly 112 illustrations. The ornamental catalogue attached to the other contains 84 new photo engravings, mostly taken by C. A. Green, of ornamental trees, plants and vines, growing upon his own place. Mr. Green makes a special push this season of apple trees, standard and dwarf pear tree, Red Cross currant, Loudon red raspberry, and Champion peach are leading specialties in this beautiful catalogue, sent free to all on application.

KENDALL'S SPAVIN CURE.

The most successful remedy ever discovered as it is certain in its effects and does not blister. Read proof below:

FAIR HAVEN, Conn., Dec. 19, 1898.

DR. B. J KENDALL CO.

GENTLEMEN:—Please send me one of your books, "A Treatise on the Horse." I have used your spavin cure for the past twenty-five years, more or less, and think it the best liniment I ever used for spavin, splint and ringbone; now in my old age I want to learn more about it. You may use my name if you wish.

I once used it on a cow that had been lame in the foot for a long time, and a few applications of Kendall's Spavin Cure completely cured her.

Yours respecttully, R. A. PALMER.

THE PLANTER'S DEPENDENCE ON GOOD SEEDS.

Without good, fresh, fertile seeds, good crops are impossible. It is, then, of the most vital importance that you should exercise the greatest possible caution in selecting the seeds you are to plant the coming season. Since you cannot determine their fertility or freshness by sight, the only certain way to insure yourself against worthless seeds is to buy only those that bear the name of a firm about whose reliability there is no question. There are no better known seedsmen anywhere, and none who have a higher reputation for integrity than D. M. Ferry & Co., of Detroit, Mich. Ferry's Seeds have been a synonym for good seeds for many years. Thousands of gardeners who continue to plant them season after season do so with the full confidence that they will uniformly be found to be of high vitality, and most important of all true to name

Ferry's Seed Annual for 1900 is fully up to the standard of former years, and will be welcomed by all who have learned to regard it as a thoroughly reliable and practical guide to planting. A copy may be attained free by addressing the firm as above.

DAIRY MARKETS.

ELGIN, Dec. 30.—The extreme cold weather prevailing over the Northwest was evidently a factor in the market to-day. Few lots were offered at the opening.

Butter—Bids of 27½c were made and quickly raised to 28c, at which some offerings were sold before the call. Outside markets were reported firm and higher generally, with very light receipts. Bids of 28c on all lots, only one sold.

CHICAGO, Ill., Jan. 1—Butter—Extra creamery, 27c; firsts, 24@25c; seconds, 20@22c; imitation creamries, 18@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 18c; roll, 17@18c.

Cheese—Full cream, Twins, good to choice, 11¾@12c; off grades, 8@10c; Young America, 11@12½c; Cheddars, 11¾@12c; Swiss, 12½@13c; Limburger, 10@11c; bricks, 10@11c.

Eggs—Strictly fresh laid, cases returned, 17@18c; city cooler stock, 10@12c; country, 9@ 0c.

Cattle—The market was active at last Friday's average prices. The feeling was strong early in the day, but some late arrivals made a weak finish. Nothing strictly choice was on sale, yet six loads averaging 1,385@1,538 lbs sold at $6.50. Most of the natives sold at $5@6, averaging 1,030@1,523 lbs. Iowa-fed Texas averaging 1,162@1,238 lbs. sold at $4.87½@5.40. Native butcher stock sold actively at strong prices Cows sold largely at $2.90@3.65, and heifers principally at $3.75@4.50. Feeding were strong at $3.50@4.60.

NEW YORK, Dec. 30.—Butter—Extra western creamery, 28c; extra Junes, 26c; ladles, 17@20c. Market firm. Receipts, 3,200.

Eggs—Fresh eggs, 23c; refrigerators, 12@14c. Receipts, 5,000. Weather very cold.

BOSTON, Mass., Dec. 30.—Butter very firm, 28c.

Eggs—Fresh eggs, 24c; best April, 14@15c.

Cheese—Steady.

WASHINGTON, D. C Dec. 30.—Butter—Market firm. Extras, 28c; fine firsts, 26@27c; fancy Junes, 25c; choice imitations, 21c.

PHILADELPHIA, Pa., Dec. 30.—Butter—Market firm; creamery, 28½c; prints, 30c.

KANSAS CITY, Dec. 30,—Butter—Extra weak, 24c. Big accumulations and dairies being substituted.

NEWARK, N. J., Dec. 30.—Butter—Market firm. Extra Elgins, 28c. Receipts moderate.

NEW ORLEANS, La., Dec. 30.—Butter—Creamery, 27c; dairies and ladles, 17@20c.

Eggs—Storage eggs, 12@13c.

Cheese—Unchanged.

NEW YORK MARKET.

NEW YORK, December 30—Butter—Receipts for the week, 23,157 packages. Exports for the week, 50 packages.

The year is closing with as light stock of butter in this market as was ever known at this season; fresh makes of all kinds ars coming very sparingly, refrigerator goods are about used up and everything points to a scarcity of good table butter and continued high prices through the winter. Extra fresh Western creameries were marked up to 28c on Friday and sold quickly at this price, and at the close there is not enough of this style butter arriving to supply the demand. Fresh imitations sold at 23@25c, and high grades of Ladle butter found plenty of buyers at 21@22c. Best June Creameries were in good demand at 25 to 26c, and under grades were enquired for at 23@24c. We quote:

Creameries, extra, 28c; medium, 26@27c; poor, 24@25c. Dairies, extra, 26@27c; medium, 22@24c; poor, 20@21c. Ladles, extra, 21@22c; medium, 19@20c; poor, 16@18c.

Cheese—Receipts for the week, 15,330 boxes. Exports for the week, 10,175 boxes. The comparatively small amount of finest cheese now in stock leads to a very confident feeling among holders. There was very light trading in full cream cheeee this week, not enough to call it business. Exporters took some skims and were able to buy them at fully one cent pound less than last week. We quote:

Full Cream, large, extra, 12¾@13c; medium, 11½@ 2½c; poor, 10½@11c. Full cream, large, extra, 11½@12¾c; medium, 11¾@12c; poor, 10½@11c. Part Skimmed, extra, 10@11c; medium, 8½@9¼c; poor, 4@6c. Skimmed Cheese, poor, 4@8c.

Eggs—Receipts for the week, 35,356 cases.

There is trade enough to take all the strictly fresh eggs arriving and at full prices. For all other grades the trade is demorilized and prices are decidedly lower and irregular. We quote:

New York & Penn. strictly fresh, per dozen, 24@25c; Western & Northern, strictly fresh, per dozen, 23 24c; other grades, fresh, per dozen, 15@20c; refrigerator stock, per dozen, 8@14c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE MARKET.

BALTIMORE, Dec., 28—Butter—The shrinkage in the available supply of butter is still as pronounced as ever, receipts for the past week even falling below the limited expectations of receivers. This condition applies to the whole range of grades and kinds, from the finest table stock to baking butter. Prices would have to be marked up still further were it not for the fact that they have been advanced already to the danger line, and there is a prevalent feeling of hostility to any material increase in values. The quality of the winter make of creamery has so far given general satisfaction, as there is perhaps less than the usual proportion of goods showing wintry flavor. Choice fresh creamery of the gathered cream variety continues to be the subject of frequent inquiry, and much wonder is expressed as to its whereabouts We could safely promise an advance on our quotations for some of the favorite marks of this grade if that would be an inducement to shippers to let them come this way. Imitation creamery and fine ladles extremely scarce. A few lots of good ladles have made their appearance and have sold well up to, if not above their value. The holdings of storage stock have been still further reduced, and it is supposed that no desirable lots remain unsold. Roll butter, on flattering promises of receivers, has shown some increase, but the demand has been fully equal to the enlargement, and buyers are still eager for more. Storepacked very scarce and quickly salable. Baking stock still inquired for.

Creamery Separator, extras, 28c; firsts, 26@27c; seconds, 24@25c. Creamery Gathered Cream, extras, 25@26c; firsts, 23@24c; seconds, 21@22c. Creamery Ohio, extras 25@26c; firsts, 23@24c; seconds, 21@22. Creamery Imitation, firsts, 9@20c; seconds, 17@18c. Iowa & N. W. Ladle, firsts, 19c; seconds, 16c. Ohio & Indiana Ladle, firsts. 18@19c; seconds, 16c Ohio Rolls extras, 19@ c; firsts, 18c; seconds, 16@17c. W. Va. Rolls, extras, 18c: firsts, 17c; seconds, 16c. Ohio & W. Va. Storep'd, extras, 17c; firsts 16c; seconds, 15c. Creamery Blocks (2lbs), extras, 28c; firsts, 27c; seconds, 25@.6c. Creamery Prints (1½lb), extras. 29c; firsts. 28c; seconds, 25@26. Md., Va. & Penna. Prints, extras, 24@25c; firsts, 21@23c; seconds, 20@21.

Cheese—Receipts light, demand good; market firm as quoted.

N. Y. State—Cheddars, fine, 12¾@13c; choice. 12¼@12½c; fair, 11½@11¾c. Flats, fine, 13c; choice, 12½@12¾c; fair, 12¼@12½c. Small, fine, 13¼@13½c; choice, 13c; fair, 1 ½. Ohio—Flats, fine 12½@12¾c; choice, 12¼@12¼c; fair, 11½@12c. Ohio Picnic, fine, 13@13¼; choice, 12½@12¾c; fai , 11½@12¼c. Skims, fine, 10@10½, choice, 9@9½c fair, 8¼@8½c. Swiss Cheese, fine, 12@12½c; choice, 11½@1 ¾c: fair. 10½@11.

Eggs—With continued fairly liberal receipts, we are forced to admit that there is little or no activity just for the time being, but after a few days, when things will have resumed their former conditions, we look for a better demand; there is a fair demand, and our market rules about steady at 19c.

LIVERPOOL, Dec. 30.—Butter—Finest United States, 95s; good, 75s.

Cheese—American finest white, 57s; American finest colored, 59s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line

For Sale—A few extra good grade Jersey heifers at a bargain. Sired by Ophis Exile, a 75% son of Exile of St. Lambert. Address, B. C. SETTLES, Palmyra, Missouri.

For Rent for a term of years, the Arlington, a private dairy supplying creamery butter to a private trade? Ice-cream plant in connection Good demand at cash. Plant consists 25 cows, dairy house, separator, churn, gasoline engine, ice house, refrigerator, 3 barns, 3 dwellings, with peach and apple orchards In every way an excellent farm and business. Have been a long while in business and feel disposed to share profits with a capable and good manager. Address, L. SCOTT, Bangor, Mich.

For Sale—One 3,000-lb. Russian Imperial Separator. As good as new. A bargain for some one, Address, FRANK YOUNGS, Birmingham, Mich. 47 3

For Sale—Two Dutch Belted bull calves of choice breeding, ten months old. Address, J. W. SWAB, Box 676, Findlay, Ohio.

To Let—Sub-divisions of Prairie Farm, 160, 200, 300 and 400 acres, 16 miles from Toledo Separator Creamery. Silos and special butter customers. These are first-class farms, stocked with first-class cows, and none but first-class dairymen need apply. State experience and resources in application. Address, E. L. LOCKWOOD, Petersburg, Mich. 47 tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

For Sale at a bargain, a creamery, feed mill and water power in one of the best farming districts in state of Wisconsin. For full particulars address BOX 640, Marshfield, Wis. 46-3

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46 tf

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

Wanted a position by an experienced butter and cheese maker. Student of Cornell Dairy School. Best of references from late employer. Address EDGAR BARNES, Linwood, N. Y. 44-tf

Four choice O. J. C. boars for sale; stock direct from L. B. Silver Co., originators of O. J. C. swine. G. L. BURLESON, Sumner, Wis. 45-tf

Situation as manager or superintendent of stock or dairy farm. Understand breeding of stock. An up-to-date and practical farmer of years' experience. Recommendations, etc. Address No. 9, care Hoard's Dairyman 45-3

Grand Excursion to Old Mexico—Via Chicago & North-Western Railway, to leave Chicago Tuesday, January 30, 1900, under personal direction of Mr. J. Grafton, an experienced excursion manager. Entire trip in special train with dining car. Tour is arranged to include Mardi Gras at New Orleans and all principal points of interest in old Mexico and ticket covers all expenses. Only limited number can be accommodated; secure space early. For descriptive pamphlets and information, call on, or write agents Chicago & North-Western R'y. 47 4

"I have found your Bronchial Troches most useful for hoarseness and colds." PROF. L. RICCI, Queens College, LONDON, ENG.

BROWN'S Bronchial Troches

OF BOSTON

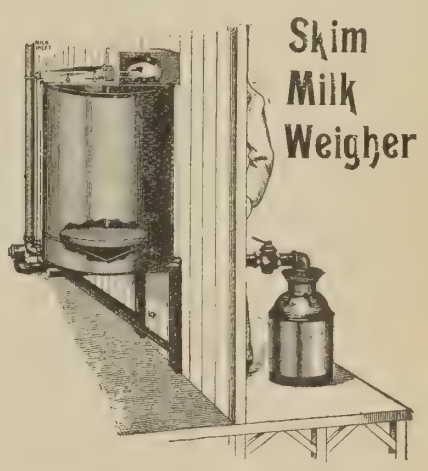
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TWO hundred bushels of Potatoes remove eighty pounds of "actual" Potash from the soil. One thousand pounds of a fertilizer containing 8% "actual" Potash will supply just the amount needed. If there is a deficiency of Potash, there will be a falling-off in the crop.

We have some valuable books telling about composition, use and value of fertilizers for various crops. They are sent free.

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Pasteurizers, Babcock Testers,
Alpha Separators. Combined Churns.

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THE BEST FOR THE DAIRY, be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,
42 Concord Street, Lansing, Mich.

Second-Hand **SEPARATORS**

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.

P. O. BOX 56, WEST CHESTER, PA.

RAW FURS,
Dried Hides, Ginseng Root

etc., etc., can be shipped
C. O. D. Express to

W. W. BUDLONG,
Greenwood, R. I.

Dealer in Butter, Eggs, Poultry, Hides and Furs, and Wild Animals.

General Purpose Methods.—Barn Building.

ED. HOARD'S DAIRYMAN:—I have just been reading with a degree of surprise that borders on astonishment, the report of Mr. Kinsley's on the 20 Iowa dairies. What a government bulletin that would make, and how I would like to see every person in this country who owns a cow, obliged to post it so that he would have to see it every day till he had driven out all the 81-pound methods he has been guilty of and put in their place the 325-pound methods. It is right here, more than at any other point, that the difficulty lies—the getting hold of the man who needs to be reached.

A few days ago, during the progress of the first snow storm, I visited a farmer who lives on the outskirts of a large city and who has a good and quite large farm with house and barns, within fairly a stone's throw of a railway station, all situated apparently as favorably as possible for a fine dairy, with quick market and access to cheap feeds. So I looked about for the herd and I found it—a few cows of the most doubtful sort and every one of them out in the open field, apparently driven away from the lee side of the stack in the barn yard by a lot of young horses that had taken possession of the situation.

The cows were mostly quite thin, and as the searching wind went by it seemed to go right through them and come out on the other side not much disturbed by the encounter. Of course I did not find any agricultural literature in the house, though the family is exceedingly bright in all general ways and all are eager to get on. What does it all mean? Is there no way of jogging the old farmer out of the ways of his fathers?

In this case there was a low ridge north and west of the barn on which a double row of evergreens would have made the open yard, a splendid shelter if out-door feeding was necessary. Still I have no recollection of any use of trees or shrubbery on any farm as a wind break, except on the farm where I spent my boyhood, where the original forest was spared to excellent purpose. Of course I do not pretend that trees are never planted for this purpose, but they are planted so rarely that one would have to go a long way to find anything of the sort in use.

Happening to stop at Cornell University on my trip I was much pleased to find that the lack of knowledge of the requirements of stock and coarse feeds in winter has brought to the surface a new branch of the agricultural department, that of forming and reducing to paper designs for barns and stables. A head for this department could not be found, so he was improvised from a student in the department, and he is proceeding to put the students of the course through the mazes of barn planning, which are all scanned and criticised as they come from the hand of the student, who must work entirely from ideas of his own; for where is there any information to be had on the subject?

Our barns have always been square boxes with roofs on them and with stables in them, usually on one corner, and as often as not on the coldest corner at that, if, indeed, they were not made a separate structure, so that the weather could attack them from all sides. What chance was there for economy of any sort of heat waste, feed handling, watering or the saving of the manure? It was the general idea that a cow was practically valueless through the winter and to keep her as cheaply as possible was the consequent notion. We read of the winter dairies that give milk in large quantities these days and we are in danger of supposing that a general reform in this regard has taken place, but such is far from being the case.

I was rather pleased to find that the Cornell barn expert is not undertaking to impart to his students the fine qualities of the round barn. He is decidedly against these barns and says that they are in no way as economical as the square one. A model of the plank framed barn was, on the other hand, produced as an improvement of the old heavy frame, as it is held to be stronger, with half the timber in it that timber frames require. As to ventilation I heard some remarks to the effect that the King system was good, but a much simpler one was not out of the question.

JOHN CHAMBERLIN.

Erie Co., N. Y.

Food Poisoning in England.

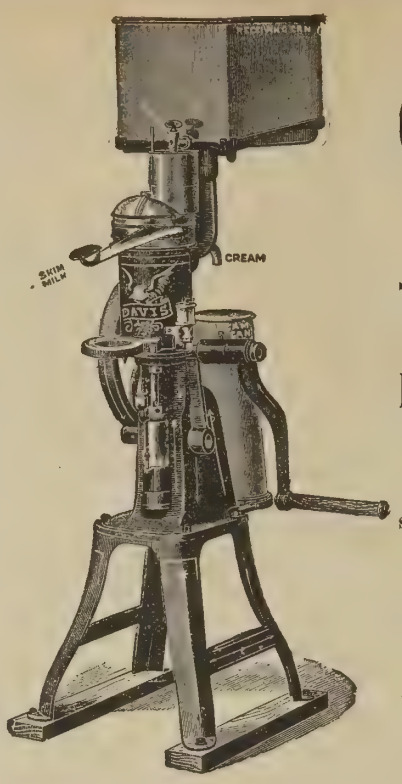
The *New York Tribune* comments in a very significant manner, editorially, on the revelations made before a departmental committee of inquiry at Westminster, England, not long since.

The medical officer of health, who is also municipal analyst of the city of Birmingham, was among the witnesses. He testified that he had examined 1,537 samples of milk, and had found in 135 of them either boric acid or formaldehyde. In 871 samples of butter, 243 contained boric acid. In 120 samples of oleomargarine, 101 contained boric acid. In twenty-one samples of meat food, such as bacon, ham, sausage, etc thirteen contained the same drug, at the rate of from ten to forty-five grains in the pound. In sixty samples of cream, jam, vinegar, etc., twenty contained either boric or salicylic acid. The proportions of food thus poisoned were: Milk, 9%; butter, 28%; cream, etc., 33%; meats, 64%, and oleomargarine, 84%. (The one thing made as an imitation and used as a fraud was thus the worst of all; a suggestive fact.) The general proportion of poisoned food in all classes was 20%. That, it must be said, was not a creditable showing. It does not well entitle the producers and tradesmen of the Birmingham district to protest against the unwholesomeness of American food products.

We have used the word "poisoned" advisedly. Of course, the men who put these drugs into food do so for the purpose of preserving the food, and they insist that the drugs are harmless. The Birmingham health officer had strong convictions on that subject. He tried some of the drugged milk, not upon himself, but upon kittens. And the kittens wasted away, and in a few weeks died. Perhaps human babies will thrive on what will kill kittens, but he did not think so. On the contrary, he gave it as his expert opinion that boric acid, taken into the human stomach in the quantities found in the foods examined, would produce marked constitutional effects, sometimes of a very severe character, and sometimes actually fatal; and he attributed the prevalence of various grave enteric disorders largely to this poisoning of food. In that opinion there is every reason to believe he was right. The man who puts boric or salicylic acid or any such stuff into food for the sake of "preserving" it does not merely preserve it. He poisons it, and poisons those who eat it.

The authority quoted found in all his researches 520 samples of poisoned food. In consequence, only twelve men were prosecuted. That seems a small number, unless each of them was responsible for many of the samples. However, it is encouraging to note that of the twelve who were prosecuted ten were convicted. It is commendable, too, that the opinion was expressed that the use of any such "preservatives" should be prohibited by law. This is the only safe policy, for New York as well as for Birmingham.

It is instructive to note that the fraud oleomargarine was poisoned 84%. How well this bears out our contention that there is no protection whatever at the hands of men who are dishonest enough to make a counterfeit.



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Cream Separators

ARE THE BEST.

Thousands of Dairy Farmers pronounce them as such.

Hundreds of Agents like to sell the Machines, as they give their customers satisfaction.

SIMPLE IN CONSTRUCTION.
PERFECT IN SEPARATING.
BUILT FOR DURABILITY.
SOLD ON ITS MERITS.

WRITE FOR PRICES.
AGENTS WANTED.

Davis Cream Separator Co.,
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Worcester Salt

Best for the Table,
Best for the Kitchen,
Best for the Dairy.

FOR SALE EVERYWHERE.

WORCESTER SALT CO., New York.

A BARGAIN FOR SOMEBODY!

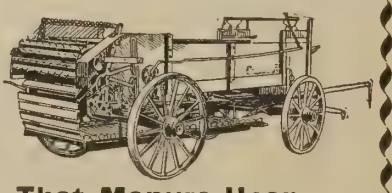
Condensing Milk Machinery For Sale.

A NEW PLANT

Put in by C. T. ROGERS & SONS. Run only three months. In perfect order. Good as new. Address

Auburn Dairy & Condensing Co.,
AUBURN, N. Y.

WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa



That Manure Heap

is nature's medicine for your over-taxed soil.

THE NEW AMERICAN MANURE SPREADER

will administer it thick or thin; fine or coarse. Will do it quickly, easily and make it go further. It is self feeding. It fits any ordinary wagon gear. It fits your pocket

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And hundreds of thousands more are, undoubtedly, very nearly on the point of subscribing to one or both of these high-class periodicals.

That is why it is so easy to secure subscriptions to them. It does not require much talk. Sometimes only a request and sometimes a few words of argument.

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Large commissions. Large rebates for clubs. And, in addition, at the end of the season $18,000 will be distributed among the 764 most successful agents.

Write now for particulars.

The Curtis Publishing Company, Philadelphia.

Mortgage Lifters

That's what dairymen call our light running hand separators, because they increase the yield of butter about 25 per cent. and improve the quality, which means higher prices. We guarantee the



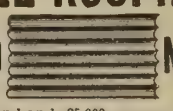
Empire Cream Separator

to run with less power than any other of the same capacity. Skims cleanest in every test.

Six sizes of hand separators, $40 and up. Illustrated catalogue, *free*. AGENTS WANTED

U. S. Butter Extractor Co., Newark, N. J

STEEL ROOFING

BRAND  NEW

We have on hand 25,000 squares Brand New Steel Roofing. Sheets either flat, corrugated or "V" crimped.
Price per square of 10x10 feet or 100 square feet $1.75
No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.
Write for our free catalogue No. 20 of general merchandise bought by us at Sheriff's and Receiver's Sales.
"Our Prices are One-Half of Others."

Chicago House Wrecking Co.,
W. 35th and Iron Sts., Chicago.

NEW 20th CENTURY

De LAVAL "ALPHA" Cream Separators

In wishing the Creamery and Dairy interests of the country and every one in any way associated with such interests a Happy and Prosperous New Year, the De Laval Company avails of the opportunity to briefly announce the further expansion and improvement of its machines in conjunction with the opening of the new year.

The word De Laval has always been synonymous with progressive development. Every year has marked some new improvement or step of advancement bringing the "Alpha" De Laval machines still nearer to literal perfection. 1900 is to be no exception, bringing with it the general adoption to the "Alpha" disc system of the new Split Wing Tubular Shaft invention, thus effecting more even and thorough distribution of the milk in the separating bowl than heretofore accomplished. This improvement effects generally every feature of separator practicability, affording considerably greater capacity with still more exhaustive thoroughness of separation—particularly under the harder conditions of heavy cream and low temperature, while the accompanying change in bowl construction obviates all previous possibilities of clogging.

Hand in hand with this expansion and greater utilization of the "Alpha" disc system of separation various mechanical improvements and touches of betterment have been put into practice during the past few months, including a new method of bowl locking and unlocking, which precludes the springing of bowl spindles and the throwing of bowls out of balance from careless or impractical handling in such connection, and new oiling arrangements which effect a material saving of oil heretofore wasted and render literally impossible the heating or setting of machines and the splattering of oil around them.

Everything that twenty years of experience in both Europe and America has yet been able to devise or suggest has now been done toward making the 20th CENTURY "ALPHA" DE LAVAL SEPARATORS perfect for their purpose, and great as has been the universally conceded superiority of the De Laval machines heretofore the new standard is now raised still higher.

The new improvements apply to all styles and sizes of machines, both Dairy and Creamery, Hand and Power. The following week the new capacities will be announced, prices remaining the same as heretofore.

THE DE LAVAL SEPARATOR CO.,

WESTERN OFFICES:	*GENERAL OFFICES:*	*BRANCH OFFICES:*
Randolph & Canal Sts.,	74 Cortlandt Street,	1102 Arch Street,
CHICAGO.	**NEW YORK.**	**PHILADELPHIA.**

The Verdict of the Cows.

Our readers have taken a very decided interest in the comparative merits of the two cows, My Lady Baltimore and Countess of Level Green, published on page 827. That they are both exceedingly fine exponents of the dairy form goes without saying, and it is evident that the selection of either as the superior animal can have but small foundation on which to base a preference. This has been the experience at fairs, when sometimes one animal, and sometimes the other has taken the first prize. Countess of Level Green took first at Indiana and second at Ohio; My Lady Baltimore first at Ohio and second at Indiana. The owner is, evidently, the best judge on this point, as the following letter shows.

ED. HOARD'S DAIRYMAN:—I desire to state that the appearance of the portraits of two of my cows, the "Countess of Level Green" and "My Lady Baltimore," in a recent issue of your paper, has been a matter of great gratification to me.

And, as the owner of the cows, I have taken an unusual amount of interest in the discussion which you so generously invited, and which has been taken up with so many words of praise, and well defined expressions of opinion.

It may be of interest, to those taking part in the discussion at least, to have the owner's opinion of the cows. Countess of Level Green, under exactly similar conditions as to period of lactation, gives a larger flow of milk, and is a more presistent milker than My Lady Baltimore, but is not quite as rich in butter fat. But as near as I can estimate, My Lady Baltimore is the more enconomical producer of butter, consuming less value in feed for a given value of butter fat; and put on same rations, not exceeding what My Lady Baltimore will handle safely, she will exceed Countess in production of butter, for a year—though fed without reference to amount of feed consumed, and each cow worked to her full capacity, I think Countess will turn out about 10% more butter fat in a year at about 10% more cost on the whole amount produced.

From a breeder's point of view I prefer My Lady Baltimore, as she has more of the qualifications that I am desirous of reproducing, and I believe her, also, to be the more prepotent of the two animals.

I have never tested these two cows for a year, nor a week, but from daily tests taken from time to time, I think either one of them would make above 18 pounds of butter for their best week, and in excess of 500 pounds of butter in a year.

The portraits shown are exact reproduction of photographs, and have not been altered or fixed in any way, as are many of the cuts in representation of noted animals, which appear in farm journals, but the pictures give a wrong impression as to the general conformation of the two cows. Contrary to the general impression given, as evinced by comments published, My Lady Baltimore is the smoother and nearer round, and is broader on the back and withers than the Countess.

Neither of them have any tendency to kick over the milk pail as found by one writer. I have never found any of that disposition among Guernseys. They are of a very tractable disposition as a breed.

Perry, Ohio. L. V. AXTEL.

JUDGEMENT RENDERED.

I would say in reference to the two cows in December 1st., that Lady B——, is my choice. She has a better sack, longer in the flanks, broad hip, good backbone, teats wider apart, longer veins, lighter in front, less pendulum, broader between the eyes and longer from her nose to her eyes.

Some friend sends me the DAIRYMAN and I get good information out of it. I patronize the creamery. We Georgians down here don't know much about cows. J. W. H.

Chipley, Ga.

I consider Countess of Level Green, A. G. C. C. 4198 the better cow.

1st Third— Countess has better double wedge shape, broader poll, eyes more limpid, clear and placid, showing a more gentle and kindly disposition and nervous temperment, dish faced, head and neck more feminine, sharper withers, and deeper chest than My Lady. If there is any point I dislike it is surely a Roman nose (as my Lady) and her eyes show a disposition a "cow puncher" would call "snakey".

2nd Third—Countess is deeper in lower front of chest, giving more heart and lung room, having shorter front legs, also better back, navel more prominent, ribs sprung more but not as deep as My Lady.

Last Third—Thinner thigh, flank arched higher, and more symmetrical udder and teats. R. F.

Maricopa Co., Arizona.

I shall have my shy at Countess of Level Green and My Lady Baltimore; the latter I think (with one exception, possibly two) the better cow. I like her for her spareness, for her double-wedge shape, her incurving thighs, high pelvic arch, and for her nervous organization, as shown by her eye; (am afraid she is a kicker; and I do not like her straight face). I think she has the better udder development, also navel, and to take her all around, think her the better cow. But they are both stunners. H. C. W.

Garnett, Kansas.

I believe Countess of Level Green excels in heart and lungs, and has the best nervous system, as evidenced by her full, large, wide-awake eyes, and high, prominent backbone. Notwithstanding this, I believe My Lady Baltimore to be the superior cow, unless Countess of Level Green's nervous force over-balances the many points in favor of My Lady Baltimore. She has the stronger jaw, the greater capacity; excelling in length and depth of body, and notwithstanding she is the younger cow (judging from her register number) she has less tendency to lay on flesh; she trims down better; her ribs are sprung more, and set further apart; her pelvic arch excels in height and curve. She has better hip bones; her body is broader, and more angular in shape; she seems to be finer boned, and hence can produce butter at a less cost; she has better milk veins, and a better shaped udder, and her udder does not appear to be as beefy as that of the Countess. Unless the superior nervous energy and vitality of the Countess overcomes the many points in favor of My Lady Baltimore, I believe the latter to be the superior cow. However, I believe that nervous force and vitality are great factors in the dairy cow, that are not fully appreciated.

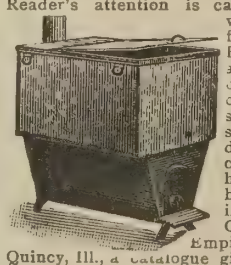
Minneapolis, Minn. C. L. S.

Digestion Co-Efficients.

ED. HOARD'S DAIRYMAN:—In view of the law recently in force in this state, requiring an analysis of dairy foods, the question of the amounts of digestible nutrients contained in the various foods, as compared with the total nutrients as given by the analysis, seems important in forming a ration, especially if the ratio between the digestible and total nutrients varies materially in the different foods when properly fed—as for instance, if 95% of the total protein of bran and only 80% of the total protein in gluten were available. I am led to this question from the fact that "Diamond gluten feed" is claimed by the manufacturers to contain 27 33-100 per cent protein, where-

Farmers' Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill., a catalogue giving full description may be obtained. They are made in all sizes.



Jersey Bulls AND HEIFERS out of large milking and tested dams, FOR SALE. W. R. THOMAS, Bellmore, Ind.

FOR SALE—For a short time we are offering A. J. C. C. **Jersey Bulls** from two to fourteen months old at **reduced prices.** They are from choice cows and are sired by St. Lambert of Brodhead 46957, one of the best of bulls, as his pedigree will show. We also have a few cows and heifers for sale. Write for catalogue.
N. N. PALMER & SON, Brodhead, Wis.

Banner Root Cutters

CUT BEETS, MANGELS, Turnips, Carrots, and all other roots and vegetables for stock feeding. CUT FINE.

Choking Impossible.

Run easy, have self feeder, separate dirt from cut feed. Five sizes, hand and power.

O. E. THOMPSON & SONS, Ypsilanti, Mich.

Largest Root Cutter makers in the world. *Catalogue free.*

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.
R. C. GREEN, Albion, Wis.

Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. McKERROW, Madison, Wis.

BLACK EARTH JERSEY HERD
is headed by Diploma's Victor 56310 sire, Recorder 29239; dam, Nice 68027, full sister to Merry Maiden 64949. Young bulls for sale reasonable Address, FRED STUBLEY, Black Earth, Wis.

Hood Farm Jerseys
For Sale—Solid, light fawn bull, Dropped April 15th, 1898. Sire, Brown Bessie's Son 4th, a son of Brown Bessie's Son out of Donny Pogis 2d. Dam, Philena S, 18 lbs. 9½ oz., by Sophie's Tormentor, the sire of 16 in 14 lb. list, including Sophie Hudson, 19 lbs. 12½ oz. in one week, and milked 11,496 lbs. 2 oz. in 10 months, testing 716 lbs. 14 oz. butter. Write for price to
HOOD FARM, Lowell, Mass.

Brown Bessie Herd.
FOR SALE!
Three BROWN BESSIE BULLS fit for service. Highly bred, first-class individuals. Solid colors. Good opportunity to secure "The Blood of The Winners." Prices reasonable.
H. C. TAYLOR, Orfordville, Wis.

EUROTAS
Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield.
W. F McSPARRAN,
Fairfield Stock Farms, Furniss, Pa.

Jersey, Guernsey Cattle
Chester White, Berkshire and Poland-China SWINE,
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
BARTHOLOMEW & CO.,
Montg. Co. - - Bridgeport, Pa.

FOR SALE
GRANDSON OF
Exile of St. Lambert 13657
Sire of 79 Tested Daughters.
"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
P. J. COGSWELL, Rochester, N. Y.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from 400 Pound Cows for sale. Come and see them. TUBERCULIN TESTED.
F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. Large English Berkshires, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. 640 ACRES. Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

A. J. C. C. JERSEYS
Of the St. Lambert and Coomassie strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address,
BROADMOOR DAIRY, Colorado Springs, Colo.

Pedro Eurotas Blood FOR SALE two young Jersey bulls fit for service, deep in the blood of Eurotas, 22 lbs. 12 oz., through Pedro 3187, Eurotas, Victor Hugo, etc. Solid color, fine condition, nothing better. Also one choice heifer calf. For price and pedigrees address H. H. TOZER, Bristol Springs, N. Y.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large English Berkshires, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. FOR SALE—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.
224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. 224
Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¼ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of high testing cattle in the West, including home-bred and Island cows. Show and Breeding Stock always in supply. Especial attention given to furnishing foundation stock for pedigreed herds. A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning IDA'S RIOTER OF ST. LAMBERT 10th, the champion CATONO KHEDIVE, the champion CZAR COOMASSIE, and IMP. GOLDEN BAR, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. JOHN E. ROBBINS,
Greensburg, Ind.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.

A Top Pedigreed POLAND CHINA SOW, bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR Solid color, well grown, robust Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. J. P. BRADBURY, Pomeroy, Ohio

as Bulletin 154, Cornell Station, gives the digestible protein in gluten feed as 19 2-5 per cent. The foods most used here are corn meal, bran, gluten feed, linseed meal and gluten meal. H. H. H.

Gouverneur, N. Y.

The following table gives the percentage of digestibility of some of the more common feeding stuffs. For the benefit of our readers we will say that such a table is not a hard and fast rule to be followed regardless of kind or condition of the fodders used. The man who allows his timothy to become over ripe before it is cut must not expect to find that 56% of its protein will be digested by his cows nor that the carbohydrates are of equal value as in the hay cut at the proper time. The same is true of all grasses and fodders. Maturity means loss of feeding values in the stalk but increased value in the grain or seed. In a like manner, spoilt, moldy, musty, or rain washed fodder of any kind is accompainied by a loss in the per cent of nutrients that can be used by the animal.

Over heating in the stack or mow will also cause lower feeding values, especially where the degree of heat is such as to darken or brown the color. Such change in color means that part of the digestible value of the fodder has been driven off and the remainder so changed in composition that its value is decidedly decreased.

Both quality and quantity have an effect on the amount digested, quality having the greater influence. Thus the protein in coarse fodders varies in digestibility, from 35 to 80%. In the younger plants there is less woody matter (crude fiber) to enclose and lock up the protein, consequently the juices of the stomach can dissolve a larger amount. As the fodder becomes older the digestibility decreases till in wheat straw but 11% of the protein is in a condition to be used.

The amount of the nutrient present also influences the digestibility. It will be noted by comparing this table with that on page 754, that as the per cent of a nutrient increases in fodders its digestibility increases as well. Thus the feeds high in protein have an equally high digestibility and in cases where the protein content has been increased, as in the case of artificial concentrates like gluten meal, the per cent of digestible protein should increase along with the actual increase:

PER CENT OF DIGESTIBILITY OF NUTRIENTS.

FEED STUFFS.	Protein %.	Carbohydrates %.	Crude Fat %.
Kafir corn	79	76	90
Buckwheat middlings	76	79	76
Corn and cob meal	5[illegible]	28	84
Corn meal	60	93	92
Wheat bran	80	70	76
Wheat middlings	82	85	85
Gluten meal	89	93	93
Gluten feed	86	90	81
Linseed meal	89	78	89
Malt sprouts	80	69	100
Brewers grains (wet)	73	62	86
Brewers grains (dry)	79	59	81
Oats	78	76	83
Cotton seed meal	88	64	93
Cotton seed hulls	6	34	79
Corn stover	45	61	62
Corn fodder	55	73	74
Timothy hay, cut in bloom	56	63	57
Timothy hay, cut after bloom	45	60	53
Or hard grass	60	55	55
Wheat straw	11	38	31
Oat straw	30	44	33
Alfalfa, cut in late bloom	62	69	62
Red Clover, cut in bloom	77	64	54
Red clover in late bloom	55	64	53
Cow pea vine hay	65	71	50
Corn silage	52	69	85

Quite a Distance into the Dairy Business and Feed Scarce.

ED. HOARD'S DAIRYMAN:—I want you to continue sending the DAIRYMAN and all the back numbers, as I am quite a distance into the dairy business, and want all the assistance possible. Feed is very scarce in this section, or is held very close for fear of being short before grass will be ready for pasture. We had a terrible drouth here last summer and in consequence grain did not turn out very well.

I want to feed to the best advantage of the following: Corn chop, $16; shorts, $18; bran. $15; ground oil cake, $33; barley, 42 cents per bushel; peas, 65 cents (very scarce); oats, 30 cents per bushel; wheat, 64 cents per bushel. I have a silo 11×14, 30 feet high, about one-half full of very well eared corn, oat straw very limited amount, wheat straw short also, and a stock of 40 head cattle, mostly Jerseys. W. W. S.

Pennsylvania.

It is by no means an easy matter to prescribe a formula for a ration under the conditions set forth above, and it requires more courage than most of us possess to meet such emergencies as they ought to be met. These cows must be wintered whether they give milk or not. It will cost a good deal of feed to do this and there is no immediate return for it. If we add 25 per cent or 50 per cent to this necessary feed for maintenance and receive a product in return which will somewhat more that pay for this extra feed there will be some profit in the transaction. The amount of this profit will depend upon our liberality in feeding and the dairy capacity of the cows. We estimate our friend has silage enough to allow him to feed approximately 20 lbs. per day to each cow and it is quite certain that none of the other feeds named are as cheap or as profitable for him to use as corn and bran. Oats at 30 cents per bushel are practically the same as $20 per ton, and at most are worth not to exceed 10 per cent more than bran and frequently not so much as bran. If we were situated just as he is we would mix bran and corn chop in equal parts by weight and then feed each cow according to the return she would make, possibly some of them as much as 10 or even 12 lbs. and others only enough barely to keep them in thrifty conditon.

We are aware that this is not very explicit advice, but the conditions are such that unless one is on the ground where he can make personal observations from day to day, and week to week, explicit advice would be more misleading than the general suggestions we offer above.

Improving the Dairymen.

ED. HOARD'S DAIRYMAN:—I wish to express my strong and high appreciation of all your efforts to improve the dairyman and get him to follow new and better methods, for there is a great deal of filth about the milk and butter business. Especially do I commend ways to get a dietetic cheese, both for home and foreign consumption; nothing but whole cream, and factories provide themselves with means to ripen it. Then a higher grade of butter. And there ought certainly to be passed some clear and strict and plain law regulating oleomargarine. Farmers' interests deserve more recognition in Congress.

Canada shames us in cheese and butter exports.

There are other important missionary works you are doing. Don't let up! How can you increase your subscription? The only way is to enlighten the slow and dull farmers. H. B. HOWELL.

Orleans Co., N. Y.

A Good Foundation.

ED. HOARD'S DAIRYMAN:—I am enjoying your paper, which I took for the short time on the quarter test, very much indeed.

I have a small dairy, among them a few Holstein cows. I had a record of five of them kept this summer:

One gave 1,813 lbs. of milk; one 1,350; one 1,304; one 1,273 and one 1,272 in thirty-one consecutive days, running in the pasture without extra feed. Milk tests between four and five per cent.

As I am trying to get up a good herd, would like to know if this is a good average.

I notice that you show in your paper Jerseys, Guernseys and Holsteins.

Which would you advise me to put in to form my dairy? J. S. F.

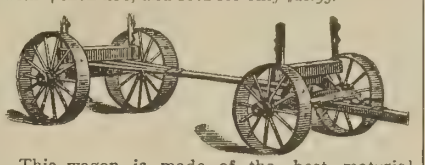
Chicago, Ill.

You would be perfectly safe in selecting either of the three dairy breeds, but as you have the foundation of a Holstein herd already started, why not continue and build up your herd from this small beginning?

Your cows are giving an excellent flow of milk, not a large flow for Holsteins perhaps, but good for the per cent of fat present. If your first cow is giving 58 pounds of 4% milk, she is making over 2.5 pounds of butter per day, and with such a starting point we should not make any hasty change to another breed without good and sufficient reason.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmers Handy Wagon that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

HEESEN FEED COOKER



Get Your Money's Worth.

You will find this cooker by far the most satisfactory *in every way*. Absoutely full measure—(50 gallon size *not* stamped "70 gallons"); one-half cheaper than any other; simplest; lasts for generations; quickest in heating; most economical of fuel; coal or wood; 7 sizes, 15 to 70 gallons. Send for circular. *Money back if not satisfactory.*

Direct from factory to farmer. HEESEN BROS. & CO., 26 High St., Tecumseh, Mich.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

GUERNSEY BULLS FOR SALE

Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by **OWEN BROS., Portage, Wis.**

Riverside Guernseys, CHAMPION Herd AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.

GEO. C. HILL & SON, Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE, Farm Supt., Madison, N. J.**

—FOR SALE— THE HOLSTEIN BULL

"Belle of Verona's Clothilde Boy" No. 23408, H. F. H. B., bred by Smith, Powell & Co., Syracuse, N. Y. **W. M. BURR, Cazenovia, N. Y.**

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.



The Best Investment

For you this summer may be a fresh supply of . .

BUHL Tinned Steel Milk Cans.

They do not leak, break or rust, and keep the milk cool and sweet.

Write For Catalogue.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.

C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD

Holstein-Friesians. 5 choice high grade one-year-old heifers and one bull 15 months old. 8 bull calves. Choice **Chester White Sows.** Address, W. R. GATES, Prop., Fort Atkinson, Wis.

123 HOLSTEINS FOR SALE. 123.

Heavy milking Cows, fine Heifers and richly bred Bulls ready for service at very reasonable prices, high quality considered. Write **now** stating just what you want to

DELLHURST FARM, Mentor, Ohio.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.

Address **M. W. BARDEN,** Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest tested relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three 3rd and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

New Years Greeting!

Holstein Bull, Alberta Sir Mechtchilde 25502, 20 mos. old. His six nearest dams average each 29 lbs. 6½ oz. of butter in seven days. His dam and sire's dam won first prizes at N. Y. State Fair, N. Y. and N. E. Fair, and at Great New Eng. Fair 1890. The former as the champion yearling, the latter as the champion cow—never defeated. Alberta Albekerk 3d, 18 lbs. 8 oz. at 2 yrs., Mechtchilde, 39 lbs. 10½ oz. (world's record) have produced this youngster. Greater animals never existed in one pedigree. Maplewood's most famous blood is offered here.

VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

The Big 4 at Brookside.

THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.

HENRY STEVENS & SONS, Lacona, N. Y.

SHORT-HORNS

Of the combined beef and dairy type. Herd established 29 years. Choice young stock of either sex for sale. Write or come and see us

WALTER LITTLE, Janesville, Wis.

AYRSHIRES **Finely Bred and from the very best families.** Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.

FRED TSCHUDY & SON, Monroe, Wis.

Comments and Queries From Robinswood Farm.

The Law of the Survival of the Fittest in the Dairying World.—The N. J. Experiment Station and its Work.—The Improved Dairy Cow from the Point of View of Special Anatomy and Physiology.

ED. HOARD'S DAIRYMAN:—It is perhaps well that each oncoming generation of workers has no adequate idea of the intensity of the struggle for existence, of its hardness, or of the small chance for those who are least fit for the struggle, and who inevitably must go to the wall in the turmoil of the fight. But all may at least entertain the joys of hopeful anticipation—the greatest of joys.

In one of my previous queries, I asked as to the probable result if all dairymen became good practitioners of the art, fed balanced rations, kept specially developed dairy cows, etc. I can now see that there is no chance of any such condition of affairs until that millennial period when all men will be born equal in attainments, and with equal pecuniary and other advantages. When the church and multitudinous educational and reformative influences at work, shall have made all men good and unselfish, and when hygienic and sanitary sciences, shall have made all equal physically, then, and not till then may we expect to see all dairymen of such material as to make all equally successful. In the meantime, there are chances in dairying for the fittest followers of the industry, while the lazy, prejudiced, ignorant and weakly will have to submit to the inevitable and seemingly cruel law, and be more or less left behind in the race for existence. There will also be a legitimate and larger field for useful effort for the various periodical and other agencies at work in disseminating dairy knowledge, and in helping to make the avocation of pleasurable interest to those engaged in the pursuit.

There are probably lots of farmers who can see no use in scientific knowledge in connection with their calling. Why, if it were of no other use, it would be of enormous value in simply gilding with interest the dull routine of work. I know that in medical practice much of the routine drudgery would be almost insupportable if it were not for the scientific interest which attaches to everything connected with the work, and that there is always something new to learn.

Notwithstanding all the advance in scientific dairying during the past twenty-five years, there is evidently yet much to learn, and there is no reason to doubt but that the science will be one of perpetually progressive evolution.

There is a general law in force which especially rewards those efforts of the higher powers, special skill, perseverance, and concentrated application. Hence there is an opportunity for the individual dairyman, and there is an opportunity for our country in this specialty. But these opportunities are not soft-snap-walkovers. Society is willing to reward the dairyman, but only as an outcome of his special effort in the interests of society. The people want milk and butter at the lowest possible cost, and they want first-class products if possible. I have never heard of anyone standing around with a potful of money eager to bestow it on the dirty, careless, lazy or ignorant dairyman. I suppose that there are a large number of such, who think that society owes them a living, but society don't agree with them, and withholds that living.

I don't know that the brotherhood of dairymen wants to encourage the creation of new competitors in the vocation. Perhaps society, as a whole, would be benefitted if good butter and milk were even much cheaper than they are now, but that would be a condition of affairs that would not benefit the craft unless some methods for decidedly cheapening production should be discovered and practiced. It looks at present as if dairymen should be encouraged to efforts in the line of cheapened production, by reducing the number of cows kept, and increasing the individual capacity of those retained.

One of my most interesting visits of investigation has been to the New Jersey Experiment Station at New Brunswick. I went to talk with Director Voorhees, which I did nearly to his death, hoping among many things, which I wanted to be assured of, that the question of the practicability of growing, or buying protein, or other concentrated cow feeds had been accurately determined.

I judge that such knowledge is not as yet in existence, for if Prof. Voorhees don't know that point, it is not probable that anyone else does. The opinion of the station is that individual circumstances must determine the practicablity of such feeding. The station seems to be working along the line of producing balanced roughage feeds, especially, of soiling crops. The work of the station commands commendation, because there is no evidence of the impractical in the appointments and in the work.

The buildings are such as any ordinary well-to-do farmer might be supposed to possess. Nothing "fancy" about them. I was glad to see that the cows were not kept in the cellar dungeons, which is so common a practice in New Jersey and in Pennsylvania. Nevertheless, I think the state of New Jersey might afford a rather better model of an up-to-date dairy barn, than the one now existing.

The method of fastening the cows in the stalls was new to me. There is an endless chain for each cow's stall in the stanchion line, running over four sheaves, two at the center of the stall, and two at the side, the chain being boarded in at the side. The cow is fastened to this chain, in the center of the stalls, with an ordinary neck chain, and is given a large amount of ease of motion while kept in position in the stall, and with reference to neighbors. In the barn is a herd showing specimens of all of the prominent dairy breeds, and grades of the same. Some of them are highly specialized individuals, and others are general-purpose cows. All have the pronounced dairy form, and all looked like good milkers. There was one cow, that was my very ideal of a general-purpose dairy animal, fitted to make the best use of a wide ration; that is, one in which there would be a disproportionate amount of carbohydrates if fed to a highly specialized cow. She was a profitable milker, and yet had frame and muscle enough to put to some profitable use, at least, in veal, and ultimately in beef, the excess of carbohydrates that shall be given her in her food. That is certainly the best type of a cow for American agriculture as it now exists as a whole, producing, as it does, the wide ration; and unless it can be shown that it will pay to take extra pains and lay out more labor to grow crops, especially protein in character; or else that it shall be shown that it will pay to buy protein for balancing the ration, that is the type of a dairy cow that America will evolve out of the special improved European types, with which we are now working.

These types were created as a result of labor, conditions, climate and land values different from what exists in the North American continent, and it can be reasonably questioned whether, as created, they are the best forms for the American dairymen. We are, of course, enjoying the advantages of hundreds of years of effort on the part of European breeders, in our making use of these types; but it is a sure thing that all of these types will, in time, be evolved into different types more in harmony with the local conditions as they exist in the various sections of our great continent. With our climate, and with our corn crop in special, it is a sure thing that carbohydrate, wide ration feeds are very much more cheaply produced than those containing more protein. So far as I know, we have no climate which will produce such continuous protein-rich-pasture-feeding, as is found in the homes of the Ayrshires and of the Holstein-Friesians. Then again, the fact of possession of extended cheap pastures is a condition which will evolve a different breed from that created in the Channel Islands,

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There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

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where land is quoted at $2,500 per acre.

What would the farmer there say to buying a whole one hundred acres and buildings and fences for $500, as sometimes happens in our New Hampshire region. However, I am pleased to believe that our Gilmanton farmers can beat the middle state farmers all to death, raising oats and Canadian peas, and there is protein for you. I am Jersey born, and live in New Jersey in the winter, but when it comes to farming I am New Hampshire all through. In this world it is every one for himself; every section for itself; and every country for itself—and the devil take the hindermost. That is all right. What would the world soon amount to, if the lazy, the ignorant and weaklings had an equal chance with the better blood in propagating and perpetuating their inferior qualities? It is right that the fit should survive, and the unfit be wiped out of existence.

The query is suggested: What is an improved type of dairy cow? It is evident that only a relative answer can be given. There can no more be one kind of an improved cow, any more than there can be one best breed, although there may be a similitude in all.

The cow which might be an improved type for me, might easily be unimproved, or else a degenerate type for another. No, that last is not right; for improvement implies progress upward. A scrub cow might, possibly, be the most profitable cow for a scrub farmer, but it could not be called an improved cow. In a general way, such an improved cow might be defined as an animal which is better adapted to transforming certain plants into dairy products, than cows previously used for that purpose. She is certainly not a beef cow primarily; milk and butter must be her promnient product.

So far, I have not come across any definition of the improved cow from the point of view of special anatomy and physiology. Viewed from this point, an improved dairy cow of the highest ideal is one in which the development of the milk-forming apparatus is so great, and is so perfect in its vascular, nervous and glandular construction, as to insure the diversion to its tissues of all of the blood manufactured by the cow, that is not necessary for the support of the purely vegetative structures, such as the muscular, circulatory and digestive systems; which latter structure must not be of greater extent than is necessary for a harmonious activity in the general working of the whole machine.

These vegetative systems are of course of primary importance, and must take large precedence of the productive systems; but none of them should be any larger than is necessary. Nevertheless, there is a practical limit to which the relative development of the milk producing apparatus can be safely carried. By skillful breeding, feeding and care the bony or muscular systems may be much reduced in their proportion to the mammary development; but there is also a limit here, for a certain strength of frame is necessary to support the other parts, and a certain amount of exercise is necessary to create and maintain vigorous health in the animal; but when it comes to the digestive, circulatory and respiratory systems, no reduction in them is allowable. A large proportion of the blood made must be used up in them to recreate new supplies, circulate it, and keep it in a purified condition, if the best production of milk is expected. The ideal dairy cow must be a well-balanced machine to be profitable in the long run. One can easily have too large a mammary development in a dairy cow. I have one such in my herd at present. She was born in such shape as to make so much milk as to weaken her general system and to induce udder troubles. But it is a sure thing that in the dairy cow, if the milk-forming apparatus is not sufficiently developed, a waste of food will result. The excess of created nourishment will be used up in the relatively too large general system, or it will pass through the body unutilized.

But not only must the improved dairy cow have the large mammary development, she must have equally with the beef cow the ability to digest and absorb from the food eaten its nutritive elements to the greatest possible degree. Cows, as well as human beings, vary largely in this capacity. The possession of a big appetite is no absolute criterion of the development of the digestive power. Some human beings are enormous eaters, simply because they cannot digest and absorb enough nourishment, and hence are always more or less hungry. I have seen some delicate invalids consume enough nourishing foods to support several individuals of healthy digestive ability, and yet not secure enough force from the food eaten to do a quarter day's work. It is so with cows. Some do not have the anatomical conformation or physiological digestive ability to economically convert food into blood, and thus supply the protoplasm of the milk-forming cells enough material from which to form milk. If this is so, it becomes more evident that a mere test for quantity of product is not satisfactory evidence of the real dairy value of the cow. Hence it becomes a matter of great importance that breeders should so manage their stock as to develop the peculiar digestive functions which are at the bottom of milk production. So far as my observations have gone, breeders pay little or no scientific attention to this point. They breed for large udders, external dairy form and large storage capacity for food, which may or may not be well digested, and they are apt to market their stock on the strength of a week's test, secured by forcing with concentrated and highly digestible food.

The manager of one of the most prominent herds in the country told me that he fed his calves to fatness, because that was the kind of looking calf buyers wanted, although he acknowledged that the practice was wrong. Well, of course, this is more the buyer's fault than the breeder's. It is evident that many dairymen have got something yet to learn. Perhaps it is too much to expect that breeders should create a product symmetrical in all good dairy qualities. Perhaps the dairy farmers can best furnish the constitution and digestive capacity,

J. M. W. KITCHEN, M. D.

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Gluten Feed is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

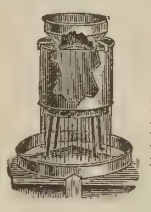
Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

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Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.
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Here's Another Instance

Where the other machine came out second best in a contest with the **Reid** Long Spindle Separator. In a letter from the Delta (Pa.) Creamery Co., under date of November 27th, 1899, Mr. Hitchcock, the manager, says :

"During a contest at our Delta Creamery between the Alpha and Reid Separators, ***I found the Reid to be decidedly the closest skimmer and very much the better machine to operate."***
(Signed) HENRY HITCHCOCK, Mgr.

And here's another case where the Reid proved itself to be the closest **skimmer.**

"Our Improved Reid Separator runs fine and does good work; no trouble at all. The State Inspector called the other day and I ran him a test of two samples; one was .015 and the other .02. ***He said my Reid beat the Alpha,*** *for he came from another creamery which used Alphas and their test showed .07 and .05. The Reid is O. K."*
Fairmont, Minn. *AMBER LAKE CREAMERY CO.*
(Signed) R. L. BRADBURN, Butter Maker.

These are but samples of many letters that we have received in praise of the

REID LONG SPINDLE SEPARATOR

Every one of which is a voluntary testimonial on the part of the writer to the merit of the most efficient skimming machine ever built. Read the concluding paragraph of the following letter from the Fayette (Wis.) Creamery Co. :

"Our new Reid Long Spindle Separator is skimming at the rate of 2,536 lbs. per hour. Yesterday two tests were made; one in the early part of the run and the other after the machine had skimmed about 6,000 lbs. The tests were made by our butter-maker in the usual way, and neither test showed more than a mere trace of fat. We are pleased with the machine in every way. It requires so little oil that it is hardly worth taking into account. One filling of the oil-cup will last for a run of 10,000 lbs.
This testimonial is not paid for—was not asked for—but is given as a voluntary tribute to a machine of merit" *(Signed) L. B. LOWRIE, Sec'y.*

Separator book, facts about pasteurization and the Reid Pasteurizer and catalogue of Creamery Supplies—all free if you write for them.

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South Dakota Dairy Convention.

The ninth annual meeting of the South Dakota Dairy Association and the first annual meeting of the South Dakota Butter Makers' Association were held at Mitchell, December 12-14, 1899.

The attendance was very satisfactory. The butter makers turned out in greater numbers than usual, and they seemed intensely interested in the proceedings. The supply and transportation men were there in force, and the commission men were in evidence.

The exhibit of butter consisted of forty-four tubs of creamery and four samples of dairy butter The quality was very good for this time of the year, when creameries are running but four, and some but three, days in the week. The average score was above 94 points.

The sessions were interesting and profitable, and everyone present was amply repaid for the expense incurred in attending. It was very much regretted that Prof. W. A. Henry, of the Wisconsin Station could not be present as announced. He was detained at home by sickness. John Armstrong, of De Smet, took up the subject of feeding the dairy cow, which was to have been handled by Prof. Henry. Mr. Armstrong is a practical dairyman, and has for several years been a close student of this subject. In his opinion the amount of profit in dairying is only limited by the way the cows are fed. A well balanced ration of prairie hay and bran and shorts means a yearly net profit of twenty to thirty dollars, per cow, over hit-and-miss feeding.

Mr. F. A. Leighton, of New Hampton, Iowa, read an interesting paper entitled "Rambling Thoughts of a Butter Maker." He took occasion to highly compliment South Dakota on the firm body of the butter turned out. He stated that at the Minnesota Butter and Cheese Makers' convention a tub of South Dakota butter was placed on exhibition, and the judge told him that it had the best body of any tub in the exhibit. This is certainly encouraging, for we know that Minnesota turns out some fine goods Mr. Leighton also stated that of the sixteen tubs of South Dakota butter entering the Genesee Salt Company contest, last summer, only one was marked off on body, and that would have been all right, had it been churned at the proper temperature. In speaking of mottles, he said that it was generally conceded that lack of moisture and salt was what caused mottles, and this being true, South Dakota butter should be free from them. "For," said he, "no other butter made in any other state, will stand so much working without injury to the grain as South Dakota butter" A great deal of the trouble with our butter arises from the butter maker using too cold water to wash his butter, which chills the granules and prevents the salt from becoming evenly distributed. He advocated the employment of inspectors and instructors after the plan of Minnesota. Mr. Leighton predicted a bright future for South Dakota in the dairy line.

Prof. G. L. McKay, of the Ames, Iowa, Experiment Station, was to have scored the butter, but a severe st rm detained him, and Mr. Leighton was pressed into service. He made note of the defects in each sample as he went along, and later gave a talk to the butter makers, telling them the cause of the defect and the remedy. Those who heard him said it was the most instructive lecture on that subject they ever listened to.

Prof. D. A. Saunders, of the Experiment Station, at Brookings, read an interesting paper on brome grass. It has been fully demonstrated that the smooth brome is the leader in tame grasses for the dairy, and it is especially adapted to this state. The college is making great efforts to get farmers to take hold of this grass, and as an inducement have furnished the seed at a very low price.

Prof. Wheaton and Prof. Stewart each gave interesting talks, and many other butter makers present took an active part in the discussions.

The members of the Butter Makers' Association held a meeting and decided to unite with the Dairy Association upon certain conditions, which were agreed to, and the name changed to the South Dakota Dairy and Butter Makers' Association.

The election of officers resulted as follows: President, Leland Griffin, De Smet; Secretary, C. P. Sherwood, De Smet; Treasurer, L. S. Tyler, Salem; Vice-Presidents: 1st circuit, A. B. Van Osdel, Mission Hill; 2d circuit, A. O. Johnson, Montrose; 3rd circuit, Victor E. Swanson, Clark; 4th circuit, S. S. Bately, Mitchell; 5th circuit, G. A. Lindquist, Newark; 6th circuit, W. F. Pidge, Highmore; 7th circuit, C. V. Gardner, Hill City.

The fact that a bill has been introduced into the lower house of congress providing for the taxing of colored oleomargarine 10 cents a pound, led to the sending of a telegram to our representatives urging their hearty support of the measure. If this product of the packing house can be forced out of competition with our creamery butter and placed on sale on its merits, the future of dairying is assured.

The people of Mitchell did all in their power to make our stay in the city pleasant. They seemed very much interested in the dairy industry, and evidenced their interest in a substantial way—the donation of their dollars to help make the meeting a success.

Mr. E. Sudendorf, secretary of the National Creamery Buttermakers' association, was present and urged that our state send a large delegation and a good exhibit to the annual meeting at Lincoln, Nebraska, February 19–23, next. In this connection we will state that negotiations are already under way for a special car and a low rate from our state, and there is no doubt that satisfactory arrangements will be made. Buttermakers and others who expect to go should notify the secretary early, in order to have accommodations secured in advance. A circular giving full particulars will be sent out in ample time.

The committee on resolutions submitted the following resolutions which were adopted by unanimous vote:

First—We the members of the Dairy and Buttermakers' Association, now assembled, wish to thank the good people of Mitchell for the entertainment and hospitality extended to us while in Mitchell.

Second—To the Business Men's League for their hearty support in making the different meetings successful.

Third—To the business men of Mitchell, who so generously contributed to the special premium list, for which all buttermakers will have best of wishes, and will long remember you all who have been so liberal with the buttermakers of South Dakota.

Fourth—We wish to thank S. S. Bately, who has done so much to make the meeting successful, and his efforts and success in getting the business men to contribute special premiums to the buttermakers of South Dakota who, will long remember him as their friend,

Fifth—We wish to thank most heartily Mr. F. A. Leighton for his attendance and very valuable paper and talk to the buttermakers, and for his careful scoring of the butter; also Prof. Saunders, for attending and taking part in our meeting.

Sixth—We wish to thank the press of Mitchell for their kindness in advertising the meeting and for the careful write up of our proceedings.

Following is the result of the score of the butter on exhibition as announced by Mr. Leighton:

J. P. Ibsen, Hanson (first)	97½
John Stranne, Mission Hill (2nd)	97¼
J. G. Blodgett, Farwell	96½
Adolph Gloege, Menno, Merch	93¾
R. K. Emily, Schuyler, Neb.	93
A. L. Bull, Parkston	95
T. Maxwell, Olivet	93
C. B. Thompson, Alsen	94¼
Guy Chenoweth, Henry	93½
T. A. Butterfield, Glen	93½
C. W. Winther, Miner	91
H. M. Ayer, Newark	92
C. S. Hayne, Webster	95
J. H. Brockway, Alpena	95
C. A. Heuermann, Virgil	94½
Geo. W. Loucks, Wolsey	96½
W. L. Boyer, Athol	95
C. W. Giles, Armour	94½
T. W. Most, Mt. Vernon	92
B F. Hanten, White Lake	89¾
O. L. Distad, De Smet	96½
C. W. Pierce, Kimball	91½
C. H. Werder Eagle	96½
Wm. Kuntz, Osceola	90½
E. H. Chenoweth, Kampeska	95
Victor E Swanson, Clark	96¾
Frank I. Redford, Mitchell	93¾
Willis Ibsen, Irene	97
Roy Colwell, Alexandria	97
Gilchrist Stewart, Burnside	94½
F. J. Moss, Canova	95
J. V. Jessen, Salem	92½
M. L Haley, Woonsocket	95
Nels Simonsen, Center Point	94½
M. Larson, Union	97
S. W. Sussex, Brookings	94½
A. D. Mc Ray, Huron	93
O J. Grendahl, Manchester	88
H. C. Webster, Spencer	96
J. B. Bately, Riverside	97
A. A. Gray, Vilas	90½
C. Hartwig, Scotland	94½
Geo. Miller, Alcester	96½
Mr. Compton, Ethan	96

C. P. SHERWOOD. Sec'y.

De Smet, South Dakota, Dec. 18, 1899;

Cheap Butter.

ED. HOARD'S DAIRYMAN:—I do not wish to discuss that poor quality of butter that is only too plentiful, but do wish to give an account of the production of a first-class article at a low cost by a Hood Farm three-year-old, Torono's Lillian 137820, dropped July 11th, 1896; dropped her last calf, November 3rd, 1899.

For the seven days ending December 10th, 1899, she gave 255 lbs. 3 oz. milk that produced 15 lbs. 6 ozs. of as nice butter as ever graced a table, on a daily ration of 3 lbs. bran, 1 lb. corn meal, 2½ lbs. ground oats, 1 lb. oil meal, ½ lb. cotton seed meal, 30 lbs. silage and about 7 lbs. of hay (hay not weighed); containing 1.79 lbs. digestible protein, 9.92 lbs. digestible carbohydrates, 0.63 lbs. digestible fat. Total digestible nu-



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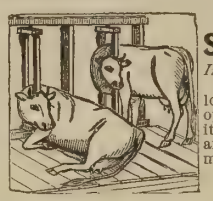
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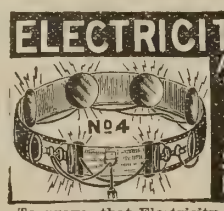
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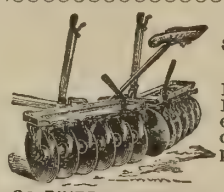
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They have largest possible capacity with minimum power. Crush and grind corn, husk cob and all, and all small grain singly or mixed. Have self-sharpening plates. Free—Catalog I.

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trients, 12.16 lbs.; nutritive ratio 1 to 7.

Comparing this with the American standard of 16.2 lbs. digestible nutrients, nutritive ratio, 1 to 6.9, it is a light ration and an economical one. Cows that are large, economical producers, are the kind we are striving to raise and are the kind that will return to dairymen a profit.

There is a reason for everything and this heifer is no freak but the result of breeding along dairy lines. Her sire, Torono, has been used to some extent in the Hood Farm herd and more freely since his daughters have begun to freshen, is a son of Sophie's Tormentor, sire of 17, from 14 lbs. to 19 lbs. 12½ ozs.—all on light feed. If this does not find its way to the waste basket, I will endeavor to report some of their year's work in the near future. JAMES E. DODGE,

Lowell, Mass. Hood Farm.

We beg to assure Mr. Dodge (who, by the way, is a graduate of the Wisconsin Short Course in Agriculture), that communications like the above, filled to overflowing with boiled-down statements of the facts of experience, never make the acquaintance of our waste basket, and that we cannot hear too often from him.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

UMBILICAL HERNIA.

I have a heifer calf that has a swelling right at the navel. It is not a rupture but seems to ooze out a little matter. I opened it but it does not go down. What can be done for it? I. N.

Toulon, Ill.

ANSWER.

I think you are mistaken. It is umbilical rupture, no doubt, but small. The pus is caused by the decomposing of the end of the cord. Such a condition needs a practical man, whether you or I are mistaken. If you should attempt to open this, you may do much damage.

BLOATING.

I have a cow, that for about six weeks before she calved, commenced to bloat at intervals; this finally became so serious, that I was obliged to knife her and insert a tube, to draw off the gas. After about twenty-four hours, I removed the tube, and she at once commenced to bloat again, till I found it necessary to keep the passage open all the time to save her life. This continued until she dropped a large bull calf. The wound at once healed, and she has done extra well at the pail this season. At about what age should the average cow do the best at the pail? H. S.

Little Valley, N. Y.

ANSWER.

1. Puncturing is of the long past. The flatus pipe is the instrument of rational treatment of the present day. Indigestion is the cause in your case of bloating. A dose of physic or two, would have done all needed, especially if an ounce or two of bi-carbonate of soda had been added.

2. From the fourth to eighth year.

GARGET.

Have a fine Ayrshire cow here quite sick. She cannot stand on her feet only a little while; her appetite is good; is fresh, about 8 weeks. Had a neighbor to tend her who gave physic, turpentine, sassafras and alcohol in warm water, but since, she is troubled with garget. L. D.

Garland, Pa.

ANSWER.

The physic was all right. Then the alcohol and turpentine counteracted the intent of the physic and did much harm, no doubt. Immediate full dose of physic and repeat in 5 days if needed. Rub the indurated quarters with strong camphorated spirits, six parts, common turpentine, two parts, only. Rub hard twice the first day, then only once a day for two or three days. Use much massage. Give good exercise in the sun. After the physic, give ten grains of iodide of potassa in a little water as a small drench, three tablespoonfuls of water or four. Give this for ten to thirty days, as may be needed. The iodide will not spoil the milk.

A SUDDEN DEATH.

My thoroughbred Holstein cow, Vesta, 6 years old, did not eat on Sunday as usual; on Monday morning I gave her one pound Epsom salts, two teaspoonfuls of ginger, and later two tablespoontuls of condition powder and fork full of hay which she ate. Being a pleasant day the cow was left out in the afternoon for a bath of sunshine, seemingly much better. The physic in several hours had the desired effect. When she returned to the stable she ate some fodder. About five o'clock she laid down very much in pain, and in ten minutes she was dead, without a struggle. Her feed consisted of corn stover, cut ensilage, all that they wanted twice a day, linseed meal, bran, oat meal. She was at no time constipated.

Mountville, Pa. J. G. S.

ANSWER.

Nothing short of a post mortem by a competent veterinarian could determine the cause of the death of the cow. There are several diseases which cause such sudden deaths.

FAILURE TO GET WITH CALF,

I have a Jersey cow that was two years old last May. She had a calf October, '98, when she was seventeen months old. I was advised to wait several months before breeding her again. I waited until August last before having her served, but have not been able to get her with calf, although she has been served three times. E. C. L.

Duluth, Minn.

ANSWER.

The cow requires a certain and effective emmenagogue. There are several, but the ones advertised in the DAIRYMAN are your best, safest, cheapest and all round to be recommended, as they are specially prepared for the disease in question.

WARBLES.

A few of my cows have lumps about the size of a 1 kernel peanut on their backs along backbone; seem to itch very much. On examination find they have a small hole in them and seem to be a kind of a grub worm.

How close to calving time, or the date a cow is due to calve, is the milk good, and how can I tell? This is with a cow that I can't dry up and want to save the milk as long as I can. How many milkings after a cow is fresh is the milk fit to save? I usually save the 10th milking, but have been told that is not long enough to wait.

Do you think it would pay to buy a cow 10 or 12 years old that has been a 2 to 2½ lbs. butter cow per day but has been failing last year and a half in milk. This cow is Jersey, fine animal and never had but one bull calf in 8 or 10 calves. I thought of buying her for breeding. Do you think a cow of this age or a young heifer will produce as good, strong, healthy and as good milkers as a middle aged cow? F. H. J.

Escondido, Cal.

ANSWER.

Yours is a common and well known condition, the lumps are the maggot or grub of the gad fly, *Borium oestrus*, or cow bot. They are quite common and are propagated from the ovary or egg of the gad fly, which punctures the skin and deposits the egg. Squeeze them out with thumb and fingers and then put a few drops of tincture of aloes and myrrh into the hole.

About five weeks. Third day, usually. Certainly not.

SCOURS.

I have a large cow seven or eight years old, that seems to have dysentery, or scours, badly. While on grass her droppings were thinner than other cows' droppings, but she gave a good mess of milk and seemed healthy otherwise. She went dry, took on considerable flesh, and then began scouring worse than ever, got poor, and seemed off feed. Then began eating again but still scours.

Edgerton, Kan. M. L. D.

ANSWER.

Follow the above course recommended for the same condition, nothing better to do. Systematic physicking will surely remove the scours. Not too close in the doses.

FISTULA.

I have a six-year-old mare that has bunches on one side of withers as big at times as a pint bowl, then it will dry away; have opened it twice; it discharged quite freely; then would heal; it never was a running sore. What is it, and what is the remedy? —

ANSWER.

Fistula of the withers. This, like poll evil, is always bad to heal; cures are hard to accomplish, always. You need a practical man to attend to your case.

ATROPHY OF WALLS OF UDDER.

I have a Jersey cow that, last year, had a small lump grow in the front part of the left side of her udder, and she did not give quite so much milk from that quarter; was a little lumpier once for a few days. This fall when she came in, the lump appeared to enlarge very much but has gone down to about the size of an egg. She has been in now, about six weeks and the whole left side of the udder appears to be withering away. When I commence to milk, it appears soft as though it had been milked out; it then fills up some and milks more than one would expect but not so much as the other side which is very full at first. W. A. M.

Edenburg, Pa.

ANSWER.

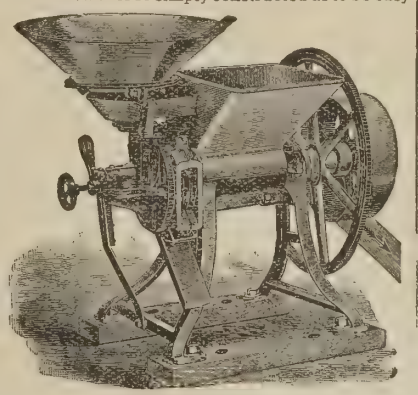
Atrophy of the walls of the udder is not uncommon; rupture of the inner lining of the walls of the udder is also quite often to be found. The latter, in my opinion, is your case exactly. This explains the soft and changing condition of the udder as explained to me. For rupture of the inner lining I know no treatment of a rational nature. She may become much better by an effort of nature or may get worse.

ILLUSTRATION.

A STOCK FOOD GRINDER.

Cows require a certain amount of what is known as roughage in their food. They cannot digest pure corn or pure oats or bran to as good advantage as they can when it is mixed with some coarse feed. Corn cobs make excellent roughage when properly prepared. A. W. Straub & Co, of 3737 Filbert St, Philadelphia Pa., have for long years been manufacturing the Quaker City Grinding Mill, a machine intended for farmers' use. It may be driven by wind or horse power or water wheel

The value of this machine on a stock farm is certainly very great. It will grind corn on the cob corn and oats, or wheat or barley for breakfast food, and is so simply constructed as to be easy



of operation by an unskilled man Country millers charge a large percentage of the amount of grain for grinding it. The farmer is at the expense of hauling it to and from the mill, and there is more or less wastage. On the other hand if the grain is fed without grinding at least a quarter of its nutritive value is lost. The Quaker City Grinding Mill enables the farmer to do the work at home in odd seasons These machines are also handled by The A. W. Straub Co., at Canal and Randolph Sts. Chicago, Ill. Write to either house for catalogue, circulars and full information.

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A Safe Speedy and Positive Cure



The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

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Works thousands of cures annually. Endorsed by the best breeders and horsemen everywhere. Price, $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for **Kendall's Spavin Cure**, also **"A Treatise on the Horse,"** the book free, or address

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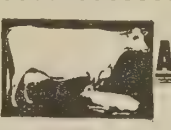
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Hypodermatically administered, is a **POSITIVE CURE** for abortion in cows. Sworn testimonials furnished on application. Address

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Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

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Dr. Horne's Anti-Abortient

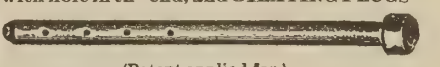
Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

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SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

These Offers will prove a Saving

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HOARD'S DAIRYMAN and Texas Farm and Ranch, both one year	$ 1 50
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ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York.

Meeting of the Georgia Dairymen's Association.

ED. HOARD'S DAIRYMAN:—It had been given out that this would likely be the "greatest dairy meeting ever held in any southern state," and several favorable conditions conspired to fulfill the promise. President Brown, of the Georgia Agricultural Society, says that this is a "transition period in southern agriculture," and certain it is that many farmers are turning from the all-cotton system to other branches of agriculture. The Georgia Dairymen's Association is guiding many of them into intelligent dairying. This condition greatly favored a successful meeting. Then the railroads of Georgia very generously granted free transportation to all members, which, of course, contributed largely to its success.

Some two hundred and fifty farmers, more or less interested in dairying, gathered at Grantville to hear the many dairy problems discussed by men who had successfully worked them out. Besides well known men from our own state, there was on the program Mr. George F. Weston, of the Biltmore Farms, N. C.; Dr. Cooper Curtice, State Veterinarian of N. C.; Mr. H. E. Weed, formerly Entomologist at the Mississippi Agricultural College; Major Henry E. Alvord, Chief Dairy Division U. S. Department of Agriculture, and others.

Major Alvord said that it was the most interesting meeting ever held in the South, and that very few states in the Union had as healthy dairy organization as Georgia. This association was founded in 1894 through the persistent efforts of Director R. J. Redding, of the State Experiment Station, who has been president since its beginning. His annual addresses, printed in the proceedings of each year, have done much to stimulate dairying in Georgia. Mr. H. J. Wing, Dairyman at the Experiment Station, has also rendered valuable service to the Association, and given much encouragement to the industry. His important investigations into the subject of "Tick Fever" are invaluable. This subject, of vast importance to southern dairymen, was ably discussed by Dr. Cooper Curtice, of N. C.

"The Selection and Care of a Dairy Herd" was discussed from the standpoint of a successful breeder, by Mr. George F. Weston, Superintendent of the famous Biltmore Farms of Mr. George Vanderbilt.

"My Experience in Dairying" was cleverly related by Mrs. M. E. Wilson, who has had a very pleasant and successful experience. President Redding said it was the very best address ever delivered before the Georgia Dairymen's Association. The Assistant State Commissioner of Agriculture, Col. R. F. Wright, discussed "The Enforcement of Georgia Dairy Laws." As in other states, much oleomargarine is sold in Georgia, and "they all think they are eating butter." One of the practical results of this discussion was an act just passed by the Georgia Legislature making it the duty of the Department of Agriculture to inspect butter through the Oil and Fertilizer Inspectors.

Mr. Howard Evarts Weed spoke interestingly upon the important subject of "Winter Pastures," and recommended hairy vetch sown with rye as best suited for this section. Prof. Hugh H. Starns, of the State University, gave the results of his studies and observations on "Farm Fences," having spent several years investigating the subject both in this country and in Europe.

Mr. C. B. Gold, editor of *Dixie Dairyman*, of North Carolina, addressed the Association on "The K. W. T. D. (know what to do) in Dairying," demonstrating the value of intelligently directed effort in this industry. The Association is doing a great work in giving intelligent direction to this new industry in its very beginning, and before old false theories and habits are fastened upon the dairymen of Georgia. This indeed is the main purpose of the organization, and it is encouraging to know that much along this line is being accomplished.

President J. Pope Brown, of the Georgia Agricultural Society, spoke on "The Transition Period in Southern Agriculture," from the all-cotton system, which has well nigh bankrupted so many farmers and impoverished their farms, to the more remunerative and rational system of dairying and diversified farming. According to the views of President Brown and other intelligent observers, the south, and especially Georgia, is now in this hopeful "transition period."

It is impossible to give even a brief synopsis of these and the many other able addresses in the limited space of this article, but the whole of the two days' proceedings, including all of the formal addresses and the informal discussions, stenographically reported in full, will be printed in the proceedings, which are now in press, and will be widely distributed both from the secretary's office and the office of the State Department of Agriculture. Copies may be had upon request.

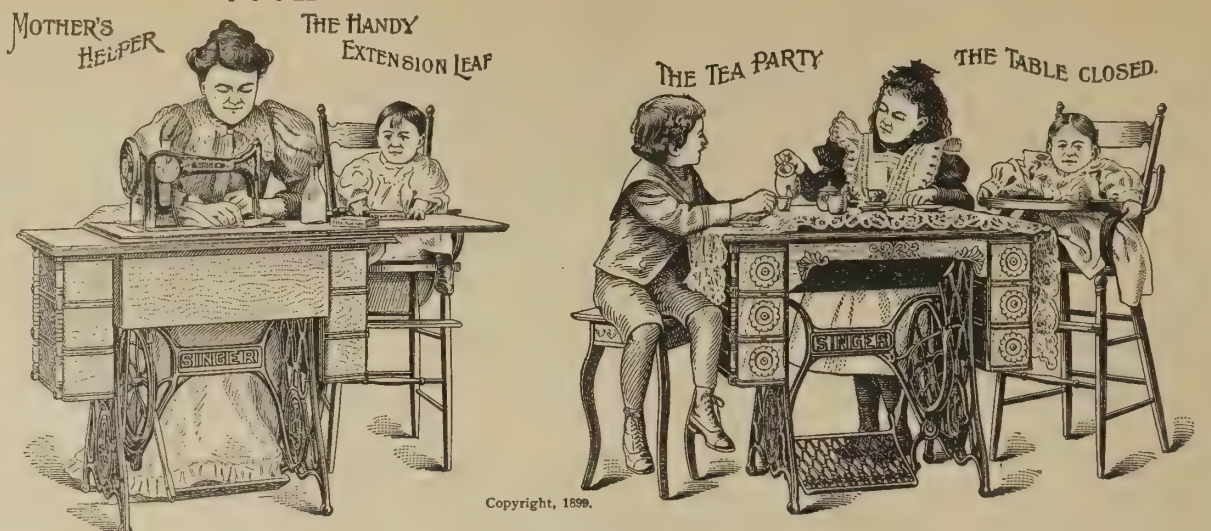
I must, however, briefly refer to the very able address of Major Henry E. Alvord, in the course of which he expressed the opinion that as Georgia had been the world's best market for dairy products, she would yet be the foremost dairy producing state of the Union.

He stated that in Great Britian alone the demand for butter each year was ten thousand tons more than the year before, and that most of this butter was produced in Denmark from cows fed largely upon grain grown in our western states, and cotton seed meal produced in the South. He earnestly contended that instead of selling these raw materials we should feed them at home, and get the larger profits resulting from the finished products, saving both the freights and the profits to ourselves. This able address made a profound impression upon all, and Major Alvord was given nearly the whole of the night session.

This is the second time that he has attended our meetings, having met with us at Macon, in 1897, and he expressed gratification at the progress of dairying as shown in the character of the butter exhibited at this meeting. Much disappointment was felt at not having Gov. Hoard with us as we expected, but the meeting of 1900 will be fixed at a date for his especial convenience, and a large and intelligent audience of farmers and dairymen from every section of Georgia will meet with him to discuss practical dairy problems. I may in a future article call attention to some of the definite practical results of the efforts of the Georgia Dairymen's Association during the six years of its existence.

Sparta, Ga. M. L. DUGGAN, Sec'y.

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To get new customers to test my Seeds, I will mail my **1900 Catalogue,** best I have ever issued, and filled with more bargains than ever and a **10c Due Bill** good for 10c worth of Seeds for trial, absolutely free.



Over 20 varieties shown in colors. **$1100 in cash premiums offered.** Don't give your order until you see this new catalogue 10 new vegetables for 20c. 15 flowers and 52 bulbs. 30c. Potatoes, $2.00 and up a barrel. Seed grain, 40c and up per bu.

All the best Seeds, Bulbs, Plants, Roses, Farm Seeds, Potatoes, &c., **at the lowest prices. NINE GREAT NOVELTIES** offered without names. I will pay **$50 For a Name For Each.** Many other novelties offered, including **Ginseng,** the great money making plant. **You'll be surprised** at my bargain offers. Send your name on a postal for catalogue today. **It is FREE to all.** Tell your friends to send too.
F. B. MILLS, Box 111, Rosehill, Onondaga Co., N. Y.



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer

1 Pkg.	City Garden Beet,	10c
1 Pkg.	Earl'st Emerald Cucumber	15c
1 "	La Crosse Market Lettuce,	15c
1 "	Strawberry Melon,	15c
1 "	13 Day Radish,	10c
1 "	Early Ripe Cabbage,	10c
1 "	Early Dinner Onion,	10c
3 "	Brilliant Flower Seeds,	15c
Worth $1.00, for 14 cents.		$1.00

Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, telling all about **SALZER'S MILLION DOLLAR POTATO** upon receipt of this notice & 14c. stamps. We invite your trade, and know when you once try **Salzer's seeds** you will never do without. **$200 Prizes on Salzer's 1900**—rarest earliest Tomato Giant on earth. F 194
JOHN A. SALZER SEED CO., LA CROSSE, WIS.



Dana's White Metallic EAR LABELS

stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. **Agents Wanted.**
C. H. DANA, 55 Main St., West Lebanon, N. H.



THE DROWN PATENT COW STALL

guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.

ARE YOU WITH US?



THE DEALER IS AGAINST US
because we sell you wire fence direct from the factory at wholesale prices.

The dealer does not give you a better fence than we do, but he charges you more for it. You can buy the

ADVANCE FENCE

direct from us just as cheap as the dealer can. That makes a saving that will amount to something nice. A postal card will bring you circulars and prices.

ADVANCE FENCE COMPANY,
126 Old Street, Peoria, Ill.

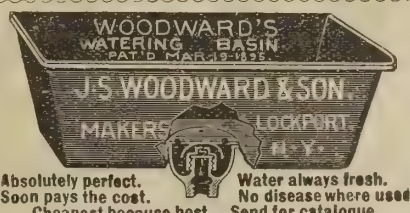


DON'T ROB YOUR NEIGHBOR

By buying a poor fence that will let your stock fatten on his crops. The **KITSELMAN FENCE** is a satisfactory one. It insures good sleep and makes good neighbors. Free Catalogue telling how to make 100 Styles at the actual cost of the wire. Write to-day.
KITSELMAN BROTHERS,
Box 57 Ridgeville, Indiana, U. S. A.

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.
Water always fresh. No disease where used. Send for catalogue.



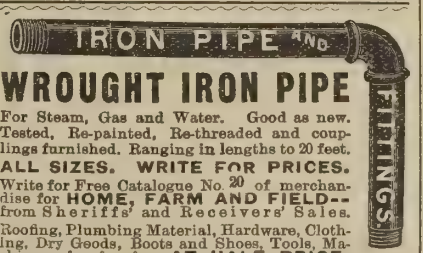
CHACE'S Watering Device

The most perfect watering device on the market. It is fitted with a brass bushing that screws through the bottom of basin and forms a valve seat for the ball valve. The ball valve is the most practical of any now in use; it has been adopted by manufacturers of injectors for steam boilers, and many devices where a perfect working valve is necessary. Send for circular and price.
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REDUCE YOUR COAL BILL

BY USING
The No Scale Company's
High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt.**
551 Marquette Building, Chicago.

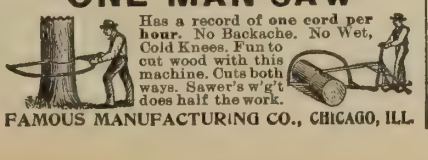


WROUGHT IRON PIPE

For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.
ALL SIZES. WRITE FOR PRICES.
Write for Free Catalogue No. 20 of merchandise for **HOME, FARM AND FIELD**—from Sheriffs' and Receivers' Sales.
Roofing, Plumbing Material, Hardware, Clothing, Dry Goods, Boots and Shoes, Tools, Machinery, &c., &c., &c., **AT HALF PRICE.**
Chicago House Wrecking Co. W. 35th & Iron Sts. CHICAGO.

LUMBER
at ONE-HALF PRICE
WE BOUGHT
The Omaha Exposition
and have 12,000,000 feet for sale.
Send us your bill for our estimate.
Write for free Illustrated Catalogue No. 44 on general merchandise from Sheriffs and Receivers Sales. Address
Chicago House Wrecking Co. Cor. CHICAGO, ILL. OMAHA, NEB.

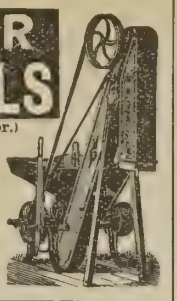
THE CHAMPION
—ONE-MAN SAW—



Has a record of one cord per hour. No Backache. No Wet, Cold Knees. Fun to cut wood with this machine. Cuts both ways. Sawer's w'g't does half the work.
FAMOUS MANUFACTURING CO., CHICAGO, ILL.

BOWSHER FEED MILLS

(Sold with or without elevator.)



CRUSH ear corn (with or without shucks) and GRIND any kind of small grain at same time, mixing in any proportion desired. Conical Shape Grinders.

Lightest Running

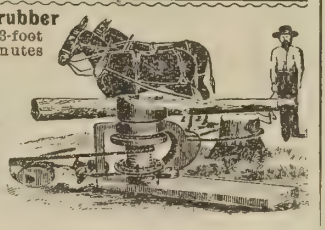
Handy to operate. 7 Sizes—2 to 25 h.p. One size for windwheel use (Also Make SWEEP FEED GRINDERS)
N. P. D. Bowsher Co., So. Bend, Ind.

Power for the FARM

Must be first class if it is to operate **Feed Cutters, Grinding Mills, Wood Saws,** or **pump water** successfully. We manufacture **Engines—2, 4 & 6** horse power. **Tread Powers** for **1, 2** or **3** horses. **Sweep** or **Lever Powers** for **1** to **8** horses. Every machine fully warranted to generate *maximum power* at minimum of force exerted. Catalogue showing *Smalley Line complete* mailed free if you name this paper.
SMALLEY MFG. CO., Sole Makers, Manitowoc, Wis.

Monarch Grubber

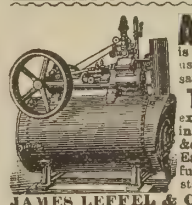
will pull a 3-foot stump in 3 minutes. It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. Co. Lone Tree, Iowa.





Steam Feed Cooker

OLDEST, CHEAPEST, BEST.
15,000 SOLD. Sent on one week's trial to responsible farmers if desired. Get our prices and description.
J. K. PURINTON & CO., Des Moines, Iowa.



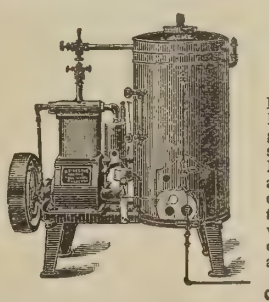
A GOOD ENGINE

is undoubtedly the best power for farm use. Best for cutting and grinding feed, sawing wood, pumping—for anything.

THE LEFFEL ENGINE

excels for this purpose as well as for use in dairies, creameries, cheese factories, &c. Horizontal or upright. 3 h.p. up. Easy to handle and keep in order. Least fuel and most power for the money. Send stamp for "Book on Engines."
JAMES LEFFEL & CO., Box 50, Springfield, O.

ON THE MARKET TEN YEARS.
The Acme Engine



Still LEADS

1 TO 6 Horse Power.
For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**
No. 9 Center St., Rochester, New York

DAVIS GASOLINE ENGINES

Combine the Most Modern Improvements.
The Only Engine with Patent Detachable Water Jacket.



Simplest Engine Built. Stationary, Pumping and Portable. Especially adapted for pumping purposes and general farm work. Thousands are in use successfully operating threshing machines, corn shellers, feed mills, wood saws, shredders, feed cutters, etc. **Write for Catalogue and Discounts.** Mention Hoard's Dairyman when you write.
DAVIS GASOLINE ENGINE W'KS CO., Waterloo, Iowa, U. S. A.



"Engineers' Bargains,"

our 64-page book, giving net prices on every article an engineer needs will be sent to all who write for it. Our goods are all of best quality and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you write for it. DETROIT ENGINEER SUPPLY CO
Detroit



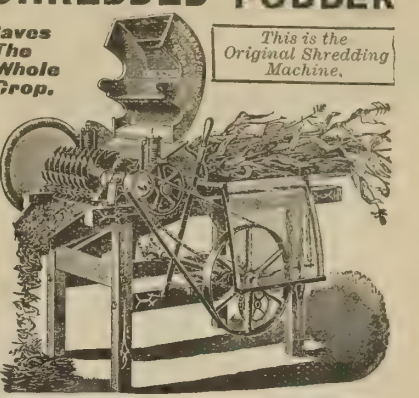
THE OPEN DOOR POLICY

sounds all right, but the open field had better have **Page Fence** around it, with one or two Page Gates.
PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

SHREDDED CORN FODDER

Saves The Whole Crop.

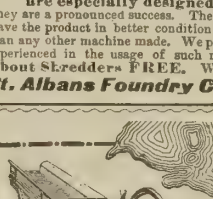
This is the Original Shredding Machine.



Knowing that you are convinced of the great food value of shredded corn fodder and the great saving that shredding produces we shall only tell you of how best to prepare it.

ST. ALBANS FODDER SHREDDERS

are especially designed for this purpose. They are a pronounced success. They **shred faster, finer** and leave the product in better condition **for feeding or baling** than any other machine made. We prove these statements by those experienced in the usage of such machines. We mail **Facts About Shredders FREE.** Write for it at once.
St. Albans Foundry Co. St. Albans, Vt.



"OHIO" SELF FEED ENSILAGE CUTTER

Cuts 33⅓ % more than regular machine.
Saves 75% in time.
Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

NEW METAL STRIP SWIVEL CARRIER.

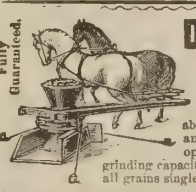
Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue FREE. Prof. Woll's "A Book on Silage" 10c.
THE SILVER M'F'G CO., Salem, Ohio.



200 BU. A DAY

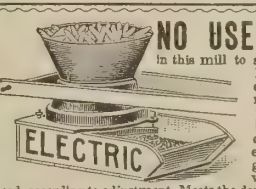
with the OTIS BALL BEARING NO. 2 MILL. Grinds ear corn and all other grain, fine or coarse. Grinds faster than any other 2-horse mill made because burrs are 25 in. in diameter, of improved shape to draw the grain down into them. Pulls easier as it runs on a series of 1 in. ball bearings. This is the Largest 2 horse mill made, but our prices are low because **we have no agents.** We sell it with a **binding guarantee** to grind **twice as much** as most others, and more than any other 2-horse mill made of any size burrs or any construction. **TRY IT.** If it don't do as we say return it. **500 bu. a day** with No. 3 Otis, 4-horse mill, grinds fine or coarse; holds 4 bu.; Wt. 1,230 lbs. This mill is a giant in size and capacity. **Guaranteed** to grind more than any other sweep mill made. For large feeders this is the mill to buy. **Sweep Geared Mill** of new pattern, rapid grinder. 7 styles sweep mills. Price Sweep Mills $14.50 and up. We also have 55 kinds belt and geared mills 2 to 25 H. P.

CORN SHELLERS 19 sizes and kinds for hand or power. Hand sheller 90c; 1-hole sheller for hand or power $5.50; 2-hole $10.50; self-feed sheller shells 500 bushels a day.
SHREDDERS AND CUTTERS 53 sizes & combinations for hand & power; largest cuts ton in 5 min.
POWERS 1-h Tread, with governor, $58; 2-h $77; 3-h $103. 2-h Sweep $24.90; 4-h $34.75; 6-h $36.95; 8-h $51.25
Full line Blankets, Robes, Harness, Cutters, Bobs.
Send for FREE fall catalogue giving latest prices.
Marvin Smith Co., 55 N. Jefferson St., E-18, Chicago, Ill.



DITTO'S TRIPLE GEARED Ball Bearing FEED GRINDER

A new Sweep Grinder of large capacity, easy power and great durability. Easiest runner made. Upper and lower grinding rings operate in opposition to each other, doubling grinding capacity. Crushes and grinds ear corn and all grains single or mixed. Send for circulars, etc.
G. M. DITTO, JOLIET, ILL.



NO USELESS GEARS

in this mill to absorb and waste power. It is a simple, direct grinder, of large capacity and requires small power. The **ELECTRIC FEED MILL** cuts, crushes and grinds ear corn and all small grain, converting the whole into fine or coarse sed, according to adjustment. Meets the demand for a good mill at a fair price. Circulars free. Electric Wheel Co. Box 156, Quincy, Ill.

"Appleton goods take the lead, and your steel link tread, all told, has no rival."—MANLEY BROS. & STONE, Harvard, Ill.

Hundreds of Similar Testimonials prove that our

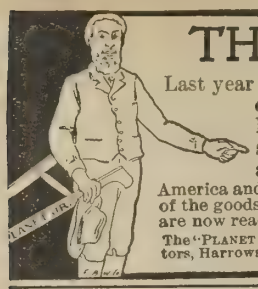
"SUCCESS" TREAD POWERS

are properly named. We make 1, 2 and 3 horse tread powers, smooth or level lags as desired, down or mounted. The



ONE-HORSE "SUCCESS"

is the best power made for driving cream separators, and all machinery requiring light power, but absolutely steady motion. More power can be obtained from the "SUCCESS" Tread Powers size for size than any others because they run light, are roomy and strong enough for largest horses, best governed, etc. More about them and our sweep powers, sheliers, fodder and ensilage cutters or shredders, huskers, grinders, wood saws, wind mills, steel tanks, etc., in our 160 page illustrated catalogue. FREE.
APPLETON MFG. CO., 35 Fargo St., BATAVIA, ILL.

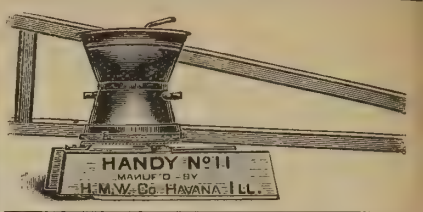


THE HANDSOMEST CATALOGUE OF 1900.

Last year we printed and distributed 300,000 catalogues. This year we printed and shall distribute 350,000 catalogues of the now world famous "PLANET JR. GOODS." Our last year's catalogue was acknowledged to be the best, most instructive and handsomest catalogue ever issued devoted to a similar subject. Our 1900 catalogue will be superior in every way to that one. It is profusely and handsomely illustrated with photographed farm scenes from all Europe, Australia, South America and other foreign lands. In addition to being beautiful it will be most instructive as to the quality and utility of the goods it represents, and as to the agriculture, gardening, etc., of foreign lands. The new catalogues are now ready and will be mailed free on application.

S. L. ALLEN & CO.,
Box 1107-D, Philadelphia, Pa.

The "PLANET JR." line comprises Seed Drills, Wheel Hoes, Horse Hoes, Cultivators, Harrows, Two Horse Cultivators and Suga Beet Seeders and Cultivators.





KEYS SULKY AND GANG PLOWS

Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

SEND FOR CIRCULAR

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BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

CUSTOM GRINDING



pays and you can build up and hold a large trade with our **FRENCH BUHR STONE MILL.** Grinds feed, table corn meal, buckwheat, rye and graham flour. Run a mill with your power. Send for Book on Mills.

NORDYKE & MARMON CO., **Flour Mill Builders, Estab. 1851. 25 Day St., Indianapolis, Ind.**

THE MICHIGAN SEEDER

SOWS CLOVER, TIMOTHY, &c.



any quantity per acre and 40 acres a day. It runs the easiest and lasts the longest, for the seed box is close to the wheel and rests on springs—two important points. There is no jar on rough or frozen ground and the steel wheel carries most of the weight. Write for full description.

Catalog and prices free.

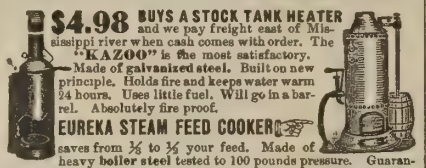
SEEDER & HAMMOCK CHAIR CO., Homer, Mich.



WANT A CUTTER?

Let us send you description and picture of our **Swell Body Cutter, No. 411.** Built of selected stock, first class workmanship throughout, and finely upholstered in raw silk, for **ONLY $13.90.** Other styles at equally low prices.

EVERYTHING FOR THE FARMER. We can save you money on Corn Shellers, Feed Cutters, Sweep Mills, Horse Powers, etc. Vehicles, Harness and Agricultural Implements. Don't miss our **big new catalogue.** It is full of money-saving bargains. Sent **free.**



$4.98 BUYS A STOCK TANK HEATER and we pay freight east of Mississippi river when cash comes with order. The "KAZOO" is the most satisfactory. Made of **galvanized steel.** Built on new principle. Holds fire and keeps water warm 24 hours. Uses little fuel. Will go in a barrel. Absolutely fire proof.

EUREKA STEAM FEED COOKER saves from ⅓ to ½ your feed. Made of heavy **boiler steel** tested to 100 pounds pressure. Guaranteed to be the best cooker made. **Price Only $21.50.**

Cash Supply & Mfg. Co., Dept. C, Kalamazoo, Mich.

Roofing?

There are various kinds of Iron and Steel Roofing and Siding, but our Patent Edge Corrugation is easily acknowledged to be far superior to anything on the market in that it is absolutely fire and waterproof, durable, effective, and of superior architectural appearance. If interested we will send you our new 100-page catalogue, illustrating and describing what we make. It's free.

Operating our own ROLLING MILLS, we are prepared to make Prompt Shipments at all times.

THE CINCINNATI CORRUGATING CO.
BOX 550, PIQUA, O.

M. M. S. POULTRY FENCE

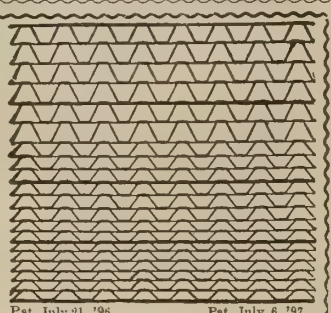
Has more good qualities than all others combined—cabled selvage and a cable every foot in height of fence Requires fewer posts and **No Top or Bottom Rail—**

PLEASING—SERVICABLE—PRACTICAL—ECONOMICAL—SATISFACTORY.

Saves 50 per cent. in cost of completed fence.

NOTE—Even if netting be donated, the complete fence will cost more than where M. M. S. POULTRY FENCING is used at regular price. Deduct price of netting from Estimate No. 2, and see.

We also make Hog, Field and Lawn Fencing.



Pat. July 21, '96. Pat. July 6, '97.

ESTIMATE No. 1.

60 rods 4-foot M. M. S. Poultry Fence made of No. 19 galvanized steel wire, @ 65c per rod	$ 39.00
61 posts, @ 20 cents	12.20
Setting posts, 5 cents each	3.05
No Top or Bottom Rail Required.	
No Labor Putting Rail on Posts Required.	
No Nails to Attach Rails Required.	
5 lbs. staples, @ 7 cents	.35
4 hours labor stretching up fence, @ 25 cents	1.00
Total cost	$ 55.60

ESTIMATE No. 2.

60 rods old-fashioned diamond netting, 4 feet in height, made of No. 19 galvanized steel wire, @ 65 cents per rod	$ 39.00
121 posts, @ 20 cents	24.20
Setting posts, @ 5 cents each	6.05
1,320 sq. ft. in top and bot. rail, $20.00 per M	26.40
30 lbs. 20d nails, @ 5 cents	1.50
8 hours labor putting up rail, @ 25c. per hour	2.00
10 hours labor stretching netting, @ 25c pr hour	2.50
10 lbs. staples, @ 7 cents	.70
Total cost	$102.35

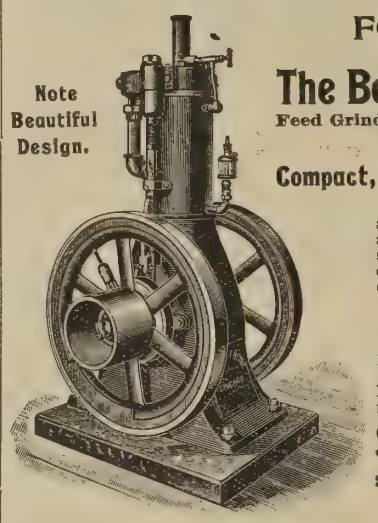
Draw your own conclusions and then write us for circulars.

DE KALB FENCE CO., BoxK, De Kalb, Ill.

The Burrell Upright Engine

FOR GAS OR GASOLINE.

Note Beautiful Design.



The Best Power to run Pumps, Grain Separators, Churns, Fodder Cutters, Feed Grinders, Saws and Dynamos,

BECAUSE It is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

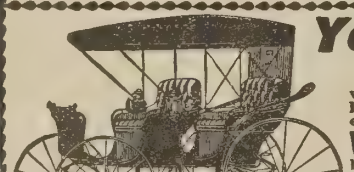
PRICE:

3 Actual H. P., On Time	$160.00
Spot Cash	145.00
1½ Actual H. P., On Time	140.00
Spot Cash	125.00

Price includes Gasoline Tanks and full set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

Skillin & Richards Mfg. Co.,
SOLE MAKERS,
239-241 So. Jefferson St., **Chicago, Ill.**
Horizontal Engines made in larger sizes.

Your Whole Family Would Be Satisfied



with one of these surreys. They are **handsome, strong, stylish, easy riding** and **durable.** Selling on our plan you can **examine it thoroughly before you are required to buy it.**

WE HAVE NO AGENTS

but sell all goods direct from our factory to the purchaser at wholesale prices. **We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** We have pursued this plan successfully for 27 years. You assume no risk as we ship our goods anywhere for examination and guarantee safe arrival. Largest selection in the country as we make 178 styles of vehicles and 65 styles of harness. Catalogue free.



No. 707—Extension Top Surrey, with double fenders. Complete with side curtains, aprons, lamps and pole or shafts. Price, $80. As good as sells for $40 more.

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PRINT BUTTER Should be wrapped in . . . GOOD Parchment

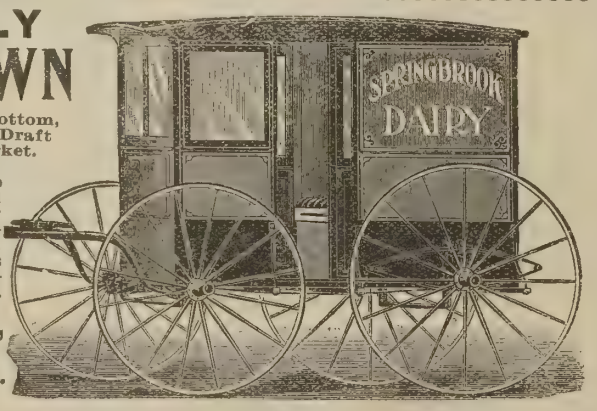
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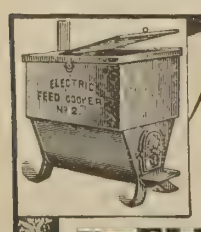
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20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

SHIPMAN, BRADT & CO.,
Sole Manufacturers,
De Kalb, Ill.





Save Half Your Feed

by cooking the other half. Experienced feeders know that this problem works out to a surety. This is not the only gain in cooking feed however. ***All cooked feed is digested*** by the animal economy, and none of it passes through whole. Young things grow more rapidly and mature stock fatten more quickly on cooked feed.

The ELECTRIC FEED COOKERS

are undoubtedly the best for preparing the feed. Made from the **best gray iron castings,** lined with **steel plates, with special galvanized steel** boilers. Three styles, five sizes, 25 to 100 gals. capacity. We publish a **FREE BOOK ON FEED COOKING** which tells all about these and deals extensively with the subject of stock feeding. Send for it.

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The New Book FEEDS AND FEEDING

By Prof. W. A. HENRY,
WISCONSIN EXPERIMENT STATION.

THIS BOOK should be in the hands of every stock feeder in the country. Every reader of HOARD'S DAIRYMAN ought to have it. It is a large, well bound book, nicely printed, over six hundred and fifty pages. Price $2.00.

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This publication will take its place immediately in the college library, and ultimately in the private library of every farmer in the land. When the instructor, student or practical farmer inquires where there is a work thoroughly exhaustive of this subject, he can now be referred to Prof. Henry's book."

Sent as above, or will be forwarded, carriage paid, on receipt of price, $2.00.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JANUARY 12, 1900. NUMBER 48

University of Ill

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Respectfully solicit the Agency of CREAMERIES in the New York market.

UP-TO-DATE WORK, Good Trade Connections and PROMPTNESS are at your service.

CHR. HANSEN'S
Columbian Butter Color

100 FIRST CLASS PRIZES

Guaranteed the Purest, Cheapest and Best in the Market.

Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by

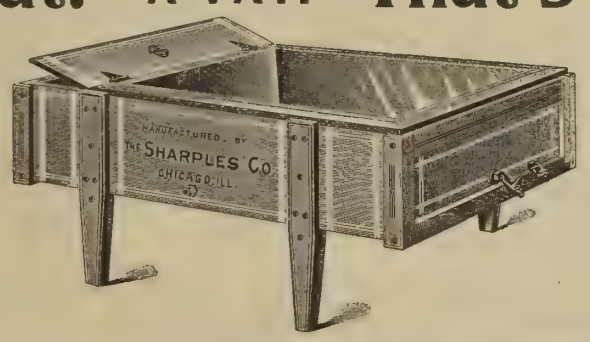
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HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**

Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

A Vat. JUST A VAT. That's All.



Oh, Yes! But There's a Difference in Vats.

There are **Sharples Vats** and other vats. The difference between a Sharples Vat and another vat is that a Sharples Vat is made right and intended to be sold on its merits, while other vats are made the cheapest way possible to be sold by different members of the Creamery Supplies Trust who hope to sell at a large profit by pretending to the honest, unsuspecting creamerymen that they are competitors, when as a matter of fact they all belong to the same combination. When you buy a Sharples Vat you get your money's worth; you get a vat made from the best of material, free from knots, thoroughly seasoned and better finished than any other vat made. One of our natural wood finish cypress vats will brighten up your factory like a beautiful piano sets off a parlor. The Sharples vats are properly put together, the joints are perfect, the lining is of the best tin manufactured, and firmly braced so as to avoid bulging from water pressure underneath. We can furnish them to suit your ideas; round bottom; flat bottom; self-draining bottom; large or small; natural wood finish or painted any color; lined with tin or copper. Every vat warranted strictly high grade. There is a certain very desirable peculiarity about our goods and it is known as **SHARPLES QUALITY.** It appears in our vats and also in the following specialties:

The "Squeezer" Combined Churn and Butter Worker.

Rightly designed—rightly constructed. Easily operated. Easily cleaned. In no way complicated and its work is perfect.

The "All-Over" Butter Printer.

This popular printer has been on the market but a short time but its many desirable points have created a demand for it far beyond our expectations. It prints six sides of a pound print at once if so desired, is rapid in its action and easily adjusted to meet varying conditions of butter.

When placing your orders bear in mind that we are prepared to furnish you with machinery and apparatus of the highest grade and that our goods

Are Not Controlled by the Trust.

Write for prices on Cream Separators, Milk Testers, Milk Vats, Cream Vats, Milk Heaters, Cream Carriers, Combined Churns and butter workers, Butter Printers, Boilers, Engines, Pumps, etc., etc.

THE SHARPLES CO.,

28, 30 and 32 So. Canal St., Chicago, Illinois.

FACTORIES { West Chester, Pa., And Dubuque, Iowa.

THE POINTS THAT COUNT.

The separator which recommends itself to the thoughtful creameryman is the one which other creamerymen have found absolutely reliable in every particular; the one which has proven itself in actual use as being the superior of every competing machine; the one which the manufacturer is ready to place in the hands of every creameryman who intends buying a separator, with the distinct understanding that the machine must be exactly as represented or no sale; the one which can be secured for trial without signing a skillfully worded contract which means an enforced purchase of the separator whether it is wanted or not. Such a machine is the



Sharples Tubular Separator.

The following letter merely repeats what is being said of the **"TUBULAR"** by prominent creamerymen in all parts of the world.

WACKER, ILL., Dec. 12, 1899.

Gentlemen:—

In regard to the Tubular No. 25 we bought of you last June, will say, I think it is the best separator on the market to-day. It is very simple and easy to run and I think it will last a lifetime; that is one good thing,—it is the lightest running separator I ever saw steam turned on. As to clean skimming, will say it can not be beaten; I have tested the skim milk very closely and 2-100 of one per cent. is the most fat I have ever found on a sample, and I have taken samples that I could discover no fat at all. I have tested the milk from a good many different separators, but have never found any that tested as low as the Tubular. The cream is delivered in so smooth and quiet a way that it is no trouble to make the finest grade of butter from it.

Hoping the sale of the Tubulars will be large, I remain,

Yours truly,
G. W. MYERS,
Mgr. Deer Creek Creamery.

It will pay you to give the Tubular a trial; it will demonstrate to you that our competitors need a one-sided contract when they come in contact with the Tubular. You can get a Tubular on the most simple contract ever written. A short letter like this will bring one to you quickly.

Please ship to me a Sharples Tubular Separator. I will immediately put it into my factory and will give it a fair and careful trial. If I like it in every respect, and it does all claimed for it, I will keep and pay for it. If it fails to suit me for any reason I will notify you to that effect, and on receipt of instructions from you will reship to your order as you may direct.

A CLEAN, RAPID, SUPERB SKIMMER,
OF LARGE CAPACITY, SIMPLE, DURABLE AND EFFICIENT.
TRY IT.

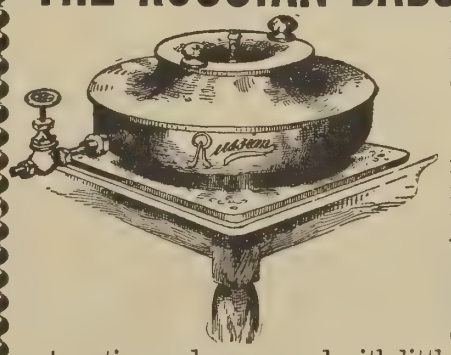
Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.

P. M. SHARPLES, West Chester, Pa., U. S. A.

D. DERBYSHIRE & Co., Brockville, Ont.

THE RUSSIAN BABCOCK TESTER....



is preeminently the machine for the man who wants to read small quantities correctly.

RAPID WORK

is easily accomplished, for the machine is not stopped when the bottles are filled with hot water. It is a

High Grade Tester,

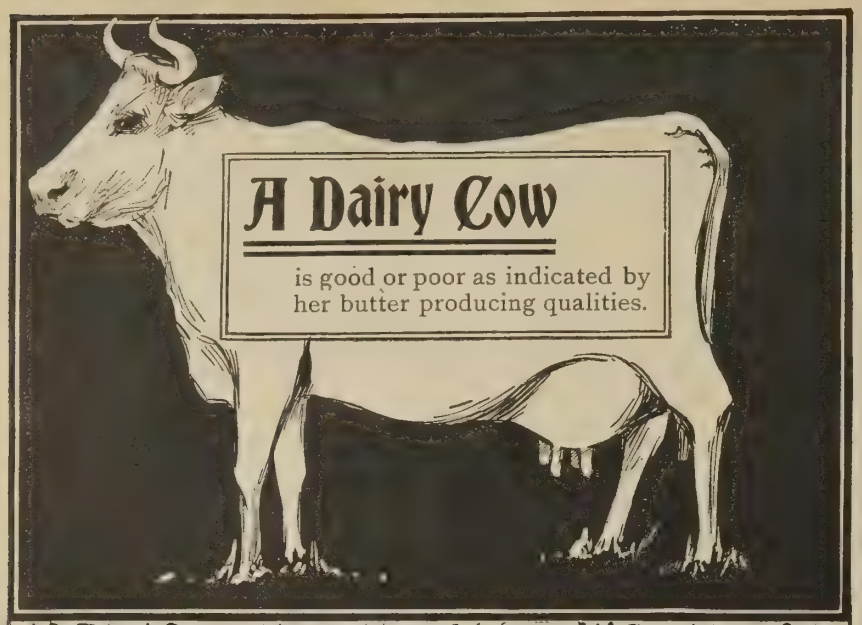
driven by steam. Ball bearing, automatic speed gauge, and with little care will last a life time.

We are prepared to repair all cream separators, and have the most skilled men for this work. Send for Catalogue, No. 51.

ELGIN MANUFACTURING CO., ELGIN, ILL.

1c a Pound WILL BE ADDED TO THE **Value of Butter** by the use of our Cultures at this season.

O. DOUGLASS BUTTER CULTURE CO., 81 Austin Street, CHARLESTOWN, MASS.



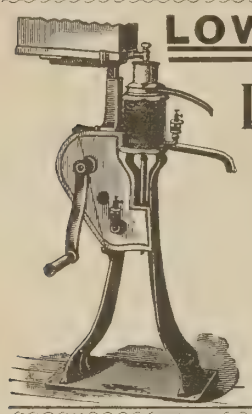
Do you know how much each cow in your herd is earning you? If you do not you are not an up-to-date dairyman.

Our "IDEAL" Hand Babcock Tester

will put you in possession of these facts. They cost little, they earn much. Write us for description and prices.

Alpha De Laval Separators Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,
1, 3 & 5 W. Washington St. — **Chicago, Ill.**
BRANCH HOUSES: Minneapolis, Minn. Kansas City, Mo. Waterloo, Ia. Omaha, Neb.
We are General Agents for Hansen's and W. & R. Butter Color.



LOW PRICES ON THE Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,
Cedar Rapids, Iowa.

PRINTED PARCHMENT BUTTER WRAPPERS

Are an established factor in the CREAMERY BUSINESS to-day. Protect your special brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. **Our STANDARD** weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will conviace you.

A. G. ELLIOT & CO.,
Manufacturers, Importers and Dealers in Paper of Every Description. — **Philadelphia, Pa.**

GENESEE SALT COMPANY'S

EDUCATIONAL CHEESE CONTEST

Was judged by A. H. Barber and criticised by U. S. Baer, Cheese Instructor at Madison, Wis. Eight states represented and the following prizes won.

Walter Fero, Muscoda, Wis., (Sweepstakes)	.99	$30.00
E. Grant Hodges, Union, Iowa, 1st in Class 1	.98	20.00
Tom Johnson, Boaz, Wis., 1st in Class 2	.96¾	20.00
C. A. Johnson, New London, Wis., 1st in Class 3	.97	$15.00
Wm. Nisbet, Hub City, Wis., 2nd in Class 1	.97	10.00
F. A. Vleryutz, New Holstein, Wis. 2nd in Class 2	.96½	10.00

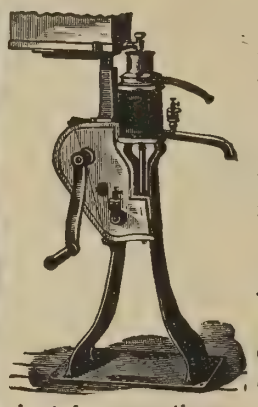
Robt. Nauman, Manitowoc, Wis., 2nd in Class 3.....96 $5.00.
1900 Contest Will be Larger.

F. A. TRIPP, CHICAGO. — **GENESEE SALT CO.,** NEW YORK, N. Y.

The Reasons for the Superiority of the Improved United States Separators

are well known to all who understand the principles of

CENTRIFUGAL SEPARATION.



For the enlightenment of those who do not understand these principles, those who have not studied into them and wish to understand them, we will send a catalogue explaining and illustrating separator facts and differences for the mere asking.

THE IMPROVED UNITED STATES SEPARATORS embody principles contained in no other, which makes them **more efficient in operation,** more simple in construction and greater wearing qualities.

The rapid increase in sales is phenomenal. None can truthfully boast of such a record.

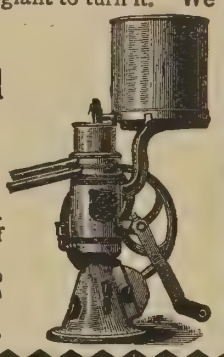
VERMONT FARM MACHINE CO., Bellows Falls, Vt.



A Hand Separator

to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

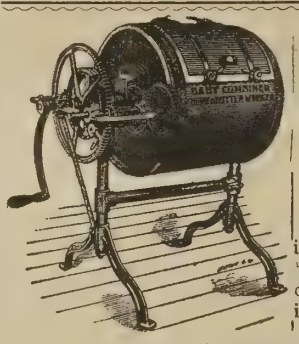
Empire Cream Separators



to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

We have not space here to tell you why the **Empire** machines excel all others, but it's all in our catalogue. Send your address if you have one cow or one thousand.

U. S. BUTTER EXTRACTOR CO., Newark, N. J.



THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

It is easy to handle, easy to clean, perfect in its work, durable and reliable. charms every farmer and dairyman who sees it work. Manufactured by . . .

F. B. FARGO & CO., Lake Mills, Wis.

Gluten Feed

is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,
DEPARTMENT H. — The Rookery, CHICAGO, ILL.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

A NOTED JERSEY HERD.

A study of a herd of dairy cattle, which represents a high degree of development, and at the same time demonstrates the owner's enterprise, study and skill as a breeder and developer of such cattle, can never fail to be of interest and profound instruction to the earnest student in these lines.

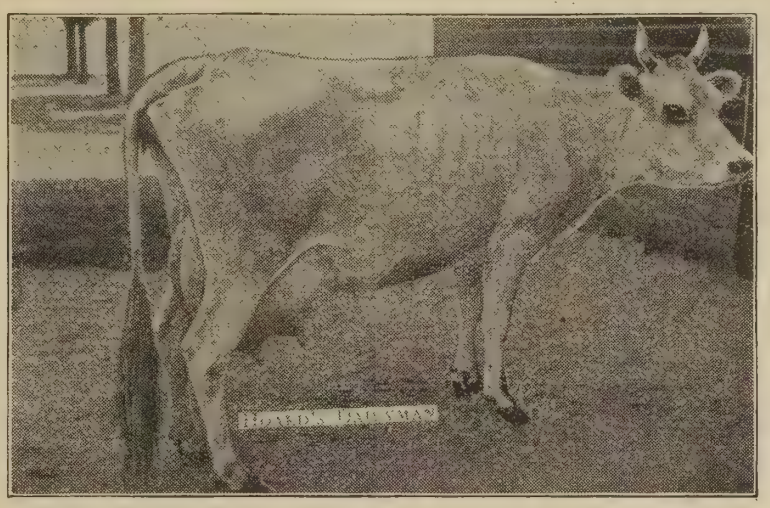
We had heard and read much of the fine Jersey herd owned by Mr. Frank W. Hart, at Painesville, Ohio, and a few weeks since, while on a trip east, we concluded to visit this herd. Mr. Hart is a wholesale merchant in millinery, carrying on one of tbe finest establishments of its kind in the west. He is a keen, thorough business man, and adheres in everything he handles, to close business methods. He took up the breeding of Jerseys about the year 1893, from a strong innate love of the dairy cow, and rural affairs. He commenced first, with the grand old cow Lorna 2nd 33634, and she is still the matron of his herd with five of her daughters by different sires, all of them grand cows in every particular. This presents a striking example of maternal prepotency. He made a special study of the Jerseys at the World's Fair, and at every other opportunity, until he felt himself competent to administer a sound judgment in the collection and construction of a representative herd of these cattle. Besides the cow Lorna 2nd, was presented another splendid study in the person of her son, the bull Marigold Pedro 42643, whose likeness we present in this issue. He is a bull of great impressiveness, and, combined with his sisters, gives us an enlarged idea of what should characterize a grand cow—a great performer at the pail and *still more* the producer with great *certainty* of prepotent sons and daughters.

An examination of Marigold Pedro disclosed, besides an almost faultless outline, the possession of a wonderful development of the rudimentary teats, widely placed lengthwise of the body, and well forward of the scrotum.

None of his heifers are in milk, but finer udders and teats we have never seen, than they present. It was a clear demonstration of the practical value of this feature in the sire. It is beginning to be pretty well understood that the sire largely determines the shape of the udder in the coming cow. If the rudimentary teats are widely placed, and of good size, it is a strong indication that the udders of the resulting heifers will be square and well shaped.

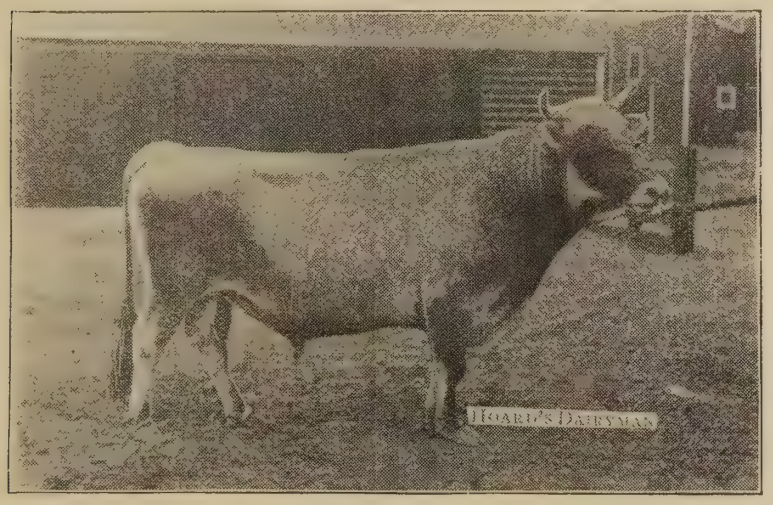
Another special study in dairy breeding was the wonderful bull, King of St. Lambert's King 30752. Mr. Hart has, with great enterprise, brought together from all parts of the country into his herd, every registered daughter of this wonderful bull. There they stand, sixteen in number, and we doubt if there exists in the country, such a demonstration of the prepotent power of a sire to impart to his daughters great productive capacity. Lack of space compels us to cut short further comment on our visit, but we will say in closing, that if there is any man in the country who is a doubter of the superior value and desirability of "special-purpose" breeding, a visit to the herd of Mr. Hart, we think, will surely convince him of his error.

We present this week, illustrations of three animals from Mr. Hart's herd. The cow Gazette's Fawn 93704, tested 25 pounds, 4½ ounces of butter from 333 pounds milk in seven days. Gazette's Fawn is a sister of King of St. Lambert's King. The other, the four-year-old cow Luella K. of St. Lambert 126949, tested 20 pounds, 6 ounces in seven days. Lastly, the bull Marigold Pedro of which we have spoken. A study of these three spendid dairy animals will show how strongly they confirm the constant declaration of the DAIRYMAN, that the dairy form is the basis of successful and profitable dairy production.



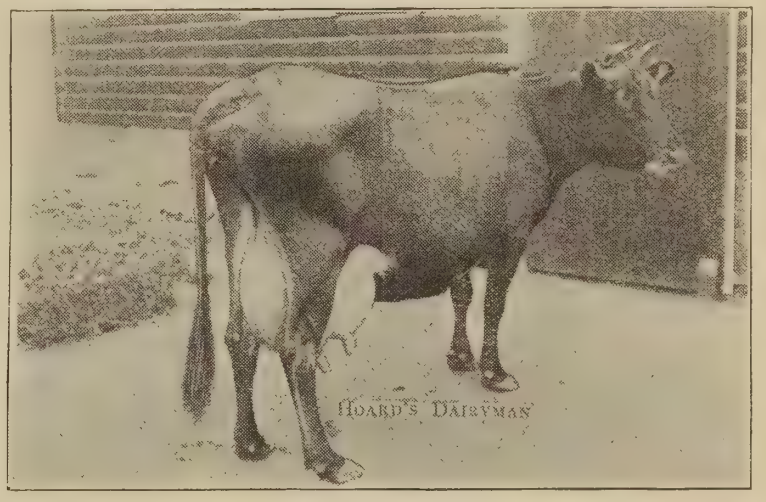
LUELLA K. OF ST. LAMBERT, A. J. C. C., 126949.

Property of FRANK W. HART, Cleveland, Ohio.



MANGOLD PEDRO, A. J. C. C., 42643.

Property of FRANK W. HART, Cleveland, Ohio.



GAZELL'S FAWN, A. J. C. C., 93704.

Property of FRANK W. HART, Cleveland, Ohio.

Feeding Fat Into Milk.

A Practical Experience.

ED. HOARD'S DAIRYMAN:—In reading over some late numbers of the "DAIRYMAN," I noticed the old question that constantly "bobs up serenely" as to feeding butter fat into cows' milk. If you remember, a number of years ago you and I used to argue that question, and I believe in that early day I found myself on the wrong side of the argument until I learned better. The circumstance that taught me better was this. You remember in the fall of 1889 I won the greatest butter prize with my herd of Holsteins at St. Paul, of any dairyman that ever won in the United States, and under the strongest competition. In a previous year I put in four cows to make butter. I think this test might have been the year before that. I had tested these cows at home, and the one I had got the most satisfactory results from made me three pounds of butter. I put what I considered my best cows together expecting to have no trouble in making the wonderful record. My cows made the most milk but lost in making butter.

After visiting one or two other state fairs, I brought up at the South Dakota state fair, at Aberdeen, and there I learned the lesson that I remembered all my life. Of the two cows I depended to do my wonderful work with, one of them went wrong, and left me what I considered one of my inferior cows to go into the record with another cow which was a prime favorite of mine. I kept these cows separate, and had the milk and butter tested. I won with Aggie Abbekerk, and much to my surprise the butter fat in her milk, tested under the Babcock test, was 5¼ per cent, while my cow that I thought was doing my wonderful work, and had given me 100 pounds of milk in a day, was only 2 per cent. I had her tested several times after that, and I found, much to my surprise, that the cow I was pinning my faith on, while she gave from 75 to 100 pounds of milk a day, was producing only 2 per cent butter fat, while the other cow that I had not considered so good produced from 4½ to 5 per cent in richness. Now I commenced to feed the low tested cow, and gave her the richest foods there was, in the best manner I knew how to feed, but I never could change her percentage. Afterwards it fell to my lot to test my other cow under different circumstances. This was on the farm and at a time when we were not feeding for any special purpose. This was during the winter when the cattle had nothing but straw and bran—not very much bran at that. And with only these foods the butter fat contained in the milk of the Aggie Abbekerk cow still kept up to 5 per cent. This opened my eyes, and I spent many an hour trying to solve the problem.

I think this is the first time I ever put any thing on paper in regard to my experiences along this line. But noting the experiments that have been made at Cornell and other state experiment stations I thought possibly you would be interested in having my experience along that line, because it thoroughly convinced me that you could not feed one particle of butter fat into a cow. But I arrived at this conclusion: You could put the butter fat into the cow one or two years before that time, or a year or two before she was born, by having the right sire and dam, and then the year before you put the cow to the test, keeping her in as good condition as possible. I believe that is the true solution of the question, that while you cannot feed the butter fat into the milk you can feed the butter fat into the cow, and later bring it out through the processes of the cow, that seems so dark to us. I. C. WADE.

Atlanta, Ga.

FOR WARTS ON HORSES AND CATTLE.

One of the nuisances of animal life is often found in the growth of excresences or warts. An experienced dairyman in New York not long since gave us the following recipe for troublesome warts on cattle or horses: Sandpaper the wart till it bleeds a little. Then powder blue vitrol, mix the same with vaseline to a thick paste and rub on. In a little time the wart will separate from the flesh and drop out.

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Coming Events.

Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Pennsylvania State Board of Agriculture, Harrisburg, Jan. 24-25, 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb. 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.
Prince Edward Island, Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

AT the recent meeting of the State Grange in Lock Haven, Pa., Dr. H. P. Armsby, Director of the Pennsylvania State Experiment Station, gave an address upon the education of the farmer, presenting a brief review of the past history and present status of agricultural education in the United States, and particularly in Pennsylvania. At the close of the address resolutions were offered and subsequently adopted, providing for the appointment of a special committee to consider the subject of agricultural education in Pennsylvania and report its conclusions and recommendations at the next meeting of the State Grange.

It is to be hoped that the trend of sentiment in the old Keystone State, upon this important question, is in the direction, among other ways, of teaching the elements of agriculture in the common schools. A generation of farmers' boys educated in that way, would furnish a hundred times more graduates from agricultural colleges than the present system produces. A taste for the *study* of agriculture must be implanted in the young if they are to make good farmers or good agricultural scientists in after life.

SILAGE CROPS.

The reports concerning sweet corn for silage are quite conflicting. Some say that it has a tendency to make a very sour silage, and others claim that it is as unobjectionable in this respect as any. If we had the sweet corn growing, we would not hesitate to put it in silage, but we would not plant it especially for this purpose, neither would we plant kafir corn for silage when the ordinary maize grows to perfection. Kafir corn is especially adapted for semi-arid climates because of its drouth resisting capacity. We are not aware that teosinte has ever been tried in the silo, but alfalfa has been, and very successfully so, especially in California.

A VALUABLE BOOK.

The Sixteenth Annual Report of the Wisconsin Agricultural Experiment Station (for the year ending June 30, 1899) has been received and, although not as carefully studied yet as it will be, enough has been observed to justify the statement that it is indeed a valuable book.

Naturally enough HOARD'S DAIRYMAN is most interested in the topics treating of cows and dairy products, and it is gratified to find these subjects occupying nearly half of the 332 pages of the report.

The record of the Station's dairy herd, pages 68 to 88, is especially valuable, and will be quoted and referred to again and again, by every writer on dairy topics, and especially by those who champion the merits of the so-called dual-purpose animal, for it was a cow claimed to belong to this class that showed the largest product, the largest net profit, and the lowest food cost for butter. This cow's sires for four generations were pure-bred Shorthorn bulls, but whether of "a milking strain," or otherwise, is not stated. Her record for 326 days is 10,163 lbs. of milk containing 433.82 lbs. of butter fat, the equivalent of 506.12 lbs. of butter. The total feed consumed cost $35.06, and the total value of butter and skim milk was $114.92, butter being credited at 20 cents per pound, and skim milk at 15 cents per hundred pounds.

This paper never quarrels with an established fact, and it therefore accepts this record as it is, and without qualification or reservation; but looking at the picture of the cow, as printed with her record, we cannot agree with Prof. Carlyle's statement, that "there is nothing particularly noteworthy about her general appearance, judging her from the standpoint of a dairy cow." On the contrary, she presents to us almost a faultless dairy form, despite any defects her udder may show; and if she is to be accepted as a fit type of the dual-purpose cow, it looks as though all controversy on this subject might be postponed, and this more especially if it can be shown that this cow and others like her, and of similar breeding, can be depended upon to produce heifers of similar dairy ability.

The Annual Reports of the Station, and its bulletins, are sent free to all residents of Wisconsin upon request.

A LIBERAL PREMIUM LIST.

The Wisconsin Dairymen's Association takes this opportunity publicly to acknowledge the following contributions to its premium funds for 1900:

HOARD'S DAIRYMAN	$ 25.00
Genesee Salt Co	25 00
DeLaval Separator Co	25.00
Worcester Salt Co	25.00
Wells & Richardson Co	25.00
Creamery Package Manfg. Co	25.00
Cornish, Curtis & Greene Manfg. Co	20.00
The Heller & Mertz Co	15.00
Diamond Crystal Salt Co	10.00
Hon. Jesse Stone	10.00
Anonymous	25.00
Totals	$230.00

The Association tenders its thanks to these donors, with the hope that the dairymen of Wisconsin will reciprocate the good will which has prompted them to thus assist in making the convention of 1900 memorable in liberal premiums, and will add enough to above amount to make a total of at least $500 to be distributed in cash premiums to Wisconsin dairymen as follows:

Herd Premiums	$150.00
Class I Dairy Butter	75.00
Class II Creamery Butter	175.00
Class III Print Butter	15.00
Class IV Cheese	125.00
Sweepstakes	10.00
Totals	$500.00

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether extract
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude* fat. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

A CALIFORNIA RATION.

I have been taking the DAIRYMAN for the past few months and have enjoyed reading it in that time and expect to profit by reading it in the future. Have just purchased a dairy consisting of 76 cows and heifers with about 50 cows milking. They are mostly high grade Holsteins, the party having used throughbred bulls for the past few years. I want to feed for a large flow of milk, as my business will be selling milk to a retail trade. Kindly furnish me an economic ration from the following feeds:

Roughage, alfalfa hay, $7 per ton; oats (this is the native wild oats), $6 per ton; wheat, $7 per ton; wheat and oats mixed, $7 per ton, with good clean straw fed in outside racks to run to; bran, $15 per ton; middlings, $17 per ton; barley, crushed, $17 per ton; corn meal, $22 per ton; oil cake meal, $30; oats, ground, $23.

The cows are in all conditions from fresh to those that are being dried off for calving and will weigh from 900 to 1200 lbs.

Stockton, Cal. R .L. W.

Of course with such a herd as this and with cows in all periods of lactation, it would be supreme folly for anyone to take a a formula for a ration and feed it indiscriminately to all the cows without regard to their ability to respond. We are of the opinion, however, that the following combination of feeds in the amounts specified would make a good average for this herd:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. alfalfa	9.16	1.10	3.96	.12
10 lbs. oat hay	9.11	.43	4.64	.15
4 lbs. bran	3.52	.50	1.93	.15
4 lbs. corn	3.56	.32	2.67	.17
Totals	25.35	2.35	13.20	.59

COTTON SEED MEAL.

A subscriber at Fort Edward, New York, is feeding corn stover, hay, corn and cob meal and bran, and wants to add some cotton seed meal. A neighbor has advised him to add about a handful to each feed and he has done so for about four days but sees no increase in the flow of milk. He asks us how much he can use and wants us to give the amount by measure as he has no facilities for weighing.

We are of the opinion that he ought not to expect returns in a very appreciable amount in so very short a time or for so very small a quantity. Cotton seed meal weighs 1 lb. and 9 oz., or about that, to the quart, and we do not consider 2 lbs. per day an excessive allowance. It is better, however, not to commence with so much as this at first.

It is perhaps possible that these cows have become so firmly established in shrinkage of milk flow that no amount of feed will materially increase the present yield.

A KICKING HEIFER.

F. K., Parkdale, Mich., has a Jersey heifer, due to calve January 24th. Whenever he gets near her she is very apt to kick or hook, or otherwise manifest a spirit of fear and self defense. His inquiry is what he shall do to overcome this trouble. The answer is to treat her as he would treat a young horse addicted to the same conduct. No blows, no straps, no scolding, but in every possible way get this heifer to understand that her owner never intends to hurt her, and is her best friend. Give her a daily lesson, and let each lesson last long enough to convince her that it is absolutely unnecessary for her to kick or hook or do anything else to protect herself. Be gentle, be kind, be patient.

He asks how to feed this heifer, but gives no list of feeds available.

IT IS NOT REASONABLE.

Is it reasonable to expect a good flow of milk from the following: Cows, grade Jerseys from 700 to 1,000 lbs., milking for butter; wheat bran, 3 lbs.; oat chop, 3 lbs.; oil cake meal, 1 lb.; corn meal, 1 lb.; good oat straw, all they will eat?

Please formulate a ration for us from the above. R. T. O. S.

Tweed, Ont.

The above is a very pertinent question, and it is one that a good many dairymen ought to ask themselves. A cow has been compared to a cupboard in that you cannot take more out than you put in.

We have a good deal of respect for good oat straw, both for horses and milch cows, but it needs to be supplemented with a very liberal allowance of grain, if you expect the horse to do much work or the cow to give much milk. There are very few men who would expect a horse put to hard work every day, to hold his own on oat straw and 8 lbs. of grain, but it is just as reasonable to expect this of the horse as it is to expect that a cow will yield a paying mess of milk on a similar allowance of feed. In our opinion the following allowance of grain is as little as one ought to think of supplying to a cow with no other roughage than oat straw, namely: 5 lbs. of bran, 3lbs. of oats, 2 lbs. of corn and 2 lbs. of oil meal. This with what oat straw she will eat will make a fairly good ration, but not the best.

HOW MUCH CORN?

In *Orange Judd Farmer*, Dec. 25, page 662, F. W. Woll: "Four to five pounds corn may be considered a maximum allowance per head, daily, for cows, and many cows will put on fat on this allowance." Seven pounds is the amount often named in your paper with, say, nineteen pounds alfalfa. Can cows do their best on four or five pounds corn meal and as much alfalfa as they will eat? I am feeding seven pounds with cut feed, alfalfa, and to cows giving thirty to forty pounds of milk per day, I am feeding ten pounds meal. Am I feeding too much corn? A. M. H.

Dona Ana, N. M.

We do not know just what conditions Professor Woll may have had in mind when he wrote the above, but it is fair to presume that he was writing for conditions usual in the northwestern central states where alfalfa does not constitute any considerable part of roughage. No man can lay down an

arbitrary rule as to the amount of feed, no matter what its description, that shall be given to a cow; in other words, each cow has an individuality of her own, and should be fed accordingly. When one is feeding alfalfa hay and corn, he may be well satisfied that he is not using too much corn, so long as his cows make good use of it and do not lay on too much flesh. If the cow stores up superfluous body fat, one may be sure he is feeding too much corn, but as long as she is using this corn to make milk, he may be satisfied that he is not overstepping the limits of careful and profitable feeding.

SOJA BEANS AND FLAX SEED MEAL FOR COWS.

D. S., Bern, Kansas, writes that he has a lot of Soja beans, also flax meal and corn and oats. For rough feed his cows have the run of a stalk field which is supplemented with oat straw and millet hay. Bran can be had for $13 per ton. He asks "How shall I feed to get best results?"

We apprehend that D. S. would hardly be satisfied if we did not indulge in a little pleasant scolding about that stalk field. For a farmer to have a stalk field and let his cows run in it and expect to get much profit from them, would be like a banker doing business and charging nothing for exchange or interest. The foundations of all legitimate fortunes, whether large or small, whether counted by hundreds of dollars, or thousands of dollars, or millions of dollars, were made out of the accumulation of small savings.

It is a waste of labor and a waste of land and a waste of produce to try to cultivate more land than a man can cultivate properly, and harvest the crop. The stalks on an acre of corn, even in Kansas where all coarse fodder is so cheap, would more than pay for the expense incident to raising and harvesting the entire crop. Better cultivate fewer acres and secure the entire crop, and then have stock enough on the farm to consume all the coarse fodder and thus return to the land some of the fertility which has been taken from it to grow the crop. From a clipping which we published last week from a Minnesota paper we should think there might be quite a profitable market for this flax seed even in Kansas, and as it is hardly necessary to feed this in combination with Soja beans, we omit it in the formula which we submit as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. millet hay	9.23	.45	5.17	.13
6 lbs. straw	5.45	.07	2.32	.05
2 lbs. Soja beans	1.78	.59	.45	.29
8 lbs. bran	7.05	1.00	3.09	24
Totals	23.51	2.11	11.03	.71

As will be seen we have omitted to take into account anything received by the cows from the stalk field. As a matter of fact it will cost these cows about as much to gather this fodder from the field as it is worth to them; but on extra pleasant days there is perhaps no good reason why they should not be allowed to range in the field. If it is a stormy day or there is a cold wind blowing or it is unpleasant for the owner of the cows to be out of doors without a coat, his cows better be out of the stalk field.

A SOUTH DAKOTA RATION.

Please formulate me a balanced ration. I have well eared corn stover, sheaf oats (cut in the dough), well cured millet hay, corn and oats. Can buy good prairie hay at $2 a ton. Millet is worth $2 a ton; corn, 20 cents; oats, 18 cents; bran, (fresh from the mill) $8; oil meal, $22 to $25. We have plenty of corn and oats, millet, corn stover and sheaf oats; the other feed I can buy.

Amboy, Sanborn Co., S. D. E. E. S.

Oats at 18 cents a bushel come to $11.25 per ton and therefore cannot be profitably fed when good bran can be bought for $8.00. There is not very much choice in the coarse forage, but having the sheaf oats and stover and millet hay we should not care to go to the expense and labor of exchanging for prairie hay, although in some respects we consider the prairie hay the more valuable feed. If these cows have not been in milk too long, we think it would pay to feed them about 8 lbs. of bran, 2 or 3 lbs. of ground corn and 1 lb. of oil meal each twenty-four hours and then give them all the coarse forage they will care to eat.

Here is a case where it will richly pay to commence at once to keep a record of what each cow does. Weigh the milk at every milking, make a record of it, keep an account and determine which of the cows are worth keeping. Some of these cows will be found to have sufficient dairy ability to warrant giving them more feed; others will be unable to pay for their feed even when it is as cheap as it is in our friend's vicinity. It may be well to increase the allowance even to these poor cows and let them fatten, and then dispose of them. There is often much more net profit from one good cow than from two ordinary cows, just as there is more profit from one acre of good soil well tilled than from two acres of inferior soil, poorly cared for.

TWO WISCONSIN RATIONS.

Please formulate a balanced ration out of corn ensilage, oats and bran. Also for another party out of oats, rye, timothy and cut corn fodder. Does it pay to grind oats and rye, paying for the grinding, or feed whole? Are cows liable to injure themselves by eating too much ensilage?

Pine River, Wis. H. E. F. & SONS.

Answering the last question first, we have to say that we do not know that there is any more liability to injury by eating too much ensilage than there is in eating too much of anything else. It does not follow, however, that we consider silage a complete food, or as furnishing, when fed alone, the most healthful or the most profitable roughage. The cow herself is the best judge in such cases, and the fact that when fed silage she seems to have a craving for some dry fodder is an indication that her system needs it. Good straw, good corn stover, hay, and especially clover hay, should be supplied in addition to silage, and in such quantities as the cow will eat with relish.

We can, however, make a very good theoretical formula from the feeds named, as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
50 lbs. silage	13.20	.65	7.00	.35
8 lbs. bran	7.05	1.00	3.09	.24
6 lbs. oats	5.34	.55	2.84	.25
Totals	25.59	2.20	13.93	.74

It is simply impossible to make a satisfactory formula for the second party. The best that can be done is to suggest 10 lbs. timothy hay, 10 lbs. corn fodder, 6 lbs. oats and 6 lbs. of rye. The oats may be fed without grinding, although we think, as a rule, it is better to grind them, but we would not think of feeding unground rye.

A MARYLAND FEEDING QUESTION.

Please give me a balanced ration for my cows, 13 in number, if my feed is not what my cows need. I am feeding 40 lbs. of good, sweet silage; 16 lbs hay; 4 lbs. oat chop and bran mixed, and 2 measures of Baum's stock food, daily. My silage is poor field corn. I suppose would have made 6 barrels corn per acre, owing to the dry season. I have a round silo, 14×28; silage kept good. Let me hear from you what will be better for my cows to get all that is in them.

Double Pipe Creek, Md. J. D. D.

If J. D. D. had indicated what kind of hay he was feeding his cows, we would be much better enabled to express an opinion as to whether they were receiving as much grain as they could profitably use; 40 lbs. of silage, 16 lbs of clover hay, 4 lbs. of oat chop and bran mixed would make a very fair ration for cows that have been giving milk six months or more, and were expected to freshen again next spring. With timothy hay this allowance would be altogether too small, and the amount of grain should be at least doubled. We make no account of the "two measures of Baum's Stock Food." We presume this so-called measure is a little tin cup, holding, possibly a gill, and that feed referred to is one of the condimental foods upon the market, which may have more or less value as a stimulant to the appetite, and possibly an aid to digestion, but with a nutritive value entirely out of proportion to the cost of the feed. We should suppose that in Maryland one might obtain a first-class quality of cotton seed meal; and that the addition of 1 or 2 lbs. of this meal to the daily allowance would result in a very considerable profit.

AN INDIANA RATION.

Will you please formulate for me a ration from the following materials: Good clover hay; ground corn, $14; corn and oat chop, the same; wheat bran, $15; can get oil meal, if necessary. Have four cows, one will be fresh in February, the other three not until June and September. Cows are grade Jerseys. D. E. H.

Winchester, Ind.

Give the fresh cow substantially the following daily allowance, feeding one-half at night, and the remainder in the morning:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs clover	16.94	1.36	7.16	.34
4 lbs corn and oat chop	3.56	.34	2.08	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	24.02	2.20	10.78	.63

If the cows are accustomed to noon feeding, give them a little something to eat, so that they may not be disappointed and fretting all the afternoon.

A MINNESOTA RATION.

A. H. D., Harmony, Minnesota, is feeding his cows 4 lbs. bran, 6 lbs. succotash (wheat and oats, 40 lbs. to the bushel), 10 lbs. mangels and what hay (mixed timothy and clover) they will eat up clean. Assuming that his cows eat 20 lbs. of this hay, we figure the ration as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17.16	.96	7.92	.32
10 lbs. mangels	.91	.11	.54	.01
4 lbs. bran	3.52	.50	1.54	.12
6 lbs. succotash	5.36	.59	3.66	.16
Totals	26.95	2.16	13.66	.61

As his cows are grade Jerseys weighing from 800 to 1200 lbs., we apprehend the above will not be far out of the way as an average. This opinion is corroborated by his statement that he is having very good success, which he attributes in a very considerable degree to the instructions received through the DAIRYMAN.

We incline to the opinion that if the succotash could be sold so as to buy an equal amount of bran the appearance of the formula would be improved, and it is quite possible that the resulting yield from the cows would show some improvement also.

A NEW YORK RATION.

Will you make me a balanced ration that is the cheapest, from the following:

Bran, $17.00; middlings, $18.00; corn meal, $18.00; cotton seed meal, $25.00; oil meal, $26.00.

Feed corn stalks which have been shredded, and some straw mixed with them.

Also have turnips. Will it do to feed some of them and how many?

Have a separator and make butter, and sell to customers at 25 cents the year round.

Jacks Reef, N. Y. C. McI.

We specify turnips in the formula which follows, on the theory that if fed to cows immediately after milking and after the milk has been removed from the stable there will be little or no tainting of the milk at the next milking. We have received this assurance personally and by letter from a great many of our friends and correspondents. We have never had occasion in our own experience to feed turnips to milch cows, and therefore cannot speak with personal knowledge concerning them. If our correspondent finds that in feeding turnips there is no injury to the quality of his butter he will of course continue to use the turnips. On the other hand, if they still continue to taint the milk, notwithstanding they are fed as above directed, their use better be discontinued; unless indeed he wants to take the trouble of "washing" his cream. When this process was suggested some years ago by the DAIRYMAN it occasioned a good deal of hilarity among some of our overwise contemporaries, but there was here and there a progressive dairyman who was willing to try new things, and found that washing the cream was not only a possible process but a very useful one in some emergencies, and especially in localities where garlic and wild onions abound. This process consists in first separating the cream from the milk and then diluting this cream with two or three times its bulk of warm water and re-separating. If the water is raised to 150° or 160° F. it in effect pasteurizes the cream, and it may be necessary to use a "starter" afterward. With these reservations we suggest the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. stover	14.38	.43	8.10	.20
20 lbs. turnips	1.90	.20	1.44	.04
6 lbs bran	5.29	.75	2.32	.18
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	23.41	2.12	12.20	.59

A WISCONSIN RATION.

Please send me a ration for cows from the following:

Corn fodder; clover hay, $5; timothy hay, $6; oats, per bushel, 22 cents; corn, per bushel, 30 cents; wheat bran, $16. I have oil meal. Weight of cows, 900 pounds.

Warrens, Wis. W. H. G.

With clover hay at $5 per ton, we should be disposed to use it quite liberally as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover	12.70	1.02	5.37	.26
5 lbs. stover	2.98	.09	1.62	.04
5 lbs. oats	4.45	.46	2.37	.21
5 lbs. corn	4.45	.45	3.34	.22
Totals	24.58	1.97	12.70	.73

If the oil meal on hand is sufficient for the purpose, we would drop out 1 lb. of the corn and 1 lb. of the oats, and add 2 lbs. of the oil meal.

A WISCONSIN RATION.

H. A. M., Valley, Wisconsin, has been in the dairy business about fifteen months, and has had very gratifying success, which he attributes in a large measure to the influence of the DAIRYMAN. He now asks us to formulate a ration for him from bran, $15.00; shorts, $15.00, ground oats, $14.50; and corn meal, $12.50. For roughage he has early cut mixed hay, good, bright corn stover and oat straw. He has also a few mangels. For cows fresh in milk we suggest the following as the minimum daily allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. hay	8.53	.48	3.96	.16
10 lbs. stover	5.95	.17	3.24	.07
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. oats	4.45	.46	2.37	.21
1 lb. oil meal	.91	.29	.33	.07
Totals	24.25	2.03	11.83	.66

For cows that have ability to pay for their feed, as good dairy cows should, another pound of oil meal might be added to the allowance above specified, especially after the mangels are fed out.

A VERMONT RATION.

R. E. K., Newport Center, Vermont, sends us $1.10 to renew his subscription for the DAIRYMAN and secure the *Farm Journal* for one year. This is not a bad combination. The *Farm Journal*, although some-

what diminutive in size and still more so in price, is really a very valuable addition to the reading matter in a farmer's home.

R. E. K. can purchase bran at $20 per ton; gluten meal and cotton seed meal at $25; corn meal at $18; oats at 35 cents per bushel. He has a ton of bran and one hundred bushels of barley which he wants to use. For roughage he feeds clover and timothy hay once a day, and oat straw once. Some of his cows are fresh, and still more are to become fresh before grass grows, and he asks us to give him a formula for a ration, which we do as follows, with the remark that the amounts given are for cows in fairly full flow of milk. Those that have passed their maximum yield and are rapidly approaching the period of freshening again, should of course receive much less. Those that have a capacity of yielding 25 or 30 lbs. of milk per day should receive more. There are no rules that can be laid down for feeding cows or any other farm stock that will dispense with the intelligent judgment of the feeder. In trying this formula, therefore, due regard should be had to the condition and ability of the several cows, giving some more and some less:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. hay	8.53	.48	3.96	.16
8 lbs. straw	7.26	.10	3.09	.06
2 lbs. barley	1 78	.17	1.31	.03
2 lbs. cotton seed meal	1.84	.74	.34	.17
5 lbs. bran	4.41	.63	1.93	.15
Totals	23.82	2.12	10.63	.57

A KANSAS DAIRYMAN SUBMITS A RATION FORMULA.

H. C. W., of Garnett, Kansas, sends his renewal for the DAIRYMAN with the comment that he would be at a great loss without it, as, in addition to general farming, he keeps a few Jersey cows for the profit there is in it. Before taking the DAIRYMAN he fed his cows plenty of hay and corn stover and some corn. Since taking he has changed his plans by buying bran, oil meal and cottan seed meal and says he has found quite a saving in feed and a large increase in flow of milk. At the present time he is feeding according to the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay	8.47	.68	3.58	.17
10 lbs. mixed hay	8.53	.48	3.96	.16
3 lbs. corn and cob meal	2.67	.19	1.89	.10½
2 lbs bran	1.76	.25	.74	.06
1 lb. oil meal	.91	.29	.33	.07
1 lb. cotton seed meal	97	.37	.18	.08½
Totals	23.31	2.26	10.68	.65

We do not see how this formula can be improved, more especially if he keeps a record of the amount of milk produced by each cow and increases or decreases the grain allowance as the cows seem to make good use of it.

ABORTION IN YOUNG STOCK—SPOTTED BUTTER.

Will a heifer with an abortion at first calf ever make a good cow?

What is the cause of spotted butter?

Rock Island, Ill. J. E.

Abortion can take place for several years in succession without injury to the value of the cow for future use.

It may be due to small specks of dried cream, from coagulated casein, not broken up in the churn, or from irregular distribution of salt in the butter.

HEATING MILK WAGONS.

Can you inform us of any device for heating milk wagons? S. B.

Colorado Springs, Colo.

We have seen milk wagons heated by means of a small stove placed in front of the driver, but do not know of any special device used for this purpose.

AN ONTARIO RATION.

I have eighty tons ensilage (corn well eared and nearly mature); ten tons mixed timothy and clover hay; abundance of oat and wheat straw; 150 bushels mixed peas and oats of 1:2 ratio (bulk); bran at $13 per ton; peas, 60 cents per bushel; oats, 28 cents per bushel. Please fix me a ration from them for fresh cows and heifers of 500 to 800 pounds weight. Hay is worth $8 to $10. Can get gluten feed at about $24. Oil cake is plenty but, I hear, high—probably $25 to $28.

I have figured a ration for myself, but want to know how you would do it, as I may be wrong. IMPROVER.

Ingersoll, Ontario.

With bran selling at $13 per ton, we cannot recommend the feeding of peas and oats at $20 per ton, notwithstanding the latter may have been raised on the farm. We should much prefer to sell the grain at the prices named, and invest the proceeds in bran. If this cannot be done, we would recommend the following for trial:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
5 lbs. hay	4.27	.28	1.98	.08
5 lbs. straw	4.54	06	2.03	.02
8 lbs. bran	7.05	1.00	3.09	.24
4 lbs. oats and peas	3.56	.52	2.00	.10
Totals	27 34	2.25	13.30	.65

The figures given in the above formula for bran and oats and peas fully justify what we have said above as to their relative values.

It is also possible that the smaller cows will refuse to consume so much dry matter. In that event we would reduce the hay and straw somewhat, and substitute two pounds of gluten or oil meal for four pounds of bran or the oats and peas.

A PROMISING WISCONSIN CONDITION.

P. C. E., Scandinavia, Wis., who reports himself as a young reader of the DAIRYMAN, thinks if we could give him some directions for feeding his cows it would not only help him, but a whole lot of "trying-to-do-the-right-thing farmers." He owns seventy-two acres of land, of which sixty is under the plow, and he has only eleven cows and heifers. Although he is one of the owners and patron of a creamery in Waupaca county, his receipis for the year were less than $300, and he rightly concludes that the DAIRYMAN would comment on this as being too small a lot of cows, and too small an income. But he signs himself "Yours for prosperity and progress," and we are not at all concerned but what our next report of him will show a decided advance.

The first thing for him to do is to get a spring balance, a very cheap one, that he can buy at any hardware store, will answer fairly well, and then weigh the milk of each cow at every milking and make a record of it. This practice will, undoubtedly, reduce the number of his cows, but if it does it will assuredly increase his profits, and profits are the legitimate end and aim of keeping cows.

He has an octagon silo, twelve feet in diameter and twenty feet high, filled last fall to the brim with good, well-eared, early Dent corn, and he has lots of clover and timothy hay, besides the usual straw stack. Oats are worth 22 cents a bushel; bran, $14 a ton; and oil meal, $1.15 per hundred. The following combination of these feeds will make him a good ration for good cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.53	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
4 lbs oats	3.56	.37	1.89	.17
2 lbs. oil meal	1.82	.59	.65	.14
Totals	25.35	2.33	12.24	.80

We think it altogether likely that if 3 lbs. more of bran were added in place of the 4 lbs. of oats specified, the ration would give equal results, and perhaps better.

A UTAH RATION.

Will you please make me a ration from the following: alfalfa, mangels and chop wheat? Which would be the better, chop wheat or wheat bran at $12 per ton each?

Cache Co., Utah. H. M. R., JR.

The following combination presents a very fair average daily allowance for a herd of milch cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa hay	18.32	2.20	7.92	.24
20 lbs. mangels	1.81	.22	1.08	.01
8 lbs. bran	7.05	1.00	3.09	.24
Totals	27.19	3.42	12.09	.50

Of course the digestible protein here is much larger than is really necessary, but protein is not an expensive feed where alfalfa hay is cheap. We should much prefer corn chop or corn and cob meal to bran for feeding with alfalfa, and this would decrease the protein, somewhat, and increase the fat, and it is for a similar reason that we prefer bran to chop wheat. Bran carries 3 per cent of fat, where chop wheat carries only 1.7.

AN OHIO RATION.

Am feeding a herd of Jerseys; product (cream) sold in Cleveland. Would you kindly formulate me a balanced ration out of the following feeds: Ensilage (corn), ground oats, bran, and gluten feed, and all the timothy hay they will eat. Also, one with oil meal, old process. FEEDER.

Painesville, Ohio.

Comparing the formula which follows with others which are published from time to time, wherein clover hay is available in place of timothy hay, ought to serve to teach this inquirer and a good many others the value of studying the question of raising proper feeds for milch cows. There is probably more money lost by the utterly unreasonable practice, among farmers, of growing timothy hay to the exclusion of other fodder crops than in almost any other mistake they make. It should be remembered that protein is the one essential and indispensible element in feeds for producing milk, and that there is almost three times as much protein in 100 lbs. of clover as there is in 100 lbs. of timothy hay.

Under the circumstances given, we can do no better than recommend the following as a fair average daily allowance for a herd of milch cows, without regard to whether their product is to be disposed of as milk, cream or butter:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
8 lbs. timothy hay	6.94	.22	3.47	.11
3 lbs. roots	2.67	.28	1.42	.13
3 lbs. bran	2.64	.38	1.16	.09
5 lbs. gluten feed	4.61	1.02	2.42	.18
Totals	24.78	2.29	12.67	.72

AN OHIO RATION.

Will you form me a balanced ration for my Jersey cows out of the following feeds: First-class timothy and red top hay, half and half, $10 per ton; corn stover of best quality, $14; oats, $20; can buy bran for $18; gluten feed, $18; oil meal, $30; don't know price of cotton seed meal. Cows have been in milk a year and a half and are making 35 lbs. of butter per week—one heifer and five mature cows. Their feed at present is 8 lbs. of corn and oat chop at the rate of 2 of corn to one of oats, 15 lbs. of hay, 10 lbs. of stover. Cows are not with calf yet, and I want to feed them for most net profit. My corn is richer in protein than the analysis given on page 754 of the DAIRYMAN. The grain shows fully one-half protein, or gluten. E. J.

East Palestine, Ohio.

Cows that have been giving milk for a year and a half and are now yielding nearly a pound of butter each per day, must be pretty good cows, and must have had and are still receiving pretty good care. We have very much questioned whether anything could be gained by exchanging the feed to which these cows have become accustomed, although they are now receiving considerably less protein than the standards call for. On the other hand, if these cows were fresh in milk or nearly so, we are quite of the opinion that 4 lbs. of gluten feed would be better for them than the mixture of corn and oats as now fed.

While we cannot say that our correspondent's conclusion in regard to his corn may not be correct, we think it more than likely that his eye has not been able to discriminate carefully between the gluten and starch.

A WASHINGTON RATION.

Please give us two formulas for cheapest and best rations for butter cows, one with and the other without roots.

Price of produce: Bran, $17.50; shorts, $18.50; middlings, $25; oil meal, $35; hay timothy and a little clover mixed, $15; oat hay, $15. Our roots are mangels and carrots, not mixed, and worth $8 per ton. We have all, except mill feeds, ourselves. I might state that good butter retails at 35 cents per lb. We have two grades of bran, light and heavy, which is the better for us? D. & B.

Fairhaven, Wash.

The situation above outlined is practically similar to that submitted by our friend from Metchosin, British Columbia, and the answer on page 933 will serve as an answer to the first of the above inquires. When feeding the roots, the oil meal may be omitted; when the roots are gone, substitute from 1 to 2 lbs. of oil meal as the indications may war-

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FEEDING BUTTERMILK TO HOGS.

1. Will good results be got by feeding pigs on buttermilk alone?

2. Should the buttermilk be fed fresh from the churn, or kept sometime, if so, how long?

3. Is it advisable to feed pigs whey the same day as buttermilk? J. T. Finlay.

Queenstown, Cape Colony, S. Africa.

Buttermilk has a feeding value, equal to skim milk and can be fed to pigs with good results, provided that the proper amount of grain be given along with it. Three pounds of buttermilk to one pound of corn meal will be found to give the best results so far as gain in weight and feeding value of the buttermilk is considered.

The fresher the buttermilk is fed the better; delay in keeping only lessens its feeding value and long delay is liable to cause scours, etc., when fed.

It will be all right to feed whey the same day as buttermilk, but it must be remembered that whey is low in protein content and consequently the grain fed with it must contain more protein than when buttermilk is fed. A mixture of corn and middlings, equal parts, makes a good grain ration to go with whey.

A MISSOURI RATION.

Will you formulate ration for my cows, mostly fresh and weigh 1,000 lbs. I have millet hay, medium ripe, oat straw and timothy, threshed and unthreshed; bran is $14; corn meal, $11; cotton seed meal, $30; and linseed, $35. Also give our neighbor a ration, who has access to same feed, except he has good timothy only. J. K M.

Vandalia, Mo.

This is a case where one feels very much tempted to scold. Over ripe millet hay and medium ripe oat straw and timothy hay, threshed and unthreshed, do not make a satisfactory forage for any class of stock, and least of all for milch cows. We cannot hazard an estimate as to the digestible nutrients contained in such forage, and we, therefore, give the formula for J. K. M.'s neighbor as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. timothy hay	17.36	.56	8 68	.28
6 lbs. bran	5.29	.75	2.32	18
2 lbs corn	1.78	.16	1.33	.09
2 lbs. cotton seed meal	1.84	'74	.34	.17
Totals	26.27	2.21	12.67	72

J. K. M. can follow this formula, substituting such forage as he has for the timothy hay, and we advise both him and his neighbor to look around and make some inquiries and see if they cannot buy cotton seed meal for considerable less than the price named. It ought to sell almost anywhere in Missouri for not to exceed $25 per ton, and in many places for less than that.

MIDDLINGS.

A dairy woman in Lancaster, Massachusetts, asks whether middlings are a suitable ration for dairy cows.

The terms "middlings" and "shorts" are used very interchangeably. Genuine middlings, as will be seen by reference to our table on page 754, rate a little higher in feed value than bran, Shorts, on the other hand, which have, in recent years especially, come to be practially ground over bran with all the sweepings and dirt and weed seeds of the mill added, are a very unsatisfactory feed, and possibly rate much lower than the figures in our table would seem to indicate. Genuine middlings, as the term implies, would be that part of the wheat between the fine flour and the bran and would be composed of the finer particles of the bran and some of the coarser, floury particles of the wheat. This product is practically unknown in the modern roller flouring mills.

It follows from the above that genuine middlings would be a good feed for dairy cows, but they should be mixed with bran or ground oats or something of that kind for best results, not only to lighten them up or distend them, but also to obviate the "stickiness" which results when they are fed by themselves.

A MICHIGAN RATION.

Please fix me an economical ration for grade Jerseys about 800 or 900 lbs. weight, from the following: Corn silage, not too plentiful; cut corn stover, good and bright; peas and oat hay, cut green; gluten feed, $18.20 per ton here; bran, $15.00 per ton here; corn, 35 cents per bushel (do my own grinding); oats, 28 cents per bushel (do my own grinding); to include part or all of the above and to get the best possible returns.

Hudsonville, Mich. Wm. W.

If we are to use some of all the feeds above named we do not know that we can do better than suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. silage	5.28	.26	2.80	14
10 lbs. straw	5.95	.17	3.24	.07
5 lbs hay	4.27	.46	1.84	.06
2 lbs. corn	1.78	.16	1.33	.09
2 lbs. oats	1.78	.18	.95	.08
3 lbs. bran	2.64	.38	1.16	.09
3 lbs. gluten feed	2.77	.61	1.45	.11
Totals	24.47	2.22	12.77	.64

THE CHEMISTRY OF BUTTER FAT.

In a recent number of the *Journal* of the American Chemical Society appeared the last of a series of contributions from the laboratory of the Pennslyvania Experiment Station upon the subject of "The Chemistry of Butter Fat," written by Mr. C. A. Brown, Jr., Assistant Chemist.

They represented a large amount of careful work in the study of the composition of butter fat and of the changes which pure butter fat undergoes in turning rancid. This investigation shows clearly that, instead of butter containing, as commonly stated, a large proportion of stearic acid, the prominent fatty acid of beef suet and lard, it contains only about 2%.

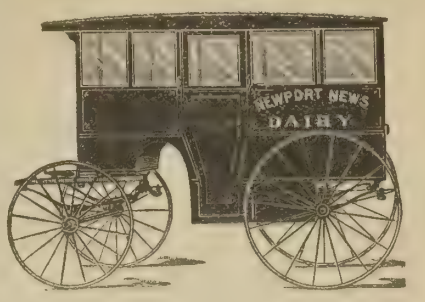
It was also found that even in fresh butters the oleic acid, whose corresponding fat forms the chief liquid element of all animal fats, has undergone some oxidization. A pure butter fat becomes rancid, the olein is decomposed and both the oleic acid and glycerol formed from it are oxidized. It has long been recognized that the increase of acid in butter is not a true measure of its rancidity, the taste and smell being a better means of judgment than chemical reagents. It was found that the acidity did not increase rapidly until long after decomposition had set in and also that, contrary to the commonly accepted belief, the disagreeable odors are not due to the decomposition of butyrin, the characteristic fat distinguishing butter from other animal fats.

In consideration of the above definition of butter fat it is pertinent to ask where are those hired chemists of the oleo combine who declare that oleomargarine and butter are the same in the work of digestion. The fact is that butter, in the process of digestion is utterly unlike any other fat in existence. It is the only fat designed by nature, which in its raw natural state can be taken up and digested in the stomach of the most tender infant. If butter fat and oleo are identical, try feeding the latter to a human infant or the infant offspring of any of the animal creation. Sickness and disease will soon follow. Those learned judges who gravely declare that oleomargarine is just as wholesome as butter, have never considered the original purposes of nature for which butter fat is designed. Correlative with its use in the health and growth of the young, stands its relation to the well being of the adult portion of the human race. It would be just as reasonable to suppose we can find an artificial milk that is just as good as natural milk, for the purposes of digestion as it is to expect artificial butter fat or casein, or milk sugar or any of the other natural elements of milk.

This assertion of the wholesomeness of oleomargarine, supposing it to be pure, is born of the selfish purpose of the olemargarine manufacturers and favoring judges and other defenders and are but echoes of this dangerous selfishness.

But when we add to this danger of a false statement the other fact that any counterfeiter of food will not scruple to adulterate even the adulteration if he can make money by it, we can see where the public are placed when they resign themselves to the ender mercies of such swindlers.

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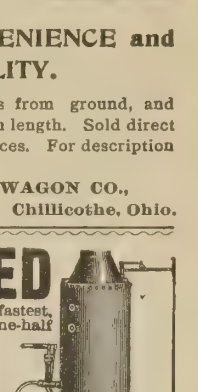
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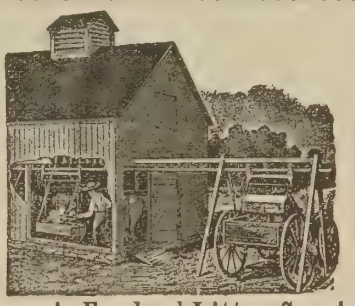
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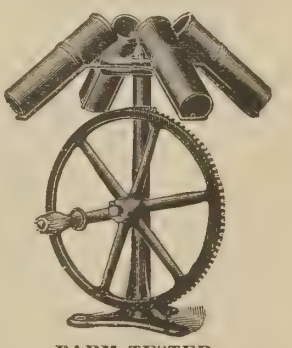
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To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

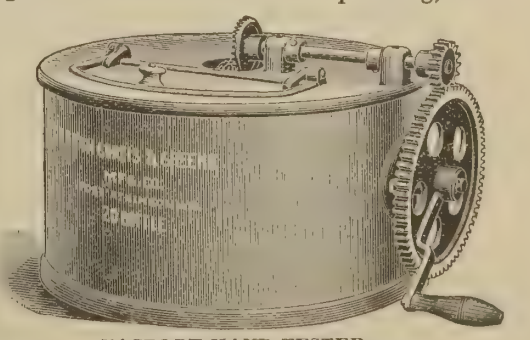
We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



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CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agens for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

THE VALUE TO THE DAIRYMAN OF A GOOD HEART.

The man who would deal successfully with animal life must cultivate within him a good heart for it is from the heart that "the mouth speaketh." Ward C. White, the famous Wisconsin dairyman, who uttered the phrase which has since gone round the earth, "I always speak to a cow as I would to a lady," posessed a face in which shone the reflected light of a good heart, and his kindness was exhibited to his neighbors as well as to his cows. It was forty years ago, that he demonstrated the practical *value* of his kindness, by making a herd of seventy cows of native stock, yield on an average over 6000 lbs. of milk per. cow, from which he made 600 lbs. of cheese per cow.

That good saint, of the Catholic church, Thomas a Kempis understood this great law for he says:

"If indeed thy heart were right, then would every creature be to thee a mirror of life and holy doctrine."

It is extremely difficult to get a great many men to see that the reason why they are not financially successful with cows, is because they treat them in so heartless a manner. They tie them up in rigid stanchions and force them to bare their young in such cruel confinement; they compel them to lie in their own filth until their sides are plastered with it; they shut them up in dark, damp underground stables, forcing them to breath air reeking with poisoned fumes; they half starve them in winter's cold and midsummer drouths; they dog them and abuse them with blows and curses. All these things are of common practice and then such men wonder that this wonderful mother denies to them a profit from her motherhood.

A good heart will prompt a man from out its own wisdom to a better treatment of the cow. Many men lack good hearts.

Congress and the People.

ED. HOARD'S DAIRYMAN:—There is much written upon the subject of this great counterfeit, oleo. It seems to be the universal opinion of those that have given the subject careful consideration, that the government should raise the tax to 10 cents. The manufacturers would then derive more profit than the dairymen would.

The only method in my way of thinking, to bring Congress to do justice by the dairyman and every other citizen of our great country, is for each and everyone to write to their congressman to right this great injustice that the farmers are laboring under. Let each and every member of the grange, all that have an interest in pure and unadulterated food and each dairyman, interest himself and get all his friends interested in deluging Congress with their letters. Then if they refuse to listen to us we can elect those that will, as we have the power to do it. If you will start the ball by advocating this, keeping it in standing head lines, advising all other papers to do likewise, this session of Congress will not adjourn without passing the bill. We want no compromise in the matter. H. F. GUELD.

Kenduskeag, Me.

Questions from a New Subscriber.

ED. HOARD'S DAIRYMAN:—I received the first number of my subscription to the DAIRYMAN last week. Am very well pleased, and find it very interesting all the way through. Had I sent in my subscription just one year ago, and asked you to give me a balanced ration, and other information of importance to new beginners, am not slow to say that I might be a few hundred dollars ahead financially, and a great deal wiser and better equipped for my business. I did a great deal of figuring for a formula for daily ration, and finally got to a place where I got as I thought pretty good results for the money, and waded in, changing feeds occasionally, making it more palatable for the cows. For roughage, I feed 10 lbs. millet hay, and 10 lbs. corn fodder, cut in the proper time, and put under roof before snow falls, all bundled and in first-class condition, all raised on the farm, and at market value as follows: Millet, $8.00 per ton; corn fodder, 10 cents per shock, 12 hills square or $4.00 to $4.50 per ton; and for grain, corn and cob meal 6 lbs. at $6.00 per ton; 5 lbs. bran at $15 00 per ton; 1 lb. oil meal at $30.00 per ton. This is my stand-by ration. Can get gluten meal at $20.00 per ton; gluten feed at $15.00 per ton; Quaker chop at $18.00 per ton; brewers grains, kiln dried malt, at $15.00 per ton. Please formulate a ration from above named feeds, from all or a part as you think best; average weight of cows, 1,200 lbs. I forgot to say I added a tablespoonful salt per cow to every feed, and soaked with hot water and fed warm, all winter.

I should like to see an analysis of millet hay, and why more dairymen do not raise and feed it. I want to grow some alfalfa next season, but it is entirely new here, and



CAREME 4th's PAULINE, H. F. H. B., 33247.

Property of KARLEN & Co., Monticello, Wis.

Yield of milk, 60¼ lbs. per day; butter yield in 7 days, 18 lbs. 3 ozs.

Two Wagons at One Price.

It is a matter of great convienience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 1130 Quincy, Illinois, for their catalogue, which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.



Watch Your Kidneys.

The Most Important Organs in the Human Body--They Throw Out All Disease.

Swamp-Root Cures Weak Kidneys.

Does your back ache?

Do you have pains across your kidneys?

Is your complexion chalky, gray, white?

Is your skin dry or feverish? Are there puffy bags beneath your eyes?

Are your eyes dull, listless and dead looking?

Are you irritable and hard to please?

Do you feel as though you have heart trouble?

Do you have to urinate several times in the night? Is there ever a scalding, burning sensation there?

Do you feel the desire immediately to urinate again, with no result?

Is your urin clouded, thick or milky?

Is there any sediment or do particles float in it?

Don't neglect these conditions, and if they or any part of them are yours, Swamp-Root, the great kidney remedy will be found just the medicine you need.

Here's a simple test for the kidneys, just as certain as though a physician were in personal attendance on your case: Pour some of your "morning" urine in a glass or bottle and allow it to stand twenty-four hours. Then hold it up to the light, and if you find any settlings or sediment, or if it is thick or milky, or if small particles float about in it, don't hesitate for a moment, but write at once to Dr. Kilmer & Co., mention HOARD'S DAIRYMAN, and immediately begin using the sample of Swamp Root which you will receive at once, absolu ely free by mail. The results will surprise you.

Swamp-Root is purely vegetable, pleasant to take, and is for sale by druggists everywhere in bottles of two sizes and two prices —fifty cents and one-dollar. Bear in mind the name, Swamp-Root, and the address, Binghampton, N. Y.



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives great est economy of food. NO TIES. It costs more not to have than to have it. Send for information to H C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.



Scott's Perfect Swinging And Self Closing Cow Stanchion
Each cow shuts herself in place.
CIRCULARS FREE.
B. C. SCOTT,
211 Beach Street,
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Newton's Improved **COW TIE**
Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free



310 First Premiums
Awarded to the PRAIRIE STATE INCUBATOR. Guaranteed to operate in any climate. Send for catalogue.
PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

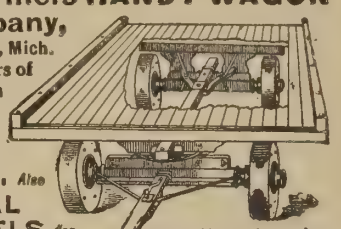


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have all the latest improvements, are sold at very low prices and guaranteed to please every customer. Send 6 cents for our 150 page catalogue, which contains full descriptions of our extensive line and tells how to raise poultry successfully. Plans for poultry and brooder houses.
Des Moines Incubator Co., Box 424, Des Moines, Ia.

Iron Age Ease
Work done easily is work done well. With the No. 4 IRON AGE Combined Seed Drill and Wheel Hoe you can plow, level, furrow, sow, cover, rake, cultivate, hoe and hill—all with ease. Write for 1900 Iron Age Book.
BATEMAN MFG. CO.,
Box 153, Grenloch, N. J.

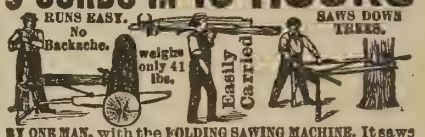


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SAGINAW, Mich.
are makers of
Low-Down Wide-Tire
FARM TRUCKS. Also
METAL WHEELS for Old Farm Wagons, and
All-Steel Trucks.
Handiest Ever



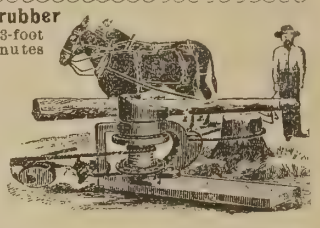
Our 1900 catalogue has more information than any we ever issued. Send for one, no matter how many of our old ones you have had. Free wagon for F 9400.

9 CORDS IN 10 HOURS



BY ONE MAN, with the FOLDING SAWING MACHINE. It saws down trees. Folds like a pocketknife. Saws any kind of timber on any kind of ground. One man can saw MORE timber with it than 2 men in any other way, and do it EASIER. 163,000 in use. Send for FREE illustrated catalogue showing latest IMPROVEMENTS and testimonials from thousands. First order secures agency. Address
FOLDING SAWING MACHINE CO.,
55-57-59 No. Jefferson St., H-28, Chicago, Ill.

Monarch Grubber
will pull a 3-foot stump in 3 minutes It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. Co. Lone Tree, Iowa.



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at ONE-HALF PRICE
WE BOUGHT
The Omaha Exposition
and have 12,000,000 feet for sale.
Send us your bill for our estimate
Write for free Illustrated Catalogue No. 20 on general merchandise from Sheriffs and Receivers Sales. Address
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NORTHRUP, KING & CO.'S
Seed Promises are
PROMISES FULFILLED!
SEED TRUTH
Every one who plants Seeds has at times been disappointed. If you would learn the TRUTH about seeds and how to buy them RIGHT—no matter where, or of whom you buy, send for "SEED TRUTH," an Authority upon the subject, SENT FREE. If you also desire a copy of our SPECIAL 64-page Catalogue of Vegetable, Field and Flower Seeds, send 10 cts. (silver or stamps) and also receive one full size pkg. each of Holland Cabbage (best winter sort), Red Globe (earliest) Beet, Cupid (mixed) Sweet Peas (grow 8 inches high), Australian (longest keeping) Onion, Triumph (new spotted) Radish, Evening Scented Stock, Bridal Veil (most charming floral novelty) and Free Samples of Perfected Field Seeds grown by us in this—the World's Golden Grain Belt!
NORTHRUP, KING & CO.,
Minneapolis, Minn.
N-K-&-Co. STERLING GRASS & CLOVER SEEDS RECLEANED AND TESTED

Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City, N. J, write: "It is indeed a great song; are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.

WATCH AND CHAIN FOR ONE DAY'S WORK.



Boys and Girls can get a Nickel-Plated Watch, also a Chain and Charm for selling 1½ doz. Packages of Bluine at 10 cents each. Send your full address by return mail and we will forward the Bluine, post-paid, and large Premium List. No money required.
BLUINE CO., Box 500, Concord Junction, Mass.

if some experienced growers will tell us through the columns of the DAIRYMAN, when and how to prepare the soil, when and how to sow, and when and how many times to reap, they will greatly oblige a new beginner. As to preparing feeds, I think the most important question to dairymen is being overlooked and should be talked of more through the columns of our great teacher, the DAIRYMAN, and that is this: Steam cooked, boiled, or dry, which? Whole grains and cut fodders steam cooked or boiled, or ground grains and cut fodders, raw and dry, which?

Wishing the DAIRYMAN success, I wait for reply. G. W. H.

Linden Heights, Ohio.

Most of the questions submitted by this subscriber have been discussed to a greater or less extent in recent issues of the DAIRYMAN, and therefore must be briefly treated of here. The ration he is now feeding ought to produce, as it does, very good results, but we are of the opinion that it will be somewhat improved by changing the bran for gluten feed. The gluten feed, if of good quality, is worth more by a very considerable percentage than bran. If we were to submit a "standby," it would be:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs millet hay	9.23	.45	5.17	.13
10 lbs. corn fodder	7.10	.37	4.04	.12
6 lbs. corn and cob meal	5.34	.28	3.78	.21
5 lbs. gluten feed	4.61	1.02	2.42	.18
1 lb, oil meal	.91	.29	.17	.07
Totals	27.19	2.41	15.58	.71

This is a pretty large ration, and it ought to be ample for the large cows kept by our correspondent. Brewers grains might be substituted in part for the gluten feed or fed interchangeably with it.

We will pass on the inquiry about seeding alfalfa to those "experienced growers" from whom the information is sought. The experience of the editors goes back only to last spring, and while the results were very encouraging, they do not enable us to speak with so much positiveness as we may be able to use later on.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 10,620 pounds, and the entire offering was sold, 4,500 pounds at 29 cents, 6,120 pounds at 28½ cents. The market was reported firm at 29 cents, an advance of one cent.

The sales reported were:

Factory.	Pounds.	Price.
Fort Atkinson	1,500	28½c.
Aztalan	1,320	29
Ayrshire	1,200	29
Red Clover	1,620	28½
Stone's Corners	1,080	29
Mayfield	900	29
Huntley	3,000	28½
Total	10,620	

The markets for the corresponding week of the three preceding years were as follows:

Jan. 9, '99, 3,060 lbs. of butter sold at 20½c.
Jan. 10, '98, 9,600 lbs. of butter sold at 20c.
Jan. 11, '97, 34,980 lbs. of butter sold at 19@19½c.

The New York market Monday was reported steady at 30 cents. H. C. B.

Elgin, Ill., Jan. 8, 1900.

DAIRY MARKETS.

ELGIN, Ill., Jan. 8—Butter advanced 2c on the Board of Trade to-day. All of the offerings, 177 tubs, were sold: 102 tubs at 28½c and 75 tubs at 29c. Official market firm at 29c; one year ago butter sold for 20½c; sales reported for the week, 9,600 tubs.

CHICAGO, Ill., Jan. 8—Butter—Firm. Creamery extra, 29c; cold storage creameries, 25@27c; firsts, 27@28c; seconds, 22@24c; imitation creameries, fresh, from unsalted butter, 18@22c; dairies, extra (Cooley's) 25c; firsts, 22@24c; seconds, 20c; ladles, 17@17½c; roll, 17@18½c.

Cheese—Firm. Full Cream Cheddars, 11¾@13c per lb.; Twins, 11¾@12½c; Young Americas, 12@12½c; Swiss, 12¼@13c; Limburger, 11½c; Brick, 11c.

Eggs—Steady. Strictly fresh, per doz., cases returned, loss off, 20c; held stock, 12@15c; icehouse, 7@12c; seconds, $1.75@3 per case; checks, $2.40 per case.

Bran—Scarce and quotable at $12.25@12.50 per ton.

Cattle—The few "good" beef cattle offered sold steady, but general market was weak, with average prices about 15c lower. Some of the "pretty good" cattle sold only 5@10c lower, while the "betwixt and between" kind sold 25c lower in many instances. Five loads of 1,309-lb. Shorthorn steers sold at $6.55, with $6.45 the next highest. Only about a dozen loads sold above $6.25, with thin 1,041-lb. steers at $4, and the bulk of 1,150@1,400-lb. steers at $5@$5.85. Corn-fed Westerns sold at $4.50@6, bulk, $5.60@5.80. About 700 straight Texas steers averaging 861@1,180 lbs. sold 10c lower at $4.25@4.95. Native butcher stock declined 10@15c, with the bulk of sales at $2 60@3.25 for cows, $3.65@4.25 for heifers, $3.25@4 for bulls, $4.10@4.65 for stags, and $6.25@7.25 for calves. 31 1,318-lb. Short-horn cows sold at $4.65, with a load of fancy 1,230-lb. heifers at $5. Feeding cattle were firm at $3.25@4.75.

To-day's receipts are estimated at 3,500 cattle, 38,000 hogs and 17,000 sheep.

NEW YORK, Jan. 8—Butter—Creamery, Western, extras, 30c; creamery, firsts, 28@29c: state extras, 29@30c; state firsts, 27½@28½c.

Cheese—State, full cream, large or small, fall made, fancy, 12¾@13c.

Eggs—State, Pennsylvania and Western, 23@24c.

BALTIMORE, Md., Jan. 8—Butter—Market firm; creamery separator extra, 30c; extra first, 28@29c; creamery first, 27@28c; creamery, imitation extra, 25@26c; Iowa and Northwestern ladle, extra, 24@25c; ladle, extra first, 22@23c; first, 20@21c; Western store-packed, 20@21c; creamery rolls, (2 lbs.), 30@31c.

Eggs—Market easy; strictly fresh stock, 20c.

PHILADELPHIA, Pa., Jan. 8—Butter—Solid-packed separator creamery, extra, 29@30c; creamery, firsts, 28½c; seconds, 25@27c; imitation creamery, extras, 25c; firsts, 22@23c; seconds, 20c; ladle-packed, extra, 22@23c; firsts, 21c; seconds, 18c. Print butter, creamery, extra, 30c; firsts 29c; seconds, 25@28c.

Eggs—Pennsylvania and nearby, 19@20c; Western, 19@20c; Southwestern, 19c; Southern, 18c.

ST. LOUIS, Mo., Jan. 8—Butter—Steady; creamery, 24@28c; dairy, 19@24c.

Eggs—Steady, 17½c.

KANSAS CITY, Mo., Jan. 8—Butter—Creamery, 21@24c; dairy, 17c.

Eggs—Fresh, 17c.

CINCINNATI, O., Jan. 8—Butter—Firm; 28c.

Eggs—Easier; lower, 18c.

Cheese—Steady; good to prime Ohio flat, 12½c.

BOSTON, Mass., Jan. 8—Butter—Market excited; 30c quick.

Cheese—Market steady, 13c.

Eggs—In better shape than last week, 14@26c.

NEW ORLEANS, La., Jan. 8—Butter market quite firm, 28@29c; fancy ladles, 20c.

Eggs—Storage eggs nominal.

WASHINGTON, D. C., Jan. 8—Butter—Market firm. Extras, 29c; choice, firsts, 27c; fancy imitations, 23@24c. June creameries, 26c.

NEWARK, N. J., Jan. 8—Butter—Market firm; 30c for western extras. Fair receipts.

NEW YORK MARRET.

NEW YORK, Jan 6—Butter—Receipts for the week, 24,938 packages. Exports for the week none.

Receipts of fine fresh creamery butter continue light, and buyers have found it difficult to find quality good enough to suit their trade. The price for extra fresh creamery was 28c on Monday advanced to 29c through the middle of the week, and wound up on Friday at 30c bid, and not stock enough to go around. The scarcity of extras compelled most of the buyers to take the next best quality, and firsts were quickly taken at 28@29c; fresh imitation creamery are wanted at 25@26c; fresh ladles are in better supply and show less improvement than anything on the list; sales ranging from 20 to 23 cents for good to very finest.

The few tubs of fine, fresh dairy butter here, this week, sold at 27@29c, and fair to good qualities found buyers at 22@25c. June make creamery out of refrigerators sold at 26@27½c for the best, and 22@25c for poor to good lots. Our market is strong at the close, and unless receipts are increased, prices may be further advanced during the coming week. We quote:

Creamery, fresh, extra, 30c; medium, 27@29c; poor, 24@26c. Creamery, summer make, extra, 27@28c; medium, 25@26c; poor, 20@23c. Dairy, extra, 28@29c; medium, 25@27c; poor, 20@22c; Ladle, extra, 22@23c; medium, 19@20c; poor, 15@17c.

Cheese—Receipts for the week, 11,923 boxes. Exports for the week, 4,141 boxes.

There is no change since last week. Trade continues dull, but holders of fine cheese claim to have confidence that trade and prices will both be better later on. Exporters took few lots of skims at 6@9c. We quote:

Full cream, large, extra, 12¼@12½c; medium 11@11½c; poor, 10@10½c. Full Cream, small, extra, 12¾@13c; medium, 11½@12c; poor, 10@11c. Part Skimmed, extra, 10½@11c; medium, 8@9c; poor, 5@7c. Skimmed cheese, poor, 5@7c.

Eggs—Receipts for the week, 31,157 cases. We note a little improvement in fine fresh stock and better price; but for all other grades the market continues demoralized and prices nominal. We quote: New York & Penn., strictly fresh, per doz., 26@27c; Western & Northern, strictly fresh, 22@24c; all sections, so called fresh, 16@20c; refrigerator stock, 12@15c; Limed eggs, 14@15c.

177 Chambers St. DAVID W. LEWIS & Co.

Latest quotations for fancy creamery: Buffalo, 30c; St. Paul, 25½c; Minneapolis, 25½c; Detroit, 29c.

LIVERPOOL, Jan. 8—Butter—Finest United States, 95s; good, 75s.

Cheese—American finest white, 57s; American finest colored, 59s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Wanted—Position by all round dairyman, also good butter and cheese maker (Hollander), 4 in family, all good milkers. Will work on shares or by the month. J. HEKKELMAN, New Bavaria, Ohio.

For Sale—In Outagamie Co., ¾ acre of rich land, with cheese factory and equipped for making American and brick cheese. Good water in factory. Run 3,500 lbs. milk. Good shipping facilities. For sale cheap; part payment down, balance on time. Address N. A. NELSON. Weyauwega, Wis.

For Sale—One 3,000-lb. Russian Imperial Separator. As good as new. A bargain for some one, Address, FRANK YOUNGS, Birmingham, Mich. 47-3

"The Salt That's ALL Salt."

Is a title denoting unequaled purity.

THE University of Wisconsin

Has analyzed the leading dairy salts of all countries, and given the results in a special bulletin which shows that

Diamond Crystal Salt

is the only salt in the world above 99 per cent. pure.

OUR RIGHT TO USE THE TITLE MUST REMAIN UNCHALLENGED.

DIAMOND CRYSTAL SALT COMPANY,
ST. CLAIR, MICH.

For Sale—Pure bred Tamworth pigs ready to wean. Also a few Holstein bull calves. GLIEDT & KAISER. Freistatt, Mo. 48-6

Wanted—To rent, a creamery in a good locality with a good run of milk. Prefer one fully equipped. Address LOCK BOX 45, Lake Mills, Wis. 48-4

Wanted—Experienced man to help care for our herd of selected Holsteins. Must be first-class milker, reliable, temperate and intelligent. Address, with references and wages wanted by the year. DELLHURST FARMS, Mentor, Ohio 48-3

For Sale—One large Turbine De Laval separator and two twin cream vats, capacity 200 gals. each. Are in good condition. Address, LANCASTER CREAMERY CO., Lancaster, Pa. 48-4

Guernsey Calves For Sale—Best blood of two Exp. Sta. tests. BLACK & BROS., Mt. Vernon, Ind. 48-3

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

Wanted a position by an experienced butter and cheese maker. Student of Cornell Dairy School. Best of references from late employer. Address EDGAR BARNES, Linwood, N. Y. 44-tf

Four choice O. J. C. boars for sale; stock direct from L. B. Silver Co., originators of O. J. C. swine. G. L. BURLESON, Sumner, Wis. 45-tf

Wanted—A creamery or cheese factory in good location in Wisconsin. Will buy or lease. Must have from 3,000 to 5 000 lbs. milk daily and sufficient to run year ronnd. Address No. 5, care Hoard's Dairyman.

Having rented my farm, I offer for sale 10 full blood Holstein cows and heifers and 5 full blood calves. Also breeding bull, 2 years old, whose 15 nearest ancestors have records of more than 26 lbs. butter in 7 days. Full particulars will be given. Address, WM. HAMBLY, Belmont, Wis. 48-2

For Sale at a Bargain—22 milch cows, 10 heifers with calf; all grade Jerseys out of a good dairy strain. Also milk wagon and milk route of 80 qt. per day. HICKORY GROVE DAIRY, Decatur, Mich.

To Let—Sub-divisions of Prairie Farm, 160, 200, 300 and 400 acres, 16 miles from Toledo Separator Creamery. Silos and special butter customers. These are first-class farms, stocked with first-class cows, and none but first-class dairymen need apply. State experience and resources in application. Address, E. L. LOCKWOOD, Petersburg, Mich. 47-tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

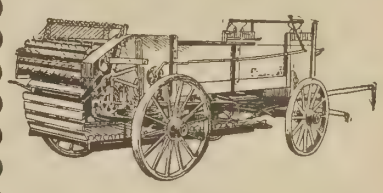
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Grand Excursion to Old Mexico—Via Chicago & North-Western Railway, to leave Chicago Tuesday, January 30, 1900, under personal direction of Mr. J. Grafton, an experienced excursion manager. Entire trip in special train with dining car. Tour is arranged to include Mardi Gras at New Orleans and all principal points of interest in old Mexico and ticket covers all expenses. Only limited number can be accommodated; secure space early. For descriptive pamphlets and information, call on, or write agents Chicago & North-Western R'y. 47-4

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

Tour of Puerto Rico.—The American Tourist Association announces two tours of the beautiful island of Puerto Rico under escort of Mr. Walter Boyd Townsend, the well-known artist and traveler, through and around the Island by rail, carriage, automobile and boat. Special Pullman Cars leave Chicago Thursday, February 15, and Thursday, March 8, at 12, noon, connecting with the splendid new steamships Ponce and San Juan sailing from New York second day following. Tickets include all expenses everywhere. All railway, steamer and sleeping-car fares, meals and berths on steamers, meals on dining car, hotel bills in New York and Puerto Rico, all transfers, carriage rides in the cities and through the Island, guides and interpreters are included in the tickets. There are no extras. Tours are under the direction of Reau Campbell, General Manager, A. T. A., 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to the Agents of the Chicago, Milwaukee & St. Paul R'y. 48-sp



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A Tioga County, (New York,) Dairyman.

ED. HOARD'S DAIRYMAN:—"Riverview Farm" is another of Owego's great dairy farms. It is the property of Mr. Edward H. Miller, and is an historic spot, having been, Mr. Miller informs me, granted by royal warrant to John Reedmond Coxe, in 1775, by King George III. In 1828, it was sold to Col. McCormic, and remained in his family until sold to Mr. Miller, his grandson, two years ago. During a period of 124 years, it has changed ownership but twice.

The original farm contains 90 acres, and is located at an elevation of 400 feet above the river, thus affording a fine view up and down, and which may be seen a long disdistance, each way, winding along its course to the sea. There are, however, two other farms, one of 80, the other of 150 acres, the latter lying near Gaskill, where most of the young stock is now kept.

There is a hill-side barn with basement on the home farm, where about 50 of the herd are kept, of which 30 are cows.

Mr. Miller was formerly a coal dealer in Owego, but sold his business to prevent the sacrifice of much of the value of this farm property, bought it, and began, what to him was an entirely new business, with which he is greatly pleased, and which he is determined to improve, i. e., dairy farming.

The 80 acre farm is known as the James Beers farm, and has accommodations for 100 head of stock, together with all approved modern appliances, which includes a large silo.

The milk is mostly peddled in Owego, and is carefully cared for before being delivered to customers. As soon as it is drawn from the cow it is taken to the milk room, where it is aerated, then cooled by passing it over a cylinder filled with ice. This operation removes animal heat and odors. It is then strained four times by different processes, after which the bottles or cans are placed in tanks of ice water, till ready for delivery to the customer, by Mr. Charles A. Ballow, who has driven over the route twice a day, during the last twelve years.

The surplus milk, if any, goes to the Standard Butter Company, where it is Babcocked, and sold on the basis of its butter fat content. There are four silos in all, with a capacity of 1,000 tons.

But I am going to allow Mr. Miller to tell the balance of the story in the form of an interview:

The firm, said he, is that of Miller & Mackey, myself being manager.

How large is the present herd, and what is the breed?

There are 55 now in milk, of which 19 are Holsteins and 8 Jerseys; balance are natives. We peddle most of the milk in Owego village.

What does the Babcock say about its per cent of fat?

We have not tested it, but the Standard Butter Company did sometime last summer, and reported 3.9 per cent.

How many acres of silage corn did you plant last year, and of what variety was it?

About 100 acres; the variety was Leaming and the yield about 1,000 tons.

Do you feed silage in summer? If so, have you ever received any complaint because of the milk being injured thereby?

We fed silage 365 days last year (beginning ten days earlier than usual.) No complaint whatever has ever reached us from our customers, because we feed silage. There is no reason why there should be, from the fact that, not only is the silage as good as can be grown and cured, but the grains we feed with it are also pure, and of the right kind to balance the silage.

Do you cross the Holsteins and Jerseys, or breed both separately?

Separately; having thoroughbred sires at the head of each herd. Our Holstein herd is headed by Shadeland Boon Czar, from the Powell Brothers' herd, whose dam has a record of 122½ lbs. of milk in 24 hours. Among the Holsteins are some very fine cows, of which I will mention Fyte 4th, Fyte 2d, Wandagelsche, Alamagelsche and Geletka.

The Jerseys are mostly stock from the E. L. Clarkson, Clearmont farm, on the Hudson, with the St. Lambert, Butter Bull 4th, at the head.

Do you make mostly summer or winter milk?

We aim to have cows coming fresh every month. This plan not only allows us to furnish the supply needed by our customers, but to supply a somewhat better quality of milk, by adding the new milk to that from cows long in gestation.

How long, as a rule, do you allow your cows to go dry?

About two months. Our endeavor is six weeks to two months.

What are the maximum and minimum yields of milk from the herd?

The average is 7,000 pounds; maximum, 12,000; minimum, about 4,000. But we are weeding out the low ones, which are mostly grades, and replacing them with thoroughbreds, both Holsteins and Jerseys, our aim being to mix quality with quantity.

So, then, you do not sell milk on its fat basis?

No, sir. We mix the milk of both herds, which gives us one of good enough quality to satisfy our customers, which we sell for four cents per quart in summer and five in winter.

How about the calves? What becomes of them?

We are now raising the best heifers, both thoroughbreds and grades. Do not make it a point to sell stock, except some bulls, for which we get good prices.

What do you feed with silage?

We had no clover last year, nor can we buy any. The drouth ruined it all in this locality. Our ration is silage, 40 to 45 pounds, with about 5 pounds of mixed hay. The grain ration is made up of 8 quarts of Quaker dairy feed and bran, one-third bran, two-thirds Quaker feed, with two pounds of gluten, all mixed.

That is a pretty strong nitrogenous ration. How much corn does your silage contain?

About 50 bushels of ears per acre, which, with the stalks and hay, we think balances the ration about right.

What do you consider the cost of keep per cow?

We never have figured that, because we have pastured in summer and we soil with peas and oats, besides feeding silage every day. We also grow some millet to follow the oats and peas. We will have ensilage enough, notwithstanding last year's drouth, to last till peas and oats are ready next summer.

What was the revenue from your cows last year, and what the average number in milk?

About 60 in milk, which returned us $6,000, or, say, $100 per cow. The cost of keep, as I said, we have not figured, but it was somewhere in the neighborhood of $45 per cow, which we hope to reduce somewhat hereafter.

How about the care of the cows in winter, and how are they watered?

We allow the cows to go out about one hour each day, in winter, when the weather is favorable, to drink and get exercise; but the water is all warmed by a steam jet, from a boiler in another building. The cows are never allowed to drink ice water, nor that very cold. I am, as I before remarked, just starting, therefore have kept no records of results arising from care and feeding; but it is my intention to keep carefully prepared ones hereafter, and be governed by them in future.

What do you do with the manure you make?

It is all drawn out every day and left in piles in the fields. We do not spread it at the time, but wait till spring. Possibly it were better to spread it directly from the wagon or sleigh, as very many dairymen recommend; but I am young in the business, having had no previous experience in farming, and all I know about dairy farming I got from HOARD'S DAIRYMAN. I had to 'get a hustle' on me to save property, and think I have met with a fair degree of success so far. But, if it had not been for the DAIRYMAN, I should have thrown up the sponge, quit, and remained in the coal business. But I am better satisfied than when I was in that business. I love to see the calves come and grow, and to watch the entire dairy work. I have been in several kinds of business, but like dairying best of all, and can see no reason why a man should not make dairying pay. I know that I can. But I have learned that one must start right, then stick to it; not quit in a year. As young as I am in it, and with as little experience as I have, I have had old stagers come to me for advice.

When our herd shall be all thoroughbreds, I hope to very much increase its yield, with no greater, if as much yearly cost. I am now negotiating with Mr. Clarkson, of Tivoli, on the Hudson, for 12 or 15 full blood, St. Lambert and Stoke Pogis Jerseys, which will replace as many grades. I find that it costs me no more to keep a cow worth $100, and which will earn me that amount each year than it does one that costs $35, but will not earn more than $30; or to breed a calf that is worth to raise or sell, when dropped, for $25, than one which is not worth raising, and will not sell for more than $1.50 for a 'bob.' By so improving the herd, we expect to get, not only more milk, but that richer in fat, and therefore a better price for it.

Belleville, N. Y. C. W. JENNINGS.

From Western Massachusetts.

ED. HOARD'S DAIRYMAN:—I have been a reader of HOARD'S DAIRYMAN for the last six or seven years, and it is the most practical, reliable and common sense, up-to-date dairy paper published.

I have been running a small dairy farm here among the Berkshire hills for the last six years. Am using the second silo built in western Massachusetts, built of stone and cement in 1880, and has been in constant use ever since. There were two 12×16×17, built side by side last season. The height was increased with single board matched spruce 16 feet, and the result was a perfect ensilage. My corn was Leaming, planted 3½ feet apart in drills, a stalk every 8 inches or as near as possible, with the result of a crop well eared and allowed to mature until partially glazed.

My cows never did better than this season. We are feeding about 45 pounds ensilage, 5 pounds hay and 6 to 8 pounds of Chicago gluten and bran, mixed by weight equal parts. Have about decided to add two pounds of cotton seed to the heaviest milkers. Our milk is bottled and sold in the neighboring city for 5 cents a quart at retail, and it is only the lack of confidence in each other of the peddlers, and about all of them raise their own milk, that we do not get six this winter. But there are no people on earth so distrustful of each other as the American farmers.

By the way, I wonder if any of your readers feed any apple pomace to milch cows. There has been fed on this farm for the last twenty years, all the pomace produced by a large mill, and there is good feeding value in it. I have fed some seasons as high as one-half bushel per cow, thirty pounds.

Immense quantities of good feed are annually dumped into creeks and allowed to go to waste.

It has been my good fortune the past month to visit some of the most noted stock farms in the east: Hood's Jerseys at Lowell, Mass., Bowditch's Guernseys at Farmingham, Mass.; Cutting's Guernseys at Pittsfield, Mass.; Morton's Guernseys at Rhinecliff, N. Y.; E. C. Brill's Holstein-Friesians at Poughquag, N. Y., and the Jersey herd of John B. Dutcher at Pawling, N. Y.

There are many good cows at all of these places, in fact, famous ones, and how any farmer could visit these farms and not get renewed enthusiasm, I cannot understand, and I think any farmer, who visits an up-to-date stock farm, even if he travels 100 or 200 miles is making an investment that will surely pay him. For even the farmer cannot come in contact with progressive men, without being helped some.

WESLEY B BARTON, Farmer.

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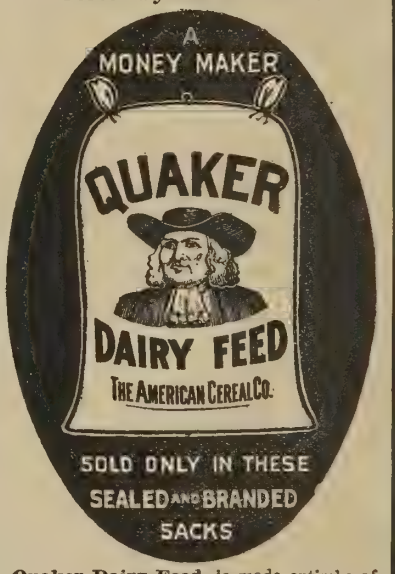


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"Alpha" High-Frame "Baby" No. 3,	850 "	200.—
"Alpha" Dairy Steam Turbine,	850 "	225.—

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MONTREAL
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Mr. Wheaton's Canadian Dairy Notes.

The Past Year in Dairying.—Pasteurizing for Butter.—New Zealand Conditions.

ED. HOARD'S DAIRYMAN:—The year, that has just closed, has, in several respects, been a very remarkable one, so far as Canadian dairying is concerned. Prices for both butter and cheese have been exceptionally good, showing in the case of the latter, a steady advance from the beginning of the season. The total value of our dairy exports for the twelve months has not yet been published, but we are certain it will run much above that of any previous year. Many are figuring on about $20,000,000, as their value for 1899, and indications certainly point that way.

The total exports of cheese, from May 1st last to the end of the year will likely show an increase of a few thousand boxes, as compared with the same period for 1898; while the butter exports will show an increase of fully 150,000 packages. This increase in butter exports is not as large as was expected a few months ago, when an increase of nearly 200,000 packages was reached. The supply of milk at the factories fell off rapidly towards the end of the year, bringing the final increase far below what was expected.

This falling off in the milk supply, during the last four months is one of the features of the year's business. One of the most severe drouths this country has seen for years was experienced in many of the leading dairying districts of this province, resulting in a large falling off in the make, both of cheese and butter. So severe was it that many dairymen found it very difficult to increase the flow of milk, after the dry season was over.

In talking this matter over with a dairyman, recently, in Western Ontario, he stated that in the flush of the season, he had supplied 600 lbs. per day to the factory, but after the drouth had been on for a few weeks his daily supply had fallen to 150 lbs. This dairyman made a business of keeping cows, and to a large extent provided supplementary feed for them. If cows fell off so quickly in their flow of milk, under fairly good treatment, what must have been the shrinkage, where the pastures were not supplemented by green feed?

In sections similar to this, and we are sorry to say there were several of them last season, there is not much doing along the line of winter dairying. Dairymen find it hard to get food to keep their cows during the winter, let alone supplying milk to a winter creamery. For this reason, the output of winter creamery butter may not show much increase this season.

But while these unfavorable conditions have been prevalent in some sections, they have not generally prevailed. Many districts, especially those of Eastern Ontario and Quebec have had copious showers, all the season through, and are able to keep their winter creameries going full force. With prices for choice creamery, at from 21 to 22 cents, these should do a flourishing business. The local demand is excellent, and winter dairies are largely independent of the fluctuations of the export markets this season.

A word of warning might not be amiss here. There are many districts, in Ontario especially, that are more or less subject to a dry season, during July and August of each year. Why dairymen in these districts will neglect to provide supplementary feed for their cows to help them over the dry season is a mystery.

A little forethought in the spring, and an acre or two of ground sown with peas and oats, or some other green crop will go a long way towards overcoming the disastrous effects of these dry periods, and help to keep up the flow of milk for the fall months, when prices are the highest. If they cannot do this, they should plan to have their cows come in, in the fall, and make their off season during the dry time. This would perhaps be the safer plan to follow in any case.

One of the questions that is coming to the front here is pasteurizing. Our trade with Great Britain and the competition our butter meets with in that market makes a study of this subject a necessity. In catering to that trade we have to take cognizance of the requirements of the market and the kind of goods that best suit it. Of all the butter imported by Great Britain, the Danish leads in price and in position as to quality.

The Danish article is nearly all pasteurized which largely accounts for its uniformity in flavor and quality. If we are to successfully compete with Denmark in supplying the English consumer, we must give attention to this subject. If it is necessary for the Dane who lives so close to the market to pasteurize the milk or cream before it is made into butter, how much more important is it for us to do so, so far removed as we are from the market.

Pasteurizing seems to give to butter that mild, fine, clean flavor which suits the taste of the British consumer and if it is properly carried out will not injuriously effect the body of the butter, as some claim. This very mild flavor may not suit the home trade here which probably is the reason that pasteurizing has not been more generally adopted by our creameries. But it is the British market that we have to look to, to take the bulk of our products and we should endeavor to meet the needs of that market by adopting the methods of manufacture best suited to turning out the quality required.

With cold storage facilities on railway and ocean vessels, and cold chambers at central shipping points for storing the butter till it is forwarded, and with favorable climatic conditions, etc., there is no reason in the world why we in Canada should not turn out a quality of butter that would meet the wishes of the English consumer as well as the Danish article. The missing link in the chain of methods and practice, seems to be pasteurizing and the sooner our dairymen takes this matter up in a practical and systematic way, the better for the future of our export trade in butter. There is no time when it will do more good than the winter months, when our creameries are getting milk from cows fed in different ways and on different kinds of food.

In a recent issue of *Farming* Mr. J. A Ruddick, who went to New Zealand from Canada, in the fall of 1898, as dairy commissioner for that portion of Her Majesty's dominions, gives a very interesting account of dairying in that country. The expansion of the industry there is along the line of butter making rather than of cheese making, and it is in this particular that we may look upon New Zealand as a competitor in the British market. The climate and conditions there seem to be well adapted for carrying on dairying successfully, and with comparative ease to the dairyman. It is rarely necessary to house or provide feed for cattle during the winter, and about the only thing the dairyman has to do is to milk his cows and see that they have plenty of pasture.

There are two references in Mr. Ruddick's article that are well worth considering in relation to the industry here. He points out that the manufacture of butter is carried on in large central creameries, with a number of skimming stations attached. The industry is expanding, but it is along the line of increasing the number of skimming stations rather than the number of central creameries. By adopting this plan it is claimed that more uniformity of product can be secured and at a lesser cost than putting a butter making plant in each station.

This is the plan that was first advocated here when the winter dairying movement began, but our dairymen do not appear to have taken to it very kindly. There are a few concerns of this kind, such as at Renfrew and St. Marys, but the bulk of the creamery butter produced in this country is made in the factory where the milk is separated. The co-operative system has been pretty well developed with us, so far as the patrons of the individual creamery or cheese factory are concerned, but we are far behind our New Zealand kin in the co-operation of factories.

Another important point touched upon by Mr. Ruddick is the wages of the makers. In New Zealand the tendency is to advance the pay of competent men. No competent maker is ever turned adrift there because some

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Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. MCKERROW, Madison, Wis.

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Chester White, Berkshire and Poland-China **SWINE,**
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
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"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
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Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
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Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
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Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

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Of the **St. Lambert** and **Coomassie** strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address,
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Pedro Eurotas Blood **FOR SALE** two young Jersey bulls fit for service, deep in the blood of Eurotas, 22 lbs. 12 oz., through Pedro 3187, Eurotas, Victor Hugo, etc. Solid color, fine condition, nothing better. Also one choice heifer calf. For price and pedigrees address H. H. TOZER, Bristol Springs, N. Y.

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JOLIET, ILL.
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Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
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Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
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out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455¼ lbs. milk, 30 lbs. 2¼ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Expositions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¾ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue. Special literature sent if this paper is mentioned. No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep. **224**
Franklin, Venango Co., Pa.

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR, COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Greve, Pa.**

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

fellow comes along who offers to make a few cents cheaper. Every maker is judged by the work he does, and if it is satisfactory, he is encouraged to remain by an increase in salary or some other recognition of his services. Very often if the season is a good one the maker receives a bonus over and above his salary by way of encouragement.

This is certainly the proper relation that should exist between the maker and his employer. If we had a little of it in this country it would be better for the industry. More good men would become makers and make it their life work. But as it is a man of ability can find better pay in some other calling where his services are more appreciated. As we have pointed out more than once, there is no calling where skill, intelligence and ability should receive greater recognition than in the making of butter and cheese.

The cutting down of the wages of makers and the discarding of a good man, because some fellow offers to do the work cheaper is one of the most serious difficulties connected with Canadian cheese and buttermaking at the present time. It is hard to say how far reaching its effects are. If a large manufacturing concern in any of our towns or cities metes out the same treatment to its skilled employees that many of our cheese factories and creameries do,it would soon go to the wall, and have to cease operations. Several of our best factories have during the last year or two, replaced skilled makers by cheaper men to their sorrow and it is to be hoped they have learned a valuable lesson that will serve as a warning to others.

The annual dairy conventions take place this month. The successful dairy year that has just closed should serve to increase the interest and attendance at these gatherings. Dairymen within reasonable distance of the places of meeting can hardly afford to miss these conventions. Though many of the same old dairy texts will be sermonized upon by many of the same old dairy preachers it will do one good to attend. The business is such a large one and so many new features coming up that no dairyman can hope to learn all there is to be learned about it, though he live through the twentieth century.

The Dairymen of Eastern Ontario will convene at Madoc, Ont., on January 9, 10 and 11, and those of Western Ontario at Stratford, on January 16, 17, and 18. The Cheese-and Buttermakers' will meet at Ingersoll, on January 31st and February 1st. We hope to be able to keep the readers of the DAIRYMAN informed as to what takes place at these gatherings.

J. W. WHEATON.

Toronto, Canada.

Feeding for Greatest Duration of Flow.

ED. HOARD'S DAIRYMAN:— Iam one of the one-cow dairymen,though a farmers boy, and interested in the business in its larger application. If the New England farmers could have known 50 years ago what you are teaching today it would have made millions of dollars difference in their wealth. One point of interest I have not yet seen covered by you. I want to feed for a fair supply of milk, for the longest period possible. Would it be better to begin with a maximum feed as soon as the cow will bear it, or to begin with a moderate feed of grain and then increase it to meet the shrinkage of the cow. S. D. D.

Northampton, Mass.

We do not know that the particular inquiry submitted by our correspondent has ever received careful attention and accurate trial We do know that many of the largest annual yields recorded have been made on moderate feeding, that is, moderate compared with the feeding given for a test of seven days. We cannot see that anything is made by not giving the cow practically all the feed she can comfortably dispose of early in the period of lactation The holding out in milk for successive months is not so much a question of what the cow has given previously or the amount of feed furnished her, as it is a question of individuality with the cow and the supplying of the feed requisite to enable her to keep up the flow. In other words there is no more reason why it should require less feed to produce a pound of milk in the second month of lactation than in the eighth month. Give the cow enough feed at all times and if she is a dairy cow she will respond up to the limit of her capacity. But if there is a lack of feed at any time, and the milk flow thereby checked, it is practically impossible to restore it.

Irregular Milking.

Some Well Recorded Facts Concerning Its Effect.

The Oregon Agricultural College and Experiment Station,a year or so ago instituted a series of experiments to know exactly what was the loss through irregular milking. In a certain loose way it has been a maxim with farmers since time immemorial that the cow could not maintain her average flow of milk if she was irregularly milked, but in this Oregon experiment we have the cold, frozen facts to guide us. That is, those *can* have them that will read them. Of course they are good for nothing to the man that thinks it don't pay to read.

The experiment was as follows:

Six cows were divided into two lots, such that the average age of the cows, and period of lactation, also total yield of milk was practically the same for each lot. The two lots received the same kind and amount of feed, but the cows in lot 1 were fed and milked regularly at 2:30 p. m. and 5:30 a. m., while those in lot 2 were fed and milked at hours ranging from 5 to 7 a. m. and 4 to 6 p. m. A comparison of the milk yield for three weeks, under this arrangement, with the three weeks preceding, showed that the cows in lot 1 made a gain in yield of 5.9 per cent, while those in lot 2 decreased in yield 4.4 per cent. Assuming that the cows in lot 2 would have done as well as those in lot 1 if they had the same treatment, which is highly probable, we find a loss of practically ten per cent in the milk yield during three weeks, due to irregularity in milking and feeding. The loss, however, was confined to the milk yield, as there was practicaliy no change in the quality of milk during the test period.

CONCERNING OUR ADVERTISERS.

Every person who owns horses or cows or pigs will be interested in the new catalogue of the Foos Manufacturing Company, of Springfield, Ohio, the makers of the famous line of Scientific Grinding Mills. The Scientific is one of the pioneer farm mills; it has proved so thoroughly reliable that nearly as many Scientific mills are in use on the farms of America as are all other makes combined. The catalogue, which is a handsome piece of printing fully described the entire line of these mills, showing their construction and points of superiority. They are adapted to grinding ear corn with the shucks on, cut fodder, hay and straw, and will also grind all other grains as well, making splendid feed for stock They are made for either horse or steam power, and have an enviable reputation for wearing qualities and ease of operation. The simplicity of their construction is one of their chief advantages, rendering them less liable to get out of order. We trust that our readers will send for this catalogue and examine the merits of these mills.

LARGEST SEED POTATO GROWERS IN THE WORLD.

The John A. Salzer Seed Co., LaCrosse, Wis., recently shipped twenty thousand bushels of seed potatoes to Alabama, Florida, Texas, and other southern points. The John A. Salzer Seed Co. is the largest grower of seed potatoes as also farm seeds in the world.

VITAL TO SEED BUYERS.

Mr. J. E. Northrop, author of "Seed Truth," is widely known throughout the country, not only as an experienced seedsman but as a gifted writer. Everyone who buys seeds should possess a copy of Mr. Northrup's latest work, entitled "Seed Truth," as it gives most valuable and unusual information regarding seeds and seed buying which no one can afford to neglect possessing and which is vital to the seed buyer's pocket book. Copies may be had free while the edition lasts, upon request, by writing Northrup, King & Co., Minneapolis, Minn.

BROMUS INERMIS.—6 TON HAY.

That sounds well—6 tons. That is what Salzer's Bromus will give you every time, no matter where you live; and Victoria Rape costs but 25c a lb to grow. The Million Dollar Potato is immense! Largest Vegetable Seed Growers in America. Send this notice with 10c for Farm Seed Samples and Catalogue, to John A. Salzer Seed Co,, LaCrosse, Wis.

The Fear of Humbug

Prevents Many People From Trying a Good Medicine.

Stomach troubles are so common and in most cases so obstinate to cure that people are apt to look with suspicion on any remedy claiming to be a radical, permanent cure for dyspepsia and indigestion. Many such pride themselves on their acuteness in never being humbugged, especially in medicines.

This fear of being humbugged can be carried too far, so far, in fact, that many people suffer for years with weak digestion rather than risk a little time and money in faithfully testing the claims made of a preparation so reliable and universally used as Stuart's Dyspepsia Tablets.

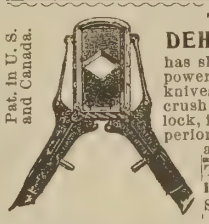
Now Stuart's Dyspepsia Tablets are vastly different in one important respect from ordinary proprietary medicines for the reason that they are not a secret patent medicine, no secret is made of their ingredients, but analysis shows them to contain the natural digestive ferments. pure aseptic pepsin, the digestive acids, Golden Seal, bismuth, hydrastis and nux. They are not cathartic, neither do they act powerfully on any organ, but they cure indigestion on the common sense plan of digesting the food eaten thoroughly before it has time to ferment, sour and cause the mischief. This is the only secret of their success.

Cathartic pills never have and never can cure indigestion and stomach troubles because they act entirely on the bowels, whereas the whole trouble is really in the stomach.

Stuart's Dysyepsia Tablets taken after meals digest the food. That is all there is to it. Food not digested or half digested is poison as it creates gas, acidity, headaches, palpitation of the heart, loss of flesh and appetite and many other troubles which are often called by some other name.

They are sold by druggists everywhere at 50 cents per package. Address F. A. Stuart Co., Marshall Mich., for little book on stomach diseases, sent free.

LATEST DEHORNER IMPROVED (Newton's Patent.) **Every Dehorner Guaranteed** THOUSANDS IN USE. Ask your hardware dealer for them or write H. H. BROWN MFG. CO.. - - DECATUR, ILL



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Highest Award at the World's Fair.

H. C. BROSIUS, COCHRANVILLE, PENN.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. F. W. TRATT, Whitewater, Wis.

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys, CHAMPION Herd AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH, Riverside Farm, Owego, Tioga Co., N. Y.

ROSENDALE GUERNSEYS

Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested. GEO. C. HILL & SON, Rosendale, Wis.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Cheste White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis

GUERNSEY BULLS FOR SALE

Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by OWEN BROS., Portage, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE, Farm Supt., Madison, N. J.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD Holstein-Friesians. 5 choice high grade one-year-old heifers and one bull 15 months old. 8 bull calves. Choice Chester White Sows. Address, W. R. GATES, Prop., Fort Atkinson, Wis.

Holstein-Friesian Bull Calves Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD. Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. W. B. BARNEY & CO., Hampton, Iowa.

MEADOW LAWN HERD Holstein-Friesians. Herd headed by Sir Brookside De Kol. Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians MECHTHILDE BULLS FOR SALE. Address M. W. BARDEN, Portage, Wis



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest tested relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three 3rd and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

New Years Greeting! Holstein Bull, Alberta Sir Mechtchilde 25502, 20 mos. old. His six nearest dams average each 29 lbs. 6½ oz. of butter in seven days. His dam and sire's dam won first prizes at N. Y. State Fair, N. Y. and N. E. Fair, and at Great New Eng. Fair 1890. The former as the champion yearling, the latter as the champion cow—never defeated. Alberta Albekerk 3d, 18 lbs. 8 oz. at 2 yrs., Mechtchilde, 39 lbs. 10½ oz. (world's record) have produced this youngster. Greater animals never existed in one pedigree. Maplewood's most famous blood is offered here. VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form, The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr, Simonsville, Vt.

The Big 4 at Brookside. THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want. HENRY STEVENS & SONS, Lacona, N. Y.

—FOR SALE— THE HOLSTEIN BULL Belle of Verona's Clothilde Boy No. 23408 H. F. H. B., bred by Smith, Powell & Co., Syracuse, N. Y. W. M. BURR, Cazenovia, N. Y.

General Rules Regarding the Conduct of Tests of Dairy Cows, University of Wisconsin, Agricultural Experiment Station.

The Agricultural Experiment Station of the University of Wisconsin, working in conjunction with the various Breeders Associations of America, will conduct official tests of registered cows during the year 1900, under the following conditions:

1. All tests will be conducted by the representative of the Station. Not less than two weeks' notice of the desired test shall be given by the owner, on a blank which will be furnished on application by the Station.

2. It is understood and agreed that the person for whom the test is made will pay all expenses in connection with the test. The compensation for the Station representative conducting the test, unless otherwise arranged, shall be $2.00 per day for each day of the test. The person for whom the test is made will also pay the necessary traveling expenses and provide for the accommodation of the Station representative while conducting the test.

The Station representative will present a bill of expenses to the owner of the cow or cows tested on completing the test, and will send a duplicate of the same, with his report, to the Station. This bill must be paid to the Station by the owner, before the report of the test is transmitted to the Association. The Station will pay the funds so received to its representative.

3. The Station will furnish its representative with the necessary apparatus to conduct the test. This will consist of

(1). A spring balance for weighing the milk.

(2). The Babcock test and accompanying complete apparatus for testing the milk.

(3). A 25 c. c. pipette for taking composite samples.

(4). A clinical thermometer.

(5). Blanks, affidavits, etc., for making the returns.

4. The Station representative shall fill out all blanks furnished by the Station as required, and shall make oath before a notary public to such statements as are required by the Station in conjunction with the authorities of the Associations.

5. If required, the Station representative shall make a report on the kinds and quantities of feed given during the test, and on the description and measurements of the cow or cows tested.

He shall take the body temperature of all cows tested, at least once a day during the test, preferably between two and three p. m.

6. The Station reserves the right to make public, in its reports and bulletins, or by other means, any and all findings secured while conducting official tests.

DIRECTIONS FOR STATION REPRESENTATIVE IN CONDUCTING TESTS OF DAIRY COWS.

1. The Station representative shall be present at the last regular milking preceding the beginning of the test, and shall satisfy himself that the cow is milked dry at that time. He shall note the hour at which this milking is made, and the final milking of the test must be made seven days later at the same hour.

2. He must be present at each and every milking during the test and satisfy himself that, at the close of each milking, the pail contains nothing but the milk drawn from the cow under test.

3. Under no circumstances can more cows than one undergoing test be milked at the same time. The Station representative must, in every case, be in position to observe the milker during the whole milking.

4. Immediately after the milk is drawn at each milking, he will take charge of the pail and contents, will weigh the same on scales provided by the Experiment Station, and enter the exact weight of milk at once on his records. He will then take a correct sample of the milk for his own tests and for the composite sample to be sent to the Station, in accordance with the following directions:

CONCERNING SAMPLING AND TESTING OF MILK.

5. As soon as the milk has been weighed it is thoroughly mixed by pouring it from one pail to another, or by means of a dipper, and a pint fruit jar is immediately filled about two-thirds full of milk for the test sample. The Station representative takes charge of and is personally responsible for this sample. It should be kept under lock and key until tested. The test is proceeded with as soon as convenient after the milk has cooled to ordinary room temperature.

6. Fat determinations are always made in duplicate, and the average of the two determinations recorded on the record sheet. The sample taken of any one milking is not thrown away until a perfectly satisfactory test of the milking has been obtained. The Station representative will enter at once the results obtained on the proper blanks, in ink or indelible pencil, on completion of each test.

7. If any of the milk, or the test sample from a milking is accidentally lost, the missing weight or the test credited to this milking is to be obtained by taking the average of all corresponding milkings during the whole test; that is, if, e. g., the evening milk is lost or the test sample therefrom, the average of the weights or tests of all evening milkings during the seven day test is taken as the yield or test for the one lost. It must be stated on the report that data so obtained are estimated and not actual.

8. Composite-test sample: At the time the test of the milk is made, a sample comprising as many cubic centimeters of milk as the number of pounds in the milking, is placed in a pint fruit jar containing a small quantity of preservative, for the composite-test sample to be sent to the Station, when the test is completed. A 50 cubic centimeter glass pipette for taking this sample is furnished in each outfit.

Each and every milking must contribute to the composite test sample, in the proportion to the amount of milk yielded each time, which will be accomplished by following the methods given.

The Station representative will be responsible for the proper care of the composite sample, and will send it by express, charges prepaid, immediately on the completion of the test, to Prof. F. W. Woll, Agricultural Experiment Station, Madison, Wis.

9. The Station representative is not at liberty to decide as to which stipulations contained herein are essential and which are not, but is required to observe these directions in all details. He shall report any irregularity or unusual occurrence in connection with the test which he may observe, and shall, in general, take all possible means to conduct a fair and equitable test of the cows placed under his supervision.

Feeding Value of Potates and Apples for the Dairy Cow.

ED. HOARD'S DAIRYMAN:—My attention has been called to the article of W. J. of our county, relative to feeding value of potatoes, apples, etc., for milch cows, in a recent number of your paper. From my own experience and also from observation of that of others I am led to fully concur with him as to the value, when properly and carefully fed, of apples as feed for all farm stock, and believe the surplus of this fruit to be worth much more for that purpose than can be realized from its manufacture into cider at the price for which that article usually sells.

Some years ago when residing upon the old farm where a large orchard, of what had formerly been nearly all top grafted trees but was becoming scrubby and run down, furnished a large amount of second rate fruit, not valuable for market, we made a practice each year to fatten one or more calves upon these windfalls and apples of inferior quality. We found it a comparatively

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on your best harness, your old harness, and your carriage top, and they will not only look better but wear longer. Sold everywhere in cans—all sizes from half pints to five gallons.

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A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

A TRIUMPH OF SCIENCE.

To economical and up-to-date Butter Makers, the Best Color to use is the

ALDERNEY BUTTER COLOR

It contains all the requirements to make perfect butter and is declared by all who use it, as a triumph of science.

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A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

The largest crops of the finest fruit with the least labor is the result of following the methods pointed out in **R. M. Kellogg's** new booklet—

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This No. 11 Wolverine Feed Cutter represents unusual value at our price. Has extended knife shaft—pulley or fly wheel **may be placed on either side.** Like all our power cutters, it has hardened steel **4-edged cutting bar.** When one edge gets dull, simply turn the bar and you have **a new cutting edge.** Makes it **last 4 times as long** as the ordinary shear plate. 1¼ in. steel knife shaft; 11½ in. knives; big feed rollers and wide throat—**easy to feed;** pulleys 6, 8, 10, 12 or 14 in., as ordered; any length swivel carrier when ordered, extra; **delivers feed any height, any angle;** weighs 425 lbs.; cuts with 2 knives ½, 1, 1½ and 2 inches. **Price, $20.25.** Cuts with 4 knives ¼, ½, ¾ and 1 inch. **Price, $22.95.** Capacity for ensilage, 2 to 4 tons per hour; dry feed, 1 to 1½ tons per hour. **Trial given and satisfaction guaranteed on everything** we sell, or goods returned **at our expense and all money refunded.** Send for **free 336-page illustrated catalogue.** We have 53 sizes hand and power cutters and shredders. Marvin Smith Co., 55-57-59 N. Jefferson St., M-18 Chicago.

easy matter to take a late calf, say, one dropped from May 15th to June 10th, and after the flush of milk dropped off and the growth of swine farther reduced that supply, by feeding on these apples, beginning carefully and feeding a regular daily allowance according to the apparent capacity of the animals, to make them dress from 250 to 325 lbs. each by December or January.

Up to about October 1st, we fed them no grain, or none of any account, but after that would begin to supplement with light grain, feeding twice daily added to the dishwater from the kitchen and whatever milk there might be to spare the calves, usually a very limited amount.

We have also, in some seasons, fed apples quite largely to the swine with good results, and one season I particularly remember fattened one shote almost entirely upon apples with a small daily allowance of grain, during the late summer and autumn. But it was more especially with reference to the feeding value of potatoes that I began this article. I was quite surprised at the apparent low estimate which Mr. J. places upon them as feed for stock. Our own experience in their use for this purpose has led us to prize them quite highly as a supplementary feed, both for horses and for the dairy, in a raw state and when cooked and mixed with corn meal, or ground corn and oats, or buckwheat, for the fattening of swine, feeding poultry, etc.

I find many, who have tested the practice on quite an extended scale, agree with me on this point and believe that in a season when potatoes are very low, it is much more profitable to feed them out upon the farm than to cart them a considerable distance to market at the prices they will bring.

Among these was the late J. D. Smith, for many years so well known to readers of the DAIRYMAN as a careful investigator. I have often heard him say that when potatoes would bring only 25 to 30 cents per bushel delivered at the railroad, he was satisfied it paid him better to feed them out upon the farm. He was not quite certain that the actual nutritive value represented by a bushel of potatoes, would equal that amount, but was sure that, when fed to his dairy, either from the succulence furnished or from some chemical effect they produced upon the grain and other feed used in combination with them, he secured such results as paid him better than to sell the potatoes and buy grain at the usually prevailing prices of the latter.

The potatoes were of course fed uncooked to the dairy, but Mr. S. used to make a practice of boiling potatoes for feeding to his hogs and mixing with them while hot a sufficient amount of ground feed to make a pudding of considerable thickness, believing the scalding of the grain thus produced was a great advantage. One thing is certain that this feed produced excellent results in fattening of his swine.

And as farther evidence as to the value of potatoes for a supplementary feed for the dairy I would cite the experience of Mr. Emory Coe, of Hamden, who has, for many years, been quite an extensive potato grower though keeping a quite large dairy and depending mainly on that source for the income from his farm, located on what is known as Hamden Hill in one of the most elevated parts Delaware County. He, too, has made a practice in seasons when potatoes were unusually plenty and cheap of feeding them to his dairy, and as he believes with very profitable results.

Some five or six years ago—about the year 1893, I think it was—Mr. Coe had a very large potato crop and, on the occasion of a visit to his place the following spring, he told me he had fed during the winter to his dairy of some 25 cows, from which he was making butter, about 600 bushels of potatoes and believed they had netted him fully 25 to 30 cents per bushel, or as much or more fed right out upon his farm than he could have got for them by hauling some five or six miles to the railroad, for market.

I know, too, of many others who have made a practice of feeding them with similar results, so that, as I said at the beginning of this article both from my own experience and from observation, I would be disposed to advise the feeding of the surplus potatoes to the dairy if satisfactory prices for them cannot be obtained.

Of course some judg ment will be necessary in beginning carefully in feeding either apples or potatoes to properly regulate the amount given to each cow, but any farmer who is competent to have the care of a dairy, should be able to judiciously attend to that part and I believe they will find the potato crop can thus be sold at greater profit if they have the stock to which to feed them than to cart to market at 25 or even at 30 cents per bushel with the present prices for grain.

Delhi, N. Y. E. J. BROWNELL.

"Distribution of Nutrients in Corn Stalks."—Eating the Afterbirth.

ED. HOARD'S DAIRYMAN:—As you disclaim positive knowledge on this subject, I will volunteer such as I possess.

In the table of nutrients in Bulletin 149, of Michigan Agricultural Experiment Station, the composition of rough feeds is given as follows:

ROUGH FEEDS.	*Dry matter.*	*Protein.*	*Carbohydrates.*	*Fat.*	*Ratio.*
Green sweet corn...	.209	.01159	.12156	.0037	11.2
Leaves and husks....	.3046	.011	.1207	.0037	11.7
Stripped stalks.....	.239	.00305	.5479	.0037	53.4
Wheat straw.....	.914	.008	.379	.005	48.7

Now, Mr. Editor, when you ride past a pasture in time of severe drouth, and see the stripped stalks of succulent corn which have been rejected by hungry cows, it is evidence, not that the cow is a fool, but a chemist and not to be sucked in by simple succulence

I firmly believe that if we could know all about it, we would find that there is as strong physiological foundation for the almost universal appetite on the part of the cow, for her own afterbirth, as there is chemical reason for her almost universal disrelish for stripped corn stalks.

I suppose that those who abhor seeing the cow eat her own afterbirth, take it from her and feed it to the hog, and thus their æsthetic sensibilities suffer no violence.

W. C. HUNTINGTON, M. D.

Howell, Mich.

But the cow will eat corn stalk butts, when fed to her in silage or shredded, or otherwise properly prepared.

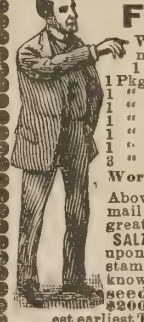


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We wish to gain this year 200,000 new customers, and hence offer
1 Pkg. City Garden Beet, 10c
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Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, telling all about SALZER'S MILLION DOLLAR POTATO upon receipt of this notice & 14c. stamps. We invite your trade, and know when you once try Salzer's seeds you will never do without. $200 Prizes on Salzer's 1900—rarest earliest Tomato Giant on earth. F 194
JOHN A. SALZER SEED CO., LA CROSSE, WIS.

Canada Praises the Reid.

Canadian creamerymen and butter-makers sing the praises of the Reid Long Spindle Separator as loudly as do their brethren of the States. Here are extracts from letters recently received from some of the most successful creamerymen in Ontario:

W. A. HUTT, Esq., Aurora, Ont., says:

"*The Reid Improved Danish Separator bought by us has been in use since May 1st, and is giving excellent satisfaction. We are skimming from 3,300 to 3,500 lbs. per hour and the amount of fat left in the skim milk is about .02 of 1 per cent. We are well pleased with the machine and would recommend it to anyone intending to buy a Separator.*"

From WILLIAM PARKINSON, Jarvis, Ont.:

"*The Reid Improved Separator surpasses the guarantee in regard to capacity and clean skimming. I am skimming 4,000 lbs. per hour at a temperature of 160 degrees, down to .02. On Mondays I skim 4,5000 lbs. per hour, down to .05 and better. It leaves the cream perfectly smooth—neither whipped nor frothy—and will skim 16,000 lbs. or more without clogging. My opinion is, the Reid is perfect in every respect.*"

BRUSE BROS., Gormley, Ont., write:

"*The Reid Separator did not leave a trace of fat in the skim milk while separating 3,900 lbs. per hour.*"

From JAS. ELLIOT, Tilsonburg, Ont.:

"*The Reid Separator works excellently and gives the best of satisfaction.*"

JAS. SCOTT, Stirling, Ont., says:

"*We are well pleased with the outfit; the Separator skims perfectly.*"

The highest awards for creamery butter at Toronto, Canada, Sept. 8, 1899, went to users of the

REID LONG SPINDLE SEPARATOR

The following is an extract from the report printed by the *Toronto Globe:*

"In creamery butter, Mr. J. C. Bell, Winchelsea Creamery, Ont., who uses the celebrated Reid Separators and Pasteurizers, was awarded first and second prizes for the best butter produced. In the butter making contest, the cream used was shipped by W. A. Hutt, Aurora, who used the Reid Improved Separator and Reid Pasteurizer, and who also took first prizes at Winnipeg and St. John, N. B."

Write for Separator and Pasteurizer books and catalogue of creamery supplies; all free.

A. H. REID, 30th and Market Sts., PHILADELPHIA, PA., and CEDAR RAPIDS, IOWA.

Transfers of Guernsey Cattle from Dec. 1 to 15, 1899.

BULLS.

Admiral Bell 6348, Thomas Briggs to John Hennesy, Newtown, Pa.
Buelah Boy of Brookside 6349, Geo. D, Telfer to W. D. Hoard, Ft. Atkinson, Wis.
Duke of Bath 6354, Louis Cabot to Henry A. Leighton, Woodsville, N. H.
Duke of Arden 5070, A. J. Smith to Franklin Strang, Peekskill, N. Y.
Duke of Arden 5070, Franklin Strang to Frank Hyde, Peekskill, N. Y.
Dorothy's Prince 6343, Maude's Prince 6344, Amos Gardiner to E. T. Gill, Haddonfield, N. J.
Early of Fernwood 6350, Thos. E. Brooks to James Elwell, Seeley, N. J.
Fenimore Prince 4559 Geo. L. Cone to Belle Vernon Farms Dairy Co., Willoughby, O.
Glenwood Boy of Haddon 4605, Albert Haines to Miss I. S. Wilhelm, Harrisburg, Pa.
Hardwick Lad 6342, George Mixter to George F. Morse, South Lancaster, Mass
Ilderton 6173, L. P. Morton to George Campbell, Philadelphia, Pa.
McKinley of The Homestead 5632, Thos. M. Tice to Hackett & Du Bois. Daretown, N. J.
Omdurman 5868, Ezra Michener to John Killenger, Yocumtown, Pa.
Ottawa of Locktown 5875, Cyrus Risler & Sons to Frank R. Titus, Lambertville. N. J.
Rubina's Golden Prince 6351 Jos. H. Beirne to Seb Heller, Calumetville, Wis.
Signor Custer 5935, Seb Heller to Dr. A. L. Nixon, Stanton, Neb.
Success of Haddon 6347, E. T. Gill to Robert G. Shaw, Greenwood, Va.
Vermont's Duke 6287, Wm. H. Caldwell to C. H. Whitcher, Albany, Vt,
Walden's Crusoe 6341, F. E. Perkins to W. S. Crane, Willmantic, Conn.

COWS.

Almona of Paxtang 8719, Lady Silvia of Paxtang 8735, Isabel S. Wilhelm to James Boyd, Harrisburg, Pa.
Bethabare 12289, D. L. Stevens to W. W. Adams, Kingsley, Pa.
Clover Ridge's Select 9524, Queen of Brandon 4776, Rackets Pacific 11072, Wm. H. Caldwell to H. F. Dimock, South Coventry, Conn.
Daphne of Tilton 10839, Mrs. E. L. Colby to Mrs. J. R. Miller, Ryegate, Vt.
Eulissa 10838, Josepha of The Elms 11762, Lurie 9889, Silk Weed 9443. M. I. Wheeler to F. O. Wells, Greenfield, Mass.
Hattie of Willow Brook 11641, Tisby 11644, R. A. Borden to A. J Snyder, Plumsteadville, Pa
Joan of Colliedale 12311, E. B. Staggers Jr. to Hodgson Bros., New London, Pa.
Jessie of Moss Neck 4627, O. F. Woodward to Elmer Abbott, Perry, N. Y.
Jennie W. 12112, A. L. Wales to Dr. J. H. Chamberlain, Belfast, N. Y.
Katydin of Lakeside 12284, Princess of Lakeside 2nd 5581, B. F. Nutting to Jesse Thompson, Madrid, N. Y.
Kathleen Cottie 5403, Mab's Beauty of Castle Brook 3934, Minnetonka 4487, Rosa of Elm Place 11027, G. B. Tallman to Belle Vernon Farms Dairy Co., Willoughby, O.
Lady Belle of Maplehurst 10084. Town Lady 10937, J. H. Chamberlain M. D. to G. B. Tallmann, Perry, N. Y.
Lady Spencer 2nd 6029, E. B. Staggers Jr. to G. H. Negendank, Greenville, Del.
Mayshie 12290, E. B. Staggers Jr. to E. Donohue, Edgmoor, Del.
Millwood's Cousin Agnes 12219, Millwood's Miss Cora 12220, Millwood's Quest 12225, Millwood's Young Dora 12227, Quietude 9055. Young Dido 5291, Est. E. F. Bowditch to H. F. Dimock, South Coventry, Conn.
Myrtle of Elmwood 12317. S. C. Hall to John F. Buker, Bowdoinham, Me.
Patsey H. 7330, Squire's Phoebe 7796, E. B. Staggers Jr. to H. K. Boyer, Lower Providence, Pa.
Quintella of Brookside, 10208, Geo D. Telfer to W. D. Hoard, Ft. Atkinson, Wis.
Rayshiv 12300 E. B. Staggers Jr. to Thos. Mitchell, Union, Del.
Sarah of Jefferson 9551, Geo. D. Telfer to F. W. Tratt, Whitewater, Wis.
Shellbark's Beauty 6727, Chas. Solverson to S. A. Larraby, Lowder, Ill.
Tony's Pet 123 8, O. F. Woodward to C. H Toan, Perry, N. Y.
Tony's Pet 12318, Miss Munroe 5759, C. H. Toan to Belle Vernon Farms Dairy Co., Willoughby, O.

WM. H. CALDWELL, Sec'y.
Peterboro, N. H.

Official Tests of Holstein-Friesian Cows from July 1 to November 1, 1899.

These tests were made by Agricultural Colleges and Experiment Stations. The age is at the date of calving; the test is for seven consecutive days, commencing at the close of the day from calving; the fat is determined by the Babcock test, and the butter is estimated first at 80 per cent fat to a pound, the ratio employed at the World's Fair, initials W. F. M.; the second at 85 5-7 per cent fat, the method of the Agricultural Colleges, initials A. C. M.

Shadeland Amber 29330, 8 years, 2 months, 18 days; 30 days after calving; milk. 424.4 lbs., fat, 14.06 lbs., butter, by W. F. M., 17 lbs , 9.2 oz., by A. C. M., 16 lbs., 6.5 oz

Bontje P. 2d's Gerben 23958, 7 years, 2 months, 27 days; 51 days after calving; milk, 412 8 lbs., fat, 13 62 lbs., butter by W. F. M., 17 lbs., 0.4 oz., by A. C. M., 5 lbs., 14.2 oz.

Pauline Whitney 39946, 4 years, 5 months, 22 days; 3 days after calving; milk, 324 7 lbs., fat, 13.25 lbs., butter by W. F. M , 16 lbs., 8.9 oz, by A. C. M., 15 lbs., 7.3 oz.

Spring Brook Queen 700 W., 6 years, 2 months, 15 days; 11 days after calving; milk, 368.1 lbs., fat, 12.79 lbs., butter by W. F. M., 15 lbs., 15.7 oz., by A. C. M., 14 lbs., 14.7 oz.

Belle of Schillard 3d 19669, 9 years, 6 months, 11 days; 9 days after calving; milk, 384.9 lbs., fat, 12,57 lbs., butter by W. F. M., 15 lbs., 11.3 oz., by A. C. M., 14 lbs., 10.6 oz.

Dyllis 19817, 9 years, 10 months, 19 days; 21 days after calving; milk, 379.8 lbs., fat, 13.4 lbs., butter by W F. M., 16 lbs , 10 oz., by A. C. M., 15 lbs., 10.2 oz., net profit, $2 34.

Heilo 4th's Pet 43611, 3 years, 10 mouths, 25 days; 7 days after calving: milk, 331.1 lbs., fat, 11.01 lbs., butter by W. F. M., 13 lbs., 12.2 oz., by A. C. M., 12 lbs., 13.5 oz.

Ideal Hildegisela 40111, 3 years. 6 months, 8 days; 21 days after calving: milk, 372.5 lbs., fat 11.72 lbs., butter by W. F. M., 14 lbs., 10.5 oz., by A. C. M., 13 lbs., 10.8 oz.

Empress Koninghen 39461, 4 years, 4 months, 1 day; 50 days after calving; milk, 365.4 lbs., fat, 11.22 lbs., butter by W. F. M., 14 lbs., 0.4 oz., by A. C. M., 13 lbs., 1.4 oz.

Pleasant Valley Kate 2d 48432, 2 years, 3 months, 2 days; 21 days after calving; milk, 351.4 lbs., fat, 11.3 lbs., butter by W. F. M., 13 lbs., 12.6 oz., by A. C. M., 12 lbs., 10.5 oz.

Dorinda Jewel 2d 40931, 2 years, 10 months, 29 days; 4 days after calving; milk, 272 lbs., fat, 10.64 lbs., butter by W. F. M., 13 lbs., 4.8 oz., by A. C. M., 12 lbs., 6.6 oz ; net profit, $3.05.

Regis Princess of Wayne's DeKol 43870, 2 years, 4 months, 25 days: 70 days after calving; milk, 320.6 lbs., fat, 10.6 lbs,. butter by W. F. M., 13 lbs., 3.8 oz., by A. C. M., 12 lbs., 5.8 oz.

Belle Herbert's Jewel 2nd 898 W , 4 years, 26 days: 68 days after calving: milk, 381.3 lbs., fat. 10.62 lbs., butter by W. F. M., 13 lbs., 4.5 oz., by A. C. M , 12 lbs , 6.3 oz

Empress of Farm Home 45967, 2 years, 8 months, 29 days; 59 days after calving; milk, 374 3 lbs., fat, 9.74 lbs., butter by W. F. M., 12 lbs., 2.7 oz., by A. C. M., 11 lbs , 5.8 oz.

Clothilde Netherland De Kol 42917, 1 year, 9 months, 5 days: 17 days after calving; milk, 253 lbs., fat, 7.98 lbs., butter by W. F M , 9 lbs., 15.7 oz , by A. C. M , 9 lbs., 5 oz.

Rena C. Koningen 46172, 1 year, 10 months, 24 days; 2 days after calving; milk, 304 lbs., fat, 8.38 lbs., butter by W. F. M., 10 lbs. 7.5 oz., by A. C. M.. 9 lbs., 12.4 oz.

Bessie Ward Tritomia 44128, 2 years, 8 months, 5 days: 4 days after calving; milk, 245 lbs., fat, 8.57 lbs., butter by W. F. M., 10 lbs., 11.5 oz., by A. C. M.. 10 lbs.

Lost Wonder 41918, 3 years, 1 month, 5 days; 15 days after calving: milk, 312 lbs., fat, 9.57 lbs., butter by W. F. M., 11 lbs., 15.3 oz., by A. C. M., 11 lbs. 2.5 oz.

Pietertje Lady Wonder 438 9. 2 years, 1 month, 11 days; 31 days after calving; milk, 281 lbs., fat, 9 lbs , butter by W. F. M., 11 lbs., 3.8 oz., by A. C. M.. 10 lbs.. 8 oz.

Margolyn 2nd 40758, 3 years 8 months, 26 days; 29 days after calving; milk, 341 lbs., fat, 10 1 lbs., butter by W. F. M., 12 lbs., 9 9 oz., by A. C. M., 11 lbs., 12.4 oz.

Homestead Belle De Kol 42774, 2 years, 24 days; 21 days after calving; milk, 300 lbs., fat, 8 3 lbs., butter by W. F. M., 10 lbs., 5.9 oz , by A C. M., 9 lbs., 10.9 oz.

Bessie De Kol 2nd 42716, 1 year, 11 months, 13 days; 12 days after calving; milk, 227.6 lbs., fat, 8.08 lbs., butter by W, F. M., 10 lbs , 1.6 oz., by A. C. M , 9 lbs , 6.8 oz.

Aurora Boon 46426, 1 year 9 months, 29 days; 52 days after calving: milk, 253 lbs., fat, 7.5 lbs., butter by W. F. M., 9 lbs., 9.5 oz., by A. C. M., 8 lbs., 11.9 oz.

Cradock De Kol 44223, 1 year, 9 months, 26 days; 33 days after calving; milk. 226 2 lbs., fat, 7.52 lbs , butter by W. F. M., 9 lbs., 9.5 oz., by A. C. M., 8 lbs.. 12 3 oz

Summary—The average product of butter of cows, 5 years old or over, is 16 lbs., 9.3 oz., at 80 per cent fat, or 15 lbs., 8 oz. at 85 5-7 per cent fat; of those between 4 and 5 years is, 14 lbs , 9.9 oz. at 80 per cent fat, or 13 lbs., 10.3 oz., at 85 5-7 per cent fat; of those between 3 and 4 years old, 13 lbs., 4 oz. at 80 per cent fat, or 12 lbs., 5.8 oz. at 85 5-7 per cent fat; and of those under 3 years old, 11 lbs., 3.6 oz. at 80 per cent fat, or 10 lbs., 6.7 oz at 85 5-7 per cent fat. The total number of tests, 74. S. HOXIE, Supt. Adanced Register, Friesian-Holstein Association.
Yorkville N. Y.

A Milkman's Opinion.

ED. HOARD'S DAIRYMAN:—Enclosed find $1.00 renewal subscription; I think it the best paying investment a milkman can make. Keep twenty-two cows; last year had twenty,

Rain or Shine,

The station agent is on duty. On his exact communication of train orders depends thousands of lives, and millions of dollars in property, each day. In his haste he runs out in the rain or the snow hatless and unprotected. Then comes the sequel—bronchitis, or some other disease of the respiratory organs. The most effective remedy for bronchial or pulmonary disease is Doctor Pierce's Golden Medical Discovery. Almost all remedies prescribed for such diseases contain opium or some narcotic which soothes by stupefaction. "Golden Medical Discovery" contains neither narcotics nor alcohol. It stops coughs by curing their cause. It heals weak lungs, builds up wasted tissues, and promotes the health of every organ of the body.



"I am a railroad agent," writes I. B. Staples, Esq., of Barclay, Osage County, Kans., "and four years ago my work keeping me in a warm room and stepping out frequently into the cold air gave me bronchitis, which became chronic and deep-seated. Doctors failed to reach my case and advised me to try a higher air, but, fortunately for me, a friend advised me to try Dr. Pierce's medicines. I commenced taking your 'Golden Medical Discovery,' and by the time I had taken the first bottle I was better, and after taking four bottles my cough was entirely gone. I have found no necessity for seeking another climate."

Dr. Pierce's Pleasant Pellets regulate the stomach, liver and bowels.

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DOUBLE LOCK-STITCH.
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OFFICES IN EVERY CITY IN THE WORLD.

Mr. VALANCEY E. FULLER,

in his pamphlet on the ST. LAMBERT family of Jerseys, **places KING OF ST. LAMBERT'S KING 30752 in front of all other Jersey sires,** when he says:

"Mr. Hart has now in his herd all the registered daughters of King of St. Lambert's King, 16 in number. *I am frank to admit that I never saw so many matured daughters sired by one bull* (save Stoke Pogis 3d) *who are their equals in individuality, in good dairy form, in large, well rounded fore-udders; in large, tortuous and elastic milk veins, in uniformly large and well placed teats, in depth and length of barrel, in straightness of back, and all that goes to make a most desirable individuality.* They are not in the least degree coarse."

King of St. Lambert's King 30752

is at the head of my herd. I have for sale a few young bulls rich in his blood.

FRANK W. HART,

☞I have a few extra copies of Mr. Fuller's pamphlet, which I will mail free to applicants as long as they last.

Cleveland, Ohio.

SPECIAL REDUCED PRICE FOR THIRTY DAYS



Take advantage of our special offer and get the **IMPROVED RELIABLE FEED COOKER, TANK HEATER and STEAM GENERATOR** one of the greatest feed savers, labor savers and money makers the feeder can possibly have. Cooks a barrel of ground feed in 30 minutes; 25 bushels of ground corn in 2 hours; heats a barrel of water hot enough to scald hogs in 20 minutes; will heat water in tanks 100 feet from cooker. Used and recommended by feeders throughout the United States and Canada. Highest awards at Omaha Exposition in 1898, and at Toronto, Canada and Dallas, Texas in 1899, and at State Fairs everywhere. Sold on a positive guarantee. Your money back if it does not come up to the contract. Send for 1900 Century Catalogue and introduction price. **It has no flues to rust out or leak. No scorched feed if you use it. The best machine of any kind proves the cheapest in the end.**

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A No. 1 DAIRY FARM

Said farm lies in the Mill Creek Valley, 7 miles from Richland Center, 1 mile from Boaz and a first-class cheese factory. It consists of 479¼ acres under fence and seeded down; over 200 acres under plow. Said farm must be sold to close out bankrupt stock. For further particulars address D. G. JAMES, Trustee, Richland Center, Wis.

The IMPROVED **VICTOR Incubator**



hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. **Sent free. GEO. ERTEL CO., QUINCY, ILL.**

part heifers, that made between $77 and $78 each. Holsteins and grades of same. No general-purpose cows, thank you. Have cows that averaged, last month, five to six gallons per day. Sell milk and cream at wholesale, on farm. Separate night's milk, sell the cream, and have skim milk to raise the heifer calves on. Think a heifer with second calf (3 years) worth $50. Have one now giving thirty-four to thirty-six pounds per day. Feed from 4 to 16 quarts bran, and 1 quart cotton seed meal, twice per day, corn fodder and corn on twice, and straw at night. Feed each cow according as she milks, and length of time from freshening. Think it pays to feed the heifers well.

Wishing you success in your work, I remain yours for the special-purpose cow.

Galesburg, Ill. L. F. HOZEN.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

PARTIAL PARALYSIS.

I have a four-year-old heifer, that acts very strange; when she is turned out of the stall one hind leg will drag, or not come along as it should, and crack up in the hip; it seems to be getting worse. Will this come right in time? W. W. S.

Hagersville.

ANSWER.

You seem to me to have a case of partial paralysis. This needs prompt attention, always; as soon as you can, get a practical professional man to see to your cow without delay. In the meantime give one, only, dram doses of nux vomica for two days, one each day; then one dose each alternate day for two, only, doses; then one dose each week for three to four weeks as may seem to be needed. Rub hard with sulphuric ether, 2 ozs ; oil of cedar, 4 ozs.; 4ffs. ammonia, 4 ozs.; fish oil, 25 ozs. Thoroughly shake before using. Always keep tightly corked and out of the sun.

TUBERCULOSIS.

I had a four-year-old heifer which I sold to a neighbor, who killed her for beef. When killed she seemed to be in prime condition, but when opened the fat around the heart and kidneys was of a very yellow color, and on the ribs, on both sides, several abscesses had formed about as large as a man's fist.

The butcher who killed her said that it was tuberculosis. Was this the case? Would this be hereditary, and what causes would bring on the disease?

Before we got this heifer, when it was a calf, and until it was a two-year-old, it did not receive proper care and nourishment. Would this cause the disease?

Columbus, Assa. SUBSCRIBER.

ANSWER.

The butcher was quite off in his opinion. I don't believe she had tuberculosis. All Jersey fat is yellow, all through. I can't account for the tumors, not abscesses unless they had formed pus Yes, tuberculosis is surely both contageous and infectious. I don't think lack of care likely to be the cause of the conditions you name.

SCOURS.—COLIC.—LOSS OF MILK.

1. I have an old mare about 20 years old, is good yet but she has the scours every winter, very bad. It does not make any difference what I feed her. I think her teeth are out of shape. She is all right in summer on grass.

2. I also have a span of geldings, about 11 years old, and they do not look just right. I am feeding good hay and corn and not doing very much with them. They have the colic very often and seem to be out of sort. One has a little sore on his shoulder since last spring, that does not heal up.

3. I have a fine heifer, came fresh last Agril, and gave a large mess of milk and about 2 months ago one quarter began to milk slow and slower until it is almost impossible to get any milk. The quarter never swelled or gave any bad milk and I have been very careful to get all the milk until now. She will be fresh in the fore part of March. G. F.

ANSWER.

1. You say about 20, this is 18 to 25 or more. Have her teeth rasped by a competent man.

2. Stop the corn and feed oats instead. Examine the teeth of both these also; 95 horses out of a hundred at the age you name, need the teeth rasped. Stop work for the healing of the sore and apply compound tincture of myrrh and aloes and calamine ointment.

3. Constricted channel of the teat as stated is made worse by hand milking. Read the advertisements in the DAIRYMAN and select the easiest milk tube.

BLEEDING FROM DEHORNING.

Will you kindly tell me what to do for a cow that was dehorned four weeks ago? One horn took to bleeding while I was away and had hard work to stop bleeding. She is weak from bleeding and staggers when she walks. They shrank in milk from ten quarts per day to one quart in two days' time. What shall I do to restore blood and would it be best to dry her off? W. H. G.

Warrens, Wis.

ANSWER.

No doubt the poor cow shrank her milk from the dehorning; what else could you expect? Your action was cruel and very indiscreet to do this so close to calving. I would not recommend a styptic, but compound tincture of myrrh and aloes, liberally. This will heal and so stop the bleeding gradually. No, don't dry her off.

ROPY MILK.

I have a very fine Jersey cow, which will be fresh between the 15th and 25th of the month. The left hind quarter of udder is swollen, but milks easy. The milk being lumpy; and when come from teat will unroll like tough leather. I had a surgeon examine udder and he said it did not need a milk tube, but he thought she would lose that quarter. I gave her condition powders in a little bran to loosen bowels, and bathed udder with hot dish water and rubbed udder with salve made with old bacon grease and bitter sweet; her udder gets worse, as the time draws nearer to calving. H. ROUSE.

Crittenden, Ky.

ANSWER.

The physic was all paramount, and would have saved the quarter no doubt, if it had been judiciously followed up. Condition powders, so called, are a disgrace to an intelligent cow keeper or horse keeper. They have caused the death of hundreds of horses and cattle. Dish water and old bacon grease belong rightly to the condition powders, etc. Physic is all I can give you to be immediately efficacious. Rub the udder hard with camphorated spirits, six parts, and common turpentine, two parts only, twice the first day, then once a day for two or three days, as may seem to be needed.

HABIT.

Can you tell me what makes some of my cows press their noses against the manger and make a loud noise breathing; they are in good fix and look and eat well. They did some last winter. E. W. K.

Lincoln Co., Wis.

ANSWER.

The loud noise no doubt comes from the obstruction to natural breathing by the pressure against the manger. To me, you have a lot of cows which have singularly acquired this habit. If only one cow, I should say the cause was a carious tooth, or teeth, but as you say, it can't be that; must be a bad habit only.

THROAT TROUBLE.

I have a fine young cow, grade Jersey, which has some affection of the throat, causing a labored breathing, and upon slight exertion, a wheezing sound is issued. She is gradually wasting away, and will probably soon die, unless some heroic remedy is adopted. B. F. R.

Ellensburg, Wash.

ANSWER.

Your case needs a professional examination to be able to get to a correct diagnosis. She may have some form of tumor in the trachea, might also be in the esophagus, and thus press upon the walls of the windpipe Worse than all, she may be in the developed form of tuberculosis. I fear the milk is unfit for use. Suspicion, in my mind, is strong as to the latter disease. If you have a state veterinarian, let him examine the cow.

1. A friend of mine has a cow which got one of her teats injured. He used a silver milking tube for 2 weeks. When he resumed milking by hand, he found the teat gave less milk than any of the others. How do you account for this? Is the cow permanently injured in that teat?

2. When a cow is drying up naturally, or you wish to dry her up six weeks or so before calving, is it advisable to milk her only once a day, when she gives a gallon of milk daily?

3. A cow has a small hole in one of her teats close to udder. Can this hole be closed when she is dry, and how? It leaks a little sometimes when milking. J. D. REID.

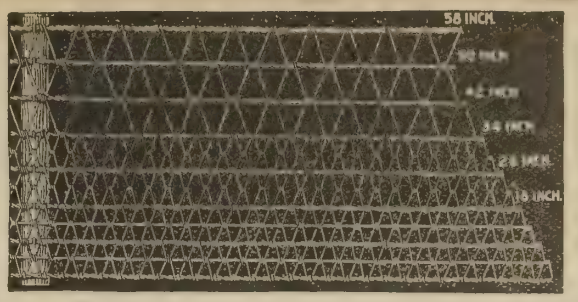
Metchosin.

ANSWER.

1. I account for the loss of the milk from the accident as a matter of course.

2. All depends upon the conditions as to milk secretion, etc. Usually such a course is all right.

3. To be operated on by an expert V. S. The hole to be made sore inside and then sewed up.



HOGS WILL ROOT

but the hog hasn't been bred that will tear up or break through the

ELLWOOD WOVEN FENCE.

Made of hard Bessemer Steel Wires, rust proof, and proof against all attacks of animals, heat or cold, dry or wet, wind or weather. Although the best, the **Ellwood costs but little** and is practically everlasting. Your dealer ought to have it. If he hasn't write for catalogue, etc., to

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ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.
One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.
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Horse Owners! Use



GOMBAULT'S Caustic Balsam

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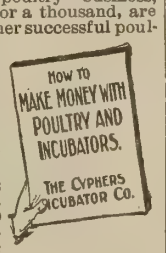
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Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

ILLUSTRATION.

Cost $4000; You Get It For 15 Cents.

The Money-Makers in the poultry business, whether owning a dozen hens or a thousand, are the people who watch what other successful poultry-keepers are doing and how they do it. It is to disseminate just such knowledge as this that "*How to Make Money with Poultry and Incubators*" was published. It is admittedly the handsomest book ever printed treating of the poultry question. It contains nearly 200 illustrations and numerous other features which brought its cost up to more than $4,000 While it gives complete information regarding the *Cyphers Incubator* it is primarily a guide and manual for the person who is considering poultry from a purely business and money-making stand point. Its 192 pages (9x11 inches) are filled with practical articles, written expressly for this book by leading poultry experts. For example, Geo. H. Pollard, the well-known practical poultryman, contributes three chapters on "Profitable Broiler Raising," "Winter Chickens or Roasters," and "Best Breeds for the Market." Michael K. Boyer of national reputation, has an article on "Poultry for Profit on One Acre;" Myra V. Norys tells what energetic women have done in "Women's Work with Poultry;" A. F. Hunter, the well-known editor, discusses the "Demand for Fresh Eggs and How to Meet It;" Jas. Dryden, of the Utah Experiment station, writes of "Pullets vs. Hens as Profitable Layers." These are only a few of the many special articles. In addition there are many photographic illustrations and descriptions of the largest and most successful poultry farms in the world; also numerous copyrighted plans and specifications for laying and brooding houses, together with letters from over 250 successful poultry keepers reporting their experience with the Cyphers Incubators. Sent to any address for 15c. postage. Ask for Book No. 123 Address nearest office, The Cyphers Incubator Co., Chicago, Ill., Wayland, N. Y., Boston, Mass



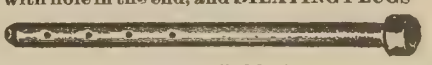
ABORTION!

Retention of Placenta and Failure to Breed.

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Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
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Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.



ROBERTS' ANTI-ABORTION SERUM

Hypodermatically administered, is a POSITIVE CURE for abortion in cows. Sworn testimonials furnished on application. Address
DR. D. ROBERTS, Vet. Surgeon, Waukesha, Wis.

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Myself cured, I will gladly inform anyone addicted to COCAINE, MORPHINE OPIUM or LAUDANUM, of a never-failing, harmless Home Cure. Mrs. M. J. BALDWIN, P. O. Box, 1212, Chicago, Ill.

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An Illinois Dairy.

$70.00 Per Cow.

ED. HOARD'S DAIRYMAN:—You will find inclosed a draft for one dollar for the renewal of my subscription for your paper. At this writing, the year is so near gone that I can sum up very nearly what has been the outcome of our dairy for the year. My cows have done fairly well; from butter alone I have realized $70.00 apiece on an average for the year just now closing, not taking into consideration calves, skim milk, and what butter and cream was used in family. We run our separator and churn with gasoline engine which gives entire satisfaction. It costs me about 25 cts. a week to run it to do all of my separating and churning. We get from 22½ to 25 cts. a pound for all the butter we can make. I have one heifer that dropped her calf last May, one year ago, at twenty months old, and within one year made 445 lbs. of butter which I think is very good for one of her age. I find that it pays to breed along the dairy line and to take care of them when you get them. I think my herd will do better next year than this, as they will be more mature; a good many are young, first and second calves. I am satisfied there is no industry that can be carried on the farm that will pay as well as dairying if a man has the right kind of cows, and attends to them as they ought to be taken care of; and, on the other hand, they will run their owner in debt every day that he keeps them, so you see I think it is all in the cow and the way she is taken care of.

Loami, Ill. DANIEL STALEY.

Kafir Corn.

ED. HOARD'S DAIRYMAN:—I see by the New York *Tribune*, that the kafir corn in the western states is becoming very popular. The reports in Kansas, show an acreage of 582,895 last year, in that state alone. Wish you would give in your paper, some facts in regard to the corn, and mode of cultivation, the amount of seed per acre, and how crop is handled, whether it would be a success in Ohio, etc. C. N. G.

Munroe Falls, Ohio.

From a recent bulletin of the Kansas Experiment Station, we copy the following:

Kafir corn is grown in every county in Kansas, Secretary Coburn reporting 582,895 acres in 1899 for the state, yet we are in constant receipt of letters asking how to raise and how to feed it.

It has been raised on the Kansas Agricultural College farm for the past eleven years. We recommend two varieties—the Red and the Black-hulled White. For the first seven years, we raised the Red. The Black-hulled White was then introduced, and from 1896 to 1898 we grew these two varieties side by side, the Red giving an average yield of 37 bushels per acre, and the Black-hulled White 43 bushels per acre. We now raise the Black-hulled White only. In western Kansas many farmers think the Red a little hardier in drouth.

Kafir corn makes a slow early growth, and should not be planted until the ground becomes warm. On cold soils, surface planting is best; on warm soils listing does well. Plant in rows 3 to 3½ feet apart, dropping single seeds an inch apart in the row. Cultivate the same as you would for a good crop of corn. Many farmers sow kafir corn broadcast, cut with a mower, handle and feed as hay.

When grown for grain, the heads may be cut off and gathered, if the fodder is not wanted. When the fodder is to be used, the cheapest method of harvesting kafir corn is to cut, and put up in large shocks.

The College farm is upland. In the eleven years that we have grown kafir corn, there has been but one failure to produce grain. In 1894, kafir corn yielded no grain, but gave two tons of fodder per acre. Corn, the same year, yielded us no grain, and one ton of fodder per acre. The average yield of grain per acre on the College farm for the past eleven years has been, per year: Kafir corn, 46 bushels; corn, 34½ bushels. Our highest yield per acre in one year has been: Kafir corn, 98 bushels; corn, 74 bushels. In the western half of the state, the difference in favor of kafir corn is greater, as there, in dry years when corn yields one to five bushels per acre, the yield of kafir corn is 25 bushels or more.

A bushel of corn is worth more for feed, than a bushel of kafir corn, but on the College farm, an acre of kafir corn is worth more than an acre of corn. The average of the results, where we have fed corn against kafir corn in fattening hogs, shows 12 pounds of pork from a bushel of corn, and 10 pounds of pork from a bushel of kafir corn. This shows for the College farm (upland) an average yield of grain per year, per acre, to produce 460 pounds of pork from kafir corn, and 404 pounds of pork from corn.

The relative values of corn and kafir corn are, practically, the same for beef production as for pork.

Kafir corn grain and alfalfa hay make the cheapest combination of feeds in Kansas for milk production.

Kafir corn meal is especially valuable to feed calves raised on skim milk. Its constipating effect offsets the loosening tendency of the milk.

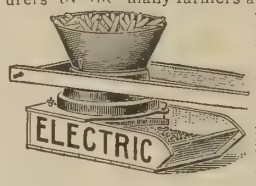
Animals tire of kafir corn alone, more quickly than they do of corn alone, but combined with other feeds, they relish it for any length of feeding.

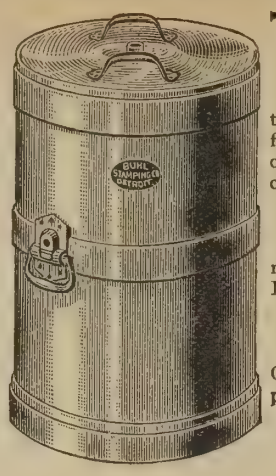
In three experiments in fattening hogs, a mixture of kafir corn, four-fifths, and soy beans, one-fifth, gave a gain, per bushel of feed, of over 36% more than kafir corn alone. Hogs fed kafir corn and alfalfa hay gained 91 pounds each, while hogs fed kafir corn alone, gained 52 pounds each. Hogs fed kafir corn and five pounds of skim milk, each, per day, gained 66 pounds per hog, while those fed kafir corn alone gained 42 pounds each.

Kafir corn is our best drought resisting, grain feeding crop, and our heaviest yielder on poor soils. We recommend it in place of corn for the uplands of eastern Kansas, and for all soils in western Kansas. When this recommendation is followed, and the kafir corn is fed with the drought resisting feeds rich in protein, the beef, pork and milk production of Kansas in dry years will be equal to that of our best years now, without more acres being planted.

ILLUSTRATION.

We present herewith a cut of the Electric Sweep Feed Mill which is manufactured by the Electric Wheel Company, of Quincy, Ill. This mill introduced this season for the first time is the direct result of repeated demands made upon the manufacturers by the many farmers all over the country who are using other Electric goods, and who, finding those so entirely satisfactory, urged the manufacture of a mill also. The "Electric" embodies in its plan and construction all the latest principles, modern, economical grinding of feed for stock. It is without gears of any kind and does not absorb or waste any power by that method. It is equipped with a double set of brakes, which effectually break up and reduce the ear corn before passing it on to the burrs. The burrs are made of specially hardened white metal, smooth and sharp, and capable of long continued service. Mill is easily adjusted to grind coarse or fine, and in addition to grinding ear corn will also grind all small grains singly or mixed. For very fine work an extra set of burrs are provided. Write the Electric Wheel Company for booklet on feed grinders.





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Look for the Milk Can Trademark.

This can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders. Capacity, 15, 20, 30, 40, and 50 gallons.

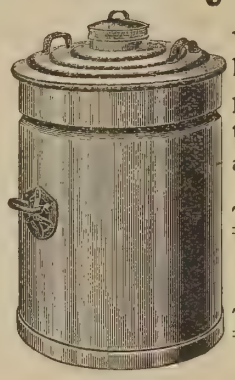
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We make all patterns and sizes of Factory and R. R. Milk Cans, and will gladly mail you our hand-book free. **We make prompt shipment.**

The Buhl Stamping Co.,
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Factorymen

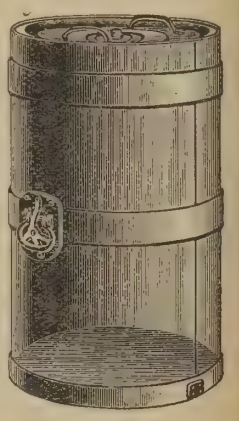
who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.



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1000 MILK CANS

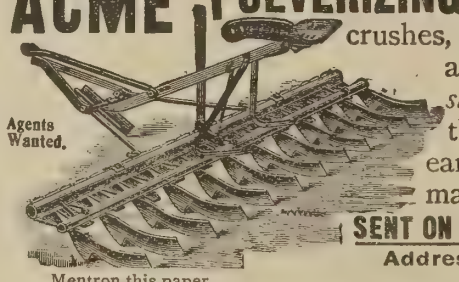
per day, comprising the various patterns used throughout the country, puts me in a position to interest you.

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should be without a copy of my 1900 handsomely illustrated catalogue, *which may be had for the asking.*

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Successor to THE CHICAGO STAMPING CO. **CHICAGO.**

ACME PULVERIZING HARROW, CLOD CRUSHER AND LEVELER



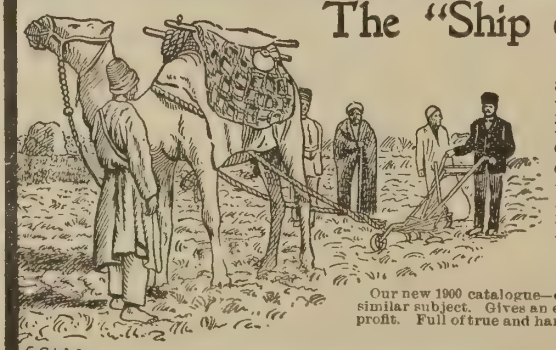
crushes, cuts, lifts, pulverizes, turns, aerates and levels all soils, for all purposes under all conditions. Made entirely of *cast steel* and *wrought iron*, they are *indestructible.* They are the cheapest and best riding harrows and pulverizers on earth. Various sizes, for various uses, 3 to 13½ feet. We mail catalogue and booklet, "An Ideal Harrow," free.

SENT ON TRIAL TO BE RETURNED AT MY EXPENSE IF NOT ENTIRELY SATISFACTORY. I deliver free on board at New York, Chicago, Columbus, Louisville, Minneapolis, Kansas City, San Francisco, &c.

Address DUANE H. NASH, Sole Mfr., Millington, N. J. or Chicago, Ill.

Mentron this paper.

The "Ship of the Desert"—"Planet Jr." Rudder.



We have not read anywhere that the "Ship of the Desert" required a rudder, but certainly we could suggest no more profitable or appropriate one than appears in this cut. This "PLANET JR." Horse Hoe is extensively used in Egypt for the cultivation of cotton. In this country it is the standard machine for cultivating that crop and also corn, potatoes, tomatoes, cabbage and all other crops which are cultivated with one horse. We were the original inventors of Horse Hoes nearly thirty years ago, and have steadily maintained our position as leaders among the makers of this class of goods.

We make also a complete line of Horse-hoes, Wheel-hoes, Pivot Wheel Cultivators, Spring Tooth Orchard Cultivators, Four-row Sugar Beet Cultivators, Sugar Beet Seeders, &c., each equipped with a variety of attachments for many purposes.

Our new 1900 catalogue—of which we issue 350,000, is the handsomest, best and most instructive book ever issued on a similar subject. Gives an extended treatise on agriculture at home and in foreign lands. Full of little points that bring profit. Full of true and handsome illustrations. We mail it free to any address on application.

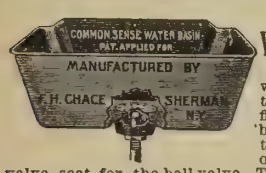
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S. L. ALLEN & CO., Box 1107-D. PHILADELPHIA, PA.

POTASH gives *color*, *flavor* and *firmness* to all fruits. **No good fruit can be raised without Potash.**

Fertilizers containing at least 8 to 10% of Potash will give best results on all fruits. Write for our pamphlets, which ought to be in every farmer's library. They are sent free.

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CHACE'S Watering Device

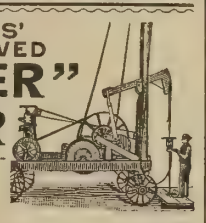
The most perfect watering device on the market. It is fitted with a brass bushing that screws through the bottom of basin and forms a valve seat for the ball valve. The ball valve is the most practical of any now in use; it has been adopted by manufacturers of injectors for steam boilers, and many devices where a perfect working valve is necessary. Send for circular and price.

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LIGHTNING WELL MACHY
IS THE STANDARD
STEAM PUMPS, AIR LIFTS,
GASOLINE ENGINES
WRITE FOR CIRCULAR M6
THE AMERICAN WELL WORKS
AURORA, ILL. - CHICAGO. - DALLAS, TEX.

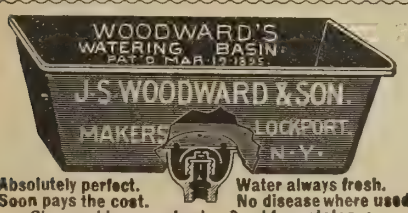
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"CLIPPER" DRILLER



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Absolutely perfect. Soon pays the cost. Cheapest because best.

Water always fresh. No disease where used. Send for catalogue.

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GUARANTEED NOT TO BURST

ALL WE ASK is, that you send for our Free Catalogue before you buy a Tank of any kind. C. E. BANTA MFG. Co., Dept. 874 E. Chicago

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Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to

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REDUCE YOUR COAL BILL

BY USING
The No Scale Company's
High Grade Boiler Compound.

Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.**

NO WHEEL, NO WAGON.



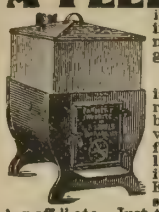
Wheels generally break down first. It is **cheaper to buy new wheels than to repair the old ones** when you can get

4 Buggy Wheels 7-8 in. Steel Tire for $7.50
4 Carriage Wheels 1 in. Steel Tire for 8 00

Special Wheels for Milk Wagons with steel tires 1¼x⅝, $11.25. Special low-down gear supplied when desired. Write for price list No. 84 with directions for measuring.

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A FEED COOKER



is a money saver on every farm. It increases the grain you have by making it more palatable and digestible.

THE FARMER'S FAVORITE

is a thoroughly reliable cooker at a reasonable price. Furnace made of best gray iron; boiler of best galvanized steel. It is of special value for cooking feed for all kinds of live stock and poultry; for heating water for scalding hogs, etc. Excellent for evaporating Maple sap, boiling down syrup, "sugaring off," etc. Just the thing for boiling down cider. Don't buy until you get our circulars and prices.

L. R. LEWIS, 10 Main St., Cortland, N. Y.



That Manure Heap

is nature's medicine for your over-taxed soil.

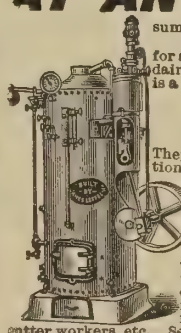
THE NEW AMERICAN MANURE SPREADER

will administer it thick or thin; fine or coarse. Will do it quickly, easily and make it go further. It is self feeding. It fits any ordinary wagon gear. It fits your pocket

Send for booklet "E."

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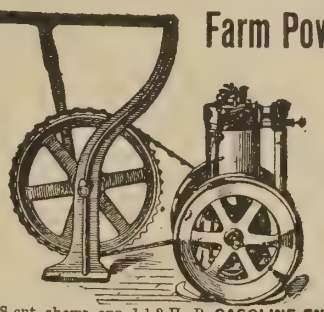
summer time or winter time, the **BEST POWER** for all purposes on the farm, in the dairy, creamery or cheese factory is a

LEFFEL ENGINE.

They are very simple in construction, and easy to run and keep in order. Are very economic of fuel, are easy steamers and great power developers. They are made both horizontal and upright with engine mounted on boiler. Everything is made of best materia throughout. They are ideal for cutting and grinding feed, saw ing wood, pumping water, running cream separators, churns cutter workers, etc. Send stamp for **Book on Power**

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DON'T NEED WIND. **Farm Power.** Cheapest and Best.



THIS cut shows our 1 1-2 H. P. **GASOLINE ENGINE,** used in connection with our Adjustable Pump Jack Can be used in connection with any ordinary pump. A good gasoline engine is the cheapest and best power for all purposes. Can be used for anything. Write for prices

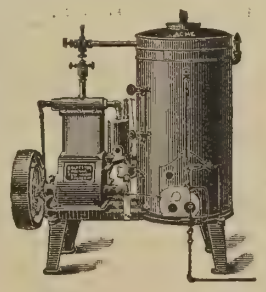
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The Acme Engine

Still LEADS

1 TO 6 Horse Power.



For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**

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For Steam, Gas and Water. Good as new. Tested, Re-painted, Re-threaded and couplings furnished. Ranging in lengths to 20 feet.

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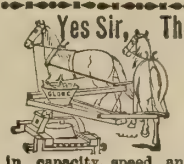


and all kinds of live stock will produce better results if fed ground feed. The small pig and the dairy cow need it especially. The best way to prepare ground feed is with the

Kelly Duplex

Grinding Mill. It just grinds anything—ear corn, cob, husk and all, cotton seed and all small grains, single or mixed. Makes **coarse, medium** or fine feed. Takes little power, grinds fast. Strong, well made of good material and last indefinitely. Send for our free catalogue No. 30

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Yes Sir, The **Tandem Sweep**

Equalizes the load; each horse must pull his own share. Great Gain in capacity, speed and comfort. **NO GEARING; NO FRICTION. GIVES YOUR HORSES A CHANCE.** Only one set of grinders needed for all kinds of work. (Also make 7 sizes belt power mills; 2 to 25 horsepower.)

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TWO BIG MILLS IN ONE.



THE oscillating sweep shown in above cut insures UNIFORM GRINDING. It is only one of the many desirable improvements found exclusively in **GIANT KILLER FEED MILLS.**

Free for the asking, our new Sweep Mill and Feed Cooker Catalogue, describing large line of plain, duplex and geared grinders for one, two or four horses. We ship from Omaha, Kansas City, St. Louis, Indianapolis, Bloomington, Minneapolis.

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Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it. Patented Stop carries the plow and lightens draft. Shipped in crate, set up and sharpened ready for use. Spring Clevis eases draft and saves harness. Automatic Lock on rear wheel. Celebrated "Garden City Clipper" bottoms used.

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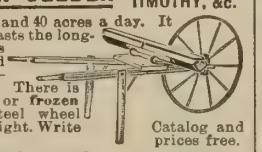
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Only plow factory in the United States selling direct to the consumer.

THE MICHIGAN SEEDER SOWS CLOVER, TIMOTHY, &c.



any quantity per acre and 40 acres a day. It runs the easiest and lasts the longest, for the **seed box is close to the wheel and rests on springs**—two important points. There is no jar on **rough or frozen ground** and the steel wheel carries most of the weight. Write for full description.

Catalog and prices free.

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GRASS SEEDER

Sows all Clovers, Alfalfa, Timothy, Red Top, all Grass Seeds, Flax, &c. Special hopper for wheat and oats. Sows 20 to 40 acres per day in wet, dry or windy weather. Just exact amount of seed desired—don't waste any. Weighs only 40 lbs. Last indefinitely. Price list and catalogue free.

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A GOOD GRINDER

must crush and grind corn and cob singly or mixed with other grain, into a coarse, medium or fine grist; must grind all grains make family meal, be strong and durable

QUAKER CITY GRINDING MILLS

meet all these requirements and more. Having two hoppers it mixes all kinds of grain as it grinds. Mill runs power. Guaranteed. 31st annual catalog S - free.

A. W. STRAUB & CO., 3737 Filbert St., Philadelphia, Pa.
The A. W. STRAUB CO., Canal and Randolph Sts., Chicago, Ill
Also Western agents for Smalley Powers, Shellers, Cutters, &



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dollars saved by the use of the

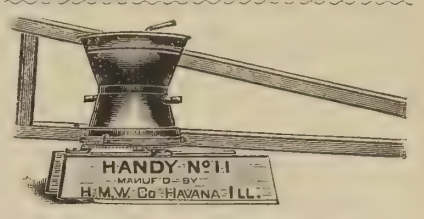
PEERLESS MILLS.

Unrivalled in capacity and quality of work. Will grind ear corn and all grain to any degree of fineness. Will make family meal or feed.

Agents Wanted Everywhere.

Send for free circulars, prices, etc.

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OF FODDER AND ENSILAGE SHREDDERS and CUTTERS



is made to meet the demands of those people who want a combined machine that **really combines. A shredder that will shred**—not chew, bruise and haggle the feed—**and a cutter that will cut.** The **shredder head** in the machine and the **cutter head** lying on the floor are **interchangeable,** and either or both are supplied as ordered. This is the only true shredder made **requiring only low speed.** Equipped with any length of straight or angle carrier to order. **Remember that this machine covers the whole field of cutting and shredding.** Write us for circulars, testimonials, &c.

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350 BU. A DAY



with the **Wolverine No. 805 Mill.** Grinds more per hour with less power than any other mill on earth because Crusher and Grinder run on separate shafts, relieving all friction. Grinds ear corn and all other grains fine or coarse, for feed or family use. Automatic adjustable shake feed. **Burrs** open and let nails and hard substance through.

PRICE without Cob Crusher for grinding small grain **$27.** With Cob Crusher for grinding ear corn, and small grain, **$32.** Elevators extra. Mill can be ordered without Cob Crusher and Crusher ordered any time, is easily attached. Made in 3 sizes for 2 to 15 h. p. We know what all mills will do, and the **Wolverine** will grind more than anybelt mill made.

WE STAKE our reputation and money by offering to ship you this mill in competition with all others. If it don't do more and better work and isn't the **best made** mill and **the biggest bargain** you ever saw return it at our expense. Don't buy an experiment. Our line represents 56 years' experience.

SWEEP GRINDERS 7 kinds. No. 2 Ball Bearing has 25 in. burrs; No. 3, 36 in. burrs. Geared mill of new pattern; ball bearing, a rapid grinder. Price **$14.50** and up.

CUTTERS AND SHREDDERS 53 sizes and combinations for hand and power; largest cuts ton in 5min.

POWERS 1-h Tread, with governor, $58; 2-h $77; 3-h $103. 2-h Sw'p $94.90; 4-h $34.75; 6-h $36.95; 8-h $51.25

A full line Feed Cookers, Robs, Cutters, Blankets, Robes, Harness. Send for FREE fall catalog giving latest prices.

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CUT YOUR DRY FODDER

and by so doing save **30** to **50 per cent** and make an equal gain in the products of your Dairy. Thousands of up-to-date farmers will **vouch for these facts.** We make the *largest* and *most complete* line of Cutters for *Ensilage* and *Dry Fodder Cutting* machinery ever made in this country. We make Carriers or Elevators, also Farm Powers for operating. Prices and full information mailed free if you mention this paper.

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BRAND NEW

We have on hand 25,000 squares Brand New Steel Roofing. Sheets either flat, corrugated or "V" crimped.

Price per square of 10x10 feet or 100 square feet..... **$1.75**

No other tool than a hatchet or hammer is required to lay this roofing. We furnish with each order sufficient paint to cover, and nails to lay it, without additional charge.

Write for our free catalogue No. 20 of general merchandise bought by us at Sheriff's and Receiver's Sales.

"Our Prices are One-Half of Others."

Chicago House Wrecking Co.,
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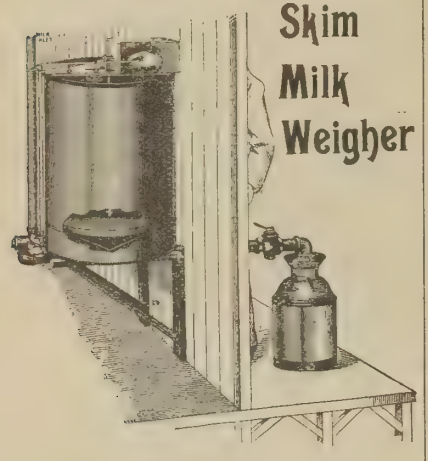
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We will send it, including this Beautiful New Rose and HOARD'S DAIRYMAN both one year for $1.65

SEND AT ONCE before the supply of roses is exhausted. THE RURAL NEW-YORKER is by all odds the best farm and fruit paper published in any country in the world.

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Skim Milk Weigher

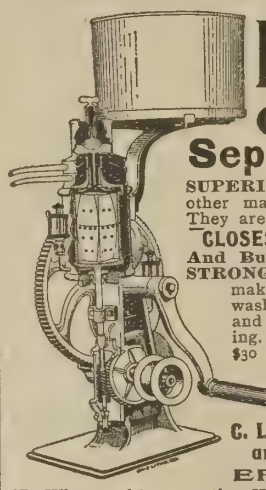
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REFRIGERATING MACHINERY.



Eclipse Cream Separators

SUPERIORITY over any other make **Guaranteed.** They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

Catalogue FREE.

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THE .. YOUNG **AERATOR** .. And .. **COOLER**



Needs no water or ice, removes all odors and gases. Warranted to keep milk sweet from 6 to 12 hours longer than any machine on the market or money refunded. Circulars free.

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THE BEST FOR THE DAIRY, be it large or small, is the celebrated

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Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

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A Perfect Milk Wagon

On a Perfect Short-Turn Gear.

We make 10 other styles. Write us for Catalogue and Price List.

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Salzer's Rape gives Rich, green food, at 25c. a ton.

Speltz—What is it? Catalog tells.

BUY NORTHERN GROWN SEEDS

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Salzer's Seeds are Warranted to Produce.

Mahlon Luther, E. Troy, Pa., astonished the world by growing 250 bushels Big Four Oats; J. Breider, Mishicott, Wis., 173 bus. barley; and H. Lovejoy, Red Wing, Minn., by growing 320 bush. Salzer's corn per acre. If you doubt, write them. We wish to gain 200,000 new customers, hence will send on trial

10 DOLLARS WORTH FOR 10c.

10 pkgs of rare farm seeds, Salt Bush, the 3-eared Corn—Speltz, producing 80 bush. food and 4 tons hay per acre—above oats and barley. Bromus Inermis—the greatest grass on earth; *Salzer says so.* Rape, Spring Wheat, &c., including our mammoth Plant, Fruit and Seed Catalog, telling all about Salzer's **Great Million Dollar Potato,** all mailed for 10c. postage; positively worth $10 to get a start. Seed Potatoes $1.20 a bbl. and up.

35 pkgs earliest vegetable seeds, $1.00.

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Please send this adv. with 10c. to Salzer.

Catalog alone, 5c, F 194.

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One which covers every detail of the industry from incubation to market is our **20th CENTURY CATALOGUE.** It will teach you from the practical experience of others what it would take you ten years to learn. Among other things it tells about the latest improvements in the world famous **Reliable Incubators and Brooders.** Sent for 10c to pay postage. **Reliable Inc. & Brdr. Co. Box B 51 Quincy, Ill.**



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OFFICES WEST TAYLOR ST., AND THE RIVER, CHICAGO.

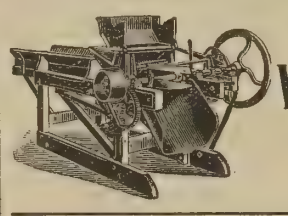
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Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.



20 INCHES from ground to bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.

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Sole Manufacturers,
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we invite you to get a catalogue of

Wilder's Ensilage Machinery

Machines with Self-Feed Tables, Swivel or Straight Carriers, Front-Cut or Cylinder Machines, Shredders or Splitters. OUR PLAN of SELLING will please you. Write to

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WANT A CUTTER? Let us send you description and picture of our **Swell Body Cutter, No. 411.** Built of selected stock, first class workmanship throughout, and finely upholstered in raw silk, for **ONLY $13.90.** Other styles at equally low prices.

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$4.98 BUYS A STOCK TANK HEATER and we pay freight east of Mississippi river when cash comes with order. The "KAZOO" is the most satisfactory. Made of **galvanized steel.** Built on new principle. Holds fire and keeps water warm 24 hours. Uses little fuel. Will go in a barrel. Absolutely fire proof.



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Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., JANUARY 19, 1900. NUMBER 49

University of Ill

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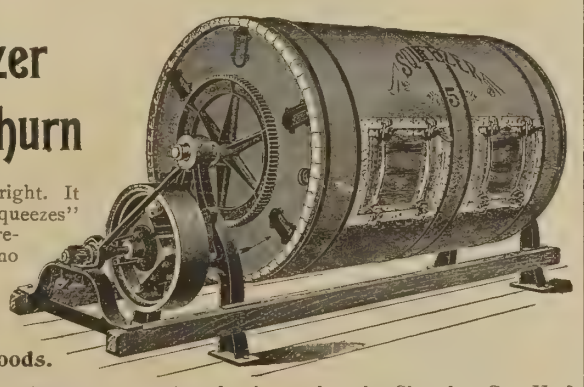
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If you want a machine for the clothes laundry don't buy a churn; and if you want a butter churn for the dairy, don't get a combined washer and wringer. At any rate, before buying a washer and wringer in the shape of a combined churn first experiment with your wife's wash tub and clothes wringer and see how your butter likes it.

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PROPRIETOR OF
Brookside Creamery.

BROOKSIDE, WIS., Dec. 16, 1899.

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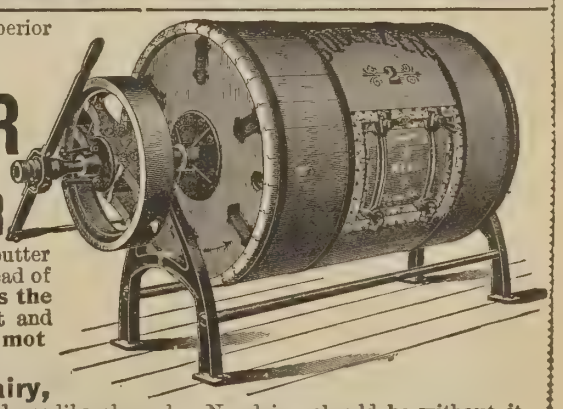
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Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
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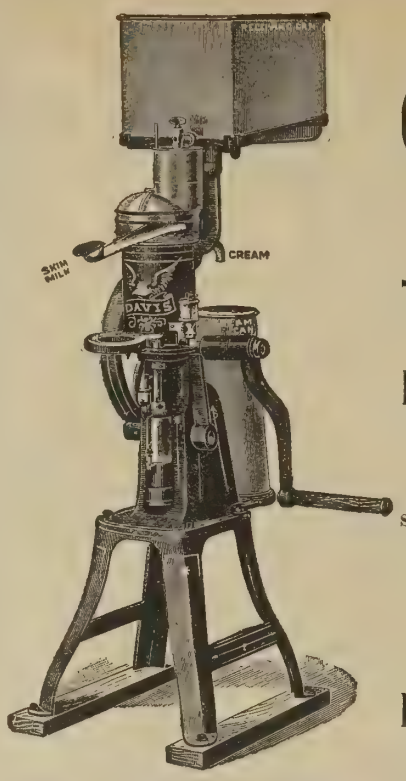
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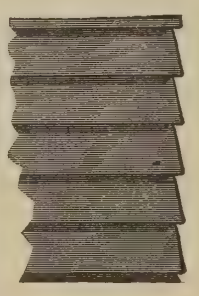
THE DAIRY "VICTOR" Churn.

This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

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No. 202—Farm Harness. Good as sells for $8 to $10 more than our price **Price, $21.50**

You have a right to expect that, because you are entitled to it. To meet this condition is our aim and has been so for all the 27 years we have been in this business. To do this we **sell all goods direct from our factory to the consumer at wholesale prices.** The advantages of this plan are many and obvious. This plan has built us up until we are now the **largest manufacturers in the world selling vehicles and harness to consumer exclusively.** We make 178 styles of vehicles and 65 styles of harness. The buyer takes no risk on our plan as we ship our goods anywhere for examination and guarantee safe arrival.

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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

It is always in order to take a whack at oleomargarine, the greatest food fraud of the nineteenth century. The business of legitimate dairying, a business which lies at the very foundation of a permanent agricultural prosperity for this country, is imperiled by this fraud to a greater extent than the dairymen of the country themselves realize. They should rise as one man and demand of the government such legislation as will absolutely prevent this fraud being sold under the name of butter.

The kidney fat of a fat steer, such fat as it is claimed is used for the production of better grades of oleomargarine, will weigh about 40 lbs. Assuming that the average cow will produce 160 lbs. of butter in a year, it will take four steers to offset one cow as a butter producer. Enough oleomargarine was made last year to offset the product of over 400,000 cows, so if this choice fat was used alone in its production, 1,600,000 steers were drawn upon, but there was not any such number of steers killed, and so it proves that oleo is not made of that sort of fat.—*Racine Journal* (Wis.)

DRY MATTER AND DIGESTIBLE NUTRIENTS.

It happens now and then that we receive an inquiry from readers saying that they do not see how, for example, 12 lbs. of clover hay can contain 10.16 lbs. dry matter, .82 lbs. digestible protein, 4.31 lbs. digestible carbohydrates and 0.20 lbs. ether extract, saying that according to these figures we get more pounds out of the hay than we started with. Not so; if they would read a little more carefully, and especially if they would consult the glossary which is printed at the head of that department, they would understand that the digestible nutrients were simply a part of the dry matter, and that the balance of the dry matter passes off undigested.

THE BULL AND HIS TREATMENT.

To every dairy farmer this is a subject of deep interest. The bull always presents a problem more or less difficult to solve. Some men seem to "catch on" and solve it readily and easily; others stumble along, and results show no improvement in their herds after years of experience. Some men are keen, close judges of a bull, others are not; some men know how to handle a bull so as to insure safety, health, vigor and unabated breeding power; others make a failure of all these things. It is impossible to make the foolish wise, or the weak strong, but it is the duty of the DAIRYMAN to select and present continually the best thought on all dairy subjects, it can find.

The United States Department of Agriculture has issued a Bulletin, No. 55, on the "Dairy Herd", in which we find the above subject treated excellently well, and from which we make the following extracts:

* * * *

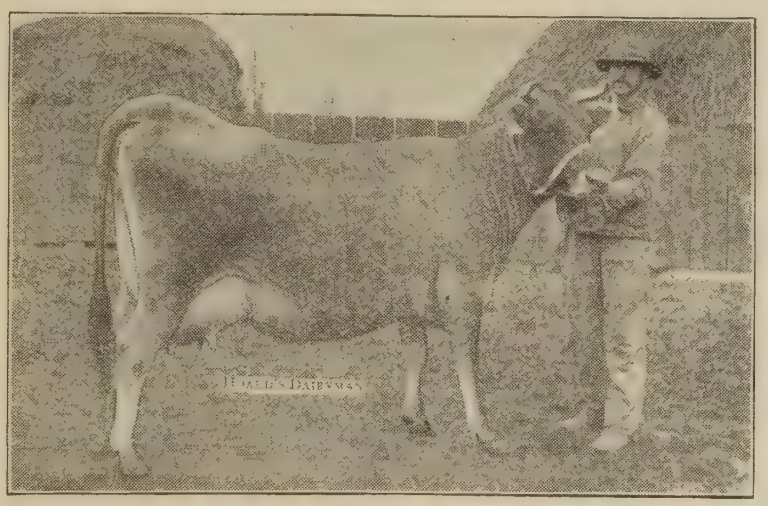
The bull is always the main dependence for raising the average quality of the herd, and should be chosen with this object in view. This is especially true if the cows are grades, and "grading up" is in progress.

The grade dam may be selected and largely relied upon to give size, form, constitution and capacity of production to her heifer calf; the inbred power, its dairy quality to increase the richness of milk, is derived from the pure-bred sire. One cow may prove a poor dam, or fail to breed, and still give a profit in milk. But if the bull fails or proves a poor sire, the entire increase of the year may be lost.

In getting a bull get the best; at least of breed. In all breeds (as among men) some bulls will be found of naturally bad-temper, but it is believed that the great majority of bulls of all dairy breeds can be safely kept until too old for service, and handled without serious trouble, if only properly reared and judiciously managed.

In rearing a bull accustom it to being handled from calfhood, but without fondling or encouraging frolic. Give it kind, quiet, firm and unvarying treatment, and keep it always under subjection, that it may never know its strength and power.

Insert the nose ring before it is a year old; keep this renewed so as to be always strong, and always lead and handle the animal with *a staff* in the hands of a discreet and trusty man. The bull should never run loose in a yard or pasture, but should be provided with abundant and regular exercise, always under restraint and full control. The "walk around" arrangement, like sweep horse power, affords a fair degree of voluntary exercise but it is hardly sufficient. The best plan seems to be to provide a suitable tread power with a governor attached; place the bull in this daily and let him walk a fixed time or distance. The main object should be regular and sufficient exercise for the bull.





IDA OF GLENDALE, A. J. C. C. 104083.

Property of F. H. SCRIBNER, Rosendale, Wis.

approach that standard as nearly as possible. Make a study of the animal's pedigree and the dairy history of his ancestors, and especially of the females among his nearest kin. *A common error among dairymen is to use immature bulls*, and to dispose of good ones before their merit as sires has been fairly proven.

Bull calves are cheap and young bulls are considered much easier to handle. But it is good advice to the buyer to purchase a bull of some age, whose progeny prove his value as a breeder, rather than a calf of exceptional pedigree; and to the owner having proved excellence to keep him and use him for years, or as long as he proves himself potent and pre-potent.

* * * *

The chief objection made to bulls of some age is that they are likely to be vicious and dangerous. Everyone recognizes the difference in temperament between the fleshy, beefy bull and the one of pronounced dairy character; but experience and observation have taught that the bulls of marked dairy type are much alike in disposition, regardless Incidentally, he may be made to run a fodder cutter or a cream separator, and perform valuable service.

As age and strength increase, let the staff be supplemented by a strap, chain or rope attached to a second ring. To this may well be added some hitching or leading chain with a strong strap around horns or neck. Let there be always a double hitching device, so that the bull may never by accident find himself loose when he should be tied.

If restiveness and temper are shown, add to the exercise in duration or quantity without violence; a bull physically tired may be depended upon to be quiet and easily managed.

It is much better to keep the bull as much as possible in the presence or in full sight of the herd than be stabled by himself in a lonely place. Let him be in the same room with the cows during the stabling and at milking times the rest of the year."

Cow Pea Hay.

ED. HOARD'S DAIRYMAN:—Ricardo Jimenez, San Jose de Costa Rica, writes: I intend to follow the instructions given by you in HOARD'S DAIRYMAN about cow pea hay. But to avoid blunders and relying on the well known benevolence of scientific men, let me put you these questions:

1. How long do you allow the peas to wilt in the sun?

2. Is there anything particular to be done for getting the process of wilting entirely accomplished?

3. Which is the average highness of the cocks?

4. How can I know that it is necessary to open the cocks?

The time allowed for the wilting of the peas depends on the season and on the weather. In the warm, clear weather of August and September, we allow them to wilt from 12 to 48 hours. Great care must be exercised in this particular and the peas must be watched very closely and as soon as they give any indications of becoming at all brittle, they must be put in cocks at once, as the leaves will otherwise be broken off and lost, and as they are richest in protein, this would be very unfortunate. In bad weather it is sometimes necessary to cock them up when they have had but slight opportunity to wilt. It is somewhat difficult to preserve them this way and they require to stand longer in the cock. A hay tedder run over the field once or twice, throwing the vines up to the sun would aid considerably in helping the wilting process to go on rapidly and uniformly. This machine costs little more than the ordinary hay rake and is almost indispensable on any farm where hay making is practiced, and is especially valuable where either peas or clovers are to be made into hay.

The average height of the cocks is from 6 to 8 feet. A very good method of handling the peas is this: Run the tedder over them, let them wilt as much as possible so they will not be brittle, rake with an ordinary hay rake into large windrows and allow them to stand there and wilt for a day or so, then run the hay rake down the windrows, bunching the peas into large heaps. The cocks may now be made midway between two of the large bunches made with the rake. This will give a good average sized cock. In some localities where an abundance of sedge grass or other coarse by-products are available, it is an advantage, especially in bad weather, to make a foundation for the cock of this trash. Then put on a layer of peas and then another of sedge grass, and so on until the cock is completed Put a good cap of the rough trash on to shed the water. Sedge grass is especially valuable for this purpose, as it sheds water with remarkable success. I would not resort to this method of curing except in bad weather, as it involves considerable labor, and is therefore more expensive, but there are times when it is the only means to the desired end.

You will know when it is necessary to open the cocks by examining them from time to time. When you find them very moist on the inside, there is danger, of course, of mold, and sometimes when they heat very much, of fire-fang. By opening down midway two or three times in the morning, the sun evaporates this moisture and aids materially in curing the hay.

ANDREW M. SOULE.

Tennessee Experiment Station.

What a Dairyman Thinks.

ED. HOARD'S DAIRYMAN:—I think it just to speak up and say what we think when we see an honest endeavor in any line.

Most people will speak when there is any fault finding to do, then keep quiet when they are satisfied.

I think the DAIRYMAN is the most practical and goes down the deepest in hard study of any paper I ever saw.

The formulas for feeding can hardly be estimated in dollars for the farmers. The only fault lies with themselves—they don't read enough. JOSHUA MINTHORN,

Iosco Co., Mich.

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Coming Events.

Cheese and Butter Association of Western Ontario, Jan. 16, 17, 18, 1900, at Stratford.
Pennsylvania State Board of Agriculture, Harrisburg, Jan. 24-25, 1900.
Tennessee Dairymen's Association, Sweetwater, Jan. 25, 1900.
Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13 14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb. 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.
Prince Edward Island. Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

THE program for the 28th annual meeting of the Wisconsin Dairymen's Convention, at Watertown, Feb. 13th to 16th, received too late for publication this week. Copies may be had by addressing the Secretary, G. W. Burchard, Fort Atkinson, Wis.

THOSE Herd Premiums offered by the Wisconsin Dairymen's Association should bring out a good competition. How much butter or cheese did your herd make last year? The Association offers $150 in premiums for the best herd. Write to the Secretary for full particulars.

WHAT IT COSTS.

"What will I get?" is asked a thousand times by dairymen where they once ask, "what does it cost?"

And curiously enough too, the price they are to get is nearly always beyond their control while the cost end of the string is always in their own hands. To reduce the cost of producing milk is always a most profitable study.

Commissioner Norton, of Iowa, in his annual report shows clearly that the cost of making butter in a creamery is largely governed by the amount of milk the creamery receives each day.

So it is with the cost of producing that milk on the farm. The cost of the butter per cow is conditional upon the amount she will produce in a year. Do the farmers think of this who prefer to keep poor general-purpose, —we might say no-purpose—cows rather than make a sensible effort to breed a class of cows that will add greatly to their yearly product. It is not all of farming to simply work hard.

A GOOD PHRASE.

The Knoxville *Tribune* talks to the farmers of Tennessee in a very plain and sensible manner about the necessity of their doing something in the way of dairy farming at once. The writer, who is evidently a good reasoner on this question, speaks about the necessity of each farmer having sound ideas on dairy management. These ideas, he calls "mental furnishing." It is a good phrase to use, and applies to the case of every man who keeps cows whether he lives in Tennessee or not.

What a host of men there are in the business whose minds are badly "furnished." And what is a curious fact, is that they are perfectly contented to live so. An Irish friend of ours was once describing his mental condition to us about as follows: "Indade, there was for years when, begorra, I did but little good thinking on the dairy business. Troth, I belave my cows had it on their minds more than I did. It is mighty bad for a cow,sor, when she has to make the milk and do all the thinking besides. I'm helping them a little now. Kape up your firing at us."

Packing Small Quantities of Ice.

ED. HOARD'S DAIRYMAN:—In one of the December numbers of the DAIRYMAN, some one inquires about how to keep ice on a small scale. As I have kept ice for my own use with perfect success, in an ice house 12 feet square, I will tell how I did it, for what it is worth.

I built a stone foundation, 1 foot thick and about 8 inches above the ground—covered the top of this with a thick layer of soft mortar—then bedded 4 pieces of 10 inch wide plank, in the mortar, to be used as sills and a foundation on which to build the superstructure. Then I used 2×10 plank for studding, boarding them up tightly on both inside and outside and packed the spaces between the studding full of dry sawdust and covered the top with a water tight roof.

No floor is needed except the ground. Cover this with 18 inches of sawdust before beginning to pack ice—the ice being very heavy will greatly compress the sawdust. Have your ice cut in cakes of even size and pack them together as tightly as possible, standing the cakes on edge. If when the first layer is in, there are any uneven places on the top of it, hew them off with an adze or ax.

If there is snow on the ground spread a layer of it two or three inches thick on top of the first layer of ice, it will greatly assist in making the next layer "stand up" and moreover will almost completely retard the circulation of air between the ice cakes, also cowd snow, if you have it, into all the spaces around the outside of the ice next to the wall. Add in the same manner as many successive layers as you desire and then cover the top of the ice with a foot or fifteen inches of dry sawdust and the ice will keep until ice comes again.

Ice can be readily kept in almost any building by standing the cakes a foot from the wall and then pounding the space between the ice and the wall, full of dry sawdust.

There must be no floor in the ice house except it be flat upon the ground as all circulation of air must be stopped or the ice will surely melt.

Where one expects to pack ice year after year it pays to build an ice house and the object of building one with a foundation and plank bedded in mortar as is mine, is to prevent rats from getting into the sawdust between the studding If they once get in there they will cause great hollow places in your sawdust wall with resulting loss of ice.

There was still ice in my ice house January 1st, 1900. B. A. C.
Toledo, Ohio.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

	DIGESTIBLE NUTRIENTS		
Dry matter.	*Protein.*	*Carbohydrates.*	*Ether extract*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

FOR AN ILLINOIS STATE INSTITUTION.

Please formulate a ration from the following feeds, for Holstein cows, (I want to use all the corn and cob meal that I can): Clover hay, sheaf oats, corn and cob meal, bran and oil meal. C. H. H.
Jacksonville, Ill.

If these cows are fresh in milk, or nearly so, and are adequate representatives of their breed, we do not think the following allowance will be any too much:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover	8.47	.68	3.58	.17
10 lbs. sheaf oats	7.15	.40	3.60	.17
6 lbs. corn and cob meal	8.34	.38	3.78	.21
3 lbs. bran	2.64	.38	1.16	.09
2 lbs. oil meal	1.82	.59	.65	.14
Totals	25.42	2.43	12.77	.78

FOR A PENNSYLVANIA MILKMAN.

I have corn fodder, oat hay, and corn and cob meal; must buy bran at $19; linseed meal, $26; cotton seed meal $26; I am, therefore, anxious to use as much as possible of the feeds I have on the place. R. C.
Norristown, Pa.

R. C's. cows weigh about 1,000 lbs. each. If they have not been too long in milk we think it would pay him to feed, on an average, about as follows:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn fodder	7.10	.37	4.04	.12
10 lbs. oat hay	9.11	.43	4.64	.15
6 lbs. corn and cob meal	5.34	.38	3.78	.21
2 lbs. cotton seed meal	1.83	.74	.34	.17
2 lbs. oil meal	1.81	.59	.65	.14
Totals	25.19	2.51	13.45	.79

PARTITION IN ROUND SILO.

What is the objection, if there is any, to putting a partition in a round silo? Would not it be better than building two small ones? R. L. H.
Berk Co, Mass.

If the silo is already built, it is better to put a partition in than to tear down and build two new smaller silos, but where the silo is to be built, two small silos are better.

If a partition is put in, care must be taken to fill up the sharp angles that are formed; otherwise the silage is liable to spoil.

SILO IN BARN BAY.

Would there be any objection to placing silo in barn bay where dimensions (on account of barn frame) would have to be 10 feet by 18 feet and 25 feet high? J. W.
Elizabeth, N. J.

The above are not perhaps the most economical dimensions for a silo, there being a large proportion of wall to the silage enclosed, but there is no reason why it should not be successful if care is taken in packing the silage well along the walls, when filling.

CAUSES OF ABORTION.

An Ohio subscriber asks what is the cause of this disease, and how to treat it. The answer is that many causes produce this trouble, and that treatment which might be satisfactory under one set of circumstances would be wholly useless under some other set of circumstances. So far as the advertised remedies in the DAIRYMAN are concerned, we have to say that we have received personal letters from our readers who have tried them, some reporting that they worked like a charm in preventing abortions in their herds, and others reporting that they cannot see that they derived any benefit from their use. This is much the case with all kinds of medicines for all kinds of diseases, whether for man or for animals, and proves that causes of various diseases are so hidden that doctors themselves are at loss what to do. We are all too ready to jump at conclusions. If we try a certain medicine once and it seems to produce the desired effect we conclude that it must be an infallible remedy in all cases. On the other hand, if we try a prescribed remedy for a certain disease, and it fails to cure, we just as readily conclude that it is worthless; and so it goes with all things, different men holding different opinions upon the same subjects.

Among what may be termed domestic remedies for this disease we incline to favor liberal doses of asafœtida. This may be given in tablespoonful doses every day, or even double this amount, if the danger seems to be imminent. As a rule, an approaching abortion indicates itself some two or three days in advance, and there is plenty of testimony to the effect that the remedy above mentioned wards off the difficulty. We are also inclined to place a good deal of confidence in the carbolic acid treatment, details of which are given in another column of this issue.

OATS OR BRAN IN WYOMING.

H. R. Heath, Big Horn, Wyoming, thinks he is in the greatest natural dairy country in the United States, and certainly he sets forth a great many advantages for his section of the country. They have the pioneer creamery plant of the state, doing fairly well, making a fine grade of butter. The farmers there are passing through the same experience that farmers everywhere meet, when they take up dairying in connection with general farming. The money received from cows seems almost like money found.

Alfalfa hay is worth only $3.00 per ton; oats, $16 per ton; wheat the same, and bran, $12. There is no corn in that country, and to ship it in adds so much to its cost, that it becomes prohibitory.

The bran is somewhat cheaper than the oats, but we incline to the opinion that when the quality of the resulting butter product is taken into consideration, in connection with some other advantages produced by oats, we should feed pretty largely of oats as a supplement to the alfalfa hay. Alfalfa has a tendency to produce a soft butter; bran has a somewhat similar tendency, whereas oats tend to produce a firmer butter. The amount to be fed will, of course, vary with varying circum-

stances, but as a rule we should feed from 6 to 8 lbs. of oats (or bran) to each cow daily. To the largest producer, even this amount may be considerably increased, and conversely to the small producer, it should be materially decreased.

FOR GEORGIA JERSEYS.

T. C. C. Jr., Carterville, Ga., has a herd of Jersey cows, makes butter and sells it at 24 cents per pound. He has cow pea vine silage, and shredded corn stalks for roughage, and wants to know what is the best combination of grain to go with them to make a balanced ration. Wheat bran is worth $17 per ton, corn, 40 cents per bushel; and the latter he can grind on the premises, making corn and cob meal. Nothing is said by this inquirer about cotton seed meal, but we would not hesitate to advise its use in moderate amounts, whether in the south where it is produced, or elsewhere. We are of the opinion that these cows might be fed daily on an average, about 40 lbs. of cow pea vine silage, 10 lbs. of stover, 4 lbs. of bran, 4 lbs. of corn and cob meal, and 2 lbs. of cotton seed meal. This would bring the digestible protein up to 2.27 which is not far from the accepted standards.

AN IOWA RATION.

Please formulate a ration for fresh milk cows from corn fodder, timothy hay and oat straw; corn at 25 cents per bushel; oats, 20 cents; bran, $10 per ton and oil meal, $25 per ton.

I have been a subscriber to your valuable paper for two years, but have never seen a ration formula to suit me. A SUBSCRIBER.

Dows, Ia.

It is quite probable that a formula devised especially for our friend, may fail to suit him; in fact, it fails to suit us, but the best that we can do under the circumstances, is to say, first of all, sell the oats and buy bran. Oats at best are not worth to exceed 10% more than bran. When the exchange is made, adopt something substantially as follows for a formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
8 lbs. timothy hay	6.94	.22	3.48	.11
10 lbs. stover	5.95	.17	3.24	.07
5 lbs. straw	4.54	.06	1.93	.04
6 lbs bran				
4 lbs corn and cob meal	5.29	.75	2.32	.18
2 lbs. oil meal	3.56	.26	2.52	.14
	1.82	.59	.65	.14
Totals	28.10	2.05	14.14	.68

This certainly is little enough protein. If gluten feed can be had, we should prefer spending the money the oil meal would cost, for that.

IT CANNOT BE DONE.

A subscriber at Iron River, Wis. wants a formula for a balanced ration from timothy hay at $12 per ton, bran at $16 per ton, shorts at $18, and corn and oats mixed at $20 per ton. He says he wants "milk and lots of it." We advise him to get some oil meal and gluten feed, and then if he has good cows he will have "milk and lots of it."

With cows nearly fresh, we should feed about 4 lbs. of bran, 4 lbs. of gluten feed and 1 to 2 lbs. of oil meal and all the timothy hay each cow will eat up without wasting any.

A QUEBEC RATION.

What we have said above in reply to an inquiry from Wisconsin applies with equal force to an inquiry by W. M. N. of Barnston, Quebec.

AN OREGON RATION.

Please be so kind, and make up a ration for milch cows, grade Jerseys, weighing from 900 pounds to 1,100 pounds. Alsike clover hay, whole wheat chop, wheat bran, oil meal. AUGUST KOENIG.

Albany, Oregon.

We are glad to see that one man, at least, in Oregon, has got into the way of raising alsike clover. This kind of clover is especially adapted to localities where the subsoil is more or less wet, differing in this respect from the common red clover and alfalfa. We would, therefore, recommend a formula substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
18 lbs. alsike clover hay	16.25	1.51	7.65	.27
4 lbs. wheat chop	3.58	.41	2.77	.07
4 lbs. bran	3.52	.51	1.54	.12
Totals	23.35	2.42	11.96	.46

A MARYLAND RATION.

Please give me a balanced ration from the following feeds: Prime hay, clover and timothy mixed, at $10 per ton; corn and cob meal at $13 per ton, flakey wheat bran at $17 per ton, cotton seed meal at $28 per ton, corn stover at $4 per ton. C. S. C.

Mt. Airy, Md.

Subject to reservations so often mentioned in answers given to inquiries in regard to period of lactation, dairy temperament, etc., we recommend a trial of the following as the average daily allowance for a herd of milking cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay	8.53	.48	3.96	.16
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs corn and cob meal	4.45	.32	3.15	.18
4 lbs. bran	3.52	.50	1.54	.12
2 lbs. cotton seed meal	1.94	.74	.35	.15
Totals	24.29	2.21	12.24	.68

A VERMONT RATION.

S. D. H., Waitsfield, Vt., asks for a formula for a ration for a herd of Jersey and Guernsey cows, medium size, ranging in age from two years up. He has heavily eared silage, wheat bran, cotton seed meal and number one clover and timothy hay. Bran costs $18 per ton, cotton seed meal $24 and his hay is worth $10 per ton. He says he does not know as he has any reason to feel dissatisfied with the returns, but he wants to know whether he is feeding to the best advantage. He mixes the bran and cotton seed meal, equal parts by weight, and then feeds 4 quarts of this mixture in two feeds per day.

That is the way he puts it, but we incline to the opinion that in fact, he feeds 4 quarts in the morning and the same amount at night, making 8 quarts per day; otherwise we do not see how his cows would receive sufficient protein, although we have to acknowledge that it is impossible to estimate what a quart of the mixture will weigh.

We should not want to feed these cows more than 2 lbs. of cotton seed meal per day, and if he is feeding more than that we are of the opinion that it would be better to drop off a little on the cotton seed meal and add more bran and we should suggest for a ration as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. mixed hay	8.53	.48	3.96	.16
5 lbs. bran	4.41	.63	1.93	.15
2 lbs cotton seed meal	1.84	.74	.33	.17
Totals	21.38	2.18	9 72	.66

It is quite possible that the above formula may not give any better results than he is now receiving, but we think it would be better for the cows on the whole, even though it may prove to be more expensive. At all events we consider it worth trying.

SILAGE FROM STOVER.

The same inquirer says he has a quantity of dry stover well cured, which he proposes to put into his silo when it is empty and wants to know what kind of fodder it will make. If this stover is thoroughly dried it probably can be stored in the silo and kept in that condition, but if it is a little bit damp as is apt to be the case, it would be very likely to mold and spoil. Although we have never tried the experiment personally, a good many of our readers have and have had excellent success in cutting the dry stover into a silo, wetting it pretty thoroughly as it went in and then treating it in every respect as they would corn cut direct from the field. We incline to the opinion that the chances for damage would be somewhat less in pursuing the latter course than in storing a great body of the stover in the silo, dry.

FOR A WISCONSIN MILKMAN.

Have been reading your paper with a great deal of interest and trying to figure out a ration, but cannot seem to quite satisfy myself. Wish you would formulate one from the following feeds: Ensilage, (built silo last fall from plans found in your paper) bran, $14 per ton; corn meal, $14; oil meal, $30; oats (ground), $16; mixed hay, $7 per ton. Cows have access to good straw stack and a little stover fed in yard when it is not too cold to stay out.

Am selling milk in town for 5 cents per quart, and want good flow at best profit possible. Cows about 1000 pounds. Mostly grade Jerseys, part fresh, with more to freshen during winter. F. H. G.

Ripon, Wis.

For a minimum allowance try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.53	.48	3.96	.16
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	82	1.94	.14
Totals	23.66	2.19	11.64	.63

If the cows are large producers, increase the grain by adding 1 lb. each of the bran and gluten feed.

WHY NOT MORE CORN MEAL AND MIDDLINGS.

A. M. W., Vermont, has grade Jersey cows fresh in milk last fall. Can buy wheat bran at $19; cotton seed meal at $25; gluten feed, $24; wheat middlings at $21, and corn meal at $19. He has mixed clover and timothy hay, Hungarian hay, fine quality of oats and barley straw, the oat part containing some peas. He concludes his inquiries with the following words: "Now you hardly ever say anything about feeding corn meal or middlings. Are they not good for a milch cow or for milk?"

Answering the last inquiry first we have to say, so far as corn meal is concerned we consider the bolted meal inferior to the ground corn; and in regard to middlings, we beg to refer this inquirer to what was said in response to C. H. W., Evergreen, New York. Further than this it might be said that in the middle west and east the great problem in feeding milch cows is to provide them with sufficient protein, and it becomes impracticable to feed very much corn meal. In the semi-arid regions of the central West where alfalfa hay is plenty, we always recommend the use of corn when it can be had, because the alfalfa furnishes an abundance of protein and the corn makes up the deficiency in carbohydrates and fat better than almost any other feed that can be selected. We therefore submit for our Vermont friend's consideration and trial, if he is so disposed, the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. mixed hay	8.53	.48	3.96	.16
10 lbs. straw	9.00	.12	3.86	.08
6 lbs bran	5.29	.75	2.32	.18
2 lbs. cotton seed meal	1.84	.74	.33	.17
Totals	24.66	2 09	10.47	59

TO FATTEN A MILKMAN'S COWS.

C. H. W., Evergreen, New York, is milking twenty-four cows which he describes as of the common variety, and is selling milk to bakers and grocery stores. He has been in this business for eight years, buys his cows, milks them as long as they are profitable, wants them to be fat and then offers them to the butcher. The style of feeding heretofore has been about 40 lbs. of fresh brewers grains with 8 lbs. of a mixture composed of four parts of wheat middlings, three parts corn meal, and two parts cotton seed meal, and in addition to this he feeds about 12 lbs of clover hay per day. We estimate that he is feeding now about 27 lbs. of dry matter, in which there are 3.8 lbs. digestible protein, 12 lbs. digestible carbohydrates and something over 1 lb. digestible fat.

This seems to us more protein than these cows can profitably use, and, if anything, less carbohydrates than is desirable under the circumstances. Depending somewhat on their relative prices, we should be disposed to drop out the cotton seed meal altogether as this is high in protein and very low in carbohydrates and then feed either corn chop, that is ground corn as distinguished from corn meal, or a mixture of corn chop and wheat middlings. If the feed called middlings is genuine middlings it is a first-class feed, but so much of that which is now called middlings is simply ground over bran with a great variety of weed seeds and all the dirt and sweepings of the mill, that we hesitate to recommend their use.

BRAN AND CORN FOR HORSES.

E. S. D., Grass Lake, Mich., asks whether he can afford to feed a mixture of bran and corn meal to his horses when bran is worth 80 cents per hundred, and corn meal 72 cents per hundred. This will depend altogether upon the cost of oats. If the mixture costs less per hundred than oats, we should deem it expedient to make a trial of it, otherwise use the oats.

Personally, we are not so much averse to feeding corn to horses as most farmers are.

PEAS AND OATS FOR SOILING.

L. L. M. wants to sow six acres of rich land to supply as large an amout of protein feed as possible for his cows, part of it to be used for soiling and part for winter feeding.

We know of nothing better to recommend to him than peas and oats, using the so-called Canada field pea and one and one-half bushels of peas and same of oats per acre. For method of sowing see the answer to D. M., Zanesville, Ohio. Fit the land as early in the spring as possible, making the surface fine and mellow. Sow the peas, plow them under and afterwards sow the oats as stated in the reply to D. M. It might be well to make a trial in a small way of the Southern cow pea.

PEAS AND OATS FOR HAY.

D. M., Zanesville, Ohio, writes:

The fly has about destroyed my wheat. I think I will drill in oats and mow it for hay. Would you advise drilling in Canada peas with oats?

What kind of a scheme would it be to drop Southern cow peas in the ensilage corn? Would that help the silage?

As a rule it is not considered expedient to sow peas at the same time with oats; first, because the peas should be covered with about four inches of soil, whereas the oats need but very scanty covering. The better plan is, where it can be done, to sow the peas and plow them under, covering them about four inches deep, and then in a week or ten days, or when the peas are fairly well sprouted, to sow on oats broadcast and harrow them in.

We are quite decidedly of the opinion that there will be found some combination of peas or beans that can be planted with corn, that will materially improve the product for silage purposes, and it is probable that the so-called cow pea will be found to be well adapted for this purpose in climates where they will grow fairly well. In Canada they have used the so-called horse bean for this purpose, in an experimental way, and a few farmers have tried them for their entire crop, and with great satisfaction.

INDIANA QUERIES.

L. A. W., of Salem, Indiana, says that he has been reading the DAIRYMAN for six months, and that the more he reads, he finds the less he knows. If we did not read between the lines of this letter it might be construed as being somewhat discouraging. Of course he does not know any less now than

he did before he commenced to read the DAIRYMAN, but he has learned that there are a good many more things to learn about dairying than he once thought for. And this is really a helpful and encouraging state of mind. The man, who is wise in his own conceit, who thinks he knows so much that there is nothing more for him to learn, who has in fact gone to seed, is in a pitiful condition. There is no more growth for him, no more progress for him, and the probabilities are that his previous growth was both stunted and deformed.

L. A. W. writes that the supply of cotton-seed meal in his market, having given out, his cows (eight in number) fell from 185 lbs. per day to 137 pounds per day, in the short space of four days. He inquires, what is the quickest way to get them back? Corn is worth 35 cents per bushel; bran, $16 per ton; gluten feed, $17 per ton; and cotton seed meal, $24 per ton.

We should suppose, under the circumstances, that the best way to bring these cows back to their normal flow, would be to furnish them the cotton seed meal that they were accustomed to. If it is impracticable to do this, we would give 2 lbs. of gluten feed for each pound of cotton seed meal that the cows have been deprived of. This amount of gluten feed will furnish about 0.4 of a pound of digestible protein, whereas 1 lb. of cotton seed meal furnishes about .37 of a pound.

He asks us, moreover, which is the best shredder and cutter and power to run the same, and wants to know if there is a corn grinder for crushing corn, cob and shuck. These are questions that one man cannot answer for another. No man has had experience with all these different machines, and if he had, each possesses some merits peculiar to itself, that one man, perhaps would estimate very high and his neighbor would care little about. One should send to the manufacturers and dealers in these machines for catalogues and circulars and prices. The peculiarities of each machine are well set forth in this printed matter, and a man must judge for himself which combination will be best adapted for his own use and likely to give him the best satisfaction. For some years we used a two horse power on our farm for cutting silage, and it is still in use for cutting the corn stover and straw and hay, as it may be needed through the winter, but for filling the silo in recent years the boys seemed to have preferred to hire an engine that is owned in the neighborhood, and is used primarily for running a threshing machine.

Our advertising columns usually will give all the information necessary to enable a man to write to the parties, who are engaged in manufacturing all kinds of farm machinery and implements. We publish these advertisements primarily of course for the money which the advertisers pay us for so doing, but at the same time we think we are doing the general reader very considerable good, by placing before him information which will enable him to write to manufacturers for full particulars, and thus relieve himself from the probability of having to pay excessive profits to middle men.

A MICHIGAN PROBLEM.

Will you kindly give us a feeding ration for grade Durhams, some Holsteins and Jerseys; age ranging from two and one-half to ten years old; are making butter for private custom.

Our feed consists of finely cut corn stalks, good oat straw and wheat straw with timothy hay mixed, about one-fourth; have plenty corn and oats; have wind mill grinder. Corn and oats, $18 per ton; bran, $14 per ton; cotton seed meal, $24 per ton; old process oil meal, $1.74 per hundred. Will it pay to buy some other good milk producing feed? If so, state what it might be. W. H. B.

Ann Arbor, Michigan.

We do not consider corn and oats at $18 per ton as cheap as bran at $14, when there is first quality of roughage for the cows; but situated as this inquirer is, we suggest to him that he try feeding as an average daily allowance for his herd, 6 lbs. of bran, 3 lbs. of corn and oats, 1 lb. of cotton seed meal and 1 lb. of oil meal, with all the stover, straw and timothy hay they will eat. If some of the cows have extra dairy ability we would increase the allowance of grain by adding at least 50% to the cotton seed meal, and the same to the oil meal.

HUNGARIAN STRAW.

J D. N., of Oxford county, Ontario, inquires as to the value of Hungarian straw that has been threshed for seed, the specific inquiry being: "Will it compare favorably or otherwise with wheat straw, at the same price?" We are as much at sea on this question as our correspondent, as we can find no analysis of such material or digestion experiments with it. Unless other fodder is very scarce and dear, we should hardly think it worth $5.25 per ton, but experience might prove to the contrary, and we have no other light on the subject than such as would come from experience. If our friend tries feeding this style of straw, we would be very much obliged if he would give our readers the benefit of his experience.

SILAGE FOR BULLS.

J. C., of Lynchburg, Virginia, asks if there is a good reason for not feeding a bull on silage.

The answer is, that it is the most difficult thing in the world to "give good reasons." There is a proverb among lawyers to the effect, that many a wise judgment has been pronounced by courts, for which very unsound reasons were given. It ought to suffice in the present case to say, that experience has demonstrated that feeding silage to bulls is a very dangerous practice. Whether this results from special peculiarities in silage, or whether it is that such a feed is too carbonaceous, and contains too little protein, or just what the reason may be cannot be satisfactorily stated. What we do seem to know is, that feeds containing a good percentage of protein seem to be better in such case than those which are largely carbonaceous. This would indicate that if any grain is to be fed, it should be bran and oats and not corn, and that for roughage, clover hay would be better than corn stover or timothy hay.

AN IDAHO DAIRY.—BALANCED RATIONS.

C. H. W., of Rexburg, Idaho, writes that he has ninety head of milch cows recently purchased, with one-half of them now giving milk and many others soon to be fresh. For this herd he requests us to give him a formula for a balanced ration where the following feeds can be had, namely: Alfalfa hay ($3 50), alfalfa and timothy hay mixed one-fourth timothy ($4.00), wheat bran ($9.00), frozen wheat chop ($9.00), chopped barley ($12.00), oats ($17.50).

It is simply impossible to arrange a formula from these feeds that shall come within the definition of a balanced ration, that is, have a ratio of one part of protein to from four to seven parts of carbohydrates. This circumstance makes it opportune for us to say that we consider the mere item of nutritive ratio as having but little significance.

So long as the cows receive sufficient protein in their daily allowance to supply the demands of exercise, growth and replacing worn out and cast off matter and in addition to this furnish the material for the casein in the milk, it is our opinion largely immaterial what the specific ratio of this amount is to the carbohydrates and fat. Experience seems to have demonstrated that under ordinary circumstances about 2¼ lbs. of digestible protein will supply these requirements. If more than this is furnished, the excess is either applied to the same purpose for which the carbohydrates are specifically intended, or else it passes off as waste. There is no combination of the above named feed stuffs that will satisfy the appetite of the cow and not contain very much more digestible protein than is absolutely necessary.

We have no specific information as to the analysis of this frozen wheat. All we know about it is that it is fed to stock in Idaho, Montana and the Canadian Provinces, and is accounted a good feed. It is of course much less bulky than bran and therefore a cow can eat more of it. We would suggest for our friend's consideration and trial with the cows now in milk substantially as follows: 20 lbs. (more or less as the appetite of each cow may require) of alfalfa hay, 4 lbs. bran and 4 lbs. of the frozen wheat.

PLANS FOR CREAMERIES AND CHEESE FACTORIES.

The same inquirer asks us to refer him to a work on plans for creameries and cheese factories, together with equipments for the same.

All manufacturers of dairy machinery give in their catalogues valuable plans for creameries and cheese factories and a list of equipments for the same with varying numbers of cows. A request to them for a copy of their catalogues will be very certain to meet with a prompt response. In addition to this we would recommend our friend to purchase a copy of Gurler's American Dairying and also a copy of Decker's Cheddar Cheese Making. Both of these books can be had from this office, at $1.00 each.

A WISCONSIN FEEDING QUESTION.

F. F. F., Madison, Wis., has timothy hay, millet and shredded corn stover and in connection with this is feeding corn and cob meal to his cows. He says he would like a balanced ration but does not want to buy any more grain than necessary. He does not state in what stage of lactation his cows are, nor give any other clue that would enable us to suggest a specific formula. If we were feeding these cows and they were not too far advanced in lactation we should add gluten feed to the corn and cob meal making the mixture equal parts by weight of each, and would then feed all of this that the cows could pay for, commencing perhaps with 8 lbs. a day and increasing by 1 lb. or 2 lbs. every fifth day it the cows show a disposition to give enough more milk to pay for the extra cost. Add a little salt, about one teaspoonful, with each feed, and see to it that the cows have access to water twice a day and opportunity to drink without fear of molestation, one from another.

CREAM AND BUTTER QUESTIONS.

How much will one gallon of cream, which tests 30% of butter fat, weigh? What variations in weight would there be if the cream contained a greater or lesser amount of butter fat? What is the standard weight for milk? How many cubic inches are contained in one gallon of cream, and how many are there in milk? What per cent cream would it take to make two pounds of good marketable butter per gallon? What per cent cream would it take to make four pounds butter per gallon? W. F. G.

Pittsburg, Pa.

A gallon of 30% cream will weigh 8.34 pounds. The richer the cream the less a gallon will weigh: Thus 40% cream weighs 8.22 pounds; 20% cream, 8.46 pounds per gallon. The average weight of milk is 8.6 pounds per gallon.

They both contain the same number of cubic inches, viz., 231.

A gallon of 22% cream would make close to two pounds of butter; four pounds of butter per gallon would require 42.8% cream.

FOR A COUNTY ASYLUM HERD.

I am not a farmer, simply an agriculturalist. As superintendent I feel impelled, as a duty, to know that my farm and stock are properly, economically and intelligently handled. HOARD'S DAIRYMAN is and has been my guide. However, annually, I like to take my bearings and adjust my compass that I may guide and guard with confidence.

My herd is half registered and half grade Jersey—thirty in number. Kindly give me ration from following: Corn stover(*ad libitum*), good clover hay, roots (sugar beets, mangles, carrots, of which we have a large stock sufficient to last until spring—have used them since fall, 20 lbs. a day), bran, $13.50 per ton; linseed meal, $29.00 per ton; "Joliet" gluten (Chapin), $18.00 per ton; Have used gluten largely and am satisfied of its value. "AGRICULTURIST."

Wisconsin.

The above list of feeds affords as good an opportunity for choice as one could desire. We select from them as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay.....	8.47	.68	3.58	.17
10 lbs stover.....	5.95	.17	3.24	.07
20 lbs roots.....	2.28	.20	1.60	.02
5 lbs. bran.....	4.41	.63	1.93	.15
4 lbs. gluten feed	3.69	.82	1.94	.14
Totals.....	24.80	2.50	12.29	.53

As will be seen we use everything except linseed meal. We consider this unncessary where roots or silage are used and this more especially when it commands so high a price.

"You Never Miss the Water Till the Well Runs Dry."

So it is with health; we never realize its value until it is gone. When old time strength and vigor are wanting it is the best to look at once to the blood. Purify it by taking Hood's Sarsaparilla, and restored appetite, perfect digestion, steady nerves and even temper will prove that it is bringing back the glow of perfect health.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Strong Bones

In speaking about Scott's Emulsion for children, you should not forget that it contains ***lime*** and ***soda,*** just what the child must have to form strong bones and good teeth. It's this forming time you want to look after.

Growing bodies must have an easily digested fat. Just think how much of it there is in milk, as cream.

Scott's Emulsion

is even more easily digested than cream. It's surprising how children thrive when given it.

Don't keep the children living on the edge of sickness all the time. Make them strong and rugged, plump and hearty. Scott's Emulsion of Cod-liver Oil and the Hypophosphites of Lime and Soda will do this for them.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

TO FEED ALL THAT WILL BE PROFITABLE.

Kindly give me the best formula for butter products from new milch cows, out of the following: Can feed from 30 to 40 lbs. ensilage daily, 5 to 6 lbs. timothy hay and oat straw; wheat bran, $17.00; wheat middlings, $19.00; buckwheat middlings, $15.00, when I can get them; Buffalo gluten, $17.00 to $19.00. Can get oil meal, if an improvement, at about $25.00 per ton. I want to feed all that will be profitable. J. McM.

Dresserville, N. Y.

We like the language of the concluding sentence in the above communication. Probably all of us feel that way, but too many of us have not the courage to feed that way. If his cows have the proper dairy temperament, we see no reason why they may not make use of the full amount of the feed specified below:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
5 lbs. timothy hay	4.34	.14	2.17	.07
5 lbs oat straw	4.54	.06	1.93	.04
4 lbs. bran	3.52	.50	1.54	.12
6 lbs. buckwheat middlings	5.24	1.32	2.00	.32
Totals	25.56	2.41	11.84	.76

When it is impossible to get the buckwheat middlings, the gluten feed may be substituted in its place. We do not consider it important to use oil meal in connection with silage, and this more especially when oil meal commands the exorbitant prices which have been ruling in recent years.

SILO QUESTIONS.

I intend during the coming summer to build a stave silo 24 feet in diameter, 24 or 28 feet high.

What would be the capacity of a silo of this size?

Would a silo of this size be large enough for a herd of 60 head of cattle?

I intend to have four posts 6×6 equal distance apart, in sides, and through these would run ⅝inch iron rods as hoops. How far apart should these hoops be?

How should foundation be built?

Crookston, Minnesota. SUBSCRIBER.

A silo 24×24 feet will hold 195 tons; 24×28 feet will hold 243 tons. To winter 60 head of cattle will take 216 tons of silage. This will require a silo 24×26 feet. With a silo of this size there is always danger that it will not be fed fast enough to keep the surface in good condition, the surface of an open silo being liable to mould rapidly. For this reason it is better to build two small silos, or if the large one is already built to put a partition in it, fill up the corners, and thus, virtually, have two silos. Two single silos, to hold 216 tons of silage, should be 18×24 feet.

The bottom hoop should be about six inches from the base of the silo; the second hoop 2 feet from the first; the third 2½ feet from the second; the distance between hoops being increased until they are 3½ feet apart. This distance must be kept till near the top of the silo, when they may be 4 feet.

It is not absolutely necessary to have a special foundation, although of course the silo will last longer if a stone or cement foundation is used to support the staves. If a foundation is not used, put a few inches of well tamped clay or loam in the bottom of the silo to exclude the air.

For a foundation, build a circular stone and cement or grout wall, to set the silo on. Make the connection, between staves and foundation, tight with cement.

BONE MEAL FOR ABORTION.

In the DAIRYMAN of February 24, 1899, on page 28, Mr. F. C. Baker stated that bone meal was good for abortion. But he does not state how much to give a cow, and how often. Would you please let me know through the DAIRYMAN how to use the bone meal?

A tablespoonful of bone meal, three to five times a week, has been recommended for the above purpose. Mix it with salt and sprinkle on the feed.

POOR CHURNING—WARBLES.

What is the most practicable way of getting rid of grubs in the backs of cows?

Is there any reason why cream cannot be churned into butter at 60° F. in 45 minutes in the South? Such is the case with my butter. It will not gather at 60° in the time prescribed by the writers of the North, but at that temperature will foam and scarcely gather at all. F. L.

Commanche, Texas.

Squeeze them out with thumb and finger, and then put a few drops of tincture of myrrh and aloes into the hole.

You are probably churning at too low a temperature with, perhaps, too thin a cream. If your cows are receiving cotton seed meal, this would tend to raise the melting point of the butter fat, and so prevent the butter from coming at 60° F.

Churning temperatures are not hard and fast laws to be followed, regardless of conditions. In this respect, every dairyman must be a law unto himself, and find, by a little experiment, the conditions of tempera ature, etc., that gives him the best results. In this case you may have to churn at 65° F. or perhaps 70° F. Try and see. If your cows are strippers you may have to wash the cream before it will churn; add 2 to 3 times its volume of water to the cream, mix well and reseparate.

A NEW HAMPSHIRE RATION.

Please give me the most economical bal anced ration for cows fresh this fall; two heifers, the others two, three and four. Have plenty of silage, Sanford variety, very well eared; timothy hay, mixed with a small amount of clover. Can buy oil meal for $1.50 per cwt.; bran, $1; gluten, $1.25; corn meal, 95 cents. K. W.

Charlestown, N. H.

For a minimum allowance try the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
10 lbs. hay	8.68	.32	4.34	.15
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.83	1.94	.14
Totals	23.81	2.03	12.01	.62

If the cows will respond to a larger feed, increase either the bran or gluten feed or both, according to the capacity of the individual cow to respond.

A QUEBEC CONDITION AND INQUIRY.

Will it pay to feed cotton seed meal at $26.50 per ton, with bran, when I can buy corn meal for $17.25 per ton? Bran is my principal grain feed. I feed from 6 to 8 lbs. of bran and 2 lbs. cotton seed meal per day, in two feeds. I am feeding peas and oats, about equal parts by weight, ground with the bran, but that will be done in three weeks.

I have my bran bought for the winter at $15.50 per ton. I can buy shorts at $18 and middlings at $19 per ton.

Now, the question is, what will I buy for my cows? I make butter. I should have said that my cows get about 20 lbs. of pulped turnips each day, with the meal.

I know that I have made several hundred dollars more than I would have done if I had never seen the DAIRYMAN. R. McF.

Lenoxville, Que.

The omission to specify what kind of hay the inquirer has, makes it impossible to answer his question directly. With timothy hay he would need to use cotton seed meal to bring the protein content of his ration up to the standard, but with clover hay, corn chop will answer every purpose, as the following formula will show:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover	16.94	1.36	7.15	.34
20 lbs. turnips	1.90	.10	1 44	.04
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. corn chop	1.78	.16	1.32	.09
Totals	25.91	2.47	12.25	.65

POTATOES FOR COWS.

I have an abundance of alfalfa hay. Can raise 700 bushels of potatoes to the acre. Can buy mill feed made of wheat containing all that is left after 35 lbs. of flour has been taken out per bushel, at $12.50 per ton. How many potatoes can I afford to feed in dairying for winter butter? What amounts of these feeds would make a complete ration? A. A. B.

Oregon.

See communication from E. J. Brownell on page 962, and the answer to L. B. B., Fullerton, California.

We think 15 lbs. alfalfa hay, 20 lbs. potatoes and 8 lbs. of the mill feed would furnish a good average daily allowance. The only question is as to the effect on the grain of the resulting butter.



SAVE FEED.

Feed is fuel to the animal economy. If is burned up to supply internal heat. If it is heated (cooked) before it goes into the animal's stomach it saves that much fuel (feed).

Electric Feed Cookers save feed, save money and produce better results. Made of best cast iron with steel linings; boiler made of extra heavy galvanized steel. Capacity 25 to 100 gallons. Circular and price free.

Electric Wheel Co., Box 130, Quincy, Ill.

"A Perfect Food"
"Preserves Health"
"Prolongs Life"

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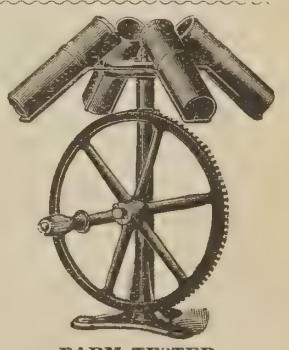
Pasteurizers, Babcock Testers,
Alpha Separators, Combined Churns,

REFRIGERATING MACHINERY.

Be Careful

To read article on page 488, issue of Aug 4, HOARD'S DAIRYMAN, regarding the Use of Babcock Testers in Cheese Factories.

We were the first manufacturers to make a tester in which to test milk after the method devised by Dr. Babcock, and we have always retained the first place in the list of manufacturers. The Farm Style, Factory Hand Style or Factory Motor Tester are the best made. Full descriptive catalogue with directions for operating, free.



FARM TESTER.



MOTOR TESTER.



FACTORY HAND TESTER.

CORNISH, CURTIS & GREENE MFG. CO., Fort Atkinson, Wis.

Agents for DE LAVAL ALPHA SEPARATORS.

Inventors, Manufacturers and Dealers in Everything Pertaining to Butter and Cheese Making.

GOOD COWS AND GOOD MANAGEMENT.

Mr. J. Cooley, of New Woodstock, N. Y., is the proud possessor of a fine herd of 24 Holstein cows. The milk of these cows is taken to the New Woodstock cheese factory, and the proprietor of the same informs us that in one year, by the books of the factory, Mr. Cooley's herd earned $2,050. The average test for the herd was 4 per cent. Mr. Cooley's herd and his management of the same constitutes a very interesting object lesson to study. HOARD'S DAIRYMAN, as well as its readers, will be greatly pleased if he will give in a communication what his method of breeding, feeding and management of his herd has been. There is a startling contrast between that herd and the great mass of cows that support the cheese factories or creameries of the country. That difference is not an accident either, but it is the result of the use of intelligence. The road is open for any man to travel that wishes to.

Meeting of Short Course Alumni.

The fourth annual meeting of the Short Course Alumni, of the University of Wisconsin, will be held at Madison, Feb. 8 and 9, 1900. Room 210 Capitol building.

An Experience with Milk Fever.

The Iodide of Potash Treatment.

ED. HOARD'S DAIRYMAN:—In your issue of Jan. 5th, you ask your readers to inform you of any deaths by milk fever where the cow has been milked without drying off from one calving period to another.

We do not know of such a case. Our experience though very limited seems to point in the opposite direction. It might not be entirely out of place to give our experience in a recent case of milk fever in our herd. Before this year this cow had been milked through but this year we let her go dry some six or eight weeks previous to calving. The afternoon of the second day after calving, it was noticed that she seemed rather weak in hind legs and feet. As passages were slightly dry we gave a dose of salts, hoping to get a good passage before paralysis should come on. We got up early next morning and found her down, insensible to pain, eyes glassy and head turned to the side. My brother had taken a four year's course in agriculture at Purdue University, graduating in '98 and I had rubbed against some of the buildings during short course of '97, so we diagnosed our case as a torpid form of parturient paresis and set to work to save the cow if possible.

We were glad to note that she had not lost the power of swallowing, so we gave her ½ pint of whisky to stimulate her till we could get other medicine at town. We then hunted up the DAIRYMAN (we keep them all) of Oct. 27th, found the article in regard to the Iodide of Potash treatment for milk fever, written by the State Veterinarian of Penn., and in spite of the advice of one Jacob Price also of Penn., we followed the directions.

We secured a rubber tube and injected ½ pint 1% sol. iodide of potash into each teat, after sterilizing all articles in use. By the mouth we gave ½ pint of whisky 1½ pounds salts, 2 ounces ground ginger, ½ dram nux vomica, as a drench. Presently she had a good passage of urine, without mechanical aid, and our hopes began to rise; however, we repeated the injection into the teat in four hours, also gave another dose of whiskey in a little water.

Twenty minutes after each injection we milked the udder out thoroughly, also milked frequently during the day. Our patient seemed much improved; we retired at 9 p. m. and next morning at 4 went to her stall and found she had been up during the night and had had a good passage from the bowels. She got up and was milked as if nothing very serious had been the matter.

Have had some trouble with the udder since, but is all O. K. now. She has eaten heartily all the time, though have been very careful not to feed too much.

We used antiseptics in cleansing the udder but did not use any in the solution; think one teaspoonful salt to each pint of the solution would prevent bacteria from troubling the udder inside. If we have another case will surely use this treatment.

Have narrowly escaped milk fever several times during our three years in the dairy business, but this was our first case. Hope in the future to be able to prevent its recurrence by milking through and watching after the feed more closely.

Neighbors who do not take HOARD'S DAIRYMAN and don't believe in educating the boys that are to be farmers, would probably have split this cow's tail, put in salt and pepper, bored holes into the horns and sold the hide next day, though she makes 14 lbs. butter per week. A. J. N.

Valley Mills, Ind.

The Kansas Dairy School.

ED. HOARD'S DAIRYMAN:—The Kansas Dairy School opened up last week with 54 students, 53 gentlemen and 1 lady, Miss Schultz, daughter of the creameryman at Walnut, Kansas. Of this number about one fourth have had previous experience.

All of the students, except three, gave Kansas as their residence. Of these three, one registered from Wisconsin and two from Missouri. There are 44 students taking the creamery and 10 the cheese course.

Among the experienced creamerymen present we note Mr. R. C. Roach of Hutchinson, Kansas. Mr. Roach is outside manager for the Parker Creamery's line of 41 creameries and stations. Mr. C. C. Nichols of Great Bend, Kansas, comes from the Great Bend Creamery Company and Mr. J. C. Mannen, of Overbrook, Kansas, is with the Overbrook Creamery Association.

It is a pleasure to note the enthusiasm with which the students take hold of the work. I have heard a dozen or more asking their instructors that they be kept employed every minute of the time while here.

At present there are four patterns of cream separators at the Dairy School with two more on the way. We have now only one style of combined churn, but others will be added shortly.

The amount of milk and cream handled daily will make from 20 to 25 60-lb. tubs of butter per week and 5 30-lb. cheese. This will propably be increased within a few weeks.

In the cheese room, three styles of curd mills are to be seen, a latest pattern Sprague continuous pressure press, etc. At present the students are receiving instruction with the Marshall rennet test. Mr. H. Van-Leeuwen, formerly Instructor at the Madison, Wisconsin, and Columbia, Missouri, Dairy Schools and a practical cheese maker, is the instructor is cheese making.

The plan of work required of the students is as follows: From 9:00 o'clock a. m. until 12:20 p. m. they attend classes where the various lines of dairy work, such as buttermaking, bacteriology, feeds and feeding, breeds, and breeding of dairy cattle, etc., are taken up and discussed in detail. At 1:00 p. m. each day the students report to their instructors in the cheese, butter and testing rooms for five hours practical work along their respective lines.

In addition to the 54 dairy students there are 50 students taking the short course in

SHE QUIT COFFEE

And Got Well With the Help of Postum Food Coffee.

"I am a school girl and want to tell you what Postum Food Coffee has done for me and several of my relatives.

"The old-fashioned coffee always made me heavy and dull and gave me heartburn, with dyspepsia. When we tried Postum Food Coffee, it did not taste good, but I begged for another trial, when the directions were followed, and we found it delicious. Since that time, we have used it regularly, and I never have any trouble with the heavy feeling or dyspepsia.

"Dr. Lowrie prescribed Postum for my uncle, Mr. ————, property man of the Boston Theatre, and it worked a marvelous change in him. He quit the common coffee, and has been using Postum Food Coffee ever since. He looks better than he ever did before. His family also use it. Uncle is very strong in his praise of Postum for the good it has done him. Please do not use my signature, but you can use the statement." ————————, Worcester, Mass. The name can be furnished by the Postum Cereal Co., at Battle Creek, Mich.

DON'T NEGLECT YOUR KIDNEYS.

Weak Kidneys Caused by Over-work, by Lifting or a Strain.

It used to be considered that only urinary troubles were to be traced to the kidneys, but now modern science proves that nearly all diseases have their beginning in the disorder of these most important organs.

Now by this is not meant that you should overlook all the other organs and merely look after the kidneys.

Your other organs may need attention—but your kidneys most, because they do most.

If you are sick, do not neglect your kidneys, because as soon as they are well, they will help all the other organs to health.

The mild and immediate effect of Dr. Kilmer's Swamp-Root, the great kidney remedy, is soon realized. It stands the highest for its wonderful cures of the most distressing cases. Swamp-Root will set your whole system right, and the best proof of this is a trial.

You may have a sample bottle of this famous kidney remedy sent free by mail postpaid, by which you may test its virtues for such disorders as kidney, bladder and uric acid diseases, and urinary troubles, obliged to pass water frequently night and day, smarting or irritation in passing, brick-dust or sediment in the urine, constant headache, backache, lame back, dizziness, sleeplessness, indigestion, nervousness, skin trouble, Bright's disease, neuralgia, rheumatism, bloating, irritability, worn-out feeling, lack of ambition, loss of flesh, sallow complexion.

If your water, when allowed to remain undisturbed in a glass or bottle for twenty-four hours, forms a sediment or settling or has a clowdy appearance, it is evidence that your kidneys and bladder need immediate attention.

Swamp-Root is the great discovery of the eminent kidney specialist, Dr. Kilmer, and is used in the leading hospitals; recommended by skillful physicians in their private practice; and is taken by doctors themselves who have kidney ailments, because they recognize in it the greatest and most successful remedy for kidney and



bladder troubles that science has ever been able to compound.

If you have the slightest symptoms of kidney or bladder trouble, or if there is a trace of it in your family history, send at once to Dr. Kilmer & Co., Binghamton, N. Y., who will gladly send you by mail, immediately, without cost to you, a sample bottle of Swamp-Root and a book containing many of the thousands upon thousands of testimonial letters received from sufferers cured. Be sure to say that you read this article in HOARD'S DAIRYMAN.

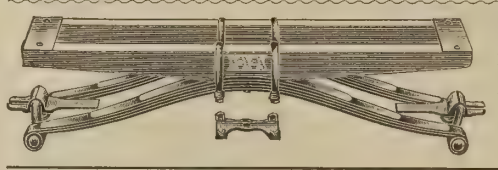
If you are already convinced that Swamp-Root is what you need, you can purchase the regular fifty-cent and one-dollar size bottles at drug stores. Don't make any mistake, but remember the name, Swamp-Root, Dr. Kilmer's Swamp-Root.

CREAMERY POWER must be **simple**—easy to handle; **perfectly governed**—economical in its use of steam; **safe**—well and durably made.

The JEWELL AUTOMATIC ENGINE meets these conditions and has many other good points which are best appreciated in service. It is no stranger to the trade. It is "making the wheels go round" today in many of the best managed and most profitable creameries in the country. **Note its clean lines and compact form.** We have a booklet, beautifully illustrated, which has been prepared especially for creamery people.



THE EUREKA BOILER may be used also as a **Steam Feed Cooker.** Serviceable for scalding cans, tanks etc. **Well made,** fully tested, has standard fittings and special pump for injecting feed water without lowering steam pressure. Send for catalogue describing full line. **The C. H. Dutton Co., Kalamazoo, Mich.**



BOLSTER SPRING.

For prices and discounts, address, mentioning this paper,

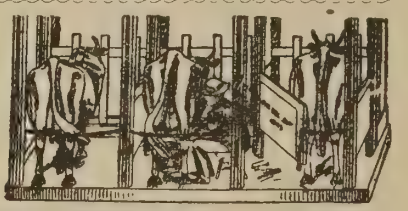
BELLE CITY BOLSTER SPRING CO.,
1100 15th St.,
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Better Butter TRADE MARK **BESTOV**

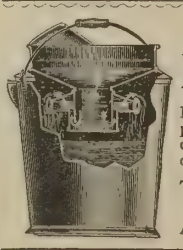
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The Dairymen's Supply Co.,
1937 Market St., Philadelphia, Pa.



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

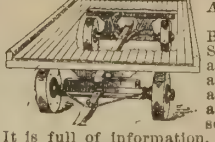


—— THE ——

Ideal Milk Pail

Is the cleanest and most practical pail and strainer on the market. Write for circular and special price to

The National Specialty Co.,
RACINE, WISCONSIN.
Agents wanted in every Co.



YOU CAN'T AFFORD TO FARM without a Low-Down, Broad-Tire, Flat-Platform, Short-turning Farm Truck any more than you can afford to cradle your grain; and you can't afford to buy any wagon until you have seen our latest catalog. It is full of information.

FARMER'S HANDY WAGON CO.,
Wagon free for 8953 T. **Saginaw, Mich.**

350 Choice Brown and White Leghorn Young Hens For Sale at $1.50 each in lots of 25 or more. Bred from our prize winners in 4 states. Also **100 S. C. White Leghorn Cockerels** $2.50 each—good ones.
DELLHURST FARMS, Mentor, Ohio.

$50.00 to $100.00 per month made by selling rights for the **Fence that suits everybody.** More agents wanted.
BUCHANAN FENCE CO., Box 27, Smithville, Ohio.

agriculture. This course lasts three months and is designed for farmers and farmers' sons who have not the time to attend the regular four years course.

E. W. CURTIS.

Kansas Dairy School.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 19,380 pounds. Bids of 23 and 24 cents were received but all were declined and the call closed with no sales.

The quotation committee announced the market firm at 24 cents, a drop of 5 cents from last week's prices.

The sales for the corresponding week of the three preceding years were as follows:

Jan. 16, '99, 5520 lbs. of butter sold at 18½c.
Jan. 17, '98, 14040 lbs. of butter sold at 19c.
Jan. 18, '97, 26,00 lbs. of butter sold at 19½c.

The New York market was reported weak at 25 cents.

The Board of Trade unanimously adopted the following:

WHEREAS, Hon. E. S. Hanecy, of Chicago, is being put forward as a candidate for governor of Illinois on the Republican ticket, therefore be it

Resolved, That it is the sense of the Elgin Dairy Board of Trade, representing 40,000 farmers in this state, interested in dairying, that the election of a man possessing the ideas expressed by Mr. Hanecy regarding the oleomargarine question would be a disaster to this great interest, inasmuch as such views are entirely antagonistic to the farmer, who produces milk, and would absolutely prevent the pure food commission enforcing the anti-color law, such enforcement being in the hands of the governor; and be it further

Resolved, That we carefully scrutinize the records of all candidates for office and strenuously oppose the nomination or election of any one who has proven himself hostile or unfriendly to the dairy interests of this state.

H. C. B.

Elgin, Ill., Jan. 15, 1900.

California Questions.

ED. HOARD'S DAIRYMAN:—I wish I could place HOARD'S DAIRYMAN in each one of my patrons' hands and have them *study* it; as it is, I give them all of my copies.

I have received information in my business from HOARD'S DAIRYMAN, which has been worth hundreds of dollars to me, and I believe the patrons could do likewise.

A great many people think the conditions being so different here from what they are in the east, the paper is no good here. They might as well say, because a cow came from the east, she would be no good out west.

The trouble is, so many people do not adapt what they read to suit themselves and their conditions, or read carelessly, and then because of their own lack of discrimination, all reading does not prove pure gold, they discard it all as dross.

In reading the Babcock test, how should it be read, from the extreme limits of the fat column, or just the solid fat column, and why? Is there any difference of opinion on the subject?

In calculating the overrun of the churn above the test, what should the per cent overrun be figured on? On the test or the butter yield? P. A. R.

Orange Co., Cal.

The reading should be from the extreme limits of the column of fat. When read this way, it is found to correspond to the figures obtained by the gravimetric analysis. These are Dr. Babcock's directions, and no one to our knowledge, has expressed any different opinion.

Do your hguring on the weight of butter made; by so doing, you will avoid the trouble of reconciling the daily changes of the churn, with theory.

DAIRY MARKETS.

ELGIN, Ill., Jan. 15—Butter—323 tubs offered, no sales. Committee reported market firm at 24 cents.

CHICAGO, Ill., Jan. 15—Butter—Extra creamery, 25c; firsts, 23@24c; seconds, 20@22c; imitation creameries, 20@22c; dairies, choice to fancy, 22c; firsts, 20c; ladles, fine, 17@17¼c.

Cheese—Full cream, Twins, good to choice, 11½@12c; off grade, 8½@10½c; Young America, 12@12½c: Cheddars, 11½@12c; Swiss, 12¼@12½c; Limburger, 10@11c; Bricks, 10@11c.

Eggs—Strictly fresh-laid, cases returned, 17c; city cooler stock, 9@10½c; country, 5@8c.

Cattle—Good to prime native steers opened steady to strong, while other grades were weak to lower from the start. Quite a few of the best offerings sold early at steady prices, then the general market weakened and closed 10@20c lower, with 1,200@1,400 lbs. steers the weakest. The best steers offered sold at $6.40, with Hereford steers and heifers, averaging 1,325 lbs. at $6.35; corn fed western steers averaging 1,484 lbs. sold at $6.25, with 1,120@1,702 lbs. westerns at $4 20@6.10; bulk of 1,100 @1,460 lbs. natives, $5.25@6. Straight Texas steers averaging 854@1,173 lbs., $4.15@4.90; Missouri-fed Texas, 823@1,180 lbs, $4@4.80; native cows, $2.50 @4.25; heifers, $3 25@4.60; bulls, $2.90@4.35; calves, $4.50@7.60, and feeding cattle, $3.25@4.70.

Bran—Quiet, and sold at $12.25 per ton.

Shorts—Dull, with a sale of 1 car at $12.25 per ton.

MILWAUKEE, Wis., Jan. 15—Butter—Creamery, fancy prints per lb., 29@29½c; extras, 28½@29c; firsts, 26@27c; seconds, 20@23c; roll, 17@18c. Dairy selections, 20@23c; lines, 18@20c; ladles, 17@18c. There is no change in prices but the market is weak and business light, with offerings in excess of requirements; receipts, 7,332 lbs.

Cheese—American Full Cream, October Flats, 11½@12½c; November, 11@11½c; Brick, 10½@11c; Limburger, 11c; Swiss Drum, 12½@13c: Block, 13@13½c; No. 2, 10½@11c. Trade is quiet for all varieties, which are in fair supply; some winter made Brick and Limburger is making its appearance and sells 1@1½c below fall made; receipts, 3,060 lbs.

Eggs—Fresh, per doz., 16½@17c, loss off, cases returned; held, 12@14c; cold storage, 10@12½c; seconds, 8@9c as to quality. Prices are unchanged, but the market is weak except for strictly fresh; cold storage and held are dull; receipts, 87 cases.

PHILADELPHIA Pa., Jan., 15—Butter—Solid packed separator creamery, extra, 27c; firsts, 26c; seconds, 24@25c; imitation creamery, extra, 24c: firsts, 22@23c; seconds, 20c; ladle-packed, extra, 2:@23c; firsts, 21c; seconds, 18c. Print Butter—Creamery, extra, 28c; firsts, 26@27c; seconds, 23@24c.

BOSTON, Jan. 15—Butter—Creamery, extra. 28@29c; western extra, 27½c; dairy extra, 27c; imitation creamery, 23c; western ladle, 21c; print creamery, 29@30c; box creamery. 27c;

Eggs—Fancy near by, 22@23c; choice, fresh, 22c; Michigan, extra, 20c; western, 19c; fair to good, 14@17c.

ST. LOUIS, Mo., Jan. 15—Butter—Steady; creamery, 25@30c; dairy, 20@25c.

Eggs—Lower, 14½c;

KANSAS CITY, Mo,, Jan. 15—Butter—Creamery, 20@23c: dairy, 18c.

Eggs—Fresh. 14c.

CINCINNATI, O., Jan. 15—Butter—Easy, 28c.
Eggs—Quiet, 15c.
Cheese—Steady; good to prime Ohio flat, 12½.

NEWARK, N. J., Jan. 15—Butter—Market dull 25c for strictly extras; other grades accordingly. Receipts dull.

WASHINGTON, D. C., Jan. 15—Butter—Market weak. Extras, 29c; choice, firsts, 26@27c; fine imitations, 22@23c.

NEW ORLEANS, La., Jan. 15—Butter—Market quiet, buyers holding off, anticipating decline. Nominally, 27@29c.

NEW YORK, Jan. 15—Butter—Western extras, 25@26c; firsts, 24½@25c; state extras, 25c; firsts, 24@24½c.

Cheese—State, full cream, large or small, fall made, fancy, 12¾@13c.

Eggs—State Pennsylvania and Western, 20½@20c.

NEW YORK MARKET.

NEW YORK, Jan. 13—Butter—Receipts for the week, 29,837 packages. Exports for the week, 115 packages.

Heavy receipts early in the week, together with a very moderate demand, caused a flurry in the market, and a decline of 3 cents per pound on finest grades of butter. At the close, prices are very unsteady, and operators, who a week ago thought butter cheap at 30 cents, turn their backs on it at present quotations. Only creameries grading as extra were taken at top quotation, while other qualities were neglected, and go over into the next week unsold.

Hardly anything doing in June creamery; we note sale of 100 tubs early in the week at 25½ cents, but at the close, prices are nominal We quote:

Creamery, extra, 27c; medium, 25@26c; poor, 22@24c. Dairy, extra, 25@26c; medium, 22@23c; poor, 18@20c. Ladle, extra, 21@22c; medium, 19@20c; poor, 16@ 8c.

Cheese—Receipts for the week, 18,294 packages. Exports for the week, 11,113 packages.

High priced goods are not selling as good as they should at this time of the year, but as stock is steadily growing less, we look for better trade in the future. The exporters are buying low priced cheese quite freely, mostly skims at prices ranging from 6 to 9c. We quote:

Full Cream, small, extra, 12½@13c; medium, 11½@12c; poor, 10@11c. Full Cream, large, 12¼@12½c; medium, 11½@12c; poor, 10@11c.

Eggs—Receipts for the week, 49,223 cases. There was a decline of 5 cents per dozen early in the week; at the close we are having quick demand for strictly fresh eggs at quotations. All other kinds are extremely slow sale, and prices are nominal. We quote:

New York & Penn., strictly fresh, per dozen, 20@2 c; Western & Northern, strictly fresh, 19@20c; other kinds, 10@16c; Limed eggs, 13@15c.

177 Chambers St. DAVID W. LEWIS & CO.

BALTIMORE, Md., Jan. 15—Butter—Market easy; creamery separator, extra, 30c; extra first, 28@29c; creamery first, 27@28c; creamery imitation, extra, 25@26c; Iowa & Northwestern ladle, extra, 24@25c; extra first, 22@23c; first, 20@21c; Western store packed, 20@2:c; creamery rolls (2 lbs.) 20@21c.

Eggs—Market weak; strictly fresh stock, 17c.

BALTIMORE MARKET.

BALTIMORE, Jan. 11—Butter—It is rather puzzling to so codify the various elements that go to make up the actual market, as to convey to the shipper, or other interested party, the true condition of affairs at this receiving and distributing point. The buyer is an importont element, and it is not safe to ignore him in the consideration of the subject, and it is claimed on his behalf, that the advance in prices that has recently taken place, has now reached a point that must greatly reduce consumption. This may be felt in the near future, but certain it is, that up to the present time, the accumulation of table grades is inconsiderable. Most, if not all, receivers have not had more than enough fine creamery to supply their regular trade, although they have felt compelled to exact the higher prices, which prevailing conditions appear to justify. The usual wintry defects are noticeable, but buyers are not disposed to discriminate too closely on quality. Our quotations are again advanced in order to correctly report the market. The scarcity of gathered cream butter is still remarked, and buyers are heard to wonder what has become of the favorite brands that for years have been regular in their appearance on the floors of receivers. Rather more imitation creamery and ladle packed has been coming forward, and it will find a market as soon as buyers have concluded to meet the advance in values which is necessarily imposed. Roll and storepacked are in more liberal supply; the demand, while good, is not as active as formerly.

Creamery Separator, extras, 30c; firsts, 27@28c; seconds, 25@26c. Creamery Gathered Cream, extras, 27@28c; firsts, 24@25c; seconds, 22@23c. Creamery Ohio Cream, extras, 27@28c; firsts, 24@25c; seconds, 22@23c. Creamery Imitation, extras, 25@26c; firsts, 21@22c; seconds, 20c. Iowa & N. W. Ladle, extras, 23c; firsts, 20@21c; seconds, 18c. Ohio & Indiana Ladle, extras, 21@22c; firsts, 19@20c; seconds, 17@18c. Ohio Rolls, extras, 20@21c; firsts, 18@19c; seconds, 17c. W. Va. Rolls, extras, 19c; firsts, 18c; seconds, 16@17c. Ohio & W. Va. Storepacked, extras, 18c; firsts, 17c; seconds, 15@16c. Creamery Blocks (2 lb), extras, 31@32c: firsts, 28@30c; seconds, 25@27c. Creamery Prints (½ lb.), extras, 31@32c; firsts, 29@30c; seconds, 25@27c. Md. Va. & Penna. Prints, extras, 28@30c; firsts, 23@25c; seconds, 20@22c.

Cheese—Receipts light, demand fair; market firm as quoted.

N. Y. State—Cheddars, fine, 12¾@13c; choice, 12¼@12¾c; fair, 11½@11¾c. Flats, fine, 13c; choice, 12½@12¾c; fair, 12¼@12½c. Small, fine, 13¼@13½c; choice, 13c; fair, 12½c. Ohio—Flats, fine, 12½@ 2¾c; choice, 12¼@12½c; fair, 11½@12c. Ohio Picnic, fine, 13@13¼c; choice, 12½@12¾c; fair, 11½@12¾c. Swiss Cheese, fine, 12@12½c; choice, 11½@11¾c; fair, 10½@11c.

Eggs—The receipts so far this week have been fully ample for all trade wants; the demand, while not active, continues steady for all desirable marks at 18 cents; market weak and unsettled. 301 Exchange Place. G. M. LAMB & BRO.

LIVERPOOL, Jan. 15—Butter—Finest United States and good, nominal.

Cheese—American finest white, 57s, 6d; American finest colored, 59s.

Latest quotations for fancy creamery: Buffalo, 28c; St. Paul, 26c; Minneapolis, 27c; Detroit, 27c.

New 20th Century De Laval "ALPHA" Cream Separators.

A week ago we announced the introduction of the NEW 20th CENTURY "Alpha" De Laval Separators. The new sizes, capacities and prices are as follows:

FACTORY or CREAMERY STYLES.

Standard "Hollow-Bowl" Belt-Power,	1,300 lbs.	$ 200.—
Standard "Hollow-Bowl" Steam-Turbine,	1,300 "	225.—
"Alpha" Acme Belt-Power,	1,750 "	350.—
"Alpha" Acme Steam-Turbine,	1,750 "	375.—
"Alpha" No. 1 Belt-Power,	3,000 "	500.—
"Alpha" No. 1 Steam-Turbine,	3,000 "	525.—
"Alpha" No. 2 Belt-Power,	4,500 "	750.—
"Alpha" No. 2 Steam-Turbine,	4,500 "	800.—

"BABY" or DAIRY STYLES.

"Hollow-Bowl" "Baby" No. 1,	150 lbs.	$ 50.—
"Alpha" Strap "Humming-Bird,"	175 "	50.—
"Alpha" Crank "Humming-Bird,"	225 "	65.—
"Alpha" Iron-Stool "Baby" No. 1,	325 "	100.—
"Alpha" Iron-Stool "Baby" No. 2,	450 "	125.—
"Alpha" High-Frame "Baby" No. 2,	450 "	125.—
"Alpha" High-Frame "Baby" No. 3,	850 "	200.—
"Alpha" Dairy Steam-Turbine,	850 "	225.—

Great as has been the previous superiority of the "Alpha" De Laval machines to other separators the 20th CENTURY "Alpha" developments place them above the possibilities of attempted competition from anything else in the shape of a cream separator.

THE DE LAVAL SEPARATOR CO.,

GENERAL OFFICES:

CHICAGO. 74 Cortlandt Street, MONTREAL.
SAN FRANCISCO. NEW YORK. PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Cheesemaker wanted to operate a small first-class plant. Address No. 6, care Hoard's Dairyman. 49-2

For Sale—Yearling Jersey bull, registered A. J. C. C. D. C. BENEDICT, Culbertson, Neb.

For Sale—A milk route with stock and fixtures. No opposition. D. E. MORRIS & SONS, Harlan, Iowa.

For Sale—Being old and in poor health I would sell my farm, 11 miles from this place, of one hundred and fifty-five (155) acres, very cheap, with the stock, farming tools and household furniture belonging to it. This farm is very productive, is well fenced, is one of the pleasant residences, and has the most convenient farm buildings in this part of the state. Terms: cash or good security. 160 acres choice pasture land sold with it if desired. Address JACKSON PHILLIPS, 704 Coleman St., Chippewa Falls, Wis.

For Sale Cheap—116-acre farm. Three silos. F. M. SWIFT, Olivet, Mich.

For Sale—De Kol Bulls. Officially tested dams. Send for catalogue. M. S. CAMPBELL, Genoa, Ill. 49-10

For Sale—One 3,000-lb. Russian Imperial Separator. As good as new. A bargain for some one, Address, FRANK YOUNGS, Birmingham, Mich. 47-3

For Sale—Pure bred Tamworth pigs ready to wean. Also a few Holstein bull calves. GLIEDT & KAISER. Freistatt, Mo. 48-6

Wanted—To rent, a creamery in a good locality with a good run of milk. Prefer one fully equipped. Address LOCK BOX 45, Lake Mills, Wis. 48-4

Wanted—Experienced man to help care for our herd of selected Holsteins. Must be first-class milker, reliable, temperate and intelligent. Address, with references and wages wanted by the year. DELLHURST FARMS, Mentor, Ohio 48-3

For Sale—One large Turbine De Laval separator and two twin cream vats, capacity 200 gals. each. Are in good condition. Address, LANCASTER CREAMERY CO., Lancaster, Pa. 48-4

Guernsey Calves For Sale—Best blood of two Exp. Sta. tests. BLACK & BROS., Mt. Vernon, Ind. 48-3

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

Having rented my farm, I offer for sale 10 full blood Holstein cows and heifers and 5 full blood calves. Also breeding bull, 2 years old, whose 15 nearest ancestors have records of more than 26 lbs. butter in 7 days. Full particulars will be given. Address, WM. HAMBLY, Belmont, Wis. 48-2

To Let—Sub-divisions of Prairie Farm, 160, 200, 300 and 400 acres, 16 miles from Toledo Separator Creamery. Silos and special butter customers. These are first-class farms, stocked with first-class cows, and none but first-class dairymen need apply. State experience and resources in application. Address, E. L. LOCKWOOD, Petersburg, Mich. 47-tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46-tf

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476. A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis. 38-tf

Cedar Hill Jersey Farm Notes.

A Cow Stable—Water Supply—Time for Milking Cows—Poultry—Cutting Ice—Sowing Rape in Corn.

ED. HOARD'S DAIRYMAN:—We have been so very busy at Cedar Hill, the past sixty days, finishing a new addition to cow barn, and getting all buildings in good shape for cold weather, that we have not used much ink. We did intend to write up our trip to the Missouri Dairy Meeting, but press of work was too great. The Missouri meeting was a good one. I found many readers of the DAIRYMAN; met one man who had an old copy of the DAIRYMAN as far back as 1888. He has been a constant reader ever since that date.

I must give the DAIRYMAN readers a brief discription of our cow stable. The barn now is 88 feet long; new part is 30×48 feet; cows face and have a feed alley 4 feet wide, with alleys behind them, 4 feet; gutters are 8×16 inches, and one side of stable accomodates sixteen head on a platform 4 feet, 4 inches; other side holds 15 head on a 4 ft.8 inch platform. Each cow has a separate stall, doing away with any danger of teats being stepped on. The up-rights and partitions, also mangers, are oak and elm, 1 inch thick.

The barn is sided up with novelty siding, and a very heavy grade of tarred paper. Windows? Well yes, we did put in some windows. Every six feet on south side, we put in 8×10 light sash, full window size, and on north, four full windows. We also have four doors that open as double doors.

We have a pair of scales on each side of barn, and milk sheet, so our boys can weigh the milk of each half of barn with but little traveling; at one weighing place we keep a clock and thermometer. The boys record the temperature, every morning, at 5 oclock; yesterday morning the outside temperature was 10° below zero, and in the barn it was 41° above. This morning it was 10° below, outside, and 40° above in the barn.

We have seventy-seven head of Jerseys, young and old, in this barn. The old part of barn being 40 feet wide, we use a part of it for young things, calves that are being fed milk, and some larger ones. At end of barn, against it and silo, is a large, roomy lean-to that will accomodate twenty head of one and two-year-old heifers; the north half of this is lined with tarred paper.

Our water supply is drawn from a large cistern that is on high ground; pipes lead from this to horse lot, hog pens and cow barn. We have a steam pipe from boiler into this cistern and raise the temperature just where we want it. It does one good to see the cows fill themselves with this water.

My sons, the poultry manager and herd manager, whose ages are thirteen and sixteen years, have been doing some racing lately in milking; each have eight cows, and in three contests they tied in time—time 43 minutes. I saw that the cows were cleanly stripped, and the boys weighed and recorded each cow's milk. The poultry manager has milked thirteen cows in eighty minutes.

Speaking of poultry, reminds me that we are wintering 300 pullets and 200 capons These birds are in five houses, and are doing nicely for us. We give them a feed of ensilage daily, a hot mash of ground oats and dried blood; granulated bone grit and oyster shells are kept before them; and they also get cut sheaf oats and corn fodder to scratch in. Up to date, every house proves to be frost proof. They are lined with tarred paper. I think a great deal of tarred paper about farm buildings; it is a cheap and effective way of making old buildings warm.

Again the ice crop is ready for the cutting. We are very fortunate in having a fine lot of ice close to the creamery; it is only a 30-rod haul from two good ponds; the ice is now 8 inches thick and will go into our house fully 10 inches thick; our house not being quite large enough, 16×16, and 10 feet high, we got more room by going down into the ground; for drainage we took a post hole digger and sunk holes over bottom of house the depth of some 4-inch tile we had on hand. We set the tile in holes and laid a piece of board over the top; over the whole bottom of house we laid old lumber and then spread a load of old straw over all. This insures our ice to keep well.

The inquiry from Maine regarding our rape crop, reminds me that I did promise the DAIRYMAN readers a history of our success. Late last spring we sowed several patches of rape, on odd corners and patches of land around the farm, giving it no particular attention. When it was about 18 inches high, we let cows and young stock go to it; they were eager for it, and we found it would grow up whenever grazed down, if weather was favorable. It stood dry spells well, and we found it a grand thing to cut and feed our young chickens during their stay in the brooder house, while the older birds would go to the patches and help themselves. When we were ready to sow among the growing corn, a heavy wind so tangled the corn we could not get a horse in to work the ground, so did not sow any that way. My opinion is that as far north as Maine the plant sown in corn would not do well, but sown in the spring by itself, it would make pasture or a soiling crop. We shall sow a large amount, the coming season, for both.

BUFF JERSEY.

A New York Ration.

ED. HOARD'S DAIRYMAN:—What would be the very best grain rations that you could recommend from now until grass comes "irrespective of cost" for a high-class herd of registered Jersey cattle, kept for a breeding herd, the milk, however, being sold in glass bottles to city consumers? We are feeding now clover hay at noon, and ensilage morning and evening, (25 lbs. a day). Prefer to feed our grain upon the ensilage both morning and evening, unless you can suggest a better method. Please give amount in quarts, and state if for whole day or only one feeding. G. E. P.

Rochester, N. Y.

We have some doubt whether there is any necessity for feeding a breeding herd otherwise than one would feed a herd kept primarily for milk production, except that in the case of the breeding herd we would be perhaps a little more careful not to over feed; yet the cows in a breeding herd should be kept well up to their maximum profitable production. We see no good reason why a daily allowance as specified below should not produce this result:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. clover hay.....	8.47	.68	3.58	.7
25 lbs. silage.....	6.60	.33	3.50	.18
5 lbs. bran.....	4.41	.63	1.93	.15
2 lbs. corn chop.....	1.78	.16	1.33	.09
3 lbs. gluten feed.....	2.79	.61	1.45	.10
Totals.....	24.03	2.41	11.79	.69

It is to be understood that the ration is the total allowance for twenty-four hours and it is our opinion that this is better given in two feeds than in three or more.

We have specified the amounts in pounds instead of complying with our inquirer's request to state the same in quarts. Take the one item of bran for example. Some grades of bran will weigh between 30 and 40 lbs. to the bushel and others will weigh less than 20 lbs. Some grades of gluten feed are much heavier than other grades. It also makes considerable difference with the weight of a quart of feed whether it is pressed into the measure in dipping or gathered up loosely. We do not of course expect that the dairyman is going to weigh out the feed to each cow twice a day, but we think he ought, at least whenever he gets in a new lot of feed, to take pains to satisfy himself as to the weight of the different measures full, and then be governed accordingly.

Notes from the Sigworth Farm.

Winter Exposure of Dairy Herds.—Cold Water and Stables.—Keeping the Bull Confined.

ED. HOARD'S DAIRYMAN:—The poet sings of autumn days, but I think if he was a dairyman and would go up and down, throughout the land at the present time, and see the cows with backs humped, standing on the lee side of a fence or straw stack, he would change the time to winter, at least for the cow's, or owner's pocket book.

I took a trip of a half dozen miles, a few days ago, and saw six farms with cattle turned in a lot adjoining a fodder stack, eating fodder off the frozen ground, and as usual tramping over it, and the boss (they had horns on) getting the lion's share. At 4:30 p. m., on my way home, saw four of the six bunches still in the field.

The thermometer was almost at zero. During the entire day, not mentioning the injury to the cattle from freezing, those farmers lose almost one-half of their manure. But I know for a certainty that the majority of these men do not read a farm paper, and think it is necessary for a cow to have lots of exercise, and to drink ice water to cool off their systems.

I came home and went at my chores, and as the saying is, had to hustle on account of lost time, and in a little while was milking in my shirt sleeves. I have come to the conclusion that a stable in which water will freeze at any time is not fit for cows. With building and tarred paper so cheap and so easily put on, there is no excuse for cold stables. And about close confinement; my cows for six months average twenty-three hours per day in the barn, and have not had a diseased cow or lost a calf or cow for ten years.

But to keep Mr. Bull tied up so close, not only spoils potency, but renders him almost incapable of serving a cow, and to turn him out he either stands around humped up or runs off, and it is too much bother to drag in wood with him or work him, so I have hit on the expedient of, when hauling manure, to tie him behind the sled and compel him to travel back and forth to the field with me.

Ours is a dehorned Jersey and is very tame. The boys for fun sometimes ride him back and forth to water; so may fit him with a saddle and ride him for the news occasionally. Why not, they make a very easy gaited horse! I think lots of the failures of the bull's potency, result from lack of exercise. Mine is three years old and has but very few failures.

Franklin, Pa.

A New York Dairy.—What is a Fair Average?

ED. HOARD'S DAIRYMAN:—Will you give me a balanced ration from the following feeds: Clover and timothy hay, mixed (early cut); good corn silage; wheat bran, $19.00

Imitation the Sincerest Flattery.

Cheaply made imitations of obsolete forms of Singer sewing-machines are offered by merchandise dealers to deceive an unwary public.

GENUINE SINGERS ARE NEVER SOLD TO DEALERS.

They go directly from maker to user, and can only be obtained from the Company's employees.

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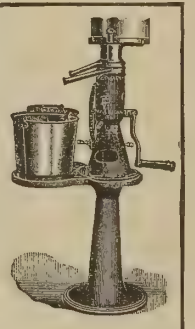
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QUAKER DAIRY FEED TESTED BY THE MILK-PAIL

Quaker Dairy Feed is made entirely of grain—principally of oats—combined in scientific proportions. It is complete for the production of milk and the proper maintenance of the animal. "Modern Dairy Feeding," sent postpaid on request. Scientific advice on feeding—FREE. SCIENCE DEPARTMENT,
THE AMERICAN CEREAL CO.,
1348 Monadnock Bldg., Chicago, Ill.

Mr. Dairyman:

Are you getting all the cream from your milk by your present method? We should like to put an



Empire Cream Separator

in your dairy and compare results. If you do not make enough extra butter to pay for it in 6 months, we will not ask you to keep it.

The Empire is as much in advance of the old style separators as the latter are of the setting system.

Six sizes of hand machines ranging in price from $40 up. Catalogue free.

U. S. Butter Extractor Co., Newark, N. J.

"HONESTY is the best policy." Nobody contradicts it.

Your dealer can get lamp-chimneys that almost never break from heat, or those that break continually. Which does he get? Which do you get?

Macbeth's "pearl top" and "pearl glass" are tough against heat; not one in a hundred breaks in use. The glass is clear as well as tough. They are accurate, uniform.

Be willing to pay more for chimneys that last till they rot, unless some accident happens to them.

Our "Index" describes *all* lamps and their *proper* chimneys. With it you can always order the right size and shape of chimney for any lamp. We mail it FREE to any one who writes for it.

Address MACBETH, Pittsburgh, Pa.

The BEST PLOW on Earth at any Price.
Double Board Hardened Steel Plow, hard as glass all over, 16-in. $11.



Guaranteed to scour or money refunded. We have cheaper 16-in. Plows at $9.50. Send for Big free Catalogue of Sulkys, Gangs, Disc, Wagons, etc. Write now and get ready for Spring work. Hard Steel Castor-Coulter with Plow, $1.75 extra.
HAPGOOD PLOW CO., Box 571, Alton, Ill.
Only Plow Factory in the United States selling direct to farmer.

A Piano at a Nominal Price.



Chicago's largest music house, **Lyon & Healy**, to sharply reduce stock is offering

A New Special UPRIGHT PIANO FOR $150

Also the best stock of fine Pianos in the U.S. including Steinways, Knabes, Fischers, Sterlings, &c.,&c. We can save you upwards of $100. Easy payments. If interested do not fail to write at once. Any piano not proving exactly as represented may be returned at our expense.
LYON & HEALY, - 96 Adams St., CHICAGO.

per ton; Diamond gluten feed, $19.50 per ton.

Have plenty of oats that I can trade ton for ton for bran. Would you advise grinding the oats or trading for bran?

Cows are grade Ayrshires and of average size; have a warm barn and do not have to feed corn meal to keep them warm.

Draw my milk to factory where it is pooled; make cheese in summer and butter in spring and fall.

My cows made from January, up to date, $50.00 each. Do you call that a fair average for a dairy of 40 cows.

Cows go to a spring to drink, 10 rods from barn. Temperature of water, 49°. Do you think that too cold? B. H. TRUAX.

St. Lawrence Co., N. Y.

As compared with the general average, our friend's average would seem to be very satisfactory, but after all, averages are very deceiving. It follows as a matter of course that where his average receipts per cow were $50.00, some of the cows made much more than this, and perhaps most of them less than this. The question arises, does he know which of these cows paid him most liberally for their feed and care, and which of them paid him most scantily. It takes but little time and practically no expense to weigh the milk of each cow at every milking and make a record of it. This is what our friend ought to do, and what every dairyman ought to do, and then he will have figures at his command which will enable him to dispose of the non-profitable cows; and there are such in every herd where a record has not been kept.

Our friend is in a much better position than we are to master his inquiry, as to whether water at 49° F. is too cold. Let him watch his cows after they have been to the spring for drink. If they come away humped up and shivering it is a pretty good indication that the water is too cold, whether for the cows comfort or his profit. Further than this, the chances are that the cows go to drink but once a day. With water of this temperature they are likely to drink less than they would if the water was several degrees warmer, or than they would if they could have it before them twice a day or oftener. Would it not be possible to have a hydraulic ram to force this water into the stable and into a tank in the upper part of the stable, where it could be warmed to 60°, or thereabouts, and supplied to the cows at least twice a day in the stable?

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
We suggest for a ration, as follows:				
25 lbs. silage	6.60	.33	3.50	.18
12 lbs. hay	10.64	.58	4.75	.19
3 lbs. bran	2.64	.38	1.16	.09
5 lbs. gluten feed	4.61	.95	1.94	.12
Totals	24.49	2.24	11.35	.58

We have from another New York correspondent a statement that this Diamond gluten feed is sold under a guarantee and contains 27.33 per cent of protein. If such is the fact, the digestible protein in the above ration will be moderately increased, but not so much as to throw the ration out of proper balance.

AN URGENT APPEAL.

Mr. W. R. Wood, of Genesee county, Michigan, has an earnest and cogent way of putting things. He has been looking over the starvation returns of many of his neighbor's herds of cows. It strikes him that the only way for an earnest man of strong common sense, if he wants to influence his neighbors for their good, is to "speak right out in meeting," about this everlasting folly of keeping such a raft of poor cows.

This is how he talks to the men who are about him:

Very few farmers stop to ask themselves the question: Are my cows returning me a profit? Many are actually losing money on them every day of their lives, yet so careless are they concerning the matter that they take no pains to ascertain the facts in the case. They simply go on, year after year, feeding, milking the cows, and making the milk into butter, with no idea of how much, if any, money they are receiving for their trouble.

It is easy enough to ascertain what a cow is doing. A pair of scales and a Babcock test are within reach of the poorest farmer of us all. To weigh the milk of each animal once a week and make a test of it is not a task that requires much time, yet that alone will determine with sufficient accuracy her butter making properties.

Probably there are few herds where one or two unprofitable animals will not be found. It costs no more to feed and care for a good cow than a poor one, so why waste grain and hay on one that does not pay for her keep? Often it will be a surprise to find what was considered one of the poorest cows in the herd showing the best test and proportionately disappointing to find the favorite dropping behind some of the others; but remember that if properly manipulated the Babcock never errs. It is a detective which is unhesitatingly accurate in its decision, so do not think your preconceived ideas should have any weight, if the test shows differently. To the man with ten cows, the Babcock machine is worth the price of a cow, yes, and a good one at that. No dairyman or farmer should attempt to do business without one.

As the standard to set, each cow should make 250 lbs. of butter a year at the very least. It takes all of 200 lbs. to furnish her with food for a year. This leaves 50 lbs. only as a profit, but since the manure, skim milk, etc., are worth something we may say that the 250-pound cow will pay her keep and give a small profit.

Yet if one sets out with the determination to bring up the average above this mark, he will not find it very difficult to do it. Indeed, the possibilities of intelligent care, combined with a good cow have rarely been realized. It is something not often attained.

Farmers, dairymen, this matter is worthy your careful consideration. Do not be foolish enough to keep on year after year in the haphazard way so commonly practiced, of feeding your cows indiscriminately and pooling their milk, making and selling the butter with no idea of each animal's individual earnings. Without doubt, there are robber cows in your herd, and these are consuming the profits which the others give. Study on this question and find out "where you are at." Ferret out the unprofitable animals and dispose of them, giving the rest a chance to show what they can do. You may be surprised to find that you are getting almost as much butter as before, and with a less number of cows to feed and take care of.

"Housework is hard work without Gold Dust"

Washing Dish Cloths

Kitchen cloths must of course be washed daily, otherwise they harbor grease and odors and become unhealthy. They should be made of knit-crochet-cotton, in a square of suitable size. When you wash them, if you will add a tablespoonful of

Gold Dust Washing Powder

to the hot water it will cut the grease and clean them in half the time; dry them out in the sunshine and air.

The above is taken from our free booklet "GOLDEN RULES FOR HOUSEWORK" Sent free on request to

THE N. K. FAIRBANK COMPANY,
Chicago, St. Louis, New York, Boston.



AMERICAN

Cream Separator

PRICE - - $65



First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023 BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

Canada Praises the Reid.

Canadian creamerymen and butter-makers sing the praises of the Reid Long Spindle Separator as loudly as do their brethren of the States. Here are extracts from letters recently received from some of the most successful creamerymen in Ontario:

W. A. HUTT, Esq., Aurora, Ont., says:

"*The Reid Improved Danish Separator bought by us has been in use since May 1st, and is giving excellent satisfaction. We are skimming from 3,300 to 3,500 lbs. per hour and the amount of fat left in the skim milk is about .02 of 1 per cent. We are well pleased with the machine and would recommend it to anyone intending to buy a Separator.*"

From WILLIAM PARKINSON, Jarvis, Ont.:

"*The Reid Improved Separator surpasses the guarantee in regard to capacity and clean skimming. I am skimming 4,000 lbs. per hour at a temperature of 160 degrees, down to .02. On Mondays I skim 4,5000 lbs. per hour, down to .05 and better. It leaves the cream perfectly smooth—neither whipped nor frothy—and will skim 16,000 lbs. or more without clogging. My opinion is, the Reid is perfect in every respect.*"

BRUSE BROS., Gormley, Ont., write:

"*The Reid Separator did not leave a trace of fat in the skim milk while separating 3,900 lbs. per hour.*"

From JAS. ELLIOT, Tilsonburg, Ont.:

"*The Reid Separator works excellently and gives the best of satisfaction.*"

JAS. SCOTT, Stirling, Ont., says:

"*We are well pleased with the outfit; the Separator skims perfectly.*"

The highest awards for creamery butter at Toronto, Canada, Sept. 8, 1899, went to users of the

REID LONG SPINDLE SEPARATOR

The following is an extract from the report printed by the *Toronto Globe*:

"In creamery butter, Mr. J. C. Bell, Winchelsea Creamery, Ont., who uses the celebrated Reid Separators and Pasteurizers, was awarded first and second prizes for the best butter produced. In the butter making contest, the cream used was shipped by W. A. Hutt, Aurora, who used the Reid Improved Separator and Reid Pasteurizer, and who also took first prizes at Winnipeg and St. John, N. B."

Write for Separator and Pasteurizer books and catalogue of creamery supplies; all free.

A. H. REID, 30th and Market Sts., PHILADELPHIA, PA., and CEDAR RAPIDS, IOWA.

THE NEW GUERNSEY SCALE OF POINTS.

At the late meeting of the American Guernsey Cattle Club in New York City, the committee on the revision of the scale of points, consisting of President J. M. Codman, Secretary W. H. Caldwell and W. D. Hoard, who have had the matter under consideration for a year, made the following report:

At a recent Annual Meeting of The American Guernsey Cattle Club, the undersigned were appointed to revise the Scale of Points of Excellence for the Guernsey. After carefully considering the matter, the enclosed Scale has been prepared, and is now submitted for your consideration.

It has been the endeavor of the Committee to have this scale a guide to breeders as well as for judges in the show ring. The question of the "utilty" of the animal was first considered as it was believed that upon that, more than fancy show points, rests the best future of a dairy cow. With that as a basis, the peculiarities of a Guernsey have been introduced in such manner as would encourage uniformity in the efforts of all breeders, and a guide to judges.

W. D. HOARD,
JAS. M. CODMAN, } Com.
WM. H. CALDWELL.

After considerable discussion by members of the club, the following scale was adopted, and will hereafter be considered as the Official Scale of the Club:

FOR COWS.

DAIRY TEMPERAMENT, CONSTITUTION. 38	Clean cut, lean face; strong muscular jaw; wide muzzle with wide open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad	5	
	Long, thin neck with strong juncture to head; clean throat. Back bone rising well between shoulder blades; large rugged spinal processes, iudicating good development of the spinal cord	5	
	Pelvis arching and wide; rump long; wide, strong structure of spine at setting on of tail. Long, thin tail with good switch. Thin, incurving thighs	5	
	Ribs ample and fully sprung and wide apart, giv ng an open, relaxed conformation; thin, arching flank	5	
	Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitalty	15	
	Hide firm and loose, with an oily feeling and texture, but not thick	5	38
MILKING MARKS DENOTING QUANTITY OF FLOW. 10	Escutcheon wide on thighs; high and broad, with thigh ovals	2	
	Milk veins long, crooked, branching and prominent, with large wells	8	10
UDDER FORMATION. 26	Udder full in front	8	
	Udder full and well up behind	8	
	Udder of large size and capacity	4	
	Teats squarely placed and of good and even size	6	26
COLOR OF MILK. 15	Skin deep yellow in ear, on end of bone of tail, at base of horns, on udder, teats and body generally	15	15
MILKING MARKS DENOTING QUALITY OF FLOW. 6	Hoofs amber colored	2	
	Udder showing plenty of substance but not too meaty	4	6
SYMMETRY AND SIZE. 5	Color of hair, a shade of fawn with white markings. Cream colored nose. Horns amber colored, small, incurved and not coarse	3	
	SIZE FOR THE BREED—Mature animals, four years old or over, cows about 1100 lbs.	2	5
	Total		100

FOR BULLS.

DAIRY TEMPERAMENT, CONSTITUTION. 38.	Clean cut, lean face; strong sinewy jaw; wide muzzle with wide open nostrils; full, bright eye with quiet and gentle expression; forehead long and broad	5	
	Long, thin neck with strong juncture to head; clean throat. Back bone rising well between shoulder blades; large rugged spinal processes, indicating good development of the spinal cord	5	
	Pelvis arching and wide; rump long; wide, strong structure of spine at setting on of tail. Long, thin tail with good switch. Thin, incurving thighs	5	
	Ribs ample and fully sprung and wide apart, giving an open, relaxed conformation; thin, arching flank	5	
	Abdomen large and deep, with strong muscular and navel development, indicative of capacity and vitality	15	
	Hide firm and loose, with an oily feeling and texture but not thick	3	38
DAIRY PREPOTENCY. 15.	As shown by having a great deal of vigor, style, alertness, and resolute appearance	15	
RUDIMENTARIES AND MILK VEINS. 10.	Rudimentaries of good size, squarely and broadly placed in front of scrotum. Milk veins prominent	10	
COLORING OF MILK. 15.	Skin deep yellow in ear, on end of bone of tail, at base of horns and body generally. Hoofs amber colored	15	40
SYMMETRY AND SIZE. 22.	Color of hair a shade of fawn, with white markings. Cream colored nose. Horns incurved, not coarse	8	
	SIZE FOR THE BREED.—Mature animals, four years old or over, bulls about 1,600 lbs.	4	
	General appearance	10	22
	Total		100

EXPLANATORY NOTES BY COMMITTEE.

We recognize the Guernsey should be—

FIRST.....A dairy animal with a distinctive dairy temperament and conformation, having a strong, nervy structure with a corresponding flow of nervous energy, and every indicaion of capacity and vitality.

SECOND.....In color of hair, a shade of fawn, with white on limbs and under part of body is considered the prevailing markings, and some degree of uniformity is desirable.

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We have thousands of all the best varieties of TREES and PLANTS. Full description in our **Catalogue—it's free.** Send for it *to-day*. **We can save you money.** Address
HIGHLAND NURSERY CO., Rochester, N. Y.

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

THOROUGHBRED JERSEY SALE.
My entire herd of 5 A. J. C. C. cows, 4 heifers from 2 mos. to 2 yrs. old, 4 bulls from 1 to 2 yrs. old, will be sold at Auction at the Bennett Farm, near Oregon, Dane Co., Wis., **Jan'y 26th,** at 10 a. m. Also six high grade Jersey Cows. Mrs. L. J. BENNETT & SON, Oregon, Wis.

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.**
R. C. GREEN, Albion, Wis.

Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

BLACK EARTH JERSEY HERD
is headed by Diploma's Victor 50310; sire, Recorder 29239; dam; Nice 68027, full sister to Merry Maiden 64949. Young bulls for sale reasonable. Address, FRED STUBLEY, Black Earth, Wis.

Hood Farm Jerseys **FOR SALE**—Inbred Combination bull. Dropped Oct. 10, 1898. Few white markings. Sire, Mint, sire of 3 in 14 lb. list, by Diploma, sire of 51 in the list. Dam, Straight Lace, 15 lbs. 2½ oz., a deep milker; 2d dam, Statue, the dam of Minty 2d of H. F., 15 lbs. 3½ oz. in 7 days and 23 lbs. 14 oz. in 11 days with second calf. Write for price to HOOD FARM,
Lowell, Mass.

EUROTAS
Made more Jersey history than any other cow. In honoring the sires don't forget the dams. Some dams have brought forth sons; some milk; some butter. Eurotas had sons, great sires of great cows. Eurotas gave milk. Eurotas made butter; 778 pounds in a year. Write me for a pedigree of her grandson, Pedro of Fairfield.
W. F McSPARRAN,
Fairfield Stock Farms, Furniss, Pa.

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DIPLOMA'S SUCCESS 56608.
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Chester White, Berkshire and Poland-China **SWINE,**
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
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Exile of St. Lambert 13657
Sire of 79 Tested Daughters.
"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
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Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
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Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
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A. J. C. C. JERSEYS
Of the **St. Lambert** and **Coomassie** strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address,
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FOR SALE—For a short time we are offering A. J. C. C. **Jersey Bulls** from two to fourteen months old at **reduced prices.** They are from choice cows and are sired by St. Lambert of Brodhead 46957, one of the best of bulls, as his pedigree will show. We also have a few cows and heifers for sale. Write for catalogue.
N. N. PALMER & SON, Brodhead, Wis.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

MILLER & SIBLEYS JERSEYS.
Ida's Rioter of St. L. leads all other bulls in average for 29 tested daughters, viz.: over 20 lbs. of butter apiece in a week. All full weekly tests, by eight different owners. He weighed 1,760 lbs. His dam's record, 455½ lbs. milk, 30 lbs. 2½ oz. butter (official test) in 7 days. **FOR SALE**—Grandsons and granddaughters of Ida's Rioter of St. L.; also cows in calf to his sons.

224 First Prizes and Sweepstakes at 22 State Fairs or great Exposi- **224**
sitions. Big cows, Sound cows, Heavy Milkers and Great Butter Makers. Our Adelaide of St. Lambert gave 82¾ lbs. milk in one day, 2005¾ lbs. in one month, the world's Jersey record. Many other championship records. No catalogue Special literature sent if this paper is mentioned No animal sold for less than $100. Lowest price for quality. Every animal tuberculin tested before sale, if desired. Also for sale, Children's Ponies and Imported Shropshire Sheep.
Franklin, Venango Co., Pa.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS,**
Greensburg, Ind.

A 6 MOS. OLD Bull Calf 56¼ Per Cent TORMENTOR Solid color, well grown, robust Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. - J. P. BRADBURY, Pomeroy, Ohio.

THIRD.....One of the important distinguishing features of the breed is the presence of a yellow color in the pigment of the skin, which is indicative of rich, golden color in the milk. This is more marked in the Guernsey, and held by her to the greatest extent under all conditions of stabling and feed. The intensity of this trait varies in different animals and families, but it should be kept at the highest standard. It is fast being recognized that this color gives a superior flavor to the milk and thus to the butter.

DAIRY TEMPERAMENT.

By the "Dairy Temperament" is meant a strong, overruling pre-disposition or tendency to turn the consumption of food towards the production of milk with a high content of solids, especially butter fat, as against the constitutional tendency so often seen to turn food into flesh. Even in the strongest dairy breeds there are more or less frequent out-crops in male and female of the flesh-making temperament. To breed from such animals, while we are striving to establish a prepotent dairy temperament or tendency, is not wise. All cattle bred specifically for dairy purposes should possess a clear and decided dairy temperament, for it is that quality of character we most desire to establish, enlarge and perpetuate in the Guernsey cow.

This is especially indicated by the shape of the head (showing brain capacity), wide muzzle, open nostril, full bright eyes, feminine neck, and a construction of the back bone indicating a strong flow of nerve power and support from the brain to all of the maternal organs.

CONSTITUTION.

In breeding our domestic animals, especially for long service, like the dairy cow, it is very important that they should have abundant vital power, which we call "constitution." But "constitution" must be judged and measured by the peculiar function the animal is bred to fulfill. With the race horse the function is speed; with the steer, the laying on of flesh; with the dairy cow, the production of milk solids. In all these various functions the animal, that is to represent any one of them, must show not only large capacity in the line of that function, but also the ability to endure long and well the strain of such function, and keep in good health. Constitution is best indicated by a full development at the navel, and strong abdominal walls, showing that the animal, when in a prenatal state, was abundantly nourished by the mother, through a well developed umbilical cord.

PREPOTENCY.

In the scale for bulls, for the first time, we believe, in the history of dairy breeds, this point is introduced. The reason we have included it is that "prepotency" is the chief consideration in the selection of all male breeding animals. The pedigree and conformation is often all that can be desired but because the bull is lacking in prepotent breeding power he is an expensive failure. This quality is, in a sense, difficult to perceive or describe, but we know certain animals have it in high degree and others fail of it completely. It is fairly well indicated by vigor of appearance, strong resolute bearing, and abundant nervous energy. A dull sluggish spirit and action, we consider is indicative of a lack of true dairy prepotency, but we would prefer to breed to a rather sluggish appearing bull with first-class rudimentaries than to a stylish one with badly placed rudimentaries.

RUDIMENTARY TEATS.

We consider a well balanced and well shaped udder in the cow is largely due to the way the rudimentary teats are placed on the sire. If they are crowded close together the result is likely to be narrow pointed udders. If they are placed well apart, of good size and well forward of the scrotum, the effect, we think, will be to influence the production of well shaped udders in the resulting heifers and counteract the tendency to ill shaped udders inheritable from dams deficient in this respect. We believe the future excellence of the Guernsey cow will be greatly aided by close attention on the part of her breeders to this point.

Garbancillo (?) Poisonous to Cattle.

ED. HOARD'S DAIRYMAN:—I herewith enclose a specimen of a plant, indigenous to this climate growing in low wet places, known here as "Garbancillo," the diminutive of pea. I believe it belongs to the vetch family. My object in sending it to you is to ascertain if poisonous to cattle as claimed by the natives.

I quite recently lost a valuable Jersey cow, which had been in milk 8 months. She was taken ill and died within 48 hours. The natives declare she eat of the Garbancillo. Any information regarding the plant will be highly appreciated. J. C. RAY.

Tampico, Mex.

The above was submitted to the Department of Agriculture, Washington, D. C., and the following answer was returned:

The name, Garbancillo, is really a misnomer, for the plant is not really a representative of the pea family, but a specimen of Euphorbia. The species of this genus are very numerous in Mexico and are very difficult of identification. The specimens sent are very fragmentary and it has therefore been found impossible to name the species.

The Euphorbia are all more or less poisonous.

In addition to what is said there I might say that a case of cattle poisoning was reported to me against a species of spurge very similar to the one which you have sent. I have no doubt that the species sent may have caused the death of your correspondent's cow. V. K. CHESNUT.

U. S. Department of Agriculture.

Silage Spoiling.

ED. HOARD'S DAIRYMAN:—I send you my fourth dollar for another year's course of dairy study, the cheapest information I can get for the money.

Having built me silo this summer and used it for the first time, I would like to know what caused the spoilt silage around the outside. The silo is the round stave pattern made of fir timber, the greatest timber to shrink and swell there is, except Michigan basswood. The silo is thirteen by twenty-four feet high with nine half inch round iron hoops; the staves are 2×6×24 feet, and rest on a brick wall laid in cement and top of wall even with top of ground. The silage rests on the ground. I banked up against the staves with clay, I tightened hoops before filling pretty tight, I thought as the washers drew into the wood, and filled with whole oats and one load of corn, filling about half full by hand and the rest with hay fork. The silage in the center is all right except the outside which is kind of dry, mouldy and some rotten like manure or old rotten straw. I sometimes think it wasn't tramped enough around the outside but that's where I did all my tramping, so don't know what to think about it. The joints were so tight on some of the staves that you could not tell them from the grain in the wood. I had to loosen the two bottom hoops twice and then the washers were drawn in to the wood a quarter of an inch. This is the first stave silo in this part of the county, so of course there are a good many watching it to see whether it is a success. I expect to put in whole clover or oats next year and give it more tramping, and also coal tar it on the inside and cement it on the bottom, if you think it a good plan. Would cement up on the side of staves but am afraid the swelling of the staves would crack the cement. I would like the opinion of some of the readers who have had experience with whole clover or oats for silage, as they grow to perfection in Oregon. Can grow good corn but don't mature early enough to be sure every year, the frost cut it when the kernels were starting to form this year. Success go with you into the new year. H. V. W.

Washington, Co., Oregon.

The reasons for spoilt silage are numerous but in this case it is probable that the oats caused the trouble.

None of the hollow stalked grains can be used for silage. They contain so much air and pack so poorly that they are liable to mold and spoil in spite of all the care, possible. If corn does not mature, it may be necessary to fall back on clover, alfalfa or some other crop particularly suited to Oregon conditions.

It would be of no advantage to cement the inside of a stave silo, as the constant shrinking and swelling would cause it to check off.

Are You a Cog?

If you are a workman or a clerk, and feel that you are like a cog in a wheel, going always but making no progress, write and learn how to prepare yourself for a really desirable position.

Change Your Occupation

We give complete courses by mail in **Electrical, Mechanical** or **Steam Engineering, Architectural or Mechanical Drawing, Surveying, Civil Engineering,** etc. We will advise you free.

The International Correspondence Schools,
Box 1242, Scranton, Pa.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

BUFF JERSEY, of Cedar Hill Jersey Farm, at Monmouth, Ill., can now fill all orders for breeding stock from his **Barred Plymouth Rock** and Single Comb **Brown Leghorn Eggs,** $1 per setting and $5 per 100.

"EVERYTHING FOR EVERYBODY" CATALOGUE, 450 pages, sent on receipt of 10 cts. for postage, or names of 5 or more heads of families who may be interested. Mention this paper. PATRONS SUPPLY HOUSE, 59 Lake St., Chicago.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys.
CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,**
Riverside Farm, **Owego, Tioga Co., N. Y.**

ROSENDALE
GUERNSEYS
Our herd has won first prize at the Wisconsin State Fair every year since 1894, and also won first at Minnesota State Fair and at the Trans-Mississippi Exposition in 1898. We keep only 400-lb. cows. Tuberculin tested.
GEO. C. HILL & SON, Rosendale, Wis.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.
FRED TSCHUDY & SON. Monroe. Wis

GUERNSEY BULLS
FOR SALE
Several young Guernsey Bulls of excellent breeding, from two months to two years old, at Glyndwr; by **OWEN BROS., Portage, Wis.**

"Florham" Guernseys.
First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,**
Farm Supt., Madison, N. J.


HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

OAK GROVE HERD H-F. Cattle.
Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD
Holstein-Friesians. 5 choice high grade one-year-old heifers and one bull 15 months old. 8 bull calves. Choice **Chester White Sows.** Address, W. R. GATES, Prop., Fort Atkinson, Wis.

NO crop can grow without Potash. Every blade of Grass, every grain of Corn, all Fruits and Vegetables must have it. If enough is supplied you can count on a full crop—if too little, the growth will be "scrubby."



Send for our books telling all about composition of fertilizers best adapted for all crops. They cost you nothing.

GERMAN KALI WORKS, 93 Nassau St., New York.

Holstein-Friesian Bull Calves
Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.
Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD
Holstein-Friesians.
Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians
MECHTHILDE BULLS FOR SALE,
Address **M. W. BARDEN,** Portage, Wis


Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest tested relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three 3rd and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW
A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

New Years Greeting!
Holstein Bull, Alberta Sir Mechtchilde 25502, 20 mos. old. His six nearest dams average each 29 lbs. 6½ oz. of butter in seven days. His dam and sire's dam won first prizes at N. Y. State Fair, N. Y. and N. E. Fair, and at Great New Eng. Fair 1890. The former as the champion yearling, the latter as the champion cow—never defeated. Alberta Albekerk 3d, 18 lbs. 8 oz. at 2 yrs., Mechtchilde, 39 lbs. 10½ oz. (world's record) have produced this youngster. Greater animals never existed in one pedigree. Maplewood's most famous blood is offered here.
VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.
Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

The Big 4 at Brookside.
THEIR HOLSTEINS.
Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.
We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.
HENRY STEVENS & SONS, Lacona, N. Y.

—FOR SALE—
THE HOLSTEIN BULL
Belle of Verona's Clothilde Boy No. 23408
H. F. H. B., bred by Smith, Powell & Co., Syracuse, N. Y. **W. M. BURR, Cazenovia, N. Y.**

Dairy Straws from Ohio.

Ohio Jerseys—Effect of Oleo on Dairying—The Ohio Dairy School—Breeding up the Dairy Herd.

ED. HOARD'S DAIRYMAN:—I have just returned home from a two week's travel in Ohio at farmer's institutes. The work starts in with great interest and success, if packed houses are any indication of the people's appreciation of these gatherings. Southern Ohio cares little for dairy interests except an occasional herd located near the larger cities along the Ohio river. Only recently one of the leading Jersey herds was dispersed near Pomeroy, owned by Judge Bradbury, containing some of the best bred animals that mark the identity of the St. Lambert family.

These cattle found buyers from a great many states where great benefit must naturally come from the introduction of such excellent blood, into different herds.

It was with much regret that we noticed the neglect of dairy pursuits in this portion of Ohio. Likely some of the chief discouragements come from the fact that the cities there are less populous and we might add not so thriving as those elsewhere in the state. These conditions, more or less, effect our dairy markets and with little encouragement to foster the industry, it has fallen greatly into disrepute. I am persuaded that Ohio is not holding her own as a dairy state but giving back somewhat from the reputation she had some years ago. It is quite seldom that we strike a section in institute work that has a booming dairy business

The fact that Columbus and Cleveland have extensive oleo factories located in them, which make about 2,500,000 lbs. each of that material, colored and tinted to imitate he very finest creamery made in the state, has doubtless much to do with the present state of affairs. The aggressiveness with which these factories push their imitations into towns and cities to the detriment of good butter, is amazing.

While we think what Prof. Henry has to say in condemnation of the diluting system for raising cream is the truth, and should be discouraged, we are sure that even that system is improving much of our farmer's butter. Improved from the fact that less bad odors, dirt and dust get into the milk. That induces them to care a little better for their cows and stables, resulting, we think, in a general improvement over their old careless way of setting their milk.

Sooner or later they will find that there is a better way to make a better grade of butter, and will adopt it, wondering why they did not see the light of another day earlier in their dairy work.

It always seems strange that hotels and boarding houses do not purchase their supply of butter from those who make a good article, and hold it uniform, instead of getting the poorest of quality, simply because it can be gotten cheap.

There is little doubt but that they save in two ways, from the small quantity consumed, and in the cheaper cost of the product, but on the other hand would it not be money in their pockets, if the house had a reputation for using a fine quality of dairy butter on their tables. I know of hotels that have a "Rep" all over the state for having everything "just right," and traveling men, if at all near at hand, make a break there to spend Sunday, and even have to secure rooms by telegraph.

If there is anything that disgusts a traveler, it is to find every article of the dairy kind, from the skim milk to the cheese, clear off, and he certainly succeds in getting his disappointment satisfied.

The Dairy School connected with the Ohio State University, at Columbus, has been doing good work towards improving work in certain circles, but it is difficult to reach those who need instruction most. The Dairy School, through Prof. Thos. F. Hunt, Dean, has the services of Prof. J. W. Decker, of Wisconsin, to superintend the work at the Dairy School, with an equipment for work that is unexcelled. Prof. Decker will be reinforced by Profs. Herrick, Cronner and Smith in the dairy department, all men well equipped to instruct the students, who come there to get a scientific knowledge of dairy work.

While we are persuaded that the student, who gets through the dairy school, is by no means prepared to take up the work of either a dairy or a creamery alone, from what he may learn in so short a period, yet the knowledge secured will greatly advance him in the taking up the work rapidly afterward. While theory is provident in its measures, looking toward improvement, it is not by any means a practical demonstration of actual work.

From this very fact there are hundreds of co-operative factories over our state, that are isolated monuments of inexperience, and incompetency, and which were launched out under the colors of theoretical practices, managed by those who had little schooling in the art of handling dairy products along with young graduates from dairy schools; the latter having no experience, except what was obtained under instructors, and that under the most favorable circumstances.

To prove our position, we point out the French Bros., of Cincinnati, with their wonderful dairy interests, establishing every year more or less factories, or skimming stations in the locality of Cincinnati. They pay to their patrons within two cents of Elgin quotations for butter fat, and return back, over 80% of each farmer's weight of milk, in skim milk.

One of the causes that make patrons complain, when there is complaint, comes from the lack of strong milking cows that will test high, and these gentlemen are always desirous that such patrons should obtain good cows, either by purchase or by breeding. It is certainly obvious to all concerned, that poor cows are a vexation to their owner, and when displaced, great care should be exercised in replacing them with ones that will give a goodly mess of milk, rich in fats, and that hold out well through their milking year.

We have always maintained that no surer and quicker means can be employed to secure such results, than to head the best part of a herd of dairy cows, with a bull from a herd of butter producers, with a line of dams on both sides that have been producers. With such a sire, progeny can be produced that will respond with a 25% improvement over the cows on which he may be bred, at a very small investment, as compared with such value received.

Where this idea has been introduced for a few years, patrons have realized to a positive degree that it does pay, and are endeavoring, by the swiftest means possible, to accomplish an improvement that means more cash for the feed consumed, and, later, spent in performing such a miracle or transformation.

So many dairymen here, are endeavoring to hold fast to the beef idea, since beef cattle are in demand, but their efforts are disproving their ability to get results out of such cattle, failing to measure their value out in either class.

They never have and never will, and when they cease their senseless mixing of opposing factors in their business, then Ohio will come more into line again in her dairy acquirements.

GEO. E. SCOTT.

Ohio.

Dairy Items From Abroad, and Comments.

Cow Testing Societies in Denmark.

ED. HOARD'S DAIRYMAN:—These societies, which for some years have been spreading rapidly through Jutland, are now also making headway in Seeland, according to "*Ugeskrift for Landmand*," as many as twenty-seven such societies are now being started in that island. In order to secure a uniform system for testing, which beside other advantages, especially makes it possible to arrive at a comparison of the results reached by the various societies, the directors of these, officials of cattle breeding societies and members of the Seeland Agricultural society were invited to a meeting in Copenhagen for the discussion of this important question.

THE LARGEST CREAMERY IN DENMARK

will soon begin operations. Thus far the average Danish co-operative creameries have been erected and furnished at a cost of about $5,000.00; this new establishment will, when finished, cost about $65,000.00. This factory is arranged both for butter and cheese making and is located in a small town, Hasleo on Seeland (which is the island on which Copenhagen is located). To begin with, the milk is secured from 16 large estates

Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

IT'S AS GOOD AS ANY AND BETTER THAN MANY.

ALDERNEY BUTTER COLOR

Acknowledged by All who use it to be

Superior in STRENGTH, PURITY, BRILLIANCY and UNIFORMITY.

If you are not using it, we want you to try it. We will send a sample Free on request.

THE HELLER & MERZ CO.,
55 Maiden Lane, New York.

CHICAGO: 14 N. Clark Street. BOSTON: 98 Commercial Street. PHILADELPHIA: 109 S. Second Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



LOW PRICES ON THE

Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,
Cedar Rapids, Iowa.

SAVE FEED

Stock thrives best, fattens fastest, and you save one-third to one-half feed by cooking with the

KALAMAZOO Feed Cooker

Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

LULL & SKINNER CO., Kalamazoo, Mich.

SEED DUE BILL FREE

To get new customers to test my **Seeds**, I will mail my **1900 Catalogue**, filled with more bargains than ever and a **10c Due Bill** good for **10c worth of Seeds** for trial **absolutely free.** All the **Best Seeds, Bulbs, Plants, Roses, Farm Seeds, Potatoes, etc.,** at lowest prices. **Nine Great Novelties** offered without names. I will pay **$50. FOR A NAME** for each. Many other novelties offered, including **Ginseng,** the great money making plant. Over 20 varieties shown in colors. **$1100 in cash premiums offered.** Don't give your order until you see this new catalogue. **You'll be surprised** at my bargain offers. Send your name on a postal for catalogue today. **It is FREE to all.** Tell your friends to send too.

F. B. MILLS, Box 111 Rosehill- Onondaga Co., N. Y.

with about 3500 cows, which either send the whole milk or only the cream; it is expected that soon 10 more estates will join. The skimming of the milk will be done by 4 large separators; the daily running expenses are estimated at $55.00.

The salary of the business manager will be $1,300.00 a year besides percentage on proceeds; a boss buttermaker's salary, $1200; a boss cheese maker's salary, $900.00; and an engineer's salary, $450.00. The "lockout" of working men in Denmark has delayed the starting of the business. This factory will not merely be the largest in Denmark, but every effort will be made to make it a model in every direction, in order to attract the attention of professional dairymen beyond the borders of this country. As to the salaries and expenses mentioned, we must keep in mind that all living is much cheaper in Denmark than here.

DAIRY CONGRESS IN RUSSIA.

During the Russian dairy exhibition in September at St. Petersburg, a congress was held at which the director for commerce and manufacture, W. J. Kowalewski, made an address in which he showed by what means the great dairy industry of that country should be pushed forward. As at present the general condition of the Russian populace is very unfortunate, the only means is a foreign outlet.

The congress arrived at the following conclusions: 1. That co-operative creameries should be established. 2. That societies for the sale of dairy products should be organized. 3. That exchanges for dairy products should be opened in various cities. 4. That periodically dairy conferences should be held and other means adopted in the interest of the dairy industry and the traffic in dairy products.

Some of our dairymen may say, what do we care what Russia does? Well, we may care a good deal after awhile. Russia will yet be a great competitor in the world's, and especially Great Britain's, market and it is well enough to keep our eyes open for what progress they make. When I made "Parisians" butter in Finland 25 years ago, the only fine butter used in St. Petersburg came from Finland. Now not only has Finland to export its butter to England, but Russia itself is a considerable exporter. When these conservative, despotic countries, make up their mind to make a move in any direction, whether it be a railroad from Moscow to Vladivostok on the Pacific coast, or the export of butter and cheese to England, they move sure enough—alas, a good deal faster than our democratic government can make things move here.

NUMBER OF COWS TO HUNDRED INHABITANTS.

In Denmark we find 45 cows to 100 people, in Finland 40, in Canada 38, in Sweden 35, in Norway 34, in Switzerland 22, in United States 21, in Germany 20, in Austria Hungary 18, in Holland 18, in France 17 and in Russia 11; Spain, Greece and Italy have a still smaller number. And if it were not for the comparatively advanced state of dairying in Finland and the Baltic provinces, Russia's average would be considerably less.

J. MOLDENHAWER.

Washington, D. C.

Effort to Pardon Wilkins.

With characteristic impudence, the oleomargarine interests of this country have set about to endeavor to undo the work of the courts which sentenced Joseph Wilkins to six months in penitentiary and $1,500 fine for removing the oleomargarine stamps from a shipment of the goods, which he was preparing to sell as butter in his house at Washington.

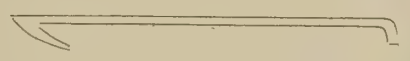
Wilkins and his clerk were caught redhanded at Philadelphia in this act, and so far as has ever been brought to light, there are no mitigating circumstances. It was simply an act of fraud, made crime by the law of 1886, which up to this time had never been enforced as to jail sentences, but violators had been permitted to come up and compromise by paying a penalty fixed by the revenue department when the officials of the latter chanced to stumble upon violations.

It is scarcely probable that President Mc Kinley will listen to this plea of these outlaws. It would be one of the worst political moves that he could make, and at this time in particular would be unfortunate for him and his party. The farmers in the United States are in no frame of mind to have their interests sacrificed in such manner and would not hesitate a minute to make an issue of such an unwarranted use of executive clemency.—*Chicago Produce.*

To Keep the Shredded Corn Fodder from Heating.

ED. HOARD'S DAIRYMAN:—No subject is more important for the farmers in this latitude than the care and use of corn stover. Anything bearing on this must be useful. I therefore wish to tell your readers of a cheap and simple, yet very useful device for preventing husked fodder from heating.

Yesterday I visited a friend, who had his corn husked and shredded by a traveling husker. Although the fodder was by no means dry when put in the mow, it is now perfectly bright and sweet. My friend packs his shredded fodder as closely as possible in his mow. Finding after a day or two that it began to heat, he went to his forge and made himself a sort of harpoon out of ⅜-inch rod iron, a sketch of which I send herewith.



HARPOON FOR VENTILATING SHREDDED FODDER.

This he plunged into the mow as far as he could reach and drew it out, thus pulling out a few handfuls of fodder and making a vent or air hole into the mow. He did this repeatedly until the heat went down, which only took an hour or two. Anyone can make such a tool in a few minutes if he has a forge, as every farmer ought to have; if not, a blacksmith will make it for a few cents.

This device may be a very old one, at any rate it is new to me, and my friend thinks it is an original idea, and that it has saved his fodder, which otherwise would soon have become musty.

In this section our hay crop was poor, and we depend largely on corn hay for horses as well as cattle. We believe it is the best and cheapest roughage for stock of every kind. Hence the importance of any plan to save it in good shape.

Allen Co., Ind. ALEXANDER JOHNSON.

A Happy Mother

Frolicking with her baby makes one of the prettiest spectacles ever seen in the home. But nothing is sadder to see than the unhappy mother, weak and nervous, striving in vain to hush the cries of her weak and nervous babe. There can be no happiness for either mother or child without health. Doctor Pierce's Favorite Prescription "has done wonders" for many a woman, by restoring her health and opening for her the way to happy motherhood. This really wonderful medicine is not a cure-all. It is a preparation specially designed to cure diseases peculiar to women. It dries debilitating drains, heals inflammation and ulceration, cures female weakness, and removes the causes which generally make women nervous and sleepless.

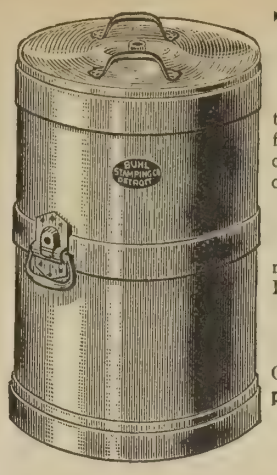


There is no alcohol in "Favorite Prescription" and it contains no opium, cocaine or other narcotic.

Mrs. James W. Blacker, of 629 Catherine Street, Syracuse, N. Y., writes: "Your medicines have done wonders for me. For years my health was very poor; I had four miscarriages, but since taking Dr. Pierce's Favorite Prescription and 'Golden Medical Discovery,' I have much better health, and now I have a fine healthy baby."

Use Dr. Pierce's Pleasant Pellets with "Favorite Prescription" if the bowels are inactive or irregular.

The Best Factory Cans.



The strong points of the Buhl Milk Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Handles.

Look for the Milk Can Trademark.

This can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders. Capacity, 15, 20, 30, 40, and 50 gallons.

Refuse Imitations.

We make all patterns and sizes of Factory and R. R. Milk Cans, and will gladly mail you our hand-book free. **We make prompt shipment.**

The Buhl Stamping Co.,
DETROIT, MICH.



TO BUY at the right price, go to headquarters. Operating my own tin plate works, with an output of . . .

1000 MILK CANS

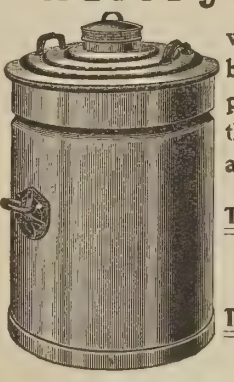
per day, comprising the various patterns used throughout the country, puts me in a position to interest you.

No Creamery or Cheese Factory

should be without a copy of my 1900 handsomely illustrated catalogue, *which may be had for the asking.*

FRANK STURGES,
Successor to THE CHICAGO STAMPING CO. **CHICAGO.**

Factorymen



who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



EMPIRE STATE. UNION.

—MADE SOLELY BY—

OAKES & BURGER, - Cattaraugus, N. Y.
Manufacturers of DAIRY APPARATUS AND SUPPLIES.

Mr. VALANCEY E. FULLER, in his pamphlet on the ST. LAMBERT family of Jerseys, **places KING OF ST. LAMBERT'S KING 30752 in front of all other Jersey sires,** when he says:

"Mr. Hart has now in his herd all the registered daughters of King of St. Lambert's King, 16 in number. *I am frank to admit that I never saw so many matured daughters sired by one bull* (save Stoke Pogis 3d) *who are their equals in individuality, in good dairy form, in large, well rounded foreudders, in large, tortuous and elastic milk veins, in uniformly large and well placed teats, in depth and length of barrel, in straightness of back, and all that goes to make a most desirable individuality.* They are not in the least degree coarse."

King of St. Lambert's King 30752

is at the head of my herd. I have for sale a few young bulls rich in his blood.

FRANK W. HART,

☞I have a few extra copies of Mr. Fuller's pamphlet, which I will mail free to applicants as long as they last. **Cleveland, Ohio.**

ABORTION PREVENTED

ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.
One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free.*
ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York.

Air Churns.

[Press Bulletin.]

Much is being done at the present time to induce the small dairyman either to buy or take the agency for some form of air churn, or other similar device, for which great things are claimed as to butter making capacity.

The writer, and heads of dairy departments in other institutions, have received frequent letters in regard to these dairy wonders, and this occasion is taken to state a few facts concerning them.

The value of any churn is dependent upon its simplicity and durability, upon the completeness with which it does its work, upon the power required to operate it, and upon the ease of cleaning it after the butter is removed.

Although there have been, it is claimed, more patents granted for churns than for any other single agricultural implement, with the possible exception of farm gates, nevertheless it is a fact that just as much and just as good butter can be made with the old-fashioned dash churn, as with the most modern churn known.

The principle of all churns is the same whether they are dash churns or the so-called air churns, and it should be remembered that no churn can get more butter from a given amount of milk or cream than it contains of butter fat plus a reasonable amount of water and caseous matter.

The writer has made a number of tests with a so-called air churn, and while butter of an excellent quality was produced at a low temperature in a remarkably short period of time, the labor required to operate the churn was so great as to render it practically useless in day after day, dairy work. If the same amount of agitation could have been produced in a dash or box churn, the butter would doubtless have come as quickly and in as fine condition as it did with the air churn.

While the various air churns and separator churns doubtless have certain desirable qualities, the reader must bear in mind that they possess no new principle and that they will not yield more butter than the cream contains. It is recommended that these churns be purchased only on trial of at least two or three weeks and after a comparison of price with other standard dairy churns.

H. HAYWARD.

Pennsylvania Experiment Station.

A Pointer.

C. A. B. S., ——— county, Cal., writes us in a post-script as follows:

Stick to your pelvic arch theory and your Babcock doctrine and tell the *Jersey Bulletin* that I said to him to give it up, because he is whipped.

From An Ohio Dairyman.

ED. HOARD'S DAIRYMAN:—I am again almost at a loss to know what to do, the past summer has taught me that a silo is almost indespensable.

This being my first year in the milk business, I sell milk at 10 cents per gallon by the year, keep 15 cows and would like to have a silo but do not feel able to build one, after buying about 10 head of cows and building a stable with cement floors. Next summer I expect to put in some corn expressly to cut through July and August, but would like very much to have a silo for next winter. We are not troubled to raise 100 bushels of corn to the acre, but some way hay does not grow well here, the soil is rather gravelly.

Would you advise me to borrow money to build the silo? Have timber in the woods.

What would be the cost of a silo sufficient to feed 15 cows? I want it big enough to feed the horses some, at least once a day. We keep 4 horses.

How many acres would it take to fill the silo?

I have been a subscriber of your paper for the last six months and find it a great help. If every reader would practice what he reads, it would not be long until they would be much better farmers. R. E. F.

N. Kingsville, O.

The DAIRYMAN cannot attempt to decide on the question of borrowing money. The conditions which make such a course profitable or otherwise, can only be known to the inquirer and certainly cannot be judged by a stranger.

To feed 15 cows a silo 15×19 will be required containing 54 tons of silage, and if you wish to feed a small quantity to horses, make the silo 3 or 4 feet deeper. It is better to have a little silage left over than to have a shortage and a consequent falling off in milk. The cost would depend on local prices of lumber which we cannot furnish. Your local dealer in lumber ought to be able to give you figures.

CONCERNING OUR ADVERTISERS.

RAPE, 25 CENTS A TON.

Greatest food on earth for sheep, cattle and swine. Salzer's catalogue tells also about Million Dollar Potato, and is mailed you with ten farm seed samples for 10 cents postage. John A. Salzer Seed Co., La Crosse, Wis.

IN THE LAND OF THE PHAROAHS.

As Rome was accounted to be the Mother of Nations, so was Egypt the Mother of Agriculture. In the wide out spreading and fertile valley of the Nile, agriculture attained under the regime of the Pharoahs the first great impetus which has kept it ever to the fore, as the leading and most congenial occupation of mankind. No pictured or written story of this land and these people is complete without reference to their agriculture. The most ardently worshiped gods were those who were supposed to exercise a patent spell, a quickening, as it were, over the growing crops. These things being true it is most fitting that S. L. Allen & Co. of Philadelphia, Pa., should devote the first page of their new 1900 Planet, Jr, catalogue to splendid views of the Nile and far-off Egypt. And, by the way, this brings to mind that we have never seeh a more artistic or comprehensive catalogue than the one just referred to. Of course it contains cuts and complete descriptive matter of the entire line of Planet, Jr., garden and farm tools, calling special attention to improvements and additions made to the line during the year. But, more than this, and of deepest interest, it gives sixteen full page reproductions from original photographs taken in this country and many foreign lands, showing the Planet, Jrs. in actual garden and field operation. The book, therefore, gives not only a comprehensive view of the merits of the tools, but introduces the reader to new and novel scenes of people, places and methods.

Can you imagine a camel harnessed to a cultivator or horse hoe; or a yoke of cattle at the same work in the valley of the Nile; or a single ox at work among the vineclad hills of France, or the famous Clydesdales of Scotland in a potato field; orrchard cultivation in fruit laden New Zealand; or a pastoral scene from antipodean Auslralia? Well, it contains all these and infinitely more. Allen & Co. have put out an edition of 350,000 of this splendid book, and it would seem that they had enough to "go round," but to make sure of getting a copy you had better write them at once. The book is mailed free to all inquirers. Kindly mention our paper in writing.

The following letter recounts recent sales from the old Homestead Guernsey herd at Perry, O., owned by L. V. Axtell and a rather interesting though short report of Mr. Axtell's recent visit to some of the "richly kept" farms near Baltimore:

ED. HOARD'S DAIRYMAN:—I think I shall soon be obliged to withdraw my card for Guernsey cattle, as our fall sales have been the largest in our experience, and the increase of our herd is about gone, for which I desire to give HOARD'S DAIRYMAN a large share of credit, and as one of my friends has suggested mention of our transactions in Guernsey cattle, in that leading journal, I shall be pleased, if space will permit, to give an account of our recent sales.

To Helen M. Sweet, of Oshkosh, Wisconsin, four registered Guernseys, a yearling bull and three fine heifers. The bull and two of the heifers were members of our exhibition herd, and were 1st and 2nd prize winners in '99. One yearling heifer to M. J. Shered, of Glendale, Michigan, very promising. To Oakwood Farm & Garden Co, Oil City, Pennsylvania, one bull 11 months old, a prize winner, and two fine three-year-old cows. To Robert G. Shaw, of Greenwood, Virgina, one bull 9 months old, whose dam was a first prize winner as yearling, and two-year-old. To A. P. Haskell, one bull 4 months old, a coming winner. To T. Edward Hambleton, of Lutherville, Maryland; the two-year-old bull "Butter Boy of Homestead," last year's 1st prize yearling at Ohio, Indiana, Illinois and Wisconsin state fairs, and two very fine heifers. To Henry A. Pair. of Lutherville, Maryland, the 12 month's bull "Red Oak of Homestead." This bull is worthy of especial mention, and was selected by Mr. Thos. J. Lea, the successful manager of Mr. Parr's extensive estates near Baltimore, Maryland, with especial reference to prepotent qualifications of his dam "Mariam Perry" for the year following his birth. This five-year-old cow gave in ten months, a yield approximated by semi monthly tests of almost 10.000 pounds of milk and over 500 pounds of butter, dropping another bull calf in exactly eleven months. I should be glad did space permit to give an account of what I observed among the herds of the breeders whom I visited on my last trip east. I will say that the prices obtained for milk and cream by the leading dairymen in the vicinity of Baltimore, Philadelphia and Washington, D. C., are enough to make a western man "die of envy."

Mr. Parr's milk brings 18 cents per gallon net and his dairy of 90 cows produces about 200 gallons per day

His cows are comfortably housed in a $25,000 barn, and in all departments of his farming business Mr. Lea has the management of about 20 men. Among other well equipped dairy plants which I visited were those of Mr. James Councilman at Mt. Wilson, Md.

A very large dairy of Guernseys and Jerseys may be found here at "Woodhome Farm"—two of the best of which Mr. C. informs me were bred at "Old Homestead Farm."

Mr. Councilman has a village all his own, consisting of about a score of pretty cottages, which he rents to the "summer boarder" class from the city.

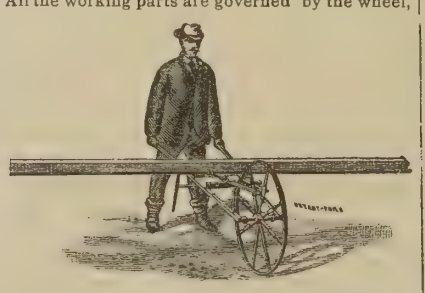
Probably Mr. Shumaker leads all the dairymen in the vicinity of Baltimore for exactness of method. His stables are flushed and disinfected every day. The stable men wear white duck suits at milking time. The milk is all sterilized and bottled, and is used almost exclusively for rearing the infants of the wealthy. This milk nets Mr. Shumaker 32 cents per gallon at the farm. I understand T. Edw. Hambleton, the Baltimore banker, who has recently manifested a decided intention of making his dairy as good as the best and has been adding some very fine Guernseys to his herd, has a well equipped farm of 300 or 400 acres, in the middle of which ½ a mile from the highway, but on an eminence commanding a view of the country for miles, around, stands the palatial residence in which he lives, said to have cost $100,000. In addltion to superintending his extensive banking interests, Mr. Hambleton finds time to personally manage his farm, in which he takes evident pride and delight L. V. AXTELL.

Old Homestead Farm, Perry, O.

ILLUSTRATION.

BROADCAST SEEDING.

There is no question in the minds of practical hay and grass growers of the manifold advantages of broadcast seeding. In every instance where careful experiments have been made a better stand of grass has been secured from broadcast sowing than from drilling. Fortunately, too, a good broadcast seeder can be procured which does the work in a thoroughly satisfactory manner. Since 1880 the Thompson Wheelbarrow Seeders have been on the market constantly growing in favor, both in America and abroad. This seeder is a sample machine, sold at a low price, and can be used by anyone who can wheel a barrow. It sows all kind of seed on any kind of soil, in any kind of weather, any amount to the acre, with absolute accuracy and evenness. All the working parts are governed by the wheel,



and there are no cogs or intricate machinery, to get out of order. Among its special advantages is the fact that the hopper is carried close to the ground and as the seed falls direct from the hopper to the ground it cannot be carried away by the wind. You are thus enabled to sow your grass seed when the conditions of the soil are right, without any interference from the wind. Different hoppers are provided for different varieties of seeds, so that everything can be sown from chaffy red top and orchard grass, up to wheat and oats. The seeders are well made of the best material and are giving many thousand farmers perfect satisfaction. We advise our readers to send for a free catalogue describing the machine in detail. Address, O. E. Thompson & Sons, Ypsilanti, Mich., and mention this paper.

The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.

Second-Hand SEPARATORS

I have on hand a lot of cream separators in good order that I will sell cheap for cash. Second-hand Sharples Factory and Dairy Separators; also De Laval Standard, Alpha and Baby Separators of almost all sizes. Also second-hand separators of other makes. Write for prices and particulars.

P. O. BOX 56, WEST CHESTER, PA.



FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer

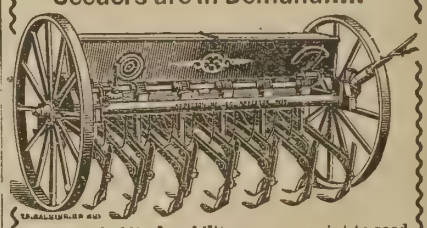
1 Pkg.	City Garden Beet,	10c
1 Pkg.	Earl'st Emerald Cucumber	15c
1 "	La Crosse Market Lettuce,	15c
1 "	Strawberry Melon,	15c
1 "	13 Day Radish,	10c
1 "	Early Ripe Cabbage,	10c
1 "	Early Dinner Onion,	10c
3 "	Brilliant Flower Seeds,	15c
Worth $1.00, for 14 cents.		$1.00

Above 10 Pkgs. worth $1.00, we will mail you free, together with our great Catalog, telling all about SALZER'S MILLION DOLLAR POTATO upon receipt of this notice & 14c. stamps. We invite your trade, and know when you once try Salzer's seeds you will never do without. $200 Prizes on Salzer's 1900—rarest earliest Tomato Giant on earth. F 194

JOHN A. SALZER SEED CO., LA CROSSE, WIS.

THE BADGER

Is Known Wherever the Best Seeders are in Demand.....



As a proof of its durability we can point to seeders sold 21 years ago still doing good work. It has an effective spring hoe which automatically adjusts itself to rough and uneven ground, a continuous steel frame, steel drag bars and every practical improvement essential to ease of operation, strength, durability and effective working qualities.

APPLETON MANFG. CO.,
35 Fargo St. BATAVIA, ILL.

Cordova Wax Candles



Nothing else adds so much to the charm of the drawing room or boudoir as the softly radiant light from CORDOVA Candles. Nothing will contribute more to the artistic success of the luncheon, tea or dinner. The best decorative candles for the simplest or the most elaborate function—for cottage or mansion. Made in all colors and the most delicate tints by STANDARD OIL CO. and sold everywhere.

40 Bu. BASKETS



ear corn an hour with the OTIS BALL BEARING MILL—burrs are 25 in. in diameter. Wt. 603 lbs. WE CLAIM it has the greatest capacity by ⅓ of any two-horse sweep mill on earth. BEST MADE is a claim made by ⅞ of the manufacturers without any reason or offering any positive proof.

YOU SHOULD BE THE JUDGE

WE BACK UP OUR CLAIM by shipping our mill to you ON TRIAL in competition with all so called Best Made mills. If the OTIS NO. 2 don't grind ⅓ more than any 2-horse mill you put it against, return it to us and we will pay the freight both ways.

WE BAR NO MILL—this offer open to the world. Order all mills made. Try them and keep the one that is the best. Our 336 page book, describing 63 kinds of grinders SENT FREE! Send at once for our trial terms.

Marvin Smith Co., 54 N. Jefferson St., O. 18 Chicago, Ills.

IN THE NICK OF TIME.

For best results seed must be planted at one time—all in one day, or before conditions change. This means even germination, all plants of the same size—a positive advantage in cultivation. The "PLANET JR." No. 4 Combined Seeder and Wheel Hoe meets all requirements. Sows in drills or drops in hills at any distance. Opens the drills, sows, covers, rolls and marks the next row at one operation. By slight and quick change it becomes a hoe, cultivator, rake or plow, throwing dirt to or from rows. It isn't a toy or plaything, but a strong, well made, durable tool of great efficiency and long life.

The "PLANET JR." line comprises in addition, Wheel Hoes, Horse Hoes, Pivot Wheel Cultivators, Orchard Cultivators, Celery Hillers, Markers, Levelers, Potato Diggers, Sugar Beet Seeders and Cultivators, etc. Each implement is equipped with a variety of attachments, making them suited to a number of uses.

The new 1900 "PLANET JR." catalogue, 350,000 of which are now ready for distribution, is in point of beauty, original illustrations and general utility the superior of any similar work ever published. It covers every variety of special and general gardening and farming, both in illustration and text. It's full of points of profit. We mail it free on application.

S. L. ALLEN & CO., Box 1107-D, PHILADELPHIA, PA.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

FAILURE TO COME IN HEAT.

I have a grade Jersey cow, four years old; has had two calves and has been milking, now, about 15 months. Does not show any sign of being in heat except when near other animals. Have taken her to be served six or eight times, but she always refused the animal. Once tied her to tree and was served, but it did no good. C. L. S.
Minneapolis, Minn.

ANSWER.

You need a sure and safe emmenogogue medicine to cause menstruation--heat. I can't advise you better than the medicine advertised in the DAIRYMAN.

PARALYSIS.

I have a number of last spring's pigs which have lately broke down, and began to drag their hind parts around. It seems impossible for them to walk at all. Some more of the same drove have blubbers or rupture under their belly, which began shortly after weaning, and at the present time the blubber is as large as a quart dipper. These hogs, from the time of weaning until now, have been getting all the corn they could eat, and milk from separator to drink. E. M. G.
Tripoli, Ia.

ANSWER.

Paralysis of the posterior extremities is a mysterious and quite dangerous disease, as in porcine anthrax, i. e. hog cholera, etc., etc. The opinions as to the causes are multifarious, and quite at variance with each other. Treatment is simple, but unreliable. Rub well all over the loins and back with common turpentine. Rub hard and long. If this does not succeed, rub with the following liniment: Oil of cedar, 4 ounces; strong camphorated spirits, 4 ounces; turpentine, one ounce; sulphuric ether, 2 ounces; fish oil, 20 ounces. Well shaken and out of the sun light, and well corked. Don't know what you mean by blubbers.

PERHAPS LUMP JAW.—LUMP IN TEAT.

Have a calf with swelling on lower jaw. What are the symptoms and remedy for lump jaw? If some swelling not so fatal as lump jaw, what shall I do with it?

Have a cow with a lump in her teat, we can milk it all right, yet there is some danger. D. J.
Thornhill, Ont.

ANSWER.

It may or may not be actinomycosis—lumpy jaw—but it is quite suspicious of it.

Cut off the hair close and paint over several times a day with strong tincture of iodine. This is for a common tumefaction, not for the disease above alluded to.

(As long as the milk can be drawn in the ordinary way, "it is better to bear the ills we have, than fly to others that we know not of."—OFFICE EDITOR.)

TICKS IN THE COWS EARS.

How can I get rid of ticks in the ears of my cows and calves. If we don't keep on the lookout they will literally stop up the ears of the stock. I go through the herd regularly once a week and clean out the ears with a blunt scraper and then anoint with lard, but in a few days they are back again as bad as ever. They don't seem to infest other parts of the body.

The variety appears to be the ordinary cow tick, which I have seen often on the back parts and between legs of cows, in the States.
Saltillo, Mexico. J. R. S.

ANSWER.

First carefully pick out all of the ticks, don't leave one in the ears. Use the following, and push back not too far, into the ears: Oil of tar two drams, only, fish oil, six ounces, kerosene, 2 ounces; to be well mixed at each time of using. I use for all such vermin, flies included, Shoo Fly, manufactured in Philadelphia. It is safe and effective, if used daily. I have used it five years and can conscientiously recommend it.

LUMPY MILK.

I have a cow that freshened about Oct. 1st. she seemed to be all right until about six weeks ago, when she commenced giving lumpy or clotted milk, from the left hind quarter. I gave her two or three doses of salts and bathed the quarter with camphor and spirits of turpentine which stopped the clotted milk in that quarter and also diminished the flow of milk. The right hind quarter seems to be affected the same way. M. H. V.
Vail's Mills, N. Y.

ANSWER.

Immediate full dose of physic, and repeat and *repeat*—it not well in five days, use the same liniment. Camphor always has a tendency to stop the secretion of milk. But, the flow will return after the disease is over, no doubt.

LUMP IN UDDER.—DEHORNING.

Have a cow which has a lump in right hind quarter of udder, it came there about 20 months ago but did not affect her much until about three weeks ago. This lump before this was about the size of a tea cup, and hard and in the top of the quarter at the back. Then about three weeks ago the whole quarter filled with a cake and excreted thick milk when milked, the original lump remaining the same as before. I gave her a drench of one pound Epsom salts, followed in seven days by another of the same amount. After the first drench I gave her daily sixty grains potassium iodide for twenty days. After about fifteen days' treatment the second gathering disappeared and the milk became natural again, but the original lump is there still. Is the milk now fit for use for making butter?

Have had my herd dehorned while I was giving her the iodide powders. And I noticed she was the only one that had matter running out of her horn. P. P. F.
Amprios, Ont.

ANSWER.

Nothing you can do is as good as the physicking; this is systematic. Generally, local remedies are of little value when such conditions exist, when compared with general internal medicine. Continue the iodide of potassa as may seem to be needed. Upon the original lump use strong tincture of iodine; put on with a camel's hair brush and be careful not to touch any portion of the udder but the tumor. Yes, the milk is fairly good. Aren't you asking a great deal, after 20 months' neglect, to expect a cure in one month?

It is due to the dehorning. If still sore and running, dress with compound myrrh and aloes, liberally, twice a day. If you do not keep the wound clean you are quite likely to have a serious and dangerous abscess form upon the head.

BUNCH ON KNEE.

I have a choice bred calf, Holstein bull, 10 months old, has had a bunch on his knee, since about 2 months old, about as large as a man's fist, soft. He is a little stiff in that knee. A. L. P.
Little York, N. Y.

ANSWER.

Above all things never open the sack; cut off the hair close and apply Gombault's Caustic Balsam two or three times a day until a strong scab is formed. Then stop using the balsam for awhile, cover with hog's lard daily until the scabs are off. Then you are to repeat balsam again as before, and so continue till you are satisfied you have done enough. Then report to me, if needed.

ECZEMA.

Heifer with first calf has scaly white scabs on neck and different parts of body; is said to have been in this condition over a year. Udder and legs chafe badly, appetite good, eyes bright, but has low vitality and has nearly dried up in two weeks, with calf; although have nursed her carefully. L. D.
Gunston, Va.

ANSWER.

I believe you have a bad case of neglected eczema—over a year. Pyroligenous acid, 16 ounces; oil of tar, 1 ounce; fish oil, 20 ounces. Rub this in with the finger to each individual pimple or scab, daily. Internally give the richest and most nutritious food and give 4 drams of blue flag and three ounces of old whisky, to which add 3 drams of burdock; one dose each day for 4 days; then wait 5 days; then repeat to 3 doses; then one dose every third day for 30 days, only. Pare your finger nails.

LACK OF POTENCY.

Last spring I secured a full blooded Jersey bull calf to head my cows, and although the calf is now about a year old, he is apparently no use for service as he has served four different cows and some of them as often as three times, but nevertheless all come in heat again in due time. H. F.
Silvana, Wash.

ANSWER.

Bulls, like all male mammals, are subject to many peculiar conditions. All males seem to be governed by physiological heredity. Some develop too soon, and soon pass out of the productive usefulness; some develop slowly, and last much longer in usefulness Let the bull be kept away from all service. You don't give the previous history of the calf. He, no doubt, was evidently raised, and allowed to serve before he was able to, without losing his vitality. Rest will save him, I think. If not, apply to me again.

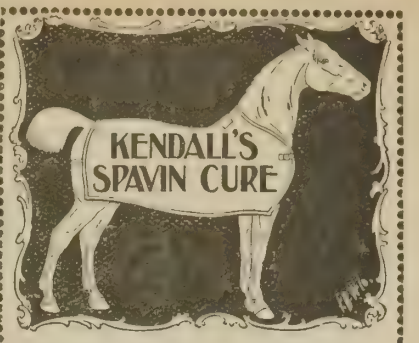
LUMP IN TEAT.

Bought a registered Jersey cow of a breeder some six or eight weeks ago, represented to be all right in every way. I found two quarters contained hard cores, the size of my fist, and gave very little milk. I have been unable to get rid of this core. Have fomented it with hot water, given physic once or twice and "Kow Kure" G. L.
Adams, Wis.

ANSWER.

In all my professional experience up to the present time I have never found anything so potent and as good, in any sense, as systematic and intelligent physicking and rubbing with the camphorated spirits and turpentine mixture, six of one, and two of turpentine. Massage is a great help in all such cases. It is to be followed up by regular and persistent practice.

My firm belief is, that you got a poor bargain, in the shape of a chronically spoiled udder. Never give anything not known to be fit for the disease. You may give seventy grains of iodide of potassa in a little cold water, as a small drench each morning for 20 to 50 days, as may seem to be needed.



WORTH $50 A BOTTLE To This Man.

It may be worth a like sum or even more to you.
Fingal, Barnes Co., N. D., March 19, 1898.
Dear Sirs:—I have used your Kendall's Spavin Cure and I think it a good Liniment. I have cured a Spavin on my best mare, and I would not take $125 for her, which I offered for $75 before. I will be pleased to have your book and receipts for this inclosed stamp, as I read on the cartoon.
Truly yours, FRANK SMITH.

It is an absolutely reliable remedy for Spavins, Splints, Curbs, Ringbones, etc. Removes the bunch and leaves no scar. Price, $1; six for $5. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," the book free, or address
DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.



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Hypodermatically administered, is a POSITIVE CURE for abortion in cows. Sworn testimonials furnished on application. Address
DR. D. ROBERTS, Vet. Surgeon, • Waukesha, Wis.

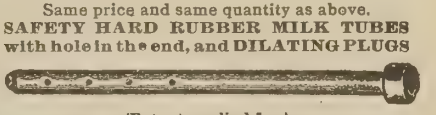
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Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to
H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.
Also Specific for
SOUTHERN CLIMATIC FEVER
Same price and same quantity as above.
SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS



(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
DR. WM. HORNE, Janesville, Wis.

Myself cured, I will gladly inform anyone addicted to COCAINE, MORPHINE OPIUM or LAUDANUM, of a never-failing, harmless Home Cure. Mrs. M. F. BALDWIN, P. O. Box, 1212, Chicago, Ill.

WANTED Agents for the Roney Hay Fork Returner and Seibel's Wind Mill Lubricator. Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.

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The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish*
Every bottle sold is warranted to give satisfaction Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars.
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Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

RUPTURE Sure Cure at home; at a small cost. No operation, pain danger or detention from work. No return of Rupture or further use for trusses. A complete, radical cure to all (old or young) easy to use, thousands cured, book free (sealed). DR. W. S. RICE, Box 353, Adams, N. Y.



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Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. FREE. A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.
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MARK YOU your live stock of whatever kind with the thoroughly reliable, rust proof, non-corroding, easily read.... ALUMINUM "STAY THERE" EAR MARKERS

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BROWN'S Bronchial Troches
the popular cure for
IRRITATED THROATS.
Fac-Simile Signature of John L. Brown & Son on every box.

GREAT GRASS.

Successful dairy farming makes heavy drafts on the best information that can be obtained in the production of all kinds of forage crops. To be a successful grass and hay farmer is a great thing, so great indeed that we have a hundred to one more men who are successful grain growers, than in grass and hay production.

A friend sends a clipping from an eastern paper, without stating its name, in which is the report of Mr. George M. Clark, of Connecticut, for the year, on his method of producing a heavy grass crop. Mr. Clark says:

My crop this year covers 7½ acres, originally seeded to equal parts of redtop and timothy, 16 quarts of each kind of seed to each acre. A part of it has been seeded ten years, and a part of it three years. All of it has a fair stand, particularly that part of the field that has been seeded ten years; this section of the field contains seven-eighths acre, and has yielded over 80 tons of well-dried hay in ten years. I did not expect much of a crop this year, for the reason that I had little time to devote to it, yet I have cut the largest average crop this year that I have ever had. I used 4,500 lbs. of Rogers & Hubbard's oat dresser, and spread over the field, 600 pounds to the acre, and when it was time to cut and put in the barn the hay was very thoroughly dried, and weighed 75,755 pounds, nearly 38 tons. The cost for each ton of hay in the barn was, for fertilizer, $3; spreading same, 15 cents; cutting and securing crop in barn, $1.20; total cost, $4.85. The hay is now worth $16 per ton in the barn, a clear net profit of $11 for the first crop. The second crop, without additional fertilizer, yielded a little over 7½ tons, and cost $2 per ton to cut and put in barn; a profit of $14. A net profit on the first crop of $416; second crop, $105. A total net profit of $521; over $500 from 7½ acres in the year 1899.

Considering the drouth which prevailed in Connecticut the past season, we consider the above showing a remarkable one.

Carbolic Acid for Abortion.

A Nebraska correspondent writes: "I have a herd of fifty cows and two of them have aborted. Is it prudent to allow these to range with the balance of the herd? If not, how long should they be separated?"

That depends altogether on the character of the abortion. As but two have aborted in fifty, it is probable that is due to slips, strains, hooks, or some other accident. In cases of this kind the loss is limited to the individual and is at most the loss of one calf. Under such circumstances it would not be necessary to separate them from the herd, as abortion arising from accidental causes is not contagious. As a matter of precaution, however, it would be well to separate them until they are completely restored to health and there is no evidence of vaginal disturbances. If, however, additional cases occur for which there is no known cause, then our correspondent should do something more than separate those that have aborted. He should separate all those that show signs of abortion and should begin a course of thorough, systematic treatment, disinfecting the stalls and stables, disinfecting the aborted animals, and giving the entire herd a course of treatment. The treatment we advise is carbolic acid, commencing with a quarter of an ounce to each cow twice a week. It should be dissolved in a large amount of water and thoroughly mixed with feed so that each cow will get her share and no more. We would increase this, in case abortion became frequent, to a half an ounce twice a week. Unless cows are particularly valuable as milkers, if we did not care to go to the trouble and expense or treatment of this kind, we would fatten them and sell them for beef. Unless the most heroic measures are taken and persisted in, epidemic abortion generally ruins a herd for either dairy or calf growing purposes. It is one of the most difficult diseases to deal with and the carbolic acid cure is the only one that we have ever known to be effective, and this only in the hands of men who would make it their business to follow up the treatment for months in all its details.—*Wallace's Farmer*

Transfers of Guernsey Cattle from Dec. 15 to 30, 1899.

BULLS.

Amber Boy 5628, B. J. Dodge to Wills A. Seward, Budds Lake, N. J.
Count Bishop 4366, Albon Parks to W. K. Scribner, Oshkosk, Wis.
Count Bishop 4366, W. K. Scribner to Geo. C. Hill & Son, Rosendale, Wis.
Earl of Somerset 5129, D. B. Wiley to Luther Gorden, Mommouth, Me.
Essie's King of Salem 5884, C. Wistar Thompson to E. T. Gill, Haddonfield, N. J.
Edder 6365, Wm. M. Paul to Jos. H. Mattock, Moorstown, N. J.
Gold Coast 6311, H. Mc K Twombly to S. M. Shoemaker, Stevenson, Md.
King's King 6069, A. M. Carr to Adam Bower, Salem O.
Knox Boy 5587, A. Culbertson to Isaac McCoy, Knox, Pa.
Lyman Lenfestey 6339, Howard B. Tuttle to Chas. Parsons, Conway, Mass.
Roselle's Gilt edge 6362, M. M. & E. J. Hollingsworth to P C. Pusey, London Grove, Pa.
Royal Pontie 6364, C. W. Bickford to Jonn P. Rowe, Rochester, N. H.
Sir Joseph 6361, Joseph Barnard to Frank R. Bennet, Mastyard, N.H.
Sir Faunt Elroy 6356, Dr. E. P. Turner to E. H. Knight, Garland, Me
The Major 6303, H. Mc. K. Twombly to Fairfield Dairy Co., Mont Clair, N. J,
Standard B. 6368, F. B. Buckley to Mrs. W. H. Bigelow, Brattleboro, Vt.
Tarsa 6276, Walter Cutting to C. H. Crafts, North Hatfield, Mass.
Yvette's Highland Chief 6360, W. A. Bullock to B. J. Dodge, Verona, N. Y.

COWS.

Betty Bay 12129, B. J. Dodge to W. A. Bullock, South Trenton, N. Y.
Bridget of Haddon 9454, Jeweller Girl 11254, E. T. Gill to A. C. Gardiner, Mullica Hill, N. J.
Belle of Shirley 12331, Diana of Haddon 9531, Fantine of Fernwood 9461, E. E. Hires to E. C. Moore, Woodstown, N. J.
Crown Jewel's Goldenrod 8569, Currie Bros. to W. C. Hills, Antrim, N. H.
Coral C. 11297, Coralie's Ramona 11301, Wm. M. Paul to J. W. Bowman, Rohrsburg, Pa.
Cayuga Cottie 11883, Madeleine of Maple Glen 2d 11882, Rosie Morn of Maple Glen 11884, Stately of Maple Glen 11881, Corydon Peck to H Mc K. Twombly, Madison, N. J.
Dorothea of Gerar 9558, Stranford's Ruby 10219, Henry A. Parr to John McLeran, Washington, D. C.
Emily Heartsease 9166, Quartz 5th 10109, Robert W. Lord to H. F. Dimock, South Coventry, Conn.
Evaceta 10955, Little Pond Cove 8978, Margaret Truth 8976, D W. Clark to H. F. Dimock, South Coventry, Conn.
Immodest 1920, Walter Cutting to C. H. Crafts, North Hatfield, Mass
Jemima King 9904, D. W. Clark to Robert M. Lord, Boston, Mass.
Lillian of Paulsdale 12328, Miss May Bud 11299, Wm. M Paul to Wm Hagenbouch, Bloomsburg, Pa
Orange Beauty 8406. F. B. Buckley to Chauncey Turner, Schuyler Falls, N Y
Primrose Belle 7768, C. L. Peck to H. G Shaver, Savona, N. Y
Vine 8004, Walter Cutting to Walter L. Cutting. Pittsfield. Mass. Wm. H. Caldwell, Secy. Peteboro, N. H.

ILLUSTRATION.

An illustration of the value of careful feeding, especially for cows, is found in the following letter from Mr. Fred Surridge, manager of the Woodland Farm Dairy Co., at St. Louis, Mo. Writing to the Rippley Hardware Co., Grafton, Ill., Mr. Surridge says:

"Gentlemen,—The Cooker bought of you some time since is giving perfect satisfaction. My cows are giving 50% more milk while being fed on cooked feed than on raw. I will never regret the purchase. Yours truly,

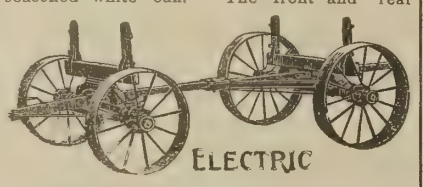
Fred Surridge,
Manager Woodland Farm Dairy Co."



Other users of the Improved Reliable Feed Cooker are equally as enthusiastic in their praise. The fame of the cooker has spread abroad, and orders are now being filled for the English trade. This reputation has been won solely on merit; the Improved Reliable being the cheapest and the safest to operate, as well as the most durable feed cooker made. A special offer is being made to the readers of Hoard's Dairyman this month; we advise all dairyman to write to Rippley Hardware Co., Grafton, Ill., for terms and circulars.

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear



hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers



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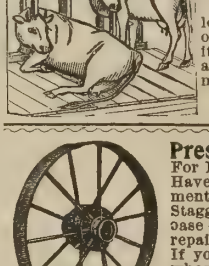
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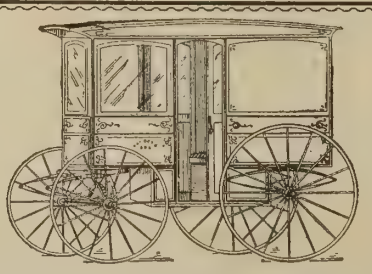
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For Farm Wagons and Trucks. Have all the Latest Improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the BEST metal wheels on the market, buy them from **The Arnold Metal Wheel Company,** Lock Box 28, New London, Ohio.

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On a Perfect Short-Turn Gear.

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Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City. N. J., write: "It is indeed a great song; are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.

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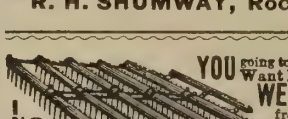
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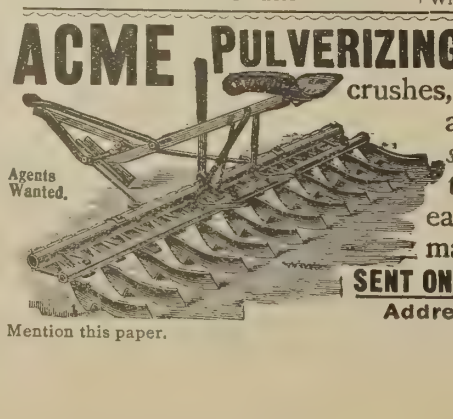


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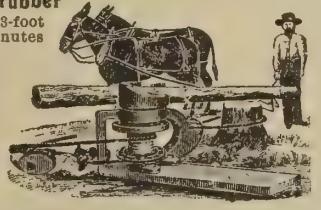
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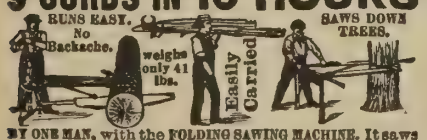
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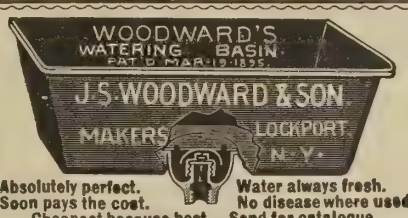

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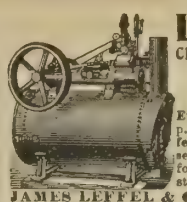
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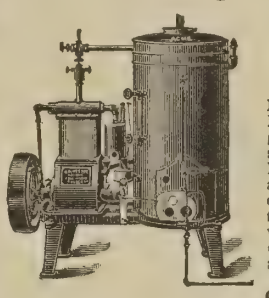


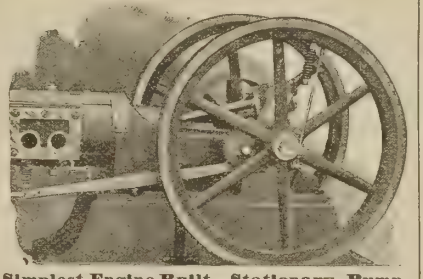
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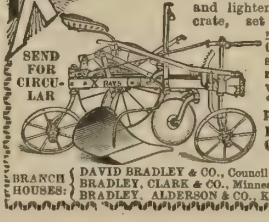
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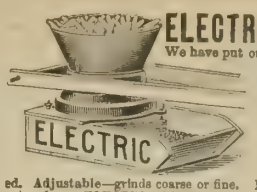


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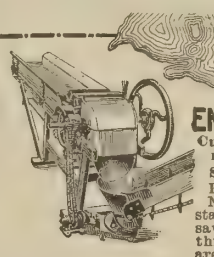
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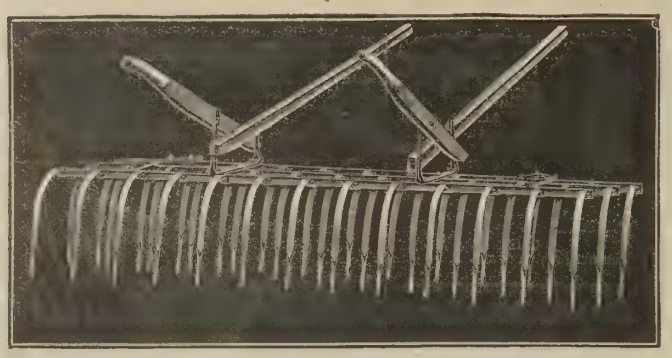
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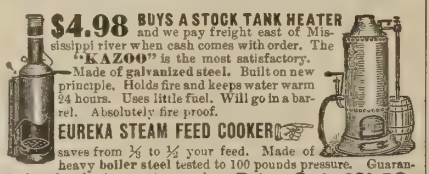
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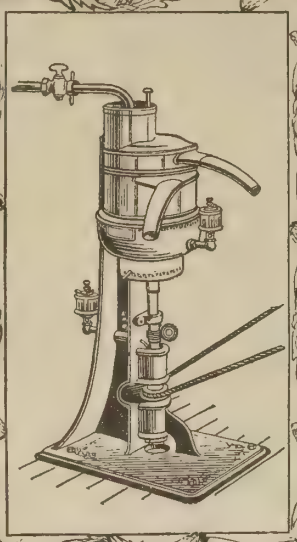
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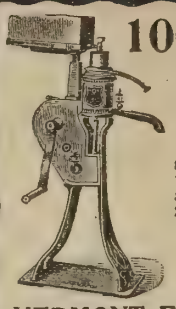
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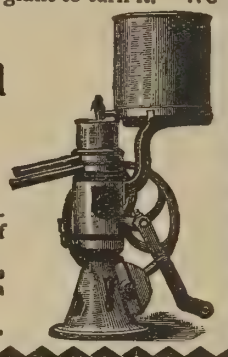
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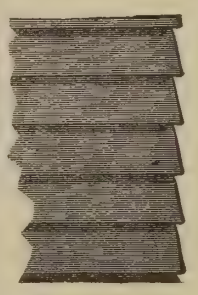
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Their Antecedents Investigated.

A Luminous Report on the Breeding and Selection of the Grade Short-horn Cows at the Wisconsin Experiment Station.

ED. HOARD'S DAIRYMAN:—Whenever unusual excellence is attained in the breeding and raising of any of our domestic animals, it is natural that those who are interested in that kind of stock should be anxious to know by what process of breeding and handling this superior excellence has been attained; for the best animals are not often the result of accident, but are the result of long, patient and intelligent work with a definite object in view.

After reading in the Wisconsin Experiment Station Report for 1899, the fine record made in milk and butter production by some high grade Short-horn cows, the editor of HOARD'S DAIRYMAN, with the expressed purpose of learning all the facts possible concerning these cows, requested me to go to the vicinity of Oregon, Wisconsin, where these cows were purchased, and make inquiry of the former owners in relation to their ancestors, and other animals of the same family, and also to see and note the appearance of as many as possible of the animals of these families. I had seen the cows at the Station two or three times.

In compliance with this request, I visited the village of Oregon, which is on the Chicago & North-Western railroad, ten miles south of Madison, and is a thriving and pleasant town of 1,000 inhabitants, located in one of the finest farming districts of Wisconsin. A lively ride of two and a half miles to the north in a cutter, brought me to the fine farm of Robt. Keenan, of whom was purchased the cows Rose and Maud. It will be seen by the report, that Rose produced 506 pounds of butter, and Maud 376 pounds last year. Maud's butter, cost in food, 8.3 cents a pound, and Rose's cost 6.9 cents a pound.

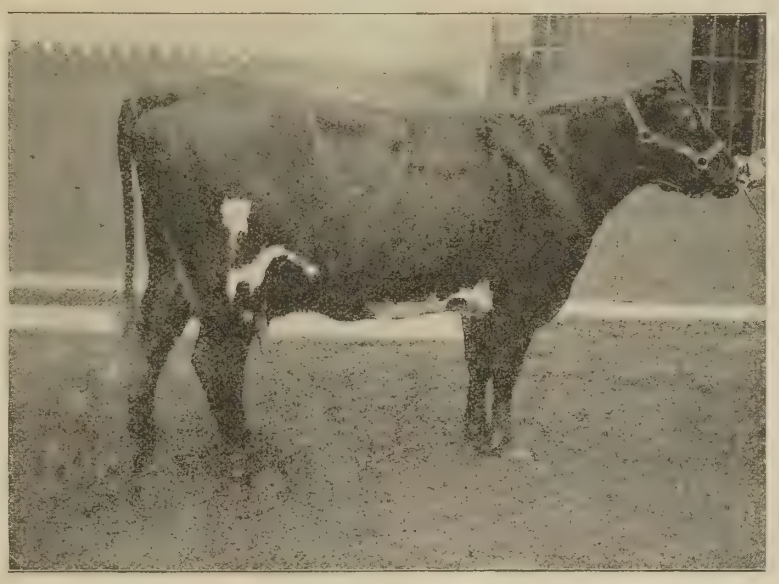
I found Mr. Keenan a pleasant and agreeable gentleman, and willing to give me all the information in his power, concerning the object of my visit.

What Mr. Keenan said I give nearly in his own words, and it was corroborated, for the most part, by his wife, who, by the way, appears to be equally interested and well informed as her husband in the matter of raising stock.

Mr. Keenan said: Rose and Maud are descended from a long line of female ancestors, which were all large milkers, and most of them noted for their large size and bony appearance. I remember them back for thirty years or more. They have come down through the successive ownership of my grandfather McKee, my father and myself. The grandmother of Maud and the great grandmother of Rose was the first cow of that line, that came into my possession. She was a great milker, and we called her "Old Bones." "Old Bones" grandmother was a native, or a cow of no particular breeding, for up to this time no pure blood of any kind had been introduced into my father's herd. The only aim of my grandfather and my father had been to keep up and improve the milking qualities of their cows. They were very particular in the selection of a sire, to every time get one whose female ancestors were the best of milkers.

The grandmother of "Old Bones" was bred to a Short-horn of the milking type. The same was done with her mother, so that "Old Bones" was a three-fourths Short-horn. She was always poor, that is why we gave her that name, her feed all went to milk. We kept her till she was old, and sold her with but little meat on her, and did not get much for her. "Old Bones" was bred to a full-blood Short-horn bought of Wm. Kiser. This bull's mother was such a heavy milker, that when he was a calf and running with her, he, though a lusty fellow, could take only a small part of her milk. The consequence was, her udder became congested and broke, and then she lost it entirely. Then the calf had to be sold, and that is the way I came to get him. "Old Bones'" calf from this bull was Bob. She was fully as good a milker; used to give sixty pounds a day, and was very persistent. We kept her till she she was sixteen years old, and sold her for one cent a pound. She had stopped breeding, not having had a calf for two years. I sold her poor; could not fatten her, as she was old, and had lost her teeth, but she kept right on giving milk till I sold her.

Next was Rose's mother sired by a Short-horn, I bought of Joseph Kiser. He was bought at a sale, and bought cheap, because he looked inferior they said, but he was of good milking stock. Rose's mother was a good milker, but she was sold before she came to maturity. Rose was sired by a Short-horn of dairy type.



GRADE SHORT-HORN COW, ROSE.

Property of WISCONSIN EXPERIMENT STATION.

Yield of milk, 10,163 lbs.; butter, 506.12 lbs., for the year 1898.



GRADE JERSEY COW, GOODRICH.

Property of WISCONSIN EPPERIMENT STATION.

Yield of milk, 6,967.1 lbs.; butter. 398.08 lbs., for year 1898.

ROSE LOOKS LIKE "OLD BONES."

After taking this statement of Mr. Keenan's we went out to take a look at his herd which is not large. He showed me 5 heifers and cows which are descendants of "Old Bones," also some steers and calves of the same family. None of these cows could be called "bones" without slandering them, for their frames were covered with a good coat of flesh. They were all nearly dry, being due to calve in the last part of winter. Mr. Keenan keeps no ill fed animals of any kind. Like the rest of us he has no clover hay this year and his cows are fed mostly on heavily eared shock corn, and fed very liberally. This accounts for their being quite fleshy and not holding out as well as usual in giving milk.

But in spite of this the evidence of superior dairy ability shines out plainly. Their fine heads with broad foreheads, bright and prominent eyes, showing great intelligence and nervous power; their finely formed necks, well cut up under the throat; their strong and prominent backs and depth of bodies, all point to the power to give milk generously when given proper food. But I very much doubt that any of them will ever equal Rose.

There were some steers that were being fed, three of them of the Rose family. These are fairly good steers, though I think no beef man could say they are really first-class. Mr. Keenan has weighed them and says they run from 800 to 1,000 pounds each at from 15 to 19 months of age.

After this Mr. Keenan had the kindness to hitch up and drive me to the farm of Mr. Garrett Barry, 1½ miles west, of whom the cow Belle was bought, which produced at the Station, 392.96 pounds of butter last year at a food cost of 10.3 cents a pound. Mr. Barry has quite a large herd of grade Short-horns. They are most of them of large size and judging from the appearance of the cattle I should say Mr. Barry has not made as successful an effort to breed in dairy lines as Mr. Keenan has. Mr. Barry has none that are related to Belle but her two-year-old daughter. And she was the only one I noticed that bordered on the dairy type. With this single exception I feel certain none of the cows he had there in the yard can ever equal Belle in dairy products. Of the breeding of Belle, Mr. Barry could only say that she was from a grade cow that was a good milker, and sired by a thoroughbred Short-horn bull.

This ended my investigations among these farmers, but on my return to Madison I could not resist the temptation to go to the Station barn and once more look over the cows. Of Rose I have this to say, she is of a very excellent dairy type. From a dairyman's standpoint it is hard to find any fault with her form and general make up. Her head and neck are simply perfect and their like are seldom seen. The broad face which looks somewhat dishing because of the prominence of her splendid eyes, denotes a wonderful nerve power. She has a fine clean-cut neck, high withers, high back bone, high pelvic arch, long body, open ribs, relaxed appearance, deep middle and incurving thighs. Some say her udder is not good shape, but there is enough of it to transact all the business that her powerful dairy machinery is able to give to it.

Maud has a very good dairy form but not as good as Rose has. Her head with her rather dull sluggish eyes is her worst feature to the eye of the man who is looking for that nerve power which all great producers must have.

Belle is a big, coarse, rough cow considerably of the dairy type, and surely not of a good beef type. C. P. GOODRICH.

A Silo Justifies Itself.

Vermont Skeptics Silent.

ED. HOARD'S DAIRYMAN:—I wish to say a word in regard to the silo, to those who have not yet built, in particular. From a description taken from the DAIRYMAN the past year, I built me a round silo, (the only one in this vicinity) under a great deal of protest and advice from my neighbors and friends, to the effect that it would all rot and that it would not hold anything, and numerous other objections.

Nevertheless it was built round, and filled. The cost of building was not over one-half of what it would cost to build a square one, and to say that I am pleased with it, and the ensilage that I am feeding, does not half express it. There is not a mouldy spot in the whole of it, and it is pronounced by the skeptics who condemned the round silo, before it was built, to be the finest ensilage they ever saw. It is built of 2×6 hemlock plank, 12 feet long, sized, edges square, and five-eights iron hoops 3 and 4 feet apart.

VERMONTER.

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Coming Events.

Eastern Cheese and Butter Association of Ontario, Ingersoll, Jan. 31-Feb. 1, 1900.
Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson
Prince Edward Island. Marshfield.
Michigan Dairymen's Association. Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

ANOTHER OPPORTUNITY FOR THE EXERCISE OF JUDGMENT.

The illustrations this week are of two cows at the Wisconsin Agricultural Experiment Station. One of them is the cow Rose, concerning which Mr. Goodrich writes so fully and so candidly in another column. This cow was selected by Prof. Carlyle, and was the first cow purchased for the new dairy herd. The other is the cow, Goodrich, and was selected by Mr. C. P. Goodrich for the new herd, as a good type from his standpoint of the special-purpose dairy cow.

The cuts from which these illustrations are printed, were loaned to us from the Station, and were made from photographs of the cows without any retouching or other amendment. They may be considered, therefore, as faithful representations of these two cows, the one a large grade Short-horn, and the other, a small grade Jersey. The former is a mature cow. The latter was only three years old when taken into the herd, and has made some considerable increase in weight in her new quarters.

The question we submit for each one of our readers to answer for himself is: In what material respect do these two cows differ in conformation?

The record of the cow Rose was made in 326 days, and shows 10,163 lbs. of milk, containing 438.82 lbs. of butter fat. Adding one-sixth to this fat gives an estimated yield of 506.12 lbs. of butter at a cost of 6.9 cents per pound for feed.

The cow Goodrich was milked 330 days, and her record was 6,967.1 lbs. of milk, containing 341.22 lbs. of fat, equivalent to 398.8 lbs. of butter, the food cost of which was 7.9 cents per pound. These figures show that for this milking period at least, the cow Rose was the better and the more profitable cow. It was not deemed prudent to feed the cow Goodrich to her maximum capacity, but in the language of Prof. Carlyle: "We are sparing her now, hoping for much better records in the future."

We are of the opinion that after attentively studying these illustrations and these records, our readers will agree with Prof. Beach of Connecticut, that so far as performance at the pail is concerned, type is of more importance than breed. This has always been the contention of HOARD'S DAIRYMAN. There is, however, another very important point for the dairyman to consider. He wants a cow that not only will produce profitably at the pail, but will be able to reproduce herself in her offspring. When she can do this she may be denominated a dairy cow—in fact, a special-purpose dairy cow, no matter from what breed she sprang. On the contrary, there are in the aggregate, large numbers of cows that perform profitably at the pail, but do not have the inherited prepotency necessary to insure a similar performance by their offspring. Such cows cannot properly be denominated special-purpose dairy cows.

The breeding of the cow Rose, as described by Mr. Goodrich, shows that for many generations past, her dams in particular, have shown anything rather than the beefy conformation. The name of her maternal ancestor is very significant on this point. It is also significant that she traces to a sire that was rejected by many bidders at a sale because he failed to show the fashionable Short-horn characteristics. As a consequence he was bought cheap, and the general judgment was that he was of inferior quality.

HOARD'S DAIRYMAN, neither in this instance nor any other, has a disposition to avoid or conceal any fact, and that this cow had four thoroughbred Short-horn sires in her pedigree demonstrates to us that her maternal blood lines were strongly prepotent.

Once again we say, compare the illustrations here given of these two cows. Note in what respects they agree in conformation, and in what respects they differ. They are cows of as widely diverse breeding as one can expect to find, but they are both wonderful and economical producers of milk and butter, and we think it fair to say that a man who will go out and buy cows corresponding in form to either of these will be pretty sure to secure a good bargain.

Sugar Beet Pulp.

Seth Conrad, Allegan County, Michigan, asks our opinion of sugar beet pulp as a feed for dairy cows, to be fed in connection with grain and other roughage.

The answer is that by analysis this pulp is found to have about one-half the feeding value of good corn silage. In the sugar beet growing portions of Nebraska it has been fed very extensively to fatten steers, and with great satisfaction. From different sources we hear of its use as a food for milch cows and with nothing to its disadvantage. It will be remembered, however, that fully 90 per cent of this pulp is water which leaves only 10 per cent of solid matter. It may therefore be fed very liberally, 40, 50 or even 60 lbs. per day would be, perhaps, none too much. Indeed, there are experiments reported from Germany, where at different times 44 lbs. were fed per day, then 66 lbs. and then 88 lbs. and the milk yield increasing steadily with the increase in the amount of beet pulp fed, or from 29.4 lbs. per day to 31.1 lbs.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS		
	Protein.	*Carbohydrates.*	*Ether extract*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

WHAT SIZE BABCOCK TEST.

The same inquirer asks what size Babcock test he needs in a dairy of thirteen cows. The very small two bottle tester answers a very good purpose, but of course with this, one can run off only two tests at a time, whereas it may quite frequently be, at least, convenient to use more. The extra cost of a four or six bottle tester will not be very much, and we are of the opinion that one of these had better be purchased.

SILO QUESTIONS.

I intend to build a shed this spring. In one corner I will have room for a silo, about eleven and one-half feet square in clear and about thirty feet high. Would a silo that size hold enough for about fifteen cows for about eight months? I could go in the ground four or five feet deep and wall it up with brick and cement, if you think that would do. Would you advise me to put up a round or square silo, and which one would be cheapest and best? Give me different plans for erecting the one you think would be best. I believe I would prefer a round one if it would hold enough for the amount of cattle I spoke of. Which is best, cut or shredded fodder? About how long should it be cut for best results?

Harmony, Pa. J. C. B.

A silo of the dimensions given above will hold about 80 tons. For feeding 15 cows 8 months you will require a little over 62 tons, so the above silo will be large enough.

If you are limited for room and can only build a silo 11.5×11.5, then a square silo of the above dimensions will hold more than a round silo 11.5 feet in diameter. The square silo will cost more to put up, both in time and material, than a round stave silo.

Cut the corn in inch lengths; shredded fodder has not been given sufficient trial yet.

We have given numerous detailed descriptions of the methods of building silos and at the present time have not room to spare to repeat them. You can obtain instructions by sending for bulletins on silo building, to the Pennsylvania and Cornell Experiment Stations, and if more details are wanted, would advise you to procure Woll's Book of the Silo, which will be sent from this office for $1.00 post paid.

A TEXAS RATION.

E. N. C., Paris, Texas, has a small herd of Jersey cows, and the following feeds are available: Corn in the shuck, 25 cents per bushel; bran, $16 per ton; oats, 27 cents per bushel; cotton seed meal, $18 per ton, and plenty of prairie hay. He has been having the corn and oats ground together. He asks for a feeding formula, and whether the feeds should be given wet or dry.

If he should feed 3 lbs. of oats, 3 lbs. of corn and cob meal, and 2 lbs. of cotton seed meal with 15 lbs. of hay, the digestible protein in his ration would amount to 1.73 lbs. This is not ordinarily considered sufficient to enable a first-class dairy cow to do her best, but the recent report of the Wisconsin Agricultural Experiment Station seems to indicate that less protein is required than we have been accustomed to think necessary, unless their feeds were of exceptionally good quality. A little Jersey cow, last winter, receiving only 1.75 lbs. of protein, yielded nearly 2 lbs. of butter per day. It has been the contention of HOARD'S DAIRYMAN for many years, that the Wolff standard, which calls for 2.50 lbs. of protein, was unnecessarily high, and we have been in the way these many years, of prescribing formulas containing from 2 lbs. to 2.25 lbs. of protein. When we get further details from this experiment of the station, we shall know more on this subject than we do at present. We think it will be well to try the combination above suggested, and if this does not work satisfactorily we would then substitute 6 lbs. of bran for oats and the corn and cob meal.

BLIND STAGGERS IN CALVES.

I would like to know whether cooked feed will hurt a calf's digestion in any way. We cooked ground corn cob and husk and fed to our calves last winter. They did well on it and they liked it, but when I turned them on pasture, three or four died with what we called indigestion. They acted like mad, would fight everything and in 3 or 4 days would die in great pain, trying to have a passage. W. V. H.

Cameron.

The cooking of the feed was not, in our opinion, the cause of the trouble; nor in this case is it likely to have been the cob meal, as suggested in the case of the Nebraska inquirer in another place in this issue. It is probable that the calves ate too much grass or found something of a poisonous nature in the pasture.

MILK, CALVES, BEEF AND HOGS.

A Nebraska inquirer who gives the above list of objects he has in keeping cows, asks us to give him formula for a ration. He says he never ties his cows up, but lets them run under a big shed and in the yard, where he has a long feed rack which is always full of oat straw, wheat straw, millet and cane hay. In addition to this, he draws in a large shock of corn fodder every day and besides gives his fifteen cows 100 lbs. of bran in the morning and the same amount in the afternoon, and about 200 lbs. of ear corn which is all they will eat. His cows are all dehorned, eat together like sheep and weigh from 1000 to 1400 lbs. each. Twenty shoats follow these cows, and get very little feed except what they find in the droppings. He veals his calves and keeps them fattenning from birth until sold, by giving them access at will to a mixture of oats, corn and cob meal, oil meal and shorts. Lately some of these calves have been taken sick with something analogous to blind staggers.

Although not a veterinarian, we think ourselves more competent to prescribe for the calves than for cows kept for so many different purposes as our friend specifies. We have no doubt that the trouble with the calves arises from indigestion, and we do not

wonder that indigestion follows such feeding as they receive. Perhaps the most potent cause for indigestion is the corn and cob meal. There would be no objection to the use of the pure ground corn, but we should hardly like to feed young calves the corn and cob meal. In the case of the cows the only suggestion that we feel warranted to make, is that probably the addition or rather the substitution of 1 to 2 lbs. of oil meal per day for double that amount of bran or corn would result in some benefit.

A NEW YORK RATION.

G. B. W., Ricard, N. Y., asks for a ration formula from timothy and clover hay mixed; oat straw; corn meal at $17; bran at $18; middlings, $18; ground oats, $18; oil meal, $30. His cows being fresh in milk, we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17.06	.96	7.92	.32
6 lbs. oats	5.34	.55	2.84	.25
2 lbs. oil meal	1.82	.59	.65	.14
Totals	24.22	2 10	11.41	.71

Add straw *ad libitum*.

AN INDIANA RATION.

We regret that the crowded state of our columns does not permit us to publish in full, the very interesting letter from W. C. B., of Shelbyville, Indiana in which he asks us to formulate a ration for him, when he has plenty of good clover hay, wheat bran, $14 per ton; shorts the same. He also has corn and cob meal, and could get oil meal if so advised. For a ration formula we recommend as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16 96	1.36	7.16	.34
4 lbs. corn and cob meal	3.56	.26	2.52	.14
4 lbs. bran	3.52	.50	1.54	12
Totals	24.04	2.12	11.22	.60

A WISCONSIN RATION WITH SPLIT PEAS.

Fred Schumacher, Carlton, Wis. has been feeding his cows 20 lbs. timothy and clover hay, 8 lbs. of bran and 2 lbs. of cotton seed meal. He is running all the hay through the feed cutter as his cows seem to relish it better when put in that form. This is a good way to feed and we judge from the tone of Mr. S's letter that he has been having good success with his cows, but the cotton seed meal is all fed out, and it is difficult to obtain more, but he can buy split peas at 35 cents per bushel (60 lbs.); oats, 23 cents per bushel; bran, $15.50 per ton; and linseed oil meal, $25 per ton.

We think these split peas very cheap at the price quoted, and would be very glad to get a liberal supply of them for our own use. The formula we suggest for our friend is as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17 06	.96	7.92	.32
5 lbs. peas	4.48	.84	2.59	.04
5 lbs. oats	4.45	.46	2.37	.21
Totals	25.99	2 26	12.88	57

TEXAS FEVER.

I keep only one or two cows for family use but now desire to buy two or three well bred Jerseys; all or nearly all of the old stock that has been brought down here from the north die from what I understand is acclimation fever. I would like to ask you if we would run as much risk by buying yearlings, also if there is a successful remedy for the fever.

I am a new subscriber and not familar with the southern breeders below the fever line; Wm. M. V.

Ensley, Ala.

Young stock take the fever but in not so severe a form as older animals. The indications are that a remedy for this disease has at last been found, but at present it is in the hands of the experiment stations and is not in common use. The Louisiana Experiment Station has issued a bulletin on this subject, which can be obtained on application.

WISCONSIN QUERIES.

W. C., Waupaca, Wis., says he is feeding his cows now 4 lbs. corn meal, 4 lbs. bran with all the clover hay and cut corn fodder each cow will eat. If this ration is not all-right, he wishes us to give him a formula for improving it by adding oil meal and gluten feed.

We are of the opinion that if his cows receive 15 lbs. of clover hay they ought to do fairly well on the ration fed, but if they are fresh in milk, or nearly so, we think the following would be a better combination:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay	10.16	.82	4.30	.20
10 lbs. corn stover	5.95	.17	3.24	.07
3 lbs. corn	2.67	.24	2.00	.13
2 lbs. bran	1.76	.25	.77	.06
2 lbs gluten feed	1.84	.41	.97	.07
1 lb. oil meal	.91	.29	.33	.07
Totals	23.29	2.18	11.61	.60

He also asks if it is safe to feed growing heifer calves all they will eat of the above named ration. We would omit corn altogether. They might have clover hay, corn fodder and bran *ad libitum*, unless indeed they should be seen to be taking on superfluous flesh. In this event we would omit the bran and probably the corn stover.

PENNSYLVANIA QUERIES.

E. W. T., Yardley, Pa., has very nice corn silage from corn that would have yielded 70 bushels (shelled) to the acre, with corn fodder and timothy hay to supplement it. He is feeding, in addition, 6 to 7 lbs. of a mixture, by measure, of one-fourth corn meal, one-fourth ground oats, and one-half wheat bran. The cows get about 35 lbs. of silage, and are said to be doing well, and to be in fair flesh. He has to buy corn meal and oats, and asks whether it would pay to buy gluten feed at the same price to mix with the bran.

We are decidedly of the opinion that gluten feed is a more profitable feed for fresh cows than a combination of corn meal and ground oats unless one has alfalfa or hay from other legumes to supply the protein. A ration consisting of 35 lbs. of silage, 10 lbs. of stover, 5 lbs. bran and 5 lbs. of gluten feed would not be excessive, as the following figures will show:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
35 lbs. silage	9.24	.46	4.90	.25
10 lbs. stover	5.25	.17	3.24	.07
5 lbs. bran	4.41	.63	1.93	.15
5 lbs. gluten feed	4.61	1.02	2.42	.17
Totals	23.51	2.28	12.49	.64

Mr. T. also asks for our opinion of alfalfa as a hay for cows. We have never had the opportunity to make personal trial of this forage crop, but have visited herds where it has been used, and have received innumerable letters from parties using it, and all the testimony goes to show that there is nothing superior to it for forage for dairy stock of all kinds. Alfalfa hay contains 11.0 per cent of digestible protein, whereas a mixture of timothy and red clover hay would contain only 4.8 per cent, or less than one-half as much.

DANGER FROM ABORTION.

A Wisconsin subscriber says he will move March 1st to a farm that has been occupied by a herd of cows in which there have been several cases of abortion during the past year. The last case happened some two months ago. The problem with him is how he can ascertain whether this trouble was epidemic or sporadic, and if the former what precautions he shall take before moving his own herd to these premises.

This is indeed a problem. It would probably be no more than safe at least for him to give the stables where this infected herd had been kept a very thorough overhauling and cleaning, and then apply a coat of white-wash, in which there had been mixed enough carbolic acid to give it a very perceptible odor, not omitting to cover the floors and other exposed surfaces and cracks.

RATION FOR A ST. LOUIS MILK COMPANY.

A company producing milk for the St. Louis, Mo., market has a mixed herd of cows weighing about 1,000 lbs. The market affords wheat bran, ship stuff, bolted corn meal, oil meal, corn fodder and clover hay. They ask for a ration formula. Assuming that these cows have not been too long in milk, we suggest for a minimum allowance as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay	10.16	.82	4.30	.20
10 lbs. corn stover	5.95	.17	3.24	.07
4 lbs bran	3.52	.50	1.54	.12
4 lbs. corn chop	3.56	.32	2.67	.17
1 lb. oil meal	.91	.29	.33	.07
Totals	24.10	2.10	12.98	.60

For the heaviest milkers, we would add another pound of oil meal.

The company also asks how much salt to allow each cow. One ounce per day is about the proper amount.

NAME OF STATE OMITTED.

W. E. N. asks for a ration formula from clover hay, brewers grains and canaille. We understand the latter feed to be what is usually termed middlings. If the brewers grains are fresh, we suggest the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
20 lbs. brewers grains	4.86	.78	1.86	.28
4 lbs. ground corn	3.56	.32	2.66	.18
Totals	25.36	2.46	11.68	80

A SOUTH CAROLINA RATION.

E. H. N., Florence, S. C., has cotton seed meal at $22.50; ship stuff at $21; cotton seed hulls, $2.50; pea vine hay, $10; and cow peas, 60 cents per bushel, not threshed out but fed after cooking with the hulls.

Assuming that these peas are not materially different in feeding value from the threshed peas, we recommend him to use as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs pea vine hay	8.93	1.08	3.86	.11
10lbs. cotton seed hulls	8.89	.03	3.31	.17
2 lbs cotton seed meal	1.84	.74	.34	.17
4 lbs. cow peas	3.41	.73	2.17	.04
Totals	23.07	2.58	9.68	.49

AN ONTARIO RATION.

J. B, Murillo, Ontario, has a grade Holstein heifer about to be fresh, which he is anxious to feed to the best advantage. He has mixed clover and timothy hay; can buy wheat bran at $14; shorts at $16; corn meal at $24 and oil cake meal at $20. If there is no mistake in these quotations, the price of corn meal is certainly prohibitory, and as we have often said, we think the bran is preferable to the shorts even at the same price. This makes it necessary to submit a formula substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. mixed hay	17 06	.96	7.92	.32
6 lbs. bran	5.29	.75	2.32	.18
2 lbs. oil meal	1.82	.59	65	.14
Totals	24.17	2.30	10.89	.64

GUERNSEY RECORDS AND REGISTRATION.

H. E. Coffin, Berwick, Maine, writes us for information as to the weekly and yearly registered milk and butter records of Guernsey cows and also of Jerseys. He also asks what it costs to get a Guernsey cow and heifer registered.

If he will write to Mr. W. H. Caldwell, Secretary of the American Guernsey Cattle Club, Peterboro, N. H., he will receive answers to these questions. We have not been in the way of keeping a register of the reported records of cows, partly because these records are not reported to us officially, and some of those which we find in the agricultural and breeders' papers are of at least questionable validity.

MAINE RATION.

The same correspondent asks us to give him a formula for Guernsey cows and grades where butter is made and skim milk sold. He has a silo and good quality of mixed clover, timothy and red top hay, but it is worth $18 per ton; can buy mixed feed at $20; cotton seed meal at $26; corn meal at $18; Chicago gluten meal, $23.50; and ground oats at 80 cents (per bag)?

It is hardly necessary for us to say that it is a difficult matter to estimate the relative value of oats at 80 cents per *bag*, and mixed feed at $20 per ton, but the oats have this advantage that we know what they are. We therefore recommend as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. hay	17.06	.96	7.92	.32
2 lbs. corn	1.78	.17	1.33	.09
3 lbs. oats	2.67	.28	1.42	.13
4 lbs. gluten feed	3.69	.89	1.94	.08
Totals	25.20	2.29	12.61	.63

SILO QUESTIONS.

I intend to build a silo 12 ft. in diameter, 6 ft. stone and 14 ft. staves; what shall I use for mortar? How thick a wall shall I build? Which is preferable, pine or hemlock? I would like to hear more in regard to hoops or bands, whether ⅝ rods or wire are best, and what size wire? J. T. S.

Edson, Wis.

A good quality of cement is usually used for laying up the foundations of silos. Make the wall 18 inches thick. A good quality of either wood will answer. The ⅝ rods have been used very successfully. Where wire is used it is in the form of wire fencing of good size and quality. The ends are clamped between 2×4s and then bolted together.

THE NEW VALUES FOR GLUTEN FEED.

J. H. W., Parkersburg, West Virginia, in asking for a ration formula says he can buy Chicago gluten feed, guaranteed to contain 27 per cent of protein and 2.25 per cent of fat. He observes that these figures differ from those given in our feeding tables, and wants to know which kind of gluten feed would be the more profitable to buy. It will be remembered in the first place that our tables do not give the total amount of protein in the feeds, but simply the amount of digestible protein which is usually about 86 per cent of the total.

Further than this it may be said that there has been a constant tendency to reduce the amount of crude fat by extracting the corn oil and making an independent commercial product of it. Originally gluten feed contained as high as 12 per cent of crude fat, and this, of course, had a tendency to reduce the per cent of protein very materially. On the whole, we think we would prefer a little less protein and more fat than is now contained in gluten feed. If the figures for this Chicago gluten feed, which was guaranteed to contain 27 per cent of protein and 2.25 per cent of fat, should be substituted in our table they would be 23.2 per cent of digestible protein and 2 per cent of digestible fat. Substituting these figures for those given we would recommend a formula as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
6 lbs. gluten feed	5.53	1 33	2.90	.12
3 lbs bran	2.64	.38	1.16	.09
10 lbs. mixed hay	8 53	.48	3.96	.16
Totals	24.62	2.58	12.22	.58

FOR A LOUISIANA MILKMAN.

G. A. V., St. Bernard Parish, La., has a dairy of fifty-one milk cows, mostly grade Jerseys, and retails the milk in New Orleans. He has been feeding as follows: Two feeds each day, each feed consisting of 3 lbs. wheat bran, 2 lbs. bolted corn meal, 1 lb.

cotton seed meal, 5 lbs. cotton seed hulls and all the hay (which he says is of varying quality), that the cows will eat, giving each cow more or less of the above allowance according to her appetite and freshness in milk.

He asks the pertinent question whether he can do better than this, with bolted corn meal at $16 per ton; cotton seed meal at $22 per ton; cotton seed hulls at $4.00; wheat bran $16.50; rice bran $8 and oats 32 cents per bushel.

If the feeding of this herd was an original proposition we should be disposed to depart quite widely from the scheme now followed; but when cows have been accustomed to a certain regimen changes should be made quite gradually and not be too radical. It may sound a little strange to this inquirer to have us say it, but truth compels the statement that simple ground corn, containing the corn bran and the corn germ, would be worth more to him, pound for pound, than the bolted corn meal and a change of this character could be effected probably without any disturbance in the regular routine. Cotton seed hulls are very dear at $4 per ton and we should be disposed to dispense with them almost all together and rely more upon the hay and rice bran. We see no reason why 3 lbs. of rice bran, 3 lbs. of wheat bran and 2 lbs. of cotton seed meal should not furnish all the grain these cows need or can use with profit, and this grain allowance supplemented with what hay they will eat would be the scheme we should follow as an original proposition. With cows accustomed to the feed that has been given to these cows we should endeavor by degrees to work around to the same allowance, being guided of course all the time by the results.

SOME DIRECT QUESTIONS.

A subscriber in Zanesville, Ohio asks us the following direct questions.

Is the Rockford gluten feed worth $19.40 per ton delivered here, when bran is $16 and hard to get?

Is there a reliable milling firm in St. Paul or Minneapolis that would ship us a carload of bran that could be relied on?

In answer to the first inquiry we have to say that it could hardly be expected of us to endorse without qualification a specific feed product. We have known of parties using this brand of gluten feed with great satisfaction, and judged by its reputed protein content the price is not exorbitant when compared with the price of bran.

The second question might be answered with an unqualified affirmative. We are disposed to believe that it would be difficult to find a milling firm in either of the cities that would not furnish bran of the precise quality they would recommend.

FEEDING MORE THAN IS PROFITABLE.

M. S., Staten Island, New York, is feeding fourteen cows, and wants a milk product of the very best quality that can be produced. He reports himself as feeding at the present time 6 lbs. gluten feed, 8 lbs. wheat bran and all the mixed clover hay they will eat. He is getting an average of 145 quarts of milk per day, and the cows vary from one to sixteen months in lactation.

If these feeds are of average quality his cows are receiving nearly or quite 3 lbs. of digestible protein daily, with other nutrients in proportion. This we believe to be more, as an average, than any herd of fourteen cows can profitably consume.

In the recent report of the Wisconsin Agricultural Experiment Station there is the record of an experiment carried on there, increasing the grain allowance from 8 lbs. per day to 12 lbs. per day, with the result that there was no adequate increase in the production of milk, and, in fact, scarcely any appreciable increase. This record confirms experiments made elsewhere that there is somewhat of a limit to profitable feeding, and indicating that, as a rule, one pound of grain per day for each 100 lbs. of live weight is about all that can be used to advantage. Of course, "circumstances alter cases." If the roughage is straw, or corn stover, or timothy hay, exclusively, it may often be expedient to increase the grain allowance. We are of the opinion that M. S. would find greater profit if he fed not to exceed 10 lbs. of grain daily, to consist of equal parts by weight of gluten feed and bran. Possibly if other feeds were available, there might be still greater economy in making a different selection.

FEEDING ALTOGETHER TOO MUCH.

We are feeding ration of 25 lbs. alfalfa hay, 8 quarts bran, 4 quarts corn meal, 1 quart oil cake meal. Are we doing right?

Fullerton, Cal. L. B. B.

As near as we can estimate L. B. B. is feeding about 35 lbs. dry matter, and this dry matter contains digestible nutrients as follows: 4.24 lbs. protein, 16.93 lbs. carbohydrates, and .98 fat. This is fully 25 per cent more than any herd of cows can eat with profit. Either he has made some mistake in estimating the amount he feeds, or his cows are not eating all he places before them, or, if they do, a large amount of what they eat passes off undigested and does no good. We think the following is an ample allowance for his cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. alfalfa	18.32	2.20	7.92	.24
4 lbs. bran	3 52	.50	1.54	.12
4 lbs. corn	3.56	.32	2.67	.17
Totals	25.40	3.02	12.13	.53

Of course, some may eat more and some less.

G. E. A., New Albany, Pa., is one of our recent trial subscribers, but he says he does not intend to let his subscription run out as long as he is on a farm. He has devised the following formula for a ration to feed his cows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn fodder	14.87	.42	8.10	.17
6 lbs. bran	5.28	75	2.31	.18
4 lbs. corn meal	3.56	.32	2.67	.17
2 lbs. cotton seed meal	1.84	.74	.34	.17
Totals	25.55	2.23	13.42	.69

These figures are practically such as we would make and show that Mr. A. has been a student of feeding problems. His cotton seed meal was bought for $20 per ton because it had been in stock quite a while, and had become somewhat baked and lumpy. He says it does not appear to be moldy or otherwise damaged, and tastes all right. He wants to know whether we would advise him to continue its use. If he is quite certain that the meal has not become sour or moldy, we see no reason why he may not continue to use it.

A VERMONT PROBLEM.

I. W. G., of East Calais, Vt., has timothy hay, corn stover and corn and cob meal, and can buy bran at $20.60, cotton seed and gluten meal at $26 and oil meal at $30 per ton. He wishes to feed as much corn and cob meal as possible. His cows have warm water once a day, are fed twice daily and are salted with each feed. He does not state whether his cows are fresh or whether they have passed their period of maximum flow. On the theory that he wants to feed a full ration we would suggest the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. timothy hay	10.42	.34	5.21	.17
10 lbs stover	5.95	.17	3.24	.07
4 lbs. corn and cob meal	3.56	.26	2.52	.14
3 lbs. bran	2.64	.38	1.16	.09
2 lbs. cotton seed meal	1.84	.74	.35	.17
1 lb oil meal	.91	.29	.33	.07
Totals	25.32	2.18	12.81	.71

If Mr. G's cows are of the proper dairy temperment and have not been too long in milk, we feel quite confident that it would pay him to feed them substantially as above indicated, although such a ration may have the appearance of being expensive. If he tries this ration we beg him not to be too hasty in his judgment, or to base it upon opinion merely, but make a record of what the cows are doing now, and then continue the record and see if the cows are really making a profit on their feed.

When the stover is gone the only change to be recommended is to increase the amount of hay so as to satisfy the appetite of each cow.

SEVERAL NEW YORK INQUIRIES.

H. L. A., McDonough, New York, asks first for a ration for fresh cows. He has on the farm plenty of mixed hay and corn stover. Yellow meal is worth 75 cents per hundred; hominy chop, 90 cents per hundred; oats, 35 cents per bushel; bran, $17.25 per ton; Buffalo gluten feed, $20 per ton; oil meal, $1.60 per hundred and cotton seed meal, $25 per ton. He makes butter and wants to feed so as to realize the most money from a dairy of nineteen cows. For a minimum allowance we think the following formula is about as economical a ration as he can expect to have:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. mixed hay	13.80	.72	5.94	.24
5 lbs stover	2.98	.09	1.62	.04
4 lbs. bran	3.52	.50	1.54	.12
4 lbs gluten feed	3.69	.82	1.73	.14
Totals	23.99	2.13	10.83	.54

Doubtless some of his cows would require for most economical production an addition of 25 to 50 per cent to the grain allowance above specified. How much to give each cow can only be determined by daily observations and a daily record of the amount each cow returns.

He also asks for some advice about building a silo. He wants to feed twenty or more cows, besides ten to fifteen head of young stock. A silo for this number of cattle should be at least 20 feet in diameter and 24 feet high and would then hold only enough for winter feeding. The tendency in later years is to build smaller silos and more of them so as to have silage for the drouth in summer. Two silos, 16 feet in diameter and 24 feet deep, will hold approximately 175 tons of silage. A silo 20 feet in diameter and 24 feet deep will hold 135 tons.

He asks whether to build of staves or if it is best in the end to use woven wire fencing. This is a question not yet fully determined. The woven wire fencing so far as it has been used answers an excellent purpose. However, its durability for a number of years remains, perhaps, to be determined. We should not hesitate to use it and run the chances. A stave silo could not well be built with two thicknesses of boards in place of 2 inch staves.

FOR PENNSYLVANIA JERSEYS.

"A Young Farmer" of Bryn Mawr, Pa., writes that he has a herd of thoroughbred Jerseys, and is now feeding, on an average, 34 lbs. of good corn silage, 5 lbs. of good Hungarian grass, 7 lbs. of wheat bran and 3 lbs. of corn and cob meal per cow daily, varying as the condition of the cows vary. He reports a quantity of oil meal on hand kept over from last year in a dry place, and inquires if this is still good to feed.

We think the ration he is using is somewhat deficient in digestible protein, and we would recommend that he add thereto 1 lb. per day of the oil meal. There is no controlling reason why this oil meal should not be nearly or quite as good now as when purchased. Smell and taste and the judgment of the cows will determine this point very satisfactorily.

A VIRGINIA RATION.

C. V. W., Leesburg, Va., has fifty head of grade Jersey cows ranging in weight from 700 to 1,000 lbs. He has silage, stover, wheat straw, some oat straw and no hay. Bran costs $20 per ton, corn and cob meal $14, corn meal $16 and cotton seed meal $26. He asks whether he can get a ration out of them.

We should omit corn meal altogether, and we know no good reason why cotton seed meal should cost $26 any where in the country, and least of all so near the source of production as any place in Virginia. This price seems to us proof positive that there are either too many middlemen or that those who are acting as such are making altogether too large profits.

Our suggestion for a formula would take substantially the following form:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
10 lbs. corn stover	5.95	.17	3.24	.07
5 lbs. oat straw	4.54	.06	1 93	.04
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. corn and cob meal	3.56	.26	2.52	.14
2 lbs. cotton seed meal	1.84	.74	.33	.17
Totals	26.01	2.06	13 06	.72

This formula gives more coarse fodder than many of these cows will eat, perhaps more than any of them will eat. In that

"Honor is Purchased by Deeds We Do."

Deeds, not words, count in battles of peace as well as in war. It is not what we say, but what Hood's Sarsaparilla does, that tells the story of its merit. It has won many remarkable victories over the arch enemy of mankind—impure blood. Remember

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Weak Lungs

When your throat and lungs are perfectly healthy you needn't worry about the germs of consumption. They don't attack healthy people. It's the weak, debilitated, inflamed membranes that are first affected. Hard coughs and colds weaken your throat and lungs and make consumption more easy.

If your lungs are weak

Scott's Emulsion

is the best remedy you can take. It soothes and heals and gives tone and strength to these delicate membranes. In this way you can prevent consumption. And you can cure it also if you haven't had it too long. Keep taking it until your lungs are strong and your weight restored.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.

CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

event unless the leavings are the coarsest part of the stover and straw we should reduce the amount until they will eat up what was placed before them reasonably clean.

A KANSAS RATION,

C. S. S., Nortonville, Kansas, has wheat bran at $13 per ton; shorts at $14 per ton; corn, 25 cents per bushel, and ground at home; clover hay, $3.00 per ton; and kafir corn fodder the same, both of which he has on the farm.

If there is plenty clover hay, and other stock to eat the kafir corn fodder, we should advise feeding the cows clover hay exclusively, or at least giving them all the clover hay that the amount on hand will warrant. The necessity for doing this is seen in the formula, which we submit as follows:

10 lbs. clover hay.....	8.47	.68	3.58	17
10lb ..kafir corn fodder	5.97	15	3.73	.04
5 lbs. bran.....	4.41	.63	1.93	.15
5 lbs. corn & cob meal	4.45	.32	3.15	.18
Totals.....	23 30	1.78	11.39	.54

It will be seen that the protein n the above formula is much below the standard, and that if clover hay was substituted for the kafir corn, the ration would take on a much better appearance.

A NOTABLE GAIN.

I shall have to come to you again for a balanced ration, as the one you gave me last winter was so good my five cows gained fifty pounds of milk a day on it. I have clover hay for morning and night and corn stover for noon. Corn, 40 cents a hundred; oats, 21 cents a bushel; bran, $15.00 a ton; and gluten feed, $17.00 a ton.

Warrens, Wis G. W. F.

If these cows did so well last year, why not try the same combination that was given them then? If that is for any reason unavailable, we suggest the following as the minimum allowance:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. clover hay....	10.16	.82	4 30	.20
8 lbs. corn stover....	4.76	.14	2 59	.06
5 lbs. oats.....	4.45	.46	2.37	.21
4 lbs. gluten feed....	3.69	82	1.94	.14
Totals	23.06	2 24	11.20	.60

It would not injure this formnla in the least to add, say, 2 lbs. of ground corn to the allowance of grain specified.

ONTARIO FEEDING QUESTIONS.

P. P. F., of Amprior, Ontario, is a new subscriber and he has corn fodder, carrots, clover hay and oat hay all of his own raising and can buy bran for $14 per ton. He asks us to give him four different formulas with different combinations of the above named feeds. It is hardly practicable at this time, with the demands upon our space, to do this. We, however, submit the following formula which will be a fair guide for the different combinations:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
8 lbs. corn fodder....	5.68	.30	3.23	.10
10 lbs. oat hay.....	9.11	.43	4.64	15
20 lbs. carrots.....	2.28	.16	1.56	.04
10 lbs. bran.....	8.81	1.26	3.86	.30
Totals.....	25.88	2 15	13.29	.59

Clover hay is somewhat better than oat hay, and if used in the place of it, would make a better ration but does not call for a specific change. On the whole it would be better to feed the two kinds of hay simultaneously and not all of one kind or all of the other.

CORN CHOP BETTER THAN CORN MEAL.

D. H. J., Xenia, Ohio, writes that he has just purchased a retail milk route with fixtures complete. He is milking twenty-nine cows, several of them strippers and is getting from 62 to 65 gallons of milk per day. He is feeding 4 lbs. of wheat bran, 4 lbs. of fine corn meal, 2 lbs. of oil meal and all the good fodder and millet hay the cows will eat and adds that if there is any chance for improvement he would be thankful to have it.

The first suggestion we have for this inquirer is that simple ground corn is a better feed for his cows than fine corn meal and probably cheaper. We think it would be good policy for him to ascertain if he could not get some feed to take the place of so much oil meal and cost him less money. To this end, let him look up the probabilities of getting cotton seed meal or gluten meal or dry brewers grains, and if he desires to submit a second inquiry stating the feeds which are available we shall take great pleasure in replying as best we can.

AIR BLAST CHURNS.

I have just received circulars describing a machine called the Air Blast butter separator, one ot which I enclose. I wish to ask if you know anything of this invention, and if you believe it will do all that is claimed for it? If it is not misrepresented in the circulars, it seems to be a practical and inexpensive machine, and one that would be valuable to dairymen, living in localities remote from a creamery. C. S. P.

San Jacinto, California.

We have several times made reference to this class of dairy implements, in the columns of the DAIRYMAN, and always adversely. We have seen no reason to change our opinion. There is nothing in any churn of this class that makes it superior or as good as the common box or barrel churn, in yield of butter, nor is it any advantage to bring the butter in one or five minutes. It may be taken as a rule, that any butter that comes in less than 30 minutes will not have a fine grain, and is liable to be slushy or salvey.

The forcing air through cream is nothing new; it has been tried and given up many times. We note that the circular claims that after the butter has been removed by this churn, the remaining cream (?) can be used for coffee. We should suppose that sweet cream with the butter fat removed would be skim milk, hardly a valuable addition to a cup of coffee.

GLUTEN FEED.

I sent to commission merchants at Peoria for gluten meal. They sent me one ton of feed from the Atlas Distillery, labelled on the sacks, "Cooked and steam-dried gluten meal." As it had a peculiar odor, I became suspicious that perhaps it was not gluten meal and send sample and ask if it is such. If not, what is it, and will it do to feed cows for butter making? E. H. H.

Hamilton, Ill.

The sample received is what is known as Atlas Gluten Feed, (not meal) and has been well spoken of by those who have used it.

It is an excellent feed for cows and will not have any bad effect on the butter when fed in the proper quantities.

FAT AND BUTTER YIELD.

I send you a copy of my milk statement for the 1st half 11th month. How much butter has been made from the amount specified, and how much should a 4% test make? Milk, 1841 lbs.; test, 4%; total fat, 73.6 lbs.; value fat, 22½ cents per lb.; equal to $16.56.

I am a patron of the ——— ——— ———. They charge 4 cents for making; the buttermakers at the factory tell me their yield is over 5 lbs. E. S.

———, Wis.

The 73.6 pounds of fat would make about 85.8 pounds of butter, with slight variations either above or below according to conditions. Four per cent milk should give about 4.6 pounds of butter.

They may be getting a large amount of milk that runs much higher than 4% and if so, can easily have a factory yield of five pounds of butter, without causing you any injustice.

COMBINED CHURNS AND BUTTER WORKERS.

A Pennsylvania subscriber asks if these machines are successful. He has had some not altogether satisfactory experience with one, and inquires whether the fault is with the machine or with the operator.

Of course we cannot decide in a particular case who is to blame. We only know that these churns are now accepted by creamery men all over the country as the ideal butter making machine. We think it takes a little more care and a little more judgment to operate them successfully than it does the seperate churn and butter worker, but the very highest grade of butter has been and can be at all times made in the combined machine.

FLOODED CORN FOR SILAGE.

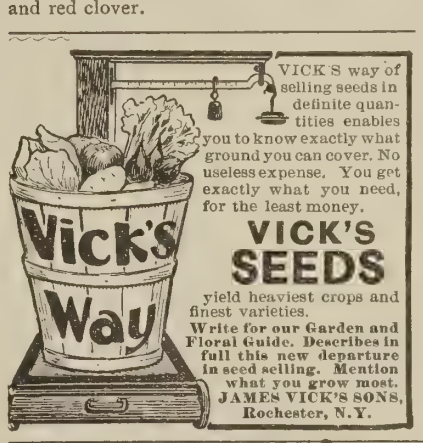
Sometime since we had an inquiry from the Pacific Coast as to whether a man could safely count on growing corn on a river bottom where there was apt to be once in four or five years, a summer flood. We answered it as best we could under the circumstances, and are now in receipt of the following bit of experience from a friend in Ohio:

"We have had experience with flooded corn for silage for two years. The very first corn I put into the silo, was much of it washed down flat just as it was maturing. The cows ate it in the form of silage all right and failed greatly in their milk when it played out the following December. Since then our corn was again flooded when we were just about one-third done filling silo. Could not see any difference in silage. The cows ate it as well and did as well on the part that had been flooded as on that that had escaped. Much of it was flooded way above the ears. We husked some of it and the cows seemed to prefer death to eating the dry fodder, or stover as you call it."

SEEDING FOR PASTURE.

F. J. G., Rural Mail Route No. 2, Grand Rapids, Mich., asks about seeding, and what kind of grass seed to sow on a certain twelve acres which he wishes to devote to a permanent cow pasture.

In a general way this question is properly answered by saying, sow all kinds. If Kentucky blue grass, more generally known throughout the Northern states as June grass, is as indigeneous in Michigan as it is in Wisconsin there will be little need to use this kind of seed, otherwise we should include it in the mixture with timothy, red top and red clover.



VICK'S way of selling seeds in definite quantities enables you to know exactly what ground you can cover. No useless expense. You get exactly what you need, for the least money.

VICK'S SEEDS

yield heaviest crops and finest varieties.

Write for our Garden and Floral Guide. Describes in full this new departure in seed selling. Mention what you grow most.

JAMES VICK'S SONS, Rochester, N.Y.

"A Perfect Food"
"Preserves Health"
"Prolongs Life"

BAKER'S BREAKFAST COCOA



"Known the world over. . . . Received the highest indorsements from the medical practitioner, the nurse, and the intelligent housekeeper and caterer"—*Dietetic and Hygienic Gazette.*

Trade-Mark on Every Package

Walter Baker & Co. Ltd.
DORCHESTER, MASS.
Established 1780.

IT IS A FACT



They Grind. They Last.

that the best results in feeding stock of any kind are attained with ground feed. To grind feed most successfully requires

SCIENTIFIC Grinding Mills.

They have largest possible capacity with minimum power. Crush and grind corn, husk cob and all, and all small grain singly or mixed. Have self-sharpening plates. Free—Catalog I.

For Steam and Horse Power.

FOOS MFG. CO., Springfield, Ohio.

AGENTS WANTED. All Inquiries Answered.



THE BEST FOR THE DAIRY,

be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,
42 Concord Street, Lansing, Mich.

BRONZE TURKEYS FROM 42-LB. TOM; Toulouse Geese, Pekin Ducks, Lt. Brahma and Langshan fowls. H. P. WEST, Fayettville, Wis.



De Laval ALPHA

HAND SEPARATORS

$50.00 AND UPWARD.

Some Bargains in good Second Hand Separators.

Write for prices.

Cornish, Curtis & Greene Mfg. Co.,

GENERAL SALES AGENTS. Fort Atkinson, Wis.

NOTES.

N. G. Johnson, of the Maryland Agricultural Exp. Sta., telling the Society for the Promotion of Agricultural Science the story of his fight with the pea louse, represented that the pea raisers in his state had lost last year more than three million dollars by the ravages of this insect. A parasite has been discovered which practically annihilated the pest, but the discovery was not made in time to save the crop in some parts of the state from destruction.

The question of peas is becoming more and more a matter of great moment to the dairy farmer, and it is to be hoped that the parasite spoken of by Mr. Johnson will be introduced and studied by all enterprising dairy farmers.

Switzerland exports regularly more than seventeen different kinds of cheese. The United States exports only three: The Cheddar, the Swiss and the Limburger.

ABORTION.

We have a letter from a Washington correspondent, which records a very deplorable condition in his herd, resulting from what appears to be epidemic abortion, that has broken out in the last year. We think he is mistaken in denominating the patches seen on the afterbirth, as ulcers. These are probably only the cotyledons or "buttons," which are always found, even in cases of normal parturition.

We hardly know what to say to this correspondent. It is practically useless to refer to the ordinary veterinarian, for, unfortunately, he has not kept up with the later developments in regard to this trouble. As we said last week, the different remedies advertised in our columns have proved efficacious in many instances, and in others they have seemed to be practically worthless. It may be that anyone of them tried in this herd would be satisfactory, but this cannot be guaranteed; and as we have said, if we had this trouble in our herd to contend with, we should be disposed to try the carbolic treatment there referred to. We do not despair, as many do in these matters, for our own experience is, that the trouble wears itself out after a year or two. This does not mean that we would keep over ordinary cows that are troubled this way, but it does mean that we would not sacrifice a first-class cow, because for two or three successive years she failed to carry her calf the full time.

THE VITAL QUESTION OF PURE FOOD.

The American *Review of Reviews* for January contains a trenchant article on the above question from the pen of Harry B. Mason, Ph. D.

Mr. Mason takes up the astounding disclosures made before the Senator Mason's committee, which held frequent sessions in various parts of the country last summer. Before this committee it was proved that the public purse is defrauded and the public health is damaged by counterfeit butter; how coffee is found to consist mainly of molasses and flour molded into berries; how fully 70 per cent of beer is made without malt; how the color of tea leaves, pickles and canned vegetables is made with copper salts; how condensed milk is made from skimmed milk effectually ridden of a large part of its nutritious material; how spices are not spices, sardines are not sardines, and how fifteen-year-old whisky is made in fifteen minutes.

Chemists of experience, among whom was our own Dr. Mitchell, of the Wisconsin Dairy and Food Commission, testified that antiseptics and preservatives are used indiscriminately to defraud and deceive, and that these compounds are always harmful, and sometimes "positively dangerous." Milk and butter are preserved with "freezine"—a solution of poisonous formaldehyde. Butchers use these fluids too on choice scraps of meat, which are finally made into "Hamburg steak" and sausage.

The report of the Connecticut Experiment Station shows that of 63 samples of fruit jelly examined last year, 43 were adulterated and spurious; 46 out of 49 samples of jams and marmalades were found adulterated and spurious, and of 574 samples of spices, 41½ per cent were adulterated, admixed or spurious.

Concerning this most damnable state of affairs Mr. Mason says:

"This neglect of the public health has enabled manufacturers of foods and drinks to go to unlimited lengths in the adulteration and cheapening of their products, regardless alike of the public purse and the public health. Their greed has had no check; their dishonesty has received no punishment. They have flourished and grown fat at the expense of the people who have consumed their inferior, counterfeited and harmful products. This is not indifferent; it is further reaching in its effects than a cursory thought indicates. Reflection must convince any thoughtful man that the prevalent consumption of inferior and harmful foods by a people must result in the physical and moral deterioration of that people."

He then remarks upon the way such crimes are looked upon by the law and the courts in England and says:

"If any food stuff is sold under deceit in England, the manufacturer or the dealer, as the case may be, is fined on conviction. There is no arbitrary standard of purity to which any product must conform; every product *must be* what it pretends to be; if it is sold as "pure olive oil" it must be olive oil; if it masquerades as butter it must be butter. Every product must be "of the nature substance and quality" indicated by its label or asked for, directly or indirectly by the purchaser. To make this law effective every township and borough has its "public analyst," who examines suspected samples of food stuffs submitted to him * * * * and the testimony of this public analyst is alone sufficient to convict the defendant. What is the result? The adulteration and misbranding of food stuffs in England is insignificant compared with the extent of the evil in the United States. Of 211 samples of foods examined in Halifax borough 7 were adulterated; of 152 samples recently examined in Bristol 11 were adulterated; of 35 samples examined in Hertfordshire 2 were adulterated.

* * * * * * *

But of these 398 samples of suspected food stuffs only 13 per cent were adulterated. Compare this 13 per cent of adulteration found in *suspected* food in England with the 45 per cent found in Connecticut."

Now a word to the readers of HOARD'S DAIRYMAN on their duty in the premises. We ask you to buy 25 postal cards and use them up the present winter in writing to your member of Congress and U. S. Senators. Speak plainly on the matter. Tell them you want them to support a bill like the Grout Bill now before the House which places oleomargarine under the control of the police powers of the state without the protection of the original package decision of the courts and adds a tax of 10 cents a pound on all oleomargarine that is colored to resemble butter.

Every man of you has influence. If he does not use it in the way we have indicated he is not doing his duty as a dairyman and a citizen. It is almost a crime to be able to do good and refuse the service.

Such writing of postal cards will move the members of Congress as nothing else will.

WISCONSIN DAIRYMEN'S CONVENTION AT WATERTOWN, FEB. 13 to 16, 1900.

The program for this convention now being distributed contains the following features:

TUESDAY, FEBRUARY 13.

Opening Session, 7:30 p. m.—Address of Welcome by the Mayor; Response by ex-President Hoard; remarks by others.

WEDNESDAY, FEBRUARY 14.

Morning Session, 9:30 a. m.—President's Annual Address,
H. C TAYLOR, Orfordville.
Danish System of Butter Exhibits,
Prof. W. F. WOLL, Madison.
Reports of Cheese Instructors,
E. L. ADERHOLD.
U. S. BAER.

Afternoon Session, 2:00 p. m.—Experience in Breeding a Dairy Herd,
C. P. GOODRICH, Fort Atkinson
(The way to have a profitable dairy is to breed profitable cows.)
One Way to Develop a Dairy Cow,
MRS. ADDIE F HOWIE, Elm Grove.
(Mrs Howie is one of Wisconsin's enthusiastic and successful dairywomen)
How My Cows Were Cared for and Fed,
JAMES H. BEIRNE, Oakfield.
(Mr. Beirne has cows that produce over 900 lbs. of butter in 12 months.)

Evening Session, 7:30—Music, addresses, recitations, etc.

THURSDAY, FEBRUARY 15.

Morning Session, 9:00 a. m.—Who Should Use the Babcock Test, and Why?
Prof. E. H. FARRINGTON, Madison.
Watering the Dairy Cow. (An important but much neglected subject)
E. C. BENNETT, Tripoli, Iowa.
Feeding the Dairy Cow for Profit.
PROF T. L HAECKER, Minnesota.
Afternoon Session, 1:30 p. m.—American Dairying at the Paris Exposition.
MAJOR H. E. ALVORD, Chief of Dairy Division U. S. Department of Agriculture.
The Claims of the Cow as a Mother.
W. D. HOARD, Ft. Atkinson.
Announcement of Scores
Thursday evening, Banquet (Special program).

FRIDAY, FEBRUARY 16.

Morning Session, 9:00 a. m —Boards of Trade. How to Organize and Conduct Them in the Interest of the Producer.
WILL THOMAS, Sheboygan Falls.
The Present Status of the Silage Question.
PROF. W. A. HENRY, Madison.
Opening the Question Box
Reports of Officers and Committees.
Afternoon Session, 1:30 p. m —Judging the Dairy Cow, (Illustrated with one or more living subjects.)
PROF. CARLYLE, Madison.
The Oleomargarine Situation.
H. C. ADAMS, State Dairy and Food Commissioner.
Shall the Dairyman Have an Apple Orchard? A. J. PHILIPS, West Salem.

PREMIUMS.

The premium list aggregates five hundred dollars in cash, distributed as follows: $350 for butter and cheese, and $150 for herd premiums, details of which we published on page 932.

For copies of the program and any further information address G. W. Burchard, Secretary, Fort Atkinson, Wis.

MORE COFFEE FACTS.

Study the Question Yourself.

"When the doctor said 'no more coffee,' I was dismayed, for as an ardent lover of coffee and a crank in the matter of its preparation, I had grown to believe that life was not worth living without it, but the dull stupidity and the almost daily headache so interfered with my profession (literature) that I was compelled to seek the doctor's advice.

"I saw an improvement from the start, but missed my morning beverage and felt a great lack. It was at the home of a friend and Postum apostle, Mrs. ———— of Lonsdale, that I tasted my first Postum. Her family had sworn by it a year or more, and declared themselves, from the least to greatest, benefitted by its use.

"I was surprised to find it really palatable, and determined that I could improve on it myself. I purchased a box, and as we all do on the first trial, made a lamentable failure of it, through insufficient boiling, and the Postum was poked away on an upper shelf, until the oft reiterated newspaper statements made me determine to try it again, with long boiling.

"I took twenty-five minutes to prepare it, about ten minutes to bring it up to a boil, and then allowed it to boil steadily for fifteen minutes, and from the first sip, I was enthusiastic over the new beverage, and even wanted a second cup. It has never palled upon me, morning or night. Nothing could induce me to go back to the berry coffee.

"The change Postum has wrought in me seems little short of miraculous. For the first time in many years, I am really well, my color has freshened, headache has not visited me for many weeks, and my ability for work has returned with all its old zest. I shall never cease to be grateful for what I feel is a remarkable cure due to nothing more than Postum Food Coffee, in place of the oriental berry.

"Sincerely yours," Mrs. R. B. Tallman, Centredale, R. I.

WHAT IS THE REASON?

Why is it that you are not equal to the task Nature sets for you to do?

Why do you find weakness stealing over you and growing day by day?

Why that ashy, chalky complexion?

Why that inability to hold your urine?

Why those distressing pains across your back?

All these symptoms are unmistakable evidences of kidney trouble.

The kidneys, that make the human engine of life move as Nature intended, are not working properly and should have prompt attention.

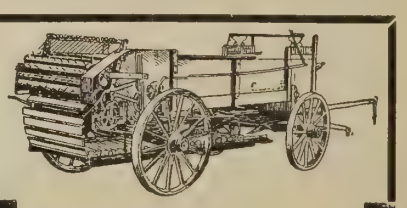
If you need a medicine for kidney, bladder or uric acid trouble, you can make no mistake by using the famous new discovery, Dr. Kilmer's Swamp-Root. It gives quick relief, and cures the most distressing cases.

Hospitals use it in all kinds of cases, especially severe and urgent ones. Doctors prescribe it freely in their practice and in their families, and use it when they need a kidney and bladder tonic themselves.

Tens of thousands of grateful patients have written to Dr. Kilmer & Co., and these letters have been fashioned into a handy volume of ready reference, which should be in every household. This volume and a sample bottle of Swamp-Root will be mailed to any reader of this paper who will send name and address to Dr. Kilmer & Co., and state that he saw this offer in HOARD'S DAIRYMAN.

If there is any doubt in your mind as to your condition, take from your urine on arising, about two ounces, place it in a glass or bottle and let it stand twenty-four hours. If, on examination, it is milky or cloudy, if there is a brick-dust settling, or if small particles float about in it, your kidneys are in need of immediate attention.

Swamp-Root is for sale everywhere in bottles of two sizes and two prices, fifty cents and one dollar. Remember the name, Swamp-Root, and the address, Binghamton, N. Y.



New American Manure Spreader.

Fits your old wagon gear. Pulverizes and spreads all kinds of manures, including stalks. Regulated by one lever to feed any quantity desired. Easy for one man to set up and work. Easy for one team to handle. Send for booklet "E."

AMERICAN HARROW COMPANY,
Detroit, Mich.
Wis. Rep., Madison, A. F. MANNING.

WANTED Agents for the **Roney Hay Fork Returner** and **Seibel's Wind Mill Lubricator.** Mill oiled from ground. RONEY RETURNER CO., Box D, Independence, Iowa.



Cherry's Feed and Litter Carrier

The greatest labor saver ever invented. Send for illustrated catalogue to D. B. CHERRY & CO., Knoxville, Marion Co., Iowa.

The Hand Separator.

ED. HOARD'S DAIRYMAN:—I wish to join issue with you in regard to your answer to C. F. C., of Knapp, Wis., in DAIRYMAN of Dec. 22. The article is headed "A Hand Separator." I own a U. S. separator and it has been in constant use for nearly three years, twice a day. I also have a Babcock tester and have made repeated tests of the skim milk under varying temperature and speed, using the double neck Ohlson bottle and have never found to exceed 0.03% of fat lost and that only with a speed of 45 revolutions of crank per minute. At 50 revolutions it read 0.02%. I have tested skim milk from the so-called gravity separator and found 0.60%, or a loss of one pound in seven if a cow tests 4.2%. At the time I purchased my separator, we were milking seven cows and I am sure it paid for itself the first year. We now have eleven.

As to repairs, it has only cost a few rubber rings and a gallon of oil each year. I honestly believe six cows and a U. S. separator to be equal to seven cows and no separator, and therefore the sooner C. F. C. gets a separator the better it will be for his pocket. and all things considered I think the U. S. is the best. I am not interested in the sale of any separator, but for C. F. C.'s own benefit. I trust you will give him the above article through the columns of the DAIRYMAN.

C. M. SHERMAN.

West Lebanon, N. Y.

We are glad that our correspondent is doing such good work with his separator, but we do not see where the issue comes in. He has only added his testimony to the value of a hand separator, all of which we heartily endorse. But it must be remembered that all men are not equally skillful with tools and we still incline to the belief that the average separator work is not below 0.1% of fat.

Milk Fever and Continuous Milking.

ED. HOARD'S DAIRYMAN:—In your issue of Jan. 5th, you ask for information in regard to continuous milking to avoid milk fever.

I only know of one or two cases. My neighbor had two cows (Holsteins) that were very heavy milkers. They milked up so close to calving that he was afraid to dry them off, so continued. No fever, but a decrease of milk yield from the previous period of lactation. Jas. M. CORP.

Kent, Wash.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The entire offering of butter on Monday's Board of Trade aggregating 8,640 pounds, was sold on call at 24½ cents. Bidding opened at 23 cents but rapidly advanced to the selling figure. The quotation committee decided not to disturb the selling price of last week and declared the market firm at 24 cents.

The sales made were:

Factory.	*Pounds.*	*Price.*
Red Clover	1,800	24½
McConnell	700	24½
Hinckley	2,100	24½
Little Rock	1,020	24½
Shabbona	1,500	24½
DeKalb	1,500	24½
Totals	8,640	

The sales of the corresponding week of the three preceding years were as follows:

Jan. 23, '99, 4,620 pounds of butter sold at 18c.
Jan. 24, '98, 24,300 pounds of butter sold at 19c.
Jan. 25, '97, 25,980 pounds of butter sold at 19½@20½c.

The New York market was reported steady at 25 cents. H. C. B.

Elgin, Ill., Jan. 22, 1900.

DAIRY MARKETS.

ELGIN, Ill., Jan. 22—Butter—144 tubs offered, all sold. Market firm at 24c.

CHICAGO, Ill., Jan. 22—Butter—Extra, creamery, 24½c; firsts, 23@24c; seconds, 20@22c; imitation creameries, 20@22c; dairies, choice to fancy, 22c; firsts, 20c; ladles, fine, 17@17½c; roll, 17@17½c.

Cheese—Full cream, Twins, good to choice, 11½@12c; off grade, 8½@10½c; Young America, 12@12½c; Cheddars, 11½@12c; Swiss, 12¼@12½c; Limburger, 10@11c; Bricks, 1c@11c.

Eggs—Strictly fresh-laid, cases returned, 17c; city cooler stock, 8@10½c; country, 5@8c.

Bran—Scarce and salable at $12.25@12.50 per ton.

Middlings—Dull and sold at $12 per ton.

Cattle—Most of the desirable beef cattle sold 10@20c higher than the close of last week, but the market closed weak, with part of the advance lost. Good cows and heifers advanced 10@15c, and canning stock ruled steady. No strictly choice steers were offered, the best on sale selling at 6.25 with only five lots above 6, and the bulk at 4.85@5.85. Fancy beeves would sell around 6.50@6.60. Thin, 950@1,200-lb. steers sold at 4@4.50. Straight Texas steers sold at 4.05@4.60, and Texas bulls and oxen at 3.45@4; native cows, principally, 2.70@3.50; heifers, 3.50@4.10; bulls, 2.80@4.50; stags, 3.65@4.70; calves, 5@7.75, and feeding cattle, 3.35@4.75.

MILWAUKEE, Wis., Jan. 22—Butter—Creamery, Fancy prints, per lb, 25c; extras, 24c; firsts, 20c; seconds, 18c; roll, 16@17c. Dairy, selections, 20@21c; lines, 16@18c. The market is easy, but fairly active, with offerings in excess of requirements; receipts 5,105 lbs.

Cheese—American Full Cream, Oct. flats, 11½@12½c; Nov., 11@11½c. Brick, 10@10½c. Limburger, 10½@13c. Swiss, Drum, 12½@13c; block, 13@13½c: No. 2, 10½@11c. The market is quiet and unchanged; some winter made brick and Limburger in the market and sells 1@1½c below fall made; receipts 1,640 lbs.

Eggs—Fresh, per doz, 16@17c, loss-off cases returned; held, 10@12c; cold-storage, 9@11c; seconds, 5@8c, as to quality. The market is weak, but prices have not been changed; offerings of fresh are increasing, and cold-storage supplies are very dull; receipts, 180 cases.

BOSTON, Jan. 22—Butter—Creamery, extra, 26c; western extra, 25c; dairy extra, 23½c; imitation creamery, 22c; western ladle, 21c; print creamery, 26½c; box creamery, 26c.

Eggs—Fancy near by, 22@23c; choice fresh, 20@21c; Michigan extra, 20c; western, 19c; fair to good, 16@17c.

CINCINNATI, O., Jan. 22—Butter—Quiet; 25c.

Cheese—Quiet, firm; good to prime Ohio flat, 12½c.

Eggs—Firm; 16c.

NEW ORLEANS, La., Jan. 22—Butter—Market quiet, 25@@26c.

Cheese—unchanged.

Eggs—Storage eggs, 10c.

WASHINGTON, D C., Jan 22—Butter—Market steady. Extras, 25c; firsts, 23@24c; choice imitations, 20@21c.

NEWARK, N. J., Jan. 22—Butter—Market steady; extra creameries, 25c. Other grades more plentiful.

ST. LOUIS, Mo., Jan. 22—Butter—Steady; creamery, 20@25c; dairy, 16@20c.

Eggs—Steady: 15½c.

KANSAS CITY, Mo., Jan. 22—Butter—Creamery, 20@23c; dairy, 18c.

Eggs Fresh 13c.

BALTIMORE, Md., Jan. 22—Butter—Market steadier; creamery separator, extra, 27@28c; extra, first, 25@26c; creamery, first, 25c; creamery, imitation, extra, 23@24c; Iowa & Northwestern ladle, extra, 21@22c; extra, first, 20@21c; first, 20c; Western store packed, 16@18c; creamery rolls (2 lbs.), 27@28c.

Eggs—Market steady; strictly fresh stock, 18c.

PHILADELPHIA, Pa., Jan. 22—Butter Solid packed separator creamery, extra, 25c: firsts, 24c; seconds, 21@22c; imitation creamery, extra, 22c; firsts, 21c; seconds, 20c; ladle packed, extra, 21c; firsts, 20c; seconds, 18c; print butter, creamery extra, 25c; firsts, 24c; seconds, 22c.

Eggs—Pennsylvania and near-by, 21c; Western, 21c; Southwestern and Southern, 20c.

NEW YORK, Jan. 22—Butter—Creamery, Western extras, 25c; firsts, 23½@24c; state extras, 24@25c; firsts, 23@23½c.

Cheese—State, full cream, large or small, fall made, fancy, 12¾@13c.

Eggs—State, Pennsylvania and Western, 21c.

NEW YORK MARKET.

NEW YORK, Jan. 20—Butter—Receipts for the week, 30,262 packages. Exports for the week, none.

Extra fresh Western Creameries were marked down to 25c on Monday and under fairly active trading and moderate receipts this price was well sustained and is firm at the close. There was less inquiry for fresh imitation and ladle butter and lower prices; some sales of finest are reported at 21c but the bulk of the business was done at 20c for best, and 17 to 19c for fair to good lots.

New York State Dairy is coming very sparingly, finest tubs sold on arrival at 23@24c and under grades at 18@22c. June make creamery selling in a small way at 23@24c and other qualities neglected. We quote:

Creamery, extra, 25c; medium, 23½@24c; poor, 22@23c; dairy, 23@24c; medium, 20@22c; poor, 17@19c; ladle, extra, 20@21c; medium, 18@19c; poor, 16@17c.

Cheese—Receipts for the week, 10,069 boxes. Exports for the week, 8,364 boxes.

Exporters bought 1,500 boxes Full Cream Cheese at about 11¾@12c and say 1,600 boxes Skimmed at prices ranging from 8@10c. There was a little more doing in late make Full Cream Cheese to home trade, most sales were at 11@11½c with few of the best marks going at 11¾@12c. Market closes firm with every promise of better business later on. We quote:

Full Cream, small, extra, 12½@13c; medium, 11½@12c; poor, 10½@11c. Full Cream, large, extra, 12¼@12½c; medium, 11½@12c; poor, 10½@11c.

Eggs—Receipts for the week, 40,444 cases.

Strictly fresh stock is all wanted at full prices. Long held stock of all grades continue in full supply, freely offered at low and irregular prices. We quote:

New York & Penn., strictly fresh, per dozen, 21@22c. Northern and Western, strictly fresh, 21c. All other grades, so called fresh, 10@18c. Limed eggs, 12@14c. DAVID W. LEWIS & Co.
177 Chambers St.

Latest quotations for fancy creamery: Buffalo, 26c; St. Paul, 24c; Minneapolis, 24c; Detroit, 24c.

LIVERPOOL, Jan. 22—Butter—Finest United States and good nominal.

Cheese—American finest white, 57s 6d; American finest colored, 59s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Creamery Plant For Sale—Line of three creameries in Dane Co., Wisconsin, all in first-class shape, latest improvements, etc., doing a good business. Satisfactory reason for selling. To the right party will sell on favorable terms. For particulars apply to M. L. BROWN & CO., 141 So. Water St., Chicago, Ills. 50-tf

Wanted—Registered, service Guernsey bulls. M. D. CUNNINGHAM, Kansasville, Wis.

Guernsey Calves For Sale—Best blood of two Exp. Sta. tests. BLACK & BROS., Mt. Vernon, Ind. 48-3

New 20th Century De Laval "ALPHA" Cream Separators.

A week ago we announced the introduction of the NEW 20th CENTURY "Alpha" De Laval Separators. The new sizes, capacities and prices are as follows:

FACTORY or CREAMERY STYLES.

Standard "Hollow-Bowl" Belt-Power,	1,300 lbs.	$ 200.—
Standard "Hollow-Bowl" Steam-Turbine,	1,300 "	225.—
"Alpha" Acme Belt-Power,	1,750 "	350.—
"Alpha" Acme Steam-Turbine,	1,750 "	375.—
"Alpha" No. 1 Belt-Power,	3,000 "	500.—
"Alpha" No. 1 Steam-Turbine,	3,000 "	525.—
"Alpha" No. 2 Belt-Power,	4,500 "	750.—
"Alpha" No. 2 Steam-Turbine,	4,500 "	800.—

"BABY" or DAIRY STYLES.

"Hollow-Bowl" "Baby" No. 1,	150 lbs.	$ 50.—
"Alpha" Strap "Humming-Bird,"	175 "	50.—
"Alpha" Crank "Humming-Bird,"	225 "	65.—
"Alpha" Iron-Stool "Baby" No. 1,	325 "	100.—
"Alpha" Iron-Stool "Baby" No. 2,	450 "	125.—
"Alpha" High-Frame "Baby" No. 2,	450 "	125.—
"Alpha" High-Frame "Baby" No. 3,	850 "	200.—
"Alpha" Dairy Steam-Turbine,	850 "	225.—

Great as has been the previous superiority of the "Alpha" De Laval machines to other separators the 20th CENTURY "Alpha" developments place them above the possibilities of attempted competition from anything else in the shape of a cream separator.

THE DE LAVAL SEPARATOR CO.,

GENERAL OFFICES:

CHICAGO. 74 Cortlandt Street, MONTREAL.
SAN FRANCISCO. NEW YORK. PHILADELPHIA.

Wanted—At once, an experienced single man who understands the feeding and care of dairy cattle, to take charge of our fine herd of Jerseys. Please write, stating wages wanted and give references. Address P. O. BOX 124, Liberty, Ind.

Correspondence solicted with parties having capital to invest in private creamery. 230 cows pledged within radius of four miles; more to come as soon as creamery starts. Splendid dairy country. Five miles to R. R. station. Address, J. M. MOE, Chetek, Wis. 50-3

Wanted—By March 15th or 20th, to work on farm by season or year, an ablebodied, sober, all round good farm hand. Good home to right party. Must be a good milker. FRANK CRUMLETT, Box 276, Sleepy Eye, Minn.

The undersigned wishes to arrange for a regular shipment of four cans of high grade milk with some dairyman near Milwaukee. Address, P. J GROGAN, 2611 Sycamore St., Milwaukee, Wis. 50-3

For Sale—Jersey bull 6 yrs. old, sired by Matilda 4th's Son, sire of 13. Dam, Ida's Alpha, test 25 lbs. 15¾ ozs. Sure breeder and gentle. Price low. FRANK X. HOFFMAN, Millersville, Sandusky Co., Ohio.

For Sale—Twenty-five high grade Jersey cows, thirty-five one and two-year-old heifers, by St. Helier's Cowboy 44822. For particulars address, HUMPHREY BROS, Fairmont, Kansas. 50-4

Wanted—A position as manager of creamery or cheese and butter combined, in some good dairy country. Student of the Danish and Swedish Dairy Schools; also with years of experience in the latest improved modes of making butter and cheese. The best references can be furnished. Address, CANTON CREAMERY, Canton, So. Dakota. Box 337.

Wanted—Farm manager. A man capable of managing a farm of over five hundred acres, with dairy of 200 registered Jersey cows. Must thoroughly understand care of stock and handling of labor. None but competent, energetic man, able to give best of references, need apply. Address, B. E. W., P. O. Box 520, Philadelphia, Pa.

Cheesemaker wanted to operate a small first-class plant. Address No. 6, care Hoard's Dairyman. 49-2

For Sale—De Kol Bulls. Officially tested dams. Send for catalogue. M. S. CAMPBELL, Genoa, Ill. 49-10

For Sale—Pure bred Tamworth pigs ready to wean. Also a few Holstein bull calves. GLIEDT & KAISER. Freistatt, Mo. 48-6

Wanted—To rent, a creamery in a good locality with a good run of milk. Prefer one fully equipped. Address LOCK BOX 45, Lake Mills, Wis. 48-4

Wanted—Experienced man to help care for our herd of selected Holsteins. Must be first-class milker, reliable, temperate and intelligent. Address, with references and wages wanted by the year. DELLHURST FARMS, Mentor, Ohio 48-3

For Sale—One large Turbine De Laval separator and two twin cream vats, capacity 200 gals. each. Are in good condition. Address, LANCASTER CREAMERY CO., Lancaster, Pa. 48-4

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman. 44-tf

Wanted—A first-class cheese maker wants a factory to manage. Ten years experience. Nine years in one factory. Correspondence Solicited. G. S. COLE, Tallapoosa, Georgia.

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

If You Want to Know how to raise calves cheaply and successfully without milk, write to J. W. BARWELL, Waukegan, Ill. 38-13

To Let—Sub-divisions of Prairie Farm, 160, 200, 300 and 400 acres, 16 miles from Toledo Separator Creamery. Silos and special butter customers. These are first-class farms, stocked with first-class cows, and none but first-class dairymen need apply. State experience and resources in application. Address, E. L. LOCKWOOD, Petersburg, Mich. 47-tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46-tf

At Half Price.—Bull calf dropped August 15 1898, out of Benjamina B. 63065, A. J. C. C. (18 lbs. 1 oz. butter in 7 days) by Ben Houghton 39476, A. J. C. C., out of Nuphar Houghton 36364, A. J. C. C., (15 lbs. 3 oz. in 7 days). Other blood lines equally good. First draft for seventy-five dollars secures this faultless youngster; solid color, full black points. BURCHARD FARM, Fort Atkinson, Wis.

McHenry County Farmers' Institute, Harvard, Ill., Jan. 31-Feb. 2.—The C. & N. W. R'y will sell round trip tickets from Fort Atkinson for above occasion for $1.95.

Grand Excursion to Old Mexico—Via Chicago & North-Western Railway, to leave Chicago Tuesday, January 30, 1900, under personal direction of Mr. J. Grafton, an experienced excursion manager. Entire trip in special train with dining car. Tour is arranged to include Mardi Gras at New Orleans and all principal points of interest in old Mexico and ticket covers all expenses. Only limited number can be accommodated; secure space early. For descriptive pamphlets and information, call on, or write agents Chicago & North-Western R'y. 47-4

Tour of Puerto Rico.—The American Tourist Association announces two tours of the beautiful island of Puerto Rico under escort of Mr. Walter Boyd Townsend, the well-known artist and traveler, through and around the Island by rail, carriage, automobile and boat. Special Pullman Cars leave Chicago Thursday, February 15, and Thursday, March 8, at 12, noon, connecting with the splendid new steamships Ponce and San Juan sailing from New York second day following. Tickets include all expenses everywhere. All railway, steamer and sleeping-car fares, meals and berths on steamers, meals on dining car, hotel bills in New York and Puerto Rico, all transfers, carriage rides in the cities and through the Island, guides and interpreters are included in the tickets. There are no extras. Tours are under the direction of Reau Campbell, General Manager, A. T. A., 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to the Agents of the Chicago, Milwaukee & St. Paul R'y. 48-sp

Making Cheese on the Farm.

Can you send me your printed formula for making cheese? I desire to make small cheese 5 lbs. just for my family use.

Martin Co., Minn. Mrs. THERON FISK.

We have no special printed formula for making small cheese. The methods of making cheese are as different as the varieties. Perhaps for home cheese making, the following will be found acceptable. The quantity of milk used and curd produced may be larger than is wished, but they can be easily reduced for a smaller cheese.

1. With a milk can: Set the can of milk into a wash tub, and pour water, previously warmed, into the tub to warm the milk to the proper temperature for adding the rennet. When the curd has been cut the whey can be heated to the scalding temperature in like-manner.

2. With a tub: The milk is put into the tub, then part of it is heated in a kettle to 115° F. and returned to the tub so that the temperature is raised to 86° F., ready to curdle. After the curd has been cut, and the whey well separated, dip out some of the whey into the kettle, and heat it up to such a point that when returned to the tub the whole of the whey will be 93° F. After stirring for a few minutes a second lot of whey can be dipped out and heated to such a point that when returned to the tub the whole will be 98° to 100° F. The details of setting the milk with rennet, drawing the whey, etc., will be given later.

For regular business a small vat will be necessary. Such a vat is made of tin, rectangular in shape, and sets into a water box of similar shape. The water in the box can be heated by steam if a feed cooker is handy, or by means of a flue in the bottom. Such vats are made by dairy supply houses, or can be gotten up to suit, at a local tin shop.

To get the whey off, a cylinder made of perforated tin is set into the vat, and a siphon inserted in it. The perforated cylinder prevents the curd from getting out.

One will need a correct thermometer and a glass graduate, both of which can be purchased at the drug store. A curd knife of six or eight blades will be needed to cut the curd. The curd can be broken with a wire harp made for the purpose, but it will not be as good as a knife.

Now that we have the apparatus, we can proceed to make the cheese. We do not want the milk so very sweet, as it is just after milking—neither do we want it sour. The lactic acid germs evidently give flavor to cheese, and we want to give them just a little start without the milk being sour. If one quart of sour milk (not quite thick, but decidedly sour to the taste) should be added to sweet morning's milk, it would make it about right. If the night's milk has been kept at a temperature of about 60° to 65° F. and added to the morning's milk, it will probably be about right without the quart of sour milk.

The milk is heated to 86°—90° F. and is then ready for the rennet. If any artificial color is desired, commercial color can be added to suit, at the rate of one-fourth ounce to one ounce per 1,000 pounds of milk.

Do not attempt to prepare your own rennet. Rennet extract can be had, or what is perhaps better still for farm dairy purposes, are rennet tablets. They can be procured of Chr. Hansen's Laboratory, Little Falls, New York, or of any of the dairy supply houses. Use about three ounces of rennet per 1,000 lbs. of milk, or if tablets, one tablet to 100 lbs. of milk. The tablets should be dissolved in water fifteen to twenty minutes before using.

The rennet extract should be diluted in a pint of warm water before adding it to the milk. It should be thoroughly stirred in. In twenty minutes the milk should be coagulated, so that when the index finger is inserted, the curd will break clean over it. This should be the test for the curd when ready to cut. If it reaches this condition in twelve minutes, cut it, if not till thirty minutes, wait till then.

Now insert the knife, cutting lengthwise first, and then crosswise till the curd is cut evenly into cubes one-half inch, or a little less in diameter. Then stir gently, and raise the temperature in half an hour to 98° F. The curd should then get firm—should in an hour and a half get so that it will "queak" between the teeth, and when pressed together in the hands, fall apart readily when the pressure is removed. This is what is termed a "good scald," or a "good cook." It really means that the whey is expelled properly. If necessary, the temperature can be raised several degrees to accomplish this end, but it is better if it is not necessary.

There is danger right here that we must avoid, and that is that the acid may develop and give us a sour cheese. A very little acid will do no harm (in fact the cheese will be better for it), but too much will spoil it.

One should watch for the development of acid with a hot iron. This iron can be a half inch iron rod or gas pipe. One will have to learn by experience just how hot to heat it, but we can say that it must not be so hot that it will burn the curd. When fine strings stick to the iron—when the curd is pressed against it and drawn away—one-eighth of an inch long, the whey should be gotten off from the curd, for much more will make a sour cheese. When the whey is well drained from the curd, the longer strings will do no harm, but do not let them get longer than that while in the whey. It might be well to wait a little while for the strings to show on the hot iron, but if they do not appear in three hours from the time the milk is set, and we have a firm curd, draw the whey anyway. Draw the whey off with the siphon, as has been mentioned. The vat should be tipped a little, to let the whey run down to the lower end. The curd should be heaped up in the upper end of the vat, with a channel through the middle of the heap, for the whey to drain out. The curd should be stirred occasionally to loosen it up and let the whey out.

As soon as thoroughly drained we can salt. Use two and a half pounds of salt per hundred pounds of curd. This will be one pound of salt to forty pounds of curd, and it should be thoroughly stirred in. In about twenty minutes it will have worked into the curd, which will be ready to press.

Anyone with a little ingenuity can fix up a hoop and a lever press.

A hoop to press a forty-pound cheese should be 14½ inches in diameter and eight inches deep. Bandage can be made out of cheese cloth to fit, or can be bought. A much handier hoop, than one can make, can be bought for $2½ of the supply house.

We would advise putting a bandage on the sides and caps on the top of the cheese. If one does not wish to bother with the ready made bandages, a wooden hoop can be made (wood will make the cheese close better than metal) and a bandage two or three inches wide can be wound around the cheese. Muslin caps that are used in the hoop, on the end, should be left sticking to the cheese. This will prevent the cheese cracking.

It should be pressed about 24 hours, and then go into the curing room. It should be set on a clean wooden shelf and turned and rubbed every day. The temperature of the room should be 60 to 65° F., A higher temperature for any length of time will develop bad flavors.

The cheese will be cured enough in a month to suit some tastes, but it is not really cheese at that time.

Pennsylvania State Grangers.

ED. HOARD'S DAIRYMAN:—No one who attended the twenty-seventh annual meeting of the Pennsylvania State Grange, in session last week from Monday to Friday at Lock Haven, could help but see that farmers, as well as others, were enjoying a greater era of prosperity now than they have for several years. This fact was noticeable not only in the appearance of the crowd but in the general satisfied air of all and the largely increased attendance. Much of the business transacted was of unusual interest, not only to the vast body of Grangers, but to all agriculturists in this state and elsewhere. The roll call at the opening session of the fourth degree disclosed the fullest attendance in years. W. F. Hill, of Crawford county, Master of the State Grange, presided. In his annual address he dwelt at some length on many questions of momentous interest to the Grange, and made numerous important recommendations having for their object the betterment of prevailing conditions of the farmer. Among other things Master Hill said that the agricultural people had cause for congratulation over the social, educational and financial benefits derived through the efforts of the organization. The problem of trusts must be intelligently and effectively treated. Regret was expressed that Governor Stone felt it incumbent to cut the school appropriation one million dollars, inasmuch as the $11,000,000 formerly appropriated was obtained through the demands of the Grange for a law equalizing taxes. The present discrimination of postal facilities in favor of the cities was deprecated, while the efforts of the postoffice department for the establishment of free rural delivery was heartily commended. In speaking of roads Master Hill said that the time was not far off when a demand would be made for an intelligent plan of township road construction and maintenance. In closing the Master recommended a change in the representation from the subordinate Granges on the basis of numerical membership.

The report of Secretary J. T. Ailman showed that during the year six new Granges were organized, seven new Granges with a membership of 290, were instituted, 1,415 members were initiated and and 463 reinstated. Overseer E. J. Tuttle, in his report, recommended a more equitable oleomargarine bill, the removal of renovated butter from competition with honest dairy products, and condemned the Senate for defeating the reform tax bill passed by the House at the last session of the legislature. Hon. Mortimer Whitehead, of New Jersey, spoke to the meeting

The Singer No. 24.

AUTOMATIC CHAIN-STITCH.

THE SINGER MANFG.CO. TRADE MARK

The general advantages of this type of machine for family sewing comprise greatest ease and quietness of operation, simplicity of construction and the elasticity of the single thread seam. When needle is threaded the machine is ready, the stitch requiring neither bobbin nor shuttle. The thread is taken from one spool and is so interwoven and twisted that seam cannot rip unless its finished end be unlocked. When this is done, the entire length of thread can be quickly withdrawn without injury to the fabric.

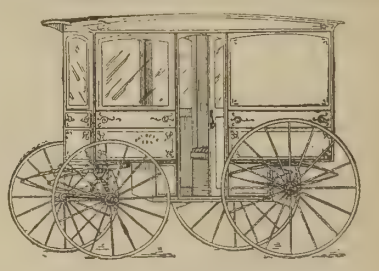
Every genuine machine carries the trade-mark.

Sold on Instalments. You can try one Free. Old machines taken in exchange.

SINGER SEWING-MACHINES ARE MADE AND SOLD ONLY BY

THE SINGER MANUFACTURING CO.

OFFICES IN EVERY CITY IN THE WORLD.



A Perfect Milk Wagon

On a Perfect Short-Turn Gear.

We make 10 other styles. Write us for Catalogue and Price List.

THE O. ARMLEDER CO.,

CINCINNATI, OHIO.



GRINDSTONE

COMPLETE WITH FRAME

$1.90 EACH.

Upon receipt of $1.90 we will forward, properly packed, one celebrated BUENA VISTA GRINDSTONE and FRAME Complete, which we warrant to be Absolutely Unexcelled as to quality, finish and durability. This celebrated stone is the highest quality on the market and will be found excellent for any grade of work. We use nothing but first grade stones. They weigh from 40 to 50 pounds. In order to save on the freight charge, we will ship knocked down. It is simply constructed and can be readily put together.

We carry all kinds of grind stones. Write for free catalogue No. 20 on merchandise bought at Sheriffs' and Receivers' Sales. *OUR PRICES ARE ONE-HALF OF OTHERS.*

CHICAGO HOUSE WRECKING CO.

West 35th & Iron Sts., CHICAGO.

The Fear of Humbug

Prevents Many People From Trying a Good Medicine.

Stomach troubles are so common and in most cases so obstinate to cure that people are apt to look with suspicion on any remedy claiming to be a radical, permanent cure for dyspepsia and indigestion. Many such pride themselves on their acuteness in never being humbugged, especially in medicines.

This fear of being humbugged can be carried too far, so far, in fact, that many people suffer for years with weak digestion rather than risk a little time and money in faithfully testing the claims made of a preparation so reliable and universally used as Stuart's Dyspepsia Tablets.

Now Stuart's Dyspepsia Tablets are vastly different in one important respect from ordinary proprietary medicines for the reason that they are not a secret patent medicine, no secret is made of their ingredients, but analysis shows them to contain the natural digestive ferments. pure aseptic pepsin, the digestive acids, Golden Seal, bismuth, hydrastis and nux. They are not cathartic, neither do they act powerfully on any organ, but they cure indigestion on the common sense plan of digesting the food eaten thoroughly before it has time to ferment, sour and cause the mischief. This is the only secret of their success.

Cathartic pills never have and never can cure indigestion and stomach troubles because they act entirely on the bowels, whereas the whole trouble is really in the stomach.

Stuart's Dysyepsia Tablets taken after meals digest the food. That is all there is to it. Food not digested or half digested is poison as it creates gas, acidity, headaches, palpitation of the heart, loss of flesh and appetite and many other troubles which are often called by some other name.

They are sold by druggists everywhere at 50 cents per package. Address F. A. Stuart Co., Marshall, Mich., for little book on stomach diseases, sent free.

The Willard Knapp ...Cow Tie...



The LEAST EXPENSIVE, the MOST DURABLE, and the BEST DEVICE for Fastening Cows.

NEVER BUY ANYTHING

Simply because it is cheap. But when the least expensive is the best, why not use it?

WHAT ALL DAIRYMEN SAY

Must be so. Send for circulars with up-to-date testimonials from up-to-date men.

WILLARD H. KNAPP & CO.,

Box R, - - CORTLAND, N. Y.



WILDER'S

Swing Stanchion

Improvement over Smith's

Steel latch; Automatic lock. Adjusts itself when open, so animal cannot turn it in backing out. SAFEST and QUICKEST FASTENING made. Send for testimonials

J. K. WILDER & SONS, Monroe, Mich.



Scott's Perfect Swinging And Self Closing

Cow Stanchion

Each cow shuts herself in place.

CIRCULARS FREE.

B. C. SCOTT,

211 Beach Street,

Bridgeport, Conn.

on a number of important topics, among which were the advocacy of putting a tax on corporations and trusts, for the making of good roads, and his opposition to free products from Cuba and Porto Rico, and to a standing army for America.

The committee on legislation, through W. T. Creasy, submitted an unusually interesting report. Many facts in connection with the defeat of the tax bill at the last session of the legislature were given. The report also shows up the present system of taxation in a bad light, and states that "the taxations of corporations lies practically in the power of one man in the auditor general's department, a system that meets with the condemnation of all who are intimately acquainted with its working." The report included the following: "We believe the time has come for the farmers, and other real estate owners of the state to assert their rights and formulate a tax bill similar to the laws in operation in other states, so that the burdens of government shall be justly distributed among all protected thereby."

The committee on National legislation favorably reported a resolution asking Congress to regulate trusts. It says: "Congress should enact such legislation as shall compel such combinations to occupy their own position as creatures and servants of the public by enforcing publicity of their methods and accounts, preventing over capitalization in its various forms and forbidding discrimination in charges."

Among other resolutions was one urging for the enactment of a law regulating interstate traffic in foods, drugs and condiments, and one asking for the extension of the free rural delivery as rapidly as possible, and that the same, when established, be placed on the same permanent footing as the delivery of mail in cities and towns. The committee on roads recommended the legislative committee of the State Grange to draft a road law and present and urge the passage of the same at the next session of the legislature; on education the committee recommended the repeal of the school term law and the establishment of township high schools and payment of better wages to teachers. Other reports were making game the property of the owner on whose land it is found and that U. S. Senators should be elected by direct vote of the people. C. L. GATES.

Bellefonte, Pa.

The Hairy Vetch.

ED. HOARD'S DAIRYMAN:—I highly prize the DAIRYMAN and find it both interesting and instructive.

I am especially interested in forage crops, especially those which improve the soil while they feed the stock. For years past I have been in search of some crop which would remain green after the frost in the fall has bitten the fodder. My attention was called by your valuable paper, to the "Hairy Vetch"; the article was written by the professor of some dairy experiment station and school, (don't remember date or page) and I think I shall try sowing some next spring, with oats for soiling, as was done in the experiment.

Any more information that you can give on this subject will be carefully watched for and highly appreciated. B. B. T.

Broodman, Va.

The article referred to will be found on page 414 of the current volume of the DAIRYMAN. It was an extract from a bulletin issued by the Michigan Experiment Station. The true value of the hairy vetch has not yet been positively determined, and we should be glad if those of our readers who have tried the plant would give us their experience.

A CONVINCING LETTER.

The editors of HOARD'S DAIRYMAN may be pardoned once in a while if they exhibit, as a good farmer does his fine cattle, some proof of the fact that the paper has done good work in its line.

The following letter from Mr. J. E. Putnam, an extensive milk dairyman, near Fitchburg, Mass., is a case in point:

ED. HOARD'S DAIRYMAN:—Thinking a word of praise with a "Merry Christmas" would not come amiss, I write you of the benefit derived from your valuable paper.

I have been in the business twenty-two years selling from five to six thousand dollars worth of milk each year at retail in our city, but in the past three years I have learned more through your paper than in all the previous years. Your illustrations of the "dairy form" are invaluable to the man who seeks to know his business, and follows them. They are worth millions of dollars to your readers in their business of dairying throughout this country.

I enclose subscription for myself and my friend. Wishing you a Happy New Year, I am very truly yours, J. E. PUTNAM.

We beg to tender Mr. Putnam our sincere thanks for his kindly and encouraging letter. Coming as it does from a man who is largely and successfully engaged in dairying, it proves all the more valuable, as a lesson to us and the vast multitude of cow keepers in this country, who *do not yet think* they can learn anything to their advantage from a good dairy paper.

Cheese Questions.

What kind of cheese is best adapted to a farm dairy of from 20 to 40 cows?

What book or books give best instruction about cheese making?

Is cheese making, in your opinion, as easily learned as butter making?

Is cheese making as profitable as butter making for a dairy, say, of thirty cows? If not, why? E. F. D.

Albion, Pa.

It is not possible to decide definitely without knowing the local conditions, but it is probable that a small cheese like Neufchatel or Gouda would be most suitable.

"A B C of Cheese Making," by Monrad, price, $0.50. "Decker's Cheddar Cheese Making," price $1.00.

From the varying conditions of milk and produce, cheese making is by far the most difficult to learn.

If you are making a special cheese at a special price, then cheese making is the most profitable; but with Cheddar cheese making, the question of profit depends on the price of butter.



AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023 BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

Mr. VALANCEY E. FULLER, in his pamphlet on the ST. LAMBERT family of Jerseys, **places KING OF ST. LAMBERT'S KING 30752 in front of all other Jersey sires,** when he says:

"Mr. Hart has now in his herd all the registered daughters of King of St. Lambert's King, 16 in number. *I am frank to admit that I never saw so many matured daughters sired by one bull* (save Stoke Pogis 3d) *who are their equals in individuality, in good dairy form, in large, well rounded fore-udders, in large, tortuous and elastic milk veins, in uniformly large and well placed teats, in depth and length of barrel, in straightness of back, and all that goes to make a most desirable individuality.* They are not in the least degree coarse."

King of St. Lambert's King 30752

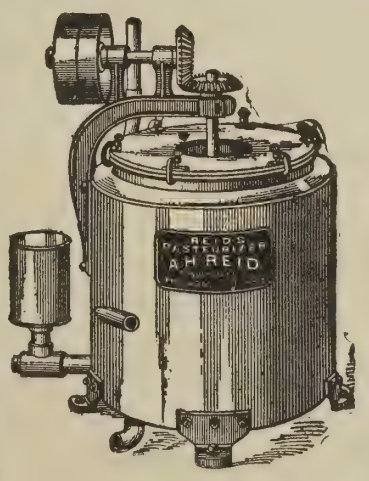
is at the head of my herd. I have for sale a few young bulls rich in his blood.

FRANK W. HART,

☞I have a few extra copies of Mr. Fuller's pamphlet, which I will mail free to applicants as long as they last.

Cleveland, Ohio.

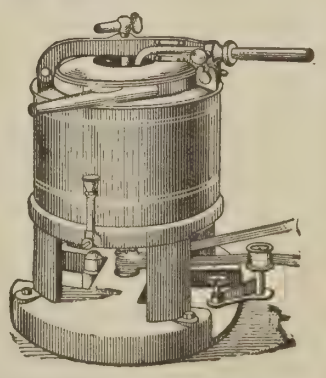
Both Practical and Profitable.



The Reid Pasteurizer by its successful operation in many creameries has demonstrated that pasteurization of milk and cream is more than a mere theory—that it is a practical and profitable process. The results obtained by its use have disproven the theories of pasteurzation's opponents and have caused hundreds to become its ardent advocates. If you have decided to give pasteurization a trial, get the most effective, most easily and economically operated machine yet invented for the purpose—the

Reid Pasteurizer.

If you still have a doubt on the subject, write for information about pasteurization and about what the Reid Pasteurizer will do. Have you the **Reid Long Spindle Separator** book? It's free. Our new catalogue.



A. H. REID,

30th and Market Streets, PHILADELPHIA, PA.,
And CEDAR RAPIDS, IOWA.

Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy and Live Stock Meetings—Milking Competitions—Eastern Ontario Dairymen's Meeting.

ED. HOARD'S DAIRYMAN:—In connection with the Ontario winter show, there is held each year the most important milking competition that takes place in Canada. The last show was held at London, Ont., during the third week of December, and was in several respects, a notable one. It is called the Provincial Fat Stock Dairy and Poultry Show, and its prize list is largely subsidized by the local government through the Breeders' Association.

In addition to the exhibits of pure bred cattle, sheep and swine, there were competitions in dressed hogs and sheep. In the swine section the killing contest was for the purpose of demonstrating the best type of hog for bacon purposes. About sixty hogs entered this contest, representing all the leading breeds of swine in this country. The carcasses were judged by experts from the packing houses and formed a most valuable object lesson for those present. They were afterwards shipped to one of our leading packing houses and further reported upon.

In this competition the improved Yorkshires came out on top. While this was so there were several other breeds such as the Berkshires and Tamworths, which showed some desirable qualities as bacon hogs. The latter, though as a breed generally well adapted for bacon purposes, were, according to the packers' report, unfinished and tender. There was in the whole lot of carcasses a large proportion of soft sides, which are unsuitable for making bacon of the finest quality. The cause of this was claimed by experts to have been largely due to the practice followed by many exhibitors of sending immature and unfinished hogs, which, when cut up, showed this soft quality in the fat.

But it is the dairy contest in which the bulk of your readers will be most interested. This was a notable contest for one important reason. The world's record, so it is claimed, for a butter-producing cow was broken, and the standard raised a notch or two higher and that by a cow that entered the public arena for the first time.

In the test every side issue was discarded and the awards were based solely on the butter fat and other solids in the milk, a few points only being given for period of lactation. The following is the scale of points: 20 points for each pound of fat, 4 points for each pound of solids, not fat, and 1 point for each ten days in milk after the first 30 days, up to ten points. No cow was awarded a prize which was not producing at the rate of 10 pounds of butter per week.

A year ago when the show was held at Brantford, a Holstein cow, Calamity Jane, owned by A. and G. Rice, Curries, Ont., made the big record of 21½ pounds of butter per week by the Chicago World's Fair standard of 80 per cent butter fat. But it remained for this record to be beaten by another Holstein cow at this winter's show. This cow, Aaltje Posch 4th, is owned by Rettie Bros., Norwich, Ont., and made the almost phenomenal record of nearly 4½ pounds of butter per day, or 29.6 pounds per week according to the World's Fair standard. This record, figured at the Canadian standard of 85 per cent butter fat, would be nearly 28 pounds of butter a week, which seems to leave all other records in the shade.

She was milked three times a day—5:30 a. m., 1:30 p. m., and 9:30 p. m. The first two milkings weighed 49 lbs. 6 ozs., and tested 4 5 per cent fat; the next three milkings, 74 lbs. 2 ozs., testing 4.8 per cent fat and the last milking 23 lbs. 6 ozs., testing 4.3 per cent fat, making a total of 6.785 lbs. of butter fat in 48 hours. The average cow on the ordinary farm is said to produce not more than 4 lbs. of butter a week and here we have a cow that is as good as seven ordinary cows. What a lesson there is in this for the average dairyman who thinks one cow as good as another.

The remarkable thing in this test is the high per cent of fat in so large a quantity of milk given by one cow. The Holstein is not noted for giving a large per cent of fat, but this and other tests show that she is improving in this regard. This cow was a few days over one month in milk, and as we have stated this was her first appearance in a test of this kind. The falling off in the per cent of fat in the last milking is claimed by the judges to have been due to the large number of visitors, who thronged to see this cow as soon as it became known that she was breaking the record.

In the other classes some very good cows were shown. Only one Jersey competed which is somewhat surprising, as there was a separate section for each breed, the best of each competing for the sweepstakes. This Jersey, however, did very well considering the care she had, and gave at the rate of 16½ lbs. of butter per week, her highest test being 7% of butter fat. Shorthorns were well represented. Rene, owned by A. W. Smith, Maple Lodge, Ont., making a record of 81 lbs. of milk with 3 lbs. fat equal to 12½ lbs. of butter per week. The first prize Ayrshire was owned by N. Dyment, Clappison, Ont., and made a record of 81 lbs. milk, 3.4 lbs. of fat in the 48 hours, eqnal to 14 lbs. of butter per week.

This test was one of the most exhaustive that has taken place in Canada and gave as full information as to the value of the different cows for butter purposes as was possible, unless the food consumed was taken into account. We think an effort should be made another year to have the cost of the food consumed taken into account. With this factor known, we would be able to estimate more accurately which is the most profitable cow for the farmer.

The test was conducted by Prof. Dean, of the Ontario Agricultural College, and Mr. James Stonehouse, of the Provincial Dairy School. Below will be found a tabulated statement of the results of the test which may be found interesting:

NAME OF COW AND OWNER'S NAME AND ADDRESS.	Total lbs. of milk in 48 hours.	Lbs. fat.	Lbs. solids not fat.
CLASS 50, SEC. 1—SHORTHORNS, 36 MONTHS AND OVER.			
1. Rene, A. W. Smith, Maple Lodge	81.5	3.08	7.72
2. Gypsey Maid, F. Martendale, York	79 5	3.10	7.47
3. Mistletoe 5th, H. J. Davis, Woodstock	94.5	2.72	8.85
4. Gracey Gwynne, John Kelly, Shakespeare	76 1	2.92	7.42
5. Roan Blanche, A. W. Smith Maple Lodge	72.4	2.79	7.02
6 Jubilee's Julia, H. K. Fairbairn, Thedford	7 :.7	2.61	6.58
7. Mary Maxwell, H. K. Fair bairn, Thedford	33.4	1.41	3.7
8. Frances Folsome, H. K. Fair bairn Thedford	28.	1.00	2.55
CLASS 50, SEC. 2—SHORTHORNS, UNDER 36 MONTHS.			
1. Bella of York, F. Martendale, York	51.1	1.82	4.86
2. Jenetta, H. K. Fairbairn, Thedford	40 6	1.49	3.77
3. Golden Gem, H. K. Fairbairn, Thedford	40.9	1.46	3.88
CLASS 51, SEC 1 —AYRSHIRES, OVER 36 MONTHS.			
1. Breiry Banks Cora, N. Dyment, Clappison's Corners	81.4	3.42	7.78
2. Nellie Gray, N. Dyment, Clappison's Corners	80.8	3.14	7.66
3. Briery Banks Susie, N. Dyment, Clappison's Corners	62.1	2.15	5.68
CLASS 52, SEC. 1—HOLSTEINS, OVER 36 MONTHS.			
1. Aaltje Posch 4th, Rettie Bros., Norwich	146.9	.79	13.72
2. Woodland Josco, Rettie Bros., Norwich	127.1	4.30	11.20
3. Queen De Kol 2nd, G. W. Clemons, St George	109 4	3.32	9.21
4. Fanny F. Rettie Bros., Norwich	134.8	3.42	10.94
5. Lady Mary 4th., W. H. Simmons, New Durham	118.f	3.56	10.04
6. Inka Josephine de Kol., G. W. Clemons, St. George	87.7	2.6x	7.52
7. Empress Josephine de Kol, G. W. Clemons, St George.	74.6	2.48	6.73
CLASS 52, Sec. 2—HOLSTEINS UNDER 36 MONTHS.			
1. Mercena 2nd., Rettie Bros., Norwich	99.6	3.53	8.77
2. Jemima M. M. Trintje., A. & G. Rice, Currie's Crossing	75.7	2.33	6.34
3. Pauline Mercedes Jewel, A. & G. Rice, Currie's Crossing	75.1	2.30	6.35
4. Pauline Fairmount., A & G. Rice, Currie's Crossing	72.2	2.40	6.49
5. Kaatji de Boer 3rd., G. W Clemons, St. George	61.6	2.30	5.75
CLASS 53, SEC. 1 — JERSEY COW, OVER 36 MONTHS.			
1. Primrose Park's Pride, W. J. Craig, London	65 9	4.16	6.80
CLASS 55, SEC. 1 — GRADE COW, 36 MONTHS AND OVER.			
1. Jess, Rettie Bros., Norwich	96.3	4.03	8.84
2. Dina, T. H. Dent, Woodstock.	119.7	3.90	10.69
3. Jersey, Jas. Leask, Greenbank	101.1	3.79	9.50
4. Sweet Assurance, A. McDougall, Guelph.	89.4	3.90	8.46
CLASS. 55, SEC. 2 —GRADE COW, UNDER 36 MONTHS.			
1. Julia, T. H Dent, Woodstock	84.6	3.11	7.89

EASTERN ONTARIO DAIRYMEN.

The twenty-third annual convention of the Butter-and Cheese Association, of Eastern Ontario, took place on January 10, 11 and

Our Fruit Trees Grow

We have thousands of all the best varieties of TREES and PLANTS. Full description in our **Catalogue—it's free.** Send for it *to-day*. **We can save you money.** Address

HIGHLAND NURSERY CO., Rochester, N. Y.

A Top Pedigreed **POLAND CHINA SOW,** bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg, Ohio.

THOROUGHBRED JERSEY SALE.
My entire herd of 5 A. J. C. C. cows, 4 heifers from 2 mos. to 2 yrs. old, 4 bulls from 1 to 2 yrs. old, will be sold at Auction at the Bennett Farm, near Oregon, Dane Co., Wis., **Jan'y 26th,** at 10 a. m. Also six high grade Jersey Cows. Mrs. L. J. BENNETT & SON, Oregon, Wis.

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An **Ideal Dairy Sire,** carrying 75% of the blood of **PEDRO 3187.**
R. C. GREEN, Albion, Wis.

Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

BLACK EARTH JERSEY HERD
is headed by Diploma's Victor 56310; sire, Recorder 29239; dam, Nice 68027, full sister to Merry Maiden 64949. Young bulls for sale reasonable. Address, FRED STUBLEY, Black Earth, Wis.

PEDRO BLOOD CHEAP.
TWO BULLS, 6 and 7 months, solid colors, black points and fine.
TWO HEIFERS, 7 months, ditto. Sired by Pedro of Fairfield. Also Chester White Pigs.
W. F. McSPARRAN, Furniss, Pa.

Hood Farm Jerseys **FOR SALE**—Solid colored bull, dropped Feb. 15, 1899. Sire, Mint, sire of 3 in 14 lb. list, by Diploma, sire of 51 tested cows, including Merry Maiden. Dam, Elphie May, 17 lbs. 11½ oz., 41 lbs. 3 oz. milk in one day, 8,633 lbs. 10 oz. in 10 mos. and 12 days, testing 550 lbs. butter; by Sophie's Tormentor, sire of 16 in 14 lb. list. Write for price to HOOD FARM, Lowell, Mass.

Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. McKERROW, Madison, Wis.

Diploma-Merry Maiden Bull!
DIPLOMA'S SUCCESS 56608.
Born Sept. 1, 1898. Solid color. Carries double cross to Diploma, sire of 53 tested cows, including **Merry Maiden.** Sire, Clarion Prince 45508. Dam, Pretty Polly Perkins 68360. Record, 16 lbs. 11 oz. Send for printed pedigree.
H. C. TAYLOR, Orfordville, Wis.

Jersey, Guernsey Cattle
Chester White, Berkshire and Poland-China SWINE,
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
BARTHOLOMEW & CO.,
Montg. Co. - - Bridgeport, Pa.

FOR SALE
GRANDSON OF
Exile of St. Lambert 13657
Sire of 79 Tested Daughters.
"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
P. J. COGSWELL, Rochester, N. Y.

A 6 MOS. OLD Bull Calf 56¼ Per Cent **TORMENTOR** Solid color, well grown, robust Dam, 22 lbs. in 7 days.
CHARTER OAK HERD. - J. P. BRADBURY, Pomeroy, Ohio.

Jersey Bulls AND HEIFERS
out of large milking and tested dams, **FOR SALE.** W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires,** all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager.

A. J. C. C. JERSEYS
Of the **St. Lambert** and **Coomassie** strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address,
BROADMOOR DAIRY, Colorado Springs, Colo.

FOR SALE—For a short time we are offering A. J. C. C. **Jersey Bulls** from two to fourteen months old at **reduced prices.** They are from choice cows and are sired by St. Lambert of Brodhead 46957, one of the best of bulls, as his pedigree will show. We also have a few cows and heifers for sale. Write for catalogue.
N. N. PALMER & SON, Brodhead, Wis.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires,** imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

The Chance of a Lifetime.
FOR SALE A Son of Jimp 86488, who holds the Jersey Championship weekly milk record, 471 lbs. 10 ozs. Butter record 31 lbs. 1¾ ozs. Owner and tester, Col. Lewis Walker. Over 86% butter fat in butter by analysis. Jimp's record later in public contest, 11% fat in milk by Babcock test, winning silver cup. Calf tuberculin tested, solid color, good conformation, hardy. Dropped May 3rd, 1899. Grandly bred on both sides. Descended close up from Stoke Pogis 5th, Ida's Rioter of St. L, and Exile of St. Lambert. First named leads all other bulls in number of tested granddaughters; second named leads in average butter test for 30 daughters; last named leads in number of tested daughters. For cuts of ancestors and full information address, **MILLER & SIBLEY'S STOCK FARM, Franklin, Venango Co., Penna.**
Several other grandly bred young bulls for sale. No animals sold for less than $100.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred and Island cows. Show and Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th,** the champion **CATONO KHEDIVE,** the champion **CZAR COOMASSIE,** and **IMP. GOLDEN BAR,** inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

12. The officers of this Association, with an evident desire to carry the gospel of good dairying to the newer sections of the country, held their meeting this year at Madoc, one of the sections of the province that is coming to the front in dairy matters.

Their decision in this matter was proven to be wise and good. There was a splendid attendance, the opera house, where the sessions were held, being taxed to the uttermost, to accommodate the people. This was gratifying both to the officers of the Association and the speakers. The speakers who attend our dairy conventions, always come prepared to say something worth while listening to, and it must have been very gratifying to them to have such fine attentive audiences to unload their wares upon.

The gathering was presided over in his inimitable way by the inimitable (Dan) Derbyshire. There may be chairmen who can keep an audience in as good humor and in as good a listening attitude as the peerless Daniel, but we would like to know where they are. The dairymen of Eastern Ontario recognize this among his other good qualities and every year elect him their chief officer, and well he fills the bill.

The president's annual address this year contained among others one point of special mention. He strongly emphasized the importance of cheaper production in order that dairymen may make the most of their business. Some times this important factor is forgotten in the discussion of quality and methods of manufacture. But the dairyman must get his business down to a good paying basis, if he wishes to succeed. Then good quality and cheaper production go hand in hand. It never pays to produce an inferior article under any circumstances.

Prof. Grisdale, of the Central Experimental Farm, Ottawa, discussed the development of the dairy herd. He described the ideal dairy cow as one with a long deep barrel, showing large stomach capacity with a large mouth to take in food, large milk veins and a big udder. He urged the selection of food to meet the requirements of this type of animal. Plenty of nitrogenous food such as oil meals should be given with her ensilage and roots. Only the best pure-bred sires should be used and the dam of both sire and dam should have been good milkers. Cull pure-breds were worse than good grades.

Pasteurizing received some attention, the subject being introduced by Supt. Hart, of the Kingston Dairy School. He strongly advocated this practice and the use of pure cultures in butter making. This would improve the quality of the butter and was largely practiced in Denmark and the United States. Pasteurizing has been most successfully carried on at the Kingston Dairy School and was easy to accomplish in any well regulated creamery.

A very practical talk on cheese making was given by G. G. Publow, of the Kingston School. He emphasized the importance of good food for cows giving milk and cleanly surroundings both at the farm and factory. Important points in the process were the time of setting, the quality and quantity of rennet used and the salting of the curd. Makers were often astray in thinking that the acidity came from the whey around the curd and that the draining of the whey removed the acid. The acid came chiefly from the whey in the curd. He would use a starter only to get rid of taint or bad flavor. He advised deep piling for best flavor, although the contrary plan, perhaps, gave a greater quantity of cheese. Makers were warned against curing cheese at too high temperatures. Careful and frequent turning of the cheese was necessary to prevent bitter flavors developing.

Mr. J. W. Newman discussed the methods of securing proper conditions in the curing room. He emphasized proper insulation, lessening radiation and makers having a knowledge of and keeping record of these particular conditions.

Along this line Dr. Connell, Kingston, Ont., read a paper on the Bacterial Content of Cheese in Regulated and Unregulated Curing Rooms. The greatest bacterial content is normally found in cheese when from one to four days old. Following that period there is a continuous decline in the number of bacteria. Lactic acid bacteria are practically the only bacteria found in normally cured cheese. Cheese in the ordinary or variable curing room would more commonly go off flavor and quicker, than in the well regulated curing room. Though, not definitely located, it seems certain that the curing agent is either in the milk or is formed during the process of manufacture and in the few days immediately following the placing of the cheese in the curing room.

Other speakers who gave valuable and instructive addresses were C. C. James, Deputy Minister of Agriculture, Toronto; Prof. Dean, Ontario Agricultural College, and F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.

The convention closed with the election of officers, when the old board of directors were unanimously re-elected for 1900. The Secretary of the Association is R. G. Murphy, Elgin, Ont. Several instructors are employed during the summer months in visiting the factories, and the Association spends its annual grant wisely and well.

Toronto. J. W. WHEATON.

Eight Cows Make 60 Lbs. Butter Per Week. Ration Cannot Be Improved.

ED. HOARD'S DAIRYMAN:—Will you please give an economical, balanced ration from the following. Cows are Jerseys weighing from 700 to 900 pounds:

Corn stover, (do not know price); clover hay, $8; oat straw, $3; corn, 40 cents per bushel; oats, 32 cents per bushel; bran, $16 per ton; middlings, $18; oil meal, $30 per ton; cotton seed meal and gluten not on the market. Am feeding now, 13 lbs. corn stover, some clover hay and oat straw for them to eat at leisure, 4 lbs. corn and cob meal mixed with equal parts oats, 6 lbs. bran, and a little oil meal. Think it too high to feed much.

I am a renter, began last spring; am milking eight cows; make butter; have private customers; make about 60 lbs. per week at present. Weigh and test all milk; have a Baby separator, all the result of reading HOARD'S DAIRYMAN. Would like to give you my report, if you so desire, when my year is up; have several cows which have passed the 300 lbs. mark, and three months to go on yet, and are fresh at present. Have no silo, but wet stover with hot water one feed ahead. Think I have saved many dollars in the selection of my cows, by reading the DAIRYMAN."

Columbiana, Ohio. I. B. WITMER.

We print the above letter in full, to show what results may follow a close and appreciative study of HOARD'S DAIRYMAN, especially where a man has not too firmly grounded opinions, which have been handed down to him from former generations, or acquired under conditions which do not obtain at the present day. A man selects cows upon principles which have been advocated and illustrated in this paper; he feeds these cows and cares for them in ways suggested in these columns, with the result that he is now getting 60 lbs. of butter per week from eight cows, and that several of these cows, although only nine months in milk, have already passed the 300 lb. mark.

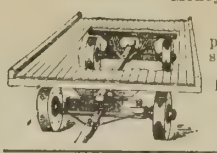
Such a record as this would seem to forbid any advice for changing the methods already pursued. We hardly like to admit of course, that any degree of success is good enough, because we have been brought up on the theory that there is always room for progress and betterment. We have to confess, however, in the present instance, that we do not see wherein the manner of feeding these cows can be improved. While it is true that oil meal is very high, yet we apprehend that a moderate allowance of this feed, under the circumstances, will prove very profitable.

Farmers' Handy Feed Cooker.

Reader's attention is called to this device, which is sold at $12-50 for 50-gallon capacity. By feeding poultry and animals cooked food during winter, at least one-third of the feed is saved; also having stock in a healthy condition, preventing hog cholera among your hogs, and insuring the hens laying freely during the winter months. On application to the Empire Manufacturing Co., Quincy, Ill, a catalogue giving full description may be obtained. They are made in all sizes.



A "Handy" will save The wages of a hired man. Your back from being strained. Your field from being cut up. Money and labor every day.



Send us your name on a postal card and we will send information free.

FARMERS HANDY WAGON CO., Saginaw, - Mich.



Cow Hopple

For Kicking Cows.

Either from habit or from sore teats. Price 50c. Also have a **Wart Cure** that will remove warts from horses, cows' teats or man. Price 25 and 50c. The goods are warranted. Sent Postage Paid. Send postal card for circulars

Agents Wanted.

Henry Bassett, Salem, New Jersey.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884-'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

"EVERYTHING FOR EVERYBODY" CATALOGUE, 450 pages, sent on receipt of 10 cts. for postage, or names of 5 or more heads of families who may be interested. Mention this paper. PATRONS SUPPLY HOUSE, 59 Lake St., Chicago.

GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys.

CHAMPION Herd

AT NEW YORK STATE FAIR,

1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS,** sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

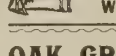
Rosendale Guernseys!

TUBERCULIN TESTED.

FIRST PRIZE HERD Wis. State Fair 1894, 1898, 1st Minn. State Fair and Omaha Exposition 1898. Our herd won first prize in A. G. C. C. test for 1899. Cows yearly records are from 418 to 585 lbs. butter. **GEO. C. HILL & SON,** Rosendale, Wis.

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE,** Farm Supt., Madison, N. J.



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.

OAK GROVE HERD H-F. Cattle.

Cows, Heifers and Bull Calves For Sale.
C. H. Stevens, Jefferson, Wis.

SHADY NOOK HERD

Holstein-Friesians. 5 choice high grade one-year-old heifers and one bull 15 months old. 8 bull calves. Choice **Chester White Sows.** Address, W. R. GATES, Prop., Fort Atkinson, Wis.

Holstein-Friesian Bull Calves

Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD.

Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians.

Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.

Holstein-Friesians

MECHTHILDE BULLS FOR SALE.
Address **M. W. BARDEN,** Portage, Wis.

TWO hundred bushels of Potatoes remove eighty pounds of "actual" Potash from the soil. One thousand pounds of a fertilizer containing 8% "actual" Potash will supply just the amount needed. If there is a deficiency of Potash, there will be a falling-off in the crop.

We have some valuable books telling about composition, use and value of fertilizers for various crops. They are sent free.

GERMAN KALI WORKS, 93 Nassau St., New York.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest tested relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three 3rd and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW

A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Colanthus Mechtchilde Parthenea

No. 25503, H. F. H. B.

Calved April 29th, 1898, is a bull produced by show animals. The "wonder" of the breed, MECHTCHILDE, with the help of PARTHENEA, who sold for $2,000, produced a show animal here. Holstein-Friesian Register says: "The progeny of these combined blood crosses certainly will equal any in the world'.' The blood of the "Queens" is offered here.

VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt.

Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON, Mgr., Simonsville, Vt.**

The Big 4 at Brookside.

THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.

HENRY STEVENS & SONS, Lacona, N. Y.

—FOR SALE—

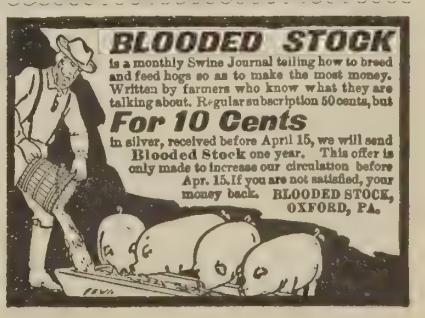
THE HOLSTEIN BULL

Belle of Verona's Clothilde Boy No. 23408

H. F. H. B., bred by Smith, Powell & Co., Syracuse, N. Y. **W. M. BURR, Cazenovia, N. Y.**

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited.

FRED TSCHUDY & SON, Monroe, Wis



New York State Dairymen's Annual Meeting.

ED. HOARD'S DAIRYMAN;—The twenty-third annual meeting of the association was held in Cortland, Dec. 13, 14 and 15. Mr. W. Brown Richardson, of Lowville, a very efficient resident, presiding; the other elective officers were also present, as well as delegations from more than forty counties of the state. Visitors were also present from New Jersey, Pennsylvania, Ohio, Michigan, Wisconsin, Illinois and other states; while the audiences during the sessions of Thursday and Friday (six in number) varied from 500 to 800.

There was no formal meeting on Wednesday, and it was not till Thursday morning that the first session was called by Mr. Geo. A. Smith, who introduced Judge J. E. Eggleston, of Cortland, who made a somewhat lengthy address of welcome, to which Mr. George E. Royce, of Gouverneur, responded in one nearly as long. Following, came the President's address, which was spoken, not read. Ex-President, J. S. Shattuck, of Chenango county, followed the President, in an address, in which he related some bits of interesting dairy history, connected with the old association and Chenango county. It concluded the first session.

In the afternoon, there were a half dozen questions read from the box, which were answered briefly by Prof. Jordan, H. E. Cook, Edward Van Alstyne and others, all of whom were institute speakers; but none of the questions, or the answers, brought anything really new, therefore, they are not reported here.

The short discussions closed. Prof. H. H. Wing, of Cornell, gave an interesting talk, the text of which was: "Condition of Cheese and Butter Factories of New York." As a rule, the conditions are neither better nor worse than in other dairy states; but the Professor spoke earnestly on the conditions of milk cans, factory vats, clothing and dairy utensils.

In this connection, he said in part and in substance: In 1898, there were some 148 factory reports received; of this number, 20 factories had been visited, twice or more. As a rule, they were found in better condition at the second visitation. There were included in the whole number, 74 cheese factories and 45 butter factories, also 5 private dairies, and 4 milk shipping stations. In nearly every report, there was a complaint that one or more sanitary rules were being violated by patrons or makers, or both. As a rule, in the factories visited, churns, butter workers and vats were found in good condition, but there were evidences of neglect seen elsewhere. In some factories tobacco was being used, a practice which should be discontinued.

In fifty-five of the places visited, the floors were littered with cold cooked potatoes, dirty utensils, clothes, and other things, which ought not to have been there. Factory smells were distinguishable in 71 places, but absent in 73; and, in some factories the effect of bad drainage was plainly the cause.

In speaking of the temperature of curing rooms, he said that, in almost every place visited, it was found to be the same out of doors as in the curing rooms.

The senior editor of the DAIRYMAN was the next speaker, his theme being, "Conformation of the Dairy Cow," which he illustrated by the use of his large colored drawings, in which are represented the types of some of the dairy, as well as the beef breeds, of cattle. The address concluded the forenoon hour.

AFTERNOON.

There were four questions found in the box, which the President read, and which were answered by Prof. Jordan and Messrs. Cook and Smith. The one of most importance, and to which most time was devoted in answer, being, "How can an Old-fashioned Barn be Ventilated?" Mr. Cook answered it at some length, in which he told how Prof. King, of the Wisconsin Experiment Station, has ventilated the barns there, and how he, Cook, proposes to ventilate a barn which he will build next summer.

It is quite difficult to ventilate the real old-fashioned barn, but it may, as a rule, be done by running shafts up the stable walls, thence along rafters to the peak, where they open into ventilators, passing through the roof.

Mrs. Anna Barrows, Editor of *American Kitchen*, Boston, Mass, when Mr. Cook had concluded his answer to the question on ventilation, made the evening address, her topic being "Dairy Products as Substitutes for Meat."

Friday morning's session opened at 10:30, when three questions—oral—were answered by Prof. Jordan and Prof. Wing, after which Mr. Franklin Dye, Secretary of the New Jersey Tuberculosis Commission, made quite a lengthy address, his subject being "Tuberculosis Legislation Control," in his state. Mr. Jared Van Wagenen, Jr., of Lawyersville, Otsego Co., was the next speaker, who discoursed upon the "Model Creamery Butter Maker." He was followed by Mr. George A Smith, who is the dairy expert at the Geneva Station, in a valuable paper, the head of which was, 'Problems in Cheese Making." It concluded the morning's program.

The afternoon session was opened by the Hon. D P. Witter, of Tioga county, who is chairman of the Tuberculosis Investigating Committee in this state. He gave an entertaining resume of the work done by his committee, at their various sittings in the state last season. He said that they found the disease less frequent in this state than it is reported to be in some others; also that they found other cattle diseases of more prominence, and deserving of more attention than is tuberculosis.

He also said that it was his purpose during the coming winter to introduce a bill bearing on the case, which will improve, if it goes on the statute books, the others now in force. His address concluded, the president called for the reports of the various committees, which were handed in, read, submitted and adopted.

Prof. E. B Vorhees, director of the New Jersey Experiment Station, was next introduced and discoursed on "Progressive Dairy Farming." He was followed by Major Henry E. Alvord, of the Agricultural Department, Washington, D.C., who made a congratulatory address to the Association; after which Mr. George Flanders, of the department of Agriculture, Albany, devoted a half hour or more to discussing the oleo situation in this state, in which he made the statement that but little, if any, oleo was now being sold in this state. Mr. Flanders' address concluded the session.

The last session was opened at 7 p m. and was consumed by Ex-Gov. Hoard in an address devoted to better dairy education and practice all along the line, which held the large audience in their seats till nearly 10 o'clock.

Following are the names of the officers elected for the ensuing year:

President, George A. Smith, Frankfort; vice president, Professor H. H. Wing, Ithaca; treasurer, F. E. Dawley, Fayetteville; secretary, W. W. Hall, Gouverneur; honorary vice-presidents, Theodore Roosevelt, Timothy Woodruff, C. A. Wieting, W. Cary Sanger, George H. Hyde, Charles H. Royce, Frederick H. Merry, W. E. Dana, J. P. Clark, R. H. Bent, E. J. Preston, C. M. Lamont, F. A. Converse, E. A. Van Alstyne, A. D. Harrington and V. C. Beebe. The next annual meeting will be held in Watertown, opening the second Wednesday in December.

The sessions at Cortland were held in the Opera House but the exhibits of butter, cheese, dairy machinery and other supplies were several blocks distant in a large show room of the Cortland Wagon Company. It was a hall, 40 by 200 feet, plenty large enough for the purpose, for the reason that it was visited by but a comparatively small

Two Wagons at One Price.

It is a matter of great convienience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of these low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 130 Quincy, Illinois, for their catalogue, which fully explains about these and their Electric Handy Wagons, Electric Feed Cookers, etc.



Always in the Lead.

A leading article of commerce in any particular branch of trade is bound to have competitors. Competition will develop something just as good. The fact that **"Just as Good"** is the claim made by competitors of

Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

HIGHEST STANDARD.

Alderney Butter Color.

There is never a time when it fails to satisfy even the most critical, because it always maintains its **HIGH STANDARD** of **PURITY, STRENGTH** and **UNIFORMITY.**

Hundreds of Dairymen Endorse It as the BEST Color.

Let us send you a Sample Free for your inspection.

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO, No. 14 North Clark St. BOSTON, 98 Commercial St. PHILADELPHIA, 109 So. 2nd Street.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

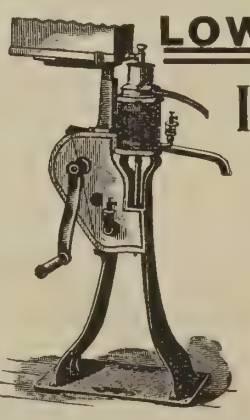
These are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

There is no higher authority. This verdict is positive and beyond caval and dispute Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.



LOW PRICES ON THE

Improved UNITED STATES Cream Separators.

We wish to introduce these machines in all localities where they are not generally used, and are making a special inducement in price.

Write us for Catalogue and Net Prices.

J. G. CHERRY COMPANY,
Cedar Rapids, Iowa.

SAVE FEED

Stock thrives best, fattens fastest, and you save one-third to one-half feed by cooking with the

KALAMAZOO Feed Cooker

Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

LULL & SKINNER CO., Kalamazoo, Mich.





CHACE'S Watering Device

The most perfect watering device on the market. It is fitted with a brass bushing that screws through the bottom of basin and forms a valve seat for the ball valve. The ball valve is the most practical of any now in use; it has been adopted by manufacturers of injectors for steam boilers, and many devices where a perfect working valve is necessary. Send for circular and price.

F. H. CHACE, Sherman, N. Y.

number of the large audience attending the convention, its distance from the opera house, the principal hotels and the icy, slippery condition of the walks, during the last two days, being the cause. Had such crowds thronged it as did the two halls at Gouverneur, there would have been found a lack of room; as it was, however, those who did go, found room enough and a plenty of time on the part of the exhibitors to give information relative to their wares.

There was about the same number of dairy machinery and supply exhibits, as at Gouverneur, but those of butter and cheese fell far short in number, the entries being 158, as against 367 at Gouverneur—less than one-half. Following are the scores:

Class 1—Creamery butter in tubs of 25 lbs. or over, $55. No prizes awarded to scores below 94.

Edgar Grennell Popular Ridge, N. Y..... 98
Henry Eibert, Otisco and Borodino Creamery Co.,..... 97¾

Class 2—Creamery butter in prints, not less than 10 lbs, $30

Thomas F. Rutherford, Chipman, N. Y..... 97¾
George W. Carmon, Mecklenburgh Empire Cheese Co., New Berlin..... 97¾
Fisher Brothers, Madrid..... 96¼

Class 3—Butter in packages of 5 lbs. or over, $65.

Charles Hart, Mc.Lean..... 98¼
Dotshome Dairy, Fayetteville..... 98
W. H. Knapp, Cortland..... 98

Class 4—Dairy butter in prints of 5 lbs or over, $30.

M. N. Butts, West Clarksville..... 98¼
J. Rosenbarker, Lowville..... 98

CHEESE.

Class 5—Cheese for export, $55.

E. P. Dunaway, East Rodman,..... 99
H. L. Grant, Rensselaer Falls..... 97¾
D. A. Goodrich, South Champion..... 97¾
Charles Kirkland, Redwood..... 97¾
Hugh Kirland, Redwood..... 97¾
Levi J. Snell, Clayton..... 97¾

Class 6—Home-trade cheese, $55.

Charles Kirkland, Redwood..... 99½
F. P. Dunaway, East Rodman..... 99½
D. E. Kent, South Easton..... 99
L. E. Meriben, Triangle..... 99

Class 7—Young America cheese, 10 lbs. or under, $ 0.

Cornell University..... 97

No other scores reported.

FANCY CHEESE.

Class 8—Sage cheese, $10

J. H Searl, Lowville..... 97
P. C. Parkinson, Watertown..... 96

Class 9—Neufchatel, $5.

Jared Van Wegenen, Jr., Sawyersville..... 98
Empire Cheese Co., New Berlin..... 96

Class 10—Square Creams, $5.

Empire Cheese Co., New Berlin..... 98
G. W. Barnaskey, Delanson..... 96

Class 11—Club cheese, $5.

Dotshome dairy (only entry)..... 100

Class 12—Pineapple Cheese, $5.

Eugene P. Norton, Attica..... 98
O A. Weatherly, Norwich..... 97
G. H. Boyd, Norwich..... 95

No entries for Edams or Swiss.

Class 14—Limburger, $5.

Empire Cheese Co, New Berlin..... 99

No other scores.

There were, besides the cash prizes, several others including silver cups, medals and Jersey bull calf by Mr George Sisson, Jr., of Potsdam. The cup given by Mr. A. R. Eastman, of Waterville, was of coin silver, elegantly designed and finished; the others, I was informed, were plated goods, but were fine in finish and design. The list of scores I received did not include the names of those winning ones of these special prizes.

The machinery and dairy supply exhibits were as follows:

DeLaval Separator Co., ten machines, both hand and power.

Mosely & Stoddard Co., Rutland, Vt., churns, vats, butter worker, Babcock tester and dog powers.

Empire Separator Co., Newark, N. J., full line of cream separators.

F. B. Fuller, Governeur, double action hand cheese curd mill, also a power mill.

Genesee Salt Co., large exhibit of salt in various sized packages.

G. W. Gazely, Cortland, model milk cooler.

Oaks & Burgess, Cattarangus, dairy supplies.

Alderney Butter Color Co., New York and Newark, N. J., butter color.

A. H. Reid & Co., Philadelphia, Pa., Reid's cream separators and pasteurizer.

L. R. Lewis, Cortland, milk coolers, aerators and feed cookers.

Worcester Salt Co., New York, salt,

P. M. Sharpless Co., West Chester, Pa., Sharpless tubular cream separators.

Champion Milk Cooler Co., Cortland, full line of milk coolers, aerators, milk bottle caps and other dairy supplies.

Diamond Salt Co., Michigan, salt.

The Dicks Agricultural Works, Canton, Ohio, "Blizzard" ensilage and fodder cutter, with blower attached.

St. Albans Foundry Co., St. Albans, Vt., tread powers and fodder cutters.

Thatcher Manufacturing Co., Potsdam, N. Y., Thatcher's pure orange butter color.

Wells, Richardson & Co., Burlington, Vt., large and attractive display of their celebrated butter color.

Taber Pump Co., Buffalo, rotary pumps for cream and whey.

Creamery Package Co., Chicago, Ill., full line of supplies, including butter packages, weighers, tubs, automatic skim milk weighers, churns, etc.

Vermont Farm Machinery Co., churns, butter works, tread powers, butter packages and a full line—several sizes—of the United States separators, both hand and power machines.

Willard Knapp, Cortland, N. Y., Willard Knapp cow tie.

G. H. Grimm & Co., Hudson, Ohio, champion evaporator for maple syrup.

D. H. Burrell & Co., Little Falls, N. Y., combination churn and butter worker, Gang cheese presses, dairy supplies, and Chris Hansen's laboratory of cheese and butter color extracts, etc.

The Fowler mowing machines.

Knife grinders, by the Toughennock Wheel Co., Cortland, and the Smith, Lee & Co., health milk bottle cap company, of Canastota.

Of all the various exhibits at this hall, the one attracting the greatest number of visitors was the "Blizzard" ensilage cutter, fan and blower, which was located in a tent outside the hall and which was run by steam. It was cutting dry corn stalks, and blowing them through its long elevator in great shape, but the noise of its rapidly revolving fan was louder than that of old ocean, and could be heard several blocks.

Belleville, N. Y. C. W. JENNINGS.

American Jersey Herd Book.

ED. HOARD'S DAIRYMAN:—If your California correspondent addresses O. B. Hadwen, Worcester, Massachusetts, he will supply information as to American Jersey Herd Book. W. H. R.

Oklahoma City, O. T.

FLABBY FELLOWS

WHO WANT TO BUILD UP THEIR BODIES WILL FIND THE "ONE THING NEEDFUL" IN

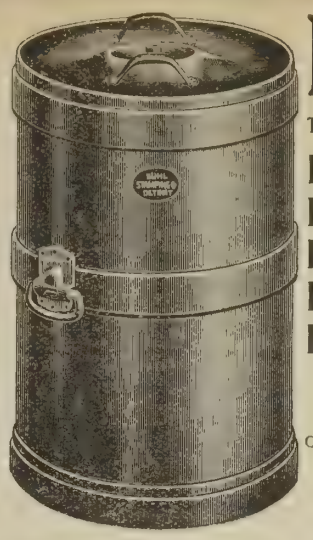
DR. PIERCE'S GOLDEN MEDICAL DISCOVERY

The body is built up from the food we eat. But before food can be assimilated by the body it must be prepared for assimilation by the stomach and other organs of digestion and nutrition. *Food does not feed when the stomach is "out of order."* The result is, weak muscles and flabby flesh. "Golden Medical Discovery" heals diseases of the stomach and digestive and nutritive system. It works with Nature to make manly muscle and form firm flesh.

In a letter received from A. D. Weller, Esq., of Pensacola, Escambia Co., Fla. (Box 544), he states: "I have, since receiving your diagnosis of my case, as stomach trouble and liver complaint, taken eight bottles of the 'Golden Medical Discovery' and must say that I am transformed from a walking shadow (as my friends called me) to perfect health."

A TRUE Temperance Medicine.

CONTAINS NO ALCOHOL.



Buhl CANS are the Best Cans.



TAKE NONE WITHOUT OUR TRADE MARK.

BUHL CHEESE FACTORY CANS. The only Cans with the genuine "Heisey" Handle.
BUHL "EASTERN" PATTERN R. R. CANS. Used from Boston to Buffalo.
BUHL "WESTERN" PATTERN R. R. CANS. Used from St. Louis to Seattle.
BUHL "IOWA," "SUNLIGHT" and "JERSEY" R. R. CANS. Sold by Hardware dealers everywhere.
BUHL CANS ARE MADE OF STEEL, coated with PURE TIN. They will not rust, leak or break.

TELL US HOW MANY YOU WANT AND WE WILL TELL YOU HOW TO GET THEM.

Our Book "A Study in Milk Cans" is mailed free.

BUHL STAMPING CO., Detroit, Michigan.



TO BUY at the right price, go to headquarters. Operating my own tin plate works, with an output of . . .

1000 MILK CANS

per day, comprising the various patterns used throughout the country, puts me in a position to interest you.

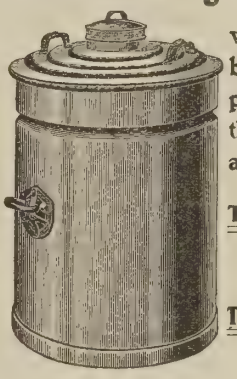
No Creamery or Cheese Factory

should be without a copy of my 1900 handsomely illustrated catalogue, *which may be had for the asking.*

FRANK STURGES, CHICAGO.

Successor to THE CHICAGO STAMPING CO.

Factorymen



who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

The UNION CAN is the best old style Factory Can. Send for special circular and price list.



EMPIRE STATE. UNION.

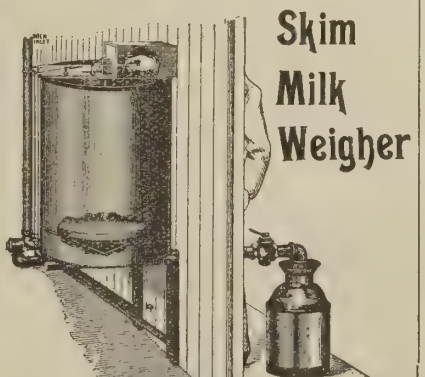
MADE SOLELY BY

OAKES & BURGER, - Cattaraugus, N. Y.

Manufacturers of DAIRY APPARATUS AND SUPPLIES.

. . . Hill's Automatic . . .

Skim Milk Weigher

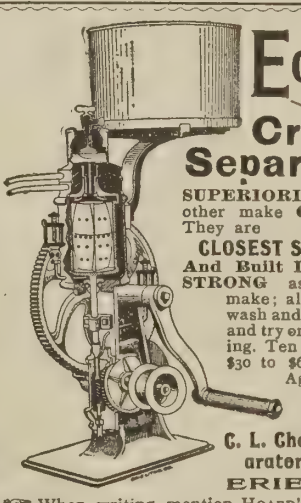


MADE BY

A. H. BARBER MFG. CO., CHICAGO, ILL.

Pasteurizers, Babcock Testers, Alpha Separators, Combined Churns,

REFRIGERATING MACHINERY.



Eclipse Cream Separators

SUPERIORITY over any other make Guaranteed. They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

Catalogue FREE.

C. L. Chapman Separator Works, ERIE, - PA.

When writing mention HOARD'S DAIRYMAN.



THE Ideal Milk Pail

Is the cleanest and most practical pail and strainer on the market. Write for circular and special price to

The National Specialty Co., RACINE WISCONSIN.

Agents wanted in every Co.

Experience With Milk Fever.

ED. HOARD'S DAIRYMAN:—On page 936, you ask if some of the readers of HOARD'S DAIRYMAN know of any deaths by milk fever, when cows have been milked without drying off from one calving period through another. Although it is not exactly what you ask for, I will try and tell you what I experienced some twenty years ago.

In the first place, I then lived and worked with my father on a dairy farm, at Friesland, (the motherland of the so-called Holstein-Friesian cow). We milked about 25 cows, all the year around, and, as a rule, they all came in fresh from about December until April of the next year.

Of course, once in a while it would happen that we could not get cows due to calve just at desired time, and that was the case with one of our cows, which we called Dora. She then was ten years old, registered in the Friesian herd book, and a very heavy milker.

As a rule, we dried our cows off some six or seven weeks before calving time, feeding them in that time, all the good hay they would eat clean, and a mixture of about three pounds ground oats and seven pounds oil meal per day.

The cow Dora was due to calve in August. Pasture was very good, and some six weeks before calving time, she gave two gallons of milk at the time, yet father concluded to keep on milking her, and so we did. One night I noticed that she would come in, and I put her in the barn, well bedded and in a comfortable place. The next morning she got her calf, and, as we always did, I took the calf away from her right away. I milked her a little; gave the milk back to her; put a warm blanket on her back; and gave her an armful of new fresh cut grass to eat.

After she had cleaned herself, I milked her again, and gave her a bucketful of luke warm water. She seemed to be sound and hearty, and the next morning, I turned her out again, and she went with the other cows to pasture.

It happened that father and myself went to a certain place on business that day, so that the care of the cows was left to the women folks. About noon a big thunder cloud came up, and for about an hour it rained, a down pour. About 5 o'clock we came home again, and my first thing was to look after Dora. I found her about one mile from home, lying down. I made her get up, and while she did so, I noticed that she was stiff in the hind legs, and kind of stumbling. Of course the very first sign of milk fever, at least as far as my experience goes.

I drove her home slowly, and put her back in the barn; carried more straw in, and gave her another wool blanket. Immediately after this I gave her 1½ lbs. of Epsom salts, and 3 teaspoonfuls of ginger. Then I tried to milk her, but I could get only a few strippings. She soon laid down again and seemed to be in misery, as she kicked continuously with her hind feet, and groaned right along. Her nose was very dry, and she felt cold all over the body.

Father came out and gave her a bottle full of wine, as warm as she could bear it. Shortly after this, the pain seemed to moderate, as she quit kicking and looked to be more easy all over. I staid with her all night, kept her well blanketed, and gave her another quart bottle full of wine.

About noon of the next day, she tried to get up, but she was too weak in the hind part. She ate a little bran, mixed with fresh butter milk, and a couple of hours afterwards she got up. We didn't feed her anything for the first two days but a little warm bran, and a handful fresh cut grass, now and then. She got over it all right, but didn't do as well as usual, and as she was getting a little old any way, we sold her the next year to the butcher.

The second case I experienced was as follows: In September, 1897, I took charge of a 50-cow dairy, belonging to Messrs. Shelly & Bro., of Holgate. As the bull was always running with the cows, they could not tell me very much about the calving time of the cows. After a couple of milkings, I noticed that one of the cows, a fine registered Jersey, was due to calve pretty soon; and as I always have been taught, that it is more dangerous to dry a cow off, if she is springing bag (the best term I can find for it) I thought it better and continued milking.

In about two weeks she had her calf in a box stall kept for that purpose. I left her with her calf for about 15 hours, and as the weather was dry, and not very cold, I turned her out again about 11 o'clock. The next morning about 3 o'clock, I put her back in the box stall (which I had cleaned out and bedded with fresh straw), milked her about 6 o'clock, and fed her a bran mash and some corn fodder. The next morning at 5 o'clock, I went in to feed her, and then I noticed that she was lying down, and as she tried to get up she fell down again. I gave her 1½ lbs, Epsom salts, and two teaspoonfuls of ginger, and put a good wool blanket on her. The foreman came out too, and we gave her 15 drops of aconite, mixed in water. I repeated this twice more, but it was of no avail, the cow died about 4 o'clock of the same day.

As you see, the two cases took place under different circumstances, and the result was different too. As to the box stall mentioned above, I ought to say that these are not what I think necessary for a fresh cow. There are four in the big barn, about 8×12, and 10 feet high. They are on the east side, have one window each, but no window lights, only shutters, so that either one of the cows have to be in the draught, or in the dark. If a stall for fresh cows was situated in one end of the barn, where all the fresh cows are housed, so that it is naturally warm there, I think it would be better, as I always have been taught that catching cold has a good deal to do with milk fever. In the old country we leave the cow at her place and take the calves away from her right away.

Holgate, Ohio. J. HEILEMAN.

A Herd Yield and Silo Question.

ED. HOARD'S DAIRYMAN:—Permit me to say that through your teachings, both in feeding and care of milk, we have been able to churn from our 12 cows 3,630 pounds of butter, besides cream and milk used in our family and milk for young calves. One of the cows was bought last spring and came fresh the 15th of May, and we sold two in November, which gave still some milk, so that we could not really call it 12 cows. As we have plenty of silage to feed this summer, we will try to do a little better this year.

We fed out a silo made in Kalamazoo, and there was not more than two wheelbarrows molded silage in that one. This year we built one 15 feet in diameter, with twenty feet long 2×6s which we could not draw tight, the staves being not even in width, although we paid $25 per thousand feet. We commenced to feed four weeks ago, and found from six to twelve inches spoiled silage on the sides; in the middle the silage is warm and nice. We had given this silo a good coat of coal tar, but I saw right away that some staves could not come air tight. My plan is to line this silo this summer with paper and one inch flooring. Do you think this a good plan? D. J. de H.

Boyden, Iowa.

Inch flooring would be too heavy to bend round the inside of a stave silo, and if put on the same way as the staves run, there would be the same liability for shrinking and consequent leaking. The easiest way would be to take the silo down and trim the staves so they would come together properly and make a tight joint.



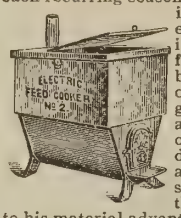
ABORTION PREVENTED

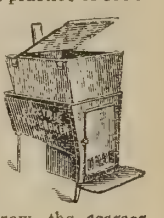
ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.
One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.
ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York.

ILLUSTRATION.

SHALL I BUY A FEED COOKER?

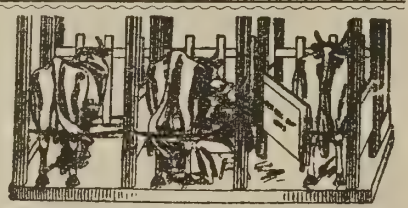
We have no doubt but that this question presents itself to many of our readers in almost this form each recurring season. Many experiments have been made to test the value of the practice of cooking feed for live stock. Such experiments have not always endorsed the wisdom of the practice. Some even have cried it down, declaring that nothing was to be gained by cooking feed, and that the cost of feeding was unnecessarily increased by the expense of machinery, fuel, time, etc. As against these conclusions we are compelled to state that the feed cooker is growing in popularity, daily, and that we have never known a man who cooked feed for his animals, but that was a friend of the practice. One thing is certain, and we believe it is not denied by even the most rabid opponents of the practice, and that is, that the cooking of feed materially increases the succulence, flavor, and digestibility. It transpires, therefore, that the man who cooks feed may employ waste or by-products to his material advantage For instance, straw, clover haulm, pea vines, bean straw, the coarser and harder portion of corn stalks, sorghum, etc., may be made valuable as stock food by steaming or cooking, in combination with a small grain ration. The aroma and flavor of the grain permeates the whole mess, making it appetizing, and at the same time digestible. It must be remembered however, that the simple cooking of feed will not add in any way to its food content—as for instance in the substance above—but it makes that food content appetizing and hence available and digestible.



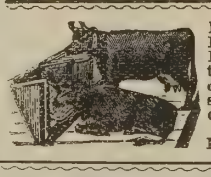


A very good feed cooker for general use is the "Electric" here shown, which is manufactured by the Electric Wheel Company, of Quincy, Illinois It is well and carefully made of good material and has given excellent satisfaction in the past. Write these people for catalogue, prices, etc. They sell direct to the farmer at wholesale prices.

350 Choice Brown and White Leghorn Young Hens For Sale at $1.50 each in lots of 25 or more. Bred from our prize winners in 4 states. Also **100 S. C. White Leghorn Cockerels** $2.50 each—good ones.
DELLHURST FARMS, Mentor, Ohio.



THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.
Mention HOARD'S DAIRYMAN when writing.



Newton's Improved **COW TIE** Holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps them clean
E. C. NEWTON CO.
Batavia, Ill. Catalogue Free

— BANKRUPT SALE OF —
A No. 1 DAIRY FARM
Said farm lies in the Mill Creek Valley, 7 miles from Richland Center, 1 mile from Boaz and a first-class cheese factory. It consists of 479½ acres under fence and seeded down; over 200 acres under plow. Said farm must be sold to close out bankrupt stock. For further particulars address D. G. JAMES, Trustee, Richland Center, Wis.

FINE CREAMERY PLANT FOR RENT
On the most advantageous terms to the right party; built new two years ago, equipped with two separators and full line of up-to-date machinery. Will rent with privilege of purchase at end of year. Creamery less than half mile from $500,000 beet sugar refinery where beet pulp is given away. Will stand strictest investigation; now owned by co operative company. Do not write unless you can command sufficient capital to operate the plant successfully and can furnish A 1 references. Address, C. O THOMAS. Secretary, Caro Elgin Butter Company Caro, Mich.

CREAMERY FOR SALE

The **WYANET CREAMERY PLANT**, costing $4,500.00, is now for sale. For full particulars inquire of the President of the Company,

J. H. OLDS, - - Wyanet, Ill.

BROWN'S Bronchial Troches
(Made only by John I. Brown & Son, Boston.)
give instant relief in
Hoarseness



IN THE NICK OF TIME.

For best results seed must be planted at one time—all in one day, or before conditions change. This means even germination, all plants of the same size—a positive advantage in cultivation. The "PLANET JR." No. 4 Combined Seeder and Wheel Hoe meets all requirements. Sows in drills or drops in hills at any distance. Opens the drills, sows, covers, rolls and marks the next row at one operation. By slight and quick change it becomes a hoe, cultivator, rake or plow, throwing dirt to or from rows. It isn't a toy or plaything, but a strong, well made, durable tool of great efficiency and long life.

The "PLANET JR." line comprises in addition, Wheel Hoes, Horse Hoes, Pivot Wheel Cultivators, Orchard Cultivators, Celery Hillers, Markers, Levelers, Potato Diggers, Sugar Beet Seeders and Cultivators, etc. Each implement is equipped with a variety of attachments, making them suited to a number of uses.

The new 1900 "PLANET JR." catalogue, 350,000 of which are now ready for distribution, is in point of beauty, original illustrations and general utility the superior of any similar work ever published. It covers every variety of special and general gardening and farming, both in illustration and text. It's full of points of profit. We mail it free on application.

S. L. ALLEN & CO., Box 1107-D, PHILADELPHIA, PA.

Pennsylvania Dairy Union Dairy Exhibit.

At the Dairy Exhibit held in connection with the annual Meeting of the Pennsylvania Dairy Union at West Chester, December 5th and 6th, fifty per cent of the prizes offered in the creamery butter contest were won by butter-makers who had completed a course in the State College Dairy School.

Mr. E. J. Liekert, Instructor in Buttermaking and superintendent of the State College Creamery, exhibited what in the opinion of the judges was the best butter of the entire show, scoring 98 points out of a possible 100. This is believed to be the highest score reached at a state exhibit this year, and is a good indication of the kind of training which students in the Dairy School may expect. The second prize for creamery print butter, was won by B. A. Burnham, Dairy School '99, whose butter scored 96, and the third prize for creamery tubs was won by J. W. Waite, Dairy School '98, with a score of 94.

When it is considered that these prizes were won in competition with some of the oldest and most famous makes of butter in the world, in the very heart of the most favorably located dairy districts of the state, it is evident that State College dairy students are not only making a reputation for themselves but are reflecting great credit upon the institution that trained them for the work in which they have been so successful.

Warm on Oleo.

Every pound of oleomargarine, of paraffined butter, of new process butter, of renovated butter, or of any other non-butter kind of alleged butter sold and eaten, displaces a pound of real butter. Not only does it displace real butter but it also breaks down the price of the real butter. In this direct, positive way the fraud grease butters inflict a double injury upon the farmers. The fraud greases swell the visible supply, while the demand is a fixed factor. The tenth pound appearing in supply, when the demand is for nine pounds, will compel, practically, the selling of the entire ten pounds for the value of the nine pounds. It is the double effect of these nauseous, dangerous, unwholesome, indigestible frauds that should appeal to the farmers and cause them to unite in demanding extreme severity in laws to punish the adulterators and imitators. Let no false sentiment lead the farmer to look with leniency upon these frauds. Bogus foods are a curse to the community in every way,—in health, in money, in morals, in business. Down with the frauds, the humbugs and the poisoners! The chicken thief, the forger, the perjurer, the embezzler and the highwayman are bad, but they are angels of light and models of honesty and philanthropy in comparison with the demons who make an insiduous attack upon the community with the weapon of poisoned foods of all sorts.—*New York Farmer.*

CONCERNING OUR ADVERTISERS.

The importance of cleanliness in the dairy and especially during milking hours, cannot be overestimated, and such appliances should be used that will prevent the adulteration of the milk by filth and "cowy" odors.

The "Ideal" Milk Pail, manufactured by the National Specialty Co., Racine, Wis., protects the milk from the moment it is drawn from the cow, and using this pail makes it possible to secure milk absolutely clean and pure.

The Hon. H. G. McMillen of Cedar Rapids, Ia., the well known proprietor of the Lakewood herd of Jersey cattle, recently said: "We have used them very much. They are convenient, and secure absolute cleanliness in milking; no first class dairy should be without them."

Dr. C. I. Shoop of Racine, Wis., the eminent physician, whose remedies are favorably known by almost every family in the United States, says: "Realizing that there is no food or drink so susceptible to contamination as milk, I became at once interested in your ingenious invention the "Ideal" Milk Pail. Every possible precaution had been resorted to in the past by my manager at the farm, that would insure pure milk, still, previous to the time when we adopted your milk pail, it was impossible to entirely exclude all foreign matter from the milk. I now feel certain that the milk and cream served on my table at home, are absolutely pure."

Raising hogs has of late grown to be a most important branch of farming. The returns made by the hogs when properly attended to, bring in for the grower a large amount of ready cash. Nearly every Agricultural paper has a Swine Department, yet our observations lead us to say that every farmer would do well to take a Swine Journal, especially devoted to Swine, such as BLOODED STOCK, advertised in our columns. It is a business paper on practical lines, and devotes its pages to such items as are of vital importance to the every-day farmer. The March issue will contain articles from well-known writers such as J. A. McDonald, James Fisher, T. A. Stevenson and others. This issue alone will be worth far more than the prices asked for several years subscription to the paper.

The Page Woven Wire Fence Co., Adrian, Mich., have for nine years past issued a paper called *The Coiled Spring Hustler*. The name has been changed to *Page Fence Age*, but it is the same "Hustler" as ever, devoted to the interests of Page Woven Wire Fence, and full of information concerning it. It will be sent free to any farmer who asks for it. We can assure our readers that it is worth sending for. Ask also for their "Blue Folder," which gives complete descriptions of the different styles of Page Fence. When writing, please mention this paper.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

UMBILICAL DROPSY.

I have a heifer 23 months old, that dropped her calf, Jan. 16; seems all right, except that her udder is very large and quite hard, and in front of it is a swelling, extending to the navel, which is soft, and appears to be filled with water. Have given three-fourths of a pound of salts with ginger. R. B. W.
Gasport, N. Y.

ANSWER.

Umbilical dropsy is quite easily relieved by persistent physicking, and by diuretics. Three-fourths of a pound does not act sufficiently upon a full grown animal, Rub the hard portions, only, of the udder, with with strong camphorated spirits, six parts, and common turpentine, two, only, parts. Do this for four rubbings. Then each morning give sixty grains of iodide of potassa in a little water, as a small drench. Use much and thorough massage, daily, and don't forget the thorough physicking. Continue the potassa for 50 to 80 days if needed.

SHRUNKEN QUARTERS.

Please give the treatment for udder when one quarter is smaller than other quarters, and milk secretion is considerably less. No swelling or irritation or stoppage in this.
Palmyra, Mo. G. V. S.

ANSWER.

Can't possibly tell you the reason in your case, there are so many different causes. Besides, you are far from giving the history of the case. Can't even guess or estimate the true condition. May be hereditary; may be the result of accident, etc., etc.

PREVENTING ABORTION.

We have had in our dairy a few cases of premature births in the last 3 or 4 years and an occasional abortion when 5 or 6 months in calf. I am using two of the best disinfectants I know of in the stables and about the vagina, etc. Now I have a number of cows and heifers to come fresh in 2 to 3 months and I am very anxious to know just the proper course to pursue. Have had 3 or 4 calves dropped lately all right but one cow has just aborted. A READER.
Morristown, Ind.

ANSWER.

Your disinfectant is all right. Wash all the hinder parts of the aborting cows thoroughly and burn, or scald with boiling water, all the surroundings. Leave nothing neglected. If you can remove all aborting cows to an isolated position, do so. Your chief help will be strict vigilance. You can try two dram doses of false unicorn daily for a number of days, or 4 drams of black haw for two weeks.

TUBERCULOSIS.

I have a cow, coming four years old, that had her second calf about 1st of December last. Had been perfectly healthy apparently until about a month ago when she lost her appetite. Her skin tightened up and she had a staring look in her eyes. She eats a little bran but does not care for corn. Gave her some physic although her dung was apparently all right, not hard and no unusual smell, but scanty.

Lately I notice a hard lump in each flank, just under the skin, about the size and shape of a hog's kidney, a smaller lump on each shoulder, one on each side of the head, a little below the base of the ear, and one under the left jaw, not on the bone. I would like to know if tuberculosis is surely indicated by the hard lumps under the skin where the cough is entirely absent, and also if a strong, healthy young cow will succumb to the disease within a month. S. G.
Danville, Ill.

ANSWER.

You have a suspicious and dangerous case. It is entirely out of the range of professional correspondence. Get some professional qualified man to make an examination. Your state veterinarian is the best person to investigate your case.

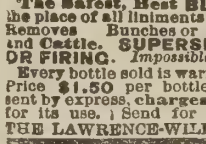
GARGET AFTER MILKING

I had a heavy milking seven-year-old Jersey cow freshen on December 15th. Two weeks before, this cow was milking 18 lbs. daily, and we continued milking her until she calved. For four or five days the milk was stringy or gargety, and was drawn with difficulty. After calving the udder was very much congested, and has continued so until the present time, notwithstanding almost constant treatment, and the attendance of a veterinary surgeon, local application of hot water, fluid extract of lobelia, camphorated spirits, etc., with proper physicking as per directions of DAIRYMAN. To this has been added treatment fluid extract poke root, also iodide potassium (60 grains). At present this cow is giving 12 lbs. of milk daily, when she should be giving 35 to 40 lbs. One quarter gives almost normal amount, while the three other quarters give about one pound each daily. She has been kept on light ration, and local applications with hand massage continued regularly, but improvement has been very slow, if at all. While the congestion has been reduced, the udder is still hard and lumpy, and the milk comes slowly, and only after patient manipulation. W. L. H.
Lincoln, Neb.

ANSWER.

You have exhausted the whole of the best treatment known to me. I can't help your case by any further form of treatment.

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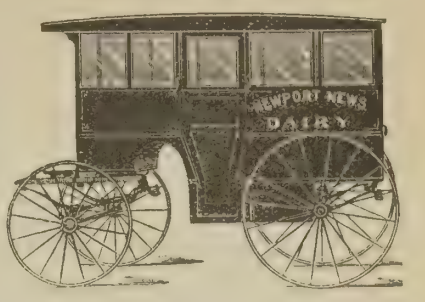


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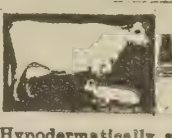
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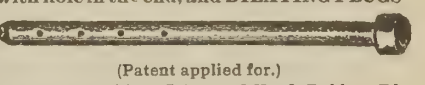
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Coloring Matter for Butter.

The writer recently witnessed what might be termed an incipient riot in a high-class restaurant owing to the fact that the butter used on the tables was of the color natural to the season of the year. With one accord the guests pronounced it, on sight, oleomargarine. It was unadulterated butter for which the highest market price was paid. It is unfortunate that the public is not educated to a proper understanding of the natural color of butter at the different seasons of the year, but insist on June color butter at all times. The result is that chemistry is brought into play by manufacturers to produce a coloring matter that will give butter the color as close as possible to that of June butter This winter, as in former years, numerous deaths have occurred thro ugh the consumption of butter colored with materials into which petroleum in some form enters. Admitting that coloring matter must be used by the dairymen, the only safe plan is to use such as are purely vegetable. The color is not so high, its true, and frequently the price is lower in consequence, but no one cares to be a party to the death of some innocent person. It is probable that more stringent laws covering the artificial coloring of butter will be enacted this winter in the several states and thus the practice be stopped. From such agitation may in time come the education of the public so that no artificial coloring need be used. Even the least harmful of them destroys more or less of the natural flavor of the best butter.

The foregoing we copy from the agricultural columns of the Milwaukee, Wis., *Sentinel*.

It was evidently written from the standpoint of prejudice and not sound understanding.

The color question is a matter of vital interest to the dairymen of the United States. Upon that line nearly all the repressive legislation that has been had against the fraud oleomargarine, is based. For that reason, in order that in the future, deception and swindling may be prevented, it becomes a matter of necessity that all butter shall come upon the table in a yellow color.

So far as deaths having ever ensued from the eating of butter that has been colored, that is the merest humbug. Butter is colored simply as a matter of taste, because in summer when feed is green, all butter is yellow. It does not make poor butter, good butter. The coloring has nothing whatever to do with the question of quality. No man need be pursuaded to buy poor butter for good because it is yellow. Quality in butter is not judged by the eye but by the taste and smell, so color has nothing to do with quality but has much to do with another department of value, that of appearance to suit the eye of the consumer.

The aim of the dairymen and all consumers who do not wish to be swindled into buying oleomargarine when they call for butter, is to force oleomargarine by the strong arm of law, to appear in the market and elsewhere in its own distinctive color, which is white or nearly so. Then if the poor want it as a cheap substitute for butter, they can buy it for what it is worth. Public sentiment and understanding is fast coming to see the integrity, fairness and wisdom of such a purpose.

The boarding house or restaurant keeper who puts white butter on his table is lacking in good business sense. No deaths nor even sickness have ever occured, to our knowledge, from eating butter colored by any form of color.

The sooner all butter comes on the table in yellow attire and all substitutes are forced to appear uncolored, the quicker will justice be done to the consumer, and the dairymen.

Does the Udder of a Cow Normally Contain Bacteria?

An article by A. R. Ward in the *Journ. Appl. Micros.* for 1898 has perhaps not received the attention that it deserves. From his studies we learn that great variation exists in the bacteria found in the foremilk, and presumably present in the udder. In the foremilk of a cow he found four or five species of bacteria, only one of which was common to the four teats, but "the same species were found to persist in the same teat from day to day." The milk of another cow examined on five occasions covering a period of eight months, showed three species, one genus of bacteria--streptococcus-predominating in all of the teats at first and persisting thoroughout the trial, yet no streptococci were found in the milk of eight other cows in the same cowhouse.

The results are also given of the bacteriological examinations made of the glandular tissue of the apparently healthy udders of six cows, together with the foremilk of these cows just before they were slaughtered. The udders were divided arbitrarily into three parts, namely, the teat and cistern, the middle part above the cistern, and the part above this. From the examination made it was found that the same organism frequently occurred in the foremilk and in each of the three parts of the udder, and that most of the bacteria obtained belong to one of three micrococci. According to Mr. Ward "the evidence at hand indicates that the teats and the greater portion of the udder may normally contain bacteria. It also seems highly probable that a few at least of the organisms found in the udder remain there after each milking, becoming the progenitors of the organisms found to be present in the milk when drawn." If this be so, milk as it comes from the cow is not sterile, and the micrococcus which produces lactic acid fermentation and sour milk may possibly not enter the milk after being drawn, but be actually present in the milk while in the udder. If it can be shown that the udders of all cows contain normally such bacteria, then it opens up a new field of inquiry.

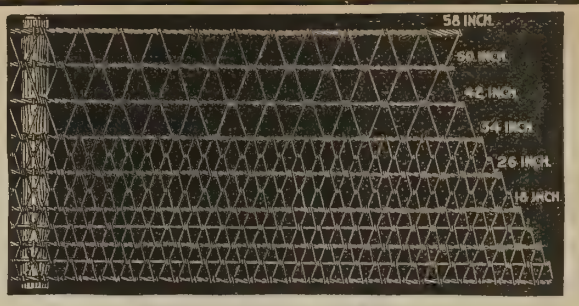
R. HEDGER WALLACE.

As it has always been assumed that the milk from the upper part of the udder, is sterile, it has been difficult to account for the large number of inflammatory attacks to which the udder is subject or for the cause of ropy and stringy milk so often reported. If further investigation proves that bacteira in the udder are responsible for these abnormal conditions, it will simplify to a marked degree, the methods of treatment which are at present decidedly of the rule of thumb variety.

A Good Record.

ED. HOARD'S DAIRYMAN:—I see some remarkable records in your paper of what others are doing. While I cannot make such a grand showing, I think I can beat those Iowa cows. I keep three cows, 2 grade Jerseys and one grade Durham. Besides rearing the calves from the same which took one cow's milk four months and brought me $25.28, and my milk in the house not counted in, I sent to the creamery 15,185 lbs. of milk in ten months, or from the first day of Feb. 1899 to Dec. 1st, 1899, and received in money from the factory $129.17, for the 10 months, making a total in the ten months, from creamery, $129.17; sale of calves, $25.-28; total, $154.45, besides skim milk returned. I am trying to make it from the creamery $150.00 in the year. J. CRONK.

Waupun, Wis.



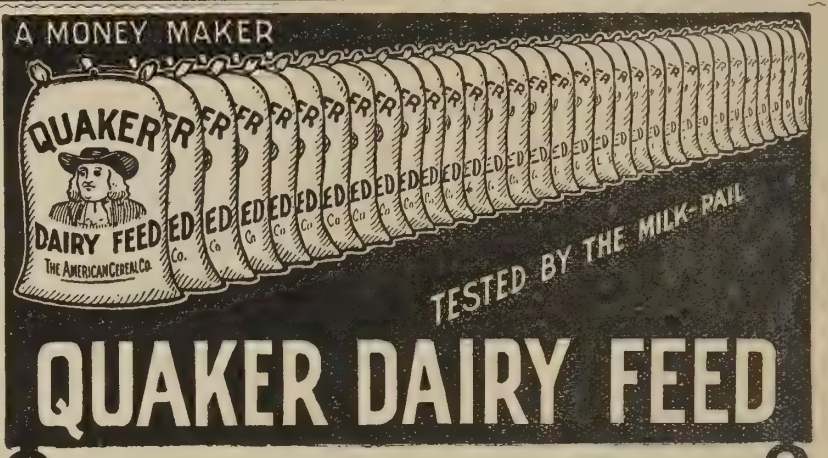
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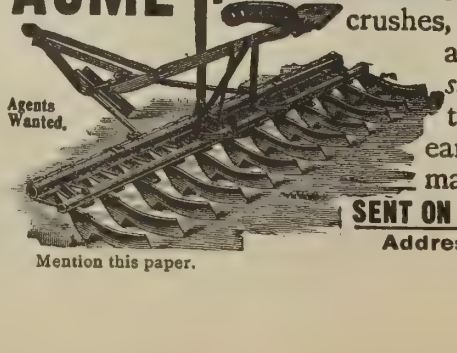
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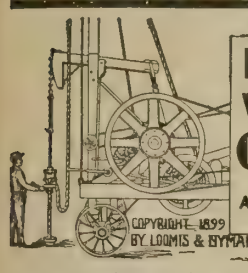
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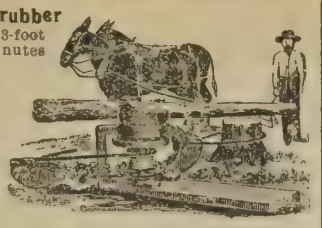
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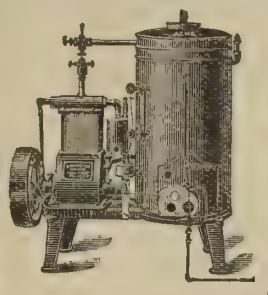
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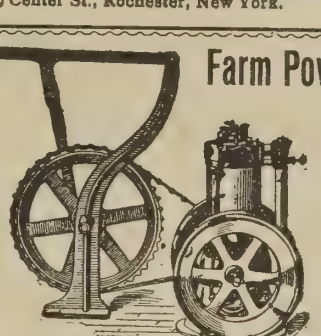
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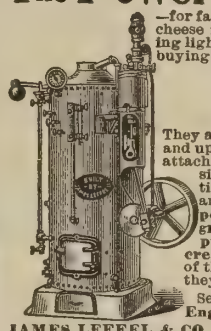


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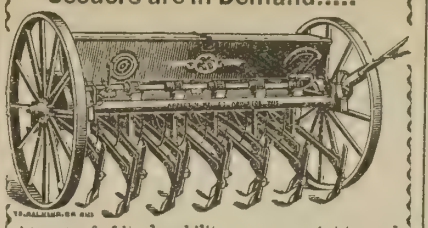
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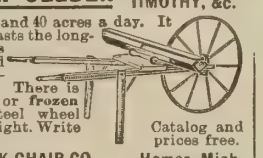


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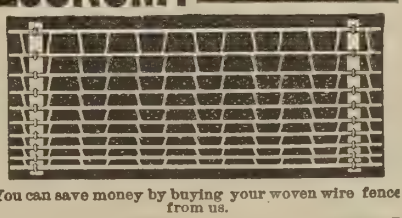
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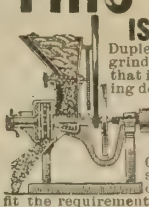
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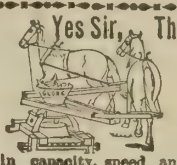
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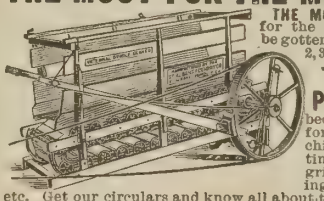
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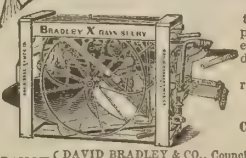
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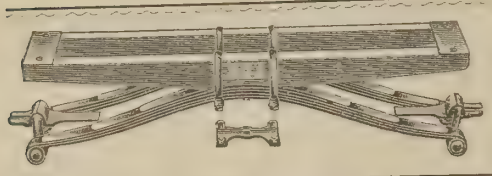
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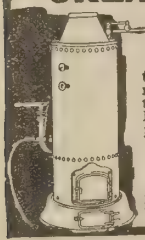


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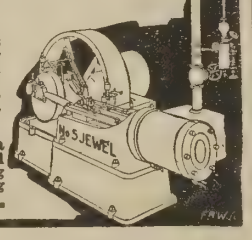
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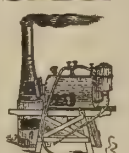
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VOLUME XXX. FORT ATKINSON, WIS., FEBRUARY 2, 1900. NUMBER 51

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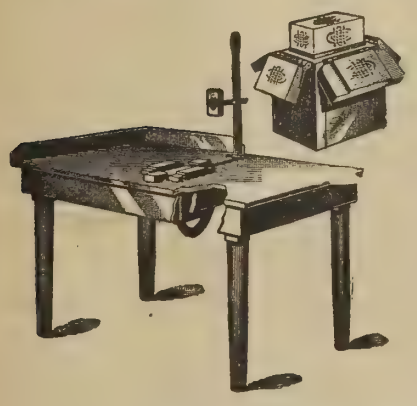
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SAVOGRAN INDIA ALKALI WORKS,-BOSTON.
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The "All-Over" seems to be pleasing every man who gets one. It prints the butter on the top and on the four sides, also on the bottom if so desired. This not only insures a very attractive looking package, but no matter how it is cut for table use, the imprint of the maker can be seen and his name and reputation more extensively and profitably advertised. To print on all sides it is necessary that the butter should be pressed from every direction, just as the "All-Over" does it, and thus there is no smearing or scraping of the butter against the sides of the mould. The "ALL-OVER" is self gauging, simple, rapid, durable and cheap. We would like to send you one—it will please you.

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Sharples Tubular Separators.	The "Squeezer" Combined Churn.
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Then there is the new and distinct type of hollow bowl used in the

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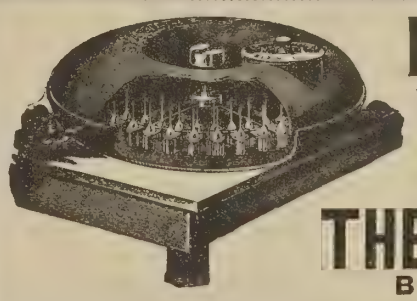
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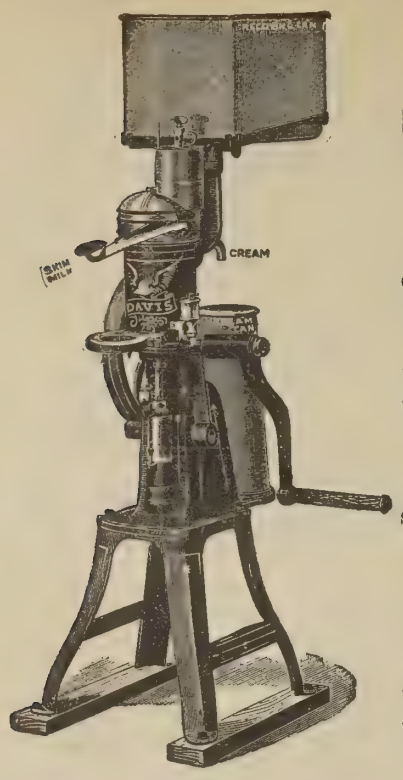


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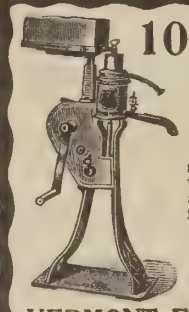
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SIMPLE IN CONSTRUCTION.
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SOLD ON ITS MERITS.

WRITE FOR PRICES.
AGENTS WANTED.

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Known by **ALL** as

The WORLD'S BEST Dairy Salt.

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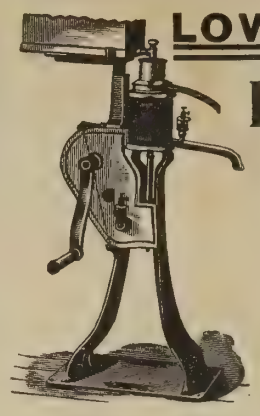
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This Combined Churn and Butter Worker is proving itself to be precisely what the farmers and dairymen have been seeking after. It's work is as complete as the work of the "Factory" Victor Churn, which is rapidly supplanting every other Combined Churn and Butter Worker.

IT IS THE ONLY SUCCESSFUL DAIRY COMBINED CHURN AND BUTTER WORKER ON THE MARKET.

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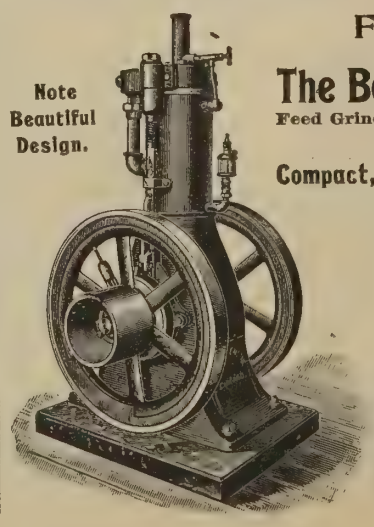
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WORCESTER SALT CO., New York.

The Burrell Upright Engine
FOR GAS OR GASOLINE.

Note Beautiful Design.



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BECAUSE it is Simple, Compact, Safe, Steady Running and Economical.

It is closely governed and made with interchangeable parts. It is built of the finest materials, carefully and accurately finished, and thoroughly tested before shipping. They are made to stand the wear and tear of every-day service, and cannot be too highly recommended to anyone wanting a power of this capacity.

PRICE:

3 Actual H. P., On Time	$160.00
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Price includes Gasoline Tanks and full set of Tools and fittings, Engine boxed and delivered, f. o. b. cars Chicago.

Skillin & Richards Mfg. Co.,
SOLE MAKERS,
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Horizontal Engines made in larger sizes.

Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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Remit by draft on Chicago or New York, or Post Office or Express Order; never by personal check.

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Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

A Day Off.

And a Holstein Herd Visited.

A couple of representitives of Hoard's Dairyman had the pleasure a few days since, while en route elswhere, of visiting and inspecting the buildings and herd at McGeoch Farm in this (Jefferson) county. The farm, which consists of nearly five hundred acres, with not a foot of it that cannot be cultivated, lies within the boundaries of the ancient city of Aztalan, where in years long before the white man settled in Wisconsin, and indeed so long before, that the Indians have no tradition concerning them, this particular locality, was inhabited by a race of men who built here extensive fortifications, temples and sacrificial altars. The country did not abound in stone or other building material, and hence these works were constructed of common soil, but it was soil brought thither from no one knows where. No pits or other excavations have been found indicating that any of the material used in building these mounds, walls or other structures was taken therefrom.

It is plain it was from these pre-aboriginal structures that the place in the earliest days received its appellation of "The Ancient City", notwithstanding it was the site of some of the earliest settlements in the history of Wisconsin, and at one time was seriously discussed as the proper location for the territorial capital. For reasons, which at this time it is impossible to fathom, Aztalan did not become the place of importance that its earliest settlers anticipated. Other localities got the start of it, and its prospects soon dwindled, and it is now practically only a four corners, with a school house, a church, a postoffice and a modern creamery, and would now have little or no distinction, if it were not for the McGeoch Farm.

The present owner of the farm resides in Milwaukee, and a little outside the limits of that city he has another large farm devoted to the production of milk and cream for city consumption, but both the Milwaukee farm and the Aztalan farm are under the efficient general superintendency of Mr. H. B. Daggett.

The Aztalan farm, a year or two ago, acquired some notoriety, because of the erection there of the largest silo in the world, so far as known. This structure is round and has an inside diameter of 66½ feet, and a corresponding height. We have always been of the opinion that this was altogether too large for convenient use, and we found this opinion corroborated by that of Mr. Daggett and the herdsman in charge of the cattle. The silage, however, seems to keep perfectly and was of first quality, as we examined it at the time of our visit.

There is, of course, on a farm of this size, and with a silo of this capacity, a very large herd of cattle, sufficiently large perhaps to feed off all that is required to keep the silage in good order, but the principal objection is that so much of the silage has to be carried such a distance to get it outside into the stables. However, in this particular instance there is a stable on either side of the silo, with openings into them, so that the silage only has to be moved at the farthest, a little over thirty feet; but even this distance imposes an unnecessary amount of labor, and we think it would be far better if Mr. McGeoch had two or three or even four silos in place of the large one.

The day did not turn out as pleasant as the promise of the morning indicated, and in consequence we were unable to make as full inspection of the premises as would otherwise have been the case. This was, however, partly compensated for by compelling us to devote more attention to the large herd of milch cows, present and prospective. Until very recent years Mr. McGeoch, following the example of his father, has kept his farm stocked exclusively with grade Holsteins, but at the present time he has sixty or more registered animals of various ages, and is now raising both registered and grade stock, although a stranger would have much difficulty in determining which were grades and which were thoroughbreds, were it not for the circumstance that the thoroughbreds have their names attached to their stalls.

The principal cow barn is 250 feet in length and we have the same fault to find with it that we do with the silo; it is too large. This objection, however, is founded upon a different reason from the one with the silo. In case of a fire in this building, it would be practically impossible to save any of the stock, whereas if the animals here quartered were put into three or more barns, there would be at least opportunity for saving the greater number of them.

Notwithstanding the inclemency of the weather, our visit happened to be very opportune in that Mr. Daggett was having some of the cows officially tested, and we had the opportunity of witnessing the *modus operandi* of conducting these tests under the rules adopted by the Holstein-Friesian Association. We found a young man from the Wisconsin Experiment Station, a Mr. Nicolaus, there in charge. The noon milking was under way, and we observed, that he allowed only one cow to be milked at a time, and that he stood close by and gave his undivided attention to the milking of the cow. When the milking was completed he took the pail to the scales, weighed the milk, then took a sample for testing and afterwards turned the milk into the strainer. Had there been ever so much disposition, and we are firmly convinced there was none at all, to get in any crooked work, we do not see how it would have been possible. We observed that Mr. Nicolaus was very careful in taking his sample, and that as soon as taken, he unlocked his tin box and put the sample therein, being very particular to see that the box was afterward locked.

Undoubtedly the results of this test will be made public sooner or later, but we apprehend that it is no violation of confidence to say here that one of the cows—and one in which we took particular interest—by name, Melisse Clothilde, gave 26½ lbs. of milk at the noon milking, and that this milk tested in our presence 4.8% fat. It is not for us to say what she did at other milkings, or what she may do subsequently. It suffices to say that the milk drawn in our presence at noon that day had enough butter fat in it to make 1.84 lbs. of butter, estimating the yield by adding one-sixth to the amount of fat in the milk.

Holstein-Fresian breeders in Wisconsin and elsewhere may well perpare themselves for a competitor at McGeoch Farm that will not be content to be in the rear ranks.



GRADE GUERNSEY COW, BEULAH.

Property of R. F. and A. H. Parker, Southville, Mass.

Cheese or Potatoes.

A Question for J. A. M. and one for Hoard's Dairyman.

Ed. Hoard's Dairyman:—Since I subscribed for your excellent paper, I have not neglected to read an issue and have been very interested in the various expositions of your numerous correspondents, and should now like to gain further information from J. A. M. in his argument for "Dairy Farming," in your issue, No. 40.

In comparing the gain from cheese as against raising potatoes or oats, he neglects to consider the capital invested in the cows, which produce the cheese (indirectly). In other words, to make a fair comparison, I should think the total capital invested in each business, be it in labor, expenses, food, etc., should be considered. Also, would there not be some commercial fertilizer, which could replace the lost fertility, at a less expense than the investment of capital in stock?

I ask these questions for the sake of information, not that I doubt the stand that J. A. M. takes, for I am not acquainted with all the circumstances surrounding him on Prince Edward Island.

Please give me a balanced ration from the following feed: Wheat hay, $6 a ton, or barley hay, $5; bran, $14; oats, $20; alfalfa hay, $2.50. Raise all the hay and grain, with exception of oats; ground barley $16; have all the straw I can use. A. J. L.

Salinas, Cal.

We leave it to J. A. M. to answer at his convenience the inquiry which seems to be addressed to him in particular.

If we were living in California, and could have alfalfa hay in plenty, at the prices named, we should not care to feed very much other hay; but if there is no other market for it, and we had the hay on hand, of course we should use more or less of it as circumstances might suggest.

Fifteen lbs. of alfalfa with 6 lbs. of ground barley and other hay and straw *ad libitum*, would make a very good average ration for a herd of cows. Some should have more, of course, and some less.

For a Herd of Holstein-Friesians.

Feeding to Effect Sex of Progeny.

Ed. Hoard's Dairyman:—Please give us a ration for pure-bred Holstein-Friesian cows weighing about 1,100 to 1,500 lbs from feeds at about following prices: Timothy hay, $6 per ton (clover froze out last year); oat straw, $2 a ton; corn silage, $2 a ton; corn, 25 cents a bushel; oats, 23 cents a bushel; barley, 27 cents; bran, $11 a ton; old process oil meal, $20 a ton.

We have an arrangement for grinding corn and cob. Would like to fix up a feed from above that will give us best results in our dairy. W. B. Barney & Co.

Hampton, Iowa.

The price named for oil meal is a bit suggestive to us that there may be something the matter with it. From almost every other quarter oil meal is reported to be selling for from $26 to $30 per ton. If this meal is all right, we would suggest a ration practically as follows:

Formula for Ration.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.91	.39	4.20	.21
5 lbs timothy	4.34	.14	2.17	.07
5 lbs. oat straw	4.54	.06	1.93	.04
5 lbs. corn & cob meal	4.45	.32	3.15	.18
5 lbs. bran	4.41	.63	1.93	15
2 lbs. oil meal	1.82	.59	.65	.14
Totals	27.48	2.16	14.03	.79

This of course is a pretty large ration, but it is intended for large cows, and it is to be expected that many of these cows are preparing for freshening again, and so will not need so much, especially in protein; while others in full flow of milk may need more protein. The cheapest source for this protein may be in oil meal, or possibly, in gluten feed.

We may remark in passing, as a matter of some interest to breeders of pedigreed stock, that according to the theory advanced by Prof. Schenk, of Vienna, Austria, a ration of the above character, ought to result in a preponderance of heifer calves. The Professor's theory is that sex is determined by the character of the nourishment supplied to the mother, and that a highly nitrogenous or protein diet tends to the production of masculine offspring, whereas a diet lower in protein tends in the opposite direction. It would probably be of some interest and profit if breeders would make note of this theory and compare it with results which they may have observed in the past, or that may come to their attention in the future.

A Massachusetts Guernsey.

Ed. Hoard's Dairyman:—Knowing that you are interested in photographs of good dairy animals, I enclose a picture of a grade Guernsey cow of our herd.

The Guernsey grade cow, Beulah, was bred by a farmer, of this neighborhood, is about seven years old; gave in 52 weeks, Nov. 3rd, '98 to Nov. 2nd, '99, 7282¼ lbs. of milk, average test about 5.2%

Allow me to take this opportunity to congratulate you on the excellent work the Dairyman is doing for the cause of clean, scientific dairy business and to assure you that we get a great deal of interesting knowledge from the columns of your valuable paper.

R. F. & A. H. Parker.

Westborough, Mass.

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Wisconsin Cheese Makers' Association, Madison, Wisconsin, February 7-8-9, 1900.
Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.
Prince Edward Island, Marshfield.
Michigan Dairymen's Association, Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

REMEMBER

That this is the best time of the year to induce your neighbors and friends to become readers of HOARD'S DAIRYMAN. Don't fail or forget to say a word to them. We want your help. Bear in mind that the club rate is three subscriptions for $2.00, four subscriptions for $2.50. Get up a club.

THE COW IN ANCIENT LITERATURE.

How little we realize in our daily contact with the cow what an important part she has played in the remotest literature of the past.

The Rig Veda, the ancient scriptures of India, contains mention of Traitana, one of the divine powers which ruled the firmament, "destroying darkness and sending rain." To this divinity was given the office of rescuing the celestial cows and slaying the demons that had carried them off. "These cows," as Max Mueller tells us, "always move along the sky, some dark, some bright colored. They low over their pasture; they are gathered by the winds and milked by the bright rays of the sun; they drop from their heavy udders a fertilizing milk upon the parched and thirsty earth. But sometimes, the poet says, they are carried off by robbers and kept in dark caves near the uttermost ends of the sky. Then the earth is without rain, the pious worshiper offers up his prayer to Indra, and Indra rises to conquer the cows for him. He sends his dog to find the scent of the cattle, and after she has heard their lowing she returns, and the battle commences. Indra hurls his thunderbolt; the Maruts ride by his side; the Rudras roar; till at last the rock is cleft asunder, the demon destroyed and the cows brought back to their pasture."

This is one of the oldest myths or sayings current among the Aryan nations.

Surely if the cow has furnished such inspiration to the most ancient of poets, shall she not be deemed worthy of a tribute of praise from the farmer of to-day, whom she has so often saved from many a devastating financial drouth?

COMPARATIVE FIGURES.

The North Carolina College of Agriculture is devoting good thought and effort to the object of arousing a truer comprehension among North Carolina farmers, of what they must think and do to be saved in a dairy way. The human nature of the North Carolina farmer is like all the rest of us, for that matter. He does but very little more thinking and working than he is obliged to. Whereas, all wealth, knowledge, progress and influence among men is based on earning, thinking and working, every day, a little more than we need for that day. That is the only way we can have a surplus against the time of supreme necessity.

Bulletin No. 166 of the North Carolina College contains the following figures:

On the first day of January, 1899, there were 248,263 milch cows in that state, which were valued at $2,947,382, or $15 a head. For the sake of instruction the Bulletin gives the cow population of Connecticut which was 143,098, valued at $5,087,134, or $35.55 a head. In the year 1890, according to the United States census, Connecticut had 127,892 milch cows, which produced 10,369,259 pounds of butter, or about 81 pounds per head.

During the same year North Carolina had 223,416 cows, which produced 13,129,374 pounds of butter, or about 59 pounds per cow. At that rate, in 1899, the cows of that state would have produced 14,573,038 pounds of butter, which, at 20 cents a pound, would be worth $2,914,607.

The real lesson to be learned from these figures, by both North Carolina and Connecticut farmers, is the low product per cow.

Where such returns exist in a state, as a whole, there can be no wonder that so many men can make no money with cows.

However, it drives the question home upon the farmer himself, as being the cause of all this low return to his own pocket. Just as long as the farmer, whether he lives in Connecticut or North Carolina, or anywhere else, maintains a low standard of judgment concerning the cow, concerning how she should be bred, fed, housed and managed, just so long will every public and private census show such poverty stricken results.

It is the low state of dairy knowledge and, as a consequence, the low standard of ideas and judgment that is ailing these average farmers everywhere. Occasionally, there is found a man among them who looks at things differently. He realizes that there is bigger profits in good knowledge and good ideas; he reaches out for them and they, in turn, enrich his life and his pocket. There is hope for such men. But there is no hope for men who won't look, won't listen, won't read, won't think, and so continue to "fry in their own fat."

THE SAME OLD UTOPIAN DREAM.

B. V., a correspondent of the *Minneapolis Tribune*, puts up the same old dream about a "dual-purpose cow" that has cursed so many thousands of farmers; which idea is behind all the poor, no-purpose, good for nothing cattle these farmers have and have always had. No one on earth ever saw them set in, in dead earnest, to breed for a special-purpose cow.

This is the way he closes his communication:

"Once in a while we find a cow that al most meets the requirements, and the owner of such a cow should value her at a high price, for properly used, she may be the foundation stock for a family that will work a great change in the typical cow for American dairies There are no herds of dual-purpose cows in existence just now so far as I know, but here and there such a cow may be found. Some one will make himself famous by founding the dual-purpose breed."

He is frank to admit that there are no such herds of cattle, only here and there a sport, which no man, of sound ideas of breeding, would ever think of getting a heifer from of the same character. Oh, this idea dies hard in men who can't for the life of them show any practical working out of such contradictory ideas.

OLEOMARGARINE AND CANDIDATES FOR GOVERNOR.—AN ILLINOIS CONDITION.

Judge Hanecy, of Chicago, is an active candidate for the nomination as governor at the Republican state convention in Illinois, and it is beyond dispute that he will have the active support of the people and the interests that were not long ago the recipients of his judicial favors, even if it cannot be demonstrated that they were the instigators of his candidacy.

A copy of the Dixon *Telegraph* lies before us containing a communication to that paper from an anonymous correspondent, which consists, primarily, in a condemnation of those farmers and dairymen in that state, who are opposed to the nomination of Judge Hanecy for governor, and have the courage to say so, and, secondarily, in a labored and unsuccessful attempt to justify the action of this judge in deciding the anti-color oleomargarine law of Illinois to be unconstitutional. The communication concludes with the plea that, whether Judge Hanecy's decision on this subject was sound or otherwise, he is an honest man, and his decision in the oleomargarine cases represents his candid opinions and was not induced by favoritism to the oleomargarine interests, or by hostility to farmers and dairymen, and hence he should receive the support of dairymen.

HOARD'S DAIRYMAN is of the opinion that not one of these contentions is tenable. Judge Hanecy is irrevocable and in the most solemn and binding manner committed to the doctrine that oleomargarine as a butter substitute has not only all the rights which pertain to genuine butter, but also has the right to mask itself in the guise and color of butter so that consumers cannot detect the genuine from the spurious. Appellate courts may overrule Judge Hanecy's decisions, but they cannot reverse his convictions. As governor of Illinois, if he should be nominated and elected to that office, he would of necessity be governed by these convictions in all his official acts. Having thus proclaimed himself the friend and defender of oleomargarine, it follows that to the extent that oleomargarine is inimical to the dairy interests and offensive to the consumers, who prefer the genuine product of the dairy and the creamery to the substitute from the stockyards and the slaughter houses, Judge Hanecy is inimical and offensive to them.

It is, therefore, both right and proper—indeed their duty—for everyone who disagrees with Judge Hanecy in this proposition to oppose his nomination, and to agitate and combine, publicly and otherwise, to compass his defeat. In the diplomatic phrase so common in these days, he is *persona non grata* to a large and not unimportant part of the electors of Illinois, and to impose his candidacy upon them would be the highest degree of partisan folly.

In view of these facts it is not a particularly pertinent question at this time whether Judge Hanecy's decision was "good law." It remains for the Supreme Court of Illinois to determine this matter whenever the oleomargarine crowd will permit a case to be taken to that court for decision. But meantime, it may be said that he enjoys the unenviable distinction of holding opinions diametrically opposed to the decisions of every court of last resort, whether state or national, that has passed upon this question. It is not true, as stated by the *Telegraph's* correspondent that the Supreme Court of the United States "held a simular New Hampshire anti-butterine statute void," or "that the Supreme Court of Michigan recently decided the same way."

An Unsolvable Feeding Problem.

ED. HOARD'S DAIRYMAN:—Will you favor us with your views, if possible, with rations balanced for 40 lbs. of milk, 30 lbs. of milk, 20 lbs. of milk, 10 lbs. of milk, using the feeds named, which will be the most economical to produce best yield from Guernseys and Guernsey-Jersey and Holstein grades. The product sells at 8 cents per quart delivered direct from farm to customer, in bottles.

It is particularly asked that the different quantities of food required for the different yields of milk be given (*vide* page 636, "Feeds and Feeding") in order that the authority may be undisputed and exact as it will be, if given under the "hand and seal" of your good selves.

Bran, $18.50 per ton; gluten feed, $22 per ton; dried brewers grain, $15 per ton; corn meal, $16 to $18 per ton; oil meal, $28 to $32 per ton; mixed hay, $16 per ton.

Sunnymeade Farm, N. Y. P. C. S.

We fear our friend does not comprehend the difficulty that he is leading us into. It is simply an impossiblity to weigh out a given amount of feed, place it before a cow and then settle upon just how much milk will be delivered at the udder. There is the all important question of the individuality of the cow. One cow will give 40 lbs. of milk with no more feed than another will require to make 30 lbs. of milk or less. The careful feeder will always observe the condition of the cows, the amount of milk they give, and then he will be in a position to judge with some accuracy whether to increase or decrease their allowance of feed.

There is, of course, in a way, a law of averages which obtains. So we say in making up a formula for a herd that certain amounts will be found to be not far from right as an average, giving to those cows which require it more than the amount specified and less to others. In like manner, we might perhaps agree with the general principle of the table referred to on page 636 of "Feeds and Feeding," although our personal judgment is that the figures given there are somewhat excessive. If we accept the standard there for oxen at rest in the stall as approximately correct, we see no reason for requiring so much digestible protein for cows giving 22 or 21½ lbs. of milk. It seems to be assumed that it requires 0.9 of a pound of digestible protein to produce the casein in 10 lbs. of milk.

As before said, we think this is unnecessarily high. As a rule, there will not be to exceed 0.35 lbs. of casein in 10 lbs. of milk, and unless there is more loss in transforming the protein of the food into casein of the milk than has yet been discovered we see no reason why 0.6 of a pound of protein should not be ample for this amount of casein.

Reducing the fats in the feeds named to their equivalents in carbohydrates, the following table will give the total nutritive units in the several feeds and their relative value per ton with hay counted at $16, assuming that the mixed hay is clover and timothy in about equal parts.

	Nutritive Units.	*Relative Values.*
Mixed hay	48.4	$16.00
Bran	58.7	19 40
Gluten feed	76.3	25.21
Dry Grains	64.7	21 39
Corn	78 9	26 04
Oil meal	79 5	26.49

From these feeds for a maintenance ra-

tion, we would select 10 lbs. of hay and 6 lbs. of ground corn. This would, of course, give us both more protein and fat than is required for a simple maintenance ration, but we make it the basis from which to figure approximately the additions required for the several amounts of milk specified. To produce 10 lbs. of milk daily we would add, say 4 qts. of bran; to produce 20 lbs. we would add still further 3 lbs. of dry brewers grains; to produce 30 lbs. of milk add another 3 lbs. of the grains; and to produce 40 lbs. of milk we would add 2 lbs. of the gluten feed. The following table shows the successive additions and the totals in each case.

10 lbs. hay	8.53	.48	3.96	.16
6 lbs. corn	5.35	.49	4.00	.26
Totals	13.88	.97	7.96	42
4 lbs. bran	3.52	.50	1.54	.12
Totals	17.40	1.47	9.50	.54
3 lbs. grains	2.75	.47	1.09	.15
Totals	20.15	1.94	10.59	.69
3 lbs. grains	2 75	.47	1.09	.15
Totals	22.90	2 41	11.68	.84
2 lbs. gluten feed	1.84	.41	.97	.06
Totals	24.74	2.82	12.65	90

We have tried in the above simply to give theoretical formulas. Ordinarily we should not feed so much grain and so little hay, but it should be remembered that both the bran and brewers grains are quite bulky, and might almost as appropriately be classed with roughage as to denominate them concentrates. When using any one of these formulas we should deem it almost a necessity to give each cow more or less hay according to her appetite, letting her be the judge.

But after all, there is no mathematical rule that can be followed in feeding, nothing in the way of figures that can take the place of good judgment, nothing in the way of advice that can supplant care on the part of the feeder. When cows are taking on unnecessary flesh, the evidence is conclusive that they are either receiving too much feed or too little digestible protein to enable them to do their best in manufacturing milk. On the contrary, when milch cows grow poor, the evidence is conclusive that they must have more carbohydrates in order to keep up in flesh.

Twenty Cows and No Pasture.

ED. HOARD'S DAIRYMAN:—I keep twenty cows in the barn the year around, as I have no pasture. I mix 400 lbs. bran, 200 lbs. corn and cob meal, 100 lbs. gluten feed, 200 lbs. oil meal. Of this 900 lbs. I feed about 10 lbs. daily to each cow, with 18 lbs. silage of best quality, and hay, what they need, without weighing.

Can you change this in any way to make it better for cows in full milk.

North Hadley, Mass. H.

If this correspondent's cows are eating 10 lbs. of timothy hay, daily, in addition to the silage and the grain mixture specified, the ration will show in figures as follows:

	Dry Matter.	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
18 lbs. silage	4.75	.23	2.52	.13
10 lbs. grain mixture.	8.94	1.58	4.92	.43
10 lbs timothy hay	8.68	.28	4.34	.14
Totals	22 37	2.09	11 78	.70

Whether it is advisable to make a change in this grain mixture, will depend very much upon the local prices of the feeds named. We incline to think, from the prices quoted to us elsewhere in New England, that possibly the cost of the oil meal may be relatively excessive, and where silage is available oil meal is not specifically demanded. By referring to table on page 754, this correspondent will be enabled to determine for himself the relative values of these several feeding stuffs, because he may take the amount of digestible protein in each as showing their relative feeding values to him. It may be well for him, in this connection, to investigate the merits of cotton seed meal for his purposes.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	*Digestible nutrients*		
	Protein.	*Carbohydrates.*	*Ether extract*
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen. hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude* fat. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

GLUTEN MEAL FOR HORSES.

G. K., Winfield, Iowa, asks what sort of feed gluten meal would be for horses, colts and all growing stock, and at $16.50 per ton how would it compare with oats at 20 cents per bushel?

We are not aware that any experiments in this line have been reported, and till they have been, we should hesitate about using very much gluten meal for horses or colts. Gluten meal is a very highly concentrated feed, and never should be used unless it is very much diluted or extended with bran, or some sort of chop fodder. We see no reason why it should not prove all right for horses, but in this case, as in others, we think it prudent to "make haste slowly."

SILAGE AND OAT AND PEA HAY.

H. T. F., Clinton County, New York, writes that he is about to sow a few acres of peas and oats and wants to know which would be the better way, let them get ripe and thresh them and get them ground, or cut them when in the dough and feed them in the straw. He wants to feed them to new milch cows. He has now a 100 ton silo and and is going to build two 75 ton ones. Wants to cut down the grain bill as much as he can, and inquires whether if he was to feed from 30 to 35 lbs. of silage and 20 lbs. of oat and pea hay this would make a balanced ration, and if not, what would be required to bring it up to the required standard. He also wants to know whether alfalfa will grow in his county. He asks another question about the merits of two rival silage cutters. He wants our readers to advise him.

The latter is a tabooed question. We cannot undertake to decide personally or let others express their opinions as to the relative merits of machinery. We do this, not because we are unwilling to have the best known, but because it is impossible for a man, no matter what his ability or experience may have been, to determine these questions. He may decide for himself what is his preference, but the chances are that the next man, of equal ability, will have a different opinion.

The other question, whether alfalfa will flourish in his county, is one that can be decided only by experiments there. Whether there has ever been any such experiment made or not, we are unable to state. The best way to determine this is for H. T. F. to get a little alfalfa seed and sow it.

Sow the peas with the oats, or rather a week or ten days before, and when the oats are just coming into blossom cut them for hay.

If he can get his cows to eat 30 lbs of silage and 20 lbs. of oat and pea hay, he will have a pretty fairly well balanced ration for small cows, but we are of the opinion that a little ground corn (not corn meal) would be an improvement and more than compensate for the additional cost. This amount may vary from 2 to 6 lbs. according to circumstances.

A MAINE RATION.

C. E. K., North Gorham, Me., has grade Jersey cows in full flow of milk and makes butter. He wants to feed 25 lbs. of silage, and 6 to 8 lbs. of well cured oat hay. He can buy corn meal at $16.50 per ton; cotton seed meal at $26 per ton; bran at $19; and gluten meal at $30. How shall he feed?

We should prefer a little more of the hay than he specifies, but limiting ourselves to his figures, we suggest the following formula:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.33	3.50	.18
7 lbs. oat hay	6.38	.30	3 27	.11
4 lbs. corn	3.56	.32	2.67	.17
2 lbs. cotton seed meal	1.84	.74	.34	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	21.90	2.19	11.32	75

WHAT KIND OF COWS TO BUY, AND HOW TO FEED THEM.

C. J. K., Ulen, Minn., says that he is working toward a dairy, and his mind has gone out towards the Holstein for cows, but the people in his neighborhood say that such stock finds a poor market, and that the cattle buyers there do not want them.

Very well, if a man has good cows he needs to care but very little about the cattle buyers or the beef market. What he wants is milk and the products that can be made from the milk, and to this end he wants a special-purpose dairy cow no matter what her breed may be. In this respect he may suit his own fancy. If he inclines to favor the Holsteins, by all means let him invest in Holsteins, and if he gets good cattle of this breed he need have no fear of the result.

He can buy bran from $8 to $9 per ton; oats at 25 cents per bushel; barley at 40 cents per bushel, and he has corn fodder and wild hay. Oil meal he thinks will cost him about $40 per ton, as he can only get it at Minneapolis. We should feed very little oil meal at such a price, but should depend very largely upon bran, and feed from 8 to 14 lbs. of this, and all the wild hay and corn fodder the cows will eat.

DOING WELL NOW.

J. W. A., Aledo, Ill., says his cows are looking and doing well, but if there is a chance for improvement he wants to take the chance. He is feeding now about all the silage they will eat, which is composed of two-thirds common corn and one-third kafir corn and sorghum, and in addition 10 lbs. of bran and all the shredded fodder they will eat. Bran is worth $15 per ton; oats, 21 cents per bushel; corn, 26 cents per bushel; oil meal, $30 per ton; timothy and clover hay very scarce and high.

It is about a stand-off between the oats and bran, in our opinion, but if the cows are doing will now, we should hesitate about advising any radical change. It might be well to see what the addition of 2 lbs. (more or less) of oats to the daily allowance would do. Try it first with one or two cows, and if this is profitable, add it to the allowance for all the cows.

Mr. A. adds in a postscript, that he has about as cheap and good a silo as ever was. It is 16 feet in diameter, 31 feet high, and cost only $75, and is all right. We are also obliged to him for the remedy for calf scours which is printed in another column.

NOT A FAIR QUESTION.

A Nebraska subscriber asks this question:

What is the proportionate value of a heifer calf from a well bred Jersey cow and Short-horn bull, or from a well bred Jersey bull and a Short-horn cow? Nobody can tell. It will depend upon the relative prepotency of the sires and dams. If one could have such a cow as the Short-horn grade, Rose, pictured and described in our last issue, with a prepotency in herself inherited from her dams for several generations, he might be pretty sure that her merits would be perpetuated in her progeny whether she was a Jersey or a Short-horn. On the other hand, if one could make sure of a sire that had inherited from two or three generations a very strong current of dairy prepotency he might expect these to predominate in the progeny. It follows, therefore, that the choice between the heifers referred to must be determined, not by the breed, but by the individual characteristics of the ancestors.

AN IOWA RATION.

H. K. G., Jewell, Iowa, has wild (prairie?) hay at $5 per ton; corn fodder somewhat damaged by hail; oat straw; oats quoted at 19 cents per bushel; corn, 20 cents a bushel; and can buy bran four miles away at $10 per ton; shorts at $12 per ton. He also says he don't know what other feeds he can buy or at what prices, but will try and act upon our suggestions.

It is our opinion with the feeds at hand as above mentioned he can do no better than add some oil meal to the list and then use the following formula as a general guide:

FORMULA FOR RATION.	*Dry Matter.*	*Digestible Nutrients*		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn fodder	7.10	.37	4.04	.12
10 lbs. hay	8.75	.35	4.18	.14
8 lbs. oats	7.12	.74	3.79	.34
2 lbs. linseed oil meal	1.82	.59	.65	.14
Totals	24.79	2.05	12.66	.74

To the cows able to give large amounts of milk add more grain. To those that from natural incapacity or because they have been in milk sometime cannot profitably use so much as above specified, reduce the amount.

BARLEY AND PORK.

A California subscriber asks how many pounds of barley it takes to make a pound of pork, and further whether this barley should be fed whole or whether it should be crushed at a cost of $1.00 to $1.50 per ton for grinding.

Prof. Henry's experiments carried on at the Wisconsin Experiment Station show that with pigs weighing 200 lbs. at commencement of feeding period it required 4.7 lbs. of barley to produce 1 lb. of gain in live weight. The barley was crushed and we apprehend that anyone after feeding it whole, would come to the conclusion that it was a very wasteful method of feeding.

STERILIZED MILK.

I am running a milk wagon in our town, and am interested in the subject of *sterilized milk*. Would you kindly tell me through your paper what you can in regard to it, what the process is and the expense of doing the work, etc., and you will greatly oblige.

South Haven, Mich. F. O. H.

Sterlized milk is used to a very slight extent at the present time. It has been given up because the high heat necessary, causes

certain changes in the milk that lessens its value as a food, for children or invalids. What is known as pasteurized milk has taken its place. This consists in heating the milk to 155°F. for 20 minutes and then rapidly cooling it to below 60°F. Milk so treated, will keep for a week if kept in a cool place.

The greatest objection to such milk is the fact that the cream does not rise as well as on raw milk, and thus a false idea of the quality of the milk is given to the purchaser.

It has been proposed to remedy this fault by heating the milk to 140°F. for 30 minutes and then cooling as usual. It is stated that milk so treated will keep as long as that heated to 155°F., and that the cream will rise as well as on raw milk.

There are numerous forms of apparatus for doing the work of pastuerizing, descriptions of which can be obtained from dealers in dairy supplies.

A PENNSYLVANIA RATION.

C. A. C., Clarion, Pa., has cows weighing from 800 to 900 lbs. and wants a ration from the following feed stuffs: No. 1 corn silage; clover hay, $10; wheat bran, $20; corn and oat chop, $20; wheat middlings, $21; old process oil meal, $30. Where one has silage we do not think it necessary or advisable to feed oil meal at present prices. Our suggestion for a ration formula takes the following form:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs silage	7.92	.39	4.20	.21
10 lbs. clover	8.47	.68	3.58	17
8 lbs. bran	7.05	1.00	3.09	.24
2 lbs. chop	1.78	.17	1.04	.08
Totals	25.22	2 24	11.91	.70

A WISCONSIN RATION.

X. X., Richland Center, Wis., requests formula for a ration for cows weighing 800 to 1,000 lbs. He has corn and oat chop made from 7 bushels of corn and 45 bushels of oats; can buy bran for $14; shorts for $15; oil meal for $30. Timothy hay is worth $7 per ton and good corn fodder (stover?) at 8 cents per shock of 8 hills square. We think the corn and oat chop at the price he names better than either the bran or middlings, and therefore suggest as follows for a ration:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
12 lbs. timothy hay	10.42	.34	5.21	.17
10 lbs. corn stover	5.95	.17	3.24	.07
8 lbs. corn and oats	8.12	71	4.22	.34
2 lbs. oil meal	1.82	.59	.65	.14
Totals	26.31	1.81	13.32	.72

INDOLENCE.

M. S. P., Cambridge, Vt., has a very choice yearling bull that is doing him no good. He says that he is not over fat and wants to know what remedy can be adopted to make him serviceable. We recommend that he give him plenty of exercise, and then give him a good diet in which the protein is largely represented. For this purpose nothing is better than a few oats in connection with good clover hay. If this does not bring him around all right we do not know what will. In the matter of exercise, now would be a good time to train this animal in harness before a cart or sled or a common stone-boat and make him useful in that way while giving him exercise; otherwise there is nothing better than the common tread power. Let him get into that, put on the brakes so that it will not go too fast and let him walk for an hour in the morning and an hour in the afternoon.

THE BABCOCK TEST.

At our creamery in town, where I am in the habit of selling some of my cream, which is bought by the Babcock test, they are in the habit of testing the cream once a month, for convenience, taking a sample of the cream every morning and keeping it until the end of the month, when they make their test, using a 17.6 pipette for measuring the cream into the test bottle. Is it correct to use a 17.6 pipette after the cream standing for a month, or should we use an 18 c. c. pipette?

On examining the test bottles at the creamery and also the ones I have myself, we find that we can take a pair of dividers and place them on 0 and 20 on one bottle and they will span from 0 to 22, or 0 to 18, or 0 to 17, etc., on others, and the same way on the milk bottles; place them on 0 and 6 on one bottle they will span from 0 to 6.2 or 6.8 or 7, etc. How is this to be accounted for? Are the bottles incorrect? If so, where or how can we get bottles that are correct, as I do not see how anyone can make correct test when the bottles are not graduated alike. W. S. J.

Idaho Falls, Idaho.

If the cream is properly cared for, a preservative used and not exposed to the air so that it will dry up, the use of the 17.6 c. c. pipette is correct. But no matter what kind of a pipette is used it will be necessary, if correct results are desired, to make a correction, according to the richness of the cream tested. Twenty per cent fat requires 0.25% to be added to the reading. Fifteen per cent 0.10%; and other creams in proportion. Below 10% of fat no correction is necessary.

The necks of the Babcock bottle are not always of the same diameter, as you will see by examination, and it of course follows that if the same amount of fat is put into the bottle, one with a narrow neck, the other with a wide neck, the narrow neck will show the longer column of fat, although the weight is the same in both cases.

The proper way to find if the bottles are accurate, is to make a test of a number with the same milk. The tests should read the same with a variation of not over 0.10%.

THE IMPORTANCE OF A YELLOW SKIN.

G. L. Adams, Wis., asks the above question and supplements it with the further inquiry: Would you reject an otherwise satisfactory young bull or heifer, if it had a nearly white skin?

We are very sure that we should not reject an animal on this ground alone. Many of the best animals have been notably deficient in the coloring matter in the ears and elsewhere. It is undoubtedly more or less of a defect, but we do not consider it in any sense a vital defect. It is believed that this yellow color is indicative of a tendency to give rich looking milk, containing a butter fat that needs little or no extra coloring matter to produce the much desired golden June tint.

CRUMBLY CHEESE.

I have some trouble with cheese crumbling. They are hard to press and then they will brake or crumble when cut, and seem to dry out on keeping very long. W. L. B.

Henrietta, Tex.

Crumbly cheese is caused by too much acid. Either the curd was not cooked high enough or was not stirred sufficiently after cooking, to get the whey out. The result is that the whey left in sours, and causes a dry crumbly cheese.

FOR HARD MILKING.

I have a cow that milks very hard in forward or front teats. Can you give me a remedy? T. O. S.

Washington, D. C.

Use a teat opener of some kind. The three cornered one frequently mentioned in the DAIRYMAN will be found a very practical instrument.

SAW DUST AND MANURE.

Will you please tell me whether saw dust from the saw mills when used as bedding is in any way disinfectant? Does it injure the manure or make it better? I have been told that it soured and spoiled the manure. I have had my first experience with abortion and thought it would help me to keep down disease germs. G. A. M.

Davenport, Iowa.

Saw dust is not a disinfectant in any way. It acts as an absorbent in taking up and saving the liquids of the manure and is valuable in that it forms a good bedding and so keeps the cows clean.

Its great objection is that if used in any amount it makes the manure so light and dry that it is liable to fire fang and thus injures the manure and causes loss of fertilizing ingredients. It may keep down disease germs by making the manure too dry for them to multiply, but not otherwise.

SCHMIDT CURE FOR MILK FEVER.

What is Schmidt cure for milk fever?

Oakhurst, Ga. J. M. B.

On page 976 of the current volume of the DAIRYMAN you will find an account of the method and the results of its use. As iodide of potash is used, it sometimes goes by that name as well as the Schmidt.

THE AIR CHURN.

Please give your opinion in regard to the inclosed circular of the air blast butter separator. I have a neighbor who intended to invest in one of them, but I advised him to leave it alone. C. A. L.

Moline, Ill.

You will find numerous references in the DAIRYMAN regarding air churns. We have stated many times that they are of no advantage over the usual box or barrel variety. See page 984 of the current volume.

ORDER OF FEEDING.

An eastern subscriber asks if it is better to feed grain after or before roughage. Also, which is the better way, to feed salt with grain, or put it where cows can get it any time they want it.

We apprehend that it makes very little difference, provided that grain is not fed in too concentrated a form. We prefer to give the salt each day with the feed. Others prefer to have it where the cattle can get it, and help themselves, as they seem to need.

AN INDEFINITE QUESTION.

Can you tell me what milk that tests 5%, churn test 16, will net per quart with cream at 65 cents per gallon (30% cream) and butter 25 cents per pound. S. L. G.

Lima, N. Y.

If our correspondent will be a little more explicit we will endeavor to answer his question. What is meant by "churn test 16."

A 400-POUND COW.

Please tell me what is meant by 400-pound cows? F. J. M.

Hingham, Wis.

This term means that the cow gives 400 pounds of butter during the year.

PRICE OF ELGIN BUTTER.

Will you kindly send me the Elgin price for butter for the past year 1899 for "extras?" Would like the average price for each month.

North Bend, Wis. J R. McD.

You can best obtain the information by applying to the Secretary of the Elgin Board of Trade.

WHITEWASHING WITHOUT BRUSH.

Can you inform me of any device for whitewashing the inside of stables that will do the work cheaper and quicker than with the brush? J. E. L.

Newport News, Va.

Whitewashing can be done cheaply and successfully by means of a spray pump and a Vermorel nozzle. The whitewash should be kept well stirred, free from lumps and not too thick.

ALFALFA.

Are there different varieties of alfalfa? If so, what variety would suit this section best? How would it do for dairy cows? Would it suit this climate? When should it be planted and how? In fact, would like to learn what I can about alfalfa and its uses and feed value. Several persons in this section are also interested in this. T. P.

Loudoun Co., Va.

There are some two or three varieties of alfalfa, but only one which is extensively raised. The Department of Agriculture has procured some seed of a variety from Turkestan, which promises to be exceptionally valuable, but this seed is not to be had in a commercial way, and for the present only the common variety is obtainable in any considerable amount. The Editor of this paper sent to Colorado for such.

There is no better crop grown for dairy cows than alfalfa. In fact, when fed with corn meal, it may be said to be an ideal ration.

Alfalfa, more than any other crop is particular as to the nature of the soil on which it grows. It will not grow on a thin soil, one that has a hard pan or one where the water stands near the surface. Underlying rocks, sour, marshy or stiff, clayey soils are fatal to its growth. A rich sandy soil is the most favorable. Standing water will quickly kill the plants.

The soil should be thoroughly prepared, subsoiled if necessary and made free from weeds or trash of all kinds. In the south, October and March are the best months. Sow the seed at the rate of 20 to 25 pounds per acre If the soil is free from weeds no nurse crop is required; otherwise oats can be sowed with the alfalfa, and the resulting crop cut when six to eight inches high. This will keep down the weeds and at the same time

"What's in a Name?"

Everything when you come to medicines. A sarsaparilla by any other name can never equal Hood's, because of the peculiar combination, proportion and process by which Hood's Sarsaparilla possesses merit peculiar to itself, and by which it cures when all other medicines fail. Cures scrofula, salt rheum, dyspepsia, catarrh, rheumatism, loss of appetite and that tired feeling.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

Young Girls

How easy it is for young girls to go into the "decline." They eat less and less, become paler and paler and can hardly drag through the day. They are on the steady downward course. Iron does them no good; strychnine and bitters all fail. They need a food that will nourish them better, and a medicine that will correct their disease.

Scott's Emulsion

is both of these, elegantly and permanently combined. The Cod-Liver Oil makes the blood richer, and this gives better color to the face. The hypophosphites of lime and soda act as a strong tonic to the nerves. Soon the weight increases, the digestion improves and health returns.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

be cut early enough to prevent any damage to the young altalfa plants, which are very delicate when young.

CONVICTION OF MILK ADULTERATION BY ANALYSIS.

Will you through the columns of your paper, tell me, is a man ever convicted of watering his milk on the chemical analysis alone, without other proof? If so, when was it? H. A. W.

Jefferson Co., N. Y.

A majority of the cases where men are convicted and fined for adulterating milk by watering, etc., are decided on the testimony of the chemist's analysis of the milk. In your own state of New York, few if any cases are decided in any other manner than by the analysis.

DEEP AND SHALLOW PLOWING.

Would you advise deep or shallow tilling of the soil as a rule? And please give reason for your answer. H. S.

Little Valley, N. Y.

There is no one rule for plowing that will apply to all kinds of soil (nor year after year on any one soil.) If a light, deep mold is to be plowed, one that contains an abundance of stored up fertility and good under drainage, then a very shallow furrow will be found sufficient. If, on the other hand, the soil is a heavy, tenacious clay, deep, heavy furrows are turned so as to bring the under soil to the action of light, air and frost, thus rendering the soil more friable and easily worked; also to get the advantage of the action of the nitrifying organisms. If the soil is a light loam with a heavy, water-tight subsoil, deep plowing is necessary to break up the subsoil, and allow the rain water to percolate through the upper layers and thus prevent accumulation of water in the upper layers; but, on the other hand, the bringing to the surface of an infertile clay by deep plowing, will frequently seriously damage the fertility of the surface soil. There are too many varying conditions of soil to enable one to say that either deep or shallow plowing is preferable. The farmer must adapt his methods to the quality of his soil, and plow accordingly.

FOR KILLING LICE.

Please give through your paper your remedy for lice on calves. DR. J. K. W.

Galena, Kan.

The following is well recommended:

One ounce carbolic acid, one quart fish oil, one quart crude petroleum. Mix and put on with a brush, or better still, with an atomizer.

If you want to use something that you will not have to mix up yourself, consult the advertising columns of the DAIRYMAN.

TO CURE CALF SCOURS.

J. W. M., Aledo, Ill., sends the following as an infallible cure for this troublesome malady:

One quart of beans and two of water; boil for half an hour; turn water off and give about a pint of it at a dose, and then, if necessary, repeat in five or six hours.

I have used this for fourteen years, and it has never failed me; and it is worth $10 to anybody that is raising calves by hand.

SILO QUESTIONS.

I have about decided to build me a silo and would be very much obliged to you for information on the subject. I would like to build a stave silo with a capacity for holding enough silage to run from twenty-five to thirty cows.

I have no idea how much material to buy or what kind to use. Please give me explicit directions how to build, etc. If you know of anything that will stop a cow from self sucking you will greatly oblige me if you will give me the recipe. T. A. M. D.

New Providence, Tenn.

Thirty cows will eat about 108 tons of silage in six months. This will require a stave silo 17 feet in diameter by 26 feet deep. We have given the detailed directions for building, frequently during the past year and cannot again spare the space to repeat it. You can obtain detailed instructions on this subject by writing to the Pennsylvania and Cornell Experiment Stations for their bulletins on "Silo Building." If you require detailed instructions on growing and harvesting and filling the silo, we should advise you to obtain Woll's "Book of the Silo." It can be obtained at this office for $1.00 postpaid.

Harvey's Anti-sucking bit is well spoken of; a canvass bag for enclosing the udder is used by some and a decoction of quassia chips, sponged on the teats and allowed to dry, has been recommended. If the quassia is used the udder must be washed before milking.

NERVE FORCE.

In dairy cattle as in race horses, it has become an established fact that large performance is greatly due, not only to large capacity in structural conformation, but also to the supply of nerve force with which the animal is endowed. This is also true of men and women. It becomes important then in the judging of dairy cattle that close observation be had of the evidences of this quality. Speaking of this "nerve force," a writer in the *American Horse Breeder*, of Dec. 26, says:

"Nerve force is the name used to denote that invisible mysterious agent by which the muscles are caused to contract, thus causing the machinery or framework of the animal to move.

Speed is the result of applied power, and nerve force is the power which produces it in the runner, the trotter and the pacer.

Nerve force bears the same relation to the horse as steam does to the engine. It varies greatly in different individuals of the same family, and also in the different offspring of the same parents. It is the bed rock of speed and the mainspring of the organs of locomotion. Everything else *being equal, the trotter or runner or pacer which has the most nerve force and the greatest capacity for generating it*, will show the most speed and endurance.

When the nerve force is partially exhausted, the animal must slacken his speed, and when completely exhausted must stop just as surely as the machinery of the engine must stop when the steam is exhausted, or the wheels of the time-piece cease to move when the mainspring is fully uncoiled."

The wise and skillful dairyman applies this same doctrine in breeding for nerve force in his cattle; in so balancing his ration as to support and generate it; and in so handling his cattle as to conduce to its maintenance, that it may not be exhausted by undue exposure, bad usage, or unnecessary excitement, but may be applied wholly in the direction where lies his best profit. The same law is found with the dairy cow as with the horse bred for speed.

An Up-to-Date Wisconsin Dairyman.

Good Ideas Put in Practice.

ED. HOARD'S DAIRYMAN:—Kindly give me a balanced ration from the following feeds, of which I have a good supply:

Good clover hay, No. 1 silage, whole dry corn fodder, oats, wheat and barley straw; of grain, oats that contain one-fifth of wheat and weigh 90 lbs. per sack, and barley.

Cows are grade Jerseys and weigh from 700 to 1,100 lbs.

Have been feeding as follows: In barn, silage 25 lbs. per day, in two feeds; all the clover hay they will eat clean, from 6 to 10 lbs. of ground oats and barley, about one-half of each once a day. The large cows get more than the small ones. They are kept in barn in Bidwell stalls till 11 a. m., then are turned out in yard, to water from a flowing well. They get all the dry corn fodder they will eat, and have run to straw stacks, and are put in barn at 3 p. m. If cold are put in sooner.

I was going to sell barley and buy bran, but could only get 30 cents per bushel, being colored some, and bran is $15 per ton; so I tried bran and oats for a week, and then the barley, and the results were just as good from the barley so I continued with barley. This is the first barley I ever fed to dairy cows. They are doing well, being milked since last of August and first of September. I have practiced winter dairying for 10 years and find it pays best, with a good warm barn and a good lot of silage.

I get the full benefit of fall feed and again in spring from grass, and also the prices for dairy products are better, but I would say right here if I should give up my silo, then I would give up winter dairying. It is a mystery to me that no more silos are in use; have used mine for 8 years with good success.

My silage corn this year had a good ear to every stalk.

Kindly let me know through your paper, if it will pay for me to buy bran and oil meal, and add to my daily ration. I have in former years, fed lots of bran, also oil meal.

It seems to me if we can raise our feed as near to a balanced ration as possible it is our gain. J. J. MENN.

Norwalk, Wis.

We print the foregoing letter in full as an encouragement to others to follow similar methods.

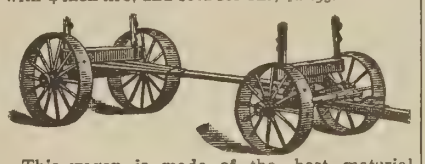
Not counting the corn stover or straw cows are receiving, our formula is as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. silage	6.60	.32	4.20	.18
10 lbs. clover hay	8 47	.68	3.58	.17
4 lbs. oats	3.56	.37	1.49	.17
4 lbs. barley	3.56	.35	2.62	.06
Totals	22.19	1.73	11.89	.58

Ordinarily we should count this low in digestible protein, but with the record of the cows at the Wisconsin Agricultural Experiment Station, we cannot be too positive on this point. We hope to have more definite information from there soon, and shall then be prepared to speak more positively in this regard. If it should be thought advisable to add anything to the above ration it would seem to us that nothing would fit in better than a little old process oil meal as that would raise both the protein and fat.

Farm Wagon only $21.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmers Handy Wagon that is only 25 inches high, fitted with 24 and 30 inch wheels with 4 inch tire, and sold for only $21.95.



This wagon is made of the best material throughout, and really costs but a trifle more than a set of new wheels, and fully guaranteed for one year. Catalogue giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

"A Perfect Food"

"Preserves Health"

"Prolongs Life"

BAKER'S BREAKFAST COCOA



"Known the world over. . . . Received the highest indorsements from the medical practitioner, the nurse, and the intelligent housekeeper and caterer"—*Dietetic and Hygienic Gazette.*

Trade-Mark on Every Package

Walter Baker & Co. Ltd.

DORCHESTER, MASS.

Established 1780.

. . . Hill's Automatic . . .

Skim Milk Weigher



MADE BY

A. H. BARBER MFG. CO.,

CHICAGO, ILL.

Pasteurizers, Babcock Testers, Alpha Separators, Combined Churns,

REFRIGERATING MACHINERY.

BRONZE TURKEYS FROM 42-LB. TOM; Toulouse Geese, Pekin Ducks, Lt. Brahma and Langshan fowls. H. P. WEST, Fayettville, Wis.

De Laval ALPHA HAND SEPARATORS



$50.00 AND UPWARD.

Some Bargains in good Second Hand Separators.

Write for prices.

Cornish, Curtis & Greene Mfg. Co.,

GENERAL SALES AGENTS. **Fort Atkinson, Wis.**

SOME of Judge Hanecy's friends are making the claim that while his decision in the oleomargarine cases was a foul blow to the dairy interests of that state, there is abundant compensation in that the beef interests were correspondingly benefited and should therefore rally to his support A weaker or more fallacious theory could not be advanced. Just as surely as the price of wool affects the price of mutton, just so certainly does the price of butter regulate the price of beef. With butter at 15 cents per pound, every stockman in the land will turn his energies to producing beef and the supply overtakes the demand, with a resulting slump in prices.

WISCONSIN CHEESE MAKERS' ASSOCIATION.

The cheese makers of Wisconsin will hold their 8th annual meeting in the Assembly Chamber, at Madison, Feb. 7,8 and 9, 1900, for which Secretary Baer has issued a program, which cannot fail of being instructively interesting to any cheese maker in the state.

We give below the titles of papers:

WEDNESDAY, FEB. 7.

2 P. M.—Address of Welcome, Response and General Greetings.

7:30 P. M.—President's Annual Address, J. A. Carswell: The Common Interests of Cheese Maker and Patron, A. J. Glover, St. Paul, Minn.; Report of Officers.

THURSDAY, FEB. 8.

9 A.M.—Cheese Makers Class, eight lessons, each limited to five minutes as follows: Receiving Milk at the Weigh-room, John McCready, Dairy School; Preparing Starters and Ripening the Milk, Aksel Bruhn, Plain; Setting, Cutting and Cooking of the Vat, Hugh Nesbit, Woodstock; Drawing of the Whey and Handling of the Curds on the Racks, Julius Berg, Dairy School; Milling or Grinding and Salting the Curd, Walter Fero, Muscoda; Pressing and Bandaging Cheese, F. N. Sargent, New Lisbon; Curing of Cheese, A. C. Wirth, Neenah; Boxing and Shipping, F. O. Vierguty, Marion.

2 P. M.—Remarks on Swiss, Brick and Limburger cheese, J. H. Monrad, Illinois; The Importance of Raising the Standard of Wisconsin Cheese, J. D. Cannon, Dale; The Proper Care of Whey, H. F. Thiel, Snow; Benefits and Help of the Wisconsin Curd Test in Brick Cheese Making, J. F. Bochman, Bonduel. Discussion: What is a good cheese?

7:30 P. M.—Address, Gov. Scofield; The Influence of Temperature and Moisture upon the Composition of Cheese, Dr. L. L. Van Slyde, New York.

FRIDAY, FEB. 9.

9 A. M.—The Benefits of the Call Board, M. Mc Kinnan, Sheboygan Falls; Flies, J. F. Steinwood, Colby; The Feeding Value of Whey, William O'Brien, Mt. Ida; Care of Delivery Cans and Cheese Factory Apparatus, J. W. Cross, Mauston.

The sum of $125 will be awarded in prizes on the excess pro-rata plan to entries, scoring 90 or more points.

For further particulars address the Secretary, Mr. U. S. Baer, Experiment Station, Madison, Wisconsin.

The Wife Writes.

ED. HOARD'S DAIRYMAN:—Enclosed you will find one dollar to renew my paper for another year. I have found much to learn and I have made my husband to buy a fine Jersey bull. We had a grade before and all these heifers have done very well. But I can't get any farmers round here to take a dairy paper; they know everything, and just the same leave their cattle out-of-doors in cold and storm and set themselves to the warm stove and howl about bad times and smile at us if we take care of our animals. We are milking 8 cows; two of them are due to calve by Feb. 1st. We ship 2 8-gallon cans of milk every day, and every 4 days 3 cans. Milk tests, 3.9 to 4%. We are feeding brewers grains, wet, 25 lbs. per cow and 5 lbs. of middlings, corn fodder with ears, stover and marsh hay.

Please tell me in your paper what improvements I should make for more milk. As my husband can't read English and I am only 7 years in this country, never went to school, only learned by myself, so you will not mind my bad writing. We have found our Jersey bull in your paper.

Please tell me how much butter a cow will make giving 40 lbs. milk a day, test 4%, for 8 months; for 3 months she gives less. In all she gives 11,050 lbs. of milk, a grade Jersey, for 1 year. MRS. L. RUPPRECHT.

Waukesha Co., Wis.

The foregoing communication is printed as it was written, and while there are some expressions that are a little out of the ordinary it shows that Mrs. Rupprecht has been an apt scholar in the English language as well as in the science and art of dairying.

If these cows are receiving about 10 lbs. of corn fodder, 6 to 8 lbs. of corn stover, 6 lbs. of marsh hay in addition to the 25 lbs. wet grains and 5 lbs. of middlings they are being fed a fairly well balanced ration. The only modification that we could suggest would be that 2 lbs. of gluten feed might be substituted for the same quantity of middlings. This would increase the protein somewhat, and probably result in a moderate increase in the flow of milk.

A cow giving 11,050 lbs. of milk in one year with an average test of 4% fat, is capable of making 515⅔ lbs. of butter, provided the loss in creaming and churning is reduced to the lowest point. Such butter will be up to the commercial standards in its content of pure fat.

Breeding from Immature Animals.

ED. HOARD'S DAIRYMAN:—It is an accepted fact that the successful operation of any large machine depends upon the proper mechanism and adjustment of each part making up the intricate whole. Like an engine with a fly wheel that is not perfectly balanced, so the animal organization of faulty proportions is only able to perform its work to a moderate extent. The defective parts of such an animal, when taxed to its full capacity, become a source of danger that involves the entire system.

Offspring of very young animals with an immature system, or one that is imperfectly developed, inherit this condition and are thus predisposed to the evils arising from the lack of strength and constitutional vigor. Such effects are not always apparent in a single generation, but if the practice of breeding from immature animals is continued for successive generations, unfavorable results are liable to be produced.

Any student of live stock breeding will find in the history of the same, ample evidence to support the above fact. Also note the influence of too early breeding in the developement of young heifers.

In face of these facts, how universal is the demand for young bulls. A breeder with a mature bull for sale seems forced to dispose of him at a low figure, or sell him for beef. Is not this a mistake? Undoubtedly all who read this can recall the name of some dairy-bred bull who was disposed of when from three to five years of age because he was an old bull or because the breeder had many of his calves, and yet later as these calves develope and prove of value, the breeder was first aware of the bull's value as a sire. It is not the mistake of an individual breeder that prompts us to call attention to this fact, but it is a realization of the effect which the aggregation of such practices produce that we most fear. Their effect on the breed in general must be of considerable importance.

Let us hope that during the 20th. century, now opening, we may expect to see a better appreciation of the value of good sires and the hope that their years of usefulness will be extended and their value meet with greater favor in the market.

Peterboro N. H. Wm. H. CALDWELL.

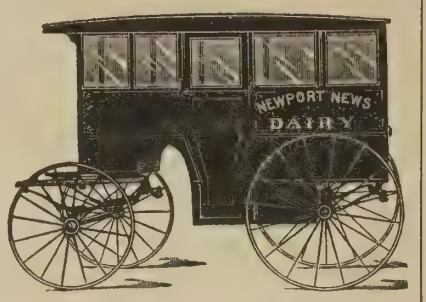
Can Eat Any Kind of Food.

SINCE SHE LEFT OFF COFFEE AND USES POSTUM FOOD COFFEE.

"Coffee caused dull headaches and dizziness, with steady indigestion, until I discovered the reason of the trouble, and this was proven by leaving off coffee and taking Postum Food Coffee. The dizziness, headache and indigestion have entirely disappeared.

"My mother, Mrs. Burlingame, Kenilworth, O., was a great sufferer from stomach trouble and indigestion for many years. She had to live on a very restricted diet, until during the past winter she gave up coffee and began using Postum Food Coffee every day. It is now three months since she made the change, and she is so much improved she can eat nearly any kind of food. It is evidence to us that the coffee caused the trouble and that the Postum Food Coffee helped to build her back into health and strength." Mrs. J. M. Gould, W. Farmington, O.

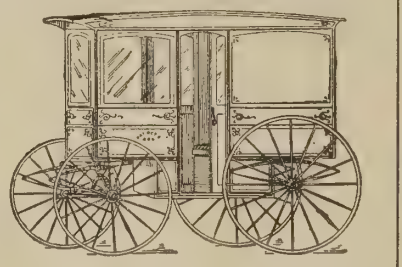
The World Cannot Show Its Equal



In STYLE, CONVENIENCE and DURABILITY.

Body hangs but 17 inches from ground, and turns can be made in its own length. Sold direct to Dairyman at bed rock prices. For description and price address,

THE NATIONAL WAGON CO.,
Chillicothe, Ohio.



A Perfect Milk Wagon
On a Perfect Short-Turn Gear.

We make 10 other styles. Write us for Catalogue and Price List.

THE O. ARMLEDER CO.,
CINCINNATI, OHIO.



Pressed Steel Wheels
For Farm Wagons and Trucks. Have all the Latest Improvements. Interchangeable hubs, Staggered spokes, etc., and in case of an accident they can be repaired at a blacksmith shop. If you want the BEST metal wheels on the market, buy them from **The Arnold Metal Wheel Company,** Lock Box 28, New London, Ohio.
Catalogue and prices on application

SAVE FEED

Stock thrives best, fattens fastest, and you save one-third to one-half feed by cooking with the

KALAMAZOO Feed Cooker

Made of high test boiler steel. Everlasting. Saves hundreds of dollars to farmers, dairymen, stock raisers. The best and most economical. Send for circular.

LULL & SKINNER CO.,
Kalamazoo, Mich.



THE MOST FOR THE MONEY.

THE MOST POWER for the money can be gotten from our 1, 2, 3 and 4-horse

TREAD POWERS

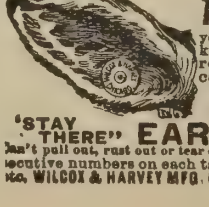
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Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City, N. J., write: "It is indeed a great song; are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.



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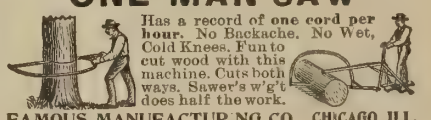
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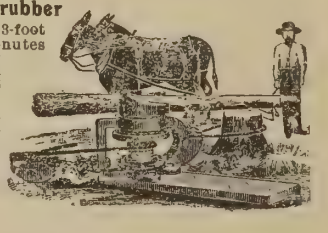
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will pull a stump in 3 minutes 3-foot It is guaranteed to stand a strain of 76 tons. For discount off on 1st machine and Cat. address MONARCH GRUBBER MFG. CO. Lone Tree, Iowa.





Scott's Perfect Swinging And Self Closing
Cow Stanchion
Each cow shuts herself in place.
CIRCULARS FREE.
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THE DROWN PATENT COW STALL guarantees perfect comfort to the cow and cleanliness of milk. This gives greatest economy of food. NO TIES. It costs more not to have than to have it. Send for information to H. C. DRAKE or M. J. DROWN, Madison, Wis., for Wisconsin; other states, M. J. DROWN.

Mention HOARD'S DAIRYMAN when writing.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 13,560 pounds. There were no bids and no sales. The Quotation Committee announced the market firm at 24 cents. The annual report of Secretary Taylor for 1899 was read. It shows that during the year 43,610,507 pounds of butter sold for $9,027,374.95, and 6,104,725 pounds of cheese for $518,901.63, the total sales being $9,546,276.58.

During the twenty-eight years of its existence 454,042,849 pounds of butter were sold and 176,543,569 pounds of cheese, the total value af which was $116,047,742 14.

The average price for butter in 1898 was 18 4-5 cents; in 1899 20 7-10 cents; and for twenty-eight years 26⅞ cents.

Cheese averaged 8½ cents during the year just closed, 7¼ cents during 1898, and 7¾ cents for the twenty-eight years.

The sales during 1899, by months, were as follows:

	Pounds Butter.	*Pounds Cheese.*
January	3,080,526	634,857
February	2,932,523	699,204
March	3,330,051	655,711
April	3,458,595	523,259
May	4,547,200	481,066
June	5,358,116	419 960
July	4,626,077	300,789
August	3,909,915	296,586
September	3,503,488	416,861
October	3,017,772	511 128
November	2 957,372	550,907
December	2,888,862	644,397
Totals	43,610,507	6,104,725

There are 467 factories represented with a total membership of 271.

The increase in the sales of butter is about one-half a million pounds over 1898. There has been a slight decrease in the production of cheese, but prices of both have been higher than in 1898.

The sales of butter for the corresponding week of the three preceding years were as follows:

Jan. 30, '99, 4,200 lbs. of butter sold at 18½ c ts.
Jan. 31, '98, 11,010 lbs. of butter sold at 19 cts.
Feb. 1, '97, 34,560 lbs. of butter sold at 20⅛@20¾c.

The New York market Monday was reported steady at 25 cents. H. C. B.

Elgin, Ill., Jan. 29.

DAIRY MARKETS.

ELGIN, Ill., Jan. 20.—Although no butter was sold the quotation committee made the market firm at 24c the same as last week. Offerings were 266 tubs, no bid being made. Butter one year ago, 18¾c. Sales reported for the week, 9,800 tubs.

CHICAGO, Ill., Jan. 29,—Butter—Quiet. Easy. Creamery extras, 24c; firsts, 22@23c; seconds, 19@20c; imitation creameries. fresh, from unsalted butter, 18@20c; dairies, extra (Cooley's), 22c; firsts, 20c; seconds, 18c; ladles, 17@17½c.

Cheese—Firm. Full cream Cheddars, 11@12½c per lb; Twins, 11¼@12½c; Young Americas, 12@12½c; Swiss, 12¼@12½; Limburger, 10½@10¾c; Brick, 10½@11c.

Eggs.—Steady. Strictly fresh per doz. cases returned, loss off, 14c; held stock, 8@10c; ice-house, 5@9½c; seconds, $1@1.80 per case; checks, $1 per case.

Bran—Firm at $12.50 per ton. Offerings very light.

Cattle—Native beef cattle, barring some of the choicest light and heavy weights, were generally 5@10c lower, with the late market especially weak on short-fed stock averaging 1,300@1,550 lbs. Steers averaging 831@1,650 lbs. sold at $4@6.25; bulk, $4.75@5.50. The quality was poorer than usual, a good many 1,300@1,500 lb. unfinished steers selling at $5@5.35. The cattle at $6.05@6.25 averaged only 1,380@1,382 lbs. Common 1,000@1,160-lb. steers sold at $4@4.40, with choice 960-lb. yearlings at $4.80, and "handy" 1,120-lb. steers at $5 30. Corn-fed Westerns sold at $4.40@5.80; bulk, $5.25@5.50. About 1,000 straight Texas sold actively at strong prices, three loads averaging 1,252@1,451 lbs. selling at $5@5 20, and the balance at $3 75@4.80; bulk $4.75@4.80. About 500 Illinois and Missouri Texans averaging 877@1,138 lbs. sold at $4.25@4.95. Native butcher stock ruled strong with sales largely at $3@4.25. Feeding cattle ruled firm at $3.50@4.80; bulk, $4.25@4.50

MILWAUKEE, Wis. Jan. 29.—Butter—Creamery, fancy prints per lb., 25c; extras, 24c; firsts, 20c; seconds, 18c; roll, 15@16c; dairy selections, 19@20c; lines, 15@16c. Business continues only moderately active, but prices are held firmly; receipts, 8,795 lbs.

Cheese—American full cream, October flats, 12½@13c; November, 11@11½c; Brick, 10@10½; Limburger, 10¼@11c; Swiss, drum, 12½@13c; block 13@13½c; No. 2, 10½@11c. The market is steady; receipts, 2,000 lbs.

Eggs—Fresh, per doz., 15c, loss off, cases returned; held, 10@11c; cold storage, 9@10c; seconds, 5@6c as to quality. The market is more active and prices are held firmly; the cold weather having stimulated the demand; receipts, 60 cases.

SBEYBOYGAN FALLS, Wis., Jan. 24—Six factories offered 269 boxes of cheese in the call board to-day, and the sales were made as follows: 36 cases Young Americas at 12c, 55 at 11⅞c 60 at 11¾c and 40 Longhorns at 12½c. One lot of 55 white Young Americas passed a bid of 11⅛c and 23 twins passed a bid of 10¾c. Six buyers were present and the market was active. Adjourned to Feb. 7.

NEW YORK, Jan. 29.—Butter—Creamery; Western extras, 25c; firsts, 23½@24c state extras, 24½@25c; firsts, 23½@24c.

Cheese—State, full cream, large or small, fall-made, fancy, 12½@13c.

Eggs—State, Pennsylvania and Western, 17c.

BALTIMORE, Md, Jan. 29.—Butter—Market steady; creamery separator, extra, 27@28c; extra first, 25@26c; creamery first, 25c; creamery imitation extra, 24c; Iowa and Northwestern ladle, extra, 21@22c; extra first, 20@21c; firsts, 20c; Western, store-packed, 16@18c; creamery rolls (2 lbs.) 27@28c.

Eggs—Market steady; strictly fresh stock. 19c.

PHILADELPHIA, Pa., Jan. 25—Butter—Solid, packed, separator creamery, extra, 25c; firsts, 24c; seconds, 21@22c; imitation creamery, extra, 22c; firsts, 21c; seconds, 20c; ladle-packed extra, 21c; firsts 20c; seconds, 18c. Print Butter—Creamery extra, 25c; firsts, 24c; seconds, 22c.

Eggs—Pennsylvania and nearby, 19c; Western, 19c: Southwestern and Southern, 18c.

BOSTON, Jan. 29—Butter—Creamery extra, 26c; western, extra, 25c; dairy extra, 23½c; imitation creamery, 21c; Western ladle, 20c; print creamery, 27c; box creamery, 26c.

Eggs—Fancy nearby, 24@25c; choice fresh, 21c; Michigan extra, 20c; Western, 19c; fair to good, 15@17c.

ST. LOUIS, Jan. 29—Butter—Steady; creamery, 20@25c; dairy, 16@20c.

Eggs—Steady; 13½c.

KANSAS CITY, Mo., Jan. 29—Butter—Creamery, 20@23c; dairy, 18c.

Eggs—Fresh, 11½c.

CINCINNATI, Ohio, Jan. 29—Butter—Quiet; 25c.

Cheese—Steady; good to prime Ohio Flat, 12½c.

Eggs—Firm, 16c.

NEWARK, N. J., Jan. 29—Market quiet; 25c for fancy creamery. Receipts a little more liberal.

NEW ORLEANS, La., Jan. 29—Butter—Market quiet; Elgin 25¼@26c.

Eggs—Storage eggs, 10c; fresh, 13c. Weather cold.

BALTIMORE MARKET.

BALTIMORE, Jan. 25—Butter—There is a manifest disposition on the part of all who are concerned in the production and distribution of butter, to encourage, for the time being, a settlement of value upon the basis now current. At the decline noted in last report, the market is firm, and while as large amount of business is being done, there is a healthy relation established between supply and demand. We hear little complaint of quality in marks of creamery coming forward that are usually fine, although buyers are critical, and the prices current are still high enough to make them cautious Choice gathered cream stock, the kind that at all times commands the favor of buyers, continues in very limited supply and the favorite marks would meet with a cordial reception at our full quotations Imitation creamery is in very moderate receipt, and is not in request unless of exceptionally fine quality. There is little or no accumulation of ladle packed butter, current receipts having goue into the usual channels in volume about equal to the supply. Roll butter while in moderate receipt, is quite sufficient for the demand. Store-packed, at prices now ruling, finds ready customers, and baking stock is scarce.

Creamery Separator, extras, 26c; firsts, 24@25c; seconds, 22@23c. Creamery Gathered Cream, extras, 24@25c; firsts, 23@24c; second, 21@22c. Creamery Ohio, extras, 24@25c; firsts, 23@24c; seconds, 21@22c. Creamery Imitation, extras, 22c; firsts, 21c: seconds, 19@20c. Iowa & N. W. Ladle, extras, 20c; firsts, 18@19c; seconds, 17c. Ohio & Indiana Ladle, extras, 19@20c; firsts, 18c; seconds. 16@17c. Ohio Rolls, extras, 18c; firsts, 17c; seconds, 15@16c. W. Va. Rolls, extras, 17c; firsts, 16c; seconds, 15c. Ohio & W. Va. Storep'd, extras, 15@ 6c; firsts, 14c; seconds, 13c. Creamery Blocks (2lb), extra, 27c; firsts, 26c; seconds, 22@23c. Creamery Prints (½lb.), extras, 27@28c; firsts, 25@26c; seconds, 23@24c. Md., Va. & Penna. Prints, extras, 23@24c; firsts, 22c; seconds, 21@22c.

Cheese—Receipts are ample for the demand; market firm at unchanged prices.

N. Y. State—Cheddars, fine 12¾@13c; choice, 12¼@12½c; fair, 11½@11¾c. Flats, fine, 13c; choice, 12½@12¾c; fair, 12@12¼c. Small, fine 13¼@13½c; choice. 13c; fair, 12½c. Ohio—Flats, fine, 12½@12¾c; choice, 12¼@12½c; fair, 11½@12c. Picnic, fine, 13@13¼c; choice, 12½@12¾c; fair, 11½@12¼c. Swiss Cheese, fine, 12@12½c; choice, 11¾@11¾c; fair, 10½@11c.

Eggs—So far this week the receipts of fresh eggs have been rather light and with a good demand, at 19 cents Our market at the present time is quite bare of stock; we advise liberal shipments, as our market is in good shape.

301 Exchange Place. G. M. LAMB & BRO.

NEW YORK MARKET.

NEW YORK, Jan. 27—Butter—Receipts for the week, 30,601 packages. Exports for the week, 19 packages.

Our market was barely steady on extra fresh creamery at 25c; there is more of this style of butter arriving than the trade anticipated and some receivers having a surplus were willing to shade the price ½c to get quit of stock. At the close weather is more wintry, stocks are light and there is a trifle firmer feeling on top qualities. Imitation creamery and all grades of ladle butter are more plentiful, in limited demand and lower prices.

Finest fresh New York state dairy sold at 23@24c but bulk of the arrivals were of poor wintry make and sold at 18@22c. June creamery was in light demand hardly enough selling to make a price; best qualities held at 23c and some small sales are reported at this price, but to sell any considerable lots much lower prices would have to be accepted. We quote:

Creamery, fresh, extra, 25c; medium, 24@24½c; poor, 22@23c. Dairy, extra, 23@24c; medium, 20@22c; poor, 17@19c. Ladle, extra, 20@21c; medium, 18@19c; poor, 16@17c.

Cheese—Receipts for the week, 11,327 boxes. Exports for the week, 13,359 boxes.

Exporters were in the market this week and bought some parcels of fine full cream cheese at 11¾@12c, but they confined most of their purchases to under grades full cream at 10@11c and skims of good quality at 8@9½c.

Home trade was very quiet, most of the inquiry being for late make full cream at 11@11½c, and few lots of finest small cheese were reported as sold at 12@ 2¾c. Quotations in the market have been fully ½c pound higher than actual sales and we reduce our quotations to conform with the actual conditions. We quote:

Full cream, small, extra, 12¼c; medium, 11¼@11¾c; poor, 10¾@11c. Full cream, large, extra, 12c; medium, 11@11½c; poor, 10¾@11 c. Part skimmed, extra, 10½@11c; medium, 9@10c; poor, 6@8c. Skimmed cheese, poor, 3@6c.

Eggs—Receipts for the week, 53,185 cases.

The market has been on the down turn all the week and at the close 17c is the top for the finest fresh gathered stock. The large quantity of refrigerator eggs offering in this market at prices ranging from 50c to $2.50 per case has completely demoralized the trade and there will be no relief to this market until the heavy stock of poor to good eggs are disposed of and out of the way. We note sales of 6 to 7 000 cases eggs for export to Great Britain at prices not transpired We quote:

New York and Pennsylvania, strictly fresh per doz., 17½@18c; Northern and Western, strictly fresh, 17c; refrigerator stock, 5@12c: limed, 10@12½c. DAVID W. LEWIS & Co.

177 Chambers St.

LIVERPOOL, Jan. 29—Butter—Finest United States and good, nominal.

Cheese—American finest white, 57s. American finest colored, 59s.

Latest quotations for fancy creamery: Buffalo, 26c; St. Paul, 23½c; Minneapolis, 23½c; Detroit, 24c.

WHAT SAY YOU?

There is nothing like a good beginning. Why not start the new year right as to separators anyway? Why try to get along with that old "hollow-bowl" machine any longer? You know in your own mind that you have got to change to an "Alpha" disc machine in near future—that you can't afford to go on with anything else and that your patrons won't stand it. You know that you and your patrons are conjointly losing just so many hard-earned dollars and cents every day you go on with the old machine. Why not put a stop to it? Why not put a stop to it now? It must come. Why not do the thing and have it done with?

Can you apply this course of reasoning to your creamery conditions—whether you have one "hollow-bowl" machine left or a dozen—and resist the conclusion suggested? Can any creameryman as a common sense business man do so?

Start the new year right. Put an up-to-date "Alpha" disc machine in the place of every "hollow-bowl" one left and you can never for an instant regret the step taken. You can't help effect a material saving from the moment you make the change and by July 1st every new "Alpha" machine will beyond doubt have saved its cost to you.

If you have the slightest doubt as to this we stand ready to demonstrate it to your own satisfaction. Can WE say more—can WE do more?

What say YOU?

Send for NEW 20th CENTURY "FACTORY" or "DAIRY" Catalogues.

THE DE LAVAL SEPARATOR CO.,

GENERAL OFFICES:

CHICAGO. 74 Cortlandt Street, MONTREAL.

SAN FRANCISCO. NEW YORK. PHILADELPHIA.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Ayrshire Calves For Sale from the Choconut Valley Herd. P. BYRNE, St Joseph, Pa. 51-2

For Sale—Shetland stallion, Pilot No. 884, dark bay, heavy mane and tail, 45 inches high. Foaled May 20th, 1888. Drives single and double; very gentle. The first check for $100 will catch him. JAS. DRIVER, Darlington, Wis. 51-4

For a desirable creamery location inquire of H. H. SMITH, New Richmond, Wis. 51-3

Wanted—A skilled butter maker, either married or single, as working foreman on a 100 acre A. J. C. C. dairy farm within twenty-five miles of Philadelphia. Must be a total abstainer and have good reference. Address W. M. B., Room 1310, Land Title Building, Philadelphia, Pa. 51-2

For Sale—Very cheap, in perfect order, combined churn and worker, cream vats, tester, etc., etc., for dairy or small creamery. L. D. PASSANO, Jr., Box 251, Warrenton, Va. 51-2

Wanted—On farm near Chicago, young married man to take charge of dairy herd of six cows. Must be a first-class butter maker, and able to raise poultry. Butter and poultry all for owner's family use. Splendid farm house, good garden, fuel and reasonable wages go with the place. Address, giving experience in dairy work and references as to character and ability, B. W. S., No. 1443 Marquette Bldg., Chicago, Ill.

I want for year or longer, first-class working foreman on stock farm near Chicago. Give age, experience, family, where been employed, wages received, etc. C. H. BUNKER, 136 Monroe St., Chicago. 51-2

Wanted—Location for creamery. For further particulars address, No. 302 Commercial St., Neenah, Wis. 51-2

Wanted—A first-class tenant for a first-class dairy and general purpose farm of 120 acres. Apply immediately. C. E. WARNER, Windsor, Dane Co., Wis. 51-2

Jersey Bulls For Sale—Ready for service; eligible to registry. Address, T. C. RUMPF, Fort Atkinson, Wis. 51-tf

Wanted—Position by an experienced butter maker. Best of references from last employer. Address J. R. WEIR, Le Roy, N. Y. 51-4

For Sale—A cheese factory in good dairy district. Received for season of 1899, 859,465 lbs. milk. Also a general store run in connection, goods invoicing about $800.00. Satisfactory reason for selling. Full particulars by addressing P. M. at Lawrenceville, Wis. 51-2

Creamery Plant For Sale—Line of three creameries in Dane Co., Wisconsin, all in first-class shape, latest improvements, etc., doing a good business. Satisfactory reason for selling. To the right party will sell on favorable terms. For particulars apply to M. L. BROWN & CO., 141 So. Water St., Chicago, Ills. 50-tf

Correspondence solicted with parties having capital to invest in private creamery. 230 cows pledged within radius of four miles; more to come as soon as creamery starts. Splendid dairy country. Five miles to R. R. station. Address, J. M. MOE, Chetek, Wis. 50-3

The undersigned wishes to arrange for a regular shipment of four cans of high grade milk with some dairyman near Milwaukee. Address, P. J GROGAN, 2611 Sycamore St., Milwaukee, Wis. 50-3

For Sale—Twenty-five high grade Jersey cows, thirty-five one and two-year-old heifers, by St. Helier's Cowboy 44822. For particulars address, HUMPHREY BROS, Fairmont, Kansas. 50-4

For Sale—One large Turbine De Laval separator and two twin cream vats, capacity 200 gals. each. Are in good condition. Address, LANCASTER CREAMERY CO., Lancaster, Pa. 48-4

For Sale—De Kol Bulls. Officially tested dams. Send for catalogue. M. S. CAMPBELL, Genoa, Ill. 49-10

For Sale—Pure bred Tamworth pigs ready to wean. Also a few Holstein bull calves. GLIEDT & KAISER. Freistatt, Mo. 48-6

Wanted—To rent, a creamery in a good locality with a good run of milk. Prefer one fully equipped. Address LOCK BOX 45, Lake Mills, Wis. 48-4

Wanted—Farm manager. A man capable of managing a farm of over five hundred acres, with dairy of 200 registered Jersey cows. Must thoroughly understand care of stock and handling of labor. None but competent, energetic man, able to give best of references, need apply. Address, B. E. W., P. O. Box 520, Philadelphia, Pa. 50-2

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46-tf

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman 45-tf

Proceedings of the 19th Annual Meeting Connecticut Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The nineteenth annual meeting of the Connecticut Dairymen's Association was held at Hartford, Jan. 17 and 18. The prominent features of the meeting were the large attendance, the excellence of the program, the close attention accorded the speakers and the large exhibit of dairy products.

Mr. S. A. Gilbert, North Greene, Me., spoke on "The creamery, Its Duties and Obligations." He made a strong plea for the farmers' interest in associated creamery work, advocating associated in place of proprietary creameries. Managers erred in scrambling for milk by attempting to divert it from other creameries instead of enlarging the regular supply. More small creameries should be operated in New England, as it is not necessary to do a large business to do it at a small cost, because long hauls impair quality of cream, thereby offsetting advantages gained by large operations.

In the discussion which followed, Maj. Alvord, of the Dairy Department at Washington, D. C., maintained that cream, obtained from good milk, properly handled, could he hauled long distances without impairing its quality, and emphatically advocated large creameries. Creameries should rather be consolidated in order to accomplish this, instead of developing more small creameries.

The Turner creamery with which Mr. Gilbert is connected, gathers Cooley cream and passes it through a separator to more effectually consolidate the cream, whereby the churning can be made at a lower temperature. Low temperature admits more exhaustive churning, less butter fat going with the buttermilk. All the cream is pasteurized. Commercial starters were preferred as the product was more uniform than when home starters are used.

"The Profitable Cow" was discussed by C. L. Beach, dairy instructor at the Connecticut Agricultural College. He illustrated his talk with a table of records of the College herd, and with drawings of cows to show the desired points of dairy animals; of the twenty-five cows in the herd, sixteen were kept at a profit, four barely sustained themselves, and five were maintained at a loss. The variation in the herd ran from a profit of $42 to a loss of $18. Too much attention is devoted to breed instead of individuality. The address was a very logical exposition of the danger of banking on the breed of cows, rather than individual capacity for production.

Samuel Currie, from Euclid, Minnesota, spoke on "How to Meet Competition." He pointed out that while the superior quality of many of our products was acknowledged in the markets of the world, we failed to command the respect of nations, as dairymen. This deplorable fact was due to the sale of fraudulent dairy products, whereby our reputation was sacrificed. This was proved by Maj. Alvord's report, which plainly shows that our butter is better than our foreign reputation. The way for Connecticut dairymen to meet western competition lies in a better machine,—cows of greater economical production. "The competition of cow with cow is bound to be the future battle ground of dairy supremacy."

Major Alvord explained the menace of the butter industry by process or renovated butter. He briefly described the preparation of this product and recounted how efforts of the Department of Agriculture to open a foreign market for our butter had been seriously effected by the acts of unscrupulous dealers in sending process butter abroad. Such treacherous proceedings could be stopped by government inspection, classification and branding of all dairy products offered for export, similar to the inspection now practiced with meat.

"Dairying Remote from Markets," was treated by G. H. Merwin. He indicated that such localities were admirably adapted for raising well bred cows to supply the herds of dairymen more fortunately situated nearer the markets, who rarely raise the cows they use. The demand for such animals greatly exceeds the supply. Such work would tend to reclaim our abandoned farms, and the idea presented by the speaker was received with enthusiasm.

James B. Paige, D. V. S., of Amherst Agricultural College, gave a stereopticon lecture on "Stable Ventilation." This was a very interesting discussion of a most important and almost universally neglected feature of dairying. All ventilation is embraced in two systems, viz., natural or artificial. The forces of the former are:

1. The difference in weight of bodies of air of unequal temperature.
2. The law of the diffusion of gases.
3. The wind.

These forces were described and their action illustrated on the screen. Modern stables are preferable because they make possible the control of ventilation. Stables should run north and south as this ensures a more uniform temperature. Two sets of openings are necessary; inlets and outlets. In artificial ventilation the inlets should be above and the outlets below, while where natural ventilation is used, the process should be reversed. Ventilation from the south side of buildings is more effective than on the north. In constructing air shafts or ducts, sharp turns and corners should be avoided, as each right angle reduces the velocity one-half. Ventilating systems should be carefully examined to see they are not obstructed.

"The Cheese Industry of Canada" was ably discussed by T. J. Dillon, St. John, N. B. The development and growth of this industry, from its birth in 1864 to the present time, was clearly set forth. In 1865 Canada imported 360,000 lbs. of cheese from the United States, and in 1899 Canada exported over 17,000,000 lbs. Canadian cheese formerly sold for less than States cheese, but since the introduction of filled and skim cheese, the tables had been reversed. The educational benefits, derived from co-operative dairying, had proved to be of great value. Due to the efforts of government, the quality of cheese was uniform throughout the whole dominion of Canada; this added commercial value to the product. Mr. Dillon exhibited a lot of Canadian cheese, which was distributed to the audience. The verdict was unnanimous regarding the high excellence of the cheese. If all Canadian cheese is like this, and Mr. Dillon assured us that it was, it is not hard to realize the supremacy Canada holds. However, there is no reason why cheese equally as good or better, should or cannot be made in the United States.

Prof. J. L. Hills, director of Vermont Agricultural Experiment Station, spoke upon "Economical Dairy Feeding." The matter was presented and discussed in a masterful manner, being a brief, concise exposition of the foundation principles of feeding and thence on up to the direct economical phases of the problem. The main roughage for Vermont is early cut hay, silage from mature corn, oats and peas and clover. The best concentrates to use with these are cotton and linseed meals, gluten meal and feeds, brewers grains and bran. Silage should be made from mature corn as that made from inmature corn is but an expensive way of watering cows. The fallacy of purchasing corn was clearly demonstrated. Corn should be grown extensively, and only some of the concentrates mentioned should be purchased in order to balance the ration. Corn should be siloed for dairy feeding. Siloing corn was the most economical method of handling the corn crop as was demonstrated by experiments made at the Vermont Station. In these experiments extending over three years the corn crop was handled in four different ways, and the best results had always been obtained from the ensilaged lot. Corn silage had also proved to be of great value to sustain the milk flow in periods of drought. Referring to condimental foods, the speaker's views were well illustrated by stating that a brand advertised in Vermont as a "famous food" should have the prefix "in" attached to famous. Not so much that condimental foods are devoid of value, but because the prices charged are outrageously exorbitant.

During the session suitable resolutions were passed, endorsing the "Grout Bill." The scoring of the butter exhibited was high. It was reported that the average score was higher than that made this season at any other exhibition in New England; however, this requires confirmation. In the creamery class, Granby creamery stood highest with a score of 98. In the private dairy class 97 was the highest; this was placed upon butter made by C. B. Pomeroy, Jr.

The meeting was one of the most sucessful

DISBROW

Some say it does all we claim.
Others say we don't claim enough.

Two Questions.

Since we first placed the Disbrow Combined Churn and Worker on the market we have been obliged to spend thousands of dollars to defend our patents against unscrupulous competitors. **WHY ?**

Every salesman who tries to sell any other make of combined churn and worker always compares his machine with the Disbrow. **WHY ?**

Because the Disbrow, the pioneer machine, is recognized to-day as the standard combined churn and worker—the only machine of its kind which has **proved** itself to be a success. What others cannot steal, they try to imitate. Drop us a postal card.

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CREAMERY PACKAGE MFG. CO.,
General Sales Agents,
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BRANCH HOUSES:
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Alpha De Laval Separators, Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genessee Salt, Potts Pasteurizer, Etc.
We are General Agents for Hansen's and W. & R. Butter Color.

Mr. VALANCEY E. FULLER, in his pamphlet on the ST. LAMBERT family of Jerseys, **places KING OF ST. LAMBERT'S KING 30752 in front of all other Jersey sires,** when he says:

"Mr. Hart has now in his herd all the registered daughters of King of St. Lambert's King, 16 in number. *I am frank to admit that I never saw so many matured daughters sired by one bull* (save Stoke Pogis 3d) *who are their equals in individuality, in good dairy form, in large, well rounded fore-udders, in large, tortuous and elastic milk veins, in uniformly large and well placed teats, in depth and length of barrel, in straightness of back, and all that goes to make a most desirable individuality.* They are not in the least degree coarse."

King of St. Lambert's King 30752

is at the head of my herd. I have for sale a few young bulls rich in his blood.

FRANK W. HART,
Cleveland, Ohio.

☞I have a few extra copies of Mr. Fuller's pamphlet, which I will mail free to applicants as long as they last.

THE BOER WAR

is exciting acute interest in all parts of the world, but the subject of vital interest to agriculturists in all parts of the United States is

How to Make More Money on the Farm.

The surest way to do it is by following in the footsteps of those who are the most successful, and a path is blazed straight and clear through the colomns of

THE PRACTICAL FARMER, of Philadelphia.
America's Leading Agricultural Weekly. $1.00 PER YEAR.

It is the only purely agricultural weekly published whose contents are directly applicable in an intensly practical manner to the every day work on the farm. Its editors comprise the leading agricultural writers of the country, and its **Unique Special Departments**—Experience Pool, Short Cuts, Mistakes, Failures and Successes, Farm Implement Annex and Postal Card Correspondence (all of which are supported by contributions from its readers, and for which contributions CASH PRIZES are paid every week), keep it in close personal touch with subscribers every week in the year.

The Practical Farmer's Library, issued quarterly, is one of the most valuable additions to agricultural literature ever published. You can learn full particulars of it in the columns of The Practical Farmer. **The Supply Department** of the Farmer Co., is prepared to quote you an inside price on anything you wish to buy, from a needle to an anchor.

No. 12 Farmers' Supply Catalogue contains 208 pages, illustrated and quoting wholesale prices on hundreds of articles of every day want. It also contains **a complete Calendar for 1900.** Send a postal card to The Farmer Co., 18th & Market Sts., Philadelphia, mentioning HOARD'S DAIRYMAN, and they will send you sample copies of The Practical Farmer, also a copy of No. 12 Supply Catalogue. **WRITE TO-DAY.**

SPECIAL OFFER.—By special arrangement with The Farmer Co., we are enabled to offer The Practical Farmer and HOARD'S DAIRYMAN both one year for **only $1.50.** Address all orders to
HOARD'S DAIRYMAN, Fort Atkinson, Wis.

ever held by the Association. Much good must follow from the zeal it has inspired.

F. H. STADTMULLER.

The Churn Overrun.

ED. HOARD'S DAIRYMAN:—There is no publication I read with more pleasure and profit than HOARD'S DAIRYMAN. It is alive and abreast of the advancing times in which we live to-day. But I feel you are doing an injustice unconsciously, by asserting the butter increase over fats to be 16 per cent in all cases. New England creameries are largely sending out their entire make in the form of print butter. Unlike the Western creameries we do not tub any of our product. To secure the top price, our prints have to be faultless in weight, as well as in quality, and this weight must be full, even after the prints have dried 4 to 10 days. Hence each print must be a "heavy 16 ounces" when made. We are never able to weigh out 60 lbs. and make 60 1-lb prints from it. On the contrary we average but 56½, after repeated trials. If all our butter were packed in 60-pound tubs, we should have a greater butter increase. As it is, under our system, pursued to gain the highest approval of consumers, we make a gain of 8 to 12 per cent, averaging about 10 and have sometimes run under 8, after careful accounting. Our churning is excellent, losing less than .2 per cent. Just how other print making creameries do I am not aware, but we, long ago, went back to the old method of dry working, that is, working and salting on taking it from the churn, setting it in the cooler until next day, and then working thoroughly before printing.

The butter is thus more solid, and more satisfactory to customers, and it is one of the things that has brought us our reputation and our sale on the market easily and regularly at a price much above the choicest Elgins. During the past five months our patrons have received 25 cents for fats twice and 27 cents three times, and we are not co-operative. We are aware that a heavier churn gain can be made, but it is not a profitable policy for our specific trade, which is somewhat out of the beaten path. We are trying to get on to the top shelf of public estimate, and to stay there.

It is gratifying to see your efforts along the line of teaching us how to balance our cows rations profitably. So many of us are feeding away our profits, and do not know it. Please tell us again and again, in plain terms, just how to select and balance them ourselves. Oh, if our dairymen would only study this thing closely, for their own profit in dollars.

South Britian, Conn. HOLLISTER SAGE.

The DAIRYMAN does not claim that the overrun is 16% in all cases, but that such a gain is quite possible, and still have a standard commercial product. Under the conditions which our correspondent is working, cooling the butter and working twice, we should not expect an overrun any larger than he gives, but that is an exceptional case, and his butter is made to cater to a certain trade that calls for a very dry butter. Moreover, the way in which the butter is packed, heavy weighted prints in this case, can hardly be said to be a fair comparison with the usual method of packing, in tubs directly from the worker. We do not doubt, that with special care, butter could be obtained with half the amount of water that is usually present, but that would not be a fair example of the *average* overrun.

Station Work in Testing Cows.

ED. HOARD'S DAIRYMAN:—As you are doubtless aware, our Experiment Station has for a number of years past been conducting milking trials of pure-bred cows owned by Wisconsin breeders and farmers, the production of milk and butter fat being determined in all cases. The results of the tests have been published from year to year in the reports of the station. In the 16th Annual Report, just received from the printer, will thus be found official tests of 73 cows of the Holstein-Friesian breed, 7 Brown-Swiss cows, and a semi-official test of the two Guernsey cows, Lily Ella and Lilyeta that within the past few days have brought such credit to their owner and to the state, through their wonderful year's performance. The initiative to the official tests as now conducted was taken by the Holstein-Friesian Association, and by far the greater number of cows tested up to the present time belong to this breed, but the facilities thus extended to Holstein-Friesian breeders are open to all farmers and breeders in the state, without regard to breed.

The testing is done by graduates of our Agricultural College, who have proved themselves able and fitted for this work, and is done under the supervision of an officer of the Experiment Station. Prof. John Decker had charge of this work while connected with our Station; since his appointment to the position of Professor of Dairy Husbandry in the Ohio State University, the supervision of the tests has been placed in the hands of the undersigned. The work has now been systematized and rules for breeders wishing to have cows tested have been formulated, as well as directions for our Station representatives conducting the tests. These rules and directions have been decided upon in conferences by Dean Henry, Dr. Babcock, Prof. Carlyle and the writer, and are in force from the beginning of the present year. We wish to have it known that our Station stands ready to assist Wisconsin farmers in conducting official tests under these rules, and also desire to have our farmers feel that the work is done in such a manner as to exclude any doubt concerning the accuracy of the results obtained.

I am personally greatly impressed with the far-sightedness of the Holstein-Friesian Association in being prime movers in tests of this kind, in which the award of prizes is based on the production of butter fat, by cows under home conditions. Great credit, not only from Holstein-Friesian breeders, but from breeders of dairy stock everywhere, is due to the efficient Superintendent of the Advanced Registry, Mr. S. Hoxie, for his services in arranging and directing these official tests. I hope to see other dairy breeds follow the example thus set, to a larger extent than heretofore, and make provision for tests conducted by disinterested parties whose work is closely supervised and checked up by our State Experiment Stations or similar institutions. F. W. WOLL.

Wisconsin Experiment Station.

The rules above referred to were published on page 962 ante.

"Housework is hard work without Gold Dust"

Cleaning Silver

Instead of scouring and rubbing each piece of silver separately, the whole service can be as effectively cleaned in a few minutes. After each meal the silver should be put into a pan (kept especially for the purpose) and cover with lukewarm water, to which a teaspoonfull of

Gold Dust Washing Powder

is added; set the pan on the range until the water gets to boiling point, then lift out each piece with a wire spoon and lay on a soft linen cloth, wiping quickly with chamois skin. The pieces so cleaned will be highly polished and look like new.

The above is taken from our free booklet "GOLDEN RULES FOR HOUSEWORK" Sent free on request to

THE N. K. FAIRBANK COMPANY,
Chicago. St. Louis. New York. Boston.





AMERICAN

Cream Separator

PRICE - - $65

First Premium and Diploma at the St. Louis Fair, as the . . .

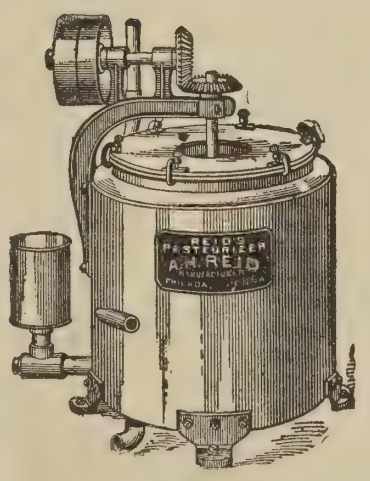
Best Cream Separator For Farm Use . . . .

Send For Descriptive Catalogue.

American Separator Co.,
Box 1023 BAINBRIDGE, N. Y.

Canadian Agents: RICHARDSON & WEBSTER, St. Marys, Ont., and S. M. BARRE, Winnipeg, Man.

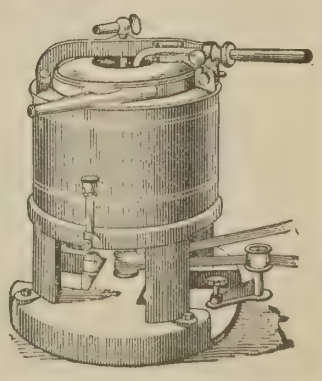
Both Practical and Profitable.



The Reid Pasteurizer by its successful operation in many creameries has demonstrated that pasteurization of milk and cream is more than a mere theory—that it is a practical and profitable process. The results obtained by its use have disproven the theories of pasteurzation's opponents and have caused hundreds to become its ardent advocates. If you have decided to give pasteurization a trial, get the most effective, most easily and economically operated machine yet invented for the purpose—the

Reid Pasteurizer.

If you still have a doubt on the subject, write for information about pasteurization and about what the Reid Pasteurizer will do. Have you the **Reid Long Spindle Separator** book? It's free. Our new catalogue.



A. H. REID,

30th and Market Streets, PHILADELPHIA, PA.,
And CEDAR RAPIDS, IOWA.

Hot Water at the Barn.

Paper No. II.

ED. HOARD'S DAIRYMAN: — Several articles may be required to answer letters received. This seems to be a new idea, and many are waiting for more information. The system of pipes used in houses for carrying hot water, could not be used at the barn on account of freezing in severe weather.

I have another way of heating water at the barn, far better and cheaper for those who have a tank heater of any kind. Farmers have been in the habit of warming milk and other feed for calves and hogs over the kitchen stove, much to the annoyance of the good housekeeper.

As I had a new tank when I began to heat water to a high temperature, I could have it made in any way that seemed best to me. It is made of 2×6 pine 18 feet long. The ends are made of matched plank cut in the form of a half circle with six inches added, to give more depth for a heater. The ends are fitted the same as the heads in a barrel, only I have four heads instead of two, dividing the tank into three parts. The heater is placed in the central part and the warm water can pass to the end division by means of large holes bored in the head. These can be closed and I can heat the water in the center to 120°, while the drinking water at the end is only 60°. The water at the opposite end is only a reserve, to be used when the wind fails. There is a pipe extending to the stable and I can pump from either part.

Now, most of my readers have a tank of some kind and do not want to throw it away. If the tank is flat on the bottom and you use a cylindrical sheet iron heater, buy a dry goods box made of matched lumber and put your heater into this. Bore holes three inches in diameter, one above the other, and as many as you please. Should the box be too high, saw it open, so it will not be quite as high as the top of the heater.

Place a piece of board 3½ inches wide perpendicularly on the outside of the box so that it shall cover two holes and reach three inches above the box. Midway between the holes, bolt this piece of board to the box and by using the upper part for a handle these holes can be opened or closed at any time you wish and you can heat the water inside the box to about 120°, and set in 8-inch creamery cans of milk or any feed you wish to heat. This will be likely to reduce the temperature to 100°, which is the proper temperature for feeding cows, calves, hogs and hens.

I have never seen nor read of anything of this kind, but anything not patented is free for everybody to use. While it may not be the greatest invention of the age, it shows you how by investing a single dollar, the advantage to you will be at least $5 every winter.

If any one has another kind of a heater, let him describe it, and another plan will be submitted for his consideration.

A few new tank heaters are put in every year, but now not more than one-third of the farmers in this vicinity have them, and we may infer the other two-thirds have never yet been able to see the necessity of warming water for stock.

To study the matter on its merits, we may test the effects of ice water by drinking it ourselves, only we must notice one great difference: Man has a stomach rather small in size, as he eats concentrated food, but cattle live upon grass, hay and other kinds of bulky feed, and have a stomach much larger than man in proportion to their weight. A healthy man weighing 150 pounds, may drink a single glass of ice water, summer or winter, without injury, provided he is not over-heated with work. A cow weighing 1200 pounds will drink more than eighty glasses of ice water at one time, when watered once a day. If it happens to be very rough and stormy, she will often return to the stable without drinking. The following day she will take a double allowance, or 160 glasses of ice water, which would be equal, in cooling power, to twenty glasses for a man, if he had a place to put it. The whole expense of warming water is less than a half a pound of butter a day for those that keep twenty cows, and the majority of farmers are asking, "Will it pay?"

The different kinds of tank heaters, and the different methods of cleaning, will be discussed at some future time.

Oconomowoc, Wis. N. B. WHITE.

Call for a Meeting of Guernsey Breeders.

ED. HOARD'S DAIRYMAN:—Some years ago an attempt was made to organize, here in the west, a Guernsey Breeder's Association like the one in existence in Pennsylvania and adjoining states, and with which the DAIRYMAN readers are familiar through the regular reports of their proceedings published by you.

Our failure here was for lack of numbers, but as there are now in Wisconsin and nearby states nearly one hundred persons breeding pure bred Guernseys, we feel sure such an association could be maintained with pleasure and profit to its members.

Our object is to be mutual acquaintance and helpfulness and to bring more fully before the public the now well known yellow skinned Guernsey.

After consultation, the undersigned Wisconsin breeders ask all interested in breeding Guernseys here in the central west to meet at Watertown during the Dairymen's Association Meeting February 14th, 1900, and help organize such association. Place of meeting will be announced at opening sessions of the Dairymen's Association.

A. J. PHILLIPS.
JAS. H. BEIRNE.
CHAS. SOLVESON.
CHAS. L. HILL.

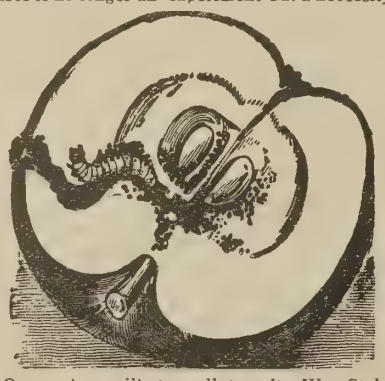
A Hard Nut to Crack.

ED. HOARD'S DAIRYMAN:—I want to give you a nut to crack in the Inquiry Department of HOARD'S DAIRYMAN.

I have no rough food for my cows, owing to extreme drouth, other than cotton seed hulls, and want as near a balanced ration as possible with cotton seed meal at $22.00 per ton; bran, $20.00; corn meal, $20.00; rice bran from small country mill, that mixes chaff and a great deal of cracked rice, at $10.00 per ton. I have on hand two (2) tons ground Spanish peanuts and hulls. I have been feeding some of the peanuts but

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

A Top Pedigreed **POLAND CHINA SOW**, bred, $18.75; July pigs $7 to $10, none better. 12 years experience. S. HAWK, Mechanicsburg Ohio.

A New Book for Stockmen—Proceedings of Guernsey Breeders Ass'n.—1884–'99. It is of value to all breeders of dairy cattle gives practical experience of many prominent men on breeding and feeding problems, treatment of diseases, etc.; numerous valuable essays on special topics. $1 post paid. W. B. HARVEY, Sec'y, West Grove, Pa.

ALBION JERSEY HERD is headed by
Pedro's Prince Phillis 42298,
An Ideal Dairy Sire, carrying 75% of the blood of PEDRO 3187.
R. C. GREEN, Albion, Wis.

Registered Jerseys.
Herd headed by two of the best bulls in the state. No cows used for breeding that will not make 14 lbs. per week. Young bulls and heifers at reasonable prices. Address, J. F. EGERTON, Footville, Wis.

ST. OMER HERD Sons of General Signal and double grandsons of Exile of St. L., with 50 to 62½% of his blood, in exchange for good registered cows and heifers due to calve this fall.
JOS. T. HOOPES, Bynum, Md.

Black Earth Jersey Herd
Offers for the next 60 days a few choice Young Bulls from 3 to 6 months old, at reduced prices. Address, FRED STUBLEY, Black Earth, Wis.



Best Fodder Plant for West and Northwest.

Sand or Hairy Vetch makes best fodder plant that can be obtained for West and Northwest. Eaten with relish by hogs, cattle and sheep; it stands severest drought, heat or cold. Sown as soon as the frost is out of the ground in the spring, it makes heavy pasture in fifty days, or can be allowed to mature for hay crop. Sown in fall makes excellent pasture, which, after eaten close, will appear as heavy pasture the following May. Superior to clover as fertilizer and soil renovator.

Enough for an acre sowing for $1.00. For prices on larger quantities see

Catalogue sent FREE on request.
CURRIE BROS., Seedsmen, Milwaukee, Wis.

FANCY HARRY BULL CALF
10 mos old, Solid color, well grown. Dam tested 23 lbs. 2½ ozs. Sire has 18 in the list. Send for pedigree. CHARTER OAK HERD.
J. P. BRADBURY, Pomeroy, Ohio.

Linden Lawn Farming Co., OLNEY, ILL.
Estab. '90. (*Capital Stock $100,000.00.*) Inc. '97. **640 ACRES.** Breeders of Jersey and Aberdeen Angus Cattle. Poland-China and Yorkshire Hogs, Pure bred Poultry. Send for our plan of Co-operative Farming and Investments C. S. MACE, Manager

A. J. C. C. JERSEYS
Of the St. Lambert and Coomassie strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address, BROADMOOR DAIRY, Colorado Springs, Colo.

Your Own Price
For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
GEO. A. BUCKSTAFF, Oshkosh, Wis.

PEDRO BLOOD CHEAP.
TWO BULLS, 6 and 7 months, solid colors, black points and fine.
TWO HEIFERS, 7 months, ditto. Sired by Pedro of Fairfield. Also Chester White Pigs.
W. F. McSPARRAN, Furniss, Pa.

Wisconsin Farmers' Institute Bulletin No. 13 now ready for distribution. No farmer should be without it. A 320-page hand-book of agriculture. Profusely illustrated. Treats of dairying, horses, sheep, swine, poultry, fruit, and all branches of farm work. Send for a copy. To Wisconsin farmers, 25c for cloth bound copy; 10c for paper covered copy. Outside of Wisconsin, 40c for cloth bound copy; 25c for paper covered copy. Address, Supt. GEO. McKERROW, Madison, Wis.

COMBINATION JERSEYS
Direct descendants of **Combination**, sire of 25 tested daughters; **Diploma**, sire of 53 tested daughters; **Brown Bessie**, winner of 30 and 90-day test at the Columbian; **Merry Maiden**, 2d only to Brown Bessie. **The blood of the Winners breeds on. This deep milking blood** can be secured from the **Brown Bessie Herd.** Bulls fit for service.
H. C. TAYLOR, Orfordville, Wis.

Jersey, Guernsey Cattle
Chester White, Berkshire and Poland-China SWINE,
SHEEP, POULTRY, Hunting and House DOGS
50 Grand Grade Jersey Heifers to offer at once.
BARTHOLOMEW & CO.,
Montg. Co. - - Bridgeport, Pa.

FOR SALE
GRANDSON OF
Exile of St. Lambert 13657.
Sire of 79 Tested Daughters.
"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
P. J. COGSWELL, Rochester, N. Y.

Jersey Bulls AND HEIFERS
out of large milking and tested dams, **FOR SALE.** W. R. THOMAS, Bellmore, Ind.

PROSPECT HILL JERSEY HERD.
WISCONSIN PRIZE HERD.
Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
F. H. SCRIBNER, Rosendale, Wis.

Introduce Milking Jersey Stock INTO YOUR HERD
by buying one of our bull calves, Our herd of 325 has been bred for milk for 17 years. Best blood, size and constitution. Selected stock. **Large English Berkshires**, all ages, at their best. Write for our "little book."
FILSTON FARM, Glencoe, Md.

FOR SALE—For a short time we are offering A. J. C. C. **Jersey Bulls** from two to fourteen months old at **reduced prices.** They are from choice cows and are sired by St. Lambert of Brodhead 46957, one of the best of bulls, as his pedigree will show. We also have a few cows and heifers for sale. Write for catalogue.
N. N. PALMER & SON, Brodhead, Wis.

Hood Farm Jerseys
FOR SALE—Great Dairy Bull, ready to use. Should get large, well shaped udders and long teats. Solid color. Dropped Nov. 2, 1898. Sire, Brown Bessie's Son, the sire of 8 in 14 lb. list, 50 per cent Combination. Dam, Virginia's Oonan, test, 15 lbs. 3 oz. when 2 years old, full sister of Pearl's Oonan 2d, 16 lbs. 10 oz. with 2d calf, by Landseer's Pogis, sire of 33 in 14 lb. list. Write for price to HOOD FARM, Lowell, Mass.

ARDEN HERD OF
JERSEYS.
JOLIET, ILL.
H. N. HIGINBOTHAM, Prop.
J. D. THOMPSON, Supt. FRED STORY, Herdsman.
Pedro's Handsome Prince, No. 42794.
Sixteen Tested Cows in Herd.
Young Stock for Sale. Write for Particulars.

Biltmore Farms' JERSEYS.
This is a working herd of 250 of the best native and imported breeding, selected for work at the pail, constitution and individuality. All Tuberculin Tested. Above the fever line, so we can ship anywhere.
SOME CHOICELY BRED
Bull Calves
out of great cows and by the best sires, for sale at Dairymen's Prices. Also large **English Berkshires**, imported and native bred. Apply to
GEO. F. WESTON, Supt., Biltmore, N. C.

The Chance of a Lifetime.
FOR SALE A Son of Jimp 86488, who holds the Jersey Championship weekly milk record, 471 lbs. 10 ozs. Butter record 31 lbs. 1¾ ozs. Owner and tester, Col. Lewis Walker. Over 86% butter fat in butter by analysis. Jimp's record later in public contest, 11% fat in milk by Babcock test, winning silver cup. Calf tuberculin tested, solid color, good conformation, hardy. Dropped May 3rd, 1899. Grandly bred on both sides. Descended close up from Stoke Pogis 5th, Ida's Rioter of St. L, and Exile of St. Lambert. First named leads all other bulls in number of tested granddaughters; second named leads in average butter test for 30 daughters; last named leads in number of tested daughters. For cuts of ancestors and full information address, **MILLER & SIBLEY'S STOCK FARM, Franklin, Venango Co., Penna.**
Several other grandly bred young bulls for sale. No animals sold for less than $100.

PIGS Eligible to REGISTRY, and First Class Stock, at Reduced Prices. **Chester White, Berkshire, Poland-China and J. Reds. Thoroughbred and Grade Guernseys. Also Poultry. W. B. HARVEY, West Grove, Pa.**

The Lone Tree Jerseys
THE largest collection of **high testing cattle** in the West, including **home-bred** and **Island cows. Show** and **Breeding Stock** always in supply. **Especial attention** given to furnishing **foundation stock for pedigreed herds.** A superb lot of young bulls and heifers now in special offer, including some sure prize winners.
Introduce Fresh Island Blood Into Your Herd.
SIRES IN SERVICE:—The prize winning **IDA'S RIOTER OF ST. LAMBERT 10th**, the champion **CATONO KHEDIVE**, the champion **CZAR COOMASSIE**, and **IMP. GOLDEN BAR**, inbred through his sire, Aristocrat, and his dam, Imp. Sandgate, to Golden Lad, the greatest bull on the Island of Jersey.
Write for what you want. Visitors always welcome. **JOHN E. ROBBINS, Greensburg, Ind.**

gave too much at first and the cows did not like them after awhile, owing to too much oil, I guess.

Will it pay to plant kafir corn and millo maize for cows, and grind seed and shred stover?

I can buy mixed Bermuda and Johnson grass hay for $15.00 per ton. Will it pay to use at that price? If so, will it pay to cut when I have power cutter, or feed long? I will soon have rye pasture for cows.

Cotton seed hulls are $3.50 per ton.

Columbia, S. C. W D.

W. D. has indeed given us a hard nut to crack; so hard that after several attempts which have proven futile, we give it up. Where one has feeds, like the rice bran referred to, which are so entirely out of the ordinary, no man can estimate their feeding value. The same is true of ground peanuts and hulls. In none of the books to which we have access is there any record which shows either their analysis or their feeding value. All that can be done in a case like this is to pioneer a way for oneself, going forward carefully so as not to repeat the mistake that was made with the ground peanuts and hulls. We think if one would commence with, say, 2 lbs. of cotton seed meal, 2 lbs. of corn meal, 2 lbs. of bran for the grain part of the ration, and then all the cows could eat of the so-called rice chaff mixture and cotton seed hulls, the results will tell him in what direction to increase and in what to decrease.

We incline to the opinion that it might pay very well to plant kafir corn and millo maize for cows, but instead of allowing this to ripen seed, we think it preferable to cut and cure them for hay. In the south one could grow peavine hay in sufficient quantities to furnish all or nearly all the roughage required. He might then plant kafir corn and allow it to ripen seed and use the seed to complement the peavine hay as they do in Kansas and Nebraska, to furnish a complement for alfalfa hay.

Comparative Value of Bean Pods.

ED. HOARD'S DAIRYMAN:—At present am milking six cows, grade Jerseys, weight from 700 to 900 lbs., three heifers with first calf, one fresh last July, and the balance in November and December. In the morning they get a feed of corn fodder about ⅓ eared, oat and pea or wheat straw at noon, and bean pods at night. For grain, I mix 200 lbs. bran with 75 lbs. ground oats and peas, feed all they will eat up clean, which is about 4 lbs. night and morning, before they have their coarse fodder. Have no way of cutting the corn fodder. Expect to have a silo next season. I have a little hay, clover and timothy mixed, which I feed once or twice a week in place of corn fodder. Here in western New York we consider bean pods for one feed a day nearly if not quite as good as clover hay. Would a little gluten feed help the ration? Milk goes to the creamery every other day. My last test was 4.6, has been as high as 5.2. At present the six cows are giving about 135 lbs. of milk a day. Bran, $17 to $19 per ton; hay, $12; clear oats about 35c per bushel. Do not know the price of gluten feed?

Perry, N. Y. P. G. N.

We are personally so well pleased with gluten feed, that we should not hesitate to use it with almost any combination, but the plan for our friend to pursue is try it in a small way at first and let the results guide him.

An Iowa Combined Barn and Silo.

ED. HOARDS' DAIRYMAN:—Enclosed please find $1.00 for renewal of subscription to your paper. A good paper, like a good cow, is worth more than it costs, while a poor one, like a poor cow, is dear at any price.

Silos must be very good things, however built, for each one seems to think his the best. We built a large, round barn last summer, 40 feet in diameter, with 16 feet silo in the middle, leaving 12 feet ring of hay around silo. The track over this ring, drops the hay in place with little or no mowing away. The hay keeps the silo warm, the silo supports the hay barn roof. The shute connecting hay barn and cow barn, forms a ventilating chimney, and the door between cow barn and shute is hung on weights so that it may be raised or lowered as more or less ventilation is desired, and is open at bottom if anywhere. We consider it a handy and economical arrangement.

We pump water with an ejector or jet pump. The steam goes right into the water, and warms it, at the same time it pumps it. A feed cooker boiler furnishes the steam. The cows say "thank you" for the warm water quite effectually.

At present prices for butter it is easy to make money feeding $9.00 bran; if we can't buying bran at $9.00 per ton, how can others at $14 or $16, as I see some say they have to pay? Two dollars per ton in the stack for good hay was the price last year and year before, and the price in the stack is what it is worth to the farmer. SCOTT H. LILLY.

Worth Co., Iowa.

CONCERNING OUR ADVERTISERS.

Northrup, King & Co., the Minneapolis Seedsmen, announce that the Great Northern, Pacific and Soo Railroads, will on February 1st, put in effect half tariff rates on grass seed, clover seed and Dwarf Essex rape seed, to points on their lines in Minnesota, North Dakota and Montana. This applies to both car and less car shipments.

The railroads appreciate the importance of renewing with tame grasses, the natural grasses which are disappearing so rapidly, and are to be credited with taking a view of the matter which is both broad and helpful to all concerned.

Credit is also due Northrup, King & Co., for taking up this question with the railroads, and bringing it to a successful conclusion.

WHAT IS BROMUS INERMIS?

Our attention has been directed to this wonderful new grass by L. L. May & Co., St. Paul, Minn., whose advertisement appears elsewhere in this issue.

Bromus Inermis or Brome grass, while referred to above as being new, is not entirely unknown in this country, but it is in its native country of Russia that it is most highly appreciated. Its prime characteristics are its wonderful productiveness and ability to grow, thrive and produce abundant crops of pasturage and hay in dry, semi-arid sections and localities, where other grasses fail signally. It is hardy, almost beyond comparison and is not affected by drought, will not winter kill and cannot be flooded out. It grows as well in low swampy places as in the lighter, dry upland where other grasses fail. This enables every farmer to make productive, portions of the farm that would otherwise be waste land. It has been found that the yield is greater than alfalfa; that it will produce heavy crops on the lightest of soils; that one seeding will last under ordinary conditions for twelve years; that it grows best when seeded alone, and not in combination with other grains, and that the food value when converted into hay is superior to timothy of the same quality.

There are many sections of the country where Brome grass will prove of large value because of the excellent qualities enumerated above. In localities where there is only slight rainfall or where there is only a limited amount of water for irrigation purposes it would seem especially wise to experiment with this grass. Write May & Co. for any special matter they may have on the subject. We feel personally that a new forage crop that offers such promise deserves the most careful consideration and investigation.

KENDALL'S SPAVIN CURE.

HILLSVIEW, Pa., Nov. 7, 1898.

DR B. J. KENDALL CO.

GENTLEMEN:—I am a user of your Spavin Cure and can recommend it as the best horse medicine I have ever had in my stable. I used it on a valuable young mare that had the bone on her hind leg injured by a kick; she was lame for four months, but one bottle of your medicine cured her as sound as a dollar. The beauty of the thing is that it does its work and does not remove the hair; it takes an expert to discover that you are using medicine at all.

You will find enclosed a two cent stamp for which you will please send me one of your "Treaties on the Horse and his Diseases." Yours,

H. C. ARBAUCH.

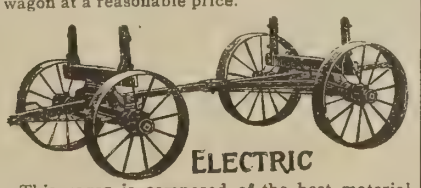
There is probably no better farm fence made to-day than the "Advance," which is now so well and favorably known to the farmers. It is a completely interwoven wire fence, without any loose ends to unravel or injure stock. It is so designed that it takes up all expansion and contraction and remains tight always. Then too, the method of selling is specially desirable, as it is sold direct to the farmer at factory price. Nobody can buy it any cheaper than the man who uses it. Write the manufacturers for prices, etc. Advance Fence Co., 126 Old Street, Peoria, Ill.

BUYING A CARRIAGE.

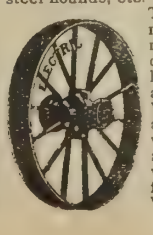
Modern merchandising has become so simplified that those living in the remotest corners of the country are brought into close touch with the great manufacturing centers, and almost anything from a toy to a steam engine may now be bought from the makers, saving the buyer from two to four profits. A most successful application of the method of selling direct from the factory, without the intervention of middlemen, has been made by the Columbus Carriage and Harness Company of Columbus, Ohio. This company manufacture a splendid line of carriages and other vehicles and harness, besides dealing largely in robes, blankets and horse equipments. These they sell direct to those who use them, with the distinct understanding that any article which may not fully satisfy the purchaser, may be returned and the price of it will be refunded. By addressing the Columbus Carriage and Harness Company, Columbus, Ohio, any intending purchaser may obtain a copy of the catalogue, which contains illustrations and complete descriptions of all their goods, and fully explains their progressive plan of selling direct

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low down wagon at a reasonable price.



This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low down wagon at will. Write for catalogue of the full "Electric Line" to Electric Wheel Co., Box 130, Quincy, Ill.



GUERNSEYS FOR SALE. The increase of my herd is a few young things of both sexes, from one to eighteen months old. Prices corresponding to age and quality. **F. W. TRATT, Whitewater, Wis.**

Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

Riverside Guernseys, CHAMPION Herd AT NEW YORK STATE FAIR, 1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by **COMUS**, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. **J. FORSYTH,** Riverside Farm, **Owego, Tioga Co., N. Y.**

Rosendale Guernseys! TUBERCULIN TESTED.

FIRST PRIZE HERD Wis. State Fair 1894, 1898, 1st Minn. State Fair and Omaha Exposition 1898. Our herd won first prize in A. G. C. C. test for 1899. Cows yearly records are from 418 to 585 lbs. butter. **GEO. C. HILL & SON, Rosendale, Wis.**

"Florham" Guernseys.

First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. **J. L. HOPE, Farm Supt., Madison, N. J.**



HOLSTEIN CATTLE! The Choicest Milk and Butter Breed in the World. Write to **Wis. Live Stock Ass'n, Appleton, Wis., U.S.A.**

OAK GROVE HERD H-F. Cattle. Cows, Heifers and Bull Calves For Sale. **C. H. Stevens, Jefferson, Wis.**

HOLSTEINS FOR SALE! BRYONIA PRINCE. DAM—Bryonia Albia, winner of $49 prize in official test, 1895. De Kol Bulls. **M. W. BARDEN, Portage, Wisconsin.**

SHADY NOOK HERD Holstein-Friesians. 5 choice high grade one-year-old heifers and one bull 15 months old. 8 bull calves. Choice **Chester White Sows.** Address, W. R. GATES, Prop., Fort Atkinson, Wis.

Holstein-Friesian Bull Calves Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

HOME FARM HERD. Headed by Jewel of Home Farm, Sweepstakes Holstein-Friesian Bull Trans-Mississippi Exposition Omaha, Neb. Seventy-five head to select from. **W. B. BARNEY & CO., Hampton, Iowa.**

MEADOW LAWN HERD Holstein-Friesians. Herd headed by **Sir Brookside De Kol.** Choice young stock for sale. Come and see them. C. W. HARRISON, Ringwood, McHenry Co., Ill.



Tested by the Milk Pail.

Quaker Dairy Feed is made entirely of grain—principally of oats—combined in scientific proportions. For the production of milk and the proper maintenance of the animal it is the recognized standard.

To get right at the feeding problem send in your name for "Modern Dairy Feeding." We are sending it FREE. Scientific advice on feeding—FREE. SCIENCE DEPARTMENT.

THE AMERICAN CEREAL CO., 1348 Monadnock Bldg., Chicago, Ill.

Do You Want a Son of De Kol's Butter Boy? How will this one do? Born December, 1899. Beautifully marked and fine individual, son of "Rhoebe of Dellhurst," now milking 70 pounds a day. DELLHURST FARM, Mentor, Ohio.



Registered Holstein-Friesian Cattle. Best families of the breed. Aaggies, Waynes, De Kols, Netherlands, Pauline Pauls, Pietertjes. WM. O. JACKSON & SONS, South Bend, Ind.

HIGH TEST I offer the richest, official test, H.-F. Bull Calf in America. His six nearest tested relatives have an average equivalent record of 24.2 lbs., averaging 4.07 per cent fat during tests and have won one 1st, one 2nd, three 3rd and one 5th prize in H-F. Official Prize Contests. MALCOLM H. GARDNER, Darien, Wis.

READY NOW A few choice Holstein Friesian bulls, ready for service. Prices very low for quality of stock offered. Write **H. B. DAGGET Mgr. McGeoch Farms, Lake Mills, Wis,**

South Side Farm Co., White Bear, Minn., have fine butter-bred Holstein-Friesian bull calves for sale at reasonable prices. Johanna Rue 2nd's Paul De Kol at head of herd.

Colanthus Mechtchilde Parthenea No. 25503, H. F. H. B. Calved April 29th, 1898, is a bull produced by show animals. The "wonder" of the breed. MECHTCHILDE, with the help of PARTHENEA, who sold for $2,000, produced a show animal here. Holstein-Friesian Register says: "The progeny of these combined blood crosses certainly will equal any in the world'.' The blood of the "Queens" is offered here. VALLEY MEAD FARM, Monticello, Wis.

Markham Manor Farms. Simonsville P. O., Andover, Vt. Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to **J. A. THORNTON,** Mgr., **Simonsville, Vt.**

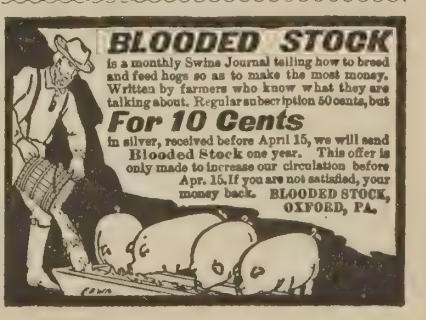
The Big 4 at Brookside. THEIR HOLSTEINS.

Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
Belle Korndyke.....official test 25.77 lbs.
Helena Burke.....official test 25.45 lbs.

We want to sell 40 cows and heifers and 20 young bulls, bred in the lines above mentioned. Write stating exactly what you want.

HENRY STEVENS & SONS, Lacona, N. Y.

AYRSHIRES Finely Bred and from the very best families. Stock for sale, bred for milk and butter qualities. Also fine herd Chester White Swine. Correspondence solicited. FRED TSCHUDY & SON, Monroe, Wis.



Comments and Queries from Robinswood Farm.

Development of the Cow's Vegetative Organs Primarily Important—Are Great Expectations of Breeders' Duties Reasonable?—Influences Creating Dairy Prepotency—Hereditary Transmission, "Nicks" and Selection—Family Prepotency More Important Than Great Individuality In Parentage—The Questions of Size and Hardiness in Cows.

ED. HOARD'S DAIRYMAN:—The external form of a cow affords to a certain extent an indication of her dairy producing qualities, but not entirely. Of course an accurate observer, one trained in the matter, can pretty accurately judge as to the development of the cows' internal organs and their functions by various outward signs that are difficult to describe in words, just as a competent medical man can walk along the street and size up his fellow mortals' internal works and ways, to a certain degree, by a mere look in the face. But actual performance can only surely determine the development and functions of the important internal organs such as the true stomach, pancreas, intestines, liver, etc.

Nevertheless the profitableness of the dairy cow is based on, and starts from, a prominent development of these organs and of their functions. She must not only have an outwardly observable dairy form; she must have good teeth in her strong jaws, and a good flow of saliva, whose function is not only to moisten and lubricate food, but also, along with the secretions of the pancreas (sweet bread), liver, stomach and intestines, to turn starch into sugar. This cow must have a large paunch in which large amounts of crude food can be macerated and softened by moisture, heat and benign fermentation. Her fourth stomach must be sufficiently strong and active to create acid gastric secretion in sufficient quantities to turn all of the protein of the food into the liquid peptones, which, with the liquid sugar and such emulsified fats as may have been so formed from the fat in the food, are absorbed into the general system of blood vessels. Furthermore, she must have a strong heart for the effective and quick pumping of this liquid nourishment to all parts of her body.

I believe that one reason why there is so much poor dairy stock in existence is that breeders do not appreciate the primary importance of breeding for such unseen developments. If they do appreciate it, many of them certainly do not take the necessary steps to secure such developments. So-called constitution is largely a matter of a strong heart action and a perfect circulation of the blood. There can be no very profitable dairying with cows that do not have strong constitutions and great digestive and assimilative capacities, as well as large mammary development. A large product can be secured from a delicate cow, but hardly an economical product.

A possession of all the necessary parts making up the good dairy cow is not confined to any one breed. Still there is no question in my mind but that there is a recognizable choice for each dairyman's requirements. I have made up my mind by this time as to the breed we Gilmanton butter farmers ought to use for our particular profit, but decline at this time to name my choice for fear that every reader who favors any other breed, would be likely to consider my powers of perception and judgment of little value, and although I am old enough to appreciate how little of the sum total of knowledge I have been able to absorb during my life so far, still a body likes to have full credit for what he does know.

A direct purpose of these "Comments and Queries" is that any views I may have held, or may acquire, in regard to cows or dairying, may be subject to criticism and correction if erroneous. It is a very narrow, small man who is not willing to acknowledge himself in the wrong if he becomes convinced of error. One should never be ashamed to acknowledge a change of view if it is the result of honest conviction; but on the other hand, one must stand up for one's views if one believes them sound.

Unjust criticism may be the result of careless reading. This seems to have been the case in the criticism of Mr. W. S. Seeyle in the issue of Nov. 17th last. I certainly do not believe, as Mr. Seeyle seems to think I do, that a poor extended pasture will tend to produce a large sized cow. The contrary is my belief; and it is because so many American dairy farms have just such poor, though large, pastures that a small or medium sized cow is the most profitable for them. Hence we have no use for Holsteins on our Gilmanton hills, though under certain conditions of environment, I consider her the ideal cow. But if the pasture is rich and feed abundant, a considerable amount of exercise does tend, among other influences, to produce a large cow, more blood being directed to the general frame as a result of the use of the muscular system, the largest in the body.

I do not believe that breeders should particularly strive for large size in their dairy stock intended for use on the average American dairy farm, though I believe that other things being equal, the larger the cow the less will be her cost of support in proportion to the costs of production. She will also be more economical in the use of stable room, milking and general care. Perhaps also more profitable in the side matters of beef and veal. Still as long as extended pastures are to be utilized, an animal is to be desired that will not use up too much vitality in moving herself over extended poor feeding grounds. Futhermore, as early and frequent maternity is one of the influences productive of great milking powers, if such development is attained, a relatively small development of the whole body would be expected, as a rule. The exception would be under conditions where a very great supply of easily digested food was supplied, and in particular, of foods largely protein in composition.

Just at present my mind is on the "bear" side of the bull question, and I find myself mentally laying down the law quite extensively as to what kind of prepotency the breeders ought to be able and willing to furnish (for a consideration) to those of us who want to develop a profitable dairy herd. Perhaps if I had better stock to sell, I might look at the matter from another point of view. I might think I had a perfect right to put my best foot forward, or in other words, bank on "weekly tests;" and decline to publish my average yearly products for a fear of a lessened patronage, especially as a year's forcing for a yearly test would be likely to do great damage to my stock, and that farmers ought to be satisfied if I could show a large weekly test.

Well, perhaps that is all true. A cow that can produce fourteen pounds and over of butter in one week, certainly has some good qualities, and if a lot of her ancestors on both sides could do as well, she ought to have some desirable prepotency, and even, if the farmer should have to depend on his natives to furnish his herd constitution and digestive power, it would be well worth paying for a bull that could furnish the other requirements of a special-purpose cow.

I suppose it is rather too much to ask of the breeders that they shall furnish a large and perfect mammary development, harmoniously proportional to the general frame, great digestive power, constitutional vigor, placid temperament, etc.; and also prepotency to perpetuate such abundant excellencies. Such combinations make up the perfect cow, and such cows are few and far between. Nevertheless, when the farmer is going to buy thoroughbred stock to improve his herd, let him strive for the most perfect of individuals, as well as select that breed best adapted to his particular requirements. I think also he would be unwise if he does not try to find out how much his chosen blood is capable of doing in the way of

Are You on a Dead Center?

Are you at a standstill like the driving shaft of an engine when its force is all exerted against the axle? A start in the right direction will enable *you* to use the power you possess so as to do more valuable work, and gain a higher salary. *You* can be trained **by mail at home,** to take

A New Position

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Wells Richardson & Co.'s Improved Butter Color. . .

is evidence of the fact that it is in the lead. Buttermakers who make exhibits of their goods at the fall and winter meetings should be sure and see that their butter is colored with

"The Kind That Has No Mud."

A TRIUMPH OF SCIENCE.

To economical and up-to-date Butter Makers, the Best Color to use is the

ALDERNEY BUTTER COLOR

It contains all the requirements to make perfect butter and is declared by all who use it, as a triumph of science.

☞ *LET US SEND YOU A SAMPLE—IT'S FREE.*

THE HELLER & MERZ CO., 55 Maiden Lane, New York.

CHICAGO: 14 N. Clark Street. BOSTON: 98 Commercial St. PHILADELPHIA: 109 S. Second St.

A HARMLESS PREPARATION OF ANNATTO HAVING HIGH COLORING POWER.

Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

Thatcher's Orange Butter Color.

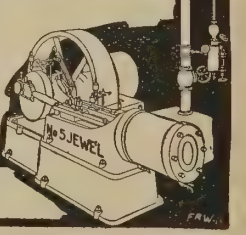
There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color,** which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

THE THATCHER MANUFACTURING CO., Potsdam, N. Y.

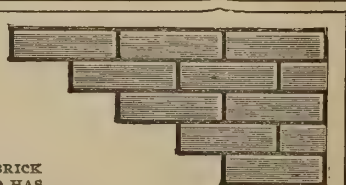
CREAMERY POWER must be **simple**—easy to handle; **perfectly governed**—economical in its use of steam; **safe**—well and durably made.

The JEWELL AUTOMATIC ENGINE meets these conditions and has many other good points which are best appreciated in service. It is no stranger to the trade. It is "making the wheels go round" today in many of the best managed and most profitable creameries in the country. **Note its clean lines and compact form.** We have a booklet, beautifully illustrated, which has been prepared especially for creamery people.



THE EUREKA BOILER may be used also as a **Steam Feed Cooker.** Serviceable for scalding cans, tanks etc. **Well made,** fully tested, has standard fittings and special pump for injecting feed water without lowering steam pressure. Send for catalogue describing full line. **The C. H. Dutton Co., Kalamazoo, Mich.**

Sheet Steel Pressed Brick Siding



AN EFFECTIVE AND FIRE-PROOF SUBSTITUTE FOR BRICK (CLAY). IT IS ATTRACTING GENERAL ATTENTION AND HAS MET WITH PERFECT SUCCESS WHEREVER USED. WE ALSO MAKE

WEATHERBOARD and BEADED SIDING.

ALL CHEAPER THAN WOOD AND MORE DURABLE. SEND FOR CATALOGUE.

THE CINCINNATI CORRUGATING CO. Box 709 Piqua, Ohio.

yearly yield, and how economical it may be in producing dairy products.

Very few thoroughbreds are perfect in all things, but let the dairyman be sure of certain absolutely necessary requirements in the stock, and to this he can add lacking points himself. There are certain desirable dairy qualities which the farmer can create and maintain with more ease than can the breeder. This brings us to a consideration of the influences which are potent in producing dairy qualities in cows.

It seems to me that they are for the most part, hereditary tendency, fortunate "nicks" in breeding, selection, suitable feeding, favoring climatic conditions, shelter, maternity and mammary stimulation, and appropriate exercise and other hygienic conditions. It is perhaps not possible to state which of these influences is the most important. It seems to me that breeders are inclined to ascribe too much weight to mere hereditary influence as a source of improvement.

Hereditary transmission of qualities may be either good or bad, and it is only when selection is brought into play, that improvements varying from the general type, the result from fortunate "nicks," or of other causes, can be perpetuated. Nevertheless by pairing individuals, who carry within themselves the prepotency of many desirable ancestors, and by persistently culling out and rejecting for breeding purposes, individuals which are not up to the mark, we can expect to maintain, and even accentuate dairy qualities.

But careful breeding is not the only and fundamental causation of dairy function. Breeding transmits, and to a considerable extent accentuates and strengthens desired form and function; but one must look further and deeper for the fundamental causes of such developments. As a rule, phenomenal cows, it is well known, do not reproduce themselves. They reproduce the sum total of themselves and their ancestors, modified by all the influences of the sire and his ancestors. Hence is seen the importance of selecting a bull and also cows having a desirable list of ancestors, in preference to selecting merely because they may be progeny of a phenomenal cow, that may be phenomenal merely as the result of an unusually fortunate "nick," a conjunction of exceptionally favorable influences.

Of course, if one can start with the blood of a great and harmoniously developed cow, and one having great ancestors, so much the better. But as a matter of fact, the possession of phenomenal powers of milk production is rather against the giving of progeny the best prenatal nourishment, unless the cow is perfectly developed in all points—the digestive faculty being harmoniously powerful to sustain both great milk production and the nourishing of progeny. Of course, this does not apply in the case of the bull. I am inclined to think I would rather rely on the moderately excellent progeny of a good ancestry to perpetuate desirable characteristics, than the abnormal phenomenal and occasional product of such ancestry.

The one thing that is absolutely essential in dairy stock blood is a prepotent power to create in progeny a mammary capacity that shall be great in proportion to the other anatomical and physiological developements of the animal. If the farmer is going to feed a broad ration to his cows, a considerably greater development of frame and muscle may be allowable in his breeding stock than if a narrow, well balanced ration is to be fed; but even if the farmer is not going to feed a ration that will entirely utilize the powers of such mammary development, and also the demands of the general system; still if the large mammary developement is present, that mass of tissues will attract to itself, and turn to account its due proportion of all of the blood manufactured by the cow.

It follows then that the production of such prepotency is the first duty of the breeder. The dairy farmer then takes that prepotency and uses it according to his particular needs, even to diluting it. Inasmuch as it costs money and effort to create powerful milking qualities in a cow, it does not seem as if it would pay for the dairy farmer to breed up a herd with a mammary development very much greater than will suffice to thoroughly utilize the cow feeds he may be able to grow to advantage. This is one reason why I think dairy farmers should use grades. His cows can be developed in mammary qualities to the requisite extent by grading, and then stop before the strong constitution, etc., usually found in so-called native stock, should be too much weakened by the special aim in breeding.

Unless I am greatly mistaken, the average farmer would be much more sure of securing a herd of great performing cows in grades, great in every quality, except for thoroughbred breeding, than if he made use of all thoroughbloods. Would not these grades be more hardy than the thoroughbreds? I think so. Not that I think a thoroughbred must be delicate. I have had pure Jerseys, which in our cold and windy climate were, after acclimating, apparently just as tough and hardy as any other cattle in the district. The great St. Lambert family was developed in the far north. Nevertheless, it is a fact, that when an excessively large proportion of the food assimilated goes into milk, the animal is just that much short of stored heating material with which to meet the severities of climate.

Lack of so called hardiness is a matter of individuality rather than of breed, and a fine milch cow is not a Rocky Mountain goat, anyway. I feel sure that it will never pay the average farmer to give his cows as much care in the way of shelter, feeding, etc., as the breeder must give his stock, in order to create and perpetuate strong dairy prepotency.

It will usually pay the farmer best to feed more moderately, and accept a lesser product, and if this is the fact, it will cost him less to handle grades, many individuals of which will produce more than some thoroughbreds. Of course, I believe that some thoroughbreds will produce more than most grades, but as a rule, I doubt if they can work up crude cow feeds into dairy products with such economy as grades. Here there is a smart chance for the entertaining of a difference of opinion.

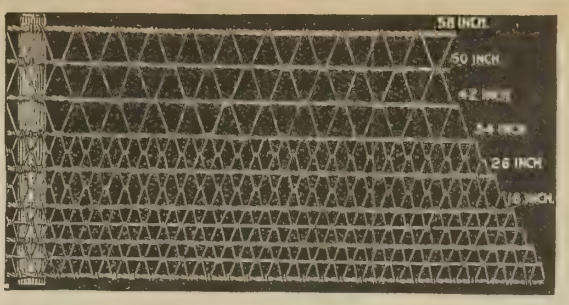
It is astonishing to think how little the dairy farmers of our county appreciate the importance of hereditary influence in improving or depreciating the productive qualities of their herds. Whether they elect to use grade cows or thoroughbloods, they can never afford to neglect to use blood in the sire whose influence tends to dairy function.

I never knew a farmer who was not smart enough to want to raise the heifer calves from his best cows; but what proportion of them ever give the question of the influence of remote ancestors in the herds production, its due consideration. And yet so far as I know here is the starting point from which lead two paths. The one may lead to dairy success, the other will inevitably lead to failure.

However dairymen may differ as to breeds, or as to the general make-up of the individual dairy cow, he must not ignore the fact that he has got to have a machine capable of doing a certain amount of productive work if he is going to succeed. His practice may be right in everything else, but if he makes a mistake in this fundamental matter he will go all wrong. We Gilmanton farmers want special-purpose butter cows, and some day we will all have them.

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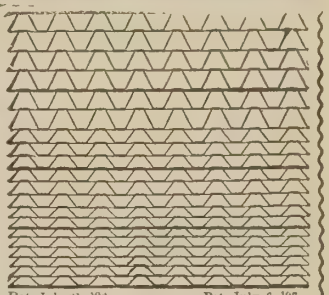
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60 rods 4-foot M. M. S. Poultry Fence made of No. 19 galvanized steel wire, @ 65c per rod	$ 39.00
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No Top or Bottom Rail Required.	
No Labor Putting Rail on Posts Required.	
No Nails to Attach Rails Required.	
5 lbs. staples, @ 7 cents	.35
4 hours labor stretching up fence, @ 25 cents	1.00
Total cost	$ 55.60

ESTIMATE No. 2.

60 rods old-fashioned diamond netting, 4 feet in height, made of No. 19 galvanized steel wire, @ 65 cents per rod	$ 39.00
121 posts, @ 20 cents	24.20
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1,320 sq. ft. in top and bot. rail, $20.00 per M	26.40
30 lbs. 20d nails, @ 5 cents	1.50
8 hours labor putting up rail, @ 25c. per hour	2.00
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10 lbs. staples, @ 7 cents	.70
Total cost	$102.35

Draw your own conclusions and then write us for circulars.

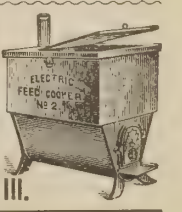
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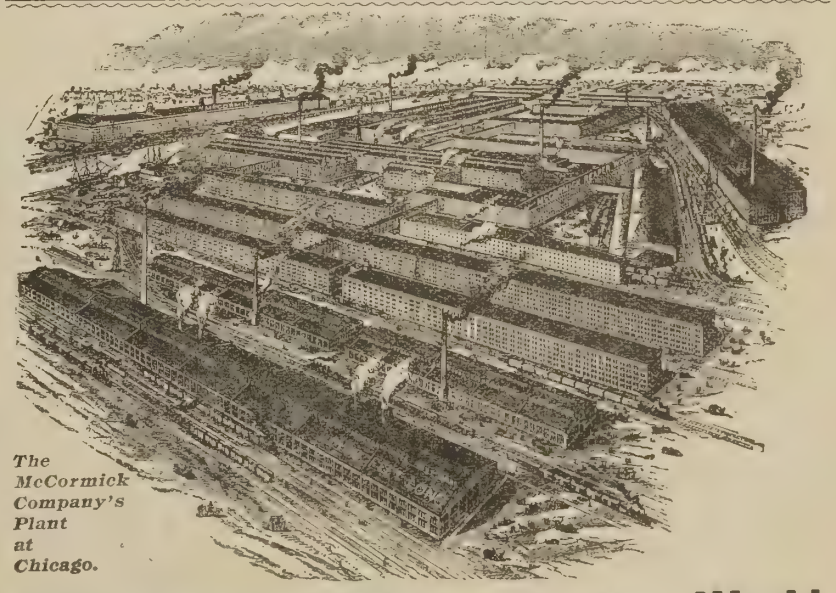
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National Butter Makers' Meeting.

ED. HOARD'S DAIRYMAN:—The city of Lincoln will give, in addition to the one thousand dollars subscribed to the premium fund of the National Butter Makers' Association, the sum of fifty dollars in cash to the best appearing state delegation in the parade, which will take place February 22nd, 1900. The judges to be competent and disinterested citizens of Lincoln.

Lincoln, Neb. MORRIS FRIEND,
Chairman Local Committee.

VETERINARY.

Queries in this department answered by WM HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

SCOURS.

We have lost, lately, four calves from two to three days old with scours and these calves were from cows which were dry for a longer time and from heifers which came in the first time. The calves were healthy when they were born and it seemed that the first milk gave them the scours. We gave milk from other cows with the bottle, but could not save the calves. They were getting so weak and would not drink any more.

Washington, D. C. A. C.

ANSWER.

Own mother's milk is always much the best. The first milk is expected to open the bowels, always, in all mammals. In all such cases stop the usual milk supply for a few weeks and give slippery elm tea, flax seed tea, Iceland moss tea, gum arabic mucilage and to each pint add half a pint of strong caraway seed tea, all sweetened well with honey Give, say, three meals, thus, then mix the milk gradually until you get back to regular feeding. Keep dry and plenty of fresh air and sunshine

Some of the calves, like a person, may be more susceptible to the effects of the mucilage, etc., than others and will need good sensible attention. This simple but effective adjunct to the administration of medicine is sadly neglected by stockmen and much depends upon it, always. Be sure to remove the passages as soon as possible. Don't leave it where it can be smelt by any of the calves.

EPILEPSY.

We had 12 head of hogs that had been in a pen and fed for market, but not seeming to do well were let out in a field and slept at a hay stack. We then moved them about one mile and put them in a pen again. Did not change their feed except gave them a small amount of buttermilk and middlings mixed. In 3 days after they moved, they took fits and 9 of them soon died. They would mostly sit up on their hind parts and jerk their heads and froth at the mouth. A. P.

Beaverdam, Ohio.

ANSWER.

Epilepsy killed your hogs. Causes are multifarious andvery dissimilar. Whatever the cause, it is an affection of the nervous system. It is said to be incurable. Causes are as above various, injuries of any kind, especially to the nerve centers, crowding too much together, lack of pure air, etc. Like many other diseases prophylatics are the sure and safe course to follow. These are chiefly in good management. Epilepsy in the porcine is quite easily diagnosed. But it is a queer, mystifying, perplexing malady to combat and is fatal to the subject.

TINCTURE OF MYRRH AND ALOES.

I have seen in your paper, veterinary department, about compound tincture of myrrh and ointment of aloes, but it does not say how to mix, use, etc., or if it is to be mixed together for dehorned cattle. J. F. J.

Warren, Pa.

ANSWER.

Compound tincture of myrrh and aloes? Buy it at the druggist's of course, already for use and apply as directed.

LICE ON CATTLE.

My cattle apparently have every indication of lice. They rub and scratch against the buildings and fences, and the hair is coming off the neck. I have used equal parts of lard and kerosene, moderately strong of carbolic acid, but apparently of no avail.

Grand Blanc, Mich. W. F. G.

ANSWER.

Thoroughly wash all the denuded places with good tar soap and hottish water; rub quite dry, and then rub in well and liberally the following: Oil of tar, one ounce; pyroligneous acid, twelve ounces; sublimed sulphur, six ounces; fish oil, thirty ounces, to be used once a day until not needed; keep out of the wet; must be violently shaken before using, always.

INVERSION OF THE UTERUS.

I am having trouble with one of my cows. The channel leading to the womb comes out at times. Before she was fresh, it came out at times; I put it back; in a few days it would come out again. She calved all right, but the next day it came out again. I called in a veterinary; he put it back and sewed her up to prevent it from coming out again. In the course of time I cut the stitches; everything went fine for four and five weeks.

Mount Airy, Md. C. S. C.

ANSWER.

I know of nothing to do excepting to keep in the mass by any process you may please to adopt. Inversion of the uterus is always an annoying, troublesome thing, and hard to manage; seldom cured, usually, unless of a valuable type, making the calf extra valuable. The best thing to do is to fatten for market.

BAKING OF THE MANIFOLD.

A friend of mine has, in the last few years, lost four of his valuable cows with a stoppage of the bowels or stomach, as the stomach was packed with a dry substance, (food).

The first that we noticed was a loss of appetite and that no manure passed them of any amount. I gave them Glauber salts and linseed oil in reasonable doses. These cows were well cared for, with plenty of air, exercise, and what salt they wanted; was not feeding grain at that time, as they were all dry. F. A. F.

Cumberland Center, Me.

ANSWER.

Baking of the manifolds is quite prevalent in some places. You ask a puzzling

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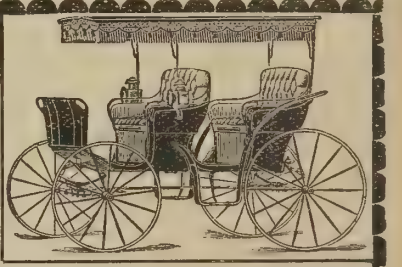


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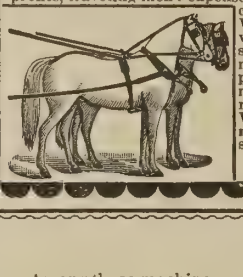
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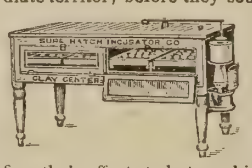
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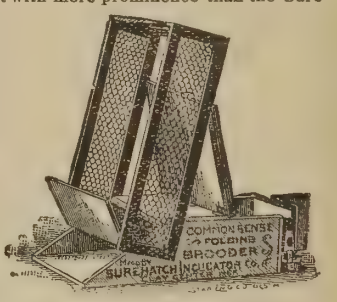
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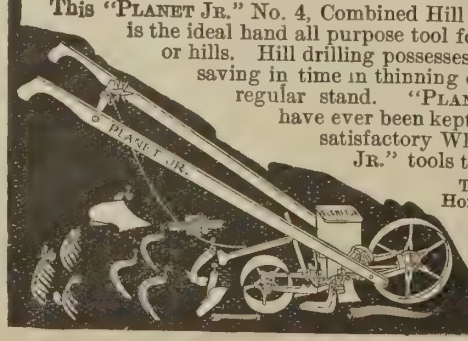
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Among those machines which made a most enviable reputation at home in their own immediate territory before they sought a wider field, none stand out with more prominence than the Sure Hatch Incubators and Brooders, which are manufactured by the Sure Hatch Incubator Co., of Clay Center, Neb. The gratifying results have borne out the wisdom of the manufacturers in this plan of working. Another specially strong point of the Sure Hatch people seems to lie in the fact that they confine their efforts to but one kind of incubators and brooders, and devote all their time, energy and capital to attaining the highest degree of perfection along this single line. Perhaps the most prominent feature of these machines is the hot water tank, which is so constructed that no water rests over the center of the egg chamber. The tank is thickest and the volume of water greatest on the surrounding edges, just where the greatest amount of heat is required. This matter is fully explained and illustrated in the catalogue which every interested person should read before buying an incubator. The machines are automatic in every way and so constructed that by following simple instructions it is well nigh impossible to fail Write at once for catalogue, prices, etc., and kindly mention that you saw this little article in our paper.





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S. L. ALLEN & CO., Box 1107-D, Philadelphia, Pa.

question of me, when you ask your cause. Don't know. No oil; saline injection, and full doses of Epsom salts is the best treatment, after the drying up of the semi-digested food in the reticulum or second stomach, and then impacting the manyplies or third stomach. The proper way is to pay such attention to your animals that such impaction is nearly out of the question; attend to the food, and always see to the secretions.

ABORTION AND MANIFOLD.

I wrote you about two weeks ago about a heifer which I thought had a dead calf, and she has since died, and upon examination it was found that she had lost her calf prematurely, and her stomach was partly full of dry food; looked like it had been squeezed in the hand and dropped in lumps, but the small intestines were completely empty, save wind. Now what could have been done to save that cow? J. A. M.

Piatschie, Wash.

ANSWER.

You don't say which stomach. You have the same conditions as the above, with the addition of abortion. All the above remarks apply to your case. I never received any communication from you before.

LAME FOOT.

Last fall I bought a horse, put a rope on him and tied him in the meadow. He got tangled up in the rope, had it around his left hind fetlock, and ever since he has been lame. G. J.

West Denmark, Wis.

ANSWER.

There are two things to do, get a qualified professional man to fire the parts affected, or get a bottle of Gombault's Caustic Balsam, cut off all the hair close, get out all the dirt, then rub in hard for five minutes as much as you can get to be absorbed. Then cover as thick as butter, usually, upon bread. Do this, applying daily, but no more rubbing. When you have a good scab, cover with hog's lard until the scabs are all off, then repeat the balsam, and do up to about coronet.

Don't work him too soon after treatment, 4 months at least.

SCOURS.

I am having what we call calf cholera among my calves and so far have found no cure. If you have any please let me know through the DAIRYMAN. G. H. F.

Iowa Falls, Iowa.

ANSWER.

Scours in calves is not calf cholera at all. Remedy: Slippery elm tea, flax seed tea, caraway seed tea, gum arabic mucilage. These will be best if alternated one with the other. All must be given with judgment and intelligence. About a pint of either will be a fair sample dose; to each pint add one scruple of nux vomica and two tablespoonsful of old whiskey. This is for a month old animal, more or less for older and younger calves.

POOR CONDITION.

What can I do to improve condition of a grade Jersey heifer, coming three years old? For some months past has been subject to continuous drooling or slabbering, much like our horses in summer on white clover pasture. Have been feeding bran, corn and cob meal, clover hay and corn fodder. Have thought it might be either from indigestion or sore teeth. D. S.

Osawkie, Kan.

ANSWER.

Have a competent person examine the teeth. Some dental defect is no doubt the cause. It may be a tumefaction of the gums. If so, the same examination will develop the cause. After the professional examination, act in accordance with the condition and requirements. This is all I can do.

BAD MILK FROM QUARTER.

I have a cow that was fresh about three weeks ago. Calf lived only two days, and now she gives bad milk out of left front quarter of udder and very little of it. Cow was not fed any grain for sometime before she was fresh, but do not think she was milked as near calving as she ought to have been. C. H. S.

Haynesboro, Pa.

ANSWER.

Above all and everything a full dose of physic immediately and repeat and rerepeat after 5 or six days' rest. Each morning give two teaspoonfuls of nitre and continue for 2 to 4 weeks if needed. Milk her clean but do it gently. To increase the milk, feed more nutritious food but increase gradually after the doctoring. Don't neglect the physicking. Nearly all depends upon it.

ABORTION.

My cow calved the 20th of July, on the 17th day of August came in heat, was served, though she was in calf (she always got with calf inside of a month after calving.) On the 28th of December noticed a slight discharge of blood from vagina, no change any other way. On the 8th of January she came in heat, had her served 3 times immediately; still she remained in heat the balance of the day. Could she have aborted, or is it possible she could come in heat and be 4½ months in calf? If so, will having her served injure her? SUBSCRIBER.

Lawrence Co., Ill.

ANSWER.

Yes, I doubt not the cow aborted, and you helped her to abort again by serving her as stated. Such is bad practice; always makes bad worse. Yes, a cow can and does come in heat when in calf. I have known of one cow which was owned here to take bull five days only before she calved, and never would stand without force, and if allowed to, would run to the bull.

ABORTION.

One of my cows aborted yesterday, fœtus about as large as a cat. This cow calved last February, calf was born dead, but was carried full time. She failed to clean, so I took afterbirth from her, following instructions I had read in DAIRYMAN. She was served frequently, but failed to get with calf till this fall. I was surprised to find her in heat to-day, but I didn't allow her to be served. Should she be served and would it be safe to allow my bull to serve her? I am about getting a young bull for these youngsters. I can get a well bred bull calf in this county, but the owner has had abortion in his whole herd; these are the first live calves he has had for several years. Would it be safe for me to buy this calf? D. H. G.

Emmitsburg, Md.

ANSWER.

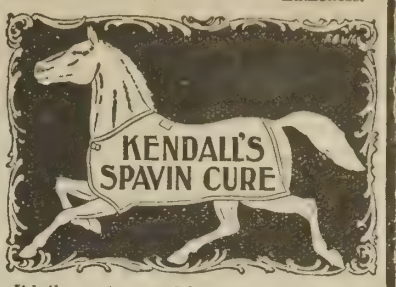
No, she is not to be served at all until properly put in shape by judicious medication. Service adds fuel to the fire, always. Thoroughly clean all the surroundings of the aborting cow, and wash all her hinder parts with tar soap and hottish water. Use boiling water upon all the parts possible, of the stall and floor. You need a medicine to prevent abortion; the word cure is out of the question. No, don't buy a bull from an aborting herd. Read ads. of anti-abortion in DAIRYMAN.

YOUR HORSE LAME?

That's bad. Lame horses are unprofitable either for use or sale. Don't have a lame horse. Cure him with

...KENDALL'S SPAVIN CURE...

the old reliable remedy for **Spavins, Ringbones, Splints, Curbs,** etc., and all forms of **Lameness.**



It is the most successful remedy ever discovered, as it is certain in its effects and **cures without a blemish, as it does not blister.**

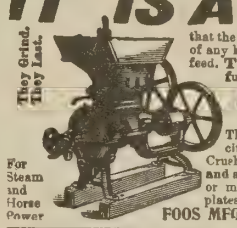
East Millstone, N. J., Jan. 15, '98.

Gentlemen:—For the last ten years I have used Kendall's Spavin Cure with good success, and have **absolutely cured Spavins** after our best Veterinaries said nothing would cure but to have the horse fired. I wish you would send me your "Horse Book." Yours respectfully, E. S. ROGERS.

Such endorsements as the above are a guarantee of merit. **Price, $1; six for $5.** As a liniment for family use it has no equal. Ask your druggist for Kendall's Spavin Cure, also **"A Treatise on the Horse,"** the book free, or address

DR. B. J. KENDALL CO., Enosburg Falls, Vt.

IT IS A FACT



that the best results in feeding stock of any kind are attained with ground feed. **To grind feed** most successfully requires

SCIENTIFIC Grinding Mills.

They have largest possible capacity with minimum power. Crush and grind corn, husk and cob and all, and all small grain singly or mixed. Have self-sharpening plates. **Free**—Catalog I.

FOOS MFG. CO., Springfield, Ohio

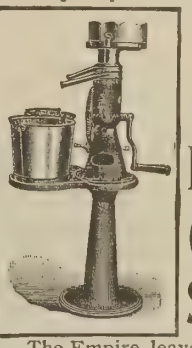
GINSENG WE ARE HEADQUARTERS FOR **Seed & Plants**

All the latest instructions about it; its value; what used for and how to grow it. This valuable information **FREE** for a stamp.

AMERICAN GINSENG GARDENS, ROSE HILL, New York.

That **Robber Cow**

eats up the profits of two good cows every year. Just so the "setting system"; or some cream separators may leave enough cream in your milk to pay for two



Empire Cream Separators

The Empire leaves scarcely a trace of fat in skim milk, and is the lightest running separator made.

Six sizes of hand power machines, $40 and up. Illustrated catalogue, *free.* Agents wanted,

U. S. Butter Extractor Co., Newark, N. J.

Horse Owners! Use GOMBAULT'S



Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. *Impossible to produce scar or blemish.*

Every bottle sold is warranted to give satisfaction. Price **$1.50** per bottle. Sold by druggists, or sent by express, **charges paid,** with full directions for its use. Send for descriptive circulars.

THE LAWRENCE-WILLIAMS CO., Cleveland O

Springer Farm Separator,

MANUFACTURED AT

WATERLOO, IOWA.

THE SPRINGER HAND SEPARATOR skims the cream perfectly. It is the **Simplest Separator on the market.** It is easy to run and easy to clean. The machine which skims 300 pounds an hour costs $75.00, the 400 pound an hour $90.00. It can be attached to any kind of power. If you contemplate buying a machine, write us.

AGENTS WANTED. All Inquiries Answered.



THE BEST FOR THE DAIRY,

be it large or small, is the celebrated

Kneeland Omega Separator

Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

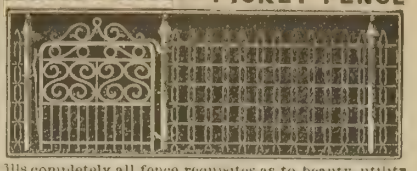
"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,

42 Concord Street, Lansing, Mich.

Milk Fever CURED by the Schmidt Treatment. 90% of cures in first 412 cases. Simple and effective. Two complete treatments packed ready for instant use. For sale only by GARDINER BROS., 220 E. Preston Street, Baltimore, Md.

HARTMAN STEEL ROD PICKET FENCE



fills completely all fence requisites as to beauty, utility and durability. Specially designed for lawns, parks, cemeteries, school grounds, &c. Looks best and is best when built with our steel posts. Illustrated catalog free.

HARTMAN M'F'G CO., BOX 14 ELLWOOD CITY, PA.
Or 05 **BROADWAY, NEW YORK CITY.**



KITSELMAN ORNAMENTAL FENCE.

More ornamental than iron and as cheap as a wood picket fence. Over 50 different Designs. Catalogue free.

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PAGE

THE COILS IN PAGE WIRE

have saved many BROILS among neighbors.

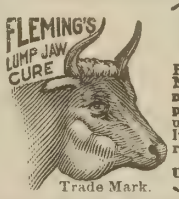
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$50 00 to $100.00 per month made by selling rights for the **Fence that suits everybody.** More agents wanted. BUCHANAN FENCE CO., Box 27, Smithville, Ohio.

Barren Cows CURED

With womb dilators **PRICE 50 CENTS.** Address,

Dr. D. ROBERTS, Waukesha, Wis.



Trade Mark.

LUMP JAW

Easily and thoroughly cured. New, common-sense method, not expensive. No cure, no pay. **FREE.** A practical, illustrated treatise on the absolute cure of Lump Jaw, free to readers of this paper.

Fleming Bros., chemists, Union Stock Yards, Chicago, Ill.

ABORTION!

Retention of Placenta and Failure to Breed.

H. W. KELLOGG'S experience with and positive cure for these diseases in cows. Send for circulars. Address all communications to

H. W. KELLOGG COMPANY, Ripon, Wis.

Dr. Horne's Anti-Abortient

Prevents Abortion and cures Nymphomania—failure to breed; also Emmenagogue Powders for cows failing to come in heat. Both powders are the result of long practical experience and study and may be given in a little moist feed. 5 oz. $1, 11 oz. $2, 23 oz. $4, 50 oz. $8, by mail.

Also Specific for

SOUTHERN CLIMATIC FEVER

Same price and same quantity as above.

SAFETY HARD RUBBER MILK TUBES with hole in the end, and DILATING PLUGS

(Patent applied for.)

My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes, 2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.

DR. WM. HORNE, Janesville, Wis.

Myself cured, I will gladly inform anyone addicted to **COCAINE, MORPHINE OPIUM or LAUDANUM,** of a never-failing, harmless Home Cure. **Mrs. M. F. BALDWIN, P. O. Box, 1212, Chicago, Ill.**

ASTHMA

FREE CURE FOR A physician who has cured himself of Asthma will send his combined treatment of **3 Special Medicines FREE OF COST.**

Address, **Dr. W. K. Walrath, Box 692 Adams, N. Y.**

RUPTURE **Sure Cure** at home; at a small cost. No operation, pain danger or detention from work. No return of Rupture or further use for trusses. A complete, radical cure to all (old or young) easy to use, thousands cured, book free (sealed). DR. W. S. RICE, Box 353, Adams, N. Y.

ABORTION PREVENTED

ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.

One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free.*

ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York

BROWN'S BRONCHIAL TROCHES

Neglect of a Cough or Sore Throat often results in an Incurable Lung Disease or Consumption. For relief in Throat troubles use BROWN'S BRONCHIAL TROCHES, a simple yet effective remedy. Sold only in boxes.

A Difficult Question.

ED. HOARD'S DAIRYMAN:—I see by the DAIRYMAN that you answer questions. Will you please tell me the place in the dairy business for a person that does not like to send any animal to the butcher. Have 9 cows, every one like a pet dog will come to me on the call of their names.

Fresno Co., Cal. DR. WM. B. MCA.

Let one doctor answer the other.

In his poem, Bitter Sweet, published in 1858, Dr. Holland described the home coming of children and grandchildren to celebrate the Puritan's holiday and the scenes and events connected therewith. Thanksgiving eve, Ruth, the daughter who orders the home in place of the mother who passed from earth a dozen years before, and David, the latest son-in-law, descend to the cellar for cider and apples and in their quest pass the barrel of beef, when Ruth says:

* * * * * * *

Pet of the pasture and stall—
Whitest and comeliest heifer,
Gentlest of all!
Oh, it seemed cruel to slay her!

* * * * * * *

And to her David makes answer:

Life evermore is fed by death,
In earth and sea and sky;
And, that a rose may breathe its breath
Something must die.

* * * * * * *

The milk-haired heifer's life must pass
That it may fill your own,
As passed the sweet life of the grass
She fed upon.

The power enslaved by yonder cask
Shall many burdens bear;
Shall nerve the toiler at his task,
The soul at prayer.

From lowly woe springs lordly joy;
From humbler good, diviner;
The greater life must aye destroy
And drink the minor.

* * * * * * *

New York Dairying and the City Milk Supply.

ED. HOARD'S DAIRYMAN:—There is a new stir in the grazing districts of New York State that is going to be watched with great interest by every person who feels as keenly as most of us do, the fact that the eastern farmer is still lagging behind his brother in the west. We are not lifting our mortgages at a rate that is alarming the banker and private money lender. In fact, we are just beginning to feel the tide of better days, that has already been rolling in on the west for two or three years. Some sections are not feeling it to any extent yet, if at all. To say that such communities read of western farm prosperity with a great degree of uneasiness is stating only a part of the fact.

The new opening is milk. It goes to the big cities, which are each year extending their lines further and further into the interior for supplies. It is no secret that the better informed farmer has for sometime been doubtful as to the possibility of making much profit on butter at 17 cents a pound or thereabouts. He felt that such prices were anything but an assurance of mortgage lifting, and as he saw that more and more attention was paid to dairying he came to believe that prices would not be likely to advance right away. So he has hesitated over the problem, and now there is promise of a solution in a new direction.

At the State Dairymen's annual exhibition in Cortland last month it was a matter of general disappointment to find that the exhibits of butter and cheese were so much fewer than they had been at Gouverneur the previous year, but the explanation was an easy matter. Gouverneur is the center of a big creamery district and alone sent in over 200 samples for competition, while Cortland sells milk and was represented by only six exhibits. But Cortland is more than 200 miles from New York, yet it is apparently finding that milk brings more money when shipped to New York, than when worked up at home. The western part of the state of course sells milk largely in Buffalo, Rochester and other cities within easy reach. The business is constantly growing and while we do not generally look on it as the highest grade of dairying it appears likely to be a great factor in the business in future and if it will assume its full share of the responsibility of helping the state farmer to his feet, there ought to be no objection to it.

When I paid my last visit to my old home, in one of the upper Susquehanna river valleys of the state, and it was less than two years ago, I found the farmers there pretty nearly as poor as ever and inclined to be discouraged. I am informed now that there is a stir there as well as further west in the state. They have felt the effect of a greater demand for milk from New York, which is less than 150 miles away.

In a conversation with a silo manufacturer, who declares that the prosperity of the farming districts can hereafter be guaged by the number of silos put up, I learned that the interior of the state is everywhere wider awake in regard to dairying, than ever before. The sale of silos is doubling every year, and promises to do so for some time yet. This means, first, that the farmer has been getting a little surplus money for making improvements, and also that he is waking up, however slowly, on the general subject of dairying.

"When you go home next time," said my informant, "you will find that there is a change there for the better. The courage of the people is better and the credit is better, too. The New York milk trade is doing it, and it is going to redeem the hill farmer. It has already begun to do so. That is why our business flourishes more than it used to. Why, we are working Vermont with good results, and the opportunities there are not generally as good for dairying as they are in New York state."

Buffalo is advancing the price of milk and, thanks to the city Board of Health, is now getting a fairly good quality, in place of the severely watered article that prevailed before the city took the matter up. There is a proposition to district the city and set up a general "trust," I suppose we shall have to call it, in order to save each individual dealer from covering the whole city to reach his customers. That is in the right direction in some respects, but may be going too far in others. What I wish to note is, merely, that there is a general awakening on the the subject over the state.

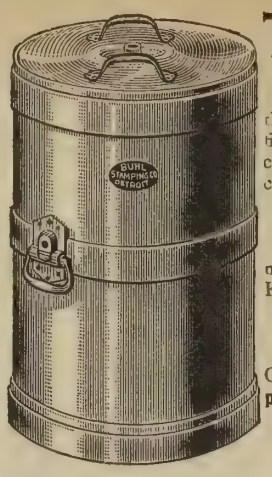
While Western New York is still too good a grain district to be at its best in dairying, it can show some excellent results in the latter business, and that every time a fair trial is made. JOHN CHAMBERLAIN

Erie Co., N. Y.

DR. PIERCE'S FAVORITE PRESCRIPTION

"I had been a sufferer for many years from nervousness with all its symptoms and complications," writes Mrs. O. N. Fisher, 1861 Lexington Ave., New York, N. Y. "I was constantly going to see a physician or purchasing medicine. In the spring of 1897 my husband induced me to try Dr. Pierce's Favorite Prescription. After taking one bottle and following your advice I was so encouraged that I took five more bottles, and then stopped for several weeks as I felt so much better, but still I was not *completely cured*. I commenced taking it again and felt that I was improving faster than at first. I am not now cross and irritable, and I have a good color in my face; have also gained about ten pounds in weight and *one thousand pounds of comfort*, for I am a new woman once more and your advice and your 'Favorite Prescription' is the cause of it, coupled with the 'Pleasant Pellets' which are not to be dispensed with. I took eight bottles of the 'Prescription' the last time, making fourteen in all, and will not take any more unless you so advise, for I do not see as I need it."

makes weak women STRONG, sick women WELL.



The Best Factory Cans.

The strong points of the Buhl Milk Cans are their great strength, heavy coating of pure tin, and fine finish. They do not rust like common cans, have no crevices inside, will not leak, and need no repairs. No other cans have the Genuine Heisey Side Handles.

Look for the Milk Can Trademark.

This can has 3 welded, tinned, wrought-iron hoops, tinned malleable side handles, and heavy XXXX genuine Cookley K cylinders. Capacity, 15, 20, 30, 40, and 50 gallons.

Refuse Imitations.

We make all patterns and sizes of Factory and R. R. Milk Cans, and will gladly mail you our hand-book free. **We make prompt shipment.**

The Buhl Stamping Co.,
DETROIT, MICH.



IMPROVED ROUND HANDLES
SEAMLESS NECK
SEAMLESS COVER

(Together with the best of material) are the distinguishing features of the

STURGES MILK CANS

thus making them superior to any other can on the market. The wearing qualities are increased 50% without any increase in price.

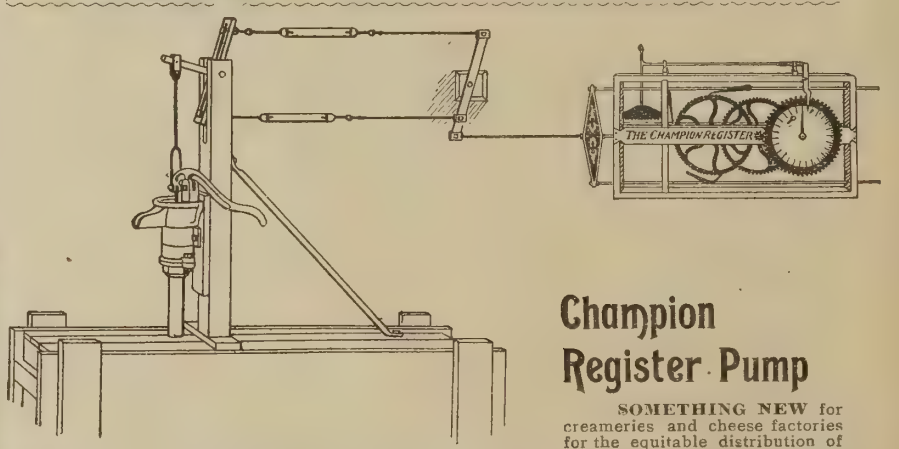
Write for our new catalogue, which will give you additional reasons why you should use the best can on the market.

QUALITY UNEQUALED | PRICE INTERESTING | CAPACITY 1000 CANS DAILY

THEY ARE MADE TO WEAR

FRANK STURGES
CHICAGO

Successor to THE CHICAGO STAMPING CO.



Champion Register Pump

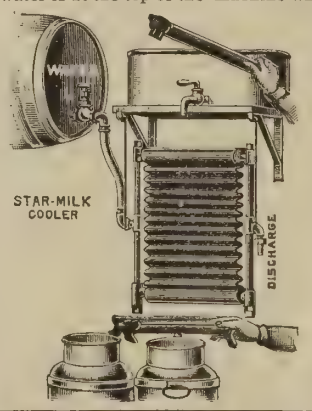
SOMETHING NEW for creameries and cheese factories for the equitable distribution of skim milk and whey. NO CHECKS to get lost. No complicated mechanism to get out of order. Action always ACCURATE and POSITIVE. Write for special circular and prices.

OAKES & BURGER,
SOLE MANUFACTURERS. Cattaraugus, N. Y.

AERATION

Why do STAR Milk Aerators and Coolers AERATE Milk as well as COOL IT?

Because, as the milk becomes cold so does the water used for cooling become warm; this warm water is at the top of the machine where the warm milk strikes it first, the milk spread out in a thin film exposed to the air, flows downward as the water flows upward, the milk gradually coming in contact with colder water until it drops off the cooling surface where the fresh water is slowly entering, into a collecting trough. The milk is thus subjected to a gradual and continuous reduction of temperature while exposed to the air, the evaporation necessarily taking place under this condition forces out the animal heat and with it the objectionable odors.

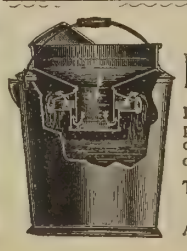


This result cannot be accomplished by chilling the milk as would be the case if brought in contact with an ice cold surface.

For thorough aeration a gradual and continuous reduction of temperature is absolutely required; this result can only be produced by a machine that has a long flow for the milk and also for the water; it is essential that the water should become warmed so that the milk is gradually cooled during the process of aeration. In the smallest size STAR AERATORS AND COOLERS the film of milk has a downward flow of at least forty (40) inches.

SEND FOR 1900 CATALOGUE.

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Haddonfield, N. J.



THE Ideal Milk Pail

Is the cleanest and most practical pail and strainer on the market. Write for circular and special price to

The National Specialty Co.,
RACINE, WISCONSIN.
Agents wanted in every Co.

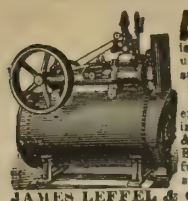


Better Butter

TRADE MARK BESTOV

Send for our large free illus. catalog. All about "Bestov" dairy supplies.

The Dairymen's Supply Co.,
1937 Market St., Philadelphia, Pa.



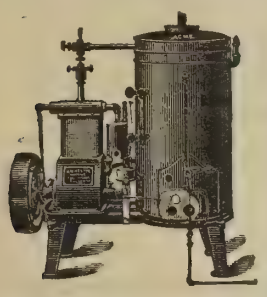
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is undoubtedly the best power for farm use. Best for cutting and grinding feed, sawing wood, pumping—for anything.
THE LEFFEL ENGINE
excels for this purpose as well as for use in dairies, creameries, cheese factories, &c. Horizontal or upright. 3 h.p. up. Easy to handle and keep in order. Least fuel and most power for the money. Send stamp for "Book on Engines."
JAMES LEFFEL & CO., Box 50, Springfield, O.



"Engineers' Bargains," our 64-page book, giving net prices on every article an engineer needs, will be sent to all who write for it. Our goods are all of best quality, and our prices are very low. Besides, we ship from either Chicago or Detroit, as may be nearest our customer. Our book will surely interest you; write for it. DETROIT ENGINEER SUPPLY CO., Detroit, Mich.

ON THE MARKET TEN YEARS.

The Acme Engine



Still LEADS
1 TO 6 Horse Power.
For all Dairy and Farm work, or general use. No skilled engineer. No extra insurance on account of oil fire. Adapted to kerosene oil, wood or coal, as ordered. For catalogue apply to **Rochester Machine Tool Works**
No. 9 Center St., Rochester, New York.

REDUCE YOUR COAL BILL

BY USING
The No Scale Company's
High Grade Boiler Compound.
Trial orders solicited. No charge unless satisfactory. Write us. **M. D. Watson, Gen'l Agt. 551 Marquette Building, Chicago.**

Water in the Stable a Necessity.

It is now regarded as a necessity that stock in the stable should have constant access to water of suitable temperature. The dairyman who today turns out his cows to drink, is as far behind the age as the farmer who cuts his grass with a scythe, or rakes it up with a hand rake. Write for descriptive catalogue of the best known and best System of watering Devices for Cattle in Stables to
C. E. BUCKLEY & CO., Poughkeepsie, N. Y.



Absolutely perfect. Soon pays the cost. Cheapest because best.
Water always fresh. No disease where used. Send for catalogue.



CHACE'S Watering Device

The most perfect watering device on the market. It is fitted with a brass bushing that screws through the bottom of basin and forms a valve seat for the ball valve. The ball valve is the most practical of any now in use; it has been adopted by manufacturers of injectors for steam boilers, and many devices where a perfect working valve is necessary. Send for circular and price.
F. H. CHACE, Sherman, N. Y.

The Loomis "CLIPPER" Well Drill

The standard well drilling machine of America. Strongest, fastest, easiest to handle, and will **make the owner more money** than any other well drill. For full particulars address
LOOMIS & NYMAN, TIFFIN, OHIO.



GRINDSTONE
COMPLETE WITH FRAME
$1.90 EACH.

Upon receipt of $1.90 we will forward, properly packed, one celebrated **BUENA VISTA GRINDSTONE** and **FRAME** complete, which we warrant to be **Absolutely Unexcelled** as to quality, finish and durability. This celebrated stone is the highest quality on the market and will be found excellent for any grade of work. We use **nothing but first grade stones.** They weigh from 40 to 50 pounds. In order to save on the freight charge, we will ship knocked down. It is simply constructed and can be readily put together.

We carry all kinds of grind stones. Write for free catalogue No. 20 on merchandise bought at Sheriffs' and Receivers' Sales. ***OUR PRICES ARE ONE-HALF OF OTHERS.***
CHICAGO HOUSE WRECKING CO.
West 35th & Iron Sts., CHICAGO.

BUFF JERSEY, of Cedar Hill Jersey Farm, at Monmouth, Ill., can now fill all orders for breeding stock from his **Barred Plymouth Rock** and Single Comb **Brown Leghorn Eggs,** $1 per setting and $5 per 100.

---

350 Choice Brown and White Leghorn Young Hens For Sale at $1.50 each in lots of 25 or more. Bred from our prize winners in 4 states. Also **100 S. C. White Leghorn Cockerels** $2.50 each—good ones.
DELLHURST FARMS, Mentor, Ohio.



310 First Premiums
Awarded to the **PRAIRIE STATE INCUBATOR.** Guaranteed to operate in any climate. Send for catalogue.
PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

The IMPROVED
VICTOR Incubator
hatches all the fertile eggs; is simple, durable and easily operated; 168 page catalogue containing information and testimonials. Sent free. GEO. ERTEL CO., QUINCY, ILL.



SHOEMAKER'S BOOK on POULTRY



and Almanac for 1900, two colors, 160 pages, 110 illustrations of Fowls, Incubators, Brooders, Poultry Houses, etc. How to raise Chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about **Incubators, Brooders** and thoroughbred Fowls, with lowest prices. Price only 15 cents.
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SURE HATCH INCUBATOR.



True to its name. It is made to hatch and does hatch. No excess heating in center of egg chamber. Entirely automatic. Hundreds in use. **Common Sense Brooders** are perfect. Let us make you prices laid down at your station. Our Catalogue is chock full of practical Poultry information. It is **FREE.** Send for it now.
SURE HATCH INCUBATOR COMPANY, Clay Center, Nebr.

IT COST US $4,000 Costs You 15c



We have spent $4,000 on our new book, **"How to Make Money with Poultry and Incubators."** It tells it all. Leading poultry men have written special articles for it. 192 pages, 8x11 in. Illustrated. It's as good as
Cyphers Incubator
—and it's the best. Out hatch any other machine. 16 page circular free. And 15 cts. in stamps for $4.000 book No. 128
Address nearest office. **CYPHERS INCUBATOR CO.**
Chicago, Ill. Wayland, N. Y. Boston, Mass.

Kay's SULKY AND GANG PLOWS
Light Draft, High Lift, Powerful Lifting Spring; Boy can handle it.
SHIPPED IN CRATE (as shown in cut) set up & sharpened ready for use, therefore no mistake possible. Quickly loaded. Spring Clevis eases draft & saves harness. Automatic Lock on rear wheel.



Send for Circular.
David Bradley Mfg. Co., 110 E. Broadway Bradley, Ill.
BRANCH HOUSES: DAVID BRADLEY & CO., Council Bluffs, Iowa. BRADLEY, CLARK & CO., Minneapolis, Minnesota. BRADLEY, ALDERSON & CO., Kansas City, Missouri.

FERRY'S SEEDS

Thousands of gardeners depend on Ferry's Seeds every year and never suffer disappointment. Cheap substitutes bring loss, not paying crops. It pays to pay a little more for FERRY'S SEEDS. Five cents per paper everywhere, and always worth it. **Always the Best.** 1900 Seed Annual free.
D. M. FERRY & CO., DETROIT, MICH.

A Little Seed in a Garden Grew

and it grew. That's the way all
Johnson & Stokes'
SEEDS
do—they grow,—and grow. Failures are eliminated before the seed is sold. All tested at our Floracroft Trial Grounds. Our **1900 Garden and Farm Manual** gives helpful hints on seed selection. It does more—it shows exactly how the vegetables and flowers look when photographed. Send for it to-day. Free to all seed buyers, whether you sow by the yard or by the acre.
JOHNSON & STOKES, 217 & 219 Market St. Philadelphia, Pa.



SEEDS GOOD & CHEAP
BEST in the world or I will refund money. 1c to 4c per pack'ge & lots of **EXTRAS** with every order. You do not have to buy FAKE collections to get Catalogue. Send Yours and Neighbors address for largest and prettiest Seed-Book.
R. H. SHUMWAY, Rockford, Ill.

SEED BILL FREE

To get new customers to test my **Seeds,** I will mail my **1900 Catalogue,** best I have ever issued, and filled with more bargains than ever and a **10c Due Bill** good for **10c worth of Seeds** for trial, absolutely free.

ALL MY CUSTOMERS HAVE GOOD LUCK
SEED Due Bill FREE!

Over 20 varieties shown in colors. **$1100 in cash premiums offered.** Don't give your order until you see this new catalogue 10 new vegetables for 20c. 15 flowers and 52 bulbs. 30c. Potatoes, $2.00 and up a barrel. Seed grain, 40c and up per bu.
All the best Seeds, Bulbs, Plants, Roses, Farm Seeds, Potatoes, &c., **at the lowest prices. NINE GREAT NOVELTIES** offered without names. I will pay **$50 For a Name For Each.** Many other novelties offered, including **Ginseng,** the great money making plant. **You'll be surprised** at my bargain offers. Send your name on a postal for catalogue today. **It is FREE to all.** Tell your friends to send too.
P. B. MILLS, Box 111, Roschill, Onondaga Co., N. Y.

POTASH gives *color, flavor* and *firmness* to all fruits. **No good fruit can be raised without Potash.**

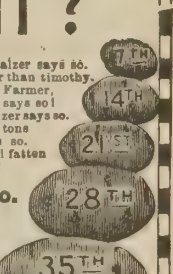
Fertilizers containing at least 8 to 10% of Potash will give best results on all fruits. Write for our pamphlets, which ought to be in every farmer's library. They are sent free.

GERMAN KALI WORKS,
93 Nassau St., New York.

SPELTZ—WHAT IS IT?



It's positively the greatest cereal and straw food on earth. Salzer says so. Yields 80 bus. richer grain than corn and 4 tons straw hay, better than timothy.
Big Four Oats—Sworn yield 250 bus. and you, Mr. Farmer, can beat that! It's the best oats on earth. Salzer says so!
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Vegetables—Largest growers. Onion seed only 80c. a lb.
35 Pkgs. Earliest Vegetables, postpaid, $1.00.
THE MILLION DOLLAR POTATO
Greatest potato wonder on earth; enormously prolific; also **Sunlight,** the earliest potato on earth. Ripe in **85 days.**
For 10c. Stamps and this Notice we send 10 pkgs. Grain, Grass and Forage Farm Seeds worth $10 to get a start, and great seed Catalog, telling you all about above *Rare* Seeds also over 50 kinds clovers and grasses. Teosinte, Spurry, Millet, Velvet and Cow beans, tools, etc. F194



JOHN A. SALZER SEED CO. LACROSSE, WIS

IT HOLDS UP YOUR HAT



Don't you remember how your father used to test his grass and grain in this way? When it held up the hat it was always regarded as being a satisfactory and profitable "stand."

...THIS...

BROME GRASS

Surpasses Timothy in nutrition. Outyields Alfalfa. Yields four to five tons per acre. One sowing lasts 12 years. Grows well in light soil, or wet swampy land. Has no equal for arid regions. Drouth will not kill it. Animals enjoy it green or dry. Gives as much food in one month as Alfalfa does in three. Greatest boon ever offered as it thrives in any climate, under any conditions and makes productive what would otherwise be waste land. It is doubtful if the supply of seed this year will meet the demand, so great is the call already from States where hay is the essential crop. Price: Grade A—1 lb., 30c; 3 lbs., 85c, prepaid. 18 lbs. (enough for one acre) $3.60; 100 lbs., $18.00. Send for mammoth descriptive catalogue with treatise on cultivation and comparative food values of Brome Grass and Timothy. Address, **L. L. MAY & CO., Seed Growers, ST. PAUL, MINN.**



Protection
FOR PLANTERS

Seed is the planter's ammunition, and good seed is just as important to the man behind the plow as good ammunition is to the "man behind the gun."

Out 1900 Catalogue of
EVERYTHING FOR THE GARDEN
is a 190-page book, 9x11 inches, containing over 700 engravings and 6 superb colored plates of Seeds and Plants—a perfect mine of information on garden topics. To give our Catalogue the largest possible distribution, we make the following liberal offer:

EVERY EMPTY ENVELOPE
Counts as Cash.

To every one who will state where this advertisement was seen, and who encloses us **10 cents** (in stamps), we will mail the Catalogue, and also send, **free of charge,** our famous **50-cent "Harvest" Collection** of seeds, containing one packet each of New Large-flowering Sweet Peas, New Giant Pansy, New Giant Comet Asters, White Plume Celery, French Breakfast Radish and New Freedom Tomato, in a **red envelope,** which when emptied and returned will be **accepted as a 25-cent cash payment** on any order of goods selected from Catalogue to the amount of $1.00 and upward.

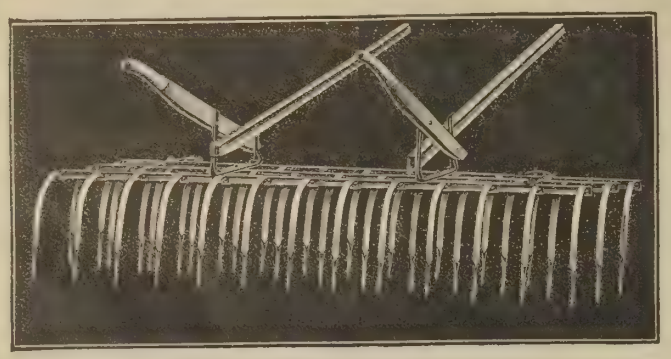
PETER HENDERSON & CO.,
35 AND 37 CORTLANDT ST., NEW YORK.

Hallock's Success Anti-Clog Weeder

More than 40,000 of our Weeders now in use. Does this mean anything? We expect our sales in the year 1900 alone to crowd these figures. Why? Listen, please:—Material used in manufacture of implements has advanced fully 100 per cent. Your dealer will ask you largely advanced prices for all implements. If you doubt this, call on him.

TAKE NOTICE---Hallock's Success Weeder will be sold at the same old prices—not one cent advance.

More than 7,000,000 farmers in the United States, every one of which will own a Weeder in the next few years. Practically every one of them would buy in the year 1900 if they knew as much about the value of our Weeder as the 40,000 who now own one. We have decided that we may just as well have practically all of the "Weeder trade." To secure it, we have decided on prices that are bound to bring it. Just write and see if you do not think so.



We Sound a Note of Warning

Under U. S. patent No. 600,782, issued on March 15, 1898, we have the exclusive right to make a Weeder having teeth substantially round at lower end and a flat spring-yielding upper portion. This style of tooth gives our Weeder great superiority over all round tooth weeders and has caused it to become immensely popular. Farmers demanded of their dealers a weeder having such teeth, and the dealer in turn demanded them of the manufacturer. This led different manufacturers to assume the risk of using a similar tooth. Therefore, we hereby notify manufacturers, dealers and farmers that we have already brought suit against several and will promptly and vigorously prosecute all similar offenders.

Let us repeat:—It is an absolute fact that the price of all implements has advanced from 25 per cent to 50 per cent., but Hallock's celebrated Success Weeder will be sold at the old prices. Trade always follows where our Weeder is introduced, therefore, to get this trade, we will quote **Special Price** to first purchaser. Remember, we are the Weeder people and we have the price that sells.

D. Y. HALLOCK & SONS, Box 812, York, Pa.



"OHIO" SELF FEED ENSILAGE CUTTER

Cuts 33⅓ % more than regular machine.

Saves 75% in time.

Positively feeds itself. No pushing to get feed started, and feeds evenly saving power. New wide throat—wide as knives are long. New large hood—gives increased space for cut feed, avoids re-cutting, binding, choking, &c. The cut shows

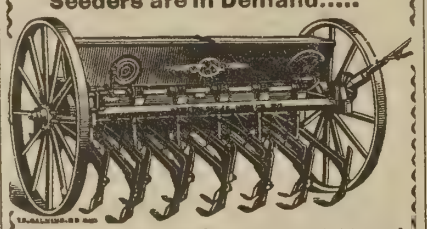
NEW METAL STRIP SWIVEL CARRIER.

Has 2 inch steel strips—carries more feed and easier. Works at any angle—any length. Without extra section at bottom. 1899 catalogue **FREE.** Prof. Woll's "A Book on Silage" 10c.

THE SILVER M'F'G CO., Salem, Ohio.

THE BADGER

Is Known Wherever the Best Seeders are in Demand.....



As a proof of its durability we can point to seeders **sold 21 years ago still doing good work.** It has an effective spring hoe which automatically adjusts itself to rough and uneven ground, a continuous steel frame, steel drag bars and every practical improvement essential to **ease of operation, strength, durability and effective working qualities.**

APPLETON MANFG. CO.,
35 Fargo St. BATAVIA, ILL.

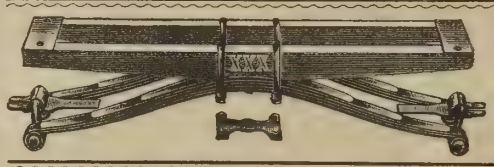
The Kind that CUT and LAST.

DORSCH DOUBLE LEVER ALL STEEL DISC HARROW



This harrow has stood the most rigid and exacting service under all conditions, in all kinds of soil and for all crops. It remains as it has been from the first, a prime favorite. Every part is made of steel and iron, except pole. Adjustable pole for 2, 3, or 4 horses. Double levers, makes easiest and most perfect adjustment. Iron friction rings prevent wear on boxes. Various sizes, 12 to 16 discs. 16 or 20 inch discs as ordered. Practical use proves them the **simplest, strongest, lightest draft** and to do **the best work.** Send for large general catalogue fully illustrated, with prices in plain figures.

JOHN DORSCH & SONS, 228 WELLS ST., MILWAUKEE, WIS.



BOLSTER SPRING.

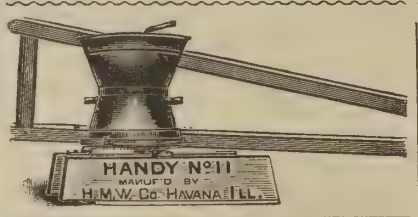
For prices and discounts, address, mentioning this paper,

BELLE CITY BOLSTER SPRING CO.,
1100 15th St.,
RACINE, WIS.



NO USELESS GEARS

in this mill to absorb and waste power. It is a simple, direct grinder, of large capacity and requires small power. The **ELECTRIC FEED MILL** cuts, crushes and grinds ear corn and all small grain, converting the whole into fine or coarse feed, according to adjustment. Meets the demand for a good mill at a fair price. Circulars free. Electric Wheel Co., Box 136, Quincy, Ill.



THE ONLY LOW-DOWN

Short Turn, Straight Bottom, Short Coupled, Light Draft Wagon on the Market.

20 INCHES from ground bottom of body. Will turn as short as any cut under reach wagon. Strong construction, nicely finished. Send for Catalogue, prices and terms. Wagons for carrying Bottled Milk a specialty.



SHIPMAN, BRADT & CO.,
Sole Manufacturers,
De Kalb, Ill.

BOWSHER FEED MILLS

(Sold with or without elevator.)



CRUSH ear corn (with or without shucks) and **GRIND** any kind of small grain at **same time,** mixing in any proportion desired. Conical Shape Grinders.

Lightest Running

Handy to operate. 7 Sizes—3 to 25 h.p. One size for windwheel use. (Also Make SWEEP FEED GRINDERS)

S. P. D. Bowsher Co., So. Bend, Ind.

Power for the FARM

Must be first class if it is to operate **Feed Cutters, Grinding Mills, Wood Saws,** or **pump water** successfully. We manufacture **Engines—2, 4 & 6** horse power. **Tread Powers** for **1, 2** or **3** horses. **Sweep** or **Lever Powers** for **1** to **8** horses. Every machine fully warranted to generate *maximum power* at minimum of force exerted. Catalogue showing *Smalley Line complete* mailed free if you name this paper.

SMALLEY MFG. CO., Sole Makers, Manitowoc, Wis.



Dont Take Any Chances

on an inferior vehicle or harness. Your life and that of your family depends upon their quality and reliability. You can't tell very much about the quality of a vehicle by simply looking at it. The paint and varnish effectually hides the quality of material. Vehicles must be bought largely on faith—faith in the honesty of the manufacturer.

WE HAVE NO AGENTS

but have been selling vehicles and harness direct to consumers for twenty-seven years. **In fact we are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** These facts speak volumes for the quality of our goods and our method of doing business. You take no chances; we ship our vehicles and harness anywhere for examination and guarantee everything. **Send for our large Illustrated Catalogue before buying. IT'S FREE.**



No. 606—Canopy-Top Surrey, with side curtains, fenders, lamps, storm apron, sun shade and pole or shafts. Price, $63. As good as sells for $35 more.

No. 75—Single collar and hame harness, with nickel trimmings. Price, $14. Good as usually sells for $20.

ELKHART CARRIAGE & HARNESS MANUFACTURING CO., Elkhart, Indiana.

"Appleton goods take the lead, and your steel link tread, all told, has no rival."—MANLEY BROS. & STONE, Harvard, Ill.

Hundreds of Similar Testimonials prove that our

"SUCCESS" TREAD POWERS

are properly named. We make **1, 2** and **3** horse tread powers, mounted or level tags as desired, down or mounted. The



ONE-HORSE "SUCCESS"

is the best power made for driving cream separators, and all machinery requiring light power, but absolutely steady motion. More power can be obtained from the **"SUCCESS" Tread Powers** size for size than any others because they run light, are roomy and strong enough for largest horses, best governed, etc. More about them and our **sweep powers, shellers, fodder and ensilage cutters or shredders, huskers, grinders, wood saws, wind mills, steel tanks, etc.,** in our 160 page illustrated catalogue. **FREE.**

APPLETON MFG. CO., 35 Fargo St., BATAVIA, ILL.



DISC HARROW

12-16, **$18.25,** made under the celebrated Budlong-Ladow patents. All boxes guaranteed against wear for two years; also Disc Seeder $32, Disc Drill $39, 2 styles, 6 sizes. We make the only Disc **throwing earth all one way.** From factory to farm; no middlemen; save ⅓ to ½. Send for big cat. free, and price delivered at your station on buggies, harness, scales, 1000 other things you want. Address

Hapgood Plow Co., Box 570, Alton, Ill.

Only plow factory in the United States selling direct to the consumer.



YOU SEND No Money

Until Goods Arrive! Disc Harrows, Lever Harrows, 11-foot Seeders, Cultivators, Wagons. Write for delivery prices and Catalogue.

EMPIRE MFG. CO.,
60 RIVER STREET. STERLING, ILL.



YOU going to buy a **HARROW** Want **Best** for least **Cash** **WE** make that kind. **PAY FREIGHT.** Cat. free. Write for price.

I NO YOU G. H. FOUNDER No. 3 Ft. Atkinson, Wis.

GALVANIZED STEEL
GUARANTEED
NOT TO BURST

OKAY TANKS

ALL WE ASK is, that you send for our Free Catalogue before you buy a Tank of any kind. C. E. BANTA MFG. CO., Dept. 874 E, Chicago

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THE KING OF ALL FARM TRUCKS.

WHEELS OF STEEL OR WOOD.



Low-Down, Broad-Tire

Farm Trucks originated with us, and we still sell direct to farmers three fourths of all that are used.

Stakes pull out, and 7x16 ft. flat platform, only 32 in. from the ground, fits on the bolsters. Front wheels turn under load. Circulars free.

We also make steel wheels for our trucks, or for your old Farm Wagons.

FARMER'S HANDY WAGON CO., Saginaw, Mich.

HOARD'S DAIRYMAN.

Devoted to Dairying and Dairy Stock Interests.

VOLUME XXX. FORT ATKINSON, WIS., FEBRUARY 9, 1900. NUMBER 52

University of Ill

If You Have CREAMERY BUTTER to sell, write
J. E. KEITH & CO., 2-6 S. Clark, Cor. S. Water St., CHICAGO, ILL.
REFERENCES:— Members of the Nat. League of Com. Merchants.
Ex-Gov. W. D. Hoard, Fort Atkinson, Wis. Metropolitan National Bank, Chicago. W. M. Hoyt Co., Chicago.

W. I. Young & Co., Wholesale Dealers in Fine **Butter, Cheese and Eggs.**
Liberal Advances Made on Consignments.
Refer by permission to Irving National Bank, N. Y. 149 Reade Street, NEW YORK.

FRED BISCHOFF, COMMISSION MERCHANT... And Wholesale Dealer in Fancy **Creamery Butter and Cheese.**
REFERENCES:—N. Y. National Exchange Bank; Bradstreet; R. G. Dun & Co.; Mercantile Agencies.
151 Reade Street, NEW YORK.

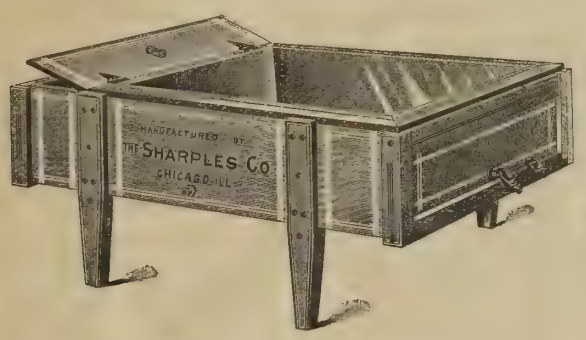
1c a Pound WILL BE ADDED TO THE **Value of Butter** by the use of our Cultures at this season.
O. DOUGLASS BUTTER CULTURE CO., 81 Austin Street, CHARLESTOWN, MASS.

CHR. HANSEN'S Columbian Butter Color
100 FIRST CLASS PRIZES
Guaranteed the Purest, Cheapest and Best in the Market.
Write for one gallon can. You won't regret it. Manufacturers of LACTIC FERMENT, RENNET EXTRACT, CHEESE COLOR, RENNET TABLETS, Etc., Etc. Manufactured by
CHR. HANSEN'S LABORATORY, Little Falls, N. Y.
General Sales Agents, D. H. BURRELL & CO., Little Falls, N. Y.

HOUSE **SAVOGRAN** FOR CLEAN CLEANING **INDIA ALKALI WORKS,-BOSTON.**
Medals—Bronze 1878, Silver, 1887, World's Fair, 1893.

The Kind That Keeps New.

LOOK THE BEST



WEAR THE BEST

It's a nice thing to have a new creamery outfit. Everything looks spink and span,—there are no leaks in the vats, the machinery works nicely, and it's easier work running the creamery, also the butter is of better quality. If everything about the creamery or dairy would only "keep new" it would be fine. You think that is an impossibility, but perhaps it's not. If you buy a first water diamond ring it will be worth as much in twenty-five years as it is now, but if it is only a glass ring, while it may look almost as well on the start, the facets will soon get dull and the ring will be worthless.

We are making some first water Creamery Vats and Outfits—The Kind that Keeps New. They cost us a little more to manufacture, for there is better material and workmanship to pay for. However, the cost is but little more, as we save through buying material and manufacturing in large quantities and with superior organization. But it's worth double to have vats and machinery that "keep new" double as long, so we claim to be and are, by far the cheapest furnishers in the business, quality considered.

A Sharples "A" grade vat is made of fine, hard, durable, handsome, cypress selected for the purpose. It is lined with heavy imported tin sheets of the best quality and large size to avoid seams. The lining is carefully braced to prevent bulging from water pressure underneath or any undue strain. They are finished with the best $5.co per gallon varnish (the kind that will "keep new") and show the natural grain of the wood. There is no chance to cover up knot holes or defective lumber, so only the finest grade can be used. The vats look worth double the money when they *are new* and they "keep new" twice as long but they cost very little if any more than the regular vats sold by others.

We take the same care with our other goods that we do with our vats and all the goods we turn out are recognized by those who know as being the best that money can buy. We wish to mention a few of our specialties that are

NOT CONTROLLED BY THE TRUST.

The Sharples TUBULAR Separator.
The "Squeezer" Combined Churn.
The Russian Babcock Tester.
The Price Milk Heater.
The Sharples Dairy Separator.
The "All Over" Butter Printer.
The Standard Babcock Tester.
The Improved Haney Cream Carrier.

THE SHARPLES CO.,
28, 30 and 32 So. Canal St., Chicago, Illinois.
Factories at West Chester, Pa., and Dubuque, Iowa.

WHY YOU SHOULD USE A

Sharples Tubular Separator



BECAUSE it will enable you to secure more profit from the same amount of milk than you can possibly secure in any other way—and profit is what you want.

The Sharples Tubular Separator does this because it produces a finer quality of smooth, velvety, commercial cream, of greater churnability than any other separator, and of any desired consistency, regulated in a moment by the turn of a screw. For proof, ask any user of a Sharples Tubular Separator.

The Sharples Tubular will produce more butter from a given quantity of milk, other things being equal, than any other separator made. We are willing to guarantee this, and in case of failure the machine comes back.

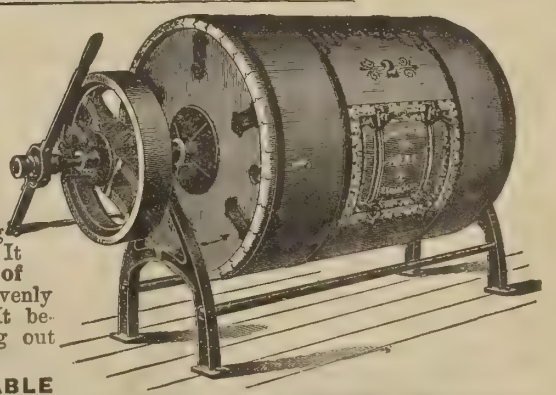
The Sharples Tubular is **simple, safe, durable and convenient,** not standing out strong in one particular alone, but superior in each particular as you take them up one by one. You will agree with us as to its simplicity as soon as you see it. As to safety, 20,000 Sharples Separators are in use—without a single accident is the record, unequalled by any other separator. For durability, we point to the fact that the first Tubular ever sold is running to-day, without having cost a cent for repairs. For convenience in handling and washing: The bowl of the largest machine complete weighs less than 30 lbs. and has but three pieces. For further important points

Send for Catalogue No. 46.

The Sharples Co., Canal & Washington Sts., CHICAGO, ILL.
P. M. SHARPLES, West Chester, Pa., U. S. A.
D. DERBYSHIRE & Co., Brockville, Ont.

It Does Not Destroy the Grain.

THE **SQUEEZER** COMBINED CHURN **AND WORKER**



will do exhaustive churning at any desired temperature. It **makes a superior quality of butter,** distributes the salt evenly and **prevents mottles.** It belongs in every dairy turning out high grade work.

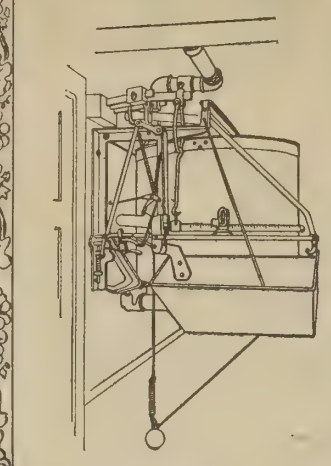
IT IS SIMPLE, DURABLE AND EASILY WASHED.

Made in a series of Desirable sizes.

We are prepared to repair all cream separators and employ highly skilled men for this work. Send at once for our Catalogue, No. 82.

Address, ELGIN MANUFACTURING CO., ELGIN, ILLS.

SEEDS THE ALBERT DICKINSON CO.
DEALERS IN
GRASS SEEDS, CLOVERS, FLAX SEED, LAWN GRASS, BEANS, PEAS, POP CORN, BIRD SEEDS, BUCKWHEAT, BAGS, ETC.
OFFICES, WEST TAYLOR ST., AND THE RIVER, CHICAGO



Skim Milk

. . . IS VALUABLE if received Clean and Sweet direct from the Separator.

YOU ARE ENTITLED TO YOUR EXACT PROPORTION.

Your experience teaches you that you are not apt to get it if several others have had a free show at the skim milk tank before you get there.

Our IDEAL Skim Milk Weigher

Furnishes an automatic and accurate distribution. Now is the time to begin the agitation which will result in your creamery putting in one of these machines for next season. Further information on application.

Alpha De Laval Separators Ideal Turbine Testers, Disbrow Churns, Elgin Style White Ash Tubs, Ideal Corrosive Sublimate Tablets, Parchment Paper, Australian Boxes, Refrigerating Machinery, Boilers and Engines, American and Lusted Printers, Genesee Salt, Potts Pasteurizer, Etc., Etc.

Creamery Package Mfg. Co.,

1, 3 & 5 W. Washington St. — **Chicago, Ill.**

BRANCH HOUSES: Minneapolis, Minn. Kansas City, Mo. Waterloo, Ia. Omaha, Neb.

We are General Agents for Hansen's and W. & R. Butter Color.

PRINTED PARCHMENT

BUTTER WRAPPERS

Are an established factor in the CREAMERY BUSINESS to-day. Protect your special brands of butter by having your Wrappers Printed.

A. G. ELLIOT & CO. are Headquarters for these Printed Wrappers and can furnish same at prices that will interest you. Our STANDARD weight Butter Wrappers are acknowledged to be the best Butter Wrappers on the market to-day. A sample order will convince you.

A. G. ELLIOT & CO.,

Manufacturers, Importers and Dealers in Paper of Every Description. — **Philadelphia, Pa.**

GENESEE

Known by **ALL** as

The WORLD'S BEST Dairy Salt.

Used by the LARGEST Creameries.
WHY? Write and ask.

F. A. TRIPP, CHICAGO, ILL.

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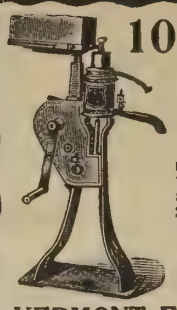
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is used by nearly all successful dairymen, and has become a necessary article for any dairyman farmer who wishes to keep pace with the successful men in his line of business.

Gluten Feed increases the flow of milk, improves the quality, keeps the cattle in the best possible condition—in fact, helps you make more money out of your dairy. This is not cheap talk. We mean business. Gluten Feed is all and more than we claim for it, and, best of all, a trial proves it. Sample of Gluten Feed, Milk Talk Pamphlet, and circular illustrating the "Value of Butter Fat in Milk," all FREE if you address

THE GLUCOSE SUGAR REFINING CO.,

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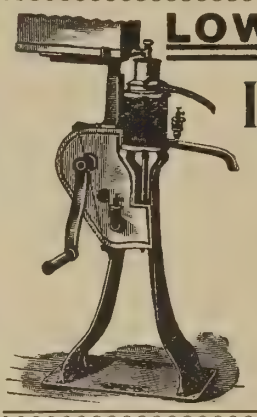
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A Complete Line of Dairy and Creamery Apparatus.
Write for our latest illustrated catalogues,—Free.

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Improved UNITED STATES Cream Separators.

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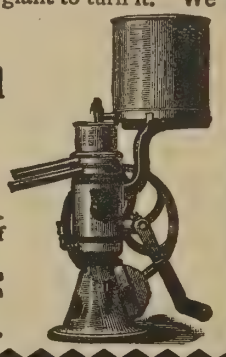
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to be profitable must not only extract every particle of butter-fat from the milk, but must run so easily that it does not require the strength of a giant to turn it. We guarantee the

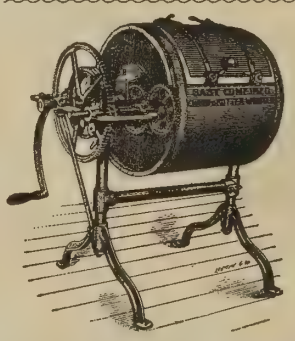
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to run 50 per cent. easier than others of equal capacity. Their record for clean skimming is unequalled. We have the most complete line of hand separators in America; also power machines.

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(NOT THE CHEAP KIND.)

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Hoard's Dairyman.

A Weekly Journal Especially Devoted to Dairy and Stock Interests, being the Official Organ of the Wisconsin Dairymen's Association.

W. D. HOARD COMPANY, Publishers.

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ADVERTISING RATES.

Twenty-five cents per line, (agate measure) 14 lines per inch, each insertion.

Reading notices, 50 cents per line (nonpariel measure) each insertion.

NO PARDON.

Since the fine and imprisonment of Joseph Wilkins and Howard Butler for violation of the national oleo laws, a strong and determined effort has been made by the oleo interests to have them pardoned. All efforts of the kind have failed, and they will have to serve out their sentence. The opinion of Attorney-General Griggs places the men where they belong—among the common herd of law breakers. Mr. Griggs says:

"It is obvious that the business in which Wilkins was engaged must have been one of great profit, otherwise he could not have afforded to make the very large payments in compromise which he did make or offered to make. That he was aware of the fraudulent and dishonorable nature of the business in which he was persistently engaged, appears from his own statement, made in a letter addressed to the Commissioner of Internal Revenue, Oct. 31, 1893. It is absolutely clear that for such a persistent violator of the law something more than a money penalty was essential. The sentence of imprisonment imposed in this case was peremptorily required by the circumstances. Nor can I say that the sentence was anything but moderate. I do not think that the sentences should be interfered with."

DOES IT PAY TO FEED BRAN AT $15 A TON?

This is a very pertinent question, and while some men of clear, quick judgment will answer in the affirmative, others will not and we believe they are in a great majority. The difficulty lies in the fact that there are so many farmers keeping cows, in whose mind one feed is just about the same as another.

But few have got the idea down hard in their heads that a cow must have about so much protein every day, if she is going to give milk profitably. So they will feed oats and corn to excess and refuse to sell the oats and buy bran, when if they knew it they would make a good profit on the transaction.

W. J. Kennedy, of the University of Illinois, has been trying to solve the question in his own mind, and he writes the *Orange Judd Farmer* about his experience as follows:

"Does it pay to feed bran at $15 per ton? This question is one of the many problems that the dairy farmer has to solve at this season of the year. It was the one that I had to solve a few weeks ago when formulating our winter ration for the university dairy herd. It had occurred to me that $15 a ton was a very high price for bran, but I knew that we must supply the cow with a certain amount of digestible protein (2.5 lbs.) in her ration, in order to obtain good results at the milk pail, and that was our main object in feeding bran.

"Now in formulating a ration for the dairy cow, the greatest difficulty is to obtain a sufficient amount of digestible protein. The other ingredients are usually present in excess, but the protein is deficient. Thus in making a comparative estimate of the values of the different foods for dairy cattle, we figure on the protein content of the various foods. For illustration we say that two foods having the same amount of digestible protein are of equal value for feeding dairy cattle, but this statement sometimes needs a little modification, as some foods are much more palatable than others, consequently they are more valuable.

"I found that bran at $15 per ton furnished digestible protein at 6 cents per pound; also that when bran is $15 per ton, other foods are worth for feeding dairy cows as follows: Oats, 18½c per bushel; clover hay, $7.50 per ton; corn stover, $2 per ton; corn fodder, $3 per ton; corn silage, $1.08 per ton; gluten meal, $30.96 per ton; oil meal, $33.60 per ton. On further investigation of the different foods I decided to feed gluten meal instead of bran. We can purchase our gluten meal for less than $20 per ton, delivered at our railroad station. By feeding gluten meal we are getting our digestible protein for less than 4 cents per pound, thus reducing the cost of our ration considerably. Formerly we fed 6 pounds of bran along with other grain feed to our cows, but in making the change we substituted 3 pounds of gluten meal for the 6 pounds of bran, as one pound of gluten meal contains as much protein as two pounds of bran.

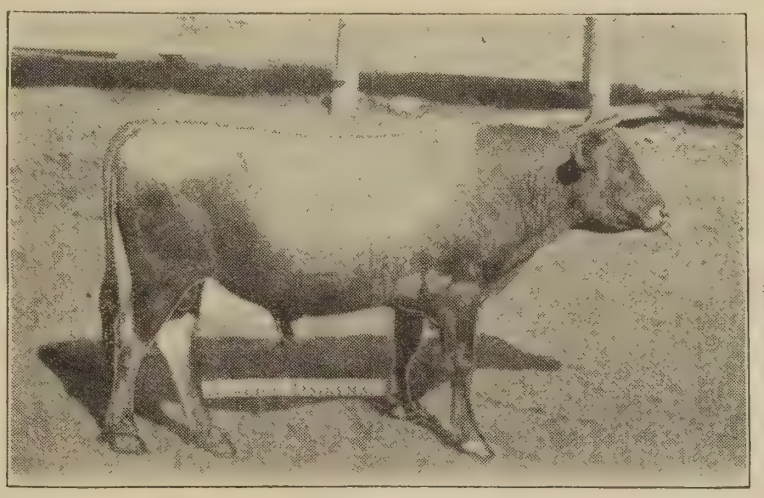
"Since feeding the gluten meal, our cows have not only held their own, as we hoped they would, but have increased their flow of milk from 1 to 3 pounds per cow. Thus we consider ourselves justified in making the statement that the gluten meal is a very much cheaper source from which to obtain protein than bran at the present prices of both feed stuffs."

Dairying in South Dakota.

The Record of a Profitable Herd.

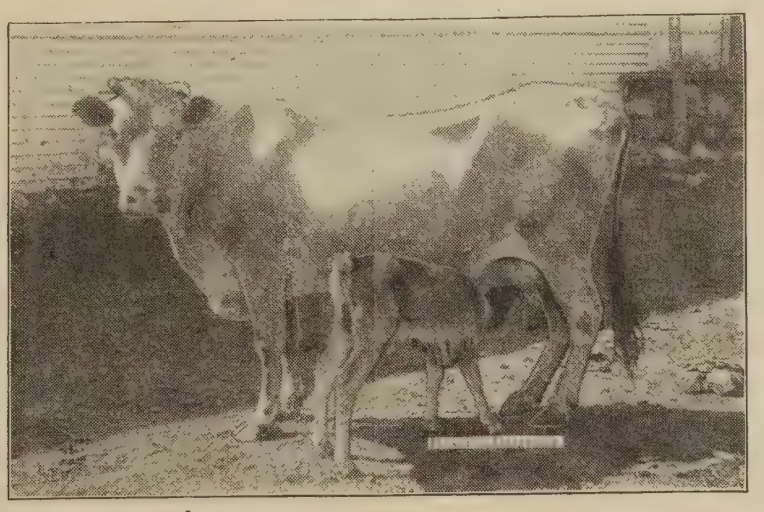
ED. HOARD'S DAIRYMAN:—In 1898 our 16 cows averaged 6,000 lbs. of milk, which yielded 301 lbs. 5 ounces of butter. This, with stock sold and pork raised on skim milk, brought us in a net income per cow of $62.50, after deducting our expenses for feed. We thought we had done very well, but were determined to try and do better in 1899. We started in by culling out some of our poorer and oldest cows, and added three cows by purchase and four heifers of our own raising, we still just keeping the number up to 16 cows. We use a registered Short-horn bull, or in other words we believe the dual-purpose cow the best for the South Dakota farmer.

To do justice to our herd we should only figure the milk from 14 cows, as in making the change we were at times milking not more than twelve.



JERSEY BULL, CHROMO 3rd, OF HOOD FARM.

Property of H. O. WALKER, Merrimac, Mass.



A DAIRY GRADE COW.

Property of H. O. WALKER, Merrimac, Mass.

We make a rule not to keep a cow that will not yield at least 40 lbs. of 4% milk a day, when fresh. We feed a balanced ration. When I figured up the results at 14 cows, it almost took my breath away. I thought, what will the reader say that has cows that only give 125 lbs. of butter a year; the man that has not the courage to feed intelligently and liberally? So I figure in the 16 cows from the fact that my milk yield for the first 15 days in this month exceeded the same time last year by over 2,000 lbs. I consider I have a much better business herd than one year ago. So, as I have the same number, 40 head in all, including the young stock, and as they invoice about the same, I will give the cows credit for all cash received and charge them with all expenses, except labor.

I find dairy farming very profitable in South Dakota. All kinds of feed are cheap and nutritious. The climate is healthy and there is something invigorating in the air, to man and beast. Land is cheap, and feed in abundance. Here at De Smet we have the largest creamery in the state, paying out over $3,000 each month for milk to the farmers, and there are, altogether, ten creameries in full operation in this, Kingsbury County.

Hay from native grasses can be put in stack at 75 cents per ton, and there are millions of tons go to waste every year. One remarkable thing about our grass is that it cures in the fall standing, and is good, nutritious feed all winter for young stock. We are having a very mild winter here; up to date only four inches of snow has fallen. But I am getting away from man's best friend, the cow.

My total milk yield was 101,477 lbs., which yielded 5077 lbs. butter, our average test being 4.35. This milk brought at creamery, $735.54; or 6,342 lbs. of milk and 317 lbs. 5 ounces butter, making $45.97 for each cow, at a total cost for feed of 4¾ cents per pound for butter.

Besides the calves, we raised on skim milk $76.00 worth of pork, and have sold in cows and young stock $755.00; this makes the gross receipts $1,566.54, or $97.90 for each cow. Now, we have paid out $103.00 for cows and $240.00 for feed, leaving the net balance, after deducting all expenses but labor, $1223.54, or $76.47 for each cow.

Our winter feed is one bundle of oats and 5 lbs. bran, and 5 lbs. shorts, and all the good prairie hay they will eat, to each cow per day. The scales and lead pencil are frequently used in our stable. This, with liberal, intelligent feeding, kindness and regular attention to the cows, makes dairy farming very pleasant and profitable in the "Cream County of South Dakota."

I want to confess that HOARD'S DAIRYMAN should get credit for my success.

JOHN ARMSTRONG.

De Smet, So. Dak.

Samples From Massachusetts.

ED. HOARD'S DAIRYMAN:—Enclosed I send for your inspection a snap shot of my bull, Chromo 3rd of Hood Farm, also of a rather remarkable old cow. You ought to give the bull a good look over, for HOARD'S DAIRYMAN is responsible for my paying a good round sum for him. The picture is hardly a fair representation of him, as the kodak man was afraid of him and took him through a window several feet above him. One would judge him to be light in color, with one white leg, whereas he is of a rich dark color throughout. We call him a fine looking chap for a two-year-old.

The cow has given me five heifers, three of them in milk; the oldest two holding a first record, one of over 5,000, and the other one 6,000 pounds, while the third one finished her first year a few days since with a record of 7,380 lbs. of milk. All test five per cent or over. It is needless to say that the day-old baby by her side has not made a record yet.

H. O. WALKER.

Merrimac, Mass.

Scales For Weighing Milk.

I wish to purchase scales suitable for weighing the milk of each cow at time of milking. How should a scale be graduated to make it most convenient?

Could you or some of the DAIRYMAN readers tell me where I could get a first-class scale for this purpose? I see none advertised in the DAIRYMAN at present. G. W. D.

Deer Lodge, Montana.

A scale for the above purpose should be graduated so as to read pounds and tenths of pounds. Such division of the scale makes calculations much easier than when pounds and ounces are used. Scales so divided can be obtained of Cornish, Curtis & Greene Co., Fort Atkinson, Wis., and the Dairyman's Supply Co., Philadelphia, Pa.

Relative Value of Butter Fat and Butter.

D. C. B., Culbertson, Neb. asks how near the price of butter at Elgin should a creamery in Nebraska pay for fat where the daily receipts of milk are from 2,000 lbs. to 4,000 lbs?

For reply, we respectfully refer him to the figures presented at the Kansas Dairymen's Convention, which are published on page 1,038.

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Coming Events.

Ohio Dairymen's Association, Columbus, Feb. 13-14, 1900.
Wisconsin Dairymen's Association, Watertown, Feb, 13-16, 1900, Geo. W. Burchard, Sec., Fort Atkinson.
Prince Edward Island. Marshfield.
Michigan Dairymen's Association, Detroit.
Creamery Buttermaker's Association, Lincoln, Neb., Feb. 19-23, 1900.

REMEMBER

That this is the best time of the year to induce your neighbors and friends to become readers of HOARD'S DAIRYMAN. Don't fail or forget to say a word to them. We want your help. Bear in mind that the club rate is three subscriptions for $2.00, four subscriptions for $2.50. Get up a club.

THE KANSAS DAIRY MEETING.

The DAIRYMAN is glad that the members of the Kansas Dairymen's Association have not followed the fashion in so many other State Associations, of ignoring the farmer as a milk producer and the foundation of the industry in their topics and discussions.

The late Kansas meeting was characterized by several very practical papers, which took hold of the real gist of the question in a forcible way. Among these was that of Prof. Otis on "Feeding and Developing the Kansas Dairy Cow".

Then, Prof. Cottrell led a "Patron's Class" in a very edifying and instructive manner. Secretary Coburn of the State Board of Agriculture, who is a host in the advancement of dairy knowledge in that state, gave a very interesting description of what he saw in a recent visit to the dairy farm of Geo. H. Ellis, of Newton, Mass.

Just as long as the Kansas Association keeps constantly to the fore, the growth and enlightenment of the man who owns the cows and produces the milk, so long will that association exist, as a living vital force for good in Kansas.

BE HONEST.

A friend in Maine sends us a newspaper clipping which gives an account of a little sharp practice in a creamery in that state. The creamery in question undertook to draw away the patrons of another creamery by offering as an inducement the payment of more money per pound for the butter realized. A patron was caught by the offer and made the change, but he did not notice any increase in his checks. He was a man who had learned to use his pencil, as all farmers should, and so he concluded to send one-half of his cream to one creamery and the balance to the other. He found that the creamery that gave the largest price per pound gave a test of 16 per cent and the other gave 19.

It is needless to say that the patron had no further use for such dishonest practices. The way to keep men honest is to be intelligent and know what you are about.

THE ILLINOIS FARMER ON TUBERCULOSIS.

The dairy farmers of Northern Illinois are organizing in opposition to the action of Governor Tanner and the Illinois State Board of Live Stock Commissioners in the efforts they are making for the further prosecution of tuberculin tests. They will resist these tests until, they say, it is satisfactorily demonstrated that tuberculosis may be transmitted from cattle to the human family by the use of milk.

It would seem as if such demonstration should be made beyond cavil before officials take into their hands such rigorous measures as the Illinois farmers complain of. Herds of cattle have been slaughtered, renters made bankrupt, so it is reported, and great damage done to the milk trade by the doings of the State Veterinarians, acting under the authority of the Governor's proclamation and the Live Stock Commissioners.

While it is just and proper for the farmers to listen with great respect to the conclusions of physicians, physiologists, and bacteriologists, it is right and proper for these latter gentlemen to remember that they have not yet clearly proved their case. And that should be done before they ask any man to sacrifice his property, as is often done.

More than this, the tuberculin test is simply a diagnostic concerning the presence of tuberculous matter in the system of the cow. It acts often with greatest certainty when there is the least amount of such matter in the system, and while it is merely embryonic. To say that such animals taint their milk with the infection of tuberculosis, is going beyond what can be proved, and the farmers have a right to call a halt.

THE BILL THE DAIRYMEN ARE SUPPORTING IN CONGRESS.

The dairy sentiment East, West and South has united in asking of Congress to enact the following bill, which was introduced Dec. 12, 1899, by Mr. Grout of Vermont. This bill embodies the several bills introduced by Mr. Davidson, of Wisconsin. Mr. Tawney, of Minnesota, with the added feature of a provision in the first section for complete control by the states over all substitutes of butter and cheese when imported therein.

The National Dairy Union is asking the friends of pure food every where, consumers as well as producers, to write their Congressmen and Senators in support of the following bill:

A BILL.

To make oleomargarine and other imitation dairy products subject to the laws of the State or Territory into which they are transported, and to change the tax on oleomargarine.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles known as oleomargarine, butterine, imitation butter, or imitation cheese, or any substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure and unadulterated milk or cream, transported into any State or Territory, and remaining therein for use, consumption, sale, or storage therein, shall, upon the arrival within the limits of such State or Territory, be subject to the operation and effect of the laws of such State or Territory, enacted in the exercise of its police powers, to the same extent and in the same manner as though such articles or substances had been produced in such State or Territory, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise: *Provided*, That nothing in this Act shall be construed to permit any State to forbid the manufacture or sale of oleomargarine in a separate and distinct form and in such manner as will advise the consumer of its real character free from coloration or ingredient that causes it to look like butter.

SEC. 2. That after the passage of this Act the tax upon oleomargarine as prescribed in section eight of the Act approved August second, eighteen hundred and eighty-six, and entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," shall be one-fourth of one cent per pound when the same is not colored in imitation of butter; but when colored in imitation of butter the tax to be paid by the manufacturer shall be ten cents per pound, to be levied and collected in accordance with the provisions of said Act.

OLEOMARGARINE SHIPPED.

Statement of Amount Sent into the Several States.

In response to the resolution adopted by the House of Representatives, offered by Congressman Tawney, of Minnesota, calling upon the Secretary of the Treasury for information as to the amount of oleomargarine shipped into the several states during the fiscal year ending June 30, 1899, the following is the answer of Secretary Gage:

AMOUNT BY STATES.

The total amount of oleomargarine shipped during the year was 79,695,744 pounds. Of this amount 816,848 pounds were shipped into the District of Columbia; 1,791,950 pounds distributed in Maryland and 1,159,400 pounds distributed in Virginia.

Illinois is the banner state, 18,638,921 pounds of oleomargarine being distributed. Pennsylvania comes next with 11,433,341 pounds, Ohio 8,830,969 pounds and New Jersey 5,875,975 pounds. New York shows only 222,788 pounds, while West Virginia received 1,206,865 pounds. Other distributions are shown as follows: Indiana, 3,923,228 pounds; Colorado, 1,123,537 pounds; Kansas, 1,658 544 pounds; Kentucky, 1,490,577 pounds; Louisiana, 1,043,502 pounds; Massachusetts, 2,083,889 pounds; Michigan, 2,092,521 pounds; Minnesota, 1,343,865 pounds; Missouri, 3,133,313 pounds; Nebraska, 1,024,985 pounds; Rhode Island, 3,594,984 pounds; Texas, 1,518,264 pounds; West Virginia, 1,206,865 pounds.

Nevada received the smallest amount, 625 pounds, while far-off Alaska got 18,080 pounds; Alabama, 226,053 pounds; Arkansas, 380.389 pounds; Arizona, 78,767 pounds; California, 74,923 pounds; Connecticut, 134,255 pounds; Delaware, 40,475 pounds; Florida, 590,225 pounds; Georgia, 495,004 pounds; Idaho, 58,224 pounds; Indian territory, 152 278 pounds; Iowa, 79,922 pounds; Maine, 102,274 pounds; Mississippi, 104,622 pounds; Montana, 446,022 pounds; New Hampshire, 455,583 pounds; New Mexico, 115,850 pounds; North Carolina, 110,244 pounds; North Dakota, 7,710 pounds; Oklahoma, 117,398 pounds; Oregon, 41,250 pounds; South Carolina, 258,159 pounds; South Dakota, 55,432 pounds; Tennessee, 714,640 pounds; Utah, 8,450 pounds; Vermont, 2,990 pounds; Washington, 63,345 pounds; Wisconsin, 714,742 pounds; Wyoming, 39,547 pounds.

The above showing is a most significant comment in several ways:

1. Thirty-two of the states named have strict laws against the sale of the stuff in imitation of yellow butter. We can now see clearly what a huge conspiracy is formed by this oleo combine to violate and break down all state laws interfering with their trade in making and selling counterfeit butter. It is, in fact, a combination of immense capital to override law and order that they may thrive on unlawful and dishonest gains. It is a conspiracy against the lawful authority of the states, against the farmer and the consumer.

2. It shows conclusively the need of national legislation such as is provided in the Grout bill, to set this law breaking and counterfeiting combine back on its haunches, and teach it and all the people the meaning of such dangerous and revolutionary conduct.

3. It ought to rouse every lover of honest government, honest food products, and every honest hater of counterfeiting, whether he be farmer, consumer, or what not, in a determined expression of his ideas to his members of Congress in both the House and Senate.

Let us suggest: Buy twenty cents worth of postal cards. Send one to your Congressman and one to each of your United States Senators, asking them to support a measure containing the provisions found in the Grout bill, known by number as H. R. 3717, which is now before the House

Then use the balance of the cards in writing to your friends in other states, urging them to write their Congressmen and Senators letters containing the same demand. In this way every voter will multiply his influence twenty-two times. Now is the accepted time to do this work. Fire in the postal cards; let Congress and the National Administration see and feel the influence of public sentiment against this unholy conspiracy to defraud the consumer and destroy one of the greatest branches of American agriculture. Don't delay!

SCIENTIFIC CHURNING.

A few weeks since we published a selection from a patent churn circular, in which attention was called to the style of dairy science(?) which was used to separate the unwary dairyman from his money. Now we give another sample of dairy wisdom on the same subject. The first circular claimed that the churn took all the casein out; this last one holds that it is a benefit to leave the casein in. You pay your money and take your choice on this point, but don't pay it for a machine that requires such nonsense to show its value:

"We have succeeded in getting a machine that works on purely scientific principles. It creates three separate and distinct currents in the milk, which causes a concussion that is unknown in other styles of churns, thereby separating the solids from the liquids without breaking the globule that encases the butter fat, adding to the weight of your butter whatever the weight of the casein and albumen is.

"Now, with the ordinary churn you allow your milk to become sour before churning, freeing the lactic acid in the milk, which rots the globule and makes it easily broken, and, of course, when it becomes broken is a part of the buttermilk and is thrown out.

"You readily see how much butter you lose in this operation, and have been losing all your life, and probably never knew it. That is not the important feature of the case. This lactic acid which is formed in the milk becomes a part of the butter, which you are entirely unable to wash out or remove; hence decomposition sets in, and in a very short time your butter becomes strong, or, in other words, smells bad."

The Onion Remedy for Lice.

ED. HOARD'S DAIRYMAN:—I see some one in this week's issue is asking a remedy for lice on cattle. About 8 years ago, I think it was in HOARD'S DAIRYMAN, some one gave this: Take an onion, cut in two and rub this on the animal until it is all worn away and in 4 or 5 days repeat.

I have tried quassia chips, tobacco, lamp oil, lard and carbolic acid and several other remedies. But the onion remedy is the only success. Don't fail to give this for a lice exterminator for cattle when ever any body asks for one and you will certainly get thanks for it. This may seem so simple that people may not try it but you urge them for a single trial; it is wonderful. J. F. W.

Parkersburg, W. V.

INQUIRIES AND ANSWERS.

Every inquiry must be signed with the name, Post-office and state of writer. Condense the questions into plain specific inquiry. Be careful to note if your questions have not been answered in replies to others. We are glad to answer all the pertinent questions that we can concerning machinery. Look over our advertising columns and write to the advertisers.

The editors of HOARD'S DAIRYMAN are reluctantly compelled to announce that it is utterly impossible for them to answer inquiries by personal letter and not neglect their other and more imperative duties. They would most willingly do otherwise if they could, and therefore beg that this notice may be accepted as a general answer to all such requests.

FEEDING STANDARDS FOR MILCH COWS.

Dry matter.	DIGESTIBLE NUTRIENTS Protein.	Carbohydrates.	Ether extract
lbs.	lbs.	lbs.	lbs.
23 to 28	2.0 to 2.5	12 to 15.0	0.5 to 0.8

GLOSSARY.

The terms used in the discussion of feeding problems in HOARD'S DAIRYMAN have the following significance:

RATION.—The total allowance of feed for twenty-four hours.

DRY MATTER.—That portion of a feeding stuff which remains after all the water or moisture has been expelled by heat.

DIGESTIBLE NUTRIENTS.—That portion of the dry matter which can be digested by the animal, and does not pass off through the bowels as excrement.

PROTEIN.—That part of the digestible nutrients which goes to the formation of lean meat, ligaments, hair, horns and the casein (or curd) of milk. It is generally believed, also, that protein may be, and many times is, converted into the fat found in milk. The basis of protein is nitrogen, hence the protein elements are frequently termed the *nitrogenous* parts of the food. They are also called *albuminoids*.

CARBOHYDRATES—That part of the digestible nutrients, which is the primary source of sustaining animal heat and furnishing the energy for keeping the animal mechanism in operation. They are composed of the woody fibre of the plant and grain, and the starch, sugar, gums, etc., and in the published tables of chemical analyses, are usually subdivided into the terms *crude fibre*, which is the least digestible portion of feeding stuffs and *nitrogen-free extract*, so-called because it does not contain any nitrogen.

ETHER EXTRACT.—That portion of the digestible nutrients which may be dissolved out of the food stuffs by ether. It is frequently called *crude fat*. It can be used by the animal for maintaining the body temperature, and for this purpose is from 2.2 to 2.5 times more efficacious than the carbohydrates. It is maintained, by some, that the fat in the milk comes, largely, from the crude fat in the food, but it has been demonstrated that it is not absolutely necessary for this purpose.

A NEW YORK RATION.

A. W., Buskirks, N. Y., has silage and corn stover. Corn is worth 50 cents per bushel, and oats, 35 cents per bushel. He can buy bran at $19 per ton; gluten, $21; cotton seed meal, $26; his fresh cows are milking 30 lbs. per day, and he asks for a formula. We think the price of corn and oats excludes them from consideration. We therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
12 lbs. stover	7.14	.20	3.89	.08
6 lbs. bran	5.29	.75	2.32	.18
2 lbs cotton seed meal	1.84	.74	.34	.17
Totals	22.19	2.08	10.75	.64

AN ILLINOIS RATION.

A. D. C., Amboy, Ill., requests a ration for 1000-lb.-cows from timothy hay, $10 per ton; corn stover, $5; shorts, $15; bran, $14; gluten feed, $18; corn and oats ground, $13.

Confining ourselves to feeds named we should select and try substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
12 lbs. timothy hay	10.42	.34	5.21	.17
10 lbs. stover	5.95	.17	3.24	.07
5 lbs bran	4.41	.63	1.93	15
5 lbs. gluten feed	4.61	1 02	2.42	.17
Totals	25.39	2.16	12.80	.56

We are somewhat sorry that we cannot substitute some oil meal for a part of the bran and gluten feed above, as it is our opinion that when one has neither silage nor roots a little oil meal is decidedly advantageous

AN OHIO FEEDING PROBLEM.

M. B., New Buffalo, O., writes that he put up a silo last fall, but his cows do not yield as much as he thinks they should. He says he is feeding them all the silage they will eat night and morning, and all the timothy hay they will eat at noon, and in addition gives them 4 quarts of bran in the morning and 3 quarts of corn meal in the evening. Gluten meal (?) is said to be worth $19 per ton and oil meal $30 per ton, and he asks which of these two would be the cheaper to combine with other feeds, and produce the greatest quantities of milk. His cows are grade Jerseys.

We do not think it is to be wondered at that these cows are not doing as well as their owner could wish. If we estimate that his cows eat 50 lbs. of silage night and morning and 5 lbs. of hay at noon, which is as much as they can reasonably be expected to consume, his ration would exhibit the following figures:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
50 lbs. silage	13.20	.65	7.00	.29
5 lbs. hay	4.34	.14	2.17	.07
2½ lbs. bran	2.20	.31	.97	.08
4½ lbs. corn	4.01	.36	3.00	.19
Totals	23.75	1.37	13.14	.63

The figures under the head of digestible protein tell the story. These cows are not receiving the raw material necessary to enable them to make satisfactory amounts of milk. It would require almost 3 lbs. of oil meal to bring this protein up to the minimum standard; but instead of using this, we would recommend him to substitute 4 lbs. of bran and 4 lbs. of gluten feed in the place of the grain he is now feeding. We specify these amounts in pounds, for the reason that there is no other way to insure that the cows are getting the proper quantity. We do not mean, of course, that this feed is to be weighed out every night and morning, but that the owner should fill his measure in his accustomed way, and find out just how much its contents weigh, whether these are bran or gluten feed or corn meal. The average weight of bran is 10 oz. per quart.

A NEW JERSEY RATION.

W R. H., Quinton, New Jersey, asks for a ration formula with 40 lbs. of silage per day; cob meal $13 per ton; coarse bran $19.50; gluten feed, 19.50; timothy hay, $16; clover hay, $20; corn meal $16; cotton seed meal $27; and corn stover.

The prices for timothy and clover hay seem to put these feeds beyond consideration. Gluten feed, if of good quality, is of course much cheaper than bran. We therefore suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
40 lbs. silage	10.65	.52	5.60	.28
10 lbs. stover	5.95	.17	3.24	.07
4 lbs. corn and cob meal	3.56	.26	2.52	.14
5 lbs. gluten feed	4.61	1.02	2.42	.15
Totals	24.68	1.97	13.78	.64

The protein in this formula is somewhat less than we would desire, basing this opinion upon the present weight of testimony. There is, however, some evidence, notably the experiences of Prof. Smith of the Michigan Agricultural College and Prof. Carlyle in Wisconsin, which tends to show that the amount above specified will answer a most excellent purpose.

ALABAMA QUERIES.

Mrs S. E. W., Mobile, Ala., has a herd of twenty-five fairly good, high-grade cows, but they are not profitable because feed is so high. Wheat bran is $18 per ton; cotton seed meal, $22 per ton; bolted meal, unbolted meal or cracked corn, which ever is best, each $18 per ton; cotton seed hulls, $7; and a middling quality of hay at $10 per ton. She adds that she can get wheat middlings and rice bran, but gives no price. She has tried the bran and the cows did not do well on it.

She also asks what to do with a calf that seems all right when born, then scours a little, seems to get weak and in a day or two dies, the mother being well and strong, and having had no physic. She also asks if it is proper to let a calf take the first milk from its mother, and stay with her for a few days.

She concludes her list of inquiries by stating that she wants to engage a man to work for her. He must be honest, upright, competent to sell milk and make money for himself and her.

To the first inquiry we answer, that a very middling quality of hay is liable to be much cheaper at $10 per ton than cotton seed hulls at $7. We cannot understand why the rice bran did not give satisfaction if it was of good quality. If she does not want to try that again, we would recommend her to mix wheat bran, ground corn and cotton seed meal equal parts by weight, and give her cows from 6 to 10 and possibly 12 lbs. of this mixture per day, of course graduating the amount for each cow by that particular cow's ability to respond. Add to this all the hay each cow will eat without wasting.

The second inquiry presents a more serious problem. The first thing to do is to thoroughly clean and disinfect the lying in quarters of the cows, or, otherwise, abandon those now used, and give them entirely fresh clean quarters for that purpose. It is true in all cases and particularly in cases of this character, that prevention holds to cure about the ratio of gold to silver.

We think it important that the calf should have the first milk (*colostrum*) from its mother. This is a wise provision of nature, and cannot be improved upon by man. We know that there are many successful breeders and dairymen who practice to the contrary, but we cannot believe that it is the best way. At all events, we leave the new born calf with its mother two or three days, and we think we have been, at least, fairly successful in raising them. It is true that we have had now and then a case of scours which was similar to the case reported by Mrs. S. E. W., but the thorough cleaning and disinfecting of the lying-in quarters has almost always proved effective. If we had at the present time a calf afflicted in this way, we should be disposed to try the remedy mentioned on page 1024, and might possibly be tempted to add a teaspoonful or more of essence of ginger to the doses there specified. Ginger, as our friends in the south well know, is almost a sovereign remedy for bowel troubles which are the result of indigestion; acting as a stimulant and a tonic.

Our friend's last inquiry will probably give her more trouble than any of the others. The qualities she enumerates are seldom found in one individual, and when they are, that individual commands a very high salary.

However, we do not think she need despair of getting a fairly competent man, and the best way we know of to secure such a man is to make use of the advertising columns of this paper. State what you want clearly and definitely, and it will be very singular if a goodly number of replies are not received which will put you into communication with parties in all sections of the country.

AN OHIO RATION.

A new subscriber at Mt. Vernon, Ohio, wants to feed an economical ration with corn at 30 cents per bushel; oats, 25 cents per bushel; bran, $16 per ton; gluten meal, $20; clover hay, $9; corn fodder, 3 cents per bundle.

We should be disposed to try the following combination as the average allowance for the herd:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
4 lbs. ground corn	3.56	.32	2.67	.17
4 lbs. bran	3.52	.50	1.54	.12
Totals	24.02	2 18	11.37	.63

He also asks if there is a better cow for dairy purposes than the Jersey and whose products will equal or excel hers in butter fat? It is with cows a good deal as it is with religion, every man thinks his particular brand is the best, and that others are hardly worthy of consideration, whereas as a matter of fact much more depends upon the individual than the particular church to which he belongs, or the particular breed in which a cow is classed.

A MAINE RATION.

P. W. R., Windsor, Me., has ensilage; corn meal, $20; gluten meal, $25; cotton seed meal, $28; shorts, $21. His cows are mostly full blooded Jerseys, weighing 800 to 900 lbs., and have been giving milk from two weeks to six months. He wants a suggestion for a balanced ration from these feeds.

Assuming that where shorts are to be had, bran is also to be obtained, we submit for his consideration the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
30 lbs. silage	7 92	.39	4.20	.20
10 lbs. timothy hay	8.63	.28	4.34	.14
2 lbs. gluten meal	1.84	.52	.87	.10
2 lbs. cotton seed meal	1.84	.74	.34	.17
3 lbs. bran	2.64	.38	1.16	.09
Totals	22.92	2.31	10.91	.70

If the bran cannot be had the next best thing would be to use the shorts.

He also asks at what time after calving would you expect a cow to do her best? We have observed with some surprise that a good many breeders seem to bring their cows up to a high test very soon after freshening, much sooner than we personally consider it prudent. Very many of the largest tests reported were made within from ten to twenty days after freshening. We have always held to the doctrine that a cow should be practically grain free at calving time, and that after two or three days grain may be fed again in limited amounts and gradually increared taking from twenty to thirty days to bring her to full feed. It has seemed to us that this is the order of nature, and by all means the safest method to pursue. But we have no facts or figures to warrant us in condemning the practice of others which brings the cows to full feed much sooner.

A NEW YORK FEEDING INQUIRY.

J. M. D., Wiscoy, N. Y., sending in his renewal for 1900, asks the following question: "Can we do better for a grain ration, with good timothy hay (mixed with some clover) and bright oat straw, than corn, oats and bran in equal parts, by weight?"

Very decidedly we answer his inquiry in the affirmative. We assume that his cows are receiving 15 lbs. of timothy hay and 5 lbs. of oat straw, and that they have been able to eat, in addition, not to exceed 10 lbs. of the grain mixture specified. Such a ration would exhibit the following figures:

	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
15 lbs. timothy hay	13.02	.42	6.51	.21
5 lbs. oat straw	4 54	.06	1.93	.04
10 lbs. grain mixture	8.87	.99	5.08	.38
Totals	26.43	1.47	13.52	.63

We have here, as in answer to M. B., New Buffalo, O., a deficiency in the amount of digestible protein. Compare the above with the following:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates.	Ether Extract
Hay and oat straw as above	17.56	.48	8.44	.25
4 lbs. bran	3.52	.50	1.54	.17
2 lbs. cotton seed meal	1.84	.74	.34	.12
2 lbs. gluten feed	1 84	.41	.97	.07
Totals	24.76	2.13	11.29	.61

This may cost more than what J. M. D. is now feeding, but if he has cows that are worthy to be kept at all, they will more than repay the added expense.

WHAT TO SOW WITH OATS.

J. O. V., Danville, Ind., has for some years now been sowing oats, mowing them close to the ground and curing for hay. He wants to know if it is advisable to sow peas or beans with the oats in the future.

Notwithstanding what our friend in Illinois

says in another column about his experience with oat and pea hay where his cows refused to eat the peas, we are disposed to recommend them. Sow the peas a week or so before the oats, plow them under and when the peas are fairly well sprouted, sow the oats, and cut both before the seed is matured, just about when the peas are right for eating.

If we lived in Indiana we should be disposed to try some of the cow peas of the south. We think these are to be the coming fodder even in the north, as soon as they become thoroughly acclimated. We should not, however, care to depend entirely on these cow peas, but for the balance of the land would use the common small Canada field peas.

A MICHIGAN RATION.

A subscriber at Climax, Mich., has bright shredded corn fodder, corn meal, oats, bran, $16 per ton; Diamond gluten meal, $17.50, and is now feeding all the corn stover his cows will eat twice a day, wheat straw at noon, 4 lbs. corn meal, 4 lbs. bran and 4 lbs. gluten feed per day.

We are not quite sure whether this man is using shredded corn fodder or shredded corn stover. In the former case, set out in tabular form, his ration would exhibit the following figures:

	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
25 lbs. corn fodder....	14.20	.74	8.08	.24
4 lbs. ground corn....	3.56	.32	2.67	.17
4 lbs. bran.....	3.52	.50	1.54	.12
4 lbs. gluten feed.....	3.56	.61	1.94	.14
Totals.....	24.84	2.17	14.23	.67

We incline to the opinion that if he would increase the bran and the gluten feed each by 1 lb. and drop out the corn altogether, his ration would cost less money and give him better results.

AN INDIANA RATION.

B. F. S., Wabash, Indiana, like a good many others, is a new subscriber, received the first copy of the paper and has become interested in the feeding questions. We are very glad to notice that this most important subject is receiving more and more attention every year, and for that matter, almost every day, for it is the question of questions. We do not subscribe to the theory sometimes advanced that breed is in the feed, but it is none the less true that the best breed is of little account unless it is accompanied with good feeding.

B. F. S. has clover hay at $8 per ton; corn stover at $0.10 per shock. Corn is worth 30 cents per bushel; oats, 25 cents per bushel; bran and shorts, $13 per ton.

We are very glad that he has this clover hay, for it is the best roughage a dairyman can have. It enables him to get along with a moderate amount of grain and that of the cheapest character. We suggest for a formula as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
15 lbs. clover hay.....	12.71	1.02	5.37	.26
10 lbs. corn stover....	5.95	.17	3.24	.07
6 lbs. bran.....	5.29	.75	2.32	.18
2 lbs. ground corn....	1.78	.16	1.33	.09
Totals.....	25.73	2.10	12.26	.60

BUTTER FAT AND BUTTER.

With milk testing 4% butter fat and butter at 25 cents per pound, how much per hundred do I get for my milk? Please give me the scale running both ways from this. Also what does a small farm dairy Babcock milk tester cost? The question I asked was not to include the cost of making, but how much money that grade of milk will bring me per hundred lbs. with butter at 25 cents per pound. J. E. C.

South Bend.

The theoretical and actual yield of 100 lbs. of 4% milk may vary somewhat widely from each other especially in the winter months, when the effect of dry feed and the advance in lactation make their influence felt. Four pounds of butter fat will make about 4.66 pounds of butter, which at 25 cents per pound will equal $1.165. In the creamery, the yield may be a little above or below this figure. Also from the above the cost of manufacture must be taken, which may be from 2 to 4 cents per pound.

The probable average yield of butter is calculated by adding 1/6 to the weight of butter fat in the milk.

A small Babcock tester will cost from $3.00 to $6.00 according to size and make.

A LECTURE WANTED.

There are a few subjects I wish you would give us a lecture on:—

1. How to feed a two-year-old heifer to develop her udder and milking capacities.
2. Your opinion about milking a cow right up to freshening time.
3. Your method of drying off cows, especially persistent milkers.
4. Is there any book published on developing heifers.

I will soon send you a photo of a granddaughter of Eurotissima, that with good feed, and HOARD'S DAIRYMAN to read, has given 9,000 pounds of milk and 440 pounds butter, as a two-year-old. C. I. H.

Nunda, N. Y.

Where one has a two-year-old heifer that with her first calf makes a record of 9,000 lbs. of milk and 440 lbs. of butter the indications are that he does not need much of a lecture on how to develop heifers, and hence we postpone that inquiry indefinitely.

We should prefer as a rule not to have our cows milked continuously. We think it better that they should have a period of rest ranging from four to six weeks, and sometimes eight weeks, but our experience is that some cows have the milking habit so firmly intrenched that it is difficult and impossible to give them this rest without producing serious injury. When a cow persists in milking continuously, we think the best thing one can do is to let nature have her way in this respect, and try and compensate for the additional strain upon her system by giving more and better feed.

It is claimed by some careful observers among our acquaintances, that every cow has a period of two or three or four days, sometime before freshening, when the ordinary flow of milk materially lessens, and if by close watch, this is discovered and humored, the milk flow can be suppressed quite easily. But if this period passes unnoticed and milking is continued, then it is dangerous to force the cow to go dry.

The only way we know of to dry a cow is to first take away her milk producing feed. The regulation way is to milk first but once a day, and as soon as the cow becomes habituated to this, milk once in two days and so on, relieving the udder only when it becomes too tense.

We do not know that there is a book published that treats specifically of the matter of developing heifers.

A WISCONSIN RATION.

J. B, Calumetville, Wis., asks for a balanced and most economical ration for milch cows from the following feeds:

Corn stover at $3 per ton; mixed hay at $6; wheat bran, $13; ground oats, $15.50; ground corn, $11; malt sprouts, $10.

Assuming that the hay is clover and timothy, we would suggest as a minimum ration for fresh cows substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
10 lbs. corn stover ..	5.95	.17	3.24	.07
12 lbs. hay.....	10.24	.58	4.75	.19
3 lbs. sprouts.....	2.70	.56	1.11	.05
2 lbs. corn.....	1.78	.16	1.33	.09
5 lbs. bran.....	4.41	.63	1.93	.15
Totals.....	25.08	2.10	12.36	.55

This ought to suffice as an average for the entire herd.

PENNSYLVANIA RATIONS.

E. O. C., Hoblet, Pa., has good silage and mixed timothy, clover and red top hay, but both only in moderate amounts. Bran is worth $20 per ton; Buffalo gluten feed, $21; corn meal, $18; cotton seed meal, $30. He is now feeding about 20 lbs. of silage and 12 lbs. of hay per day, with 8 lbs. of a mixture composed of 200 lbs. of bran, 200 lbs. of Buffalo gluten feed, and 50 lbs. of cotton seed meal. His cows are grade Jerseys and Guernseys, and he has a full blooded Ayrshire bull at the head of the herd. His question is: Can the manner of feeding be improved?

As we estimate the ration now fed it contains 2.35 lbs. digestible protein, but only 10.85 lbs. carbohydrates and 0.6 of a pound of fat. In our judgment it would be better to reduce the protein somewhat, and increase the other elements in the ration. To accomplish this, we would add to the mixture from 100 to 200 lbs. of ground corn, and then feed, as now, 8 lbs. per day.

Another subscriber, from the same place, has corn silage, mixed timothy and clover hay at $10 per ton; gluten meal, $21; wheat bran, $20; cotton seed meal, $30; buckwheat shorts, $16; corn meal, $18. His cows are high grade Jerseys, fresh in milk, weighing from 800 to 1,000 lbs. each.

If his cows have the proper dairy temperament, we think it would pay him to feed on an average as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
30 lbs. silage.....	7.92	.39	4.20	.21
10 lbs. hay.....	8.53	.48	3.96	.16
4 lbs. buckwheat middlings	3.49	.88	1.34	.22
3 lbs. gluten feed.....	2.77	.61	1.45	.11
2 lbs. corn.....	1.78	.16	1.33	.09
Totals.....	24.49	2 52	12.28	.79

AN ONTARIO RATION.

A new subscriber from Toronto, Ontario, has become interested in the answers to the feeding inquiries, and desires that we submit a formula for him to try. He has mixed alsike clover and timothy hay; can buy bran at $14; shorts at $16; corn meal at $18; gluten meal, $18; and pea meal, $25.

We think here, as we did in answer to some other inquirer, that the gluten meal is misnamed, and is in fact gluten feed. On this assumption we submit the following formula for his consideration:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
18 lbs. mixed hay....	15.93	1.01	7.54	.27
3 lbs. bran.....	2.64	.38	1.16	.09
3 lbs. gluten feed.....	2.77	.61	1.45	.11
2 lbs ground corn....	1.78	.16	1.33	09
Totals.....	23.12	2.16	11.48	.56

LEAKING TEATS.

We would like to find something that will prevent a cow from losing her milk from one of her teats. Have heard that there were rubber tubes to be drawn over the teat for such purpose. F. G.

Union, Oregon.

These leaking teats are very troublesome things. Contraction at the point of teat is needed. It is to be made sore, a *little* only, and then healed up, and if then too much contracted, a dilating plug is needed to open it up again. A slight rubber band put on the end will help temporarily. It will stop the leakage, but will not cure.

A MARYLAND RATION.

T. B. C., Pikesville, Md, asks for a formula for a balanced ration for a good quality of milk from the following feeds: Corn stover, corn and cob meal and ground barley (all of which he has on the farm,) and can purchase wheat bran, cotton seed or linseed meal and gluten feed. His cows are grade Jerseys of average size, mostly fresh, stabled very comfortably, water abundant from a well in the barn yard. He says his supply of barley is limited, and wants to know what he should use in its place when that is exhausted. Timothy or clover hay is obtainable, but he would prefer to use corn stover as he has an abundance of it.

We think it advisable in this case, notwithstanding the abundance of corn stover, to use a limited amount of clover hay. A cow is not so unlike a man that she cannot appreciate a little variety in her daily allowance of feed. It is, of course, possible for a man to live upon bread alone, but under ordinary circumstances, this is neither profitable or desirable. We therefore suggest that he try substantially the following formula:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. stover.....	11.90	.34	6.48	.14
5 lbs. clover hay.....	4.24	.34	1.79	.09
4 lbs corn and cob meal	3.56	.26	2.52	.14
4 lbs barley.....	3.56	.35	2.62	.06
2 lbs. cotton seed meal.....	1.84	.74	.34	.17
Totals.....	25.10	2.03	13.75	.60

This formula is a trifle low both in digestible protein and in fat, but when the barley is gone if an equal amount of wheat bran is substituted for it, these particulars will be somewhat improved.

A MISSING ARTICLE.

I have each copy of your paper on file in the Emerson, commencing from Nov. 11th,

"One Year's Seeding, Nine Years' Weeding."

Neglected impurities in your blood will sow seeds of disease of which you may never get rid. If your blood is even the least bit impure, do not delay, but take Hood's Sarsaparilla at once. In this course there is safety; in delay there is danger.

Hood's Sarsaparilla
Never Disappoints

Hood's Pills cure liver ills; the non-irritating and only cathartic to take with Hood's Sarsaparilla.

For the Baby

The fifty-cent size is just right for the baby. A little of it in the bottle three or four times a day will supply precisely the fat all thin babies need. If your baby does not gain in weight as fast as you would like, try

Scott's Emulsion

The result will please you. If the baby nurses, the mother should take the emulsion. It makes the baby's food richer and more abundant; only buy the dollar size—it's more economical.

Both mother and child will feel at once its strengthening, upbuilding and fat-producing properties.

At all druggists; 50c. and $1.00.
SCOTT & BOWNE, Chemists, New York.

Finer Flavor, better quality, better price; that's what results from the use of the Champion Milk Cooler–Aerator in your dairy.

Our book about it free.
CHAMPION MILK COOLER COMPANY,
67 Main St., Cortland, N. Y.

1898, to the present time. I had occasion for the first time to refer to your index, vol. 29, to find in relation to silos. The index tells me that on page 913 I will find what I wish to know. Now, I am unable to find this page and I have all the papers complete commencing from Nov. 11, 1898, page 785, to Feb. 3rd, '99, page 1030. I am also unable to place these papers so that they will record the pages regularly as they should do. Will you please explain? J. C. W.

Delavan, Wis.

Page 913, No. 45, Vol. 29, contains an article on "Silos, Building and Filling," which we suppose is the one you wish. You may have an imperfect paper. Examine the numbers of your paper and see if they are all there, also the pages in No. 45, and let us know if that number is incomplete.

AN OHIO RATION.

U. S. M., having subscribed for the DAIRYMAN and received his first copy, finds himself interested in the feeding problems, and therefore asks us for formulas suited to his condition. He has cows in all stages of lactation, some fresh last June and others in succeeding months and still others to be fresh very soon. He has excellent silage, clover hay and corn stover. Corn is worth 35 cents per bushel. He can buy bran at $15.50 per ton; gluten meal, $17.50 per ton. Oil meal is worth $25 per ton and oats 30 cents per bushel. He also inquires whether it will do any harm to give his bull a small feed of silage once a day.

It is, of course, utterly impracticable to set down different tables that will fit the cases of all these different cows. The judgment of the feeder must come in here, to apportion the amount of feed and (in a way) the character of the feed, and the requirements of each individual cow. The cow makes milk from the feed she eats, and it stands to reason that the cow producing 30 lbs. of milk requires more feed, but not three times as much, as the cow producing only 10 lbs., because there is the element of the maintenance of the body which comes in in both cases.

For fresh cows that are doing fairly well we would recommend that he try a combination substantially as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
30 lbs. silage	7.92	.39	4.20	.21
6 lbs clover hay	5.08	.41	2.15	.10
6 lbs. corn stover	3.57	.10	1.94	.04
4 lbs. corn	3.56	.32	2.67	.17
3 lbs. bran	2.64	.38	1.16	.09
3 lbs. gluten feed	2.77	.61	1.45	.11
Totals	25.54	2.21	13.57	.72

If in feeding as above, certain of the cows take on more flesh than is profitable, the indications are that they are receiving more feed than they can use to advantage. In that event, the first grain to be withheld would be corn. On the contrary, if feeding as above some of the cows milk down so as to reduce their flesh, the indications are that they should have more feed.

We do not think it advisable to feed service bulls any silage whatever.

BRICKS WITHOUT SAND.

During the Egyptian bondage the Israelites complained because they were compelled to make bricks without straw. That may have been a very proper complaint at that time, but now-a-days we dispense with straw and use sand in its place, and we find this sand a very necessary element in making a substantial and permanent article. Of course clay can be molded in the form of brick and laid up into walls, but such walls cannot stand, or in other respects answer the same purpose as walls made from brick containing a due admixture of well tempered clay and sand.

It is somewhat so in feeding milch cows. We may feed them with corn stover and timothy hay and corn and cob meal, which will seem to fill them up at first as well as though it were a better quality of feed, but such feed will not enable them to meet the requirements of the modern dairy farm.

A very successful manufacturer of butter and cheese in Calumet county asks us if it is possible to make out a balanced ration for milch cows from corn stover, timothy hay, bran, ground oats and corn?

The best that we could expect would be to stipulate for 12 lbs. of timothy, 10 lbs. of corn stover, and by using bran exclusively, which is the highest in protein, we have the following figures:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
10 lbs. stover	5.95	.17	3.24	.07
12 lbs. timothy	10.68	.34	5.21	.17
10 lbs. bran	8.81	1.26	3.86	.30
Totals	25.44	1.77	12.31	.54

Undoubtedly, this would suffice for cows giving a limited amount of milk, but for good cows, such cows as a dairyman ought to have, we are decidedly of the opinion that such a ration would be too low, both in protein and digestible fat, and that it would pay, instead of using so much bran, to buy some gluten feed, and even some linseed oil meal, and then feed about 4 lbs. of bran, 1 lb. of gluten feed, and from 1 to 2 lbs. of oil meal.

AN IOWA RATION.

G. V. F., Waterloo, Iowa, in behalf of his patrons asks for ration formulas with timothy hay worth $7; oat straw, $2.50; oats, 20 cents; corn, 25 cents; oil meal, $27; bran, $11; gluten feed, $17. It appears that some of his patrons have only timothy hay for roughage; others only shredded corn stover, and others desire to mix oat straw and timothy hay in equal parts.

For ration with timothy hay we suggest as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
20 lbs timothy	17.36	.56	8.68	.28
4 lbs. bran	3.52	.50	1.54	.12
4 lbs. gluten feed	3.69	.82	1.94	.14
1 lb. oil meal	.91	.29	.33	.07
Totals	25.88	2.17	12.49	.61

When shredded corn stover is substituted for the timothy, or the mixture of oat straw and timothy is used, we would simply double the amount of oil meal.

We repeat here, as we often do, lest readers may get the impression that these formulas are to be followed with the same exactness that the druggist uses when filling a physician's prescription, that the ability of the cow to respond to the feed should always be considered by the feeder, just as the physician considers the age and condition of his patient when making up a prescription. The figures which we give are our estimate as to the average amount required by a herd of cows that are practically fresh in milk. The best cows in the herd should have more, and the poorest cows should have less, but the variation in quantity must rest with the feeder himself, who has the opportunity to watch their performance.

Mr. F. also asks whether there is a crop rich in protein that can take the place of clover for calf feeding that could be grown to advantage on ground where the crop had been cut off either for silage or fodder.

We should suppose that crimson clover would perhaps answer that purpose better than anything else that has yet been tried. Crimson clover, sown among the corn at the time of the last cultivation, makes quite a growth, and where the winters are not too severe, lives over, takes an early start in the spring, grows rapidly, and can either be turned under for fertilizing purposes, or cut and cured for hay.

SILAGE FROM THE REFUSE OF A CANNING FACTORY.

A. C. G., Blair, Neb., has silage made from the husks, cobs and refuse corn of a canning factory, of which he is feeding from 30 to 40 lbs. per day to his cows, and is somewhat disappointed with the results, as such silage does not seem to be of equal value with the sugar beets and mangels heretofore used. The silage seems to have kept well, but he says it has somewhat of an acid taste and smell around the edges. This is not a serious objection to the silage; but like himself, we are unable to find any analyses of his kind of silage. We know that there is a very large silo of this kind at some point in Indiana that has been in use for several winters. We have had reports concerning it two or three times and all of them very favorable. Just why his should turn out otherwise we are, of course, unable to say.

It would seem as though from 30 to 40 lbs. of this silage, with 10 lbs. of either millet or oat hay, 6 lbs. of bran and 2 lbs. of oil meal ought to make a very satisfactory ration.

A RATION WITH CORN BRAN.

G. H. K., Winfield, Iowa, has all the nice oat hay that he needs. Can buy gluten meal at $19 per ton; corn meal at $12 per ton; corn bran, $10; and other mixed grains which we do not need to specify. He says the gluten meal is marked on the sacks, 24.5% protein and 4% fat.

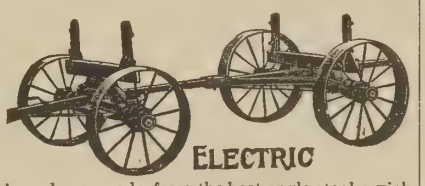
The amounts of protein and fat as well as the price per ton indicate that the so-called gluten meal is, in fact, gluten feed. For further assurance in this line, Mr. K. can examine the material, and if he finds traces of corn bran in it he may be sure that it is gluten feed.

We are glad to have an opportunity to include corn bran in a ration, which we do as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients: Protein.	Carbohydrates	Ether Extract
18 lbs. oat hay	16.40	.77	8.35	.27
5 lbs. corn bran	4.55	.37	2.99	.23
5 lbs. gluten feed	4.61	1.02	2.17	.18
Totals	25.56	2.16	13.51	.68

BUY THE BEST.

If you want the best low down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad tired Electric Wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear



hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 130, Quincy, Illinois, for their new catalogue which fully describes this wagon, their famous Electric Wheels and Electric Feed Cookers

"A Perfect Food"

"Preserves Health"

"Prolongs Life"

BAKER'S BREAKFAST COCOA



"Known the world over. . . . Received the highest indorsements from the medical practitioner, the nurse, and the intelligent housekeeper and caterer"—*Dietetic and Hygienic Gazette.*

Trade-Mark on Every Package

Walter Baker & Co. Ltd.

DORCHESTER, MASS.

Established 1780.



CABLED FIELD AND HOG FENCE.

Also Cabled Poultry and Garden Fence; Steel Web Picket Lawn Fence; Steel Gates, Steel Posts and Steel Rails; Tree, Flower and Tomato Guards; Steel Wire Fence Board, etc. Catalogue Free.

DeKalb Fence Co., 22 High St., DeKalb, Ill.

ECONOMY IS THE KEY TO WEALTH.



You can save money by buying your woven wire fence from us.

WE SELL DIRECT TO THE FARMER At Wholesale Prices.

We use only the best quality of steel wire, all galvanized; no small wires used; it's all interwoven; the stays can't slip. Write to-day for circulars and prices.

ADVANCE FENCE CO., 126 Old St., Peoria, Ill.

PAGE

DID YOU EVER NOTICE?

Our Stock Fence stands USE and ABUSE. Try it.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.



De Laval ALPHA

HAND SEPARATORS

$50.00 AND UPWARD.

Some Bargains in good Second Hand Separators.

Write for prices.

Cornish, Curtis & Greene Mfg. Co.,

Fort Atkinson, Wis.

GENERAL SALES AGENTS.

BEWARE OF FAKE COMMISSION MEN.

We have often warned our readers to beware of all schemes and offers, which profess to give them something for nothing, or a greater return than the conditon of the markets will justify. Butter increasing nostrums, churns that are able to extract more butter from milk than its content of fat will justify, commission men that promise to give customers unusual prices, and all such misleading and deceptive appeals are based upon the maxim that, "a fool and his money are soon parted," and unfortunately they are able to find victims in all sections of the country.

Complaints have reached us that one, N. T. Redman, has been practicing this fake business from Baltimore, and in reply to a letter of inquiry, we have received the following:

BALTIMORE, Jan. 30, 1900.

DEAR SIR:—Replying to yours of the 25th relative to N. T. Redman, I beg to reply as follows:

He was indicated in the United States District Court for the District of Maryland, on December 12, 1899, for using the mails in a scheme to defraud. His letter heads and envelopes bore a cut of a very large building bearing his name in very large letters, with the words "Commission Merchant" and "Dealer in Butter, Cheese, Eggs and Poultry." He wrote very attractive letters to dealers soliciting small, trial orders, for which he paid well and promptly. He then solicited very large orders for which he neglected to pay, thus making a good cammission. This was his general scheme, but in some cases he made more than one payment. His shippers were chiefly in the northern states, reaching from states in New England to beyond the Mississippi. Redman was located in Atlanta, Georgia, about the 7th of January, brought to Baltimore, where he gave bail for $2,500, for his appearance in Court.

Very respectfully,

JOHN C. ROSE, U. S. Atty.

Our Special Elgin Letter.

ED. HOARD'S DAIRYMAN:—The offering of butter on Monday's Elgin Board of Trade aggregated 8,700 pounds. Bidding opened at 24½ cents, and two sales were made at that figure. Manufacturers rejected the price for 5,400 pounds.

The quotation committee reported the market firm at twenty-four cents.

The sales reported were:

Factory.	*Pounds.*	*Price.*
Red Clover	1,260	24½c
Hinckley	2,040	24½c
Total	3,300	

The sales for the corresponding week of the three preceding years were as follows:

Feb. 6, '99, 3,480 lbs. of butter sold at 20c.
Feb. 7, '98, 3,540 lbs. of butter sold at 19c.
Feb. 8, '97, 22,740 lbs. of butter sold at 21c.

The New York Market Monday was reported steady at 26 cents. H. C. B.

Elgin, Ill., Feb. 5, 1900.

Transfers of Guernsey Cattle from January 1st to 15th, 1900.

BULLS.

Alloway's Pride 6380, G. C. Thomas & Bro. to G. C. Cudderback, Alloway, N. J.
Butter Boy of Homestead 6282, L. V. Axtell to T. Edw. Hambleton, Lutherville, Md.
Beverwyck Moonshine 6363, James Forsyth to Dr. D. Hunter McAlpine, Morris Plain, N. Y.
Beauty's King 5301, W. B Bently to Fred De La Matyr, Freemont, Neb.
Glenwood's Sheet Anchor of Haddon 6372, E. T. Gill to M. M. & E. J. Hollingsworth, Landenburg, Pa.
Grandeur's Faucette 6122, James L. Branson to J. P. Welsh, Bloomsburg, Pa.
Grand Duke of Spring Side 6375, P. H. Christie to George Van Derveer, Amsterdam, N. Y.
Glenwood's Traveller of Hadden 6381, Albert Hanies to E. T. Gill, Haddonfield, N J.
Homestead Mariana's Son 6179, L. V. Axtell to Robt. G Shaw, Greenwood, Va.
King of Fenimore 3779, Edward S. Clark to Richard Crocker, Richfield Spa, N. Y.
Lavilla 6060, Wm. C. Lamont to Isaac Nichols, North Harpersfield, N. Y.
Lord of B. 4202, M. B. Rowe to W. J. Vickers, Mt. Vernon, Va.
Luther of Peacedale 4723, Hodgson Bros. to J. C Reece, Jennersville, Pa.
Merritt 5563, Mrs. E. L. Colby to George W. Osborne, Tilton, N. H.
Michael W. 6358, Giles & Hartley to Wales & Son, Corry, Pa
Maharg 6384, W. S. Stevenson to Cyrus F. Stepp, Maharg, Pa.
Nubian 6077, George C. Hill & Son to Peter Nelson, Marble, Wis.
Our Wrangler s Jason 63 0, E. W. Tillotson to Buell T. Holcomb, West Simsbury, Conn.
Ovid of Homestead 6013, L. V. Axtell to Oakwood Farm & Garden Co , Oil City, Pa.
Pride of Fernwood 5431 Chas. S. Shepard to C. L. Richmond, Daretown, N. J.
Pomp of Fenimore 5781, Edward S. Clark to John W. Little, Hanover, Pa.
Rover of Spring Side 6376, P. H. Christie to Peter Moore, Johnstown, N. Y.
Red's Duke 6367, John S. Pottorf to A. M. Carr, Salem, Ohio.
Rocmont of Chantilly 6382, George Campbell to Horace C. Disston, Philadelphia, Pa
Stranford Golden Lad 6373, A. J. Snyder to J. O. Dewalt, Butztown, Pa.
Wanderer of Spring Side 6374, P. H. Christie to VanDerveer Bros , Glen, N. Y.
Westport Laird 6391, W. H. & C. H. McNish to Wm. Baird, Westport, Ont.

COWS.

Anita Reed 11892 and Nellie Reed 8671, Rufus Gunn to C. E. Williams & Son, South Deerfield, Mass.
Alta 2d 7581, Ino of Mystic 3249, Kate's Deborah 4186 and Zuleika 4 88, Est. Roswell Brown to Daniel C. Brown, Mystic, Conn.
Beauty Pride's Heifer 11134 and Homestead Mariana 9033, L. V. Axtell to Oakwood Farm & Garden Co., Oil City, Pa.
Court of Fashion 12335 and Laura of Maple Glen 7780, Corydon Peck to H. McK. Twombly, Madison, N. J.
Cresie of Colliedale 12345, E. B. Staggers, Jr., to Hodgson Bros., New London, Pa.
Dewdrop of Racine 9646, Hiram Newman to J. J. Stevenson, Millbank, South Dakota.
Homestead Alice 11508, L. V. Axtell to M. J. Shered, Glendale, Mich.
Homestead Favorite 3d 11974 and Sallie of Homestead 11506, L. V. Axtell to T. Edw. Hambleton, Lutherville, Md.
Lady Enfield 12346, Buell T. Holcomb to Olin S. Olmsted, Melrose, Conn.
Long-a Coming 2d 11450 and Long-a-Coming 3rd 11851, Mark Hughes to Henry A. Parr, Lutherville, Md.
Leonora of Baltimore 2d 12354, Louis McLane to E. Gittings Merryman, Cockeysville, Md.
Miss Greystock 11986 and Princess Bloomfield 12043, George C. Thomas to George C. Thomas, Jr., Philadelphia, Pa.
Mary's Red 12323, Jennet Rex 12330 and Jennet Spot 11072, John S. Pottorf to A. M. Carr, Salem, Ohio.

WM H. CALDWELL,
Peterboro, N. H. Secretary.

CONCERNING OUR ADVERTISERS.

While we are always reaching out for new business and new advertisers, so long as the business is honorable and the article to be advertised, of good quality, it affords us special pleasure to be favored with the continued patronage of our old customers. This is true of the Kemp & Burpee Co., of Syracuse, New York, whose advertising for 1900 starts with this issue of our paper. The advertisment which will be found on another page, sets forth in a brief way the quality and advantages of the Kemp Manure Spreader. These machines are now being largely used in the territory covered by our circulation and so far as we are able to say, they are giving the best of satisfaction. Write the manufacturers, as above, for any information you may desire on the subject.

RAPE. SPELTZ. BROMUS.

Most remarkable trio. Will make a fellow rich despite himself if he plants a plenty. Salzer's catalog tells. Send 10 cents and this notice for samples of above and big catalog. John A. Salzer Seed Co., La Crosse, Wis.

PROTECTION TO PLANTERS

is the headline of an advertisement appearing in our columns of the old established seedmen and florist, Peter Henderson & Co , 35 & 37 Cortlandt Street, New York. This announcement is to the effect that this firm no longer supply their seeds to dealers to sell again, so that to procure the famous Henderson seeds the same must be purchased from them direct.

Their advertisement also offers their annual superb catalogue entitled "Everything for the Garden," which is in reality a book of 190 pages, containing over seven hundred engravings and six superb colored plates. This catalogue is sent to all who send ten cents in stamps to cover the cost of postage and mailing. In addition to the catalogue, this firm, wishing to trace the result of their advertising in different papers, will send to all who state where they saw the advertisement, a trial collection of six packets of choice vegetable and flower seeds, contained in a red envelope, which when empty and returned with an order from catalogue will be accepted as twenty-five cents in part payment. We advise our readers to avail themselves of this unusually liberal offer.

The advertisement of the Hartman Manufacturing Company of Elwood City, Pa., which appears elsewhere in this issue, is an unusually attractive ad. It gives a very correct cut of their famous Steel Rod Picket Fence, in combination with Ornamental Steel Gate. This is an excellent lawn fence, and has the advantage of being unobtrusive, rather adding to, than detracting from the natural beauty of the enclosure. It will be found of equal value in enclosing such public grounds as school yards, court squares cemeteries, parks, etc. It is strong and durable and will twice outlast the ordinary wood picket fence and costs no more. Park and County Commissioners, School Trustees and other public officials, as well as private citizens, will find it to their interest to look into the quality and merits of this fence. Write these people for catalogue, either at Elwood City, Pa., or Room 65, 509 Broadway, New York City.

The advertisement of the Stanley Works of New Britian, Conn., makes its appearance for the regular season's business elsewhere in this issue. It will be observed, by reading the ad., that these people are manufacturers of Corrugated Steel Hinges. All those of our readers who have had occasion to use strap or T hinges in the past will remember that the ordinary hinge of these styles was short lived and generally deficient. The determination of the Stanley people to overcome these deficiences has resulted in these improved hinges. The corrugations act just like so many reinforcements and tend to make the hinges almost immeasurably stronger, while the cost is no more than the old style. Should any of our readers contemplate building or repairing old buildings, it will pay them to look into the merits of these hinges. Write the manufacturers for printed matter.

SHARPEN NG A PLOW

takes time, and some hard work. In the matter of Sulky and Gang Plows, this can be saved by purchasing such as are shipped from the factory crated, sharpened, and practically set up ready for use When plows are not crated, dropping them from a freight car and letting the shares strike on the solid platform, as is sometimes done in the hurry of unloading, is liable to break a share when drawn thin and sharp; therefore, as a precautionary measure, manufacturers who ship them uncrated, leave the shares somewhat thicker and duller. Plows not crated are also generally "knocked down", or, in other words, so thoroughly taken apart that they are not always put together correctly, resulting often in poor work or heavy draft. Putting the plows together correctly, sharpening the shares nicely, so that they are ready for work, and then crating them so they cannot get out of fix or condition, are features peculiar to the "X Rays" Sulkies and Gangs made by the David Bradley Mfg. Co., of Bradley, Ill., who are also makers of a large line of other farm tools. See their advertisement on another page of this issue.

The Anti-Clog Weeder made by Hallock & Son at York, Pa., has thousands of enthusiastic friends and there isn't any question but what it deserves them. Here is what R. R. Brinkley, of Ridgeport, Ind., has to say of it:

"I can talk from my own experience as to the value of the success of Anti-Clog Weeder in the corn field.

Last spring was a dry one here. I sowed my

BISHOP McCABE.

The Famous Minister's Experience with Coffee.

The well-known bishop said to one of his friends, some years ago, "I was a great sufferer from severe headaches, and at times after traveling many miles to dedicate a church or perform some other important duty, found myself confined to a bed when the time came, and was unable to carry out my work. I finally discovered that when I left off coffee for a few days, the headaches disappeared, and by further experiment, discovered that the coffee was undoubtedly the cause of the difficulty, which finally entirely disappeared when I left off coffee altogether."

The person to whom this remark was made is Mrs. Amy K. Glass, wife of a Methodist minister at Rolfe, Iowa. She says: "My own experience with coffee was very convincing. I was grown up before I ever drank coffee, but was advised by a friend (who meant it kindly) to use weak tea and coffee, because a warm drink aided digestion. I soon thereafter commenced to have nervous and sick headaches; could not believe it was the coffee.

"My husband, who had suffered from dyspepsia while a young man in college, and found relief by leaving off coffee, often told me he was satisfied my headaches were caused by coffee, so I gave up the cofiee and took up Postum Cereal Food Coffee. The change taught me in a most convinsing manner that coffee was the cause of the headaches, but now I have an equally good coffee in Postum, and its health-giving properties are simply undeniable. Our little children use Postum regularly and go off to school as healthy and happy as children should. If ever husband or myself take a drink of weak coffee at an evening gathering or church social, we are kept awake until past the middle of the night. Yours for health."

EGGS Barred and White Plymouth Rocks, Buff Wyandottes, Buff Cochin Bantams. Prize Winning Stock. Prices reasonable. Address, RIVERVIEW YARDS, Fort Atkinson, Wis.
H. C. JAYCOX, Proprietor

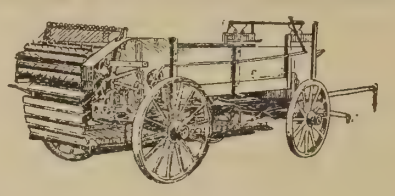
FOR SALE

The finest dairy farm in Virgina. Situated 25 miles from Washington, D. C. on the Potomac River; Pa. Railroad running through and station on the place. The tract contains 1550 acres and is divided in four farms. two of which are dairies, one of them large and thoroughly equipped. These farms are peculiarly adapted to dairying, trucking, fruit growing, etc., and are very accessible to first-class markets with ready sale for all milk that is produced at high prices. The land is very fertile, level, well watered and about three-quarters in cultivation. Can be devided into half a dozen or more farms, and should be seen to be appreciated. Owner will sell direct cheap, the whole, or parts of from 100 acres up. For full particulars, address,

H. A. DAVIS,
631 Pa. Ave N. W., Washington, D. C.

VICK'S VIGOROUS VARIETIES

Seeds make thriving plants. Thriving plants make farming profitable. We grow seeds for successful farmers and offer none but the most varieties. Write to JAMES VICK'S SONS, Rochester, N. Y. for 1900 Garden and Floral Guide. Contains full information of our modern method of seed selling in definite quantities. Describes many new and desirable



Boost Up Your Soil.

If it lags, nature asks for nature's fertilizer — Barnyard Manure.

THE NEW AMERICAN MANURE SPREADER will stretch it out thrice the area and spread it in any quantity desired.

It fits any wagon gear; is automatic; holds 50–60 bushels; and one man can set it up and handle it.

Not expensive.

Booklet "E" for a postal.

AMERICAN HARROW COMPANY,
Wis. Rep., Madison, A. F. MANNING. DETROIT, MICH.

. . . Hill's Automatic . . .



Skim Milk Weigher

MADE BY

A. H. BARBER MFG. CO.,

CHICAGO, ILL.

Pasteurizers, Babcock Testers, Alpha Separators, Combined Churns,

REFRIGERATING MACHINERY.

RARE CHANCE TO BUY

Two Good Farms.

One has large water front. Best oyster growing bottoms. Fish, crabs and game in abundance. Upland is extra good for stock raising, growing of grain, early vegetables, etc. Some of these lands have paid $300.00 in early strawberries. There is a good home market for what you have to sell. Churches, schools. R. R. and steam boats close by. For further information address

WM. S. RICHARDSON,
Marion Station, Md.

FOR OVER 30 YEARS in this market we have been and are still selling

Dairy and Creamery Butter, Poultry and Eggs

and we can do good service. **GEO. W. LINN CO., 103 So. Water St.,**
REFERENCES:— Hoard's Dairyman. Union Trust Co. Bank, Chicago. CHICAGO, ILL.

clover seed after I got the weeder and used it to cover the seed with, and I had the only stand of clover that I saw in this part of the country.

I drilled ten acres of corn the 7th of May and tended it with the Success Weeder as long as I could get through it. I had a very large yield

I used it on potatoes with good results. The corn that I used it on never rolled up during all the hot, dry weather, as did that of all my neighbors."

When R. H. Shumway, of Rockford, Illinois, the great seedman, tells you to write to him for his pictorial catalogue, and prices and facts about seeds for all purposes, flower or garden, do so without question or hesitation. His prices range from one cent a packet up, are astonishingly low, and every seed is guaranteed the best of its kind. To know all there is about the season's best things that grow, write to the above address—today.

DAIRY MARKETS.

ELGIN, Ill., Feb. 5—Butter was firm at 24c, although 55 tubs sold at 24½c; offerings were 145 tubs, the owners of some refusing 24½c Butter last week, 24c, and a year ago 20c. Sales of past week, 9,970 tubs.

CHICAGO, Ill., Feb. 5—Butter—Extra creamery, 24¼c; firsts, 22@23c; seconds, 19@20c; imitation creameries, 18@20c; dairies, choice to fancy, 22c; firsts, 19c; ladles, fine, 17@17½c; rolls, 16c

Cheese—Full Cream, Twins, good to choice, 11½@12c; off grade, 8½@10½c; Young America, 12@12½c; Cheddars, 11½@12c; Swiss, 12¼@12½c; Limburger, 10@11c; Bricks, 10@11c.

Eggs—Strictly fresh-laid, cases returned, 14c; city cooler stock, 7@10½c; country, 5@9c.

Bran Firm at $12.50 per ton; offerings small.

Cattle—Native beef cattle generally sold 10c lower; Texas steers declined 5@10c, canning cattle ruled weak to 10c lower, and fat cows and heifers were strong. The quality of tha natives was only fair, the top being $6 10, with only half a dozen loads above $5.80. Choice, 1,42 @1 609-lb. corn-fed Westerns sold at $5.85@6.00. Most of the native steers sold at $4.70@5.50; straight Texas Steers, 872@1,398 lbs., $3.75@5.15, bulk, $4.35@4.65; Mississippi steers, 731@934 lbs., $3 80 @4 40; native canning stock, $2.40@3.10; fat cows, $3.25@4; good to choice heifers, $3.75@4.50; bulls, $2.90@4.50; stags, $3.70@4 45; calves, $6@8 75. Canadian stockers, averaging 693 lbs., sold at $4.40, and 381-lb. calves at $4.90. Feeding cattle, averaging 566@1,071 lbs. sold at $3.40@5.85.

MILWAUKEE, Wis., Feb. 5—Butter—Creamery—Fancy prints, 25c; extras, 24c; firsts, 20c; secouds, 18c; roll, 15@16c. Dairy—Selections, 19@20c. The market is firm and more active, though prices are unchanged. On the Board extras sold at 24½c and bids ranged from 23¾@24¼c; receipts, 16,542 lbs.

Cheese—American Full Cream—October flats 11½@12c; November, 11@11½c. Brick—10@10½c. Limburger—10½@11c. Swiss—Drum, 12@12½c; Block, 12½@13c; No 2, 10½@11c. Business is quiet and the market is easier under larger offerings. Winter made Brick and Limburger is selling 1c below fall made, and moving slowly. Receipts 2,150 lbs.

Eggs—Fresh per doz. 15c loss off cases returned; held, 10@11c; cold storage 9@10c; seconds, 5@6c, as to quality. Fresh weak and ½c lower, while storage and held are unchanged, with a moderate demand. On the Board fresh sold at 15¼c and bids generally were below the views of sellers. Receipts, 168 cases.

NEW YORK, Feb. 5—Butter—Creamery, Western, extras, 25c; firsts, 24@24½c; state, extras, 25c; firsts, 23½@24c.

Cheese—Full cream, large or small, fall-made, fancy, 12¾@13c.

Eggs—State, Pennsylvania and Western, 17½c.

BALTIMORE, Md., Feb. 5—Butter—Market firm; creamery separator extra, 27@28c; extra first, 25@26; creamery first, 25c; creamery imitation extra, 23@24c; Iowa and Northwestern ladle extra, 21@22c; extra first, 20@21c; first, 20c; Western store-packed, 16@18; creamery rolls (2 lbs.) 27@28c.

Eggs—Market easy; strictly fresh, 17c.

PHILADELPHIA, Pa., Feb. 5—Butter—Solid-packed separator creamery extra, 26c; firsts, 25c; seconds, 22@24c; imitation creamery extra, 22c; firsts, 21c; seconds, 20c; ladle-packed extra, 20c; firsts, 19c; seconds, 17c. Print Butter—Creamery extra, 26c; firsts, 24@25c; seconds, 22c.

Eggs—Pennsylvania and nearby and Western, 16c; Southwestern, 16c; Southern, 15c.

KANSAS CITY, Mo., Feb. 5 Butter—Creamery, 20@23c; dairy, 18c. Eggs—Fresh, 12c.

ST. LOUIS, Mo., Feb. 5—Eggs—Steady; 12c. Butter—Steady; creamery, 20@24½c; dairy, 16@20c.

CINCINNATI, O., Feb. 5—Butter—Firm; 25c. Eggs—Weaker, lower; 14c. Cheese—Steady; good to prime Ohio flat, 12½c.

Latest quotations for fancy creamery: Buffalo, 26c; St. Paul, 23½c; Minneapolis, 23½c; Detroit, 25c.

WASHINGTON, D. C., Feb. 5—Market firm. Extras, 25½c; choice firsts, 24; fancy imitations, 20c.

BOSTON, Mass., Feb. 5—Butter steady, 26c. Cheese, 12½@13. Eggs, 12@18c.

NEW ORLEANS, La., Feb. 5—Creamery butter, 25c; quiet. Cheese unchanged. Storage eggs, 10 to 11c.

NEWARK, N. J. Feb. 5—Market steady, 26c for strictly extra Elgins, with fair receipts. Under grades dull.

NEW YORK MARKET.

NEW YORK, Feb. 5—Butter—Receipts for the week, 30,695 packages. Exports for the week none.

The market ruled steady all through the week and there is a strong disposition on the part of receivers to advance prices on finest fresh creamery. Extra goods sold quick at 25 cents and creameries a trifle off in quality found buyers at 24@24½c; at the close there is more enquiry for finest, fresh imitations at 22@23c and best marks of fresh ladles at 18@20c.

Fine, fresh dairy tubs were quick taken at full prices and we note more trade for finest June creamery at 23@24c. We quote:

Creamery, extra, 25c; medium, 24@24½c; poor, 20@22c. Dairy, extra, 23½@24c; medium 22@23c; poor, 18@20c. Ladle, extra, 19@20c; medium, 17@18; poor, 15@16c.

Cheese—Receipts for the week, 8,450 boxes. Exports for the week, 10,373 boxes.

Exporters continue to buy few lines of full cream cheese at 11¾@12c, considerable lines of under grades at 10½@11½c, and about the entire receipts of good skimmed cheese at prices ranging from 7½@9½c Local trade is unusually dull for February and buyers quite indifferent; any fair bid on large lots of finest cheese would certainly receive good attention from most holders; the small peddling trade this week from home buyers was for fine late makes full creams at 11½@12c and fancy September and October small cheese at 12¼@12½c. Market closes with ample stock fine cheese and prices in buyers favor and light stocks of under grades which easily sold at quotations. We quote:

Full cream, small, extra, 12½c; medium, 11¾@12c; poor, 10@11c. Full cream, large, extra, 12@12¼c; medium, 11½@11¾c; poor, 10@ 1c.

Eggs—Receipts for the week, 45,448 cases.

Market for fresh stock advanced to 19c early in the week but later fell back to 17½c and closes firm at this price. Refrigerator eggs braced up a trifle on Tuesday and advanced 1@3c per dozen. Receivers are a trifle more hopeful that the balance of stock will be used at about present prices.

We quote:

New York State & Penn., finest fresh, 17½@18c. Northern & Western, finest fresh, 17@17½c. Refrigerator stock, 6@12c. Limed eggs, 10@12.

177 Chambers St. DAVID W. LEWIS & Co.

BALTIMORE MARKET.

BALTIMORE, Md, Feb. 1.—Butter—There have been moderate receipts in all grades of butter during the past week, and a fair demand has kept the market steady, although a feeling of unsettlement has prevailed in all departments. The unchanged conditions which have been maintained at primary points during the past two weeks, will naturally produce a feeling of confidence to be followed, it is hoped, by more active business. Fine creamery has been coming forward in about the usual quantity, and has moved on into the customary channels of consumption; we can make no change in our figures on this grade, most of the trading being at 26 cents. Receipts of fresh gathered cream stock continue extremely light, and do not wait long for buyers, the favorite marks commanding a fractional premium on our quotations. Fine ladles and imitation creamery have also been coming forward sparingly, and are in rather more eager request; clean flavored butter of this grade is quickly salable at figures quoted. Roll butter is in light supply and is selling promptly. Choice Ohio rolls of good color find a market at 18 cents; much of the stock coming in is light in color. Store-packed goods are also scarce and in good demand.

Creamery separator, extras, 26c; firsts, 24@25c; seconds, 22 23c; gathered cream, extras, 24@25c; firsts, 23@24c; seconds, 21@22c; Ohio, extras, 24@25c; firsts, 23@24c; seconds, 21@22c; imitation, extras, 22c; firsts, 21c; seconds, 19@20c; Iowa and N. W. ladle, extras, 20c; firsts, 18@19c; seconds, 17c. Ohio & Indiana ladle, extras, 19@20c; firsts, 18c; seconds, 16@17c; Ohio rolls, extras, 18@19c; firsts, 17@18c; seconds, 15@16c; W. Va. rolls, extras, 17c; firsts, 16c; seconds, 15c; Ohio and W. Va. storepacked, extras, 15@16c; firsts, 14c; seconds, 13c; Creamery Blocks (2 lbs.) extras, 27c; firsts, 26c; seconds, 22@23c; prints (½ lb.), extras, 27@28c; firsts, 25@26c; seconds, 23@24c; md., Va., & Penn. prints, extra, 23@24c; firsts, 22c; seconds, 21@22c.

Cheese—Receipts are ample for the demand; market firm at unchanged prices. N. Y. State—Cheddars, fine, 12¾@13c; choice, 12¼@12½c; fair, 11½@11¾c; Flats, fine, 13c; choice, 12½@12¾c; fair, 12@12½c; Small, fine, 13¾@13½c; choice, 13c; fair, 12½c; Ohio—Flats, fine, 12½@12¾c; choice, 12¼@12½c; fair, 11½@12c; Picnic, fine, 13@13¼c; choice, 12½@12¾c; fair, 11½@12¼c; Swiss cheese, fine 12@12½c; choice, 11½@11¾c; fair, 10½@11c. G. M. LAMB & BRO.

301 Exchange Place.

Eggs—While the receipts of fresh egg have not been excessive, they have been about equal to the demand, which continues quite good; our market, in sympathy with others, is not active, but take it altogether, we do not hesitate to write it in fairly good shape at 17c.

LIVERPOOL, Feb. 5—Butter—Finest United States and good, nominal. Cheese—American finest white, 56s 6d; American finest colored, 59s.

READING NOTICES.

All Reading Notices under this head are at the rate of 25 cents per line.

Butter and Cheese Maker, age 34, single, German, acquainted with the latest inventions and owning some apparatus and good machinist tools, would like to take charge of a creamery. (Eastern state.) Address No. 50, care this paper. 52-4

Position Wanted—As farm manager, by practical, up-to-date American, single, 30, no habits, thoroughly experienced, and competent in agriculture, horticulture, stock raising, dairying, etc, in all details. Understand modern farm and dairy machinery. Highest references. Address THAYER FARM, Durham, Conn.

For Sale—Holstein-Friesian calves of the best breeding. Have only 4 bulls and 2 heifers left, which we now offer at the bargain price of $25.00 each, registered, transferred, crated, and delivered to Express Co. We are also offering 7 fine young grade and a few registered cows at selling prices, the most of them fresh, or soon will be. F. G. JOHNSTON & CO., Station B, Columbus, Ohio.

For Sale—A registered Guernsey bull. RAY BICKNELL, Fort Atkinson, Wis.

Wanted—Man with family for dairy farm; one or two boys to milk preferred, March 1st. ROBT. PERSONS, Onawa, Ia.

Wanted—A registered Guernsey bull. Address Box 388, Kenosha, Wis.

Wanted—A situation as cheese maker. Eight years' experience. Address BOX 16, Milton, Wis. 52-2

For Sale—A good dairy, well located, one mile from LaFayette. Fifty cows. Two retail wagons. Good reason for selling. Address for particulars, J. H. KORTY, LaFayette, Ind. 52-2

For Sale—The best milk business in a town of thirty thousand. Dairy of 50 Jersey cows, with everything complete; selling over 400 quarts daily. A fine business. Good reasons for selling. F. M. PARSONS, Burlington, Iowa. 52-2

Wanted—An experienced dairyman to work farm. A. F GOULD, Lima Centre, Rock Co., Wis. 52-2

Jersey Bulls For Sale—Ready for service; eligible to registry. Address, T. C. RUMPF, Fort Atkinson, Wis. 51-tf

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There is one all-important question confronting every creamery concern and every creamery operator for 1900. The sooner answered the better. A looking-backward answer at the end of the year may afford very little satisfaction.

Nine-tenths of the creameries in the country using "Alpha" disc separators—regardless of all other considerations—are prospering and progressing. No well-informed man can question that statement.

Nine-tenths of the creameries in the country using "hollow-bowl" separators—regardless of all other considerations—are being operated without profit or at a loss either to their owners or patrons; they are standing still or more likely going backwards. No well-informed man will question this statement.

There are nine chances out of ten that one or the other of these descriptions fits the circumstances of **your own** particular case.

What are YOU going to do in 1900? Are YOU going to prosper and progress? Or are YOU going to stand still, or go backward?

If you think it may possibly help you to answer this question to your own satisfaction, let us send one of our traveling representatives to see you, or let us give you any separator information you may desire. It is our business to serve you in such manner.

THE DE LAVAL SEPARATOR CO.,

GENERAL OFFICES:

CHICAGO. 74 Cortlandt Street, MONTREAL.

SAN FRANCISCO. NEW YORK. PHILADELPHIA.

Ayrshire Calves For Sale from the Choconut Valley Herd. P. BYRNE, St Joseph, Pa. 51-2

For Sale—Shetland stallion, Pilot No. 884, dark bay, heavy mane and tail, 45 inches high. Foaled May 20th, 1888. Drives single and double; very gentle. The first check for $100 will catch him. JAS. DRIVER, Darlington, Wis. 51-4

For a desirable creamery location inquire of H. H. SMITH, New Richmond, Wis. 51-3

Wanted—A skilled butter maker, either married or single, as working foreman on a 100 acre A. J. C. C. dairy farm within twenty-five miles of Philadelphia. Must be a total abstainer and have good reference. Address W. M. B., Room 1310, Land Title Building, Philadelphia, Pa. 51-2

For Sale—Very cheap, in perfect order, combined churn and worker, cream vats, tester, etc., etc., for dairy or small creamery. L. D. PASSANO, Jr., Box 251, Warrenton, Va. 51-2

I want for year or longer, first-class working foreman on stock farm near Chicago. Give age, experience, family, where been employed, wages received, etc. C. H. BUNKER, 136 Monroe St., Chicago. 51-2

Wanted—Location for creamery. For further particulars address, No. 302 Commercial St., Neenah, Wis. 51-2

Wanted—A first-class tenant for a first-class dairy and general purpose farm of 120 acres. Apply immediately. C. E. WARNER, Windsor, Dane Co., Wis. 51-2

Creamery Plant For Sale—Line of three creameries in Dane Co., Wisconsin, all in first-class shape, latest improvements, etc., doing a good business. Satisfactory reason for selling. To the right party will sell on favorable terms. For particulars apply to M. L. BROWN & CO., 141 So. Water St., Chicago, Ills. 50-tf

The undersigned wishes to arrange for a regular shipment of four cans of high grade milk with some dairyman near Milwaukee. Address, P. J GROGAN, 2611 Sycamore St., Milwaukee, Wis. 50-3

For Sale—Twenty-five high grade Jersey cows, thirty-five one and two-year-old heifers, by St. Helier's Cowboy 44822. For particulars address, HUMPHREY BROS, Fairmont, Kansas. 50-4

For Sale—De Kol Bulls. Officially tested dams. Send for catalogue. M. S. CAMPBELL, Genoa, Ill. 49-10

For Sale—Pure bred Tamworth pigs ready to wean. Also a few Holstein bull calves. GLIEDT & KAISER. Freistatt, Mo. 48-9

Wanted Now—A strong, able and sober married or single man to work by the year on farm in Illinois. Must be good milker. For further particulars address A. J. DAUGHERITY, Streator, Ill. 46-tf

For Sale—Dairy and outfit. Terms easy. R. A. LAMBERT & SON, Mobile, Ala. 46-tf

Buttermaker of 9 years' experience wants a steady position. Married. Will furnish good references. Work guaranteed. State wages. Address J. R., care HOARD'S DAIRYMAN. 46-tf

Creamery For Sale—Situated in good dairy district in Southern Wisconsin. Will sell for reasonable price, and if desired will take in exchange good farm property. Address W. H. O., care Hoard's Dairyman 44-tf

Wanted—Position by an experienced butter maker. Best of references from last employer. Address J. R. WEIR, Le Roy, N. Y. 51-4

For Sale—A cheese factory in good dairy district. Received for season of 1899, 859,465 lbs. milk. Also a general store run in connection, goods invoicing about $800.00. Satisfactory reason for selling. Full particulars by addressing P. M. at Lawrenceville, Wis. 51-2

Correspondence solicted with parties having capital to invest in private creamery. 230 cows pledged within radius of four miles; more to come as soon as creamery starts. Splendid dairy country. Five miles to R. R. station. Address, J. M. MOE, Chetek, Wis. 50-3

Excursion Rates to Mid-Winter Mardi Gras and Carnival, Milwaukee, Via the North-Western Line. Excursion tickets will be sold at reduced rates February 9 and 10; limited for return until February 12, inclusive. Apply to agents Chicago & North-Western R'y.

Excursion Rates to the Mardi Gras and Winter Resorts—Via the North-Western Line. On account of the Mardi Gras at New Orleans and Mobile, excursion tickets will be sold February 19 to 25, inclusive, at very low rates, limited for return passage until March 15. Excursion tickets are also on sale daily, at reduced rates, to the principal winter resorts in the United States and Mexico. For full information apply to ticket agents Chicago & North-Western R'y. 52-2

Half Rates to National Creamery Butter Makers' Convention, Lincoln, Neb.—Via the North-Westeru Line. Excursion tickets will be sold at one fair for the round trip, from all stations, February 17 and 18, limited for return until February 28, inclusive. Apply to agents Chicago & North-Western R'y, 52-2

Grand Excursion to Old Mexico—Via Chicago & North-Western Railway, to leave Chicago Tuesday, January 30, 1900, under personal direction of Mr. J. Grafton, an experienced excursion manager. Entire trip in special train with dining car. Tour is arranged to include Mardi Gras at New Orleans and all principal points of interest in old Mexico and ticket covers all expenses. Only limited number can be accommodated; secure space early. For descriptive pamphlets and information, call on, or write agents Chicago & North-Western R'y. 47-4

Tour of Puerto Rico.—The American Tourist Association announces two tours of the beautiful island of Puerto Rico under escort of Mr. Walter Boyd Townsend, the well-known artist and traveler, through and around the Island by rail, carriage, automobile and boat. Special Pullman Cars leave Chicago Thursday, February 15, and Thursday, March 8, at 12, noon, connecting with the splendid new steamships Ponce and San Juan sailing from New York second day following. Tickets include all expenses everywhere. All railway, steamer and sleeping-car fares, meals and berths on steamers, meals on dining car, hotel bills in New York and Puerto Rico, all transfers, carriage rides in the cities and through the Island, guides and interpreters are included in the tickets. There are no extras. Tours are under the direction of Reau Campbell, General Manager, A. T. A., 1423 Marquette Building, Chicago. Itineraries, maps and tickets can be had on application to the Agents of the Chicago, Milwaukee & St. Paul R'y. 48-sp

Kansas State Dairymen's Association.

The thirteenth annual convention of the Kansas State Dairymen's Association held in the rooms of the Kansas State Agricultural College, was, in many ways, ahead of other meetings of this character. A program was prepared for the meeting, that touched the vital defects as also the advantages of Kansas dairying at the present date. The meeting was called to order at 3:30 p. m. on Wednesday afternoon, Nov. 22, by President F. S. Hurd.

On behalf of the city Mr. Sam Kimble welcomed the Association, and among other things uttered some of his own experience when a boy. He was a sort of a dreamy boy and loved to whistle or sing when milking. It was in the good ancient time when the calf would be allowed to suck on one side while the milker occupied the other, and thus a lusty race continuously in progress between the calf and the boy, who should get the biggest share. When the boy was whistling Captain Jenks or Yankee Doodle, or tunes of like measure, no complaint was heard, but when he changed to Auld Lang Syne or Home Sweet Home, a "Sam, hurry up there, you are letting that calf get all the milk," would ring out from the head of the farm department. The cow undoubtedly liked "Home Sweet Home" the best.

Seriously considered, this brings out the point of quick milking and a matter never before discussed, the proper melody or stanza to adopt at milking time.

Acting President Nichols extended welcome on behalf of the college and explaining the college work he laid particular stress on the change that is coming. More time is now given to the harmonious training physically and mentally of the students; they do not acquire a classical knowledge to the extend they used to. The motto of the institution is to teach good practical knowledge that will fit the students in after life to live better and enjoy life more. Good common sense is impressed on the minds of the boys and girls in attendance. Mr. Nichols also explained the work of the Experiment Station. However, the result of this work is well known to most of our readers, it being very creditable. Mr. J. F. Nissley, of Topeka, in well placed words responded, laying particular stress that close co-operation should exist between the farmers and dairymen of the state and the college that to-day is doing much to better the farmers' condition.

President Hurd, in his address, recommended that serious consideration and active aid be given the National Dairy Union in its fight to secure the 10 cent tax on colored oleomargarine. He recommended that this question be properly represented to the National Live Stock Association, which meets at Fort Worth, Texas, Jan. 16, 1900, and if possible, their assistance secured. He said:

It is a fact that none will dispute, that if every pound of oleo were sold as such and not palmed off on unsuspecting customers as genuine butter, the dairy industry would be greatly stimulated. If this were done, thousands of men who are now handling beef cattle on a small scale, and thousands of "general-purpose" farmers would be attracted to the dairy business, leaving a gap in the beef-producing field and resulting in a stimulus to that industry as well.

Mr. C. A. Barnes in his paper "Fuel and Oil Consumption in Creameries," pointed out that operators should study their individual separators and engines, and use the best coal and oil, it being the most economical in the long run.

"How Near Elgin Can Kansas Creameries Pay for Butter Fat?" was the subject of A. Jensen, of Manhattan.

Mr. Jensen said in part: The subject, "How Much Below Elgin Can Kansas Creameries Pay for Butter Fat?" is rather a broad question, and it took me nearly three months of study to find a just explanation to creamery owners and patrons alike

All Kansas creameries can not pay the same price for butter fat, for several reasons. Some get a large supply of milk, and can produce a better class of butter than others, the cause of which might only be local, but just allowances must be made for conditions as they are.

In the following table the first column gives various outputs of butter; the second column gives several prices for butter at Elgin; the third column gives the corresponding prices in Kansas; the fourth column gives the total cash received for the several outputs at the several prices; the fifth column gives the total expense of producing the butter; the sixth column gives the net balance to pay for butter fat; the seventh column gives the total butter fat in the output after 14 per cent overrun has been deducted; and the last column gives the net prices that can be paid for butter fat by Kansas creameries at the given outputs and with the given Elgin prices for butter:

TABLE SHOWING NET PRICES THAT CAN BE PAID IN KANSAS FOR BUTTER FAT UNDER VARYING CONDITIONS.

Output of butter for one month.	Elgin butter price.	Price obtained for butter.	Total cash received.	Total expense.	Net balance to pay for butter fat.	Total butter fat after 14 per ct. overrun is deducted.	Net price paid for butter fat.
2000	14	13	$260.00	$141.40	$118.60	1754	6.7
2000	16	15	300.00	141.40	158.60	1754	9.0
2000	18	17	340.00	141.40	198.60	1754	11.3
2000	20	19	380.00	141.40	238.60	1754	13.5
2000	22	21	420.00	141.40	278.60	1754	15.8
2000	24	23	460.00	141.40	318.60	1754	18.1
2000	26	25	500.00	141.40	358.60	1754	20.4
3000	14	13	390.00	179.80	210 60	2630	7.9
3000	16	15	450.00	179.80	270.20	2630	10.2
3000	18	17	510.00	179.80	330..0	2630	12.5
3000	20	19	570.00	179.80	390.20	2630	14.8
3000	22	21	630.00	179.80	450.20	2630	17.1
3000	24	23	690.00	179.80	510.20	2630	19.4
3000	26	25	750.00	179.80	570.20	2630	21.6
4000	14	13	520.00	218.80	301.20	3596	8.4
4000	16	15	600.00	218.80	381.20	3596	10.6
4000	18	17	680.00	218.80	461.20	3596	12.9
4000	20	19	760.00	218.80	541.20	3596	15.0
4000	22	21	840.00	218.80	621.20	3596	17.2
4000	24	23	920.00	218.80	701.20	3596	19.5
4000	26	25	1000.00	218.80	781.20	3596	21.7
6000	14	13	780.00	288 00	492.00	5350	9.2
6000	16	15	900.00	288.00	612.00	5350	11.4
6000	18	17	1020.00	288.00	732.00	5350	13.6
6000	20	19	1140.00	288.00	852.00	5350	15.9
6000	22	21	1260.00	288.00	972.00	5350	18.1
6000	24	23	1380.00	288.00	1092.00	5350	20.4
6000	26	25	1500.00	288.00	1212.00	5350	22.6
8000	14	13	1040.00	323.30	716.70	7017	10.2
8000	16	15	1200.00	323.30	876.70	7017	12.4
8000	18	17	1360.00	323.30	1036.70	7017	14.7
8000	20	19	1520.00	323.30	1196.70	7017	16.9
8000	22	21	1680.00	323.30	1356.70	70 7	19.3
8000	24	23	1840.00	323.30	1516.70	7017	21.4
8000	26	25	2000.00	323.30	1676.70	7017	23.8
15000	14	13	1750.00	413.00	1337.00	12157	10.2
15000	16	15	2250.00	413.00	1837.00	13157	13.9
15000	18	17	2550.00	413.00	2137.00	13157	16.2
15000	20	19	2850.00	413.00	2432.00	13157	18.5
15000	22	21	3150.00	413.00	2737.00	13157	20.8
15000	24	23	3450.00	413.00	3037.00	13157	23.0
15000	26	25	3750.00	413.00	3337.00	13157	25.3
30000	14	13	3900.00	563.00	3337.00	23403	12.6
30000	16	15	4500.00	563.00	3937.00	26403	14.9
30000	18	17	5100.00	563.00	4537.00	26403	17.1
30000	20	19	5700.00	563.00	5 37.00	26403	19.4
30000	22	21	6300.00	563.00	5737.00	26403	21.4
30000	24	23	6900.00	563.00	6337.00	26403	24.0
30000	26	25	7500.00	563.00	6937.00	26403	26.3

THE ITEMIZED EXPENSE INCURRED AT VARIOUS RUNS.

Output of butter, in pounds	2,000	3,000	4,000	6,000	8,000	15,000	30,000
Coal	$25.00	$30.00	$35.00	$40.00	$45.00	$50.00	$55.00
Labor	50.00	75.00	100.00	150.00	165.00	200.00	250.00
Interest at 10 per cent on $4,000	33.00	33.00	33.00	33.00	33.00	33.00	33.00
Wear and tear	7.00	8.00	9.00	10.00	11.00	12.00	15.00
Depreciation	5.00	5.50	6.00	7.00	8.00	9.00	10.00
Package	10.00	15.00	20.00	30.00	40.00	75.00	150.00
Salt and color	1.60	2.50	3.50	5.00	7.00	13.50	26.00
Insurance	7.30	7.30	7 30	7.30	7.30	10.50	11.00
Advertising and printing	2.50	3.50	5.00	6.00	7 co	10.00	15.00
Total expense	$141.40	$179.80	$218.80	$288.00	$323.30	$413.00	$563.00

It is interesting to note that while so many other lines of business are forming trusts, combinations, pools and monopolies, neither the creameries nor dairymen are attempting any such questionable methods of advancing their business interests. The prices in dairy markets are regulated alone by the laws of supply and demand, and neither the supply nor demand can be controlled by the dairymen in any direct manner. All the dairy people ask is that their honest goods may be sold for just what they are, and not have to compete with cheap imitations and substitutes.

Mr. Hurd also recommended a dairy commissioner for Kansas for the great benefit of all concerned.

In 1894-7 the creamery industry of Kansas was at its best. For three years the Kansas farmers only raised small crops, and in Mitchell County, where I was located then, or in fact the whole western part of the state, raised no crops at all. It was considered then by nearly all the farmers that the creameries were the standby, and it was no unusual occurence to receive from 20,000 to 50,000 pounds of milk per day at each creamery and station. What conditions exist to-day? The receipts all over the state will hardly average 2,000 pounds of milk daily for each creamery, when it should be at least five times as large. The farmer's milch cow of then is now only a stock cow—an animal that only can produce a calf every year, and if the calf should die, would be a net loss to its owner of at least $15; and the worse feature about the cow is, she has lost her milking qualities.

Great interest was taken in the patrons' class; they will be made a permanent feature of the meetings. For next year a fund of $50.00 has been raised to be given the patron standing highest. Ludolp Gabe brought out the practical points of milk and cream testing.

It was brought out that the glassware for testing is not always correct, and to get a correct composite sample at all times and under all conditions, a milk thief or the Scoville milk dipper should be used. H. VanLeeurven brought out the crying need of a dairy commission, authorized to inspect creameries, and the glassware in use for testing.

J. G. Haney, of the Kansas Experiment Station, related that in their trials of feeding creamery skim milk to hogs they had found it superior to any other ration; the gain on skim milk and kafir corn fed hogs was 2.43 pounds per day each, and brought 40 cents per 100 pounds for the skim milk. The hogs sold for $3.50 and the kafir corn was valued at 30 cents per bushel. In other trials with different feeds, from 20 to 24 cents was netted per 100 pounds for the skim milk.

Jacob Lund's paper on "Care of Boiler and Engine," brought out the truth of the old maxim, "one stish in time saves nine," and that cleanliness generally assured a competent engineer. Mr. F. F. Fairchild and James Robinson stated their experience with milk cows. Mr. Fairchild is in the eastern part, Mr. Robinson the short grass country. Mr. Fairchild's average income per cow in a year is $71 and Mr. Robinson receives $60 cow per for butter fat and calf. Mr. Robinson concluded by saying: "Let me say to the farmers of the short grass country, stay by your cows and your creamery—two of the best things we ever had. Be as liberal as possible to both, liberal in your care of your cows, making you a liberal patron to your creamery." Hon. F. D. Coburn gave a very interesting talk on "A Visit to an Eastern Milk Farm." He concluded as follows:

It is well worth thinking about that this Yankee, with a herd of 150 cows, in such a rigorous climate, can so breed, and feed, and milk them that one with another, the poor, the medium, and the good, the fresh and the farrow, the heifers and the old, shall average for every day in the year 7½ quarts of 5 per cent milk, and that his manipulations of them, and his good name, enable its selling, winter and summer, for 8 cents a quart, or from 25 to 35 per cent more than is paid to his neighbors who are in the same business. There is not one of us but could well afford to sit at the feet of and learn wisdom from a man wherever and whoever he might be, who had so managed even one cow as to obtain from her $100 worth of milk product in a year, but here is a man, not trained to the business, yet strictly a business man, who mixes his bran with brains, maintaining an extensive herd, larger than any I know of in Kansas, who so manages it that the yearly gross income from each cow is nearly $219.

We do not have his 8-cent market for our milk, but in well-nigh every other respect we have advantages innumerable to which this man without accessible pasture, who feeds $4-ensilage and $20-bran must by the very nature of the circumstances be a stranger. We have the grains and the grasses for the making of milk the equal of any, at a cost so small compared with the prices he must pay for like commodities as to make a comparison seem well-nigh ridiculous; besides a mild climate and short winter seasons which

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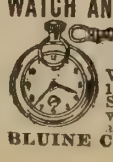
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give us a tremendous advantage. So long as we in large part ignore these, the wealth of opportunities all about us, we shall but advertise ourselves as content to be in a measure laggards, commonplace and ordinary. When we learn to utilize them to anything like the limit of their possibilities we shall be rich, prospered and prosperous.

Professor D. H. Otis, on the subject "Feeding and Developing the Kansas Dairy Cow," brought out the absolute necessity of testing each individual cow. The scale and the Babcock test should be in every barn. He proved among other things that the receipt from the 11 poorest cows in the college herd less cost of feed, amounted to $41.63; only $1.26 more than the receipts from the best cow less the cost of feed. He concluded his lecture with the following practical advice:

But Kansas can never expect to reach the goal in dairying until she applies more business principles to the handling of cow machines. This shifting from milk to beef and back again from beef to milk is a practice that is eating the very bottom out of our profits. After a man spends several years in grading up a dairy herd, it is folly for him to change to raising beef animals from the same herd just because beef is higher than butter fat. Such changes cannot be made in a day and by the time he has accomplished his end the tables will be changed and butter fat will be higher and beef lower, and he will then wish he had the experience. the growth, the development he would have had by sticking to one thing and making the most of it.

As will be seen from the above figures, the question is not so much how we can get more cows, but how we can get cows of a better brand. We want and ought to have cows that yield so much that the farmer cannot afford not to milk them no matter what the price of beef. To do this, records and the methods of men who are making a success of the dairy business need to be brought before the public. This in connection with experiments and instruction at the college, in connection with constant agitation along the lines of feeding and breeding, will undoubtedly bear fruit sooner or later in raising the standard of the dairy industry throughout the state.

The "Skim Milk Calf" was discussed by J. A. Conover, of the Kansas Experiment Station. He made his calves gain an average of 1.77 pounds per day, on creamery skim milk and kafir corn meal, and summarizes his experience as follows:

1. Let the calf run with the cow for the first three days; gives the calf a better start, and is better for the cow.
2. Dehorn all calves while young, preferably when they are two days old; saves time, money and pain.
3. Let the calf get hungry before you try to teach it to drink; you will feel better and so will the calf.
4. Be kind with the calf and deal with it gently.
5. Change gradually from whole milk to skim milk; do not overfeed.
6. Feed all milk warm and sweet; if a young calf, feed often, three times a day.
7. Feed grain dry; do not mix it with milk.
8. If troubled with scours, cut down on feed, give castor oil or raw eggs. Keep all pens, pails, etc., sweet and clean.
9. Keep the dairy calf thrifty and the beef calf fat.
10. Do not let the calves suck each other's ears and noses. Tie them up.
11. Keep plenty of nice fresh water where they can get at it all the time.

"The Relation of Patrons and Creamerymen was discussed by G. W. Priest and C. F. Armstrong. This touched a very interesting subject, and it was conceded that closer co-operation between patron and creamerymen was needed. The light receipts at the creameries entail proportional heavy running expenses. Facts proved, better receipts mean better prices for butter fat, and that Kansas creameries can pay close to Elgin prices for butter fat if 20,000 pounds of milk was received at each factory.

Methods were suggested to bring this about, such as a fixed price for butter fat, based on a standard market; education among patrons. The creamerymen are willing to adopt any reform demanded by Kansas patrons, if conditions will be improved thereby. However, the large price of calves, high-priced beef, good crops and high price of same were considered the main cause of the lack of interest taken in dairying at the present time among Kansas farmers.

J. H. Taylor brought out the fact, that the cheese making industry is coming to the front; that conditions are favorable, and as good cheese can be made in Kansas as anywhere.

The following officers were elected for the ensuing year: President, W. F. Jensen, Beloit; Secretary and Treasurer, A. L. Goble, Riley; Assistant Secretary and Treasurer, T. A Borman, Enterprise.

Three Hundred and Thirty-three and Three-Tenths Pounds of Butter per Cow, and not Satisfied.

ED. HOARD'S DAIRYMAN:—As we are through with 1899, I have figured up what our herd has done. We milked 23 cows, counting in the two and three-year-olds, and the average was 333⅓ pounds of butter each by Babcock test. Our best cow made 458 lbs. of butter, and was dry 2 months in the year. I want to bring the average up to 400 lbs. of butter each, and I think I can by the aid of your most valuable paper.

Will you please make me out a ration of the following: Clover hay, wheat bran, corn and oats, half and half, oil meal and gluten meal. I use the oil meal in the winter time as I have no roots or silage, and in the spring I change to cotton seed.

Oakdale. F. M. S.

We regret that F. M. S. omitted to give the name of the state in which this particular Oakdale is located, but more than this we regret that he did not give more particulars in regard to his herd and the care given his cows.

Our suggestion for a ration formula is as follows:

FORMULA FOR RATION.	Dry Matter.	Digestible Nutrients		
		Protein.	Carbohydrates	Ether Extract
20 lbs. clover hay	16.94	1.36	7.16	.34
4 lbs. corn and oats..	3.56	.34	2.08	.17
3 lbs. bran	2.64	.38	1.16	.09
2 lbs. oil meal.....	1.82	.59	.65	.14
Totals.....	24.96	2 67	11.05	.74

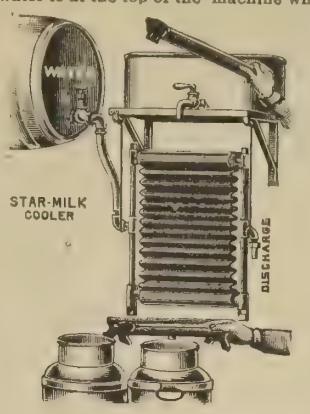
For cows not in full flow of milk this would be too much, and we would cut it down most in the most expensive feeds.

$50.00 to $100.00 per month made by selling rights for the **Fence that suits everybody.** ☞ More agents wanted. BUCHANAN FENCE CO., Box 27, Smithville, Ohio.

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Why do STAR Milk Aerators and Coolers AERATE Milk as well as COOL IT?

Because, as the milk becomes cold so does the water used for cooling become warm; this warm water is at the top of the machine where the warm milk strikes it first, the milk spread out in a thin film exposed to the air, flows downward as the water flows upward, the milk gradually coming in contact with colder water until it drops off the cooling surface where the fresh water is slowly entering, into a collecting trough. The milk is thus subjected to a gradual and continuous reduction of temperature while exposed to the air, the evaporation necessarily taking place under this condition forces out the animal heat and with it the objectionable odors.



This result cannot be accomplished by chilling the milk as would be the case if brought in contact with an ice cold surface.

For thorough aeration a gradual and continuous reduction of temperature is absolutely required; this result can only be produced by a machine that has a long flow for the milk and also for the water; it is essential that the water should become warmed so that the milk is gradually cooled during the process of aeration. In the smallest size STAR AERATORS AND COOLERS the film of milk has a downward flow of at least forty (40) inches.

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No Rubber Rings

Hand separator construction has reached perfection in the improvements possessed by the Reid 1900 Hand Separator—the machine without a rubber ring. Everyone who has used an old style hand separator knows the trouble and annoyance caused by the rubber ring at the top of cylinder. This is done away with in the new Reid machine, which is the most simply constructed separator as it is the most effective skimmer. There is practically only one part inside of bowl. The top of cylinder fits securely, without threads or screws.

You have the privilege of trying the

REID 1900
Hand Separator

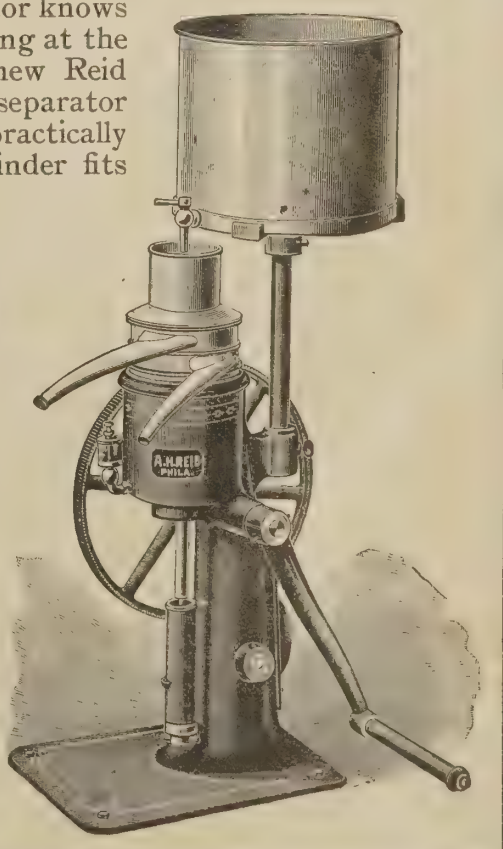
for ten days without any charge whatever. Give it a thorough trial and be convinced, as was the dairyman who wrote the following letter:

"In order to satisfy myself before purchasing a separator, I tested the following machines: DeLaval, Sharples, National, Mikado and Reid. The samples, which I took personally, were tested by a party who did not know to which machine they belonged. It was found that the Reid was very much the closest skimmer, and at the same time, I thought lighter running than any of the others."

Marlboro, N. J., Jan. 1900. THOS. WILLS.

Prices—capacity 150 lbs. per hour, without stand, $60.00;
capacity 250 lbs. per hour, with stand, $80.00;
capacity 350 lbs. per hour, with stand, $100 00.

Write for Hand Separator circular and catalogue of Dairy Supplies.



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Mr. Wheaton's Canadian Dairy Notes.

Canadian Dairy Meetings—Milk Testing at Factories—Cheese Curing Rooms—Points For the Patron—Sanitation at Cheese Factories—Lime in Cheesemaking—Fermentation Test for Milk.

ED. HOARD'S DAIRYMAN:—In our last letter we gave a short report of what took place at the annual gathering of Eastern Ontario dairymen held at Madoc. During the week following the Eastern meeting the Western dairymen held their annual gathering at Stratford. This was the thirty-third annual convention of what is now known as the Cheese and Buttermakers' Association of Western Ontario.

Thirty-three years is a long period to look back over. Where there was one cheese factory in Canada in 1867 there are twenty-five to-day. At that time co-operative creameries were unknown in this country and to-day we number them by the hundreds. Such is the progress that perseverence, honest methods and enterprise have wrought in all these years.

A glance over these years of progress in dairying is not unaccompanied by a tincture of sadness. Many names familiar to dairymen at their annual gatherings twenty-five years ago, no longer appear on the program. They have departed to another sphere but their work lives on. There is, however, one of the old vanguard with us still, whose name forms a connecting link between the present, and those early days when dairymen had to struggle against great odds in bringing their business to the front. The gentleman to whom we refer is the Hon. Thomas Ballantyne. Though aged somewhat in appearance he addressed the Stratford meeting with much of his old time vigor and force, urging dairymen to better methods and better care in dealing with the cow and her products.

The convention opened under most favorable auspices with President Harold Eagle in the chair. In his opening address he emphasized the necessity of changing the name of the association to the old one of the Dairymen's Association of Western Ontario, more familiar, perhaps, to the readers of the DAIRYMAN than the one now in use. The present name conflicts with that of the Makers' Association which meets at Ingersoll next week.

The directors report pointed out that in many sections of Western Ontario the past season had not been as profitable as others for manufacturers and makers because of the great shrinkage in the milk. On the other hand the extra high prices which prevailed served to offset this drawback so far as the patrons are concerned. During 1899 four travelling instructors were employed by the Association in visiting the cheese factories and creameries in its district; $200 was given in prizes for essays by makers who had been employed in cheese factories and creameries during 1899. This resulted in over seventy essays being received on cheese and buttermaking.

While the instructors reports were more or less of a routine nature one or two important facts were brought out. A great many of our factories are still without a Babcock test. That any factory in this age should be without this valuable instrument is passing strange. Surely the owners or managers have not attended dairy conventions or read our agricultural journals, including this valuable dairy paper, or they would be more in advance of the times.

Another fact brought out was that very few of our cheese factories are paying for milk according to its quality. While no reason is given for this state of affairs, there must be one somewhere. There is a growing suspicion among not a few dairymen that either the machine or the person who does the testing is not to be depended upon. Where Babcock machines are manufactured in such large quantities as is the case at present there seems to be good ground for believing that some of the test bottles might not be as accurate as they might otherwise be.

One gratifying feature of the reports was the improvements noticeable in many of the curing-rooms, and the methods adopted for controlling the temperature. Several factories have had sub-earth ducts put in with splendid results. The instructors reported many factories as still behind in their methods of curing, and also many where the making rooms were anything but perfect places for making cheese in. Still the agitation of recent years for better and more up-to-date factory buildings, is having its effect, and a gradual improvement is noticeable each year.

Mr. A. F. MacLaren, M. P., known to many Americans as the maker of MacLaren's "Imperial" cheese, which scored perfection at the World's Fair, in advising dairymen to keep on improving the product, gave a few pointers that are well worth noting. The patron must be more careful about his farm and buildings, keeping everything a little cleaner and tidier than before; the man who draws the milk must give more attention to his duties, and keep his wagon, can and himself cleaner, and everyone connected with the trade must do better than ever before, if this improvement in quality is to be brought about.

An important topic introduced by Dr Bryce, of the Provincial Board of Health, was that of sanitation at cheese factories and creameries. He advised the appointment of an inspector in every county, whose duties would be to look after and see that proper sanitary conditions were maintained at the factories; such inspectors to be skilled bacteriologists. A movement of this kind seems to be along the right line. Not only would it tend to improve the conditions pertaining to health in localities where factories are situated, but it would be an incentive in the way of improved factory buildings, as owners would not like to incur the enmity of the inspector by continuing to make cheese or butter in old, unsanitary and half-decayed structures.

Prof. Dean gave the results of some very interesting experiments carried on at the Provincial dairy school, last season, on the use of a lime solution in cheese making. These were not altogether conclusive, and



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R. C. GREEN, Albion, Wis.

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COMBINATION JERSEYS
Direct descendants of **Combination,** sire of 25 tested daughters; **Diploma,** sire of 53 tested daughters; **Brown Bessie,** winner of 30 and 90-day test at the Columbian; **Merry Maiden,** 2d only to Brown Bessie **The blood of the Winners breeds on.** This **deep milking blood** can be secured from the **Brown Bessie Herd.** Bulls fit for service.
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PEDRO BLOOD CHEAP.
TWO BULLS, 6 and 7 months, solid colors, black points and fine.
TWO HEIFERS, 7 months, ditto. Sired by Pedro of Fairfield. Also Chester White Pigs.
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Hood Farm Jerseys **FOR SALE**—Solid colored bull, dropped Jan. 22, 1899. Sire, Pedro Signal Landseer, sire of 1 in 14 lb. list. Dam, Leonette, test, 15 lbs. 3 oz., the dam of Leonette's Landseer, sire of 10 in list, including Lady Mary of Glenois, 27 lbs. 3½ oz., won first prize and sweepstakes Dallas Fair, 1897. Write for price to HOOD FARM, Lowell, Mass.

SPECIAL OFFERING.
Grandly bred Jersey bull calf. Dropped July 8, 1899. Solid color. Tuberculin tested. Good conformation. His dam is Ida's Rioter's Elopement, 99412. She gave 45 lbs. milk a day and made 19 lbs. 15¼ oz. of butter in 7 days as a four-year-old. Calf's sire is Ida's Rioter of Prospect, 45285, the average of whose dam and sire's dam is 65¾ lbs. of milk a day and 29 lbs. 10½ oz. of butter in 7 days. Calf offered is a double grandson of Ida's Rioter of St. L., 18656, who leads all other bulls that ever lived in average butter test for 31 tested daughters, among them Ida Marigold, winner of the lion's share of the honors at the World's Fair Calf's dam twice descended from Stoke Pogis 5th, who leads all other bulls in the number of tested granddaughters. For price and full tabulated pedigree, address **MILLER & SIBLEY'S STOCK FARM, Franklin, Venango Co., Pa.** Other grandly bred bulls and females for sale. No animal sold for less than $100.

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Exile of St. Lambert 13657.
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"More than any other bull, living or Dead." Solid color; black tongue and switch; a good individual, 10 months old.
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Offers for the next 60 days **a few choice Young Bulls** from 3 to 6 months old, at reduced prices. Address, FRED STUBLEY, Black Earth, Wis.

Jersey Bulls AND HEIFERS
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Young Stock from **400 Pound Cows** for sale. Come and see them. **TUBERCULIN TESTED.**
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Of the **St. Lambert** and **Coomassie** strains, for sale at all times. King Coomassie 2nd (11 tested daughters) heads the herd. Address, BROADMOOR DAIRY, Colorado Springs, Colo.

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For Three Bull Calves sired by three different bulls. St. Lambert, Pedro, and Combination blood.
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FOR SALE—For a short time we are offering A. J. C. C. **Jersey Bulls** from two to fourteen months old at **reduced prices.** They are from choice cows and are sired by St. Lambert of Brodhead 46957, one of the best of bulls, as his pedigree will show. We also have a few cows and heifers for sale. Write for catalogue.
N. N. PALMER & SON, Brodhead, Wis.

will be repeated another year. The results are summarized as follows:

1. An ordinary lime-water solution, when mixed with rennet for ten or twelve hours before the rennet is added to the milk, destroys the action of rennet, but such an effect does not result if the rennet and lime-water be mixed shortly before renneting the milk.

2. Calcium chloride solutions, so far as have been observed, do not affect rennet action adversely.

3. The yield of cheese was slightly greater in several instances where the lime solutions were used, but this difference in yield may or may not have been due to the use of the lime compounds in the milk.

4. There was little difference in the quality of the cheese, so far as has been observed yet, though many of them are too green at this time to judge of their quality.

5. In the case of pasteurized milk, the lime solutions did not restore the texture and body of the cheese, though there appears to be a slight improvment in the quality as the result of adding chloride of lime solution to pasteurized milk for cheese-making.

6. Our results are tentative at present, and require further work to settle the question of the effects of lime solution in cheese-making.

In the discussion on cheese-making, which followed the reading of the first and second prize essays on that subject—the best makers agreed that a fast working vat of milk should be set at a lower temperature than that for normal milk, and heated gradually to 98° or 99°. After the particles of curd were firm, and immediately before the whey was run off, it might be an advantage to heat the vat two or three degrees higher; 78° to 80° was the best temperature at which to put a curd to press.

Prof. E. H. Farrington, of Wisconsin, who made his first appearance before a Canadian dairy audience at Stratford, acquitted himself well. While his addresses were well received, his strong point was in bringing out a good discussion. This he effected in an admirable way, when called upon to open the discussion on buttermaking, after the reading of one of the prize essays on that topic. Flattery is not one of our failings, and therefore we speak the truth when we say that Prof. Farrington was instrumental in bringing out one of the very best practical discussions we ever listened to. Many butter makers were sorry that it had not been brought on at an earlier stage of the convention. The discussion was unfortunately cut rather short on the last day, in order to bring the convention proceedings to a close.

Prof. Farrington recommended the use of the acid or fermentation test in detecting tainted milk, rather than depend altogether upon the sense of smell, when the milk is delivered. Milk for separating should not be heated by forcing steam into the milk. It should be heated by passing the milk over a heated surface. He recommended the use of the composite method in taking samples from the skim milk outlet when separating. The influences effecting the rate of cream ripening are the thickness of the cream, time held, number of bacteria and temperature of the cream. The churning temperature is the temperature of buttermilk when the butter breaks. He recommended using the Babcock test instead of the oil test churn in cream gathering creameries, as it was more reliable. The gatherer could weigh the cream and take samples for the Babcock when on his rounds.

The causes of water in butter received some attention. Prof. Farrington outlined some experiments he had carried on at Madison in order to find out the amount of water in salted and unsalted butter. In every case there were more drops of moisture on the salted than on the unsalted butter, but a chemical analysis showed that the latter contained about 4% more water than the former.

Prof. Farrington's experience had shown that butter with large granules contained more moisture than butter with small granules. This was contrary to the experiences of Prof. Dean, whose experiments at Guelph had shown the very opposite. Evidently these two dairy teachers will have to try this experiment over again.

The temperature for pasteurizing was given some attention. Prof. Farrington gave an account of some experiments which showed that heating to a temperature of 140° did not effect the normal condition of the milk while it was sufficient to kill tuberculosis germs, if kept at this temperature for 15 minutes.

Professor Farrington also addressed the convention on "The Known and Unknown about Butter Making," and "Testing Cows on the Farm." In connection with the latter address which was given in the evening, he gave some stereopticon views showing the types of cows kept on four farms in the vicinity of Madison, Wis., which were tested by him to show which was the most profitable cow. From the types presented we would gather that in selecting cows the dairyman should not go altogether by form, but must know the quality and the quantity of milk which each cow gives.

A very valuable address on "Soiling Cows in Summer" was given by one of our practical dairy farmers, W. C. Shearer, Bright, Ont. He advised sowing as early in the spring as possible a half acre with a mixture of one bushel of peas to a bagful of oats at the rate of two and three-quarter to three bushels per acre. In ten or twelve days sow another half acre in the same way, then another ten days later until about three and a half acres are sown. The first will be ready for the cows about the first of June, and the others will keep the supply of green feed till the 1st of August when early corn will be ready.

Other speakers, who addressed the convention, were Andrew Pattullo, M. P. P., a former president of the Association; A. W. Campbell, Provincial Road Instructor; D. Derbyshire, President of the Eastern Dairyman's Association; J. N. Paget, Dr. W. T. Connell, of Queen's University, Kingston, and Dr. James Fletcher, of the Central Experimental Farm, Ottawa. Their addresses, though not bearing as directly as the others on the practical work of cheese and butter making, were full of interest and of value to every dairyman who was privileged to hear them.

The officers of the Association for 1900 are: Hon. president, Hon. Thos. Ballantyne, Stratford; honorary vice-president, John Prain, Harriston; president, R. M. Ballantyne, Stratford; 1st vice-president, Aaron Wenger, Ayton; 2nd vice-president, James Connolly, Porter Hill; 3rd vice-president, J. N. Paget, Canboro.

Directors—M. Morrison, Harriston; Geo. H. Barr, Sebringville; Geo. E. Goodhand, Milverton; A. F. MacLaren, M. P., Stratford; John Brodie, Mapleton; Robert Johnston, Bright, and Harold Eagle, Attercliffe Station. J. W. WHEATON.

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ED. HOARD'S DAIRYMAN:—We certainly should not like to be without the DAIRYMAN. It has taught us many valuable lessons, too numerous to mention, but will specify one instance, however. It has taught us that a balanced ration for our little herd of Jerseys is the cheapest ration (all things considered) that we can get. We have nearly doubled the amount of butter since adopting it.

When we commenced taking the DAIRYMAN we didn't know a balanced ration from a bushel of sawdust. Am satisfied the average feeder is not using one-half enough protein, but like grandfather, many feed only corn fodder and corn in the ear. I am therefore very grateful for your most excellent paper; it has been worth to me many, many times its cost. E. T.

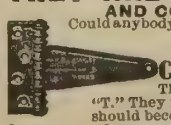
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Why is it, that with all the accumulating testimony in favor of a balanced ration, of which the above is but a fair sample, so many people will still persist in the delusion that it does not make very much difference what one feeds if he only feeds enough?

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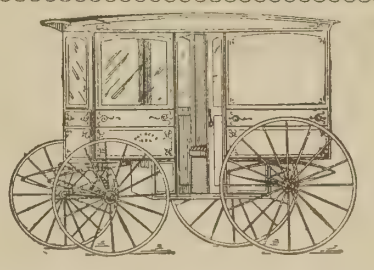
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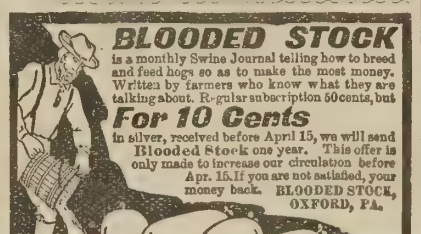
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Guernsey Cattle.—The Old Homestead Herd has repeated in '99 its triumphs of '98. Winning nearly ¾ of all the prize money it contested for at the O., Ind., Ill., Wis., State Fairs. Also winning a signal victory for the breed at Ohio, being awarded the Grand Sweepstakes Herd Prize for best dairy herd any breed, against fifteen competitors for the cup. Address inquiries to L. V. AXTELL, Perry, Ohio.

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CHAMPION Herd
AT NEW YORK STATE FAIR,
1898, in competition with the leading herds of the country, won eight firsts and sweepstakes. Young stock by COMUS, sire of most of the winners, for sale. Thoroughbred Poultry—the best egg-producing and general purpose varieties—Leghorns, Wyandotts, Buff Ply. Rocks, Houdans. Send for circular. Stock for sale. J. FORSYTH,
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First Prize Herd wherever shown, viz: New York State Fair, 1895 and 1897; Bay State Fair, 1895; Inter-State Fair, Trenton, N. J., 1895 and 1897; Madison Square Garden, 1895; New Jersey State Fair, 1897. J. L. HOPE,
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Honey Pick Up An' Follow Me—New Coon song, snappy music, easy range. Prof. Lewis, noted stage singer, writes from New York: "Got the big hand (encore) first time sung." Murphy & Goodrich, Jersey City. N. J., write: "It is indeed a great song; are using it to good advantage." Geo. Lang, Baltimore, writes: "It is indeed the greatest Coon song of the century." To introduce in new localities, half price—25 cts. Address author, HALBERT L. HOARD, Fort Atkinson, Wis.



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Of Advanced Registry. Young stock from cows testing high in butter fat, at reasonable prices. If you want the best, address JOHN SHUGART & SONS, Marion, Ind.

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Holstein-Friesian cattle bred from the most fashionable butter families, individually large producers, and of the most approved show form. The herd contains seven daughters of Sir Netherland Soldene Clothilde, No. 18390, H. F. H. B., the most remarkable show bull of recent years. Also large English Berkshire Swine from noted prize winning and imported stock. Write for description and prices to J. A. THORNTON, Mgr., Simonsville, Vt.

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Netherland Hengerveld, ...official test 26.66 lbs,
De Kol 2d.....official test 26.57 lbs,
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The Evolution of Dairying.

ED. HOARD'S DAIRYMAN:—It is not less true of agriculture, than it is of other arts, that the story of its progress is the record of simple products succeeded by complex ones, as well as of the division and specialization of labor in the making of products. The comparative newness of our country, together with the comparative perfection in agriculture and other arts to which it has so suddenly attained, affords opportunity even within the life of the individual man, to observe what the nature of agricultural development has been, for it is doubtless true that in many cases the same men that are now making application of the best intelligence in either dairying or stock raising have cleared the lands on which they work.

It is quite plain that the earliest, most primitive and most elementary phrase of agriculture is the raising of grain. The problem of the pioneer is bread. His earliest enterprise, in a wooded area at least, is the exchange of labor for land by cutting down the forests, which land of course is to be used for the growing of wheat and other grains. In prairie countries the order is the same, for the kind of land industry requiring the least expenditure of labor and capital on the part of the pioneer, is the stirring of the virgin soil. It likewise yields the readiest and largest return for the labor invested. This operation is comparatively simple.

But man shall not live by bread alone. This is good philosophy even in a purely material sense. Apart from its use in conserving soil fertility, stock raising following on grain raising is a natural and orderly phase of agricultural development, as it represents a progress from simple to complex in product making; for whereas in the grain growing phase, grain is an ultimate product, in stock raising it is only an intermediate and instrumental one, for instead of selling grain as grain, it is sold as meat. The production of beef to the best advantage then, evidently, requires greater knowledge and greater versatility than the production of grain alone.

The position of the cow, too, in the early stages of agriculture is interesting. It is not strictly true to say that the second stage of agriculture is a combination of grain growing with beef growing, for the cattle beast makes both beef and butter and draws the plow besides. Now the ox is superseded for power purposes almost entirely, and the business of producing beef and milk has been pretty well divided between what are commonly called the beef and dairy breeds. This is not to say that certain breeds produce beef exclusively and others milk. Though this is approximately true, we cannot get rid of the integrity and completeness of the cow kind; every cow carries flesh and is, to a greater or less degree, a milk making machine.

It is certainly true that the early cow has a general purpose character that is, to a great extent, lost through the operation of the principle of selection to single, special, definite, economic ends in later times. There has come about a distinct cleavage in cow society on the characteristic tendencies, depending on early circumstances and accentuated by culture and selection. In other words, the law of specialization, so universal in all industry takes another striking illustration from the cattle business.

There is one principle that is the spring of all such change. The character of all production is framed to give what mankind judges is the greatest reward for the minimum expenditure of labor. The progress of the world is the finding of the fittest means to satisfy the wants of the world. The happiest idea that sociologists have hit on in modern times in treating of the phenomena of society is the comparison of the whole world, or the whole of society to a single animal organism, which displays the same features in evolution as are displayed by the animal in its evolution.

The animal organism is simple at first, complex afterwards. It develops organs at the call of necessity or circumstances, such change being the evolution of the fittest instrument for the given end. So in society the division and specialization of labor are the production of the most efficient instruments to desired ends. *In short the economy of nature is economical.*

It must be understood, too, that all change that is the outcome of man's effort is as much nature or as truly natural as the changes that the lowliest of the animal kindom undergo farthest from man's influence or direction, for man is as much nature as is the beast. We feel disposed then to believe that the change which has taken place in the cattle beast, under man's direction, is economical. But this is another story and is not intended for a counterblast against the advocate for the dual-purpose cow. What a man keeps, whether beef stock, dairy stock or a compromise between the two is not to be decided absolutely, but relatively to conditions, markets and experience as to the suitability to his purposes.

The important thing to recognize is that dairying is a special business and as it narrows as a department of agriculture, it should deepen correspondingly, just as is the case with specialization in other industries. As the sharpness of objects is increased with the narrowing of the focus of the camera, so the insight into dairying should be increased with its growth to a special art. But this is not setting forth the actual view of dairying. In the great proportion of cases, it is not strictly a special art; or if it is special it is likewise very complex.

In practice, dairying is a combination of tillage, breeding and rearing and feeding, as well as the making and marketing of butter. The problem of the dairyman is the most feed of the best kind, in the cheapest way, and there can be no absolutely best kind. He must find the relatively best kind according to cost. Then his buttermaking must be economical, his product pure, and his taste good, in presenting his goods to his customers. Truly his business is of a special kind but of a very complex kind as well.

It may seem rather an imperfect conception of the dairy industry to almost tacitly make it synonymous with buttermaking. It is perhaps going rather fast. But having progressed through various agricultural stages to milk production, the question naturally rises: Where next? Milk itself is subject to either a general application or use, or to a special one; cheese representing the general use and butter the special one.

Viewed from the standpoint of the evolution of the milk industry, it must appear that butter is the higher product, because it represents a finer and more discriminating selection of milk constituents than is made in the case of cheese, for in the case of butter the casein elements are rejected. Does it not appear then that the butter side of the milk business is the one toward which effort is going to swing. It will be well for those who see in advance on which side their bread is buttered.

Besides the warrant which the universal law of specialization gives to this opinion, we have one still more practical and not less important. This is the law of increasing discrimination in the selection of food products by society. Increased fastidiousness and niceness is a constant law of living. Even though cheese includes as much as is included by butter and cheese together, as far as food elements are concerned, yet the tendency is undoubtedly to a discriminatory use of these commodities.

It is likewise true that the consumption of the former product, butter, is becoming more general. It is a staple and ordinary commodity on the table of the ordinary workman, where it was once a luxury. This heightening of the method of living is a very decided mark of industrial progress (using the word industrial in the sense of manufacturing) and of the overbalancing of rural population by town population, for though want is more commonly found in the industrialism of the city than it is in the country, mixed and elaborate living is a mark of the town and simple living a feature of the country.

The recognition of the constant operation of these two grand principles, viz., the natural tendency that all development has to specialization, and the growth of the dis-

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Those are the exact words used by Prof. H. W. Wiley, the National Chemist at Washington, in describing our

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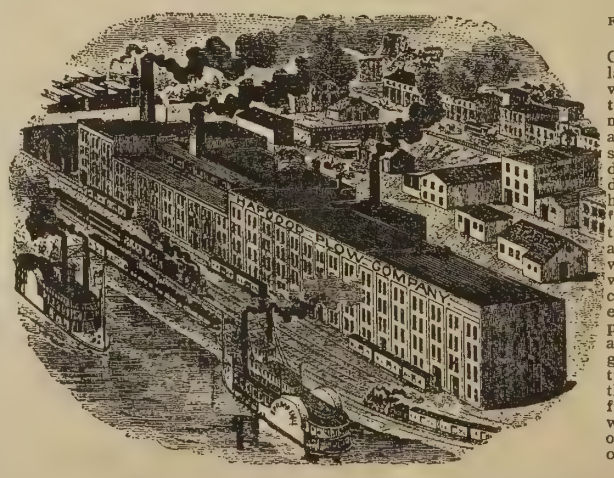
There is no higher authority. This verdict is positive and beyond caval and dispute. Thatcher's Orange Butter Color will stand the most exacting test of the new Pure Butter Color Law of New York Other states will follow the lead of New York in passing such laws. If you begin now by using a pure and harmless color—Thatcher's—you will have nothing to fear from the action of such laws. Then, too, there is the satisfaction of knowing that you are supplying your customers with a pure and wholesome article of food—**not a coal tar color**, which has been condemned as being poisonous and unfit for use in butter.

Send for Sample of Thatcher's—The Purely Vegetable color, and full information.

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ABORTION PREVENTED
ANTIABORSIO Prevents Abortion in Cows and Cures Scours in Calves.
One gallon treats twenty cows three months. These are established facts, not experiments. Our remedies are Liquid Germicides for sprinkling in closed stables. Booklet and testimonials sent *free*.
ANIMAL GERMICIDE COMPANY, 159 Chambers St., New York.

criminating habit in the choice of food, should be to the butterman a solid and substantial encouragment for future expansion and concentration of effort.

At the same time he must recognize that his business is a complex one, and requires great care, knowledge and versatility. It is well to remember too, that the largest margin of profit falls in the best grades of a general commodity and is more likely to fall to any grade when the demand is growing and rising and not when it is falling.

J. McCAIG.

Luhbridge, Alta. N.-W. T.

Cedar Hill Jersey Farm Notes.

Milk Fever—A Noon Feed—Sorghum for Soiling—Handling Manure—Seed Corn.

ED. HOARD'S DAIRYMAN:—I wish some of the many people who have milk fever would send us a recipe for producing it. My boys have never seen a case of it and as I am giving them instructions in every line of dairy and herd work, would like them to see a case of this popular disease, so they may know it from other diseases. Now, honestly, readers of the DAIRYMAN: Why so many cases of this disease? I have in past 15 years handled herds of from 40 to 100 head of milch cows and had but two cases. My father in a life time of 65 years lost but one.

* * * * *

These days we are feeding the herd a noon feed of sheaf oats and corn fodder cut very fine and steeped 12 hours in hot water. The results are very satisfactory, so much so that the coming year we shall save a large amount of sheaf oats and corn fodder for feeding. Instead of steeping in the hot water we will build a large chest of flooring and run a steam pipe into it and steam the fodder and oats. A dairyman friend in Ohio who follows this plan likes the feed better than ensilage.

* * * * *

We were in great luck in securing our ice crop as we did. The crop was a very fine one in quality and was 8 and 10 inches thick. We finished just in time. One day's delay would have caught us with a partially filled house. We worked New Years day or it would have been just that day's work that we would have lacked.

* * * * *

In my institute and dairy convention work in past few months, I have been struck with the growing popularity of sorghum, both as a soiling crop and also for hay and ensilage. I have for some years been convinced it was very valuable in the dairy herd. My last year in Texas was one that gave a good illustration of its merits as a forage and soiling crop. Our herds from July to October were fed on both green and cured sorghum, as their source of roughage, owing to the lack of any pasturage, caused by a severe drouth. They kept up the flow of milk well, and the supply was cut from a very limited amount of ground. We shall plant 15 acres this spring in drills, 18 or 20 inches apart, cultivate with a Hallock weeder and Planet Jr. horse hoe. When fit to feed will use our Deering corn binder to cut the daily feeds. With the binder one can save a great amount of time and work, besides being able to gauge amount fed by counting bundles. If we have a greater amount than we will feed as soiling crop, the balance will be cut and shocked to be run through the cutter and fed from the steam chest.

* * * * *

We have 78 head of Jersey cattle and 10 head of horses and not one load of manure piled around the buildings, is our record. Seven days in the week our manure is run into a spreader and goes direct to field. The boys have the work down fine. They run manure up an incline on wheel barrow into the spreader saving handling but once. We estimate that our corn crop will be doubled where manure is spread, and from amount of land covered with each load it will give us 5 bushels extra, or $1.50 for each load of manure made. This may appear a high estimate to many DAIRYMAN readers, but when you consider our spreader is a 3 horse size and the manure is from cows fed as high as good judgment will admit of with cotton seed meal, ensilage, clover hay, etc., it is a very reasonable estimate.

* * * * *

Seed corn will be an object this spring with the farmers of our county. Our best corn tested 10 kernels out of 58 good. The frost caught the crop just when it was maturing. Freeze, I should have said; it did not stop to frost. "BUFF JERSEY."

Monmouth, Ill.

Ohio Dairymen's Association.

ED. HOARD'S DAIRYMAN:—The Ohio State Dairymen's Association offers, at the annual convention to be held in Townshend Hall, O. S. U., Columbus, Feb. 13th and 14th, 1900, a program replete with subjects of interest to dairymen, and cash and special premiums amounting to over $300.00, that should bring exhibits from every ambitious butter and cheese maker in the state. One great aim of the Association is to instruct in the points that the markets and consuming public demand. With this object in view the Association has secured competent butter and cheese graders to score every exhibit. Exhibitors will be given a score card showing the grade of their products.

Judging and scoring real dairy cattle in the stock rooms of Townshend Hall by Director C. S. Plumb, of Purdue University and Indiana Experiment Station, will be an object lesson none should miss, who expect to ever buy a cow, or weed out poor ones from his herd. There will be a large exhibit of up-to-date dairy implements in actual use by the Dairy School, now in session in the basement of Townshend Hall. All together we think we offer a series of object lessons that are not surpassed anywhere. We hope the dairymen of Ohio will attend and by their presence and voice instruct and be instructed so that all may return to their homes, inspired to greater efforts in raising the standard of Ohio dairy products, dairy stock and dairy men and women.

For further particulars, program and premium list, address

L. P. BAILEY, Sec.-Treas.,
Tacoma, Ohio.



Cleaning House

Once or twice a year the good housewife has a thorough house cleaning. The house has been swept and dusted every day in the year, but the housewife knows that in spite of vigilance dust accumulates in cracks and corners, and is only to be removed by special effort.

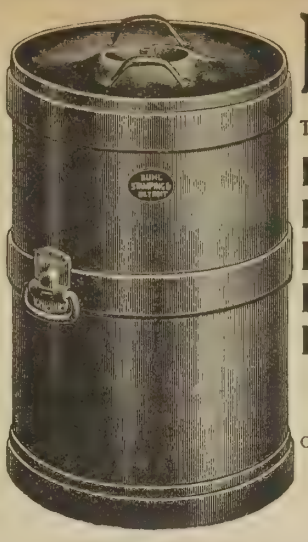
It's the same way with the body. You look after it every day. You take all the ordinary precautions of cleanliness and health. Yet the body needs its special cleaning to rid it of the accumulations of waste and poisonous matter which invite disease. Doctor Pierce's Golden Medical Discovery, taken regularly once or twice a year, would save many a sickness. It purifies the blood, strengthens the stomach, and cleanses the body of poisonous accumulations.

"Last spring I had a severe attack of pneumonia, which left me with a bad cough, and also left my lungs in a very bad condition," writes John M. Russell, Esq., of Brent, Cherokee Nat., Ind. Ter. "I had no appetite and was so weak I could scarcely walk. My breast was all sore with running sores. I got two bottles Dr. Pierce's Golden Medical Discovery, which I believe saved my life. I cannot express my gratitude to you. I am able now to do very good work."

Dr. Pierce's Medical Adviser, in paper covers, sent *free* on receipt of 21 one-cent stamps to pay cost of mailing *only*. Address Dr. R. V. Pierce, Buffalo, N. Y.

ASTHMA

FREE CURE FOR A physician who has cured himself of Asthma will send his combined treatment of **3 Special Medicines FREE OF COST.** Address, Dr. W. K. Walrath, Box 622 Adams, N. Y.



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BUHL CHEESE FACTORY CANS. The only Cans with the genuine "Heisey" Handle.
BUHL "EASTERN" PATTERN R. R. CANS. Used from Boston to Buffalo.
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BUHL CANS ARE MADE OF STEEL, coated with PURE TIN. They will not rust, leak or break.

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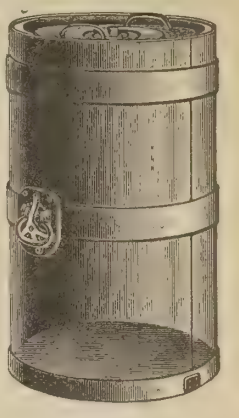
who guarantee their cheese and butter, should see to it that their patrons are supplied with cans that can be kept absolutely clean and easily inspected.



EMPIRE STATE.

The EMPIRE STATE CAN is the best because it is ventilated, and the milk cannot slop out.

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IMPROVED ROUND HANDLES
SEAMLESS NECK
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(Together with the best of material) are the distinguishing features of the

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Write for our new catalogue, which will give you additional reasons why you should use the best can on the market.

QUALITY	PRICE	CAPACITY
UNEQUALED	INTERESTING	1000 CANS DAILY

THEY ARE MADE TO WEAR

FRANK STURGES
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Successor to THE CHICAGO STAMPING CO.

AGENTS WANTED. All Inquiries Answered.



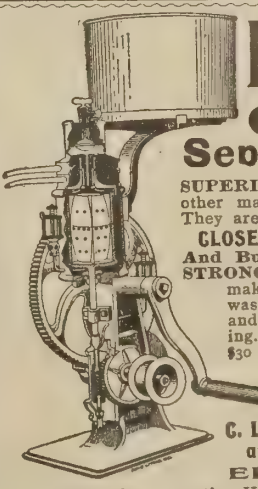
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Least in cost, greatest in economy, simplicity, durability; slow speed, so little power required, and easy to operate. Only two parts to clean, which can be done in 3 minutes. No possible clogging in the bowl. An all around machine of highest quality. Guaranteed to satisfy, or your money back.

"Good Butter and How to Make It," is our free book, of value to everyone. Send for it.

THE KNEELAND CRYSTAL CREAMERY CO.,
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Eclipse Cream Separators

SUPERIORITY over any other make **Guaranteed.** They are

CLOSEST SKIMMERS And Built DOUBLE as STRONG as any other make; also easiest to wash and operate. See and try one before buying. Ten sizes. Prices $30 to $600. Reliable Agents wanted.

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Ideal Milk Pail

Is the cleanest and most practical pail and strainer on the market. Write for circular and special price to

The National Specialty Co.,
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Agents wanted in every Co.



Better Butter

TRADE MARK **BESTOV**

Send for our large free illus. catalog. All about "Bestov" dairy supplies.

The Dairymen's Supply Co.,
1937 Market St., Philadelphia, Pa.

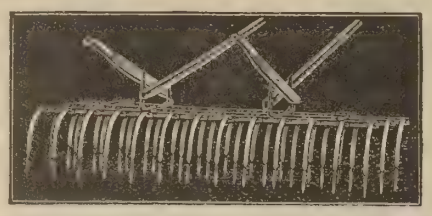
HALLOCK'S Success Anti-Clog Weeder and Cultivator

Pays for itself the First Season, say farmers who have used it.

LAFAYETTE, IND., July 20, '99.
I simply wish to say that I am more than satisfied with the 12 foot mounted Weeder I purchased of you last spring. My corn is cleaner and my ground worked better than it ever was before.
I would not think of parting with it for $100 if I could not secure another like it. I expect to send you some orders next spring, as my neighbors like it also.
Yours truly, D. D. COLE.

JACKSONPORT, WIS., July 14, '99.
Please send me circulars of your Potato Digger. Your Weeder has made it possible for me to grow 1000 bushels of potatoes for about one-half the cost of cultivation, so now perhaps you can help me to dig them for one-half the cost.
Respectfully yours,
HARRY WILSON.

MORRIS, ILL., June 7, '99.
The Weeder I ordered of you came all right, and it gave perfect satisfaction on corn, strawberries, and all other crops I could use it on, and will surely please everyone who wishes thorough cultivation.
I would like the agency.
Respectfully yours,
B. W. WHITE.



ARE THEY GENUINE? Write them, send postal card for reply. It will give us pleasure to send you hundreds more.

We want to tell you all about it. May we?
Money saved by buying quick.

D. Y. HALLOCK & SONS, Box 812, YORK, PA.

Partition in a Silo.

ED. HOARD'S DAIRYMAN:—Your paper is without questi n the most practical dairy publication because it presents the needs of improved dairy methods in a reasonable and practical way. Men who do a thing and report how and why, with results, place facts that are in advance of any theory.

Two years ago we built a silo, octagon, 17 feet in diameter, 32 feet above a 2 foot wall, made of second quality hemlock lumber, lathed and plastered with Portland cement. It was late in season when built and was filled before fairly cured out, therefore ensilage injured some next to the walls. In the fall of 1899 we whitewashed it thoroughly with cement, about as thick as cream, and put a partition through the center making it into two parts. This partition is made in sections two feet wide and long enough to reach to a post in the center of silo. We feed down one side four feet then cover ensilage with the spoiled cover from the other side and feed it down below the opposite side 4 feet, then cover with the same old covering and so on down. Result: Fine sweet ensilage and no waste. Will build another plastered silo this year

Erie Co., Pa. E. F. DAVENPORT.

A Colorado Ration.

B. D., Colorado Springs, Colorado, has alfalfa hay at $10; bran, $15; corn chop, $14.50; oil meal, $28; and can get oat straw at $7. His problem is to select from these feeds the most economical, and therefore, the most profitable ration to feed cows.

We still hold to the statement made some months ago that the ideal ration in this case would be 20 lbs. of alfalfa hay and 8 lbs. of corn chop, provided about one-half of the alfalfa hay could be chaffed and mixed with the corn. Readers of HOARD'S DAIRYMAN will recall that sometime after making a suggestion of this character to another Colorado correspondent, the Denver *Field and Farm* took us quite severely to task, claiming that the suggestion was not adapted for use in that part of the state. Since that time the Kansas Experiment Station has been pursuing precisely this line of feeding, with very satisfactory results, thus confirming the opinion we have long entertained in showing that the figures for such a ration were not misleading. In the event, however, that it is impracticable to chaff this hay, we would substitute 4 lbs. of bran for 4 lbs. of corn chop, in order to dilute the corn and thereby make it more easy to digest.

VETERINARY.

Queries in this department answered by WM. HORNE, M. D. V. S., Janesville, Wis.

COW PHYSIC—Three-fourths to 1¼ pounds Epsom Salts (according to age and size of animals) and two ounces of best ground ginger. Pour over this three pints of boiling water. When at 105° F., give gradually as one dose.

INJURY TO JOINT.

I have a mare, 11 years old. Got injured in the whirlbone joint about the first of December; is lame, not so bad as at first. Was blistered over joint rather badly, did not intend to blister. Goes very heavy on toe and the fetlock seems to be inclined to bend forward. When walking, steps rather wide apart with hind feet. Would it injure her for breeding? J. M. C.

Transit Bridge, N. Y.

ANSWER.

Rest is all paramount. With a long rest, she may so far recover as to be useful. If feverish, keep wet with strong oak bark tea, two quarts, acetic acid, ¾ of a pint. Mix and use. Keep from freezing. Not having an hereditary disease, she is eligible for breeding.

GARGET.

My employers have a fine Holstien cow, due to calve the 26th of March About three weeks, before she is due, her bag will begin to cake, and when she freshens, it is as hard as a stone, so large that it has measured 63 inches around it. It does not feel like other cows' bags that are caked, but more of a jelly substance, so when you press your hand against it, it will leave a dent for a few minutes.

Last spring her belly swelled so you could not feel her veins, and her brisket was about three times its normal size.

We are milking her at the present, and

$18.50 for this **team harness**, cut from select oak-tanned leather, traces 6 ft long, 1½ in. wide, with cockeyes; 18-ft lines; Hook & Territ pads, pole strap 1½ in; collar strap 1½ in. **Big Bargain.** All kinds single & d'bl. harness.

18.65 and up. **BALL BEARING,** All Steel Disc Harrow, with or without center disc Discs 16 and 20 in. 8 sizes. **Our improved 12-16 disc, with 2, 3 or 4 h. evener, $18.25.**

$8.90 for steel lever harrow; cuts 10 ft; 60 teeth, 2 sections; also 3 & 4 sections.

$10 BUYS a 14 in. Double Shin, Soft Center Steel, Steel Beam Plow. **Guaranteed to scour.**

$6.40 BUYS 2 horse Chilled Plow. **1-horse Plow $2.25.** 65 sizes and kinds of Chilled Plows.

$20.55 BUYS this 8-ft. steel mill; guaranteed easiest running & strongest made; pumping and power mills, 8 to 16-ft.; also tanks, pumps, pipe & all pumping supplies. We furnish complet Outfits. **Prices all reduced.** *Catalog free.* Don't fail to send for it. Pay double—get no better

$11.90 This 2-horse **Cultivator,** made of best material, with shields, neck yoke and doubletrees, steel wheels. **Price, complete, $11.90.** Usually sells for $16.50 to $18. **Riding Cultivator** only **$17.50.**

$1.00 Bow Seeder **$1.** Crank Seeder, **$1.15.** Sows wheat, oats, grass seeds, etc. Sows 33 feet at a passage. Works perfect. Usually retailed for $3. **Prices reduced.**

75c For this hand corn planter **$8.65** for **No. 96B one-horse corn planter. No. 96½ one-horse planter** plants in hill or drills corn, beans, peas, garden and all other seeds. Price **$11.50.** Fertilizer extra. **Check Row 2-horse planter $24.75 to $32.50,** 95 styles.

Send for our FREE 352-Page Spring Agricultural Catalogue.

MARVIN SMITH CO., 55-57-59 N. Jefferson St., R-18 Chicago.

Springer Farm Separator,

MANUFACTURED AT

WATERLOO, IOWA.

THE SPRINGER HAND SEPARATOR skims the cream perfectly. It is the **Simplest Separator on the market.** It is easy to run and easy to clean. The machine which skims 300 pounds an hour costs $75.00, the 400 pound an hour $90.00. It can be attached to any kind of power. If you contemplate buying a machine, write us.



GRINDSTONE COMPLETE WITH FRAME $1.90 EACH.

Upon receipt of $1.90 we will forward, properly packed, **one celebrated BUENA VISTA GRINDSTONE and FRAME Complete,** which we warrant to be **Absolutely Unexcelled** as to quality, finish and durability. This celebrated stone is the highest quality on the market and will be found excellent for any grade of work. **We use nothing but first grade stones. They weigh from 40 to 50 pounds.** In order to save on the freight charge, we will ship knocked down. It is simply constructed and can be readily put together.

We carry all kinds of grind stones. Write for free catalogue No. **20** on merchandise bought at **Sheriffs' and Receivers' Sales. *OUR PRICES ARE ONE-HALF OF OTHERS.***

CHICAGO HOUSE WRECKING CO.
West 35th & Iron Sts., CHICAGO.

Purity and Dryness

ARE QUALITIES THAT DISTINGUISH

Diamond Crystal Salt.

The relative purity of the dairy salts of the world is given in a valuable bulletin lately issued by the UNIVERSITY OF WISCONSIN.

Speaking of DIAMOND CRYSTAL, Prof. F. W. WOLL says:—

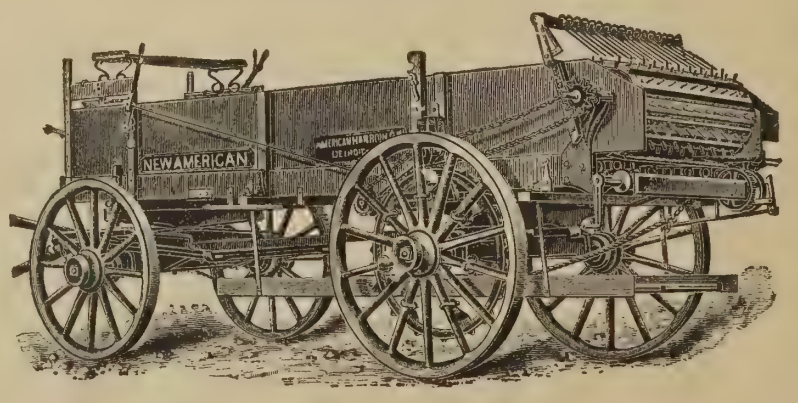
"The claims of this company for exceptional purity and dryness in their salt are fully substantiated by the analytical results obtained by the writer."

Lime and chloride impurities injure butter; damp, heavy salt is unfit for dairy use. **"The Salt that's All Salt"** is both PURE and DRY. Every dairyman should insist on having it.

DIAMOND CRYSTAL SALT CO., St. Clair, Mich.

ILLUSTRATION.

THE NEW AMERICAN MANURE SPREADER.



There are farmers who pitch manure from the wagon on to the soil; then scatter it about and say Amen. That beats nothing, but there's a better way that's cheaper and more profitable in the end.

Now if you scatter manure by hand, its going to be too thick in some spots. That has a tendency to "fire" the seed and to retard the plant. Other spots will be devoid of manure and consequently of proper nourishment. The American Harrow Company, of Detroit, Michigan, is manufacturing the New American Manure Spreader. It will fit any ordinary wagon gear; or when desired it is furnished with gear complete. One lever throws the machine into gear, and it works automatically from that time till the load is discharged and the machine is in position to start again with a new load. No other attention need be given it. The box is wider behind thus preventing friction. The feed is positive, scattering the manure in any desired quantity.

All kinds of manure are pulverized fine or coarse. It will feed slowly or rapidly. It can be regulated to the greatest nicety, and all is accomplished with a single lever while the team is moving. One man can operate it: one team handle it easily. Its capacity is from 50 to 60 bushels. It saves the manure. It spreads it exactly right to do the most good, and the makers say it won't leave the buyers' pocket in mourning.

"The logic of it now. The proof of it by the harvest" is the title of booklet "E" which is being distributed by the American Harrow Company, Detroit, Michigan.

would you continue to milk her until she freshens, or would you dry her off? Her bag is in nice shape now. K. B. P.
Parkman, Ohio.

ANSWER.

All the medicine in the world will not serve your case as well as repeated full physicking. Reduce the feed also. Don't be afraid of hurting the cow by stinting the food. Rub the udder a few times, 3 to 4, with strong camphorated spirits, six parts and common turpentine, two, only, parts. Use much massage; gently and thoroughly reduce the system as advised. This will be of use before and at parturition and is always a safe course to pursue. Rub only once a day with the camphorated spirits.

FLATUS PIPE FOR BLOAT.

I notice in your issue of January 5th, page 945, your veterinarian recommends the flatus pipe for cases of bloat. We have much trouble from cows bloating when pasturing on alfalfa and often resort to puncturing to relieve them. If there is a better way I want to know all about it. What is a flatus pipe and how is it used and all about it? Our cows sometimes bloat so badly that if they are not relieved within twenty minutes they die. Feeding hay before turning on the alfalfa only makes the matter worse.
Tygh Valley, Or. A. A. B.

ANSWER.

Lucerne is not a safe pasture. It should be suited to the stock, always, unless poor and scrubby. Cows may be allowed to obtain a good feed, but not to repletion, never. Flatus pipe means a hollow tube to push down the throat into the rumen or paunch and so allow the accumulated gas to instantly escape. Mine cost two guineas in London; it is flatus pipe and probang in one. Six and a half feet best rubber garden hose answers all the purposes and is always effective. It needs to be rinsed whilst being used by running warm water through it and smooth and oiled on outside.

UNKNOWN CAUSE FOR DEATH.

I have lost three head of cattle, coming one year old, in the past few weeks; they are all well at night and dead in the morning. One of them had blood settled under the hide about the hip, the other had blood settled on the shoulder; the last one to die had blood settled along on one side of the neck. I have been giving them saltpeter and sulphur for about one week. They are not fat but in good order; feed them oats and hay.
Muscoda, Wis. J. N.

ANSWER.

I have never heard of any case that in any sense is analagous to yours. I have just returned from a consultation with one of the best doctors in the state. He, like myself, never heard of anything at all similar. He and I said, poison by inoculation, some how. Your case ought to be investigated by some first-class expert. I believe you have some sinister, vicious act to which you may look for cause.

TUMOR ON UDDER—EXCESSIVE SWEATING.

I have a cow that has a lump in udder just in front of hind teat; at times it is the size of a hen's egg and hard; at other times you can hardly feel it. It does not seem to be sore, as you can squeeze it and she does not mind it, but it is in the way when milking; can hardly get hold of teat.

Also have a yearling colt that sweats so that it is all wet when standing in stable; it eats well, is lively when out in yard; it has a heavy coat of hair, also has a disagreeable smell; feed oats and straw. SUBSCRIBER.
Markham, Ont.

ANSWER.

Paint over the tumor with strong tincture of iodine, three to five times a day, for some days. Don't touch any but the tumor spot. Internally give 60 to 70 grains of iodide of potassa in a little cold water as a small drench every morning. Don't ever *squeeze* the tumor.

May be dropsy under the skin. You had better get a competent man to make a personal examination; such alone can determine the true condition.

SCOURS.

Calf 5 weeks old, doing well on five pints skim milk twice a day, and a little dry bran and all the hay it would eat. Put pint of bran in milk four times, when scours set in, and now for four days she refuses to eat anything, except half gallon milk a day. She grinds teeth together and froths at the mouth. Sometimes seems to want to eat but does not seem able to do so. Will not take milk unless put finger in her mouth. Will chew bread if put in mouth. Sixty hours apart gave 2 doses of castor oil, laudanum and nux vomica, have also given flax seed tea, and caraway seed tea, as I saw in the invaluable DAIRYMAN.
Atlanta, Ga. L. G.

ANSWER.

Give the mucilagenous gruel recommended last week, either or all of them. The irritation caused by the bran—in milk—caused the diarrhœa no doubt. Oil of any kind has no place in the stomach of the bovine family. Oil may be given as an injection. Stop the skim milk for awhile. The mucilages are not likely to stop the diarrhœa at once—such a thing is not desirable by any means, at any time. But if you persevere there will be no difficulty of ultimate success. See last week's edition.

EPILEPSY.

What is the trouble with my calves dying so suddenly? They appear to be healthy and eat well, then suddenly they become weak and commence to stagger and fall down and die in about half an hour or so. I bleed them in the ears but it does no good. Their feed consists of straw, oats and oil meal, a little two or three times a week, and no milk. These calves are from four to six months old. T. R.
Jasper Co. Ind.

ANSWER.

There is no question as to the cause of the death of your calves; epilepsy, termed fits, megrims, staggers, etc. This is a nervous disease resulting from an impoverished condition of the blood, consequent upon a poor condition generally of the afflicted animals. There is little to be expected from doctoring. Prevention by good nutritious food, clean, airy housing, sunlight and pure air; these are the essentials to good robust health and always pay good returns.

VACCINATION FOR ANTHRAX.

Is vaccination considered a sure preventive for black leg or anthrax in cattle?
Hanford, King Co., Cal. R. A. D.

ANSWER.

Your question depends on the condition, or form of anthrax. Some very few posted men say that vaccination does cure. I have never known of a cure of malignant anthrax, by any means of any kind, with me. Like all malignant dangerous diseases, anthrax is the death warrant, as the best and safest remedy. Of course, before destroying an animal suspected, it is well to have an expert examination, and that, too, by an honest, genuine expert.

ITCH—LUMP ON LEG—DROPSY.

Some new disease has broken out on the horses of my section. They break out on body in lumps, large as peas; horse gnaws and scratches himself, till hair comes off; skin gets thick and hard and will break.

No. 2. Have a mule; several years ago a lump came just above knee, inside of fore leg, situated on big artery; it is now as large as your two fists; mule got so she could not work; I lanced it several times, full of blood; made strong solution of caustic potash, and applied, but don't cure. What is your remedy?

No. 3. Had a fine Jersey cow giving milk; milked her one evening, but she never eat, but never showed sick; next morning was down, could not get up, by ten o'clock she was dead; on right side, between hide and meat, just above last rib, you could tap on her and hear a sound like water; on examination proved to be a collection of yellow water; her gall bladder was about five inches in length and three in breadth; had been milking 7 or 8 months; had been pasturing on swampy land. W. A. B.
Henry Co., Ga.

ANSWER.

You have a clear cases of itch or scabies. It seems it has become endemic in your neighborhood, and will be likely to stick and spread. You are in a bad predicament, and need a good professional man to look to your condition, and try and stamp out the disease. If there is swelling, you may have farcy, then glanders, etc., so you see the necessity of personal professional attention. You ought to notify the state veterinarian, if you have one.

No. 2. I have not any remedy; you have completely spoiled my chances by opening, etc.

No. 3. You had dropsy, consequent, I think, upon a diseased liver.

TUMOR ON UDDER.

I have a fine Jersey heifer, one year old, which has a large swelled place just in front of udder, of about a month's standing. I opened with knife and it run quite a lot of yellowish water, after which she seemed much improved; but there is yet a hard place, about the size of a goose egg, and it is a little sore. G. D. E.
Waco, Texas.

ANSWER.

You, like the querist above, have come to me when my best chances are spoiled, by your doing surgery. You have seated the tumor—now a tumor—in a position to remain; opening is a dangerous course to persue by the layman. Always cut off the hair close, and paint the lump, only, with strong tincture of iodine, and internally give 60 grains of iodide of potassa in a little cold water as a small drench, each morning, for 50 to 70 days, if needed; after two weeks, reduce the potassa to the 50 grains.

ILLUSTRATION.



PROFITS on vegetables depend more on the cost of labor in cultivating them than on any other one factor. You save time and you save the wages of hired help when you use such garden helpers as the Iron Age implements, for plowing, sowing, hoeing, cultivating, raking, covering, hilling, etc. In buying a combination implement you get a valuable outfit of garden tools for the price of one and the experience of thousands of vegetable growers proves that all the Iron Age tools are practical labor savers. Before sitting down to figure on saving cost of labor in growing vegetables either for market or for the home table, it is best to write for a copy of the Iron Age Book for 1900. It is a handsome catalogue sent free by the Bateman Manufacturing Co., Box 153, Grenlock, N. J. It describes all the implements having the famous "Iron Age" trademark, which have the reputation of being the most reliable in use, and it gives the description and prices of each. It describes the many uses of the Iron Age tools, and contains hundreds of suggestions and hints that will help to place vegetable growing on a more profitable basis.

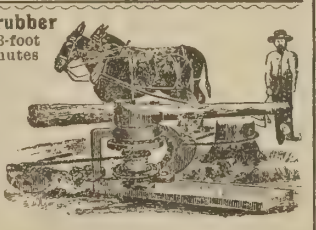
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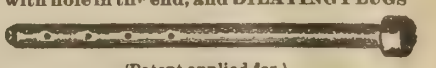
They are no cheap cathartic, but a perfectly safe and efficient digestive, and the demand for them is greater than the sale of all other so-called dyspepsia cures combined. No remedy could possibly reach such a place in public esteem except as the result of positive merit.

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My Hard Rubber Tubes and Hard Rubber Dilating Plugs supplant all kinds of metal tubes. No blood poisoning or bruising. No dropping out of teat by its own weight. Two hard rubber tubes—2 and 3 inches long, and two plugs $1.50 the four—and also one bistuary and two plugs $1.50 the three. By mail, the whole set $3.00. In writing for medicine, please say if the cow does or does not come in heat—as the medicines are as different as fire and water.
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Dairy Farming in the Maritime Provinces.

The Work of the Maritime Experimental Farm to Advance Dairying—Handsome Returns From Dairy Farming.

ED. HOARD'S DAIRYMAN—Under the careful management of Supt. Robertson, the experimental farm for the Maritime Provinces at Nappan, N. S., has been doing some exceptionally good work for the farmer and particularly so in the dairy line. Mr. Robertson, as is well known, was a successful breeder of Ayrshires in Quebec previous to his taking charge of the experimental farm.

Last year the grain crops at Nappan, owing to the extent to which rust prevailed in the eastern provinces, were lighter than usual; but Indian corn and root crops did unusually well. The average of all the varieties of Indian corn at Nappan was 16 tons per acre. The average of the best six sorts was 20 tons, a fact which goes to show the signal advantage of our farmers paying more attention to varieties, for the largest crop was 23 tons 1,850 lbs. per acre. Roots generally succeed well in the Maritime provinces, the average of all the varieties grown was 26 tons. The average of the best six sorts, 30 tons and the largest crop of any one variety, 31 tons per acre.

In mangels the average of all the varieties was 23 tons 841 pounds; the average of the best six sorts, 30 tons and the largest crop, 38 tons. Carrots gave an average yield of 15 tons for the best six varieties; all which go to show that the Maritime province is naturally adapted to giving foods for dairy cows and the absolute importance of paying attention to varieties

Horse beans have been tested during the past season and have succeeded well at Nappan, the largest crop being 13 tons

The best results were obtained by growing them in rows two feet apart. Then the Maritime dairymen have an advantage over those in all the other parts of Canada, for while this great protein crop has done remarkably well at the Maritime farm they have done poorly at all the other farms. Soja beans have been tried last year at all the experimental farms. They have not done as well at Nappan as the horse bean, but at all the other farms in Canada they have done better.

Another promising fodder plant that has found a great success at the Maritime Station is the new Japanese millet. It gave a yield, last year, of 17 tons per acre, grown 15 inches between the rows. It is not surprising, therefore, from the above showing that Supt. Robertson has considered it in the interest of the Maritime farmers to make dairying the leading specialty at the farm, seeing the adaptibility of the province to the production of butter at an abnormally low cost.

During the past year Supt. Robertson has conducted a comprehensive test with the whole herd of milk cows, 27 in all, showing the cost of feed and receipts from sales of milk, setting the manure against the labor. The results show an average profit of $14 per cow. The different animals vary much; the the best gave a profit of $28.64; the poorest one, 21 cents, showing that it is very important for farmers to know what sort of animals they are feeding and to watch the results they get so that they may find out whether each cow is giving them a profit or whether they are keeping some animals for the pleasure of their company.

A comparison was made by Mr. Robertson of two groups of cows, about equal in quality, which showed that more profit was made from cows which calved in the fall than from those which calved in the spring. The fall calved cows gave more milk and consumed more of the rough products of the farm, the milk being sold at the creamery on the same basis as that of the surrounding farmers. The superintendent says: "One striking fact is that the cows of equal quality (as near as can be judged) which were fresh in the fall gave more profit than their equals fresh in the spring, besides consuming more of the rough products of the farm. For instance, cow Nos. 21, 24 and 26 were fresh in the spring and consumed $117.62 worth of feed, paid for it and left a balance of $63.13 to their credit. While Nos. 6, 17, 22 and 25 that were fresh in the fall, consumed $154.51, paid for it and left a balance $106.11, being $10.75 per cow in favor of the fall calved cow."

This is certainly an object lesson to our dairymen. Only a small majority of the cows in these provinces calve in the fall. In a county or the provinces where fodder crops of the best quality grow with such luxuriance is it a wonder that dairy farming is so rapidly on the increase, and that the profits of those already well along in dairying have been so good. The high price of concentrates is the greatest obstacle to winter dairying in these provinces. When wheat bran costs $20 to $25 per ton, and middlings even higher, and when all grains can seldom be obtained for much less than one cent per pound, ground, such a protein crop as horse beans, comes in almost providentially. When horse beans do so well and when peas are always a sure crop, the problem of obtaining protein food is almost completely solved. The new Japanese millet is a crop that holds forth great inducements for our dairymen, particularly so in localities where Indian corn does not do well. J. A. M.

From an Oregon Dairyman.

340.5 Lbs. of Butter per Cow.

ED. HOARD'S DAIRYMAN:—In sending renewal, would like to say we cannot get along without the DAIRYMAN. We would be pleased to send new subscribers, but can get none, as they know all about dairying without taking a paper (?).

We have a herd of 20 cows, some full blood and grade Jerseys. Have just finished the year's record of 12 cows, and find that they averaged 340½ lbs. of butter per cow, (adding 1/6 to butter fat.) Among the lot are 3 heifers with first calf. The highest yield was 463 lbs. of butter, and the lowest 228. The milk from each cow is weighed every milking, and recorded every Saturday, and tested each cow's milk 4 times, during past year. Feed mill-feed every day in the year. Have two silos, one larger than the other, each 25 feet deep. Silage, tares with some wheat mixed in; fill silos several times and let pack, then fill the last 8 or 10 feet with red clover; it is all filled in whole. The silage is fine, but little spoiling around the edge. Intend feeding silage the year round. We owe all our success to HOARD'S DAIRYMAN, which we have taken four years.

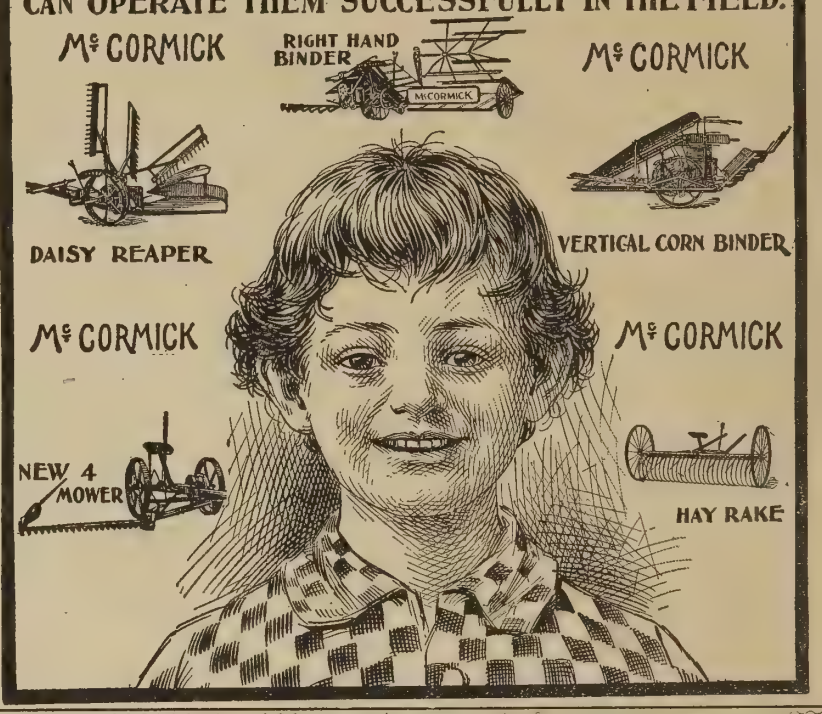
In passing judgment on Countess of Level Green, and My Lady Baltimore, we would say that the latter is the better cow, having the deeper hind quarter and barrel, also a larger udder and milk vein, but hasn't as nice a head as the Countess. Wishing the DAIRYMAN all success, we remain.

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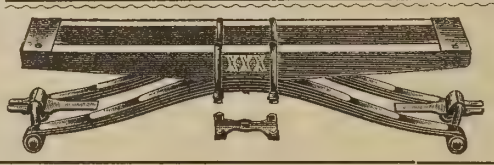
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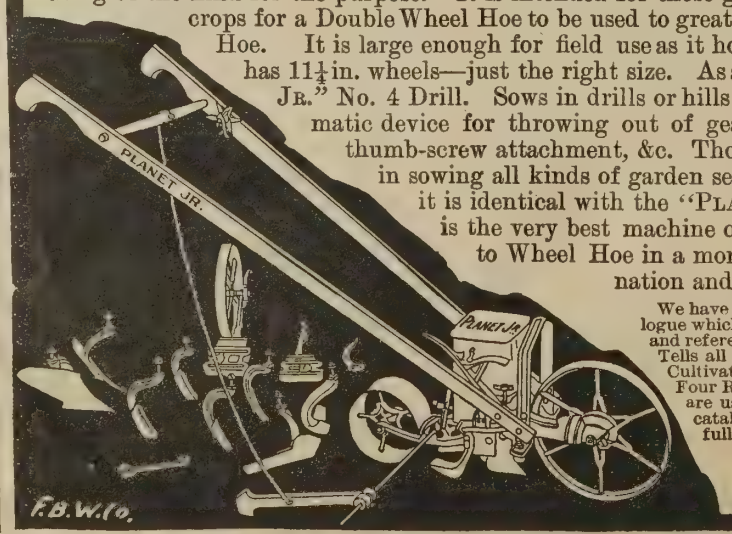
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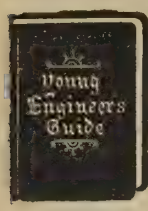
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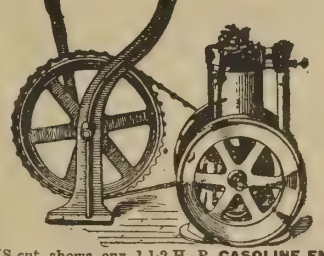


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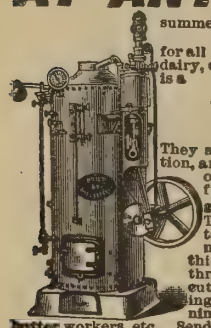
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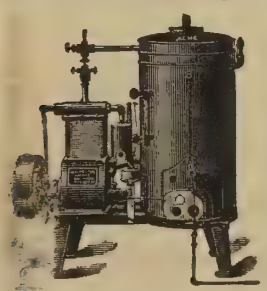
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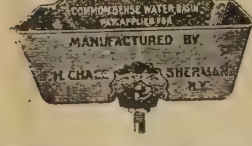
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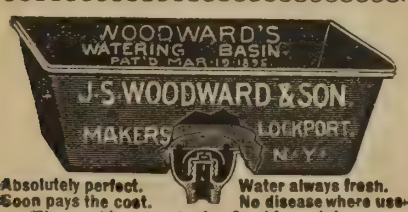
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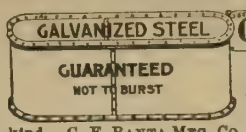


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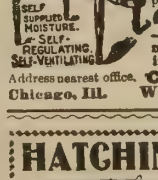


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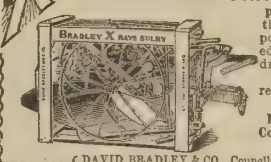
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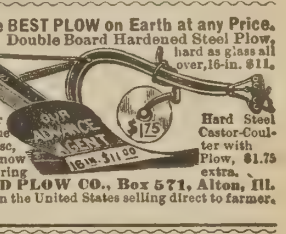


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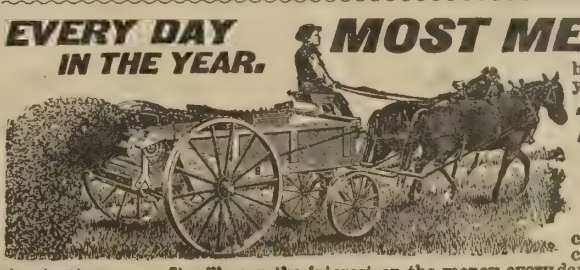
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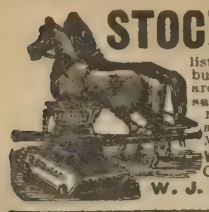


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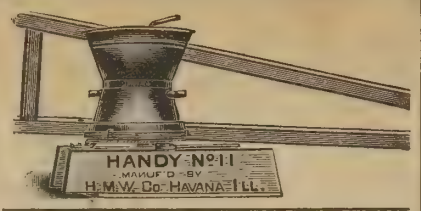
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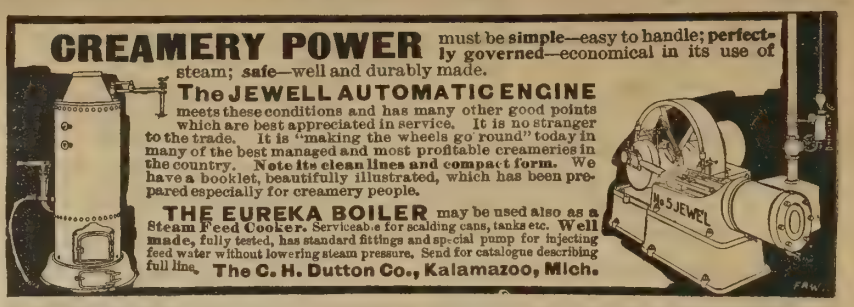
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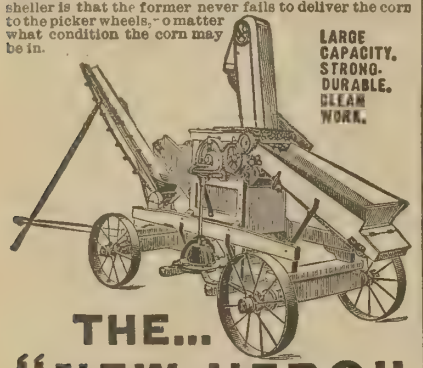
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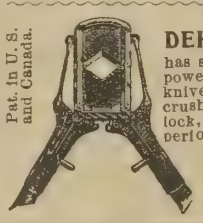
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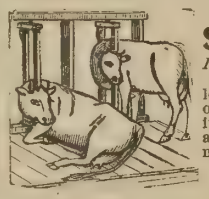
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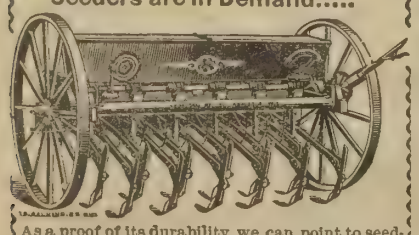
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